Appendix D

Biological Assessment/Opinion

Note: The Section 508 amendment of the Rehabilitation Act of 1973 requires that the information in Federal documents be accessible to individuals with disabilities. The USACE has made every effort to ensure that the information in this appendix is accessible. However, this appendix is not fully compliant with Section 508, and readers with disabilities are encouraged to contact Mr. Jayson Hudson at the USACE at (409) 766-3108 or at SWG201900067@usace.army.mil if they would like access to the information.

Appendix D1

Endangered Species Act Biological Assessment

Appendix D

Biological Assessment/Opinion

Note: The Section 508 amendment of the Rehabilitation Act of 1973 requires that the information in Federal documents be accessible to individuals with disabilities. The USACE has made every effort to ensure that the information in this appendix is accessible. However, this appendix is not fully compliant with Section 508, and readers with disabilities are encouraged to contact Mr. Jayson Hudson at the USACE at (409) 766-3108 or at SWG201900067@usace.army.mil if they would like access to the information.

Appendix D1

Endangered Species Act Biological Assessment

Job No. PCA20166

APPENDIX D

FINAL
BIOLOGICAL ASSESSMENT
FOR THE
PROPOSED CORPUS CHRISTI SHIP CHANNEL DEEPENING PROJECT

Prepared for:

U.S. Army Corps of Engineers

Prepared by:

Freese and Nichols, Inc.
10431 Morado Circle, Suite 300
Austin, Texas 78759

August 2022

Table of Contents

Page

Page

Page

Figures

Page

Tables

Page

Acronyms and Abbreviations

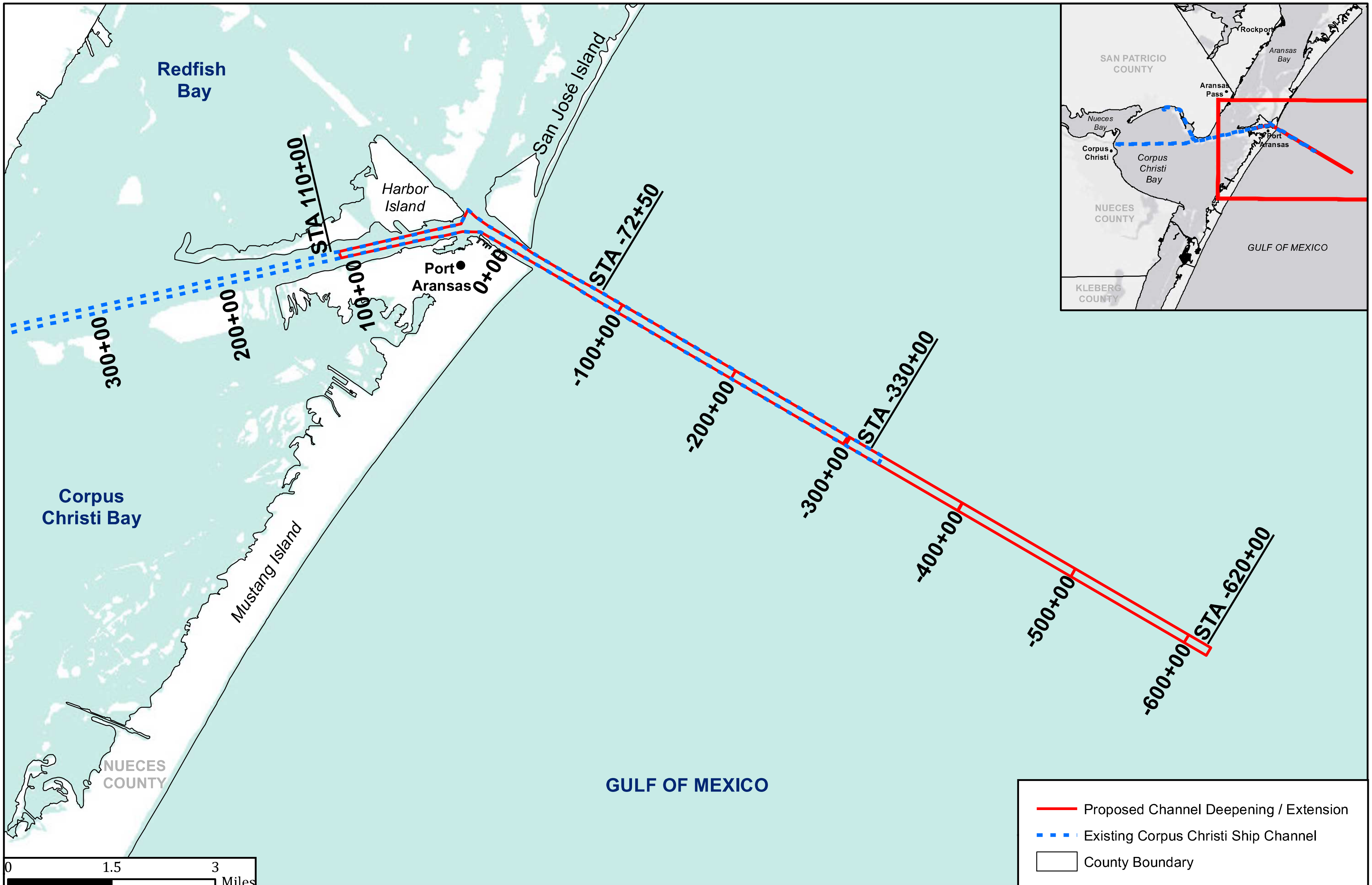
°F	Degrees Fahrenheit
BA	Biological Assessment
CCSC	Corpus Christi Ship Channel
CDP	Channel Deepening Project
CEA	Cumulative Effect Analysis
CFR	Code of Federal Regulations
CWS	Canadian Wildlife Service
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FR	Federal Register
Gulf	Gulf of Mexico
MLLW	Mean Lower Low Water
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NWR	National Wildlife Refuge
PCCA	Port of Corpus Christi Authority
STSSN	Sea Turtle Stranding and Salvage Network
TPWD	Texas Parks and Wildlife Department
USACE	U.S. Army Corp of Engineers
USFWS	U.S. Fish and Wildlife Service
VLCC	Very Large Crude Carrier

1.0 INTRODUCTION

1.1 PURPOSE OF THE BIOLOGICAL ASSESSMENT

This biological assessment (BA) was prepared to fulfill the U.S. Army Corp of Engineers (USACE), Galveston District requirements as outlined under Section 7(c) of the Endangered Species Act of 1973, as amended, for activities related to the proposed channel improvements to the Corpus Christi Ship Channel (CCSC). The proposed Port of Corpus Christi Authority (PCCA) Channel Deepening Project (CDP) is located in Port Aransas, Nueces County, Texas within the existing channel bottom of the CCSC near the southeast side of Harbor Island, and traversing easterly through Aransas Pass and extending an additional 5.5 miles beyond the existing terminus of the channel (Figure 1). The proposed Federal action consists of a channel deepening alternative. This BA evaluates the potential impacts the CDP may have on Federally listed threatened and endangered species listed by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS).

The NMFS and USFWS Information for Planning and Consultation websites were referenced to determine species protected under the Endangered Species Act (ESA) with the potential to occur within the counties of the study area that should be included in this BA. The NMFS website identified six species: Blue Whale (*Balaenoptera musculus*), Fin Whale (*Balaenoptera physalus*), Humpback Whale (*Megaptera novaeangliae*), Sei Whale (*Balaenoptera borealis*), Sperm Whale (*Physeter macrocephalus*), and Giant Manta Ray (*Manta birostris*). The five species of whales receive additional protection under the Marine Mammal Protection Act of 1972 (National Oceanic and Atmospheric Administration [NOAA], 2019). The USFWS website identified the following 16 species as endangered or threatened: Ocelot (*Leopardus pardalis*), West Indian Manatee (*Trichechus manatus*), Northern Aplomado Falcon (*Falco femoralis septentrionalis*), Piping Plover (*Charadrius melodus*), Rufa Red Knot (*Calidris canutus rufa*), Whooping Crane (*Grus americana*), Eastern Black Rail (*Laterallus jamaicensis jamaicensis*), Attwater's Greater Prairie Chicken (*Tympanuchus cupido attwateri*), Green Sea Turtle (*Chelonia mydas*), Hawksbill Sea Turtle (*Eretmochelys imbricata*), Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Leatherback Sea Turtle (*Dermochelys coriacea*), Loggerhead Sea Turtle (*Caretta caretta*), Slender Rush-pea (*Hoffmannseggia tenella*), South Texas Ambrosia (*Ambrosia cheiranthifolia*), and Black Lace Cactus (*Echinocereus reichenbachii var. albertii*) (Attachment 1). There are two mussel species with proposed federal listing as endangered and one insect as a candidate, the False Spike (*Fusconaia mitchelli*) and Guadalupe Orb (*Cyclonaias necki*) are proposed endangered. The Monarch Butterfly (*Danaus plexippus*) is a candidate species for listing. Federally designated Critical Habitat for Piping Plover and proposed Red Knot Critical Habitat are also addressed. Table 1 presents a list of threatened and endangered species addressed in this BA (USFWS, 2022a).



PROJECT NO.
PCA20166

DATE CREATED
Date: 9/7/2021

DATUM & COORDINATE SYSTEM
NAD83 State Plane (feet) Texas South Central

FILE NAME
Name: Fig_1_Project Location Map

PREPARED BY
KLC

Port of Corpus Christi Authority
Corpus Christi Ship Channel Deepening Project

Project Location Map

FIGURE
1

Date Saved: 9/7/2021 11:26:42 AM
Path: H:\ENVIRONMENTAL\Final_Exhibits\BA Figures\Fig_1_Project Location Map.mxd

Table 1
Federally Listed Endangered and Threatened Species within Nueces, San Patricio, Refugio, and Aransas Counties[1]

Common Name	Scientific Name[2]	Status[3] USFWS	Status[3] NMFS
MAMMALS			
Ocelot	*Leopardus pardalis*	E	N/A
Blue Whale	*Balaenoptera musculus*	N/A	E
Fin Whale	*Balaenoptera physalus*	N/A	E
Humpback Whale	*Megaptera novaeangliae*	N/A	E
Sei Whale	*Balaenoptera borealis*	N/A	E
Sperm Whale	*Physeter macrocephalus*	N/A	E
West Indian Manatee	*Trichechus manatus*	T	N/A
FISH			
Giant Manta Ray	*Manta birostris*	N/A	T
BIRDS			
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	E	N/A
Piping Plover	*Charadrius melodus*	T w/CH	N/A
Red Knot (Rufa)	*Calidris canutus rufa*	T w/proposed CH	N/A
Whooping Crane	*Grus americana*	E w/CH	N/A
Eastern Black Rail	*Laterallus jamaicensis jamaicensis*	T	N/A
Attwater's Greater Prairie Chicken	*Tympanuchus cupido attwateri*	E	N/A
REPTILES			
Green Sea Turtle	*Chelonia mydas*	T	T
Hawksbill Sea Turtle	*Eretmochelys imbricata*	E	E
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	E	E
Leatherback Sea Turtle	*Dermochelys coriacea*	E	E
Loggerhead Sea Turtle	*Caretta caretta*	T	T
CLAMS			
False Spike	*Fusconaia mitchelli*	PE	N/A
Guadalupe Orb	*Cyclonaias necki*	PE	N/A
INSECT			
Monarch Butterfly	*Danaus plexippus*	C	N/A
PLANTS			
Slender Rush-pea	*Hoffmannseggia tenella*	E	N/A
South Texas Ambrosia	*Ambrosia cheiranthifolia*	E	N/A
Black Lace Cactus	*Echinocereus reichenbachii var. albertii*	E	N/A

[1] According to the USFWS (2022a) and NOAA (2022a).
[2] Nomenclature follows American Ornithological Society (2020), USFWS (2022a), and NOAA (2022a).
[3] E – Endangered; T – Threatened; PE– Proposed Endangered; C– Candidate; w/CH – with designated Critical Habitat.

The American Peregrine Falcon (*Falco peregrinus anatum*), Arctic Peregrine Falcon (*Falco peregrinus tundrius*), Brown Pelican (*Pelecanus occidentalis*), Interior Least Tern (*Sterna antillarum*), and Bald Eagle (*Haliaeetus leucocephalus*) have been removed from the ESA but continue to receive protection under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act and therefore, not referenced in this BA.

This BA also describes the avoidance, minimization, and conservation measures proposed for this project relative to habitat and species referenced in the BA. The BA is offered to assist the NMFS and USFWS in fulfilling their obligations under the ESA. An Environmental Impact Statement (EIS) has also been prepared to further address the potential effects resulting from the proposed CDP.

For the BA, the study area encompasses a larger area for which environmental effects of the proposed CDP have been analyzed (Figure 2). The study area includes Nueces, San Patricio, Refugio, and Aransas counties. The project area provides spatial boundaries for evaluation of species that may be more-directly impacted by the construction and operation of the proposed project in Nueces and Aransas counties. Therefore, the project area is a smaller area, more immediate to the proposed project features (Figure 3).

1.2 PROJECT AREA HABITAT DESCRIPTION

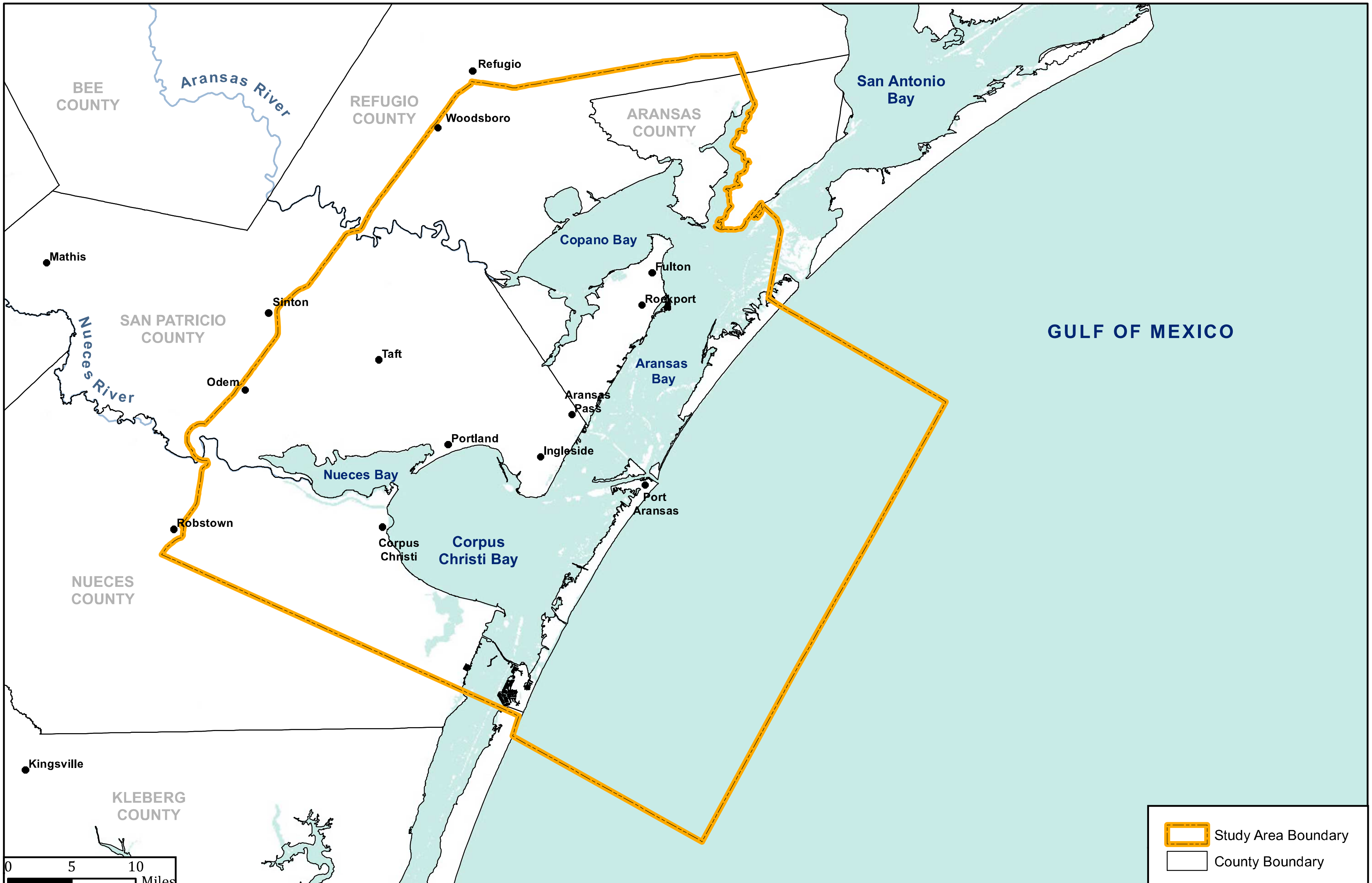
The project area is located within the Tamaulipan biotic provinces (Blair, 1950). The project area is in the Western Gulf Coastal Plains region and includes Mid-Coast Barrier Islands and Coastal Marshes. The project area habitat includes barrier islands, coastal dunes, coastal grasslands, tidal flats, estuaries, fresh to saline marshes, bays, and open water habitats (Griffith et al., 2007).

The project area is located within the Corpus Christi Bay, a 96,000-acre bay on the Texas central coast. The average depth is 11 feet (Texas Parks and Wildlife Department [TPWD], 2021a). The Corpus Christi Bay estuary habitat types include uplands, wetlands, open-bay water, open-bay bottom, sea grass meadows, and intertidal mud flats. Existing habitat within the proposed project footprint includes developed and urbanized land, armored and natural shorelines, beaches, tidal flats, open water, brackish to saltwater wetlands, submerged aquatic vegetation, oyster reefs, uplands, sand dunes, coastal prairie and mud flats (USFWS, 2017a).

1.3 ALTERNATIVES CONSIDERED

1.3.1 No-Action Alternative

The No-Action Alternative provides a means to evaluate the environmental impacts that would occur if the proposed CDP were not constructed. The characterization of the No-Action Alternative provides a baseline for comparison of performance and impacts of the Proposed Action Alternative. Under the No-Action Alternative, the CCSC would not be deepened and would remain at –54 Mean Lower Low Water (MLLW). The CCSC will continue to be maintained and dredged to the approved depth. Very Large Crude



PROJECT NO.	PCA20166
DATE CREATED	Date: 9/7/2021
DATUM & COORDINATE SYSTEM	NAD83 State Plane (feet) Texas South Centra
FILE NAME	Name: Fig_2_Study Area Boundary
PREPARED BY	KLC

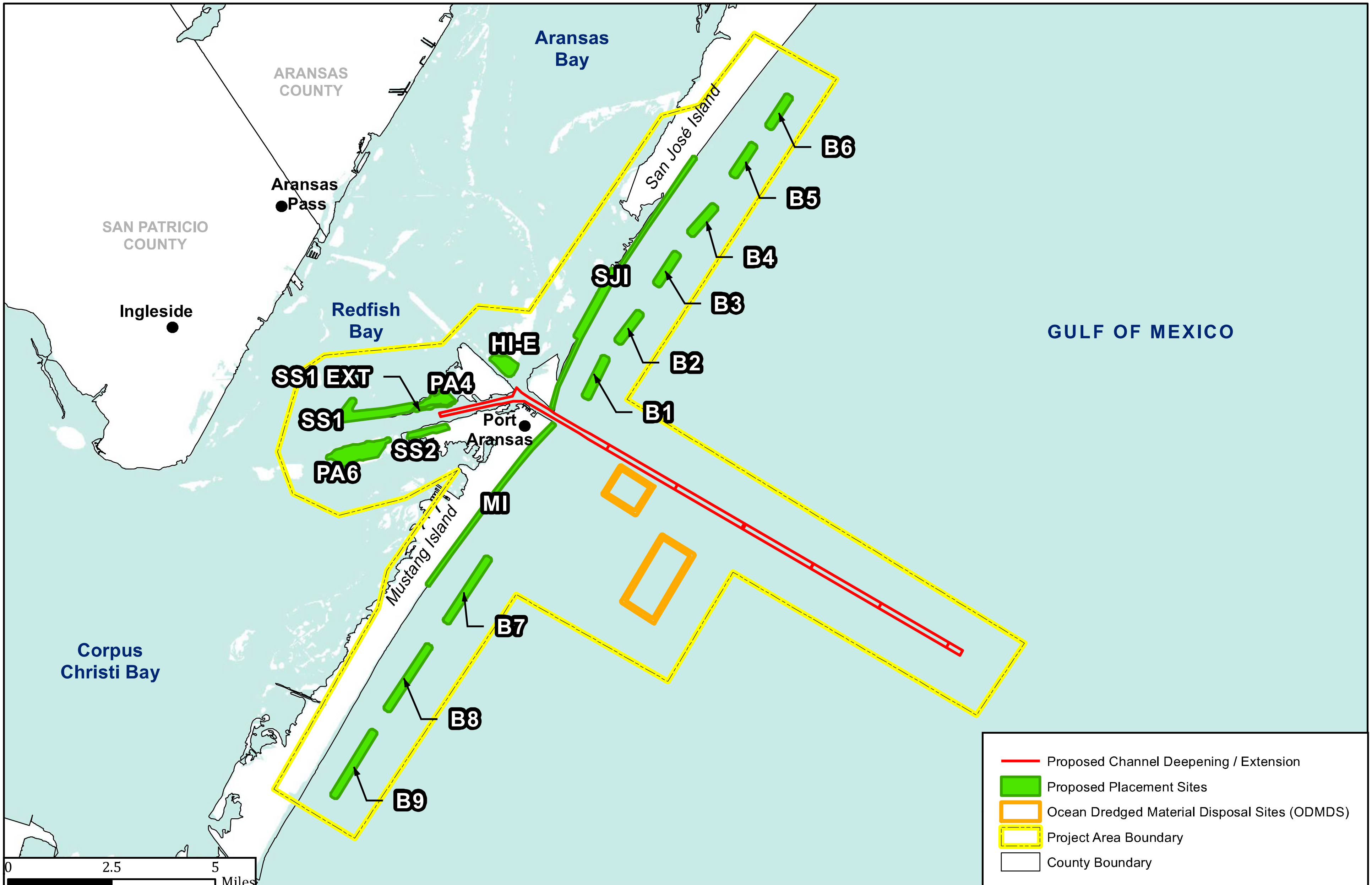
Port of Corpus Christi Authority
Corpus Christi Ship Channel Deepening Project

Study Area Boundary

N W E S

FIGURE 2

Date Saved: 9/7/2021 11:37:29 AM Path: H:\ENVIRONMENTAL\Final_Exhibits\BA Figures\Fig_2_Study Area Boundary.mxd



PROJECT NO. PCA20166

DATE CREATED Date: 1/19/2022

DATUM & COORDINATE SYSTEM NAD83 State Plane (feet) Texas South Central

FILE NAME Name: Fig_3_Project Area Boundary

PREPARED BY KLC

Port of Corpus Christi Authority
Corpus Christi Ship Channel Deepening Project

Project Area Boundary

N W E S

FIGURE 3

Date Saved: 1/19/2022 12:10:56 PM   Path: H:\ENVIRONMENTAL\Final_Exhibits\BA Figures\Fig_3_Project Area Boundary.mxd

Carriers (VLCCs) would continue to be partially loaded and reverse-lightered offshore. The No-Action Alternative does not meet the project purpose and need but is carried forward for detailed analysis in this EIS for comparison purposes.

1.3.2 Alternative 1: Proposed Action Alternative – Channel Deepening

Alternative 1 consists of deepening the CCSC to –75 MLLW from the Gulf of Mexico (Gulf) to station 110+00 near Harbor Island, including the approximate 10-mile extension to the Entrance Channel necessary to reach sufficiently deep waters. Deepening would take place largely within the footprint of the currently authorized –54-foot MLLW channel. Dredging approximately 46.3 million cubic yards would be required with inshore and offshore placement of the material. Under this alternative, only berths at Harbor Island would be capable of fully loading VLCCs. Partially loaded VLCCs at Ingleside could top off at Harbor Island thereby reducing or eliminating reverse lightering. Dredged material would be placed in both inshore PAs (with BU objectives) and offshore at the Ocean Dredged Material Disposal Site.

1.3.3 Alternative 2: Offshore Single Point Mooring

Under Alternative 2, the CCSC would not be deepened to a –75 MLLW and would remain at –54 MLLW. To meet the project purpose, multiple deep-water port facilities (Single Point Moorings) capable of sustaining all projected oil exportation would be constructed. VLCCs would be fully loaded offshore eliminating the need to traverse the channel and reverse-lighter. This alternative would also eliminate dredging of the channel and the impacts associated with dredged material placement.

1.3.4 Alternative 3: Inshore/Offshore Combination

Under Alternative 3, the CCSC would not be deepened to a –75 MLLW and would remain at –54 MLLW. To meet the project purpose, VLCC vessels would be partially loaded at inshore facilities in Ingleside and Harbor Island then traverse the channel to the offshore facility to be fully loaded. This alternative would eliminate the need to reverse-lighter and would also eliminate dredging of the channel and the impacts associated with dredge material placement.

(This page intentionally left blank)

2.0 STATUS OF THE LISTED SPECIES

Species identified by USFWS (2022a) and NMFS (NOAA, 2022a) for this BA are listed in Table 1. The following section present the natural history of each species relevant to its potential occurrence in the counties of the study area. Section 3.0 presents the potential of the proposed actions to affect these species.

2.1 OCELOT

The Ocelot is a small, spotted, feline found within a wide range of habitat from South America to isolated populations in Arizona and south Texas. The Ocelot was Federally listed as endangered by the USFWS in July 1982 (47 *FR* 31670–31672, USFWS, 1982). Ocelots are nocturnal hunters, about twice the size of an average house cat. Threats to the ocelots include habitat loss and fragmentation, loss of genetic diversity, and illegal hunting. Ocelots are nocturnal predators, and their diet consists of small mammals, reptiles, birds, and rodents (USFWS, 2016).

2.1.1 Habitat

Ocelots inhabit a wide range of habitat from thorn scrub woodlands, coastal grasslands in Texas, and tropical forests, rainforests, and cloud forests in its range in South America. Ocelots in Texas require dense vegetation (greater than 75 percent canopy cover) with 95 percent shrub cover. Typical vegetation includes brasil, honey mesquite, granjeno (*Celtis pallida*), and elbowbush (*Forestiera angustifolia*) (USFWS, 2016).

2.1.2 Range and Distribution

Ocelot range extends from southern Texas and southern Arizona through Central America, Ecuador, and Argentina. There are historical records of ocelots in Florida and California. In Texas, recent live trapping and camera surveys found populations of ocelots on the Yturria Ranch and East El Sauz Ranch in Willacy County, the Laguna Atascosa National Wildlife Refuge in Cameron County, and in Jim Wells, Kleberg, and Kenedy counties. In the U.S., they are primarily found in Cameron County, Texas. There are an estimated 19 individual ocelots within the Laguna Atascosa National Wildlife Refuge and 38 total individuals within Cameron County. The USFWS has not designated any Critical Habitat for the Ocelot. Habitat fragmentation and lack of range connectivity is a large concern for populations of ocelots. Many dispersing ocelots are victims of vehicle collisions (USFWS, 2016).

2.1.3 Presence Within the Study Area

Ocelots and their associated habitat are not found within the study area counties (TPWD, 2022). It is highly unlikely that Ocelots occur within the study area.

2.2 BLUE WHALE

The Blue Whale is the largest whale species in the world and can weigh over 330,000 pounds. Blue Whales have long, slender bodies with variable mottling pattern. They are found worldwide and migrate thousands of miles between foraging areas where they feed primarily on krill (NOAA, 2021b).

2.2.1 Habitat

Blue Whales are found in all oceans except for the Arctic Ocean. They primarily occur in waters where krill is concentrated (NOAA, 2021a).

2.2.2 Range and Distribution

Blue Whales migrate seasonally between their summer feeding ground in the polar waters to winter breeding grounds in the equatorial waters. In the North Atlantic, their range extends from the subtropics to Greenland. They occur infrequently in the Gulf and Caribbean Ocean (NOAA, 2021a).

2.2.3 Presence Within the Study Area

There are only two documented records of Blue Whales in the Gulf. The only documented Texas record was an individual stranding between Freeport and San Luis Pass in 1940 (Schmidly, 2004). It is unlikely that the species would be found within the study area.

2.3 FIN WHALE

The Federally listed Fin Whale is the second largest whale in the world. Fin Whales are long and sleek with a V-shaped head and hooked dorsal fin. They were historically hunted but more recently face threats from vehicle collision, habitat degradation, and reduced prey abundance of krill, herring (Clupeidae), cod (Gadidae) and other schooling fishes from overfishing (Schmidly, 2004; NOAA, 2021b).

2.3.1 Habitat

Fin Whales are found in deep offshore waters, away from the coast, in all major oceans (NOAA, 2021b).

2.3.2 Range and Distribution

Fin Whales occur within a wide range of latitude. Most migrate from the feeding areas around the poles during the summer to the warmer waters of the tropics for breeding and calving (NOAA, 2021b).

2.3.3 Presence Within the Study Area

Fin Whales can be found year-round in the Gulf although there has only been one recorded observation near Texas in 1951 (Schmidly, 2004). It is unlikely that the species would be found within the study area.

2.4 HUMPBACK WHALE

The Humpback Whale has one of the longest migration routes of any whale species, travelling as much as 3,000 miles in the span of 36 days. Humpback Whales are primarily black with white markings on their fins, tail, and underbellies. Since the ban on commercial whaling the population of humpbacks have been steadily increasing. They face threats from ship strikes and entanglement in fishing gear (NOAA, 2021c).

2.4.1 Habitat

Humpback Whales are found in all the major oceans. They can be found in deep oceans and close to shore (NOAA, 2021c).

2.4.2 Range and Distribution

Humpback Whales are typically found in high latitude feeding grounds during the warmer months and migrate to tropical waters in the winter. The North Atlantic population of Humpback Whales are found from the Gulf of Maine to Norway during the summers. Humpbacks migrate to the West Indies and Cape Verde in the winter (NOAA, 2021c).

2.4.3 Presence Within the Study Area

The only documented observation of a Humpback Whale in Texas waters was in 1992 near the Bolivar Jetty in Galveston. The species is rare in the Gulf (Schmidly, 2004). This species is unlikely to occur in the study area.

2.5 SEI WHALE

This migratory species can commonly be found in higher latitudes during the summer and equatorial waters in the winter and fall. Individuals are long, sleek with dark blue-gray coloration and mottling. Sei Whales also have a hooked dorsal fin and grooves that extend from their mouth to their bellies. They currently face threats from ship collisions, entanglement with fishing gear, and habitat degradation (NOAA, 2021d).

2.5.1 Habitat

Sei Whales inhabit deeper waters away from the coastline (NOAA, 2021d).

2.5.2 Range and Distribution

Sei Whales are distributed in subtropical, tropical, and subpolar waters of the Atlantic, Indian, and Pacific Ocean. Their migration pattern and breeding grounds are not known (NOAA, 2021d).

2.5.3 Presence Within the Study Area

Sei Whales can be found in the Gulf and Caribbean Sea but no records exist for Texas (Schmidly, 2004). It is unlikely for Sei Whales to occur within the study area.

2.6 SPERM WHALE

Sperm Whales are the largest tooth whales in the world. Sperm Whales are mostly dark gray with a large head and single blowhole. They are proficient divers and often spend most of their time in deep waters feeding. The average dive can last for 35 minutes and can reach depths of over 1,312 feet. Sperm Whales currently face threats from vessel strikes, entanglement on fishing gear, ocean noise, marine debris, and oil spills (NOAA, 2021e).

2.6.1 Habitat

Sperm Whales inhabit deep ocean waters where they dive and feed on squid, sharks, and fish (NOAA, 2021e).

2.6.2 Range and Distribution

Sperm Whales are the most common species of whale in the Gulf. Sightings and stranding have been known to occur along the Texas Gulf (NOAA, 2021e).

2.6.3 Presence Within the Study Area

Although Sperm Whales are known to occur in the Gulf, they typically inhabit deep offshore waters (Schmidly, 2004). The species is common with in the Gulf but would be rare within the study area.

2.7 WEST INDIAN MANATEE

The West Indian Manatee was Federally listed as endangered in 1967 (USFWS, 1967), the manatee was reclassified as threatened in May 2017 (82 *FR* 16668, USFWS, 2017b). Adult manatees are typically 9.8 feet long and can weigh around 2,200 pounds. They have two front flippers and a wide tail. Human threats to the manatee include collisions with boats and ships, entrapment in gillnets and floodgates, poaching, and ingesting marine debris. Natural mortality of manatees is caused by cold stress and outbreaks of red tide caused by algal blooms (USFWS, 2001).

2.7.1 Habitat

West Indian Manatee are found in bays, estuaries, lakes, rivers, and shallow coastal waters. They are intolerant of prolonged exposure to waters cooler than 68 degrees Fahrenheit (°F). During the winter, they seek out and congregate in warmer waters at spring-fed rivers and power plant outfalls. They tend to avoid areas with strong currents. Manatees are herbivores and feed on a variety of submerged, floating, and emergent vegetation (USFWS, 2001). Critical Habitat is designated in Florida, but none have been designated in Texas (USFWS, 2022b).

2.7.2 Range and Distribution

The United States is believed to have the largest population of manatees. Most of the United States population of manatees reside in Florida. During the warm summer months, manatees have been known to migrate towards Rhode Island or Texas. Historically, manatees have been found in the Laguna Madre area. Outside of the United States, West Indian Manatees occur in the Greater Antilles, Trinidad, on the east coast of Mexico and Central America, and along the northern coast of South America (USFWS, 2001).

2.7.3 Presence Within the Study Area

Manatees have historically been an uncommon visitor along the Texas Gulf coast. Although extremely rare, recent records of manatees in Texas exists for Cow Bayou, Copano Bay, Bolivar Peninsula, near Sabine Lake, and at the mouth of the Rio Grande (Schmidly, 2004). Manatee sightings were observed near Rockport as recently as 2004, West Galveston Bay in 2012, and Trinity Bay in 2014 (TPWD, 2004; Rice, 2012; Hooper, 2014). Within the Corpus Christi area, manatees were observed near Shoreline Boulevard in the Corpus Christi Bay in 2009, 2014, and 2019 (Ren, 2019; Dawson, 2019). In 2021, manatees were observed in Laguna Madre and South Padre Island (Aguirre, 2021; Von Preysing, 2021). The USFWS has not designated Critical Habitat for the West Indian Manatee along the Texas coastline (USFWS, 2022b). The occurrence of West Indian Manatees in the study area is possible, but not likely.

2.8 GIANT MANTA RAY

Giant Manta Rays are Federally listed threatened species and are known as the world's largest species of rays. Manta Rays have a large diamond shaped body with black backs, mostly white bellies, elongated pectoral fins and two long lobes which extends from their mouth. Adult Manta Rays can have a wingspan of 29 feet and weigh up to 5,300 pounds. The main threat to Giant Manta Rays is commercial fishing, bycatch, and habitat loss (NOAA, 2021f).

2.8.1 Habitat

Giant Manta Rays are filter feeders and can often be found foraging in shallow coastal waters or open oceans where they feed on zooplankton within the water column. Manta Rays can dive to depths of 3,280 feet (NOAA, 2021f). Nearshore, Manta Rays have been observed along sandy bottom areas, reefs, and seagrass beds (USFWS, 2020a).

2.8.2 Range and Distribution

Giant Manta Rays are migratory and found worldwide in tropical, subtropical, and temperate waters and commonly found offshore and inshore near coastlines. Within U.S. waters, Giant Manta Rays can be found as far north as Long Island, New York, the Gulf, and the Caribbean Islands (NOAA, 2021f). The Flower

Garden Banks National Marine Sanctuary, located approximately 100 miles from the Texas coastline, is habitat and nursery for juvenile Manta Rays (Stewart et al., 2018).

2.8.3 Presence Within the Study Area

Manta Rays are common within the Gulf and around the Corpus Christi area. The Flower Garden Banks National Marine Sanctuary is located approximately 190 miles from the study area. Barring a catastrophic incident, the proposed project would not have any effect on the marine sanctuary or the Manta Ray nursery habitat.

2.9 NORTHERN APLOMADO FALCON

The Northern Aplomado Falcon was Federally listed as endangered in 1986 (51 *FR* 6686, USFWS, 1986). The Northern Aplomado Falcon subspecies is generally larger with a darker cummerbund than other Aplomado Falcons (USFWS, 1990). The number of Aplomado Falcons began to decline through the 1900s. The cause of the Northern Aplomado Falcon decline has been linked to the use of pesticides such as the earlier use of DDT (dichloro-diphenyl-trichloroethane) causing thinning egg shells, habitat loss, the effects of climate change on prey populations, and the increased presence of Great-horned Owls (*Bubo virginianus*), which predate on the falcons (USFWS, 2014a).

2.9.1 Habitat

Habitat for the Northern Aplomado Falcon is typically coastal prairie and desert grasslands. In Texas, the falcons can be found in open honey mesquite, oak (*Quercus* sp.), acacia (*Acacia* sp.) and yucca (*Yucca* sp.) woodlands, grassland savannahs, and coastal prairie dunes. The falcons hunt in pairs over grasslands with low cover and an abundance of small mammals and insects. The Northern Aplomado Falcon pairs prefer nesting on stick platforms abandoned by other raptors and corvids. Breeding pairs have also been known to nest on the ground, and on powerlines, trees, and yucca (USFWS, 2014a). No Critical Habitat has been designated for the Northern Aplomado Falcon (USFWS, 2022b).

2.9.2 Range and Distribution

Historically, the Northern Aplomado Falcon was found from Trans-Pecos and south Texas, southern New Mexico, and southeastern Arizona. In Mexico, the Aplomado Falcons can be found along the Atlantic region of Mexico from northern Veracruz to the Yucatan Peninsula (USFWS, 2014a). Since their listing, there have been reintroduction efforts of Northern Aplomado Falcon in west Texas, the King Ranch in Kleberg County, Matagorda Island, and Laguna Atascosa National Wildlife Refuge (NWR) (TPWD, 2021b). There are established nesting populations in Brownsville and on Matagorda Island in Texas (USFWS, 2014a).

2.9.3 Presence Within the Study Area

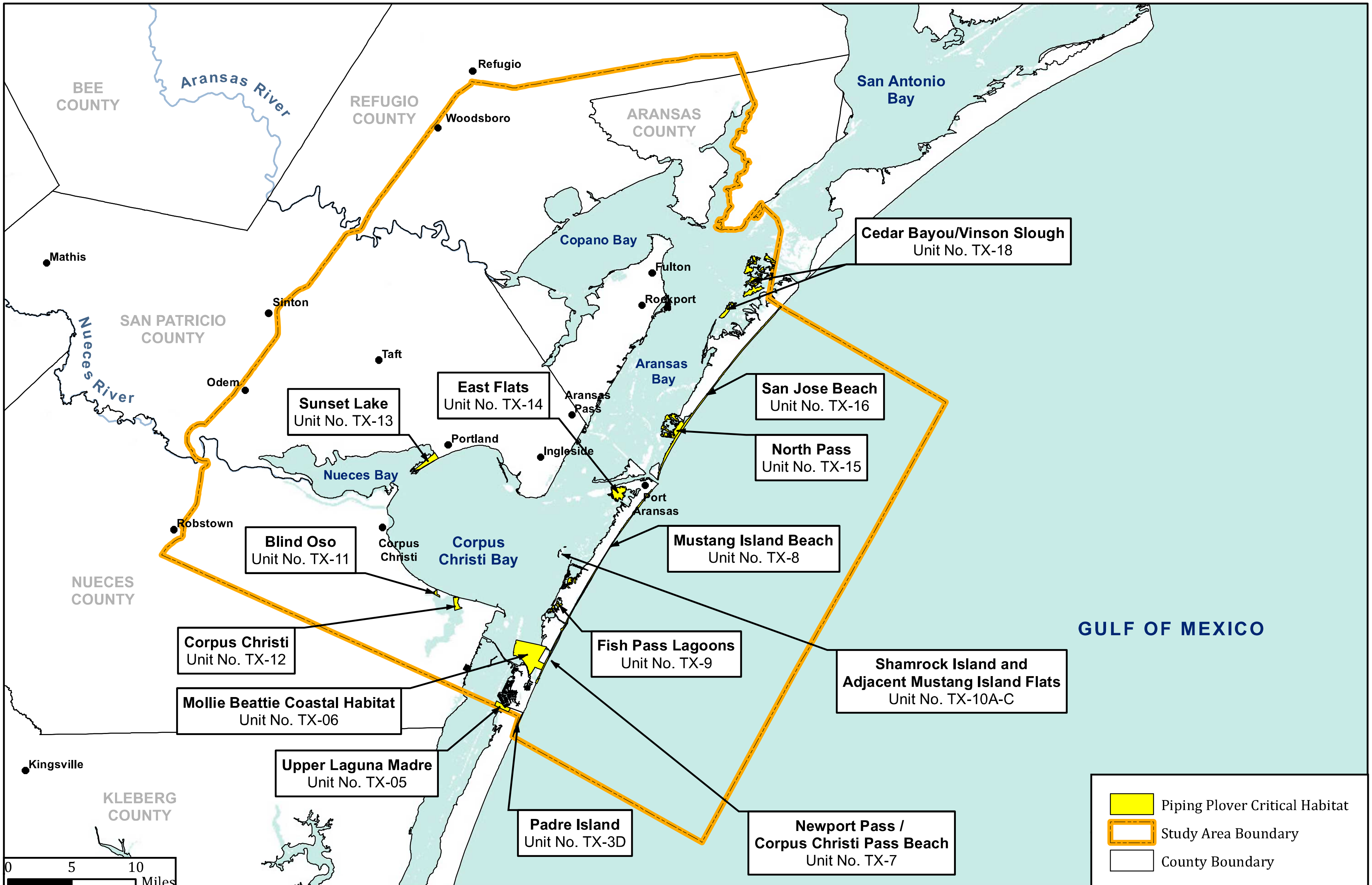
The Northern Aplomado Falcon have been observed within the study area (eBird, 2022a). It is likely populations of Aplomado Falcons occur throughout the study area including Mustang Island, Port Aransas, and San Jose Island. Since the falcons are known to nest on San José and Mustang islands and hunt along upland areas along coastal barrier islands and coast, it is likely that the staging areas, access routes, and dredging or material placement activities along the shoreline will affect the falcons (eBird, 2022a; pers. comm., M.K. Skoruppa [USFWS], 2022).

2.10 PIPING PLOVER

Piping Plovers are small, white to gray-colored shorebirds with a thin, solid black neck band. The Atlantic Coast/Northern Great Plains population was Federally listed as threatened in 1985 (50 *FR* 50726–50734, USFWS, 1985b). Piping Plovers that winter in Texas and Louisiana are from both the Northern Great Plains and Great Lakes populations. Approximately 35 percent of the global population of Piping Plovers winter along the Texas Gulf coast (USFWS, 2003). Piping Plover populations are threatened due to habitat loss and degradation from commercial, residential, and recreational development on the coast. In addition, they are also impacted by wetland drainage, damming and channelization of rivers, and egg depredation by predators (USFWS, 1996).

2.10.1 Habitat

From September to March, Piping Plovers are typically found along the Gulf coast shoreline using beaches, sandflats, tidal mudflats, dunes, and dredge islands as loafing and foraging areas (Haig and Elliott-Smith, 2004). Along their summer range in the Great Lakes, populations were found utilizing sparsely vegetated beaches, sandy substrates, unvegetated dunes, and inter-dune wetlands. The Northern Great Plains Piping Plover population prefer gravelly substrates, alkali lakes, rivers, and reservoirs (USFWS, 2009a). Although all populations winter along the Gulf coast, their summer ranges include the Great Lakes, Northern Great Plains, and Atlantic Coast (USFWS, 1996). There are 14 USFWS-designated Critical Habitats for Piping Plover within the study area (Figure 4). Piping Plover Critical Habitat within the study area include TX-3D: Padre Island, TX-5: Upper Laguna Madre, TX-6: Mollie Beattie Coastal Habitat, TX-7: Newport Pass/Corpus Christi Pass Beach, TX-8: Mustang Island Beach, TX-9: Fish Pass Lagoons, TX-10A-C: Shamrock Island and Adjacent Mustang Island Flats, TX-11: Blind Oso, TX-12: Corpus Christi, TX-13: Sunset Lake, TX-14: East Flats, TX-15: North Pass, TX-16: San José Beach, and TX-18: Cedar Bayou/Vinson Slough (USFWS, 2022b). However, not all designated Critical Habitat listed would be directly affected by project construction or beneficial use.



PROJECT NO.
PCA20166

DATE CREATED
Date: 9/7/2021

DATUM & COORDINATE SYSTEM
NAD83 State Plane (feet) Texas South Central

FILE NAME
Name: Fig_4_Piping Plover

PREPARED BY
KLC

Port of Corpus Christi Authority
Corpus Christi Ship Channel Deepening Project

Piping Plover Critical Habitat

N W E S

FIGURE 4

Date Saved: 9/7/2021 12:09:33 PM   Path: H:\ENVIRONMENTAL\Final_Exhibits\BA Figures\Fig_4_Piping Plover.mxd

2.10.2 Range and Distribution

Piping Plovers breed on the northern Great Plains (Iowa, Minnesota, Montana, Nebraska, North and South Dakota, Alberta, Manitoba, and Saskatchewan), the Great Lakes (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, Wisconsin, and Ontario), and the Atlantic Coast from Newfoundland to Virginia. Wintering grounds are found along the Southern Atlantic and Gulf Coast from North Carolina to Mexico (USFWS, 1986b).

2.10.3 Presence Within the Study Area

There are wintering populations of Piping Plovers that occur within the designated Critical Habitats and study area (eBird, 2022b). Construction activities related to the project could temporarily disturb Piping Plovers during construction. Placement of dredge material could potentially disturb the shorebird along their foraging and roosting habitat. However, beneficial use of dredged material will eventually benefit Piping Plovers by increasing wintering habitat and stabilizing the shoreline.

2.11 RUFA RED KNOT

Red Knots of the *rufa* subspecies (*Calidris canutus rufa*) are medium-sized sandpiper known for their red plumage, bold eye stripe, and long migration route from the arctic to the southern tip of South America, a migratory route of approximately 18,500 miles. The Rufa Red Knot was Federally listed as a threatened species in 2014 (79 *FR* 73705–73748, USFWS, 2014b). Threats to the Rufa Red Knot include habitat loss in wintering and breeding areas, reduction of food sources such as Horseshoe Crab eggs, and climate change (USFWS, 2013a).

2.11.1 Habitat

Along the Texas coast, Rufa Red Knots use coastal marine and estuarine habitats such as large exposed intertidal flats on the bay sides of barrier islands, beaches, and oyster reefs (NatureServe, 2021). Red Knots forage for bivalves, gastropods, and crustaceans on beaches, oyster reefs, exposed bay bottoms (Baker et al., 2013). In the evening, they roost on high sand flats and reefs protected from high winds and tides (NatureServe, 2021). Their nesting grounds in northern Canada are in dry, slightly elevated tundra locations. Nests are scraped patches on low vegetation containing lichen, moss, and leaves (USFWS, 2013a). The USFWS does not have any designated Critical Habitat for the Rufa Red Knot. However, USFWS is considering Critical Habitat designation of coastal habitats along the Atlantic and Gulf. Along the Gulf, this includes Gulf beaches, back bays, flats, and intermittently exposed seagrasses in Texas (USFWS, 2021a).

2.11.2 Range and Distribution

Worldwide, there are six distinct subspecies of Red Knot, each with various morphological differences and distinct migration routes. The migratory route for the Rufa Red Knot ranges from its breeding grounds in northern Canada to Tierra del Fuego on the tip of South America. Rufa Red Knots are found in Texas during the wintering period, arriving in late July and staying on the coast until mid-May (USFWS, 2020b). The wintering population in Texas occurs near Bolivar Flats in Galveston County, Mustang Island, and South Padre Island (USFWS, 2007, 2015a). Estimates for the wintering population of Red Knots in Texas are about 2,000 individuals (USFWS, 2013a, 2015a).

Delaware Bay is the largest and most important spring stopover site. It corresponds with the timing of horseshoe crab (*Limulus polyphemus*) spawning which provides an important diet before their migration to breeding ground in the Arctic. The population of Horseshoe Crabs in Delaware are also declining due to harvesting of eggs for bait and adults for biomedical research. With low prey resources and lower body masses, Red Knots could have difficulty completing their migration to the arctic for nesting (USFWS, 2013a).

2.11.3 Presence Within the Study Area

According to eBird (2022c), wintering populations of red knots are regularly observed within the study area. Populations of Rufa Red Knots could be temporarily disturbed by construction activities related to the project. However, beneficial use of dredged material placement areas is expected to improve roosting and foraging habitats near the study area.

2.12 WHOOPING CRANE

Whooping Crane are the tallest birds in North America and are known for their call, size, and white plumage. They were Federally listed as endangered on March 11, 1967 (32 *FR* 4001, USFWS, 1967). Threats to whooping cranes include habitat loss, powerline collision, illegal hunting, and human disturbances (Canadian Wildlife Service [CWS] and USFWS, 2007). Whooping Cranes have responded positively to recovery efforts since their listing. The Aransas-Wood Buffalo population, which migrates between Canada's Wood Buffalo National Park and Aransas NWR, has increased from less than 50 individuals in 1941 to 506 individuals in 2020 (USFWS, 2020c).

2.12.1 Habitat

The wintering habitat in Texas within the Aransas NWR near Rockport and adjacent areas on the Gulf coast are comprised of salt flats, marshes, and grasslands. Typical vegetation of these habitats includes salt grass (*Distichlis spicata*), smooth cordgrass (*Spartina alterniflora*), Gulf cordgrass (*Spartina spartinae*), and sea ox-eye (*Borrichia frutescens*). The refuge also maintains oak savannahs which contains live oak (*Quercus virginiana*), redbay (*Persea borbonia*), and bluestem (*Andropogon* sp.) as habitat. Whooping Crane winter diet consists of Carolina wolfberry (*Lycium carolinianum*), Blue Crab (*Callinectes sapidus*), and clams (*Tagelus plebeius, Ensis minor, Rangia cuneate, Cyrtopleura costada, Phacoides pectinate, Macoma constricta*) (Allen, 1952; Chavez-Ramirez, 1996). During the summer and migration period, they feed primarily on frogs, crayfish, insects, berries, and fish (USFWS, 2012). The USFWS designated Aransas

NWR and adjacent lands including San Antonio Bay, Mesquite Bay, portions of Matagorda Island, and Espiritu Santo Bay as Critical Habitat (43 *FR* 20942, USFWS, 1978a).

2.12.2 Range and Distribution

Historically, the Whooping Crane was once thought to number 10,000 individuals with a historical range extending from central Mexico to the Arctic coast, and from Utah to New Jersey (CWS and USFWS, 2007). More recently, the population rebounded from an all-time low of 15 individuals in 1941 to 442 wild individuals in 2015 (USFWS, 2012, 2017a). There were several migration routes across the United States from the Central Plains to Louisiana, Hudson Bay in Canada to the Atlantic Coast, and a route alongside Sandhill Cranes through west Texas and into Mexico (CWS and USFWS, 2007). Currently there are several populations of Whooping Cranes in Canada and the United States. There are non-migratory populations in Louisiana and Florida and two migratory populations that winters in central Florida and Texas. The migratory Texas population breeds and nests in Wood Buffalo National Park in northern Alberta, Canada during the summer and flies south to Aransas NWR where they spend the winter (USFWS, 2012).

2.12.3 Presence Within the Study Area

According to eBird (2022d) data, Whooping Cranes have been observed within the study area. Populations of Whooping Cranes could be temporarily disturbed by construction related activities near the shoreline. However, beneficial use of dredged material is expected to stabilize shoreline and protect foraging habitat for the cranes.

2.13 EASTERN BLACK RAIL

The Eastern Black Rail are small black birds with white speckling on their back and wings with long dark legs and red eyes. The species was listed by the USFWS in 2020. Black Rails are threatened by habitat loss, invasive species, changes to hydrology, mangrove encroachment, and habitat fragmentation. Due to its small and cryptic nature, little is known about the species (USFWS, 2020d).

2.13.1 Habitat

Black Rails occupy salt, brackish, and freshwater marshes. The Gulf coast subspecies can be found in higher elevation wetland areas with shrubby vegetation and dense cover. Their habitats included high elevation zones dominated by Gulf cordgrass (*Spartina spartinae*), salt meadow cordgrass (*S. patens*), eastern baccharis (*Baccharis halimifolia*), salt grass (*Distichlis spicata*), and sea oxeye *(Borrichia frutescens*) (USFWS, 2020d).

2.13.2 Range and Distribution

Black Rails are partially migratory and are found within the U.S., Caribbean, and South America. Within the United States, they were historically found in inland states such as Colorado, Arkansas, Nebraska, Oklahoma, and Ohio. Black Rails are found year-round in Texas, Florida, South Carolina, and North

Carolina from March to August (USFWS, 2020d). No Critical Habitat was designated for the species (USFWS, 2022b).

2.13.3 Presence Within the Study Area

It is likely that Eastern Black Rails are found within the study area. There are planned actions that could directly impact coastal marshes where black rails inhabit. Black rails could be temporarily disturbed by construction activities related to the project. However, beneficial use of dredged material is expected to stabilize shorelines and increase marsh habitats.

2.14 ATTWATER'S GREATER PRAIRIE CHICKEN

The Attwater's Greater Prairie Chicken is a subspecies of the Greater Prairie Chicken (*Tympanuchus cupido*). The Attwater's Greater Prairie Chicken was Federally listed as endangered in 1967 (32 *FR* 4001, USFWS, 1967). The birds are well known for their unique mating display where the males congregate at breeding grounds called leks in the springtime. Their mating behavior includes inflating their air sacs and producing low 'booming' calls to attract females. The main threats to the Attwater's Greater Prairie Chicken are loss of grassland prairie habitat, depredation, invasive fire ants, and poor brood survival (USFWS, 2010a).

2.14.1 Habitat

The Attwater's Greater Prairie Chicken require unfragmented tallgrass prairie habitat maintained by periodic wildfires. Common plant species associated in suitable habitat include little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardi*), and switchgrass (*Panicum virgatum*). Optimal habitat contains abundant open spaces and little to no woody cover or artificial structures (USFWS, 2010a). No Critical Habitat has been designated by the USFWS (2022b).

2.14.2 Range and Distribution

Historical accounts of the Attwater's Greater Prairie Chicken suggested a population of more than 1 million individuals on approximately 6 million acres of native coastal prairie from south Texas to Louisiana. Historically found in all counties along the Texas-Louisiana Gulf coast, the prairie chickens were extirpated from Louisiana in 1919. The population of the prairie chickens has steadily decreased from 8,000 individuals in 1937 to approximately 90 individuals in 2009. A small population was introduced to the Texas City Prairie Preserve in 2008, but subsequent reintroduction efforts were discontinued. There are presently only two populations of the Attwater's Greater Prairie Chicken in Texas: Attwaters Prairie Chicken NWR in Colorado County and at release sites in Goliad, Refugio, and Victoria counties (Williams and Harrell, 2009).

2.14.3 Presence Within the Study Area

The prairie chicken current range exist further inland within upland habitats. They are extremely rare outside of their known areas. It is highly unlikely that the Attwater's Prairie Chicken occur within the study area. There is no preferred habitat within the study area.

2.15 GREEN SEA TURTLE

The Green Sea Turtle was Federally listed as threatened in 1978, except for the Florida and the Pacific Coast of Mexico (including the Gulf of California) where it is listed as endangered (43 *FR* 32800–32811, USFWS, 1978b). In 2015, the USFWS identified 11 distinct population segments worldwide (80 *FR* 15272–15337, USFWS, 2015b). The proposed distinct population segments rule would continue to list the North Atlantic Population (which includes Texas) as threatened. Primary threats to worldwide populations of Green Sea Turtle includes harvesting of adults and eggs, capture in fishing gear, and incidental take from dredging activities (NOAA, 2021g).

2.15.1 Habitat

Green Sea Turtle utilize shallow habitats such as lagoons, bays, inlets, coral reefs, shoals, estuaries, and other areas with an abundance of marine algae and sea grasses. Female Green Sea Turtles prefer nesting on high energy beaches with deep sand. Green Sea Turtle nests are common in Texas. National Park Service (NPS) biologists located 28 Green Sea Turtle nests on the Padre Island National Seashore, one on Mustang Island in 2020, and one on South Padre in 2021 (NPS, 2021). Green Sea Turtles are omnivores and consume seagrasses, algae, jellyfish, crustaceans, and mollusks (USFWS, 1991).

2.15.2 Range and Distribution

Green Sea Turtles are found worldwide in tropical and subtropical waters. The North Atlantic population includes species within the U.S. Virgin Islands, Puerto Rico, and the continental United States from Massachusetts to Texas. Many Green Sea Turtles nest on the east coast of Florida while relatively small numbers nest in Georgia, North Carolina, and Texas (USFWS, 1991). The USFWS has not designated any Critical Habitat in Texas (USFWS, 2022b).

2.15.3 Presence Within the Study Area

Green Sea Turtles are common within the Corpus Christi Bay and the study area. Dredging for channel widening and maintenance, overnight lighting, and the increase in turbidity from construction operations could have a negative effect on the species. After the project is complete, vessel traffic is expected to decrease within the CCSC which may result in lower collision rates. Sea turtles may also benefit from having additional beach nesting habitat from beneficial use of dredged materials (beach nourishment), compared to beaches that do not receive nourishment (Gallaher, 2009).

2.16 HAWKSBILL SEA TURTLE

The Hawksbill Sea Turtle was Federally listed as endangered by the USFWS in 1970 (35 *FR* 8491–8498, USFWS, 1970a). The species is named after its distinctive sharp, curved beak and decorative shell. The primary global threat to the species is loss of coral reef habitat and associated communities, recreational use of nesting beaches, capture from fishing nets, and vessel strikes. Because of their unique sunburst carapace, individuals are harvested for their shells as well as for leather, oils, and other goods (NOAA, 2021h).

2.16.1 Habitat

Hawksbill Sea Turtles occupy a variety of different habitat at different life stages. Post-hatchling sea turtles are commonly found in pelagic waters among *Sargassum* rafts in convergence zones. Juvenile and adult hawksbills are more commonly found in coastal waters, estuaries, and mangrove bays where the turtles feed primarily on sponges (USFWS, 1993). The USFWS designated Critical Habitat near Mona Island and Isla Monito in Puerto Rico, no Critical Habitat has been designated in Texas (USFWS, 2022b).

2.16.2 Range and Distribution

Hawksbill Sea Turtles are circum-tropical and found within the Indian, Pacific, and Atlantic oceans. Nesting locations are widely distributed, scattered, low in number, and poorly documented (USFWS, 1998). Along the continental United States, the Hawksbill Sea Turtles can be regularly found in Florida and Texas (USFWS, 1993). Primary nesting areas in the United States are in Puerto Rico, U.S. Virgin Islands, southeast coast of Florida, and the Florida Keys. The first and only Hawksbill Sea Turtle nest in Texas was discovered in 1998 on the Padre Island National Seashore (NPS, 2021).

2.16.3 Presence Within the Study Area

Hawksbill Sea Turtle are common within the study area. Dredging for channel widening and maintenance, overnight lighting, and the increase in turbidity from construction operations could have a temporary negative effect on the species. The turtles may benefit from having improved beach nesting habitat from beneficial use of dredged materials (beach nourishment), compared to beaches that do not receive nourishment (Gallaher, 2009). Vessel traffic is expected to decrease after completion of the project which may result in lower vehicle collision with sea turtles.

2.17 KEMP'S RIDLEY SEA TURTLE

The Kemp's Ridley Sea Turtle was Federally listed as endangered in 1970 (35 *FR* 18319–18322, USFWS, 1970b). They are the smallest known species of sea turtle. Adults are usually 2 feet in length and weigh up to 100 pounds. Threats to the Kemp's Ridley Sea Turtle include collection of eggs and adults for meat and other products, habitat loss, incidental take from shrimp trawlers and dredge hoppers, ship collision, and use of explosives to clear debris (NOAA, 2021i). Populations of nesting Kemp's Ridley Sea Turtles in

Texas have steadily increased due to nest protection and the use of Turtle Excluder Devices on fishing trawlers and dredging ships (USFWS, 2011a).

2.17.1 Habitat

Kemp's Ridley Sea Turtles occupy a variety of habitat at different life stages. Post-hatch sea turtles occupy the oceanic zone, foraging around *Sargassum* rafts, and are passive migrants in the Gulf Loop Current. Juvenile and adult sea turtles are more commonly found in shallow coastal and estuarine waters feeding on crabs, bivalves, jellyfish, and other crustaceans (Campbell, 2003; USFWS, 2011a). The USFWS has not designated any Critical Habitat in Texas (USFWS, 2022b).

2.17.2 Range and Distribution

Kemp's Ridley Sea Turtles are found throughout the Gulf and western Atlantic from New England to eastern Mexico. They gather for nesting in large groups called an "arribada." Kemp's Ridley Sea Turtle nest areas are primarily found on the beaches near Tamaulipas, Veracruz, and Campeche, Mexico (Campbell, 2003). In the United States, nesting occurs throughout Texas with the greatest numbers on the Padre Island National Seashore, and occasionally in Florida, Alabama, Georgia, South Carolina, and North Carolina (USFWS, 2011a). In 2021, 198 Kemp's Ridley Sea Turtle nests were recorded in Texas (NPS, 2021).

2.17.3 Presence Within the Study Area

The likelihood of encountering a Kemp's Ridley Sea Turtle within study area is common. Dredging for channel widening and maintenance, overnight lighting, and the increase in turbidity from construction operations could have a temporary negative effect on the species. Vessel traffic is expected to decrease after completion of the project, which may result in lower vehicle collision with sea turtles. The turtles may benefit from having improved beach nesting habitat from beneficial use of dredged materials (beach nourishment), compared to beaches that do not receive nourishment (Gallaher, 2009).

2.18 LEATHERBACK SEA TURTLE

The Leatherback Sea Turtle was Federally listed as endangered in 1970 (35 *FR* 8491–8498, USFWS, 1970a) by the USFWS and NMFS. They are the largest turtle species in the world, reaching up to 6 feet in length and 650 to 1,200 pounds, and the only sea turtle without a bony shell. Major threats to the species include egg collection, fishing bycatch, and nesting habitat loss (NOAA, 2021j).

2.18.1 Habitat

Leatherback Sea Turtles are pelagic and spend most of their time in open oceans, but forage in coastal waters during nesting season. The turtles feed primarily on jellyfish and tunicates. In the Gulf they commonly feed on cabbagehead (*Stomolophus* sp.) and moon jellyfish (*Aurelia* sp.). Due to their large body mass and insulating fat layer, Leatherback Sea Turtles can be found in colder waters as far north as

Newfoundland and the Pacific northwest and can dive as deep as 4,200 feet (NOAA, 2021j; NPS, 2020a). The USFWS has not designated Critical Habitat for the Leatherback Sea Turtle in Texas (USFWS, 2022b).

2.18.2 Range and Distribution

Leatherbacks have one of the largest migratory distributions of any reptile. They are found in tropical and temperate waters in the Atlantic, Pacific, and Indian oceans. Leatherback Sea Turtles can be found in the Gulf, Puerto Rico, U.S. Virgin Islands, and along the Atlantic coast to Maine. In the United States, leatherbacks nest on Puerto Rico, U.S. Virgin Islands, and southeast Florida (USFWS, 1992). Leatherback nesting in Texas is extremely rare. Leatherback Sea Turtle nests were recorded on Padre Island in the 1930's and 40's. Most recently, a Leatherback Sea Turtle nest was located at Padre Island National Seashore in 2008 (NPS, 2021). No Leatherback Sea Turtle nests have been known to occur anywhere in Texas since then (NPS, 2020a).

2.18.3 Presence Within the Study Area

The likelihood of encountering a Leatherback Sea Turtle within the study area is very rare. Two Leatherback Sea Turtles were stranded in 2020 off the Texas coast and reported in the Sea Turtle Stranding and Salvage Network (STSSN, 2020). There have been documented Leatherback Sea Turtle nests in Texas in 2008 and 2021 (Shaver et al., 2019; pers. comm., Donna Shaver [NPS], 2021). Dredging for channel widening and maintenance, overnight lighting, and the increase in turbidity from construction operations could have a temporary negative effect on sea turtle species. Sea turtles may benefit from having improved beach nesting habitat from beneficial use of dredged materials (beach nourishment), compared to beaches that do not receive nourishment (Gallaher, 2009).

2.19 LOGGERHEAD SEA TURTLE

In 2011, the NMFS and USFWS determined that Loggerhead Sea Turtles were composed of nine distinct population segments. The Northwest Atlantic population segment, which includes Texas, was Federally listed as threatened (76 *FR* 58868–58952, USFWS, 2011b). The Loggerhead Sea Turtle is known for their large head and powerful jaw, which they use to break coral and shellfish. Threats to Loggerhead Sea Turtles include bycatch from shrimp trawling, incidental take from dredging activities, nesting habitat loss, direct harvest, and pollution (NMFS, 2008; NOAA, 2021k).

2.19.1 Habitat

Female Loggerhead Sea Turtles typically nest on high energy, steeply sloped, coarse-grained subtropical beaches in the summer. Post-hatchlings are typically found associated with *Sargassum* rafts in convergence zones within the Gulf and North Atlantic. Juvenile and adult Loggerhead Sea Turtles occupy the neritic zone where they feed primarily on mollusks and benthic crabs (USFWS, 2011b). In 2013, NMFS and USFWS finalized Critical Habitat for the Loggerhead Sea Turtle. The proposed Critical Habitat is located along coastal areas in North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi

(USFWS, 2013b). The USFWS has not designated Critical Habitat for loggerheads in Texas (USFWS, 2022b).

2.19.2 Range and Distribution

Loggerhead Sea Turtles are circumglobal and inhabit temperate and tropical waters of the Atlantic, Pacific, and Indian oceans. In the Atlantic, they can be found as far north as Newfoundland and as south as Argentina (NOAA, 2021k). Two Loggerhead nests were discovered along the Padre Island National Seashore in 2020 and two nests were discovered in 2021 (NPS, 2020b, 2021).

2.19.3 Presence Within the Study Area

The likelihood of encountering a Loggerhead Sea Turtle within the study area is uncommon but possible. According to STSSN (2020), 77 Loggerhead Sea Turtles were stranded or incidentally captured in Texas in 2020. Dredging for channel widening and maintenance, overnight lighting, and the increase in turbidity from construction operations could have a temporary negative effect on the species. The turtles may benefit from having improved beach nesting habitat from beneficial use of dredged materials (beach nourishment), compared to beaches that do not receive nourishment (Gallaher, 2009). Vessel traffic is expected to decrease after completion of the project which may result in lower vehicle collisions with sea turtles.

2.20 FALSE SPIKE

The False Spike is a medium-sized freshwater mussel species proposed by the USFWS for listing as endangered (86 *FR* 47916-48011). The exterior shell shape is elongate-oval; color is olive, brown to black sometimes with greenish rays (Howells, 2014). Host fish include Blacktail Shiners (*Cyprinella venusta*), Red Shiners (*C. lutrensis*), and other minnow species (86 *FR* 47916-48011).

2.20.1 Habitat

The False Spike occurs in larger creeks and rivers with sand, gravel, or cobble substrates with slow to moderate flows. The species is not found in impoundments or deep waters (Howells, 2014).

2.20.2 Range and Distribution

Currently, the False Spike is known to occur in four populations: the Little River and some tributaries within the Brazos River basin, lower San Saba and Llano Rivers within the Colorado River basin, and lower Guadalupe River (Howells, 2014).

2.20.3 Presence Within the Study Area

False Spikes are found further inland and beyond any construction activities or impacts. The mussel species are intolerant of brackish or saline waters. It is unlikely that the False Spike would be found within the study area.

2.21 GUADALUPE ORB

The Guadalupe Orb is a small-sized freshwater mussel species proposed by the USFWS for listing as endangered (86 *FR* 47916-48011). The species was recently separated from the Texas Pimpleback (*C. petrina*). The exterior shell shape is round or suboval and can reach up to 2.5 inches in length. Shell color is yellow to tan, brown to black sometimes with greenish rays or concentric blotches (Howells, 2014). Guadalupe Orb shell is generally thinner and more compressed than Texas Pimpleback. Host fish include Channel Catfish (*Ictalurus punctatus*), Flathead Catfish (*Pylodictis olivaris*), and Tadpole Madtom (*Noturus gyrinus*) (86 *FR* 47916-48011).

2.21.1 Habitat

Guadalupe Orbs occur in moderate to larger creeks and rivers with mud, sand, or gravel substrates at depths less than 2 meters. The species is not found in impoundments (Howells, 2014).

2.21.2 Range and Distribution

The Guadalupe Orb only occurs within the Guadalupe River basin (Howells, 2014).

2.21.3 Presence Within the Study Area

Guadalupe Orbs are found further inland and beyond any construction activities or impacts. The mussel species are intolerant of brackish or saline waters. It is unlikely that the Guadalupe Orb would be found within the study area.

2.22 MONARCH BUTTERFLY

The Monarch Butterfly is a candidate species for federal listing. USFWS has determined that listing the species was warranted, but a timeline on when listing is undetermined (85 *FR* 81813-81822). Adult Monarch Butterflies are large with bright orange wings with black borders and white spots. During the breeding season, monarch butterflies lay their eggs on milkweed (*Asclepias sp*.) plants. Larval caterpillars feed on the milkweed for a few weeks before pupating into a chrysalis and emerging 6-14 days later as an adult butterfly. Due to their short lifespan, there are multiple generations of Monarch Butterflies within a breeding season and along their 3,000-mile migratory route. Monarch migration begins in early spring from February to March (USFWS, 2019).

2.22.1 Habitat

Due to their long migratory routes, monarch butterflies can be found in a variety of habitats. During their breeding season, Monarchs are typically found in open grass areas and plains. Important nectar sources include *Coreopsis* sp., goldenrods (*Solidago* sp.), Asters (*Carlquistia* sp.), gayfeathers (*Latris* sp.), coneflowers (*Echinacea* sp.), and milkweeds (*Asclepias* sp.). Monarchs also utilize deciduous and evergreen trees to roost overnight. Monarch butterflies migrate to Mexico where they overwinter from

August to November. At their overwintering sites, they may roost on eucalyptus trees (*Eucalyptus globulus*), Monterey pines (*Pinus radiata*), and Monterey cypress (*Cupressus macrocarpa*) or narrow-leaved trees such as willows (*Salix* sp.) and pines (*Pinus* sp.) (USFWS, 2019).

2.22.2 Range and Distribution

Monarch butterflies are found throughout North America and in various locations around the globe. The eastern population (east of the Rocky Mountains) in North America migrates north from central Mexico to the US and Canada. The western population migrates from Baja California to northern California (USFWS, 2021b).

2.22.3 Presence Within the Study Area

The eastern population of monarch butterflies can be found throughout Texas during its migratory season. Individuals have been observed along the coast and within the study area. The project is expected to impact monarch butterfly habitat. The monarch butterfly host plant, milkweed is commonly found along the shoreline, therefore upland areas used for staging or access could directly impact Monarch Butterflies and their habitat. However, the project is not likely to jeopardize the continued existence of the candidate species.

2.23 SLENDER RUSH-PEA

The slender rush-pea was Federally listed as endangered in 1985 (50 *FR* 45614–45618, USFWS, 1985c). Slender rush-pea is a small, perennial legume with compound leaves and delicate yellow-orange flowers (TPWD, 2021c). Much of its historical range has been converted to croplands and individuals must compete with non-native grasses such as the Kleberg and King Ranch bluestem (USFWS, 2008). Additional threats to the plant include cattle grazing, herbicide use, habitat loss, and climate change.

2.23.1 Habitat

Slender rush-pea is commonly found in patches of native short- and mid-grass prairie adjacent to permanent or intermittent creeks (USFWS, 2008). There is no Federally designated Critical Habitat for the slender rush-pea.

2.23.2 Range and Distribution

The slender rush-pea is found in two Texas counties, Kleberg and Nueces in coastal prairie habitat. The largest population can be found at the St. James cemetery in Bishop, Texas. There have been no other populations reported outside of the two counties (USFWS, 2008).

2.23.3 Presence Within the Study Area

The slender rush-pea is found in a few well-documented locations within Nueces County, farther inland than any construction related activities. It is unlikely that the project impacts would affect the plant.

2.24 SOUTH TEXAS AMBROSIA

The South Texas ambrosia was Federally listed as endangered in 1994 (59 *FR* 43648–43652, USFWS, 1994). The South Texas ambrosia is a perennial herbaceous plant with gray-green leaves and yellow inflorescence flowers. The primary threat to the south Texas ambrosia is habitat loss, agricultural conversion of prairie, competition with non-native grasses, and urban development (USFWS, 2010b).

2.24.1 Habitat

The South Texas ambrosia is commonly found in lower elevations in well-drained, heavy soils in association with subtropical woodlands with coastal prairies and savannahs. Extant populations are found in sites with native grasses such as Texas grama (*Bouteloua rigidiseta*) and buffalograss (*Buchloe dactyloides*) and maintained with regular mowing and minimal tilling. There is no Federally designated Critical Habitat for the South Texas ambrosia (USFWS, 2010b).

2.24.2 Range and Distribution

Historically, populations of the South Texas ambrosia have been found within Cameron, Jim Wells, Kleberg, and Nueces counties in South Texas, and the state of Tamaulipas in Mexico. More recently, there are six documented sites with the species in fragmented habitats within Kleberg and Nueces counties (USFWS, 2010b).

2.24.3 Presence Within the Study Area

The South Texas ambrosia is presently located inland in Nueces County, away from the coast. Outside of their known sites, the presence of other populations is unknown due to private property restrictions and lack of historical documentation. It is unlikely that South Texas ambrosia is found within the study area.

2.25 BLACK LACE CACTUS

The black lace cactus was Federally listed as endangered in 1979. The black lace cactus is a small columnar-shaped cactus with pink flowers. Individuals can be found with single stem or with multiple branches. The primary threat to the cactus species is habitat loss from brush clearing, collection, and encroachment of non-native grasses (USFWS, 1987)

2.25.1 Habitat

The black lace cactus is found in sandy-loam brush tracts in saline soils (USFWS, 1987). Habitat for the cacti can be found in mesquite brush openings along streams within the coastal plains at low elevation (USFWS, 2009b). The black lace cactus is associated with thorn scrub species such as honey mesquite, huisache (*Acacia farnesiana*) and Texas pricklypear (*Opuntia* sp.). There is no Federally designated critical habitat for the black lace cactus (USFWS, 2022b).

2.25.2 Range and Distribution

The population of black lace cacti are known in only three Texas counties: Jim Wells, Kleberg, and Refugio. All the known populations are found on private lands.

2.25.3 Presence Within the Study Area

The black lace cactus is found in a few well-documented locations within Refugio County, farther inland than any construction related activities. No suitable habitat for the cactus exists within the study area, it is unlikely that the black lace cactus would be affected by the project.

(This page intentionally left blank)

3.0 DIRECT, INDIRECT, AND CUMULATIVE EFFECTS FROM THE PROPOSED PROJECT

This section details the direct, indirect, and cumulative effects of the Proposed Action Alternative described in Section 1.3. Proposed CDP activity includes dredging and fill placement and maintenance dredging. The effects of the proposed CDP on listed species and their habitat include noise, water quality, and habitat modification. Noise, turbidity, and water quality impacts would be short-term and limited to the duration of dredging and construction activities. Conservation measures would be applied to minimize these effects.

3.1 NOISE

Sound waves can be used by fish, sea turtles, and marine mammals to interpret their surrounding environments, detect predators and prey, orient themselves during migration, attract mates, aggregate, engage in territorial behavior, and for acoustic communication. Excessive underwater noise could lead to communication impairment, disturbance, and potentially increase predation, disease, starvation, and death (Peng et al., 2015). Behavioral changes could cause marine species to alter their movements and foraging patterns. On land, noise from construction activity can potentially disturb birds, mammals, and other wildlife. There are a variety of noise from underwater activities associated with the project including from dredging, pile driving, and general construction. Dredge-related noise are produced from the rotating cutterhead, pumps, generators, ship propulsion, and from the sound of the sediment slurry moving through the pipe. Noise from dredging activities is dependent on the type of dredge used. A cutter suction dredge can produce noise from 168 to 175 decibels. A trailing suction hopper dredge can produce noise ranging from 172 to 190 dB (McQueen et al., 2018). Vibratory or impact hammers used to drive piles into the sediment can produce noise up to 180 to 200 dB (NRC, 2012).

Anthropogenic noise can cause auditory masking and changes in individual and social behaviors. Noise impact is expected to be temporary. Disturbed wildlife would be able to move to adjacent habitats and recolonize the project area once construction is completed. For example, manatees have been observed to prefer quieter seagrass beds away from high frequency boat noise above 175 decibles (Miksis-Olds et al., 2007). Construction noise can be reduced by utilizing air bubble curtains, temporary noise attenuation piles, filled fabric barriers, or cofferdams (NRC, 2012). Since the deepening of the channel is expected to decrease vessel traffic throughout the ship channel and Corpus Christi Bay, it is expected that the level of ocean noise within the area will decrease after the completion of the channel deepening project. Offshore vessel traffic and noise is expected to remain generally the same.

3.2 ENTRAINMENT IN DREDGING EQUIPMENT

Operation of hopper dredges, suction dragheads, and relocation trawlers are potential sources of mortality and injury to sea turtles and manatees. Impacts may also include avoidance of the project area from dredging activities for beach nourishment material and marsh fill. To reduce the potential for incidental take, the USACE would adhere to the proposed avoidance and minimization measures provided by NMFS (2007).

The avoidance, minimalization, and conservation measures that would be implemented include onboard observers, physical screening, sea turtle deflecting dragheads and pumps, Sea Turtle Stranding and Salvage Network notification and relocation trawling (more detail in Section 4.8 below) (NMFS, 2007). Stranded or injured marine mammals should be reported to the Texas Marine Mammal Stranding Network. Any harm to individuals would be reported as take.

3.3 TURBIDITY AND RESUSPENDED SEDIMENTS

Dredging, dredge material placement, and construction activity on the water can affect water quality by increasing turbidity within the water column. Generally, the volume of suspended sediments would be highest next to dredging and placement areas. The amount and extent of resuspension is a result of sediment properties, site conditions, obstructions, and operational considerations of the dredging equipment and operator.

Increased turbidity can affect fish, sea turtles, manatees, and shorebirds by interfering with foraging activities, gill tissue or respiratory damage, physical stress, and behavioral changes (Wilber and Clarke, 2001) (see Section 4.2.2 [Aquatic Resources] of the Draft Environmental Impact Statement). The level of impact would be limited to the exposure time and the concentration of suspended sediments. An increase in suspended sediments from dredging may cause sea turtles and marine mammals to alter their movements. Fish, sea turtles, manatees, and other marine mammals are mobile and can relocate to adjacent undisturbed areas (Johnson, 2018). Increases in turbidity would be temporary, lasting only a few days after dredging and placement operations and would not extend far beyond the area of disturbance. Control measures, such as silt curtains, could be used if turbidity levels are excessive. Regular maintenance dredging to maintain the depth of the channel is also expected to cause temporary and localized turbidity.

3.4 DISSOLVED OXYGEN, SALINITY, AND WATER TEMPERATURE

Water quality in the Corpus Christi Bay and along the Texas Gulf coast is highly variable depending on the season, weather, and water depth. Construction activities associated with the project are expected to cause temporary changes to the water quality. Based on hydrodynamic and salinity modeling analysis by W.F. Baird and Associates (2022), minor increases in salinity are anticipated because of Alternative 1 compared to the No-Action. Average salinity levels are anticipated to increase less than 1 parts per thousand in the Corpus, Nueces, Redfish, and Aransas Bays with up to a 3 ppt change at the outlet of Nueces Bay and in the vicinity of the deepened channel. Some localized changes in salinity of less than ±3 ppt in the proposed dredge area and connected navigation channels may occur (W.F. Baird and Associates, 2022). Activities associated with offshore placement and placement actions targeting BU of dredged material are not anticipated to impact salinity levels in the project area. Average salinities in the study area range from 30 to 36 ppt, with dry years having salinity levels above 32 ppt and wet years around 25.5 ppt (Montagna et al., 2021). This minor increase in salinity is not expected to impact fauna as most organisms occupying these environments are ubiquitous along the Gulf coast and can tolerate a wide range of salinities (Pattillo et al., 1997). Temporary decreases in dissolved oxygen associated with dredging activity is anticipated to be localized to the project area and last a couple of days.

3.5 CUMULATIVE EFFECTS

A cumulative impacts assessment takes into consideration the impact on the environment, which results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a given period of time. Impacts include both direct and indirect effects. Direct effects are caused by an action and occur at the same time and place as the proposed action. Indirect effects are caused by the action, occur later in time, and are farther removed in distance; however, they are still reasonably foreseeable. Ecological effects refer to effects on natural resources and the components (including listed species), structures, and functioning of affected ecosystems, whether direct, indirect, or cumulative.

The Proposed Action Alternative would have several effects on listed species. The proposed action would result in temporary and localized increases in turbidity which can reduce sea turtle and shorebirds feeding efficiency. Dredging can also impact sea turtles and manatees with direct impacts. Associated construction noise and light could also affect listed species. By utilizing biological observers or other best management practices, harm to threatened and endangered species can be avoided or minimized. Other methods such as using turtle deflector, turtle excluder devices, relocation trawling, or limiting the use of hopper dredging from December to March can avoid and minimize impacts. Noise related to construction activities such as dredging and pile driving can interfere with acoustic communication and harm auditory organs in wildlife species such as marine mammals, sea turtles and fish. Noise impact is expected to be temporary and localized. Construction noise can be reduced by utilizing air bubble curtains, temporary noise attenuation piles, filled fabric barriers, or cofferdams (NRC, 2012). Any spills can impact several Federally listed species. If it is uncontained, an oil spill can harm wildlife and aquatic species. If not immediately contained, the spill can spread to nearby shorelines and impact sea turtles, shorebirds, and wildlife. Dredging and placement actions may disturb shorebirds such as Piping Plover and Red Knots. Triton Environmental Solutions (2021, 2022) observed Piping Plovers and Red Knots utilizing PAs and BU sites within the project area. Placement actions would temporarily impact foraging grounds and construction activities may disturb shorebirds via lights, turbidity, and noise. Scheduling dredge and placement actions targeting BU outside of the wintering period of listed shorebirds and nesting period for sea turtles can avoid and minimize these disturbances. Additional beneficial use placement actions could potentially benefit Federally listed species such as Piping Plovers and Red Knots by nourishing or restoring habitats. Designated Piping Plover Critical Habitat can be found throughout the project area on Mustang Island, San José Island, Port Aransas, and along Corpus Christi Bay. Placement actions could potentially increase shoreline habitat within designated Critical Habitat on San José Island and Mustang Island. These beach nourishment actions may also benefit nesting sea turtles. Whooping Crane habitat may benefit from placement actions targeting BU as well.

Past, present, and reasonably foreseeable actions with dredging or construction activities, and resultant ship traffic, can potentially impact listed shorebirds, marine mammals, and sea turtles. Noise and light during construction can also result in impacts these species, although these effects would be minor and temporary. If any of these projects undergo construction in timeframes that overlap with the Proposed Action Alternative, there could be minor, temporary, and localized cumulative effects to listed species. Various infrastructure can convert potential habitats for listed species, and any habitat conversions associated with placement actions may contribute to cumulative impacts of habitat loss. Ecosystem restoration initiatives typically yield beneficial effects on listed species, and in conjunction with the proposed actions, PAs could result in beneficial cumulative effects.

Most actions were identified primarily through a comprehensive review of the USACE regulatory permit database for permits within the four counties within the study area (Nueces, San Patricio, Refugio, and Aransas counties). Individual project documents, such as public notices, draft and final Environmental Assessments and EIS's, Records of Decision, newspaper articles, planning documents, and project websites or fact sheets, were also reviewed for impacts to the resource areas. Some of the projects are undergoing revisions that may alter their eventual environmental impact, but it has relied upon the best available information in existing published documents. Table 2 includes the projects included within the Cumulative Effect Analysis (CEA).

Table 2
Past, Present, and Reasonably Foreseeable Projects

Project ID	Project Name	CEA Project Group*	Action Type
1	Bluewater Texas Terminal/Midway Tank Terminal	1	Deepwater Port/ Storage Terminal/Pipeline
2	Texas Gulf Terminals Inc./Laguna Madre and Gulf of Mexico	1	Deepwater Port/Storage Terminal/Pipeline
3	Ingleside Ethylene LLC/La Quinta Channel	2	Ethylene Pipeline Installation
4	Corpus Christi LNG, LLC/Terminal Project	2	Liquid Natural Gas Terminal
5	Cheniere Liquids Terminal LLC/La Quinta Channel	2	Dredging/Boat Slip/Bank Stabilization/Dock
6	Flint Hills Resources/Corpus Christi Ship Channel	2	Maintenance Dredging
7	Moda Midstream/Corpus Christi Ship Channel	2	Dredging/Boat Slip
8	Corpus Christi Liquefaction, LLC/La Quinta Channel	2	Private Navigation Dredging
9	Port of Corpus Christi/La Quinta Channel	2	Container Terminal
10	Oxy Ingleside Energy Center (Moda)/Corpus Christi Bay	2	Commercial Development
11	Plains All American LP/Corpus Christi Terminal	2	Liquid Petroleum Storage Terminal
12	Gulf Coast Growth Venture	2	Petrochemical Complex
13	Newfield Exploration Company/Gas Pipeline	3	Gas Pipeline/Abandonment

Project ID	Project Name	CEA Project Group*	Action Type
14	Infinity Engineering & Consulting/Trilogy Midstream	3	Direction Drill Pipeline
15	Epic Y-Grade Pipeline LP/Robstown to Ingleside	3	Pipeline
16	Corpus Christi Infrastructure LLC/Nueces Bay)	3	Pipeline
17	Enterprise Products Operating LLC/Dean Expansion	3	Pipeline
18	Harvest Midstream/Kinney Bayou	3	Utility Line
19	Flint Hills Resources, LLC/Corpus Christi Ship Channel	3	Pipeline
20	Kiewit Offshore/La Quinta Channel	4	Dredging/Bulkhead
21	AccuTRANS Inc./Corpus Christi Ship Channel	4	Bulkhead/Dredging
22	Corpus Christi Ship Channel Deepening and Widening Project	4	Dredging
23	Corpus Christi Ship Channel Project	4, 5	Dredging/Breakwaters
24	City of Aransas Pass/Conn Brown Harbor	5	Boat Ramp/Dredging/ Pier/Docking Structures
25	PA Waterfront/Corpus Christi Bay	5	Residential Development/ Marina
26	City of Port Aransas/Corpus Christi Ship Channel	5	Rock Revetment
27	City of Port Aransas/Corpus Christi Ship Channel	5	Marina
28	TxDOT Port Aransas Ferry	6	Transportation Project
29	TxDOT/Harbor Bridge/Corpus Christi Ship Channel	6	Transportation/Bridge
30	De Ayala Properties/Redfish Bay	7	Residential Development
31	Pelican Cove Development, LLC	7	Residential Development/Commercial
32	Seven Seas Water Corporation/Harbor Island	8	Desalination Plant
33	Port of Corpus Christi/Corpus Christi Ship Channel	8	Desalinization Plant
34	City of Corpus Christi/Inner Harbor Desal Project	8	Desalinization Plant
35	Texas Parks and Wildlife Department/Dagger Island	9	Breakwater/Bank Stabilization
36	Texas General Land Office/Texas Coastal Resiliency Masterplan	9	various restoration projects and actions
37	Coastal Bays Bend and Estuaries/Various Restoration Projects	9	various restoration projects and actions
38	Axis Midstream/Midway to Harbor Island	2, 3	Storage Terminal/Pipeline
39	South Texas Gateway Terminal LLC/Redfish Bay	2, 4	Dredging/Industrial Development
40	Subsea 7 (US) LLC/Loadout Facility	2, 4	Facilities and Maintenance Dredging

Project ID	Project Name	CEA Project Group*	Action Type
41	Port of Corpus Christi/Harbor Island Terminal	2, 4	Dock/Turning Basin/Terminal
42	City of Corpus Christi/Packery Channel Dredging	4, 9	Maintenance Dredging/ Beach Nourishment

* 1 = Offshore Oil and Gas Terminals; 2 = Onshore Storage and Fabrication Terminals; 3 = Utility, Gas, and Petroleum Pipelines; 4 = Maintenance and Navigation Dredging; 5 = Bulkheads, Breakwaters, Boat Ramps, and Marinas; 6 = Transportation Projects; 7 = Commercial and Recreational Development; 8 = Desalination Facilities; 9 = Ecosystem Restoration

To organize discussions on the cumulative analysis, projects have been compiled into the nine CEA project groups below:

1. Offshore Oil and Gas Terminals
2. Onshore Storage and Fabrication Terminals
3. Utility, Gas, and Petroleum Pipelines
4. Maintenance and Navigation Dredging
5. Bulkheads, Breakwaters, Boat Ramps, and Marinas
6. Transportation Projects
7. Commercial and Recreational Development
8. Desalination Facilities
9. Ecosystem Restoration

Despite the potential for cumulative effects on listed species, most effects from projects are assumed to occur primarily during construction or during routine maintenance activities, and those impacts are typically localized, temporary, and minor. Construction impacts of other projects could contribute to cumulative impacts if actions occur concurrently. If these projects are temporally staggered or spatially distant from one another, cumulative impacts to federally listed species can be lessened. Some projects are also assumed to have permanent impacts associated with their physical footprint, such as noise, air emissions, or induced traffic and growth. Examples of these would include offshore and oil and gas terminals, pipelines, marinas, and fabrication terminals. Technologies or BMPs such as horizonal directional drilling, secondary containment, and chemical spill prevention plans can avoid or minimize these impacts. The cumulative effects of extreme drought conditions, deepened channel and desalinization facilities within the bay can contribute to hydrosalinity gradient impacts.

Beneficial cumulative impacts may be expected when considering the proposed action’s placement areas in combination with restoration actions that are planned within the study area by State and Federal agencies, non-governmental organizations, and private entities. These include actions outlined in the Texas Coastal Resilience Master Plan, Coastal Bay Bends and Estuaries Program, and TPWD Dagger Island restoration projects. Bird islands, beach nourishment, and DMPA will provide additional loafing and nesting habitat for federally listed species such as Piping Plover, Red Knot, and Eastern Black Rail. Restoration actions can result in long term improvements and decrease adverse cumulative impacts.

The Proposed Action Alternative's impacts could contribute to cumulative effects where they overlap with impacts of past, present, and reasonably foreseeable actions. Even though potential temporary and permanent impacts may be associated with past, present, and reasonably foreseeable actions, it is also assumed that these projects were, or would be, implemented in compliance with applicable laws and regulations that exist to avoid and minimize project impacts, particularly Endangered Species Act, Marine Mammals Protection Act, and the Magnuson-Steven's Act.

(This page intentionally left blank)

4.0 CONSERVATION MEASURES

The following conservation measures may be implemented to reduce potential impacts to marine and terrestrial wildlife during construction activities.

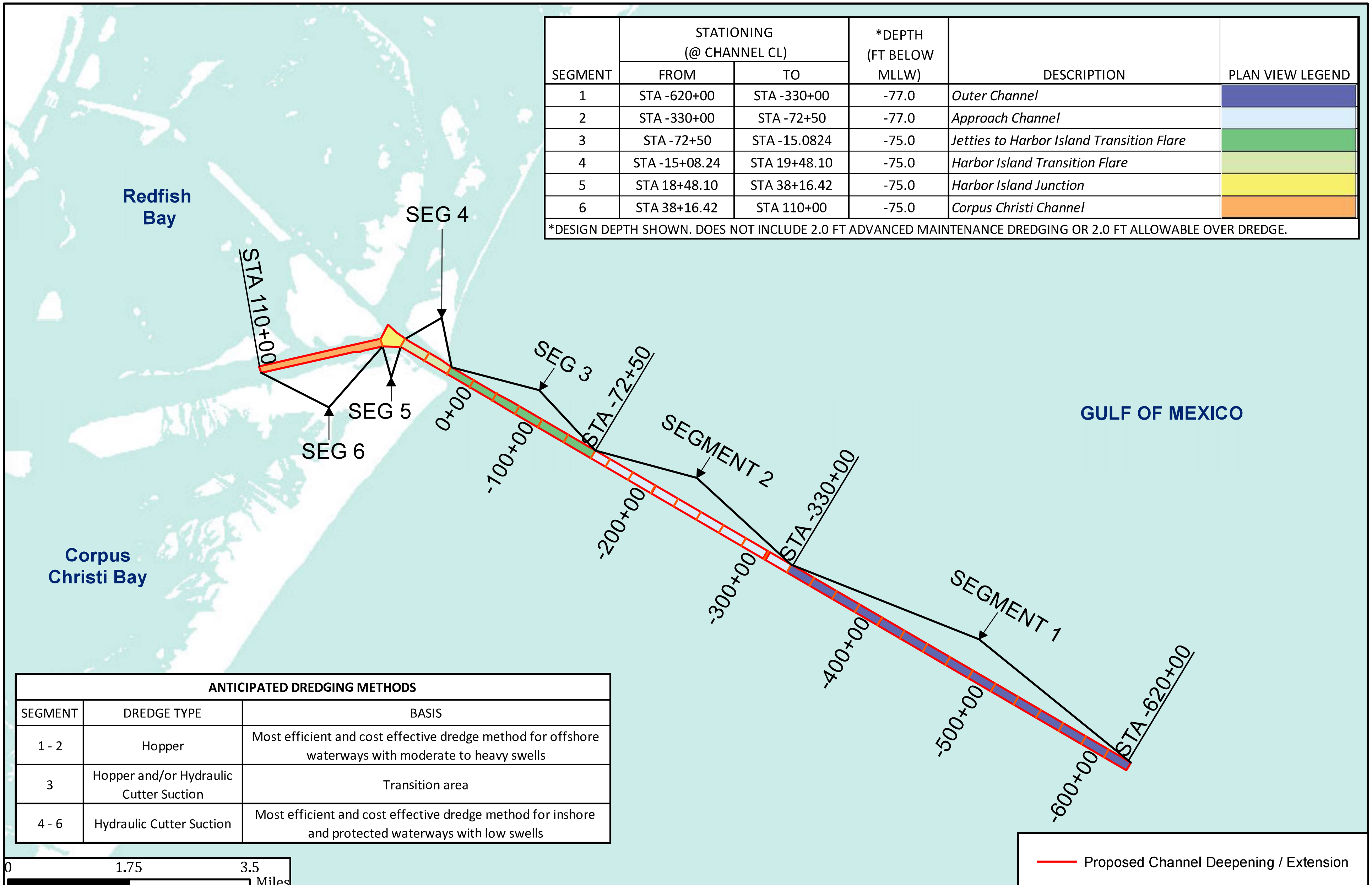
4.1 CHANNEL DREDGING

PCCA intends to use both hopper and hydraulic cutter suction dredges to deepen the channel (Figure 5). Offshore Channel Segments 1 and 2 would be dredged with a hydraulic cutter suction dredge, Channel Segment 3 (within the jetties) may be dredged with either hopper and hydraulic cutter suction dredge (as PCCA has determined both are feasible methods and which one is yet to be determined), and Channel Segments 4 through 6 (inshore segments) would be dredged with hydraulic cutter suction. Additional dredge information, including equipment list, schedule, volumes, methods, and locations, are provided in Attachment 2.

As part of the Proposed Action Alternative, the following conservation measures would be implemented by the PCCA and their contractors to minimize impacts to Federally listed species during beach nourishment activities.

Avoidance measures have been developed to avoid and minimize adverse impacts to Sperm Whales, West Indian Manatees, Giant Manta Rays, and sea turtles from dredging and disposal of dredged material in the Ocean Dredged Material Disposal Site during construction of the CDP. These avoidances include reasonable and prudent measures that have largely been incorporated in USACE regulatory and civil works projects throughout the Gulf for more than a decade. These measures are:

- Training: All contracted personnel involved in operating dredges may receive thorough training (as specified by NMFS or USFWS) on measures of dredge operation that will minimize impacts to Sperm Whales, West Indian Manatees, and sea turtle takes.
- Observers: Typically, the PCCA would arrange for NMFS-approved protected species observers to be aboard the hopper dredges to monitor the hopper bin, screening, and dragheads for sea turtles and their remains. Observer coverage sufficient for 100 percent monitoring (i.e., two observers) of hopper dredging operations will be implemented. If a manatee is sighted, project observers should contact the Texas Coastal Ecological Services Field Office at (361) 533-6765 and the Texas Marine Mammal Stranding Network at 800-962-6625 (800-9MAMMAL).
- Staff and crew should not feed or water manatees. All in-water operations, including vessels, must be shut down if a manatee comes within 50 feet of the operation. Activities would not resume until the manatee has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee has not reappeared within 50-feet of the operation. Animals must not be herded away or harassed into leaving the area.



SEGMENT	STATIONING (@ CHANNEL CL) FROM	TO	*DEPTH (FT BELOW MLLW)	DESCRIPTION	PLAN VIEW LEGEND
1	STA -620+00	STA -330+00	-77.0	*Outer Channel*	
2	STA -330+00	STA -72+50	-77.0	*Approach Channel*	
3	STA -72+50	STA -15.0824	-75.0	*Jetties to Harbor Island Transition Flare*	
4	STA -15+08.24	STA 19+48.10	-75.0	*Harbor Island Transition Flare*	
5	STA 18+48.10	STA 38+16.42	-75.0	*Harbor Island Junction*	
6	STA 38+16.42	STA 110+00	-75.0	*Corpus Christi Channel*	

*DESIGN DEPTH SHOWN. DOES NOT INCLUDE 2.0 FT ADVANCED MAINTENANCE DREDGING OR 2.0 FT ALLOWABLE OVER DREDGE.

ANTICIPATED DREDGING METHODS

SEGMENT	DREDGE TYPE	BASIS
1 - 2	Hopper	Most efficient and cost effective dredge method for offshore waterways with moderate to heavy swells
3	Hopper and/or Hydraulic Cutter Suction	Transition area
4 - 6	Hydraulic Cutter Suction	Most efficient and cost effective dredge method for inshore and protected waterways with low swells

PROJECT NO.
PCA20166
DATE CREATED
Date: 8/5/2022
DATUM & COORDINATE SYSTEM
NAD83 State Plane (feet) Texas South Central
FILE NAME
Name: Fig_5_Dredging Plan
PREPARED BY
KLC

Port of Corpus Christi Authority
Corpus Christi Ship Channel Deepening Project

Proposed Action Alternative
Channel Deepening Dredging Plan

FIGURE 5

Date Saved: 8/5/2022 3:02:11 PM   Path: H:\ENVIRONMENTAL\Final_Exhibits\BA Figures\Fig_5_Dredging Plan.mxd

- Dredge Take Reporting: Observer reports of incidental take by hopper dredges would be submitted by e-mail (takereport.nmfsser@noaa.gov) to NMFS Southeast Regional Office by onboard protected species observers within 24 hours of any observed sea turtle take. Reports would contain information on location, start-up and completion dates, cubic yards of material dredged, problems encountered, incidental takes, and sightings of protected species, mitigative actions taken, screening type, and daily water temperatures. An end-of-project summary report of the hopper dredging results and any documented sea turtle takes would be submitted to NMFS Southeast Regional Office within 30 working days of completion of the dredging project.
- Seasonal Hopper Dredging Window: Hopper dredging activities would be completed between December 1 and March 31 if practicable, when sea turtle abundance is lower throughout Gulf coastal waters.
- Sea Turtle Deflecting Draghead and Dredging Pumps: Typically, a state-of-the-art rigid deflector draghead would be used on hopper dredges at all times of the year. Typically, dredging pumps will be disengaged by the operator when the dragheads are not firmly on the bottom as indicated by sensors to prevent impingement or entrainment of sea turtles within the water column (especially important during dredging cleanup).
- Non-hopper Type Dredging: Hydraulic or mechanical (bucket) dredges, which are not known to take turtles, may be used when possible between April 1 and November 30.
- Cold Stunning Events: Vessel speed will be further reduced during cold weather events that are conducive to wildlife impacts. Occurrences of cold stunning events will be informed by PCCA participation in a regional group of experts led by academic professionals who model weather and water temperatures to give advance warning of potential cold stunning events. PCCA will also have a trained biologist on the vessel observing and monitoring for wildlife to stop operations accordingly during potential cold stunning events.
- Dredge Lighting: From March 15 through October 1, sea turtle nesting and emergence season, all lighting aboard hopper dredges and support vessels operating within three nautical miles of sea turtle nesting beaches would be limited to the minimal lighting necessary to comply with U.S. Coast Guard and Occupational Safety and Health Administration requirements. Non-essential lighting would be minimized through reduction, shielding, lowering, and appropriate placement.
- Relocation Trawling: Typically, relocation trawling would be undertaken by a NMFS-approved protected species observer retained by the PCCA where any of the following conditions are met: (a) two or more turtles are taken in a 24-hour period in the project or (b) four or more turtles are taken in the project. The purpose of the trawling would be to capture sea turtles that may be in the dredge path and relocate them away from the action area. An end-of-project report would be generated upon completion and incorporated into the dredging annual summary report.
- STSSN Notification: PCCA or its representative would notify the STSSN state representative of start-up and completion of dredging and relocation trawling operations. The STSSN would be notified of any turtle strandings in the project area that may bear the signs of interaction with a dredge. Stranded sea turtles would be reported to the Texas sea turtle hotline (1-866-TURTLE5 or 1-866-887-8535). Dredge relevant stranding information would be reported in the end-of-project summary report and end of year annual report.

- Sperm Whales and Giant Manta Rays: Typically, observers would report Giant Manta Ray and Sperm Whale sightings to the NMFS Southeast Region Protected Resources Division. Observations should be photographed and include the latitude/longitude, date, and environmental conditions at the time of the sighting.

4.2 PLACEMENT OF DREDGED MATERIAL

Avoidance measures have been developed to avoid and minimize adverse impacts to Piping Plovers, Red Knots, Eastern Black Rail, Whooping Crane, and nesting sea turtles from placement of dredged material during construction of the CDP. These avoidances include reasonable and prudent measures that have largely been incorporated in USACE regulatory and civil works projects throughout the Gulf for more than a decade. These measures are:

- Species Training and Monitoring – The following measures apply to species training and on-site monitoring during placement of dredged material for beneficial use in beach nourishment and in-water placement and construction activities:
    - The PCCA would ensure all crew members (contractors, work crews, drivers, wildlife monitors, etc.) attend a half-day training session training prior to the initiation of, or their participation in, project work activities. Qualified biologist would conduct training and the scope of training will include: 1) recognition of sea turtles, Eastern Black Rail, Piping Plovers, Whooping Cranes, Northern Aplomado Falcons, and Red Knots, their habitats, and tracks; 2) avoidance and minimization measures; 3) reporting criteria; and 4) contact information for different rescue agencies in the area. Documentation of this training, including a list of attendees, would be submitted to the USACE and USFWS prior to the start of placement of dredged materials, including beach nourishment, and as new members are trained.
- A minimum of one qualified wildlife monitor, separate from the equipment operator, would be assigned to each active work area. The wildlife monitor would inspect the active work areas prior to the start of work and continuously throughout the workday. Wildlife monitors should watch for nesting and foraging Northern Aplomado Falcons near staging areas and access routes. Wildlife monitor qualifications would be submitted to the USACE and USFWS prior to the start of each beach nourishment project.
- The PCCA would provide the USACE with the name of a single point of contact responsible for communicating with the crew and wildlife monitors and reporting on endangered species issues during the life of the project. Typically, wildlife monitors would be on-site to ensure listed species are not affected by placement of dredged materials, including beach nourishment activities.
- Prior to the start of work each day, the PCCA would ensure that the wildlife monitors inspect the work area and surrounding areas before construction begins each morning. Wildlife monitors would communicate all activities to the point of contact and the point of contact would coordinate that information with the USACE and USFWS as required.
- Typically, prior to the start of work each day, all contractors, work crews, drivers, etc., would attend a brief training on the recognition of sea turtles, manatees, Northern Aplomado Falcons,

Piping Plovers, and Red Knots, Whooping Cranes, Eastern Black Rail (and their habitats) and updated on any previous day encounters, if any, with nesting or injured wildlife.

4.2.1 Piping Plovers and Red Knots

The Piping Plovers and Red Knots wintering season begins July 15, extending through May 15. To minimize potential impacts to Piping Plovers, Red Knots, and other migratory birds during beach nourishment activities, the PCCA and their contractors may implement the following measures:

- Wildlife monitors would be on-site to ensure Piping Plovers and Red Knots are not affected during beach nourishment activities. The wildlife monitors will ensure that beach nourishment activities will not begin until Piping Plovers and Red Knots leave the project area.
- Wildlife monitors would typically escort equipment operating on to the beach. Typically, no equipment will be powered on or working until the wildlife monitors are present and the equipment inspections are complete.
- Typically, wildlife monitors would check under and around vehicles and heavy equipment before they are moved. Wildlife monitors should be aware that Piping Plovers and Red Knots are especially vulnerable during periods of cold temperature, inclement weather, and when roosting. Birds are more susceptible to injury or disease during inclement winter weather. Careful consideration of construction activities and monitoring should be considered when winter winds exceed 20 miles per hour and temperature drops below 40 degrees. These conditions can cause the birds to roost to conserve energy. Birds can be found in vehicle ruts or next to debris which can make them difficult to see. Construction workers would immediately notify the point of contact or wildlife monitor if listed species occur in the immediate vicinity of the active work area. If Piping Plovers or Red Knots are found in the active work area, work may be stopped within an area specified by monitors until the birds leaves the construction site. Typically, equipment would remain powered off and all personnel would be vacated from the work area until the bird has left. If the bird does not relocate (e.g., injured bird), the USFWS may be contacted to solicit additional guidance.
- Disturbed areas of the beach (e.g., ruts, tread marks, etc.) would be smoothed out and loosened upon the completion of each workday.

4.2.2 Eastern Black Rail

In Texas, breeding populations of Eastern Black Rails are found along the Gulf Coast from March to August. To minimize potential impacts, the PCCA and their contractors may implement the following Best Management Practices (USFWS, 2022c):

- Where known black rail habitat exists, disturbance activities should be avoided from March 1 to September 30.
- If potential black rail habitat is proposed for removal or impact, a black rail species surveys should be conducted prior to construction activity. The survey period for the species is from March 15 to June 15.

- Limit project activity to daytime hours. If nighttime work is required, lighting in work zones should be limited and turned off when not in use. Permanent lighting should be pointed away from potential black rail habitat, down shielded, and follow Texas Bird City guidelines.
- Black rail habitat should not all be removed within a day. Some pockets of herbaceous cover (refugia, approximately 10 feet by 20 feet) should be maintained. Refugia remaining within the project area may be cleared after two days.
- Biological monitors should ensure that equipment and vehicles moving through potential black rail habitat should follow a sufficiently slow pace to allow birds to escape ahead of equipment. Black rails run to escape oncoming disturbance and are unlikely to fly.
- Revegetation of disturbed areas should use native plants to mimic the local site composition.

4.2.3 Whooping Cranes

To protect Whooping Cranes, which winter in the Action Area and surrounding vicinity between November 1 and April 30; the PCCA and their contractors would lower any equipment (taller than 15 feet) at night. If equipment cannot be laid down at dusk or overnight, then such equipment would be marked using surveyors flagging tape, red plastic balls or other suitable marking devices and lighted during inclement weather conditions when low light and/or fog is present. If a Whooping Crane is observed within 1,000 feet of dredge material placement activities, the PCCA would immediately halt work until the Whooping Crane leaves the area.

4.2.4 Sea Turtles

Peak nesting season for sea turtles begins March 15, extending through October 1. To minimize potential impacts to sea turtles during placement of dredged material, including beach nourishment activities, the PCCA and their contractor may implement the following measures:

- Beach nourishment activities should avoid sea turtle nesting season which goes from March 15 to October 1.
- The PCCA, in coordination with the USACE, would ensure that daily turtle patrols of the proposed beach nourishment area by wildlife monitors are conducted prior to the start of work each day and continuously throughout the workday. No equipment would be powered on or working until the wildlife monitor is present and the equipment inspections are complete.
- If a sea turtle (dead or alive), sea turtle tracks, or nest is located or identified, the siting would be documented, and beach nourishment activities would immediately cease within 100 feet of the nest, tracks, or turtle. The wildlife monitor would then call Padre Island National Seashore at 1-361-949-8173 X 226 or 1-866-TURTLE5 (1-866-887-8535) or the ARK at 361-749-6793.
- Typically, all turtles, turtle tracks, turtle nests, or turtle eggs found during beach nourishment activities would be safeguarded until they can be re-located by properly permitted individual(s).
- Contractors would use the minimum amount of light necessary through reduced wattage, shielding, lowering, and the use of low-pressure sodium lights during project construction to minimize the potential effects of artificial lighting on sea turtles.

4.3 CONSTRUCTION SITE, ACCESS, AND EQUIPMENT FOR BEACH NOURISHMENT ACTIVITIES

Beach nourishment activities would be conducted mechanically by means of trucks, backhoes, front-end loaders, bulldozers, cranes, and ATVs. Other equipment could include a dredge pipe, booster pumps, generators, lighting, and fuel trucks. The following measures may apply to construction access and equipment usage during beach nourishment activities.

- Materials and equipment required for the Proposed Action Alternative would be staged in upland areas and transported as needed to the proposed work sites. Staging areas would be designated before work begins and would be solely within the construction footprint.
- Construction vehicles would access the beach from public roads closest to the work sites to reduce the unnecessary vehicle traffic on the beach.
- Ingress/egress routes would be flagged/marked with wooden laths/stakes to ensure that work activities remain within the approved project work area. These items would be removed once work is complete in designated areas.
- Contractors would coordinate and sequence the work to minimize the frequency and density of vehicular traffic on the beach to the greatest extent practicable. Construction crews and vehicles would avoid the swash zone and the wrack line closest to the swash zone when possible. The swash zone is defined as the area of the beach intermittently covered and uncovered by wave run-up. The wrack line is defined as the vegetative area made up of but not limited to *Sargassum*, shell hash, vegetation, and some light trash, and litter.
- Sand placement areas would be confined to a maximum 1,000-foot-long segment within the active work corridor. Vehicle access corridors could include up to an additional 2,000 feet. Work activities would run parallel to the shoreline and will shift linearly along the work corridor as sections of the beach template are completed to allow for birds to migrate to undisturbed portions of the beach.
- The ends of the 1,000-foot-long segment within the active work area would be clearly marked with orange wooden barricades (or other temporary barriers) for the duration of project construction. Barricades would be shifted down the active work area as work is completed.
- The number of vehicles transiting from upland areas to the active work sites will be kept to a minimum. All vehicles will use the same pathways and access will be confined to the closest access point to the immediate work area. Beach nourishment activities will occur from the landward side of the beach placement area whenever possible.
- Vehicles would adhere to a reduced speed of 15 miles per hour.
- Use of construction lighting at night would be minimized, directed toward the construction activity area, and shielded from view outside of the project area to the maximum extent practicable.

4.4 BEACH-QUALITY SAND AND PLACEMENT

Measures that apply to beach-quality sand placement during beach nourishment activities include:

- Only sand that meets the specifications of the local beach quality sand (i.e., consistent in grain size, color, composition, and mineralogy) and free of hazardous substances (as defined in Volume 40 of the Code of Federal Regulations, Part 302.4) would be used for beach nourishment activities. Detail on sediment testing can be found in Sections 3.2.5 and 4.1.4 of the EIS and is briefly summarized here. The proposed dredge area does not have heavy industry located on its banks and past maintenance material testing has not shown any signs of contamination (Montgomery and Bourne, 2018). Further testing for the CCSCIP ruled out several volatile and semivolatile chemical groups including VOC, ethers, and organonitrogens, and nonvolatiles like dioxin. Testing for the remaining chemicals at the CCSC in the lower bay, Entrance Channel, and proposed channel extension, did not indicate issues with metals, polycyclic aromatic hydrocarbons, pesticides, or other chemical groups. Only beach quality sands from the CCSC should be placed as direct beach nourishment at locations previously breached by Hurricane Harvey.
- Sand would be placed and maintained at a gradual slope to minimize scarping.
- After project construction in an active work zone is complete, the project site would be regraded, and all vehicular ruts leveled.

5.0 EFFECTS ANALYSIS, AVOIDANCE, AND MINIMIZATION

The USACE presents their determination about each species potentially occurring within the study area, using the language recommended by the USFWS:

- *No effect* – The proposed action will not affect a Federally listed species or Critical Habitat;
- *May affect, but not likely to adversely affect* – the project may affect listed species and/or Critical Habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial; or
- *Likely to adversely affect* – effects to the listed species and/or Critical Habitat may occur as a direct result of the proposed action or its interrelated or interdependent actions, and the effects is not discountable, insignificant or completely beneficial. Under this determination, an additional determination is made whether the action is likely to jeopardize the continued survival and eventual recovery of the species.

Following the effect determinations for the project on Federally listed species, the USFWS and NMFS will review the information and complete the Section 7 consultation process under the ESA.

5.1 OCELOT

Ocelots are rare cats found in thornscrub forest of south Texas. The proposed CDP activities are in the bay or along the coast away from their typical habitat. There is no Federally designated Critical Habitat for the species. It would be very rare to find Ocelots along the coastal barrier island or bays. Ocelots are not expected to be impacted by the project.

Effect Determination

The CDP will have no effect on the Ocelot.

5.2 BLUE WHALE, FIN WHALE, HUMPBACK WHALE, SEI WHALE, AND SPERM WHALE

Whales are rare visitors to the Texas Gulf. Isolated observations have been made in recent years along the shallow waters near the coast, but populations of the species remain rare in Texas. Marine mammal species could be impacted by collision with ships, decreased water quality, and disorientation from vessel traffic and sonar. Conservation measures to protect any whales or marine mammals within the construction area would include the use of NMFS-approved observers on dredge vessels, reporting protocols to NMFS, and dredging operational changes (additional information can be found in Section 4.0). However, if incidental take occurs, it would not jeopardize the continued existence or recovery of the species.

Effect Determination

The likelihood of adverse effects, including incidental take, during channel dredging and construction would be greatly reduced by full implementation of avoidance, minimization, and conservation measures outlined above. Of the five species of whales with the potential of occurrence within the project area, only sperm whales are sighted near the Texas coast. Sperm Whales are considered rare within the Gulf. The CDP is expected to decrease the volume of vessel traffic traversing the CCSC. This would lower the risk of a collision between marine mammals and ships within the CCSC. Offshore vessel traffic is expected to remain the same after completion of the project. Therefore, the risk of vessel collision offshore with marine mammals are expected to stay the same. The effect determinations are presented in Table 3. Incidental take, if it occurs, would not jeopardize the continued existence or potential recovery of any of the whale species.

Table 3
Effect Determinations for Whales Relative to the Proposed Action Alternative

Common Name	Scientific Name	Dredging Activity Determination	Placement of Dredged Material Determination
Blue Whale	*Balaenoptera musculus*	No Effect	No Effect
Fin Whale	*Balaenoptera physalus*	No Effect	No Effect
Humpback Whale	*Megaptera novaeangliae*	No Effect	No Effect
Sei Whale	*Balaenoptera borealis*	No Effect	No Effect
Sperm Whale	*Physeter macrocephalus*	May affect, but not likely to adversely affect	May affect, but not likely to adversely affect

5.3 WEST INDIAN MANATEE

West Indian Manatees are uncommon migrants to the Texas Gulf coast. Isolated observations have been made in recent years along the coast, but populations of the species remain rare in Texas. Manatees could be impacted by ship collisions, noise from underwater construction and vessel traffic, incidental take from the operation of dredge hoppers, decreased water quality, and habitat modification. Vessel traffic within the project area is projected to decrease after completion of the CDP compared to the No-Action Alternative. Therefore, the likelihood of injury or mortality from ship collision is expected to decrease. During channel deepening, conservation measures to protect any manatees within the construction area would include the use of NMFS-approved observers on hopper dredges, reporting to USFWS, and dredging operational changes (additional information can be found in Section 4.0). However, incidental take, if it occurs, would not jeopardize the continued existence or recovery of the species.

Effect Determination

The project may affect, but not likely to adversely affect West Indian Manatees.

5.4 GIANT MANTA RAY

Giant Manta Rays are common within the Gulf and around the Corpus Christi Bay area. Giant Manta Rays are found in shallow coastal waters and in open oceans. Manta Rays could be impacted by vessel collision, decreased water quality from dredging, trawling, and habitat modifications. The CDP is expected to decrease the volume of vessel traffic traversing the CCSC. This would in effect, lower the risk of a collision between marine species and ships within the CCSC. During construction, conservation measures to protect Manta Rays within the construction area can include the use of NMFS-approved observers, reporting protocols to NMFS, and best management practices (additional information can be found in Section 4.0).

Effect Determination

The project may affect, but not likely to adversely affect Giant Manta Rays.

5.5 NORTHERN APLOMADO FALCON

There is no designated Critical Habitat for Northern Aplomado Falcons along the Texas coastline. According to eBird data (2022a), Northern Aplomado Falcons have been observed throughout the project area and are known to nest on San José and Mustang islands. Staging areas, access routes, and placement of dredge materials would affect foraging and nesting habitats for the falcons. After construction is completed, falcons are expected to benefit from the stabilized shoreline for additional or improved habitat.

Effects Determination

The proposed project may affect, not likely to adversely affect Northern Aplomado Falcons.

5.6 PIPING PLOVER

Dredging activity offshore or nearshore would not directly impact Piping Plover. The greatest potential for impacts to Piping Plovers would be associated with placement of fill material for beneficial use near potential habitat. Dredge material placement and construction on the beach and in inshore areas could disturb and impact Piping Plover foraging, roosting and loafing areas where they overwinter on the Texas coast. Dredge material placement could bury foraging resources for piping plovers. Wintering Piping Plovers have been observed using uplands for resting between placement areas. A pre-construction survey should be conducted to determine presence or absence of Piping Plovers. Noise from construction operations, placement of sediments on habitat, and earth moving would temporarily disturb individuals and bury some Critical Habitat. Birds would likely become affected by the construction noise and vessel traffic and relocate to adjacent habitats. According to eBird data (2022b), Piping Plovers have been observed throughout the Texas Gulf coast. This includes Federally designated Critical Habitat units TX-6, 7, 8, 14, 15, and 16 where the project area is located (see Figure 4).

Conservation measures include survey for presence or absence prior to construction, construction outside of Piping Plover wintering season, and avoidance of Critical Habitat. Additional information can be found in Section 4.0.

After construction is completed, dredge material placement areas would result in a positive effect on Piping Plovers by increasing the extent of suitable habitat within the project area. Disturbance of Piping Plovers along the project area would not jeopardize the continued existence or the potential recovery of the species.

Effect Determination

The proposed project may affect, likely to adversely affect Piping Plover. The proposed project is not likely to adversely modify federally designated Critical Habitat for Piping Plovers.

5.7 RUFA RED KNOT

Rufa Red Knots would not be directly impacted by open-water dredging. Rufa Red Knots typically utilize large areas of wide exposed intertidal flats, beaches, and oyster reefs similarly used by piping plovers. Rufa Red Knots are anticipated to be directly impacted by placement of sediments, construction activity and noise, and buried foraging resources. Some beneficial use placement actions would impact tidal habitats but would also create or improve tidal habitats. There are proposed Federally designated Critical Habitat associated with Rufa Red Knots at Mustang Island (TX-5), Mollie Beattie Coastal Habitat (TX-6), and North Padre Island (TX-7) which are located within or near the proposed project area (USFWS, 2021a). A survey should be performed prior to construction to determine the presence or absence of Rufa Red Knots within the project area.

After dredge material placement, Rufa Red Knots are expected to benefit from the increased habitat and stabilized shoreline. The disturbance of Rufa Red Knots along the project area would not jeopardize the continued existence or the potential of recovery for the species.

Effect Determination

The proposed project may affect, likely to adversely affect Rufa Red Knot. The proposed project not is likely to adversely modify proposed federally designated Critical Habitat for Rufa Red Knot.

5.8 WHOOPING CRANE

There will be project related construction activities located near Port Aransas, Corpus Christi Bay, and other wintering areas where Whooping Cranes are common. Whooping Cranes may occur in brackish bays, marshes, and salt flats along the mid-Texas coast. Some beneficial use placement actions would impact tidal habitats but would also create or improve tidal habitats. A survey should be performed prior to construction activity to determine the presence or absence of Whooping Cranes within the project area. During dredging activities, noise, and turbidity may indirectly impact wintering Whooping Cranes.

Changes in water quality from dredging and fill placement may also affect the foraging ability of Whooping Cranes in marshes and bays. Impacts from the project are expected to be temporary.

After dredge material placement, Whooping Cranes are expected to benefit from restored marshes and stabilized shorelines for additional or improved foraging and wintering habitat.

Effect Determination

The proposed project may affect, but not likely to adversely affect Whooping Cranes. The proposed project is not likely to adversely modify federally designated Critical Habitat for Whooping Cranes.

5.9 EASTERN BLACK RAIL

Eastern Black Rails may occur in brackish bays, marshes, and tidal wetlands along the mid-Texas coast, and tidal wetlands would be directly impacted by placement actions. Dredging, noise, and turbidity may indirectly impact Eastern Black Rails near tidal marshes. A survey should be performed prior to construction activity to determine the presence or absence of Eastern Black Rails within the project area. Some beneficial use placement actions would impact tidal habitats but would also create or improve tidal habitats. Other impacts from the project are expected to be temporary.

After dredge material placement, Eastern Black Rails are expected to benefit from restored marshes and stabilized shorelines for additional or improved habitat.

Effect Determination

The proposed project may affect, but not likely to adversely affect Eastern Black Rail.

5.10 ATTWATER'S GREATER PRAIRIE CHICKEN

There is no designated Critical Habitat for Attwater's Greater Prairie Chicken along the Texas coast. According to eBird data (2022e), Attwater's Greater Prairie Chickens have not been observed within the project area. Suitable habitat for the prairie chicken is not found within the vicinity of the project.

Effect Determination

The proposed project will have no effect on the Attwater's Greater Prairie Chicken.

5.11 SEA TURTLES

The responsibility for agency coordination on marine reptiles is divided between two Federal agencies: the NMFS for sea turtles in the water and the USFWS for nesting sea turtles. Juvenile and adult sea turtles may be present in the water within the project area during certain times of the year. There are five sea turtle species with the potential to be found in Texas Gulf waters: Hawksbill Sea Turtle, Green Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle, and Loggerhead Sea Turtle.

5.11.1 In-water Impacts

Dredging could result in impacts to the sea turtles, if they are present in the project area. The effects of these construction impacts are expected to be localized and temporary. PCCA intends to use both hopper and hydraulic cutter suction dredges to deepen the channel. Offshore Channel Segments 1 and 2 would be dredged with a hydraulic cutter suction dredge, Channel Segment 3 (within the jetties) may be dredged with either hopper and hydraulic cutter suction dredge (as PCCA has determined both are feasible methods and which one is yet to be determined), and Channel Segments 4 through 6 (inshore segments) would be dredged with hydraulic cutter suction. Additional information on the dredge equipment assembly and estimated dredging totals can be found in Appendix C (Dredge Material Management Plan) of the EIS. Sea turtles can easily avoid mechanical and hydraulic dredges because of the slow (up to 3 miles per hour or 4.4 feet per second) or stationary movement of the vessel (NMFS, 2018). Impacts from a hopper dredge can occur from crushing when the draghead is placed on the sea bottom or when an animal is unable to escape the suction of the dredge and becomes stuck on the draghead (impingement). Entrainment can occur when the organism is sucked through the draghead and injured or killed as they go through the pump into the hopper (NMFS, 2018). When hopper or cutterhead dredges are utilized, additional best management practices would be required to avoid impacts, particularly during cold stunning events (Ramirez et al., 2017). The likelihood of adverse effects during construction can be greatly reduced when avoidance, minimalization, and conservation measures are performed. The potential for incidental take of sea turtles by suction dredges would be minimized using sea turtle observers, relocation trawling, seasonal dredging window, and other conservation measures. Specific triggers for relocation trawling can be found in Section 4.1. Cutter suction and trailing suction hopper dredging has been shown to be less harmful to sea turtles than other dredging methods. However, there have been incidences where cold-stunned sea turtles were unable to move away from the cutterhead or suction head while they are lethargic, dying, or unable to move away from the dredge cutterhead (Ramirez et al., 2017). Sea turtles can become lethargic and less mobile when water temperatures fall below 50°F. Cold stunning can lead to shock, pneumonia, frostbite, and death if the sea turtle is unable to swim to warmer waters (Turtle Island Restoration Network, 2018; Shaver et al., 2017). Cold-stunned turtles can be injured by cutterhead dredging but it rarely occurs and is limited to shallow, confined waters. According to the STSSN, there were 3,912 traditional sea turtle strandings from 2012 to 2022, of which 1,520 were located alive (Attachment 3). Traditional stranding encounters are when dead, sick, or injured sea turtles are found washed ashore, floating, or underwater. Traditional strandings do not typically involve healthy or injured sea turtles (STSSN, 2022). Due to the infrequency of sea turtle interactions with the dredge gear type and channel depths, the possibility of a sea turtle being injured or taken by hydraulic cutter suction or clamshell (mechanical) dredge is low (NMFS, 2014). Between 1995 and 2022, the Galveston District of USACE has recorded 155 incidental takes from dredging of sea turtles along the entire Texas Gulf coast including 72 Green, 58 Loggerhead, and 25 Kemp's Ridley Sea Turtles (Operations and Dredging Endangered Species System, 2022) (Attachment 4). Other types of impacts to sea turtle from dredging activity include noise, increased turbidity, lighting from dredging vessels, resuspension of heavy metal and contaminants, alteration of benthic foraging habitat, and decreased dissolved oxygen around the dredge and placement area. The increased work boat traffic associated with construction activity could potentially increase vessel collision, contaminant spills and debris and trash, which could potentially impact sea turtles. The CDP is expected to decrease the volume of lightering vessel traffic traversing the CCSC and may reduce the number of smaller tankers (e.g., Suezmax, Aframax, Panamax class ships) entering the CCSC altogether. This would lower the risk of a collision between sea turtles and ships within the CCSC.

A summary of avoidance, minimization, and conservation measures to reduce incidental take of sea turtles during dredging operations provided by NMFS (2007) can be found in Section 4.0.

5.11.2 Nesting Impacts

Sea turtle nesting season in Texas extends from March 15 to October 1 (Palmer, 2017). Sea turtles arriving on shore during the nesting season may be impacted by dredge material placement activities. Beach nourishment can affect aspects of a beach, including sand density, shear resistance, moisture content, slope, sand color, grain size, and sand shape. Changes in the physical nature of the beach can in turn affect nest site selection, digging behavior, cultch viability, and hatching emergence (Gallaher, 2009). During the actual dredge material placement activities, sea turtles can be impacted by noise, ship collision, obstruction of the beach from dredge piping, and excess sand over nests (Crain et al., 1995).

Methods such as restricting beach nourishment activities during sea turtle nesting season, testing sand grains before placement, beach tilling to reduce compaction, and grading the beach to its original profile can prevent or reduce impacts to nesting sea turtles (Crain et al., 1995; Gallaher, 2009). Beach nourishment can reduce nesting success for the first season after nourishment but can return to normal levels in subsequent years (Crain et al., 1995). Nesting success is expected to return to pre-nourishment levels following material placement. Brock et al. (2009) found that nesting success for Loggerhead and Green Sea Turtles returned to pre-nourishment rates two seasons after beach nourishment. Beach nourishment is expected to increase available sea turtle nesting habitat. While a Leatherback Sea Turtle nest was located in South Padre Island in 2021, this is the first instance of a viable nest in Texas within 100 years, the likelihood of the species nesting within the project area is extremely low. The likelihood of adverse effects during beach nourishment activities can be greatly reduced if avoidance, minimalization, and conservation measures are performed. A summary of avoidance, minimization, and conservation measures to reduce incidental take of nesting sea turtles can be found in Section 4.0.

Beneficial placement of dredge material can lead to sediment transport of material to the shoreline and an accretion of beachfront habitat. Additional nesting habitat and stabilized shorelines would be available for nesting sea turtles and hatchlings. Constructed beach profile should mimic the natural slope and sand composition (grain size, shell content, etc.) as the original beach to promote sea turtle nesting (Brock et al., 2007). The net benefit from the project will include increased nesting habitat availability, increased submerged aquatic vegetation and foraging habitat, and improved bay and Gulf hydrology (Sea Turtle

Conservancy, 2021). In the absence of the project, habitat quality would continue to diminish over time due to sea level rise.

Effect Determination

The likelihood of adverse effects, including incidental take, during channel dredging and construction would be greatly reduced by full implementation of avoidance, minimization, and conservation measures outlined above during dredging and beach nourishment activities. Leatherback Sea Turtles are less likely to be impacted since they are less likely to occur in the proposed project area. Hawkbill sea turtles would likely be impacted by beach nourishment activities since the species have been observed commonly within the project area (NPS, 2021). The effect determinations are presented in Table 4. Incidental take, if it occurs, would not jeopardize the continued existence or potential recovery of any of the sea turtle species.

5.12 FALSE SPIKE AND GUADALUPE ORB

There are no Federally designated Critical Habitats for the False Spike or Guadalupe Orb within the project area. Freshwater mussels are intolerant of brackish or saltwater and would not be found near the project area. It is highly unlikely that the species would be affected directly or indirectly from channel dredging or construction activity.

Effect Determination

The proposed project will have no effect on the False Spike or Guadalupe Orb.

Table 4
Sea Turtle Effect Determination Relative to the Proposed Action Alternative

Common Name	Scientific Name	Dredging Activity Determination – NMFS	Beach Nourishment Determination – USFWS
Green Sea Turtle	*Chelonia mydas*	Likely to adversely affect	Likely to adversely affect
Hawksbill Sea Turtle	*Eretmochelys imbricate*	Likely to adversely affect	Likely to adversely affect
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	Likely to adversely affect	Likely to adversely affect
Leatherback Sea Turtle	*Dermochelys coriacea*	May affect, but not likely to adversely affect	May affect, but not likely to adversely affect
Loggerhead Sea Turtle	*Caretta caretta*	Likely to adversely affect	Likely to adversely affect

5.13 MONARCH BUTTERFLY

There are no Federally designated Critical Habitats for the Monarch Butterfly. The project area is within the Monarch Butterfly's coastal migration route and contains milkweed, which the species requires for survival. Therefore, upland areas used for staging and access routes could directly impact Monarch Butterflies and their habitat.

Effect Determination

The proposed project action is not likely to jeopardize the continued existence of the candidate Monarch Butterfly.

5.14 SLENDER RUSH-PEA, SOUTH TEXAS AMBROSIA, AND BLACK LACE CACTUS

There are no Federally designated Critical Habitats for the slender rush-pea, South Texas ambrosia, or black lace cactus. Populations of the plant species are well-documented and exist further inland in upland habitats, away from the project area. It is highly unlikely that the species would be affected directly or indirectly from channel dredging or construction activity.

Effect Determination

The proposed project will have no effect on the slender rush-pea, South Texas ambrosia, black lace cactus or their associated habitats.

(This page intentionally left blank)

6.0 SUMMARY

Table 5 presents a summary of effects determination for the Federally threatened and endangered species covered in this BA.

Table 5
Effects Determinations Summary for the Proposed Action Alternative

Common Name	Scientific Name	Effects Determination – USFWS	Effects Determination – NMFS
MAMMALS			
Ocelot	*Leopardus pardalis*	No Effect	N/A
Blue Whale	*Balaenoptera musculus*	N/A	No Effect
Fin Whale	*Balaenoptera physalus*	N/A	No Effect
Humpback Whale	*Megaptera novaeangliae*	N/A	No Effect
Sei Whale	*Balaenoptera borealis*	N/A	No Effect
Sperm Whale	*Physeter macrocephalus*	N/A	May affect, not likely to adversely affect
West Indian Manatee	*Trichechus manatus*	May affect, not likely to adversely affect	N/A
FISH			
Giant Manta Ray	*Manta birostris*	N/A	May affect, not likely to adversely affect
BIRDS			
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	May affect, not likely to adversely affect	N/A
Piping Plover	*Charadrius melodus*	May affect, likely to adversely affect	N/A
Critical Habitat		May affect, not likely to adversely modify	
Red Knot (Rufa)	*Calidris canutus rufa*	May affect, likely to adversely affect	N/A
Whooping Crane	*Grus americana*	May affect, not likely to adversely affect	N/A
Critical Habitat		May affect, not likely to adversely modify	
Eastern Black Rail	*Laterallus jamaicensis jamaicensis*	May affect, not likely to adversely affect	N/A
Attwater's Greater Prairie Chicken	*Tympanuchus cupido attwateri*	No Effect	N/A
REPTILES			
Green Sea Turtle	*Chelonia mydas*	May affect, likely to adversely affect	May affect, likely to adversely affect
Hawksbill Sea Turtle	*Eretmochelys imbricata*	May affect, likely to adversely affect	May affect, likely to adversely affect
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	May affect, likely to adversely affect	May affect, likely to adversely affect

Common Name	Scientific Name	Effects Determination – USFWS	Effects Determination – NMFS
Leatherback Sea Turtle	*Dermochelys coriacea*	May affect, not likely to adversely affect	May affect, not likely to adversely affect
Loggerhead Sea Turtle	*Caretta caretta*	May affect, likely to adversely affect	May affect, likely to adversely affect
CLAMS			
False Spike	*Fusconaia mitchelli*	No Effect	N/A
Guadalupe Orb	*Cyclonaias necki*	No Effect	N/A
INSECT			
Monarch Butterfly	*Danaus plexippus*	May affect, not likely to jeopardize continued existence	N/A
PLANTS			
Slender rush-pea	*Hoffmannseggia tenella*	No Effect	N/A
South Texas ambrosia	*Ambrosia cheiranthifolia*	No Effect	N/A
Black lace cactus	*Echinocereus reichenbachii albertii*	No Effect	N/A

7.0 REFERENCES

Aguirre, P. 2021. Very cool to see: Texas boat captain spots rare manatee off South padre Island. MySA. https://www.mysanantonio.com/lifestyle/travel-outdoors/article/Texas-captain-sees-rare-manatee-South-Padre-Island-16345753.php. July 28, 2021.

Allen, R.P. 1952. The Whooping Crane. National Audubon Society. New York, New York. 274 pg. https://www.savingcranes.org/wp-content/uploads/2008/05/the_whooping_crane_porter_allen2.pdf.

American Ornithological Society. 2020. Checklist of North and Middle American Birds (online), 61st Supplement. Chesser, R.T., K.J. Burns, C. Cicero, J. L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, Jr., D.F. Stotz, B.M. Winger, and K. Winker. http://checklist.aou.org/taxa.

Baker, A., P. Gonzales, R.I.G. Morrison, B. Harrington. 2013. Red Knot (*Calidris canutus*). The Birds of North America Online. (P.G. Rodewald, editor) Cornell Laboratory of Ornithology, Ithaca, New York. https://birdsna.org/Species-Account/bna/species/redkno/introduction.

Blair, W.F. 1950. The Biotic Provinces of Texas. Texas Journal of Science 2:93-117.

Brock, K. A., J. S. Reece, and L. M. Ehrhart. 2007. The Effects of Artificial Beach Nourishment on Marine Turtles: Differences between Loggerhead and Green Turtles. Society for Ecological Restoration International. 11 pg.

Campbell, L. 2003. Endangered and threatened animals of Texas: Their life history and management. Endangered Resource Branch, Texas Parks and Wildlife Department, Austin.

Canadian Wildlife Service and U.S. Fish and Wildlife Service (USFWS). 2007. International Recovery Plan for the Whooping Crane (*Grus Americana*), third revision. Ottawa: Recovery of Nationally Endangered Wildlife (RENEW), and USFWS, Albuquerque, New Mexico. 162 pp.

Chavez-Ramirez, F. 1996. Food availability, foraging ecology, and energetics of Whooping Cranes wintering in Texas (Doctoral dissertation, Texas A&M University).

Crain, D.A., Bolten, A.B., and K.A. Bjorndal. 1995. Effects of Beach Nourishment on Sea Turtles: Review and Research Initiatives. Restoration Ecology, Vol. 3 No. 2, pp. 95-104.

Dawson, P. 'Molly' the manatee spotted in Galveston Bay, third sighting along the Texas coast within a month. *Houston Chronicle*. August 2, 2019.

eBird. 2022a. Aplomado Falcon interactive species range map. https://ebird.org/map/aplfal?neg=true&env.minX=172.946751148604&env.minY=-52.67425887928406&env.maxX=150.446751148604&env.maxY=64.4885016720171 8&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=last10&byr=2008&eyr=2018.

———. 2022b. Piping plover interactive species range map. https://ebird.org/map/pipplo?neg=true&env.minX=-141.350123851396&env.minY=-16.685462703879004&env.maxX=27.399876148603994&env.maxY=49.23423386346209&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=last10&byr=2008&eyr=2018.

———. 2022c. Red knot interactive species range map. https://ebird.org/map/redkno?neg=true&env.minX=-141.350123851396&env.minY=-16.685462703878965&env.maxX=27.399876148603994&env.maxY=49.23423386346209&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=last10&byr=2008&eyr=2018.

———. 2022d. Whooping Crane interactive species range map. https://ebird.org/map/whocra?neg=true&env.minX=-141.350123851396&env.minY=-16.685462703878965&env.maxX=27.399876148603994&env.maxY=49.23423386346209&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=last10&byr=2008&eyr=2018.

———. 2022e. Greater Prairie Chicken (Attwater's) interactive species range map. https://ebird.org/map/attprc1?neg=true&env.minX=-97.78005178347627&env.minY=27.97123786333495&env.maxX=-96.02223928347627&env.maxY=28.705644843192832&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=last10.

Federal Register (FR). 2020. Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Monarch Butterfly. 85 Fed. Reg. 81813-81822 (December 17, 2020).

———. 2021. Endangered and Threatened Wildlife and Plants; Endangered Species Status with Critical Habitat for Guadalupe Fatmucket, Texas Fatmucket, Guadalupe Orb, Texas Pimpleback, and False Spike, and Threatened Species Status with Section 4(d) Rule and Critical Habitat for Texas Fawnsfoot. 86 Fed. Reg. 47916- 48011 (August 26, 2021)

Gallaher, A.A. 2009. The Effects of Beach Nourishment on Sea Turtle Nesting Densities in Florida. Dissertation for Degree in Doctor of Philosophy – University of Florida. https://nsgl.gso.uri.edu/flsgp/flsgpy09003.pdf.

Griffith, G., S. Bryce, J. Omernik, A. Rogers. 2007. Ecoregions of Texas. Corvallis, OR. 134 pg. http://ecologicalregions.info/htm/pubs/Txeco_Jan08_v8_Cmprsd.pdf.

Haig, S.M., and E. Elliott-Smith. 2004. Piping Plover (*Charadrius melodus*). The Birds of North America Online. (A. Poole, editor) Cornell Laboratory of Ornithology, Ithaca, New York. https://birdsna.org/Species-Account/bna/species/pipplo/.

Hooper, B. 2014. Manatee Makes Rare Visit to Texas Waters. *United Press International* Web. 25 November 2014.

Howells, R.G. 2014. Field Guide to Texas Freshwater Mussels of Texas. BioStudies, Kerrville, Texas.

Johnson, A. 2018. The Effects of Turbidity on Suspended Sediments on ESA-Listed Species from Projects Occurring in the Greater Atlantic Region. Greater Atlantic Region Policy Series 18-02. NOAA Fisheries Greater Atlantic Regional Fisheries Office-https://www.greateratlantic.fisheries.noaa.gov/policyseries/index.php/GARPS/article/view/8/8.

McQueen, A.D., Suedel, B.C., Wilkens, J.L., and M.P. Fields. 2018. Evaluating biological effects of dredging-induced underwater sound. Proceedings of the Western Dredging Association Dredging Summit & Expo. https://westerndredging.org/phocadownload/2018_Norfolk/Proceedings/4b-1.pdf. 12 pg.

Miksis-Olds, J. L., Donaghay, P. L., Miller, J. H., Tyack, P. L., & Nystuen, J. A. 2007. Noise level correlates with manatee use of foraging habitats. The Journal of the Acoustical Society of America, 121(5), 3011-3020. https://doi.org/10.1121/1.2713555.

Montagna, P.A., D.M. Coffey, R.H. Jose, and G. Stunz. 2021. Vulnerability Assessment of Coastal Bend Bays. Final Report 2120 for the Coastal Bend Bays and Estuaries Program. Texas A&M University, Corpus Christi, Texas. 56 pp.

National Marine Fisheries Service (NMFS). 2007. Revision 2 to the National Marine Fisheries Service November 19, 2003, Gulf of Mexico Regional Biological Opinion (GRBO) to the U.S. Army Corp of Engineers (COE) on Hopper Dredging of Navigation Channels and Borrow Areas in the U.S. Gulf of Mexico (January 9, 2007). Southeast Regional Office, St. Petersburg, Florida. http://www.saj.usace.army.mil/Portals/44/docs/Planning/EnvironmentalBranch/EnviroCompliance/GRBO_2007rev2[508].pdf.

———. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*). Silver Spring, Maryland. 325 pp. https://ecos.fws.gov/docs/recovery_plan/090116.pdf.

———.2014. Endangered Species Act- Section 7 Consultation for Brazos Island Harbor Channel Improvement Project, Final Biological Opinion. NMFS Consultation No. SER-2013-11766. St. Petersburg, FL. 208 pg.

———. 2018. Construction and Maintenance of Chesapeake Bay Entrance Channels and use of sand borrow areas for beach nourishment, F/NER/2018/14816, GARFO-2018-00353. Greater Atlantic Regional Fisheries Office.

National Oceanic and Atmospheric Administration (NOAA). 2019. Marine Mammal Protection Act (MMPA) of 1972 as Amended. http://mmc.gov/wp-content/uploads/MMPA_March2019.pdf.

———. 2021a. Blue Whale. https://www.fisheries.noaa.gov/species/blue-whale.

———. 2021b. Fin Whale. https://www.fisheries.noaa.gov/species/fin-whale.

———. 2021c. Humpback Whale. https://www.fisheries.noaa.gov/species/humpback-whale.

———. 2021d. Sei Whale. https://www.fisheries.noaa.gov/species/sei-whale.

———. 2021e. Sperm Whale. https://www.fisheries.noaa.gov/species/sperm-whale.

———. 2021f. Giant Manta Ray. https://www.fisheries.noaa.gov/species/giant-manta-ray#overview.

———. 2021g. Green Turtle. https://www.fisheries.noaa.gov/species/green-turtle.

———. 2021h. Hawksbill Turtle. https://www.fisheries.noaa.gov/species/hawksbill-turtle.

———. 2021i. Kemp's Ridley Turtle. https://www.fisheries.noaa.gov/species/kemps-ridley-turtle.

———. 2021j. Leatherback Turtle. https://www.fisheries.noaa.gov/species/leatherback-turtle.

———. 2021k. Loggerhead Turtle. https://www.fisheries.noaa.gov/species/loggerhead-turtle.

———. 2022. ESA Threatened & Endangered. https://www.fisheries.noaa.gov/species-directory/threatened-endangered?title=&species_category=any&species_status=esa_ endangered&regions=1000001121&items_per_page=25&sort=.

National Park Service (NPS). 2020a. Leatherback. https://www.nps.gov/pais/learn/nature/ leatherback.htm.

———. 2020b. Loggerhead. https://www.nps.gov/pais/learn/nature/loggerhead.htm.

———. 2021. Current Sea Turtle Nesting Season. https://www.nps.gov/pais/learn/nature/current-nesting-season.htm.

NatureServe Explorer. 2021. *Calidris canutus*. NatureServe, Arlington, Virginia. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.100057/Calidris_canutus.

Nuclear Regulatory Commission. 2012. Biological Assessment Preparation: Advanced Training Manual Version 02-2012, Part 2 – Construction Noise Impact Assessment. https://www.nrc.gov/docs/ML1225/ML12250A723.pdf. 72 pg.

Operations and Dredging Endangered Species System. 2022. District Annual Summary Report: Projects and Takes. https://dqm.usace.army.mil/odess/#/annualSummary.

Palmer, S. 2017. Sea Turtle Nesting Season Begins on the Texas Coast. University of Texas at Austin: Marine Science Institute: College of Natural Science, Highlights newsletter. https://utmsi.utexas.edu/blog/entry/turtlenesting. March 30, 2017.

Pattillo, M.E., T.E. Czapla, D.M. Nelson, and M.E. Monaco. 1997. Distribution and abundance of fishes and invertebrates in Gulf of Mexico estuaries. Vol. II: Species life history summaries. ELMR Rep. No. 11. NOAA/NOS Strategic Environmental Assessment Div. Silver Spring, Maryland. 377 pp.

Peng, C., X. Zhao, and G. Liu. 2015. Noise in the Sea and Its Impacts on Marine Organisms. International Journal of Environmental Research and Public Health. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4626970/pdf/ijerph-12-12304.pdf.

Ramirez, A., C.Y. Kot, and D. Piatkowski. 2017. Review of Sea Turtle Entrainment Risk by Trailing Suction Hopper Dredges in the US Atlantic and Gulf of Mexico and the Development of the ASTER Decision Support Tool. U.S. Department of the Interior: Bureau of Ocean Energy Management. Sterling, VA. 275 pp. https://espis.boem.gov/final%20reports/5652.pdf.

Ren, V. 2109. Rare Texas manatee sighting reported last week. *Austin American Statesman*. July 23, 2019.

Rice, H. 2012. Rare Manatee Sighting in Galveston. *Houston Chronicle* Web. 15 Oct 2012.

Schmidly, D. 2004. The Mammals of Texas: Revised Edition. University of Texas Press, Austin, Texas.

Sea Turtle Conservancy. 2021. Information About Sea Turtles: General Behavior. https://conserveturtles.org/information-sea-turtles-general-behavior/#nest.

Sea Turtle Stranding and Salvage Network. 2020. Summary of Stranded and Incidentally Captured Sea Turtles in Texas. Distributed by Donna Shaver.

Shaver, D.J. National Park Service – Texas Nest Update. Personal Communication. August 6, 2021.

Shaver, D.J., Tissot, P.E., Streich, M.M., Walker, J.S., Rubio, C., and Amos, A.F. 2017. Hypothermic stunning of green sea turtles in a western Gulf of Mexico foraging habitat. PLoS ONE 12(3): e0173920. https://doi.org/10.1371/journal.pone.0173920.

Shaver, D.J., Frandsen, H.R., and Walker J.S. 2019. *Dermochelys coriacea* (Leatherback Sea Turtle) Nesting. Herpetological Review, 50(2). Natural History Notes, pg. 350.

Skoruppa, M.K. U.S. Fish and Wildlife Service – Agency Review of Biological Assessment. Personal Communication. July 11, 2022.

Stewart, J.D., M. Nuttall, E.L. Hickerson, and M.A. Johnston. 2018. Important juvenile manta ray habitat at Flower Garden Banks National Marine Sanctuary in the northwestern Gulf of Mexico. Marine Biology. 165, 111. 8 pg.

Texas Marine Mammal Stranding Network. 2022. Report. www.dolphinrescue.org/report-contact-page.

Texas Parks and Wildlife Department (TPWD). 2004. Manatee Sighted, Captured on Film in Cove Harbor. https://tpwd.texas.gov/newsmedia/releases/?req=20041110a.

———. 2021a. Mud Flats-Corpus Christi. https://tpwd.texas.gov/fishing/sea-center-texas/flora-fauna-guide/bays-and-estuaries/bay-habitats/mud-flats-corpus-christi.

———. 2021b. Northern Aplomado Falcon (*Falco femoralis*). https://tpwd.texas.gov/huntwild/wild/species/aplomfal/.

———. 2021c. Federal and State Listed Species of Texas: Slender Rush pea. https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/listed-species/plants/slender_rushpea.phtml.

———. 2022. Texas Natural Diversity Database (TXNDD) information request for Nueces, San Patricio, Refugio, and Aransas Counties. Request received on January 23, 2022.

Triton Environmental Solutions, LLC. 2021. Threatened and Endangered Species Survey Report: Beneficial Use Placement Areas PA4, SS1, SS2, HI-E, and MI. Port of Corpus Christi Authority Channel Deepening Project. SWG-2019-00067. November 10, 2021.

———. 2022. Threatened and Endangered Species Survey Report: San José Island Beneficial Use Site. Port of Corpus Christi Authority Channel Deepening Project. Aransas County, Texas. SWG-2019-00067. January 18, 2022.

Turtle Island Restoration Network. 2018. What Happens When Sea Turtles are Cold Stunned? https://seaturtles.org/what-happens-when-sea-turtles-are-cold-stunned/.

U.S. Fish and Wildlife Service (USFWS). 1967. Office of the Secretary, Native Fish and Wildlife: Endangered Species. *Federal Register*. March 11, 1967 (Vol. 32, No. 48), 4001.

———. 1970a. 50 CFR Part 17. Conservation of Endangered Species and Other Fish or Wildlife. *Federal Register*. June 2, 1970 (Vol. 35, No. 106), 8491–8498.

———. 1970b. 50 CFR Part 17. Conservation of Endangered Species and Other Fish or Wildlife: List of Endangered Foreign Fish and Wildlife. *Federal Register*. December 2, 1970 (Vol. 35, No. 233), 18319–18322.

———. 1976. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants: Endangered Status for 159 Taxa of Animals. *Federal Register*. May 28, 1985 (Vol. 41, No. 102), 24062–24067.

———. 1978a. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants, Determination of Critical Habitat for the Whooping Crane. *Federal Register*. May 15, 1978 (Vol. 43, No. 94), 20938–20942.

———. 1978b. 50 CFR Part 17. Listing and Protecting Loggerhead Sea Turtles as "Threatened Species" and Populations of Green and Olive Ridley Sea Turtles as Threatened Species or "Endangered Species". *Federal Register*. July 28, 1978 (Vol. 43, No. 146), 32800–32811.

———. 1982. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Endangered Status for U.S. Populations of the Ocelot. *Federal Register*. July 21, 1982 (Vol. 47, No. 140), 31670–31672.

———. 1985b. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Determination of the Endangered and Threatened Status for the Piping Plover. *Federal Register*. December 11, 1985 (Vol. 50, No. 238), 50726–50734.

———. 1985c. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Listing Slender Rush-Pea (*Hoffmannseggia Tenella*) as Endangered Species. Federal Register. November 1 (Vol. 50, No. 212), 45614–45618.

———. 1986. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Determination of the Northern Aplomado Falcon to be an Endangered Species. *Federal Register*. February 25, 1986 (Vol. 51, No. 37), 6686–6690.

———. 1987. Black Lace Cactus (*Echinocereus reichenbachii var. albertii*) Recovery Plan. Albuquerque, New Mexico. 56 pp.

———. 1990. Northern Aplomado Falcon Recovery Plan. Albuquerque, New Mexico. 65 pp.

———. 1991. Recovery Plan for U.S. Population of Atlantic Green Turtle (*Chelonia mydas*). Washington, D.C. 59pp.

———. 1992. Recovery Plan for Leatherback Turtles (*Dermochelys coriacea*) in the U.S. Caribbean, Atlantic, and Gulf of Mexico. USFWS Southeast Region. Atlanta, Georgia. 72 pp.

———. 1993. Recovery Plan for the Hawksbill Turtle (*Eretmochelys imbricata*) in the U.S. Caribbean, Atlantic and Gulf of Mexico. USFWS Southeast Region. Atlanta, Georgia. 58 pp.

———. 1994. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Plants *Ayenia limitaris* (Texas Ayenia) and *Ambrosia cheiranthifolla* (South Texas Ambrosia). *Federal Register*. August 24, 1994 (Vol. 59, No. 163), 43648–43652.

———. 1996. Piping Plover (*Charadrius melodus*) Atlantic Coast Population Recovery Plan. Hadley, Massachusetts. 236 pp.

———. 1998. Recovery Plan for U.S. Pacific Populations of the Hawksbill Turtle (*Eretmochelys imbricata*). Portland, Oregon. 95 pp.

———. 2001. Florida Manatee Recovery Plan (*Trichechus manatus latirostris*) Third Revision. Atlanta, Georgia. 144 pp. + appendices.

———. 2003. Recovery Plan for the Great Lakes Piping Plover (*Charadrius melodus*). Ft. Snelling, Minnesota. 141 pp.

———. 2007. Status of the Red Knot (*Calidris canutus rufa*) in the Western Hemisphere. New Jersey Field Office. Pleasantville, New Jersey. 257 pp.

———. 2008. Slender Rush-pea (*Hoffmannseggia tenella*), 5-Year Review: Summary and Evaluation. Corpus Christi Ecological Services Field Office. Corpus Christi, Texas. 25 pp.

———. 2009a. Piping Plover (*Charadrius melodus*) 5-Year review: Summary and Evaluation. Hadley, Massachusetts and East Lansing, Michigan. 214 pp.

———. 2009b. Black Lace Cactus (*Echinocereus reichenbachii var. albertii)* 5-year Review: Summary and Evaluation. Corpus Christi Ecological Services Field Office. Corpus Christi, Texas. 32 pp.

———. 2010a. Attwater's Prairie-Chicken Recovery Plan, Second Revision. Albuquerque, New Mexico.

———. 2010b. South Texas Ambrosia (*Ambrosia cheiranthifolia*), 5-Year Review: Summary and Evaluation. Corpus Christi Ecological Services Field Office. Corpus Christi, Texas. 34 pp.

———. 2011a. Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*). Albuquerque, New Mexico. 177 pp. https://ecos.fws.gov/docs/recovery_plan/kempsridley_revision2_with%20signature.pdf.

———. 2011b. 50 CFR Part 17. Endangered and Threatened Species; Determination of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened. *Federal Register*. September 22, 2011 (Vol. 76, No. 184), 58868–58952.

———. 2012. Whooping Crane (*Grus americana*) 5-Year Review: Summary and Evaluation. Corpus Christi, Texas. 44 pp. https://ecos.fws.gov/docs/five_year_review/doc3977.pdf.

———. 2013a. Rufa Red Knot Ecology and Abundance Supplement. 54 pp. https://www.fws.gov/northeast/redknot/pdf/20130923_REKN_PL_Supplement02_Ecology%20 Abundance_Final.pdf.

———. 2013b. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northwest Atlantic Ocean Distinct Population Segment of the Loggerhead Sea Turtle (*Caretta caretta*); Proposed Rule. *Federal Register*. March 25, 2013 (Vol. 78, No. 57), 18000–18082.

———. 2014a. Northern Aplomado Falcon (*Falco femoralis septentrionalis*) 5-Year Review: Summary and Evaluation. Albuquerque, New Mexico. 46 pp.

———. 2014b. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Rufa Red Knot. *Federal Register*. December 11, 2014 (Vol. 79, No. 238), 73705–73748.

———. 2015a. Status of the Species- red knot (*Calidris canutus rufa*). https://www.fws.gov/verobeach/StatusoftheSpecies/20151104_SOS_RedKnot.pdf.

———. 2015b. 50 CFR Part 17. Endangered and Threatened Species; Identification and Proposed Listing of Eleven Distinct Population Segments of Green Sea Turtles (*Chelonia mydas*) as Endangered or Threatened and Revision of Current Listings; Proposed Rule. *Federal Register*. March 23, 2015 (Vol. 80, No. 55), 15272–15337.

———. 2016. Recovery Plan for the Ocelot (*Leopardus pardalis*). Albuquerque, New Mexico. 237 pp.

———. 2017a. Next Steps for a Healthy Gulf of Mexico Watershed: Lower Madre and Lower Rio Grande Village, Coastal Bend, Texas Mid Coast. Atlanta, GA. https://www.fws.gov/southeast/ gulf-restoration/next-steps/next-steps-by-focal-area/.

———. 2017b. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Reclassification of the West Indian Manatee from Endangered to Threatened. *Federal Register*. April 5, 2017 (Vol. 82, No. 64), 16668–16704.

———. 2019. Featured Pollinator: Monarch Butterfly. https://www.fws.gov/pollinators/features/ Monarch_Butterfly.html.

———. 2020a. Manta Rays (*Manta* spp.). https://www.fws.gov/international/cites/cop16/manta-rays.html.

———.2020b. Species Status Assessment Report for Rufa Red Knot (*Calidris canutus rufa*) version 1.1. North Atlantic- Appalachian Region. New Jersey Field Office, Galloway, New Jersey. 55 pg.

———. 2020c. Whooping Crane Survey Results: Winter 2019-2020. https://www.fws.gov/nwrs/threecolumn.aspx?id=6442464082.

———. 2020d. Eastern Black Rail. https://www.fws.gov/southeast/wildlife/birds/eastern-black-rail/.

———. 2021a. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Rufa Red Knot (*Calidris canutus rufa*). https://www.federalregister.gov/documents/2021/07/15/2021-14406/endangered-and-threatened-wildlife-and-plants-designation-of-critical-habitat-for-rufa-red-knot

———. 2021b. Monarch Butterfly. https://fws.gov/savethemonarch/.

———. 2022a. Information for Planning and Consultation (IPaC). Endangered Species Resource. https://ecos.fws.gov/ipac/.

———. 2022b. Information for Planning and Consultation (IPaC). Threatened and Endangered Species Active Critical Habitat Report. https://ecos.fws.gov/ecp/report/table/critical-habitat.html.

———. 2022c. Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) BLRA Informational handout v.3. 2 pg.

Von Preysing, C. 2021. Rare manatee sighting in Laguna Madre. KRGV.com. https://www.krgv.com/news/rare-manatee-sighting-in-laguna-madre/. December 6, 2021.

W.F. Baird and Associates, Ltd. 2022. Draft Environmental Impact Assessment for Channel Deepening, Port of Corpus Christi – Hydrodynamic and Salinity Modeling Study. Prepared for Freese and Nichols, Inc. January 25, 2022.

Wilber, D.H. and Clarke, D.G. 2001. Biological Effects of Suspended Sediments: A Review of Suspended Sediment Impacts on Fish and Shellfish with Relation to Dredging Activities in Estuaries. North American Journal of Fisheries Management, 21:855-875.

Williams, L., and W. Harrell. 2009. Conservation Action Plan for the Refugio-Goliad Prairie Conservation Area. The Nature Conservancy of Texas. https://www.nature.org/media/texas/refugio_goliad_prairie_cap.pdf . 75 pp.

Attachment 1

U.S. Fish and Wildlife Service
County Species List

IPaC **U.S. Fish & Wildlife Service**

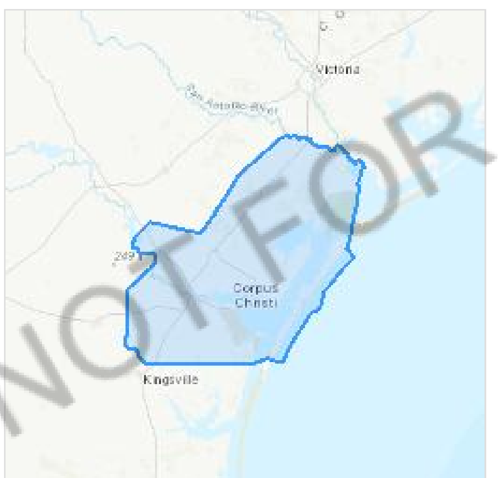
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Texas



Local office

Texas Coastal Ecological Services Field Office

(281) 286-8282
(281) 488-5882

4444 Corona Drive, Suite 215
Corpus Christi, TX 78411

http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. 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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Ocelot Leopardus (=Felis) pardalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4474	Endangered
West Indian Manatee Trichechus manatus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/4469	Threatened Marine mammal

Birds

NAME	STATUS
Attwater's Greater Prairie-chicken Tympanuchus cupido attwateri Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7259	Endangered
Eastern Black Rail Laterallus jamaicensis ssp. jamaicensis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10477	Threatened
Northern Aplomado Falcon Falco femoralis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1923	Endangered
Piping Plover Charadrius melodus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot Calidris canutus rufa Wherever found There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane Grus americana There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/758	Endangered

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle Eretmochelys imbricata Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle Lepidochelys kempii Wherever found There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle Dermochelys coriacea Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle Caretta caretta There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/1110	Threatened

Clams

NAME	STATUS
False Spike Fusconaia mitchelli Wherever found There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3963	Proposed Endangered
Guadalupe Orb Cyclonaias necki There is **proposed** critical habitat for this species. The location of the critical habitat is not available.	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Black Lace Cactus Echinocereus reichenbachii var. albertii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5560	Endangered
Slender Rush-pea Hoffmannseggia tenella Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5298	Endangered
South Texas Ambrosia Ambrosia cheiranthifolia Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3331	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Piping Plover Charadrius melodus https://ecos.fws.gov/ecp/species/6039#crithab	Final
Whooping Crane Grus americana https://ecos.fws.gov/ecp/species/758#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

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

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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 (to harass, hunt, capture, kill, or attempt to harass, hunt, capture or kill) of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

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.

The following marine mammals under the responsibility of the U.S. Fish and Wildlife Service are potentially affected by activities in this location:

NAME
West Indian Manatee Trichechus manatus https://ecos.fws.gov/ecp/species/4469

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuge lands:

LAND	ACRES

ARANSAS NATIONAL WILDLIFE REFUGE	115,882.14 acres

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Attachment 2

PCCA CDP Dredge Equipment List

Attachment 2
PCCA CDP Dredge Equipment List

Channel Segment	Assembly Name
1	Hopper1
2	Hopper1
2	Hopper2
3	Hopper2 or Cutter1
4	Cutter1
4	Cutter2
5	Cutter1
5	Cutter2
6	Cutter1

Channel Segment/Estimated Dredge Volume (CY)	Year 1	Year 2	Year 3	Year 4	Year 5
1	9,617,390	-	-	-	-
2	-	10,154,381	10,154,381	-	-
3	-	-	2,105,041	-	-
4	-	-	-	2,851,897	-
5	-	-	-	2,951,614	-
6	-	-	-	-	8,448,886
Assembly Used	Hopper1	Hopper1	Hopper2	Cutter1	Cutter2
			Cutter1	Cutter2	

Assembly	Hopper1 - Hopper dredge with Disposal thorugh Bottom Doors		
	Equipment	Quantity	Total HP
Hopper1	Hopper Dredge	1	12,000
	Crew/ Survey Boat	1	800
	Trawler	1	400
Assembly	Hopper2 - Hopper dredge with BU or PA disposal and Crew		
Hopper2	Equipment	Quantity	Total HP
	Hopper Dredge	1	12,000
	Crew/ Survey Boat	1	800
	Dozer	3	200
	Front end loader	2	200
	Excavator	1	170
	Field Truck	1	180
	Light Towers	2	8
	Welder	2	50
	Trawler	1	400

Assembly	Cutter1 - Cutter Suction dredge with with BU or PA disposal and Crew		
Cutter1	Equipment	Quantity	Total HP
	30" Cutter Suction Dredge	1	14,000
	Anchor Barge	2	200
	Derrick Barge	1	2,500
	Tender Tug	4	750
	Tow Tug	1	5,000
	Crew/ Survey Boat	1	800
	Dozer	3	200
	Front end loader	2	200
	Excavator	1	170
	Field Truck	1	180
	Light Towers	2	8
	Welder	2	50
Assembly	Cutter2 - Cutter Suction dredge with Offshore Disposal		
Cutter2	Equipment	Quantity	Total HP
	30" Cutter Suction Dredge	1	14,000
	30"-Booster	1	5,000
	Anchor Barge	2	200
	Derrick Barge	1	2,500
	Spill Barge	1	150
	Tender Tug	4	750
	Tow Tug	1	5,000
	Crew/ Survey Boat	1	800

Attachment 3

Sea Turtle Stranding and Salvage Network Data Summary for Nueces, San Patricio, and Aransas Counties, Texas, 2012–2021

Attachment 3
Sea Turtle Stranding and Salvage Network Data Summary for Nueces, San Patricio, and Aransas Counties, Texas, 2012–2021

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20120101-001	1/1/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore
AFA20120105-001	1/5/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
AFA20120107-001	1/7/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
AFA20120108-001	1/8/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AFA20120111-001	1/11/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
LXG20120118-001	1/18/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
LXG20120119-001	1/19/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AFA20120120-001	1/20/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
LXG20120121-001	1/21/2012	Unknown	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
AFA20120125-001	1/25/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
AFA20120203-001	2/3/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20120204-001	2/4/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AFA20120207-001	2/7/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
AFA20120210-001	2/10/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AFA20120210-002	2/10/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AFA20120211-001	2/11/2012	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	6	20	Gulf of Mexico	Offshore
AFA20120211-002	2/11/2012	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	6	20	Gulf of Mexico	Offshore
AFA20120211-003	2/11/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
AFA20120227-001	2/27/2012	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AFA20120306-001	3/6/2012	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	10	20	Gulf of Mexico	Offshore
AFA20120307-002	3/7/2012	Green turtle	Traditional stranding	Alive	TX	San Patricio	10	20	Gulf of Mexico	Inshore
AFA20120309-001	3/9/2012	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Offshore
TXK20120314-001	3/14/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AFA20120317-001	3/17/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Inshore
AFA20120319-001	3/19/2012	Unknown	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
AFA20120321-001	3/21/2012	Hawksbill	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
AFA20120322-001	3/22/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
AFA20120325-001	3/25/2012	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20120328-001	3/28/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20120328-002	3/28/2012	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20120330-001	3/30/2012	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20120403-001	4/3/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AFA20120409-001	4/9/2012	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	15	19	Gulf of Mexico	Offshore
AKT20120409-001	4/9/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20120411-001	4/11/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
AKT20120411-001	4/11/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
AFA20120418-001	4/18/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20120419-002	4/19/2012	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20120420-001	4/20/2012	Leatherback	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20120421-001	4/21/2012	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20120423-001	4/23/2012	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	17	20	Gulf of Mexico	Offshore
KXM20120424-001	4/24/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	17	20	Gulf of Mexico	Inshore
JXD20120424-001	4/24/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
AFA20120428-001	4/28/2012	Green turtle	Traditional stranding	Alive	TX	Aransas	17	20	Gulf of Mexico	Inshore
JSW20120428-001	4/28/2012	Unknown	Traditional stranding	Severely decomposed	TX	Aransas	17	19	Gulf of Mexico	Inshore
AFA20120430-001	4/30/2012	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20120501-001	5/1/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Inshore
AFA20120502-001	5/2/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Inshore
CEM20120503-001	5/3/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	18	19	Gulf of Mexico	Inshore
AFA20120503-001	5/3/2012	Leatherback	Traditional stranding	Severely decomposed	TX	Aransas	18	19	Gulf of Mexico	Offshore
AFA20120503-002	5/3/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Inshore
AFA20120504-001	5/4/2012	Green turtle	Traditional stranding	Alive	TX	Aransas	18	20	Gulf of Mexico	Offshore
AFA20120504-003	5/4/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Inshore
AFA20120504-002	5/4/2012	Loggerhead	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20120506-001	5/6/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AFA20120506-002	5/6/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Inshore
AFA20120506-003	5/6/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20120508-001	5/8/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AFA20120509-001	5/9/2012	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	19	20	Gulf of Mexico	Offshore
AFA20120512-001	5/12/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20120523-001	5/23/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20120525-001	5/25/2012	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	21	20	Gulf of Mexico	Offshore
AFA20120527-001	5/27/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AFA20120529-001	5/29/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20120530-001	5/30/2012	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20120601-001	6/1/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20120603-001	6/3/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AFA20120608-002	6/8/2012	Hawksbill	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20120608-001	6/8/2012	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AFA20120610-001	6/10/2012	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AFA20120611-001	6/11/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
AFA20120612-001	6/12/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
AFA20120612-002	6/12/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
AFA20120613-001	6/13/2012	Loggerhead	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AFA20120614-001	6/14/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AFA20120615-001	6/15/2012	Hawksbill	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AFA20120616-001	6/16/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
AFA20120619-001	6/19/2012	Hawksbill	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20120622-001	6/22/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20120623-001	6/23/2012	Hawksbill	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20120627-001	6/27/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20120629-001	6/29/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	26	20	Gulf of Mexico	Inshore
AFA20120701-001	7/1/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	27	20	Gulf of Mexico	Offshore
AFA20120701-002	7/1/2012	Hawksbill	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20120703-002	7/3/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20120703-001	7/3/2012	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20120706-002	7/6/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20120708-002	7/8/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20120708-001	7/8/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20120710-001	7/10/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20120710-002	7/10/2012	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
EXH20120711-001	7/11/2012	Green turtle	Traditional stranding	Alive	TX	Aransas	28	19	Gulf of Mexico	Inshore
AFA20120711-002	7/11/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
AFA20120711-001	7/11/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20120715-001	7/15/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20120716-001	7/16/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20120717-001	7/17/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20120717-002	7/17/2012	Loggerhead	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20120719-001	7/19/2012	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	29	19	Gulf of Mexico	Offshore
AFA20120724-001	7/24/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20120726-001	7/26/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	30	20	Gulf of Mexico	Offshore
AFA20120727-001	7/27/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	30	20	Gulf of Mexico	Offshore
AFA20120729-002	7/29/2012	Loggerhead	Traditional stranding	Alive	TX	Aransas	31	19	Gulf of Mexico	Inshore
AFA20120804-001	8/4/2012	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	31	19	Gulf of Mexico	Offshore
AFA20120805-001	8/5/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
AFA20120812-002	8/12/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20120813-001	8/13/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Inshore
AFA20120815-001	8/15/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	33	20	Gulf of Mexico	Inshore
AFA20120820-001	8/20/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
AXA20120822-001	8/22/2012	Green turtle	Traditional stranding	Alive	TX	Aransas	34	20	Gulf of Mexico	Offshore
AFA20120824-001	8/24/2012	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
AFA20120826-001	8/26/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AFA20120828-001	8/28/2012	Hawksbill	Traditional stranding	Alive	TX	Aransas	35	20	Gulf of Mexico	Offshore
AFA20120829-001	8/29/2012	Hawksbill	Traditional stranding	Moderately decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AFA20120831-001	8/31/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Inshore
AFA20120903-001	9/3/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Inshore
AFA20120927-001	9/27/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
SCE20120927-001	9/27/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AFA20120928-001	9/28/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AFA20120929-001	9/29/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Offshore
AFA20120930-001	9/30/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20121001-001	10/1/2012	Green turtle	Traditional stranding	Skeletal	TX	Aransas	40	20	Gulf of Mexico	Offshore
JSW20121004-001	10/4/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20121004-001	10/4/2012	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
AFA20121005-001	10/5/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20121007-001	10/7/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Offshore
AFA20121010-001	10/10/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
AFA20121013-001	10/13/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Offshore
AFA20121014-001	10/14/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20121015-002	10/15/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20121015-001	10/15/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20121015-003	10/15/2012	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20121016-001	10/16/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AFA20121016-002	10/16/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20121017-001	10/17/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AFA20121018-001	10/18/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Offshore
AFA20121020-001	10/20/2012	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20121020-002	10/20/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AFA20121022-001	10/22/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Offshore
AFA20121025-001	10/25/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AFA20121025-002	10/25/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
AFA20121102-001	11/2/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AFA20121102-002	11/2/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
AFA20121104-001	11/4/2012	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AFA20121105-001	11/5/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AFA20121106-001	11/6/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
AFA20121108-001	11/8/2012	Loggerhead	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Offshore
AFA20121111-001	11/11/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AFA20121111-002	11/11/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
AFA20121114-001	11/14/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AFA20121115-001	11/15/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AFA20121121-001	11/21/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AFA20121122-001	11/22/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AFA20121122-002	11/22/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AFA20121123-001	11/23/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Offshore
AMO20121124-001	11/24/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
AFA20121124-001	11/24/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
CXR20121125-001	11/25/2012	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AFA20121127-001	11/27/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AKT20121127-001	11/27/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
CET20121129-001	11/29/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AFA20121130-001	11/30/2012	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AFA20121202-001	12/2/2012	Loggerhead	Traditional stranding	Dried carcass	TX	Aransas	49	20	Gulf of Mexico	Offshore
AFA20121203-001	12/3/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20121205-001	12/5/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20121208-001	12/8/2012	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
AFA20121208-002	12/8/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20121209-001	12/9/2012	Green turtle	Traditional stranding	Alive	TX	Aransas	50	19	Gulf of Mexico	Inshore
AFA20121212-001	12/12/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
AFA20121217-001	12/17/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Offshore
AFA20121217-002	12/17/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Offshore
AFA20121220-001	12/20/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Offshore
AKT20121224-001	12/24/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AKT20121225-001	12/25/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Offshore
CET20121227-001	12/27/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Inshore
RDM20121228-001	12/28/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	52	19	Gulf of Mexico	Inshore
GXD20121230-002	12/30/2012	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
AKT20121231-002	12/31/2012	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Offshore
AKT20130101-001	1/1/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore
EGD20130104-002	1/4/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	1	20	Gulf of Mexico	Offshore
EGD20130104-003	1/4/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	1	19	Gulf of Mexico	Offshore
CET20130104-001	1/4/2013	Green turtle	Traditional stranding	Alive	TX	Aransas	1	19	Gulf of Mexico	Inshore
EGD20130104-001	1/4/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMO20130104-001	1/4/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
GED20130106-001	1/6/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
CET20130107-001	1/7/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
CET20130107-002	1/7/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
MXW20130108-001	1/8/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AFA20130109-002	1/9/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
AFA20130110-001	1/10/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AKT20130111-001	1/11/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AKT20130111-002	1/11/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AKT20130111-003	1/11/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AFA20130112-001	1/12/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AFA20130112-002	1/12/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AFA20130113-002	1/13/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AFA20130113-001	1/13/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AKT20130115-001	1/15/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
AFA20130116-001	1/16/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AKT20130116-001	1/16/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
LXG20130117-003	1/17/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
EGD20130117-002	1/17/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AKT20130118-002	1/18/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AFA20130118-001	1/18/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
CET20130118-001	1/18/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
CET20130119-001	1/19/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AFA20130122-001	1/22/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	4	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
EGD20130122-001	1/22/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
CET20130124-001	1/24/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	4	20	Gulf of Mexico	Inshore
AKT20130125-001	1/25/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	4	20	Gulf of Mexico	Offshore
LXG20130125-001	1/25/2013	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	4	20	Gulf of Mexico	Inshore
AFA20130127-001	1/27/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	5	20	Gulf of Mexico	Offshore
AFA20130127-002	1/27/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	5	20	Gulf of Mexico	Offshore
AFA20130128-001	1/28/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20130128-003	1/28/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20130128-004	1/28/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AFA20130129-002	1/29/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20130129-001	1/29/2013	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Offshore
AKT20130129-001	1/29/2013	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Offshore
AFA20130130-001	1/30/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AMO20130201-001	2/1/2013	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	5	20	Gulf of Mexico	Inshore
JKK20130202-001	2/2/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20130202-001	2/2/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20130203-001	2/3/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AFA20130204-002	2/4/2013	Kemp's ridley	Traditional stranding	Alive	TX	Aransas	6	20	Gulf of Mexico	Offshore
AFA20130204-001	2/4/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AKT20130204-001	2/4/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AFA20130206-001	2/6/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AKT20130206-001	2/6/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AKT20130206-002	2/6/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AFA20130207-001	2/7/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AFA20130209-002	2/9/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Offshore
AFA20130210-001	2/10/2013	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
AFA20130212-001	2/12/2013	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	7	20	Gulf of Mexico	Offshore
AFA20130212-002	2/12/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
JSW20130217-001	2/17/2013	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	8	20	Gulf of Mexico	Inshore
AFA20130228-001	2/28/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AFA20130303-001	3/3/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
AFA20130307-001	3/7/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
AFA20130308-001	3/8/2013	Green turtle	Traditional stranding	Alive	TX	Aransas	10	19	Gulf of Mexico	Offshore
AFA20130310-002	3/10/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Inshore
AFA20130310-001	3/10/2013	Loggerhead	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Offshore
AFA20130311-001	3/11/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
AKT20130311-001	3/11/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
RRR20130312-001	3/12/2013	Unknown	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
AFA20130314-002	3/14/2013	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	11	20	Gulf of Mexico	Offshore
AFA20130314-001	3/14/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Offshore
CET20130314-001	3/14/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AFA20130314-003	3/14/2013	Green turtle	Traditional stranding	Alive	TX	San Patricio	11	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
CET20130315-001	3/15/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AFA20130317-001	3/17/2013	Green turtle	Traditional stranding	Alive	TX	Aransas	12	19	Gulf of Mexico	Inshore
MGP20130317-001	3/17/2013	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	12	20	Gulf of Mexico	Inshore
CEM20130318-001	3/18/2013	Green turtle	Traditional stranding	Alive	TX	Aransas	12	19	Gulf of Mexico	Inshore
AKT20130318-001	3/18/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore
DAP20130319-001	3/19/2013	Green turtle	Traditional stranding	Alive	TX	Aransas	12	19	Gulf of Mexico	Inshore
AFA20130319-001	3/19/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore
AFA20130319-002	3/19/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
ELP20130321-001	3/21/2013	Green turtle	Traditional stranding	Alive	TX	Aransas	12	19	Gulf of Mexico	Inshore
AFA20130321-001	3/21/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
JKK20130321-001	3/21/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
AFA20130322-001	3/22/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
RCR20130322-001	3/22/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore
AMO20130323-001	3/23/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore
AFA20130324-001	3/24/2013	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AKT20130326-001	3/26/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Inshore
AFA20130327-001	3/27/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20130327-002	3/27/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20130330-001	3/30/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20130330-002	3/30/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AFA20130330-003	3/30/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20130403-001	4/3/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
REC20130405-001	4/5/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
CET20130405-001	4/5/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Inshore
CET20130405-002	4/5/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
KAC20130406-001	4/6/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AFA20130406-001	4/6/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Offshore
DXM20130408-001	4/8/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	15	19	Gulf of Mexico	Inshore
DXM20130409-001	4/9/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	15	19	Gulf of Mexico	Inshore
RCR20130409-001	4/9/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
JSW20130409-001	4/9/2013	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AKT20130409-001	4/9/2013	Loggerhead	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
CLL20130410-001	4/10/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20130410-001	4/10/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20130411-001	4/11/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20130413-001	4/13/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
AFA20130414-001	4/14/2013	Leatherback	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20130415-002	4/15/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	16	19	Gulf of Mexico	Inshore
AFA20130415-001	4/15/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20130417-001	4/17/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
DLM20130418-001	4/18/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	16	19	Gulf of Mexico	Inshore
AFA20130421-001	4/21/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20130421-002	4/21/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
DLM20130424-001	4/24/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	17	19	Gulf of Mexico	Inshore
AFA20130425-002	4/25/2013	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	17	20	Gulf of Mexico	Offshore
AFA20130425-001	4/25/2013	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	17	20	Gulf of Mexico	Offshore
AKT20130426-001	4/26/2013	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMO20130427-001	4/27/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
CET20130427-001	4/27/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
AMO20130428-001	4/28/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
DLM20130501-001	5/1/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	18	19	Gulf of Mexico	Inshore
SMR20130501-001	5/1/2013	Unknown	Traditional stranding	Skeletal	TX	Aransas	18	19	Gulf of Mexico	Inshore
AFA20130502-001	5/2/2013	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	18	20	Gulf of Mexico	Inshore
CET20130510-001	5/10/2013	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20130514-001	5/14/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
AFA20130515-002	5/15/2013	Loggerhead	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
ERE20130516-001	5/16/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
CET20130518-001	5/18/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20130518-001	5/18/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
AMO20130519-001	5/19/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20130519-002	5/19/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
AFA20130519-003	5/19/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AMO20130519-002	5/19/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
TRK20130519-001	5/19/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
TRK20130519-002	5/19/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20130520-001	5/20/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AFA20130520-002	5/20/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AFA20130521-001	5/21/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	21	20	Gulf of Mexico	Inshore
AFA20130523-001	5/23/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AFA20130526-001	5/26/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
EGD20130527-001	5/27/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
AFA20130527-001	5/27/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
CXL20130528-001	5/28/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AKT20130528-001	5/28/2013	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20130601-001	6/1/2013	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20130602-001	6/2/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	23	19	Gulf of Mexico	Inshore
EGD20130602-001	6/2/2013	Hawksbill	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20130603-001	6/3/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AKT20130604-001	6/4/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
RXS20130606-001	6/6/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AKT20130610-001	6/10/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AFA20130612-001	6/12/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
CXL20130618-001	6/18/2013	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
CET20130620-001	6/20/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20130622-001	6/22/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20130624-001	6/24/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20130625-001	6/25/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20130625-002	6/25/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20130626-001	6/26/2013	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	26	20	Gulf of Mexico	Offshore
AFA20130626-002	6/26/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
CET20130627-001	6/27/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
CET20130627-002	6/27/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20130627-001	6/27/2013	Loggerhead	Traditional stranding	Severely decomposed	TX	San Patricio	26	20	Gulf of Mexico	Inshore
AMO20130629-001	6/29/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20130629-001	6/29/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20130630-001	6/30/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20130703-001	7/3/2013	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20130704-001	7/4/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	27	19	Gulf of Mexico	Inshore
AFA20130705-001	7/5/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20130705-002	7/5/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20130707-001	7/7/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
AFA20130708-001	7/8/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20130709-001	7/9/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	28	19	Gulf of Mexico	Inshore
AFA20130713-001	7/13/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20130714-001	7/14/2013	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	29	20	Gulf of Mexico	Offshore
AFA20130718-002	7/18/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20130719-001	7/19/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
AMO20130719-001	7/19/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	20	Gulf of Mexico	Inshore
AFA20130720-001	7/20/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20130722-001	7/22/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	30	20	Gulf of Mexico	Offshore
AFA20130724-002	7/24/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	30	20	Gulf of Mexico	Inshore
AKT20130726-001	7/26/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20130727-003	7/27/2013	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	30	20	Gulf of Mexico	Inshore
AFA20130727-001	7/27/2013	Kemp's ridley	Traditional stranding	Alive	TX	Aransas	30	19	Gulf of Mexico	Inshore
AFA20130727-002	7/27/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20130728-001	7/28/2013	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
AFA20130731-001	7/31/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	31	20	Gulf of Mexico	Inshore
GXG20130803-001	8/3/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
AFA20130806-001	8/6/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Offshore
AKT20130807-001	8/7/2013	Green turtle	Traditional stranding	Alive	TX	Aransas	32	20	Gulf of Mexico	Inshore
AFA20130808-001	8/8/2013	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	32	20	Gulf of Mexico	Inshore
CET20130808-001	8/8/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Inshore
AFA20130809-001	8/9/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
AFA20130809-002	8/9/2013	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AFA20130812-001	8/12/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Inshore
AFA20130812-002	8/12/2013	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20130816-001	8/16/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20130820-001	8/20/2013	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
AFA20130821-001	8/21/2013	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
LAD20130822-001	8/22/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AFA20130823-001	8/23/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AFA20130826-001	8/26/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
AFA20130826-002	8/26/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AFA20130829-001	8/29/2013	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	35	20	Gulf of Mexico	Offshore
AFA20130831-001	8/31/2013	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	35	20	Gulf of Mexico	Offshore
CET20130831-001	8/31/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
AFA20130901-001	9/1/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
CET20130905-001	9/5/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	36	20	Gulf of Mexico	Inshore
EGD20130908-001	9/8/2013	Loggerhead	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
AFA20130911-001	9/11/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	37	20	Gulf of Mexico	Inshore
AFA20130912-001	9/12/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	37	20	Gulf of Mexico	Inshore
BLB20130913-001	9/13/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	37	19	Gulf of Mexico	Inshore
AFA20130914-001	9/14/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
AKT20130914-001	9/14/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
EGD20130915-001	9/15/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
EGD20130915-002	9/15/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
AFA20130917-001	9/17/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
AKT20130917-001	9/17/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
RDM20130919-001	9/19/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	38	19	Gulf of Mexico	Inshore
AFA20130921-001	9/21/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
AFA20130923-001	9/23/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	39	20	Gulf of Mexico	Inshore
AFA20130930-001	9/30/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
AFA20131001-001	10/1/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20131002-001	10/2/2013	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	40	19	Gulf of Mexico	Offshore
EGD20131005-001	10/5/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20131005-001	10/5/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20131005-002	10/5/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20131005-003	10/5/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20131005-004	10/5/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20131005-005	10/5/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20131009-001	10/9/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
EGD20131013-001	10/13/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20131014-001	10/14/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20131014-002	10/14/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AKT20131014-001	10/14/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20131015-001	10/15/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AFA20131018-001	10/18/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
EGD20131025-001	10/25/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20131026-001	10/26/2013	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	43	20	Gulf of Mexico	Offshore
AKT20131029-002	10/29/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
AKT20131029-001	10/29/2013	Loggerhead	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
AKT20131030-001	10/30/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
EGD20131031-001	10/31/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AFA20131102-001	11/2/2013	Loggerhead	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
AKT20131105-001	11/5/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
SCE20131106-001	11/6/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
LTM20131106-001	11/6/2013	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
AKT20131113-001	11/13/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
AFA20131113-001	11/13/2013	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
TET20131115-001	11/15/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
AKT20131117-001	11/17/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Offshore
AKT20131118-001	11/18/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Offshore
AKT20131119-001	11/19/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AFA20131120-001	11/20/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AKT20131120-001	11/20/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AFA20131121-002	11/21/2013	Green turtle	Traditional stranding	Alive	TX	Aransas	47	20	Gulf of Mexico	Offshore
BLB20131121-001	11/21/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	47	19	Gulf of Mexico	Inshore
AKT20131121-001	11/21/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AFA20131121-001	11/21/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Offshore
TXW20131127-001	11/27/2013	Unknown	Traditional stranding	Severely decomposed	TX	Aransas	48	19	Gulf of Mexico	Inshore
AFA20131129-001	11/29/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AFA20131130-001	11/30/2013	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AFA20131212-003	12/12/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
AFA20131215-004	12/15/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
AFA20131223-004	12/23/2013	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AFA20131231-001	12/31/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
AFA20131231-002	12/31/2013	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
TET20131231-001	12/31/2013	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Inshore
JSW20140105-001	1/5/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AFA20140106-001	1/6/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
AFA20140131-001	1/31/2014	Green turtle	Traditional stranding	Alive	TX	Aransas	5	19	Gulf of Mexico	Inshore
AFA20140204-001	2/4/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AFA20140206-001	2/6/2014	Green turtle	Traditional stranding	Alive	TX	San Patricio	6	20	Gulf of Mexico	Inshore
AFA20140207-001	2/7/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
AMO20140214-001	2/14/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
JKK20140217-001	2/17/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
JKK20140217-002	2/17/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AFA20140301-001	3/1/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AKT20140314-001	3/14/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
AMO20140318-001	3/18/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
JKK20140321-001	3/21/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
AFA20140325-001	3/25/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	13	19	Gulf of Mexico	Inshore
JSW20140331-001	3/31/2014	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AFA20140401-001	4/1/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AFA20140401-002	4/1/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
CLC20140401-001	4/1/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AFA20140402-001	4/2/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AFA20140402-004	4/2/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AFA20140402-002	4/2/2014	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
JSW20140406-001	4/6/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20140408-001	4/8/2014	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	15	20	Gulf of Mexico	Inshore
CKC20140408-001	4/8/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20140410-001	4/10/2014	Kemp's ridley	Traditional stranding	Dried carcass	TX	Aransas	15	20	Gulf of Mexico	Offshore
AFA20140410-002	4/10/2014	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	15	20	Gulf of Mexico	Offshore
AFA20140412-001	4/12/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20140412-002	4/12/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Inshore
AFA20140412-003	4/12/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20140413-001	4/13/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
TFB20140414-001	4/14/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
AFA20140417-001	4/17/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Inshore
AMO20140418-001	4/18/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Inshore
AMO20140418-002	4/18/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
AKT20140418-001	4/18/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
CEM20140421-001	4/21/2014	Green turtle	Traditional stranding	Alive	TX	Aransas	17	19	Gulf of Mexico	Inshore
AMO20140424-001	4/24/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
EGD20140424-001	4/24/2014	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMO20140425-001	4/25/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMO20140427-001	4/27/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
SHB20140427-001	4/27/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140428-001	4/28/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
EXE20140429-001	4/29/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140429-002	4/29/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140429-003	4/29/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140429-004	4/29/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140429-005	4/29/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140429-006	4/29/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140429-001	4/29/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140429-007	4/29/2014	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
MAP20140430-001	4/30/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140430-002	4/30/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140430-003	4/30/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140430-004	4/30/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20140430-005	4/30/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140430-006	4/30/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140430-007	4/30/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140430-009	4/30/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140430-008	4/30/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
EXE20140430-001	4/30/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
EXE20140430-002	4/30/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AKT20140430-001	4/30/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140430-001	4/30/2014	Loggerhead	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Inshore
AKT20140430-002	4/30/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140501-001	5/1/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20140502-001	5/2/2014	Green turtle	Traditional stranding	Skeletal	TX	Nueces	18	20	Gulf of Mexico	Inshore
AFA20140502-002	5/2/2014	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	18	20	Gulf of Mexico	Inshore
AFA20140503-002	5/3/2014	Green turtle	Traditional stranding	Alive	TX	Aransas	18	20	Gulf of Mexico	Offshore
AFA20140503-001	5/3/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Inshore
ELC20140504-001	5/4/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	19	19	Gulf of Mexico	Inshore
AFA20140504-001	5/4/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20140504-002	5/4/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
BLB20140505-001	5/5/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	19	19	Gulf of Mexico	Inshore
AFA20140505-001	5/5/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Inshore
AFA20140507-001	5/7/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20140507-002	5/7/2014	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AKT20140507-001	5/7/2014	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20140508-002	5/8/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Inshore
EGD20140508-001	5/8/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20140508-001	5/8/2014	Hawksbill	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20140510-001	5/10/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AFA20140510-002	5/10/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20140511-001	5/11/2014	Kemp's ridley	Traditional stranding	Alive	TX	Aransas	20	20	Gulf of Mexico	Inshore
JSW20140511-001	5/11/2014	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	20	20	Gulf of Mexico	Inshore
EGC20140512-001	5/12/2014	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20140513-001	5/13/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20140514-001	5/14/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
CXG20140515-001	5/15/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20140516-001	5/16/2014	Green turtle	Traditional stranding	Alive	TX	Aransas	20	20	Gulf of Mexico	Inshore
DRR20140517-001	5/17/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20140518-002	5/18/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	21	19	Gulf of Mexico	Inshore
AMO20140518-001	5/18/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20140518-001	5/18/2014	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20140519-001	5/19/2014	Loggerhead	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20140520-001	5/20/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AJR20140520-001	5/20/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	21	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20140521-002	5/21/2014	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	21	20	Gulf of Mexico	Offshore
AFA20140521-001	5/21/2014	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMO20140521-001	5/21/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
AMW20140522-001	5/22/2014	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
KXS20140527-001	5/27/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
AFA20140527-001	5/27/2014	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20140527-001	5/27/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20140528-003	5/28/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20140528-004	5/28/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AFA20140528-002	5/28/2014	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AFA20140528-001	5/28/2014	Loggerhead	Traditional stranding	Alive	TX	San Patricio	22	20	Gulf of Mexico	Inshore
AFA20140529-001	5/29/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AFA20140530-001	5/30/2014	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	22	20	Gulf of Mexico	Offshore
RSS20140531-001	5/31/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20140601-001	6/1/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20140601-001	6/1/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
KAA20140602-001	6/2/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20140602-001	6/2/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20140602-002	6/2/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20140602-003	6/2/2014	Hawksbill	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
CEM20140603-001	6/3/2014	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	23	19	Gulf of Mexico	Inshore
LGF20140603-001	6/3/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20140605-001	6/5/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20140605-002	6/5/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20140605-003	6/5/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
LSR20140605-001	6/5/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20140607-001	6/7/2014	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	23	19	Gulf of Mexico	Offshore
AFA20140607-002	6/7/2014	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	23	20	Gulf of Mexico	Offshore
AKT20140609-001	6/9/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AFA20140613-001	6/13/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AFA20140614-001	6/14/2014	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	24	19	Gulf of Mexico	Inshore
AMO20140615-001	6/15/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20140616-001	6/16/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20140616-002	6/16/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20140617-001	6/17/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
FXT20140617-001	6/17/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20140617-001	6/17/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20140618-002	6/18/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20140619-001	6/19/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20140619-002	6/19/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20140619-003	6/19/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20140619-004	6/19/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20140619-005	6/19/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20140619-006	6/19/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20140619-007	6/19/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AKT20140623-001	6/23/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
AKT20140623-002	6/23/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
MSL20140624-001	6/24/2014	Unknown	Traditional stranding	Dried carcass	TX	Aransas	26	20	Gulf of Mexico	Inshore
AFA20140624-001	6/24/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AKT20140624-001	6/24/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20140625-001	6/25/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AFA20140626-001	6/26/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AFA20140626-002	6/26/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
AFA20140627-001	6/27/2014	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	26	19	Gulf of Mexico	Offshore
AFA20140628-001	6/28/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AFA20140628-002	6/28/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
AFA20140628-003	6/28/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
AFA20140629-001	6/29/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
TET20140630-001	6/30/2014	Loggerhead	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20140701-001	7/1/2014	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	27	20	Gulf of Mexico	Offshore
AFA20140701-003	7/1/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	27	19	Gulf of Mexico	Inshore
AFA20140701-002	7/1/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20140702-001	7/2/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
AKT20140702-001	7/2/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20140703-002	7/3/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20140703-001	7/3/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	San Patricio	27	20	Gulf of Mexico	Inshore
AFA20140704-001	7/4/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20140704-002	7/4/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20140704-003	7/4/2014	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20140705-001	7/5/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AKT20140705-001	7/5/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20140708-001	7/8/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
AFA20140708-002	7/8/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
AFA20140710-001	7/10/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20140711-001	7/11/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20140715-001	7/15/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
AFA20140715-002	7/15/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
AKT20140715-001	7/15/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
AFA20140716-001	7/16/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
CXR20140717-001	7/17/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20140719-001	7/19/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20140720-001	7/20/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20140720-002	7/20/2014	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20140721-001	7/21/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20140722-001	7/22/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20140724-001	7/24/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20140724-002	7/24/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20140727-001	7/27/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
AFA20140728-002	7/28/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	31	20	Gulf of Mexico	Inshore
AFA20140728-001	7/28/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	31	20	Gulf of Mexico	Inshore
KMS20140728-001	7/28/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
AFA20140729-001	7/29/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
AKT20140730-001	7/30/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	31	20	Gulf of Mexico	Inshore
AFA20140730-001	7/30/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Offshore
AFA20140802-001	8/2/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	31	20	Gulf of Mexico	Offshore
AFA20140805-001	8/5/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
AFA20140811-001	8/11/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20140811-002	8/11/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20140811-003	8/11/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Inshore
AFA20140813-001	8/13/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Inshore
AKT20140813-001	8/13/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20140814-001	8/14/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20140816-002	8/16/2014	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	33	19	Gulf of Mexico	Inshore
AFA20140816-001	8/16/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20140818-001	8/18/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AKT20140818-001	8/18/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
AFA20140822-001	8/22/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
AFA20140826-001	8/26/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
AFA20140829-001	8/29/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AFA20140829-002	8/29/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AFA20140829-003	8/29/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
AFA20140830-001	8/30/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AFA20140902-001	9/2/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
RRR20140902-001	9/2/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
AFA20140903-001	9/3/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
AFA20140903-002	9/3/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
AFA20140904-001	9/4/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
EGD20140904-001	9/4/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
AFA20140905-001	9/5/2014	Green turtle	Traditional stranding	Alive	TX	Aransas	36	20	Gulf of Mexico	Offshore
MXC20140905-001	9/5/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
LXG20140905-001	9/5/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
LXG20140905-002	9/5/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
AMO20140907-001	9/7/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
AFA20140909-002	9/9/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	37	20	Gulf of Mexico	Inshore
AFA20140911-001	9/11/2014	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	37	20	Gulf of Mexico	Offshore
EGD20140911-001	9/11/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20140912-001	9/12/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
EGD20140918-001	9/18/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	38	20	Gulf of Mexico	Inshore
AFA20140919-001	9/19/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
AMO20140920-001	9/20/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	38	20	Gulf of Mexico	Inshore
AKT20140922-001	9/22/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
JLM20140923-001	9/23/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AKT20140923-001	9/23/2014	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Offshore
JXH20140927-001	9/27/2014	Green turtle	Traditional stranding	Alive	TX	Aransas	39	20	Gulf of Mexico	Inshore
AFA20140929-001	9/29/2014	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
AFA20140930-001	9/30/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20141002-001	10/2/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
AMO20141004-001	10/4/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20141004-001	10/4/2014	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AJR20141008-001	10/8/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
AFA20141010-001	10/10/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
AFA20141014-001	10/14/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Offshore
AFA20141014-002	10/14/2014	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
EGD20141019-001	10/19/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Offshore
LXG20141020-001	10/20/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
AFA20141021-001	10/21/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
LXG20141021-001	10/21/2014	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AFA20141022-001	10/22/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AFA20141022-002	10/22/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
LXG20141026-001	10/26/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore
RRR20141029-001	10/29/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AFA20141102-001	11/2/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
LXG20141104-001	11/4/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Offshore
AFA20141109-001	11/9/2014	Hawksbill	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
MPH20141114-002	11/14/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
LXG20141114-005	11/14/2014	Unknown	Traditional stranding	Skeletal	TX	Nueces	46	20	Gulf of Mexico	Inshore
AFA20141115-001	11/15/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20141119-003	11/19/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20141119-004	11/19/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20141121-001	11/21/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AFA20141125-002	11/25/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AFA20141126-003	11/26/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
JLM20141126-001	11/26/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Offshore
AFA20141129-002	11/29/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	48	19	Gulf of Mexico	Inshore
AFA20141129-001	11/29/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AFA20141201-002	12/1/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	49	19	Gulf of Mexico	Inshore
AFA20141201-003	12/1/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	49	19	Gulf of Mexico	Inshore
AFA20141201-001	12/1/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AKT20141201-001	12/1/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
CXR20141201-001	12/1/2014	Loggerhead	Traditional stranding	Dried carcass	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20141202-001	12/2/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
AFA20141202-002	12/2/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
CXR20141202-001	12/2/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
AFA20141204-003	12/4/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20141205-001	12/5/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20141206-001	12/6/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	49	19	Gulf of Mexico	Inshore
AMO20141206-002	12/6/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	49	19	Gulf of Mexico	Inshore
AFA20141207-002	12/7/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
AKT20141210-001	12/10/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
JAH20141211-001	12/11/2014	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	50	19	Gulf of Mexico	Inshore
AFA20141211-001	12/11/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
AFA20141213-001	12/13/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
AFA20141214-001	12/14/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
AMO20141214-001	12/14/2014	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Offshore
AFA20141215-001	12/15/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
AJR20141218-001	12/18/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	51	19	Gulf of Mexico	Inshore
AFA20141219-001	12/19/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
RRR20141219-001	12/19/2014	Unknown	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
AFA20141221-001	12/21/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20141221-001	12/21/2014	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AFA20141227-003	12/27/2014	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	52	19	Gulf of Mexico	Inshore
AFA20141227-001	12/27/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AFA20141227-002	12/27/2014	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20141227-001	12/27/2014	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	52	20	Gulf of Mexico	Inshore
AFA20141229-001	12/29/2014	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	53	20	Gulf of Mexico	Inshore
AFA20150101-001	1/1/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	1	20	Gulf of Mexico	Inshore
AFA20150101-002	1/1/2015	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	1	19	Gulf of Mexico	Offshore
AKT20150106-001	1/6/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
GAG20150108-001	1/8/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
JSW20150108-001	1/8/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
MCW20150108-001	1/8/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
JKK20150109-001	1/9/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
NJD20150111-014	1/11/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
AFA20150112-001	1/12/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	3	19	Gulf of Mexico	Inshore
AFA20150112-002	1/12/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	3	19	Gulf of Mexico	Inshore
AFA20150113-001	1/13/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
KXV20150118-001	1/18/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	4	20	Gulf of Mexico	Offshore
AFA20150120-004	1/20/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
AKT20150130-001	1/30/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20150131-001	1/31/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AKT20150203-001	2/3/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
SFK20150206-001	2/6/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
RRR20150207-002	2/7/2015	Unknown	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AFA20150213-001	2/13/2015	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	7	20	Gulf of Mexico	Inshore
EXW20150213-001	2/13/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMO20150214-001	2/14/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AKT20150215-001	2/15/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AKT20150215-002	2/15/2015	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	8	20	Gulf of Mexico	Inshore
AFA20150215-001	2/15/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AMO20150215-001	2/15/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
EJW20150215-001	2/15/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AKT20150217-001	2/17/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AKT20150217-002	2/17/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
NJD20150217-001	2/17/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
RRR20150217-001	2/17/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AKT20150218-001	2/18/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	8	20	Gulf of Mexico	Offshore
AFA20150219-001	2/19/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
JKK20150220-001	2/20/2015	Unknown	Traditional stranding	Skeletal	TX	Nueces	8	20	Gulf of Mexico	Offshore
AMO20150221-001	2/21/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
DLE20150223-001	2/23/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AFA20150225-001	2/25/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AKT20150225-001	2/25/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	9	20	Gulf of Mexico	Inshore
AKT20150303-001	3/3/2015	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	10	19	Gulf of Mexico	Inshore
AFA20150305-001	3/5/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
LAM20150306-001	3/6/2015	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	10	20	Gulf of Mexico	Inshore
LAM20150306-002	3/6/2015	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	10	20	Gulf of Mexico	Inshore
AFA20150310-001	3/10/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
AFA20150312-001	3/12/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
AFA20150314-001	3/14/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	11	19	Gulf of Mexico	Inshore
AKT20150314-001	3/14/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Inshore
JSW20150317-001	3/17/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore
JLM20150318-001	3/18/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
AFA20150318-001	3/18/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
SFK20150320-001	3/20/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
CXR20150322-001	3/22/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	21	Gulf of Mexico	Inshore
AMO20150322-001	3/22/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AFA20150324-001	3/24/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20150324-002	3/24/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AFA20150325-001	3/25/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20150326-001	3/26/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AFA20150329-001	3/29/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AKT20150330-001	3/30/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AKT20150331-001	3/31/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AFA20150401-001	4/1/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AFA20150402-001	4/2/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	14	20	Gulf of Mexico	Inshore
AFA20150403-001	4/3/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Inshore
AMO20150404-001	4/4/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	14	20	Gulf of Mexico	Offshore
JSW20150404-001	4/4/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	14	20	Gulf of Mexico	Inshore
AFA20150405-001	4/5/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
AKT20150405-001	4/5/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20150408-001	4/8/2015	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20150410-001	4/10/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
XSH20150411-001	4/11/2015	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20150412-001	4/12/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
AMO20150412-001	4/12/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Inshore
AKT20150414-001	4/14/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
LSJ20150414-001	4/14/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20150415-001	4/15/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
TXK20150415-001	4/15/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AKT20150415-001	4/15/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
RKT20150415-001	4/15/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMO20150418-001	4/18/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	16	20	Gulf of Mexico	Inshore
PWK20150418-001	4/18/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20150419-001	4/19/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
BAD20150419-001	4/19/2015	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
FXH20150423-001	4/23/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	17	20	Gulf of Mexico	Offshore
AFA20150423-001	4/23/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
AFA20150424-001	4/24/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AFA20150424-002	4/24/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AFA20150426-001	4/26/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20150427-001	4/27/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20150427-002	4/27/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20150427-003	4/27/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20150430-001	4/30/2015	Loggerhead	Traditional stranding	Dried carcass	TX	Aransas	18	20	Gulf of Mexico	Offshore
NXC20150501-001	5/1/2015	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20150503-002	5/3/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20150503-001	5/3/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20150503-001	5/3/2015	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20150505-001	5/5/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMR20150505-001	5/5/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AKT20150505-001	5/5/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AKT20150505-002	5/5/2015	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
CEB20150506-001	5/6/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20150506-001	5/6/2015	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20150506-002	5/6/2015	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
MRP20150507-001	5/7/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
MRP20150507-002	5/7/2015	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
ARH20150508-001	5/8/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20150508-001	5/8/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AMO20150508-002	5/8/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
CNW20150508-001	5/8/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20150509-001	5/9/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AFA20150510-001	5/10/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20150510-002	5/10/2015	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20150510-003	5/10/2015	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
JCB20150511-001	5/11/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20150512-001	5/12/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Inshore
AFA20150513-001	5/13/2015	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20150514-001	5/14/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20150515-001	5/15/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20150517-001	5/17/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AFA20150517-002	5/17/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AMO20150517-001	5/17/2015	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
TRK20150519-001	5/19/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20150520-001	5/20/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMM20150520-001	5/20/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
JSW20150520-001	5/20/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20150523-001	5/23/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20150525-001	5/25/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AFA20150527-002	5/27/2015	Green turtle	Traditional stranding	Skeletal	TX	Aransas	22	20	Gulf of Mexico	Offshore
AFA20150527-001	5/27/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	22	20	Gulf of Mexico	Offshore
AFA20150529-002	5/29/2015	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20150529-003	5/29/2015	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
JXG20150530-001	5/30/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AFA20150531-001	5/31/2015	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20150601-001	6/1/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AFA20150601-002	6/1/2015	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	23	20	Gulf of Mexico	Inshore
AFA20150602-001	6/2/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AFA20150605-001	6/5/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
AFA20150606-001	6/6/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
CAK20150608-001	6/8/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	24	19	Gulf of Mexico	Inshore
AFA20150608-001	6/8/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
AFA20150612-001	6/12/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AKT20150614-001	6/14/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20150614-001	6/14/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Inshore
AFA20150614-002	6/14/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20150615-001	6/15/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20150616-001	6/16/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Inshore
SXT20150617-001	6/17/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20150619-002	6/19/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20150619-001	6/19/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AFA20150621-001	6/21/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AFA20150624-001	6/24/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AKT20150625-001	6/25/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20150627-001	6/27/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20150629-001	6/29/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20150702-001	7/2/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	27	20	Gulf of Mexico	Inshore
AFA20150702-002	7/2/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
AFA20150703-001	7/3/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
BLM20150704-001	7/4/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
SMH20150706-001	7/6/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	28	19	Gulf of Mexico	Inshore
NDJ20150706-001	7/6/2015	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	28	21	Gulf of Mexico	Offshore
AFA20150708-001	7/8/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
MAP20150711-001	7/11/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AMO20150711-001	7/11/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20150712-001	7/12/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20150712-002	7/12/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20150712-003	7/12/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
JAH20150713-001	7/13/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	29	20	Gulf of Mexico	Inshore
AFA20150714-001	7/14/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	29	20	Gulf of Mexico	Inshore
EMF20150714-001	7/14/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	21	Gulf of Mexico	Offshore
AMO20150715-001	7/15/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
MLW20150715-001	7/15/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20150716-001	7/16/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20150719-002	7/19/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20150719-001	7/19/2015	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20150720-001	7/20/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	30	19	Gulf of Mexico	Offshore
CAK20150721-001	7/21/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	30	20	Gulf of Mexico	Inshore
AKT20150721-001	7/21/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20150722-001	7/22/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
CXR20150722-001	7/22/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMT20150722-001	7/22/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
EXM20150723-001	7/23/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20150723-001	7/23/2015	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20150723-002	7/23/2015	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMO20150724-001	7/24/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20150725-001	7/25/2015	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20150727-001	7/27/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20150728-001	7/28/2015	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	31	20	Gulf of Mexico	Offshore
KXS20150730-001	7/30/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Inshore
ELC20150731-001	7/31/2015	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	31	19	Gulf of Mexico	Inshore
AFA20150801-001	8/1/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
AFA20150802-001	8/2/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AFA20150808-001	8/8/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Inshore
AFA20150812-002	8/12/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	33	19	Gulf of Mexico	Offshore
AFA20150812-001	8/12/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	33	20	Gulf of Mexico	Inshore
AFA20150818-001	8/18/2015	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
AFA20150819-001	8/19/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Inshore
SMH20150820-001	8/20/2015	Hawksbill	Traditional stranding	Severely decomposed	TX	Aransas	34	19	Gulf of Mexico	Inshore
AFA20150820-001	8/20/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Inshore
AFA20150821-001	8/21/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	34	20	Gulf of Mexico	Offshore
AFA20150824-001	8/24/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	35	20	Gulf of Mexico	Offshore
AMO20150828-001	8/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Inshore
LEP20150829-001	8/29/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	35	20	Gulf of Mexico	Offshore
AFA20150830-001	8/30/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Inshore
NJD20150831-001	8/31/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	36	20	Gulf of Mexico	Inshore
AFA20150901-003	9/1/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
AFA20150901-001	9/1/2015	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
LAM20150901-001	9/1/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	36	21	Gulf of Mexico	Offshore
AFA20150907-001	9/7/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
AKT20150909-001	9/9/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	37	20	Gulf of Mexico	Inshore
AFA20150911-001	9/11/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
LXG20150912-001	9/12/2015	Unknown	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
LXG20150913-001	9/13/2015	Unknown	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	38	20	Gulf of Mexico	Inshore
AKT20150915-001	9/15/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
AFA20150915-001	9/15/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
NDJ20150916-002	9/16/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
AFA20150917-001	9/17/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
AFA20150917-002	9/17/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
AFA20150920-001	9/20/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AFA20150922-001	9/22/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
TFB20150923-001	9/23/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AKT20150923-001	9/23/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AFA20150925-001	9/25/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AFA20150930-001	9/30/2015	Loggerhead	Traditional stranding		TX	Aransas	40	20	Gulf of Mexico	Offshore
LJW20151002-001	10/2/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20151002-001	10/2/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AKT20151006-001	10/6/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
AFA20151008-001	10/8/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
AFA20151010-001	10/10/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20151011-001	10/11/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20151012-001	10/12/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AFA20151013-001	10/13/2015	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AMO20151016-002	10/16/2015	Green turtle	Traditional stranding	Alive	TX	Aransas	42	20	Gulf of Mexico	Inshore
MRP20151016-001	10/16/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AKT20151016-001	10/16/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AMO20151016-001	10/16/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AFA20151017-001	10/17/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
AFA20151018-001	10/18/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AKT20151021-001	10/21/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AFA20151022-001	10/22/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AMO20151023-001	10/23/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AFA20151023-001	10/23/2015	Loggerhead	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Offshore
AMO20151024-001	10/24/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20151024-002	10/24/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20151024-003	10/24/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20151024-004	10/24/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20151024-005	10/24/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20151025-001	10/25/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20151025-002	10/25/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AFA20151030-001	10/30/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AFA20151030-002	10/30/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore
MRP20151031-001	10/31/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
AFA20151101-001	11/1/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AFA20151103-001	11/3/2015	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	45	19	Gulf of Mexico	Offshore
AFA20151105-001	11/5/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
AFA20151106-001	11/6/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMO20151107-001	11/7/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMO20151108-001	11/8/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20151108-002	11/8/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AKT20151109-001	11/9/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AFA20151110-001	11/10/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AKT20151110-001	11/10/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20151114-001	11/14/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
AFA20151115-001	11/15/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AMO20151115-001	11/15/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20151115-002	11/15/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
AFA20151117-001	11/17/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AFA20151120-001	11/20/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AMO20151120-001	11/20/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
EXE20151121-001	11/21/2015	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AFA20151125-001	11/25/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20151125-002	11/25/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20151127-001	11/27/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20151128-001	11/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20151128-002	11/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20151128-003	11/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20151128-004	11/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20151128-005	11/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20151128-006	11/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20151128-007	11/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20151128-008	11/28/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AFA20151130-001	11/30/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20151201-001	12/1/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
AFA20151203-001	12/3/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
AFA20151203-002	12/3/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20151205-001	12/5/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
CAK20151210-001	12/10/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	50	19	Gulf of Mexico	Inshore
CAK20151211-001	12/11/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	50	19	Gulf of Mexico	Inshore
AFA20151213-001	12/13/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
EGD20151214-001	12/14/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Offshore
AFA20151215-002	12/15/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
AFA20151215-001	12/15/2015	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
MXH20151216-001	12/16/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	51	20	Gulf of Mexico	Inshore
CXM20151217-001	12/17/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	51	20	Gulf of Mexico	Inshore
AFA20151217-001	12/17/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
AFA20151218-001	12/18/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
MRP20151218-001	12/18/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
AMO20151220-001	12/20/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20151220-002	12/20/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Inshore
AFA20151221-001	12/21/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AFA20151222-001	12/22/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AFA20151222-002	12/22/2015	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AFA20151225-001	12/25/2015	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
JLM20151226-001	12/26/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Offshore
LJW20151227-001	12/27/2015	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
AMW20151231-001	12/31/2015	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Inshore
AFA20160103-001	1/3/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Offshore
AKT20160104-001	1/4/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
MRP20160105-001	1/5/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
AFA20160105-001	1/5/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AKT20160106-001	1/6/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AFA20160109-001	1/9/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Offshore
TFB20160110-001	1/10/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20160111-001	1/11/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMO20160111-001	1/11/2016	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMO20160111-002	1/11/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
AFA20160118-001	1/18/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
MRP20160120-001	1/20/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
AKT20160120-001	1/20/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
AFA20160121-001	1/21/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
AFA20160123-001	1/23/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
AFA20160124-001	1/24/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
CXR20160124-001	1/24/2016	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20160125-001	1/25/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AFA20160125-002	1/25/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AMO20160126-001	1/26/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20160127-001	1/27/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Offshore
MPH20160127-001	1/27/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AKT20160127-001	1/27/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Offshore
AKT20160128-001	1/28/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Offshore
AKT20160128-002	1/28/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20160202-001	2/2/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AKT20160202-001	2/2/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AFA20160204-001	2/4/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AKT20160205-001	2/5/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AMO20160205-001	2/5/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AFA20160207-001	2/7/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	7	20	Gulf of Mexico	Inshore
AFA20160210-001	2/10/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AFA20160211-001	2/11/2016	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	7	19	Gulf of Mexico	Offshore
AFA20160211-002	2/11/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	7	19	Gulf of Mexico	Offshore
AFA20160212-001	2/12/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AFA20160212-002	2/12/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AFA20160213-001	2/13/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	7	20	Gulf of Mexico	Offshore
AKT20160213-001	2/13/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AFA20160214-001	2/14/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
TFB20160214-001	2/14/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AFA20160215-001	2/15/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AFA20160216-001	2/16/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
CXM20160217-001	2/17/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	8	19	Gulf of Mexico	Inshore
AFA20160217-001	2/17/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AFA20160217-002	2/17/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AFA20160218-002	2/18/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
DPI20160219-001	2/19/2016	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	8	19	Gulf of Mexico	Inshore
AKT20160219-001	2/19/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	8	20	Gulf of Mexico	Offshore
LJW20160220-001	2/20/2016	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
MRP20160222-001	2/22/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
TFB20160223-001	2/23/2016	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AFA20160224-001	2/24/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AMO20160226-001	2/26/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AKT20160227-001	2/27/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
TFB20160227-001	2/27/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AMO20160228-001	2/28/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Inshore
AFA20160229-001	2/29/2016	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	10	20	Gulf of Mexico	Offshore
AKT20160229-001	2/29/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Offshore
AFA20160304-001	3/4/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
AFA20160304-003	3/4/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
AFA20160304-004	3/4/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
AMO20160304-001	3/4/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
AFA20160306-001	3/6/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AFA20160307-001	3/7/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AFA20160309-001	3/9/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AFA20160312-001	3/12/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Inshore
LXU20160314-001	3/14/2016	Unknown	Traditional stranding	Severely decomposed	TX	Aransas	12	19	Gulf of Mexico	Inshore
JLM20160318-001	3/18/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
AFA20160322-001	3/22/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AFA20160325-001	3/25/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
AFA20160325-004	3/25/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
AFA20160325-002	3/25/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	13	19	Gulf of Mexico	Offshore
AFA20160325-003	3/25/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
AFA20160325-005	3/25/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20160326-001	3/26/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AMO20160326-001	3/26/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AFA20160328-001	3/28/2016	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	14	20	Gulf of Mexico	Offshore
MMS20160328-001	3/28/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AFA20160330-002	3/30/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20160330-001	3/30/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Inshore
AFA20160330-001	3/30/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
EXM20160406-001	4/6/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
TDW20160407-001	4/7/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AFA20160409-001	4/9/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	15	20	Gulf of Mexico	Offshore
AMO20160409-001	4/9/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
AFA20160410-001	4/10/2016	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20160412-001	4/12/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AKT20160413-002	4/13/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AKT20160413-001	4/13/2016	Loggerhead	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Inshore
AFA20160414-001	4/14/2016	Green turtle	Traditional stranding	Alive	TX	San Patricio	16	20	Gulf of Mexico	Inshore
AFA20160417-001	4/17/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	17	19	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
ARM20160417-002	4/17/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
LXU20160419-001	4/19/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	17	19	Gulf of Mexico	Inshore
EGD20160421-001	4/21/2016	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	17	19	Gulf of Mexico	Offshore
AFA20160421-002	4/21/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
AFA20160421-001	4/21/2016	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AFA20160423-001	4/23/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
MJA20160425-001	4/25/2016	Kemp's ridley	Traditional stranding	Alive	TX	Aransas	18	20	Gulf of Mexico	Offshore
AFA20160426-001	4/26/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20160428-001	4/28/2016	Unknown	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AFA20160501-001	5/1/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AFA20160503-001	5/3/2016	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	19	20	Gulf of Mexico	Offshore
AFA20160503-002	5/3/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
MRP20160505-001	5/5/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
EGD20160508-001	5/8/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
RKT20160508-001	5/8/2016	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
AMO20160508-001	5/8/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Inshore
AFA20160510-001	5/10/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
AFA20160511-001	5/11/2016	Leatherback	Traditional stranding	Moderately decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
AKT20160511-001	5/11/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AKT20160511-002	5/11/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
TDW20160512-001	5/12/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AFA20160513-002	5/13/2016	Leatherback	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Inshore
AFA20160513-001	5/13/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	San Patricio	20	20	Gulf of Mexico	Inshore
LSR20160515-001	5/15/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
RXA20160516-001	5/16/2016	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20160516-001	5/16/2016	Kemp's ridley	Traditional stranding	Skeletal	TX	Nueces	21	20	Gulf of Mexico	Offshore
KMD20160518-001	5/18/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20160519-001	5/19/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AFA20160520-001	5/20/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	21	19	Gulf of Mexico	Offshore
AFA20160523-001	5/23/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
SMH20160524-001	5/24/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	22	19	Gulf of Mexico	Inshore
AFA20160524-001	5/24/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
MRP20160524-001	5/24/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20160525-001	5/25/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20160527-001	5/27/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AFA20160528-001	5/28/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
BLB20160610-001	6/10/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	24	19	Gulf of Mexico	Inshore
AFA20160611-001	6/11/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
ELP20160614-001	6/14/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	25	19	Gulf of Mexico	Inshore
AFA20160614-001	6/14/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AKT20160615-001	6/15/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Inshore
AMO20160619-001	6/19/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20160620-001	6/20/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20160620-002	6/20/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AFA20160622-001	6/22/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20160623-001	6/23/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20160624-002	6/24/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20160624-001	6/24/2016	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AFA20160626-001	6/26/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AKT20160627-002	6/27/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	27	20	Gulf of Mexico	Inshore
TSL20160627-001	6/27/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AML20160628-001	6/28/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AFA20160628-002	6/28/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
CAK20160701-001	7/1/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	27	20	Gulf of Mexico	Inshore
AMO20160701-001	7/1/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
EGD20160706-001	7/6/2016	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	28	20	Gulf of Mexico	Offshore
AFA20160707-002	7/7/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AFA20160707-001	7/7/2016	Leatherback	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
PCF20160709-001	7/9/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
AFA20160709-001	7/9/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
EGD20160710-001	7/10/2016	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	29	20	Gulf of Mexico	Offshore
AFA20160711-002	7/11/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20160711-001	7/11/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
AFA20160712-001	7/12/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AFA20160712-002	7/12/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
AFA20160717-001	7/17/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AKT20160720-001	7/20/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AKT20160720-002	7/20/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20160722-001	7/22/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AKT20160722-001	7/22/2016	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AKT20160723-001	7/23/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AFA20160724-001	7/24/2016	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	31	20	Gulf of Mexico	Offshore
AKT20160726-001	7/26/2016	Green turtle	Traditional stranding	Alive	TX	Aransas	31	19	Gulf of Mexico	Inshore
AKT20160801-001	8/1/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AFA20160802-001	8/2/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Inshore
AMO20160804-001	8/4/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AFA20160810-001	8/10/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Inshore
AFA20160810-002	8/10/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20160811-001	8/11/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Inshore
AFA20160811-002	8/11/2016	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AFA20160816-002	8/16/2016	Green turtle	Traditional stranding	Alive	TX	Aransas	34	20	Gulf of Mexico	Inshore
AKT20160816-001	8/16/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AFA20160816-001	8/16/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
AKT20160816-002	8/16/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AXO20160818-001	8/18/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	34	19	Gulf of Mexico	Inshore
MRP20160818-001	8/18/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
TSA20160825-001	8/25/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AFA20160828-001	8/28/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
AFA20160830-001	8/30/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
AFA20160831-001	8/31/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
LMM20160913-001	9/13/2016	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	38	20	Gulf of Mexico	Inshore
AKT20160914-001	9/14/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	38	20	Gulf of Mexico	Inshore
AKT20160914-002	9/14/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
JWS20160914-001	9/14/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	38	20	Gulf of Mexico	Inshore
AKT20160918-001	9/18/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	39	20	Gulf of Mexico	Inshore
AFA20160919-001	9/19/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AFA20160920-001	9/20/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
CXR20160921-001	9/21/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
JET20160922-001	9/22/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	39	19	Gulf of Mexico	Inshore
AFA20160925-001	9/25/2016	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	40	19	Gulf of Mexico	Offshore
AFA20160926-001	9/26/2016	Loggerhead	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AKT20160927-001	9/27/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AFA20160929-001	9/29/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AMO20161001-001	10/1/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
AKT20161003-001	10/3/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
DHT20161003-001	10/3/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
AKT20161004-001	10/4/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
AMW20161006-001	10/6/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Offshore
KRN20161007-001	10/7/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
AMW20161007-001	10/7/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
AKT20161010-001	10/10/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AMW20161012-001	10/12/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AMW20161013-001	10/13/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AKT20161016-001	10/16/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AKT20161016-002	10/16/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
TFB20161017-001	10/17/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AFA20161018-001	10/18/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AKT20161018-002	10/18/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
LXU20161019-001	10/19/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	43	20	Gulf of Mexico	Inshore
AFA20161019-001	10/19/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AKT20161020-001	10/20/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
AFA20161020-001	10/20/2016	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AMW20161020-001	10/20/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AKT20161021-001	10/21/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
DHT20161022-001	10/22/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AKT20161023-001	10/23/2016	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KRN20161026-001	10/26/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20161028-001	10/28/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
DBG20161028-001	10/28/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AKT20161029-001	10/29/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AFA20161102-001	11/2/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
AKT20161103-001	11/3/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMW20161103-001	11/3/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Offshore
AFA20161103-001	11/3/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMO20161106-001	11/6/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20161106-002	11/6/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMW20161107-001	11/7/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AKT20161113-001	11/13/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
LXG20161116-001	11/16/2016	Unknown	Traditional stranding		TX	Nueces	47	20	Gulf of Mexico	Inshore
AFA20161117-001	11/17/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
LXG20161118-001	11/18/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AFA20161121-001	11/21/2016	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20161127-001	11/27/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
LXG20161129-001	11/29/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20161129-001	11/29/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	San Patricio	49	20	Gulf of Mexico	Inshore
AMW20161130-001	11/30/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20161201-001	12/1/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20161201-002	12/1/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMW20161201-001	12/1/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AFA20161203-001	12/3/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20161205-001	12/5/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
AFA20161206-002	12/6/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	50	20	Gulf of Mexico	Offshore
AFA20161206-001	12/6/2016	Kemp's ridley	Traditional stranding	Skeletal	TX	Aransas	50	20	Gulf of Mexico	Offshore
AMW20161207-001	12/7/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AKT20161209-001	12/9/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
MMS20161209-001	12/9/2016	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
AMO20161210-002	12/10/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Offshore
AMO20161210-001	12/10/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AFA20161213-001	12/13/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
LXG20161215-001	12/15/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
MMS20161215-001	12/15/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMW20161215-001	12/15/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMW20161215-002	12/15/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMW20161216-001	12/16/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Offshore
AFA20161217-001	12/17/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	51	19	Gulf of Mexico	Inshore
AMO20161217-001	12/17/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMO20161217-002	12/17/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMO20161217-003	12/17/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20161218-001	12/18/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	52	20	Gulf of Mexico	Offshore
AFA20161218-002	12/18/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20161218-001	12/18/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Offshore
CXM20161220-001	12/20/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	52	19	Gulf of Mexico	Inshore
AKT20161220-001	12/20/2016	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Inshore
AFS20161224-001	12/24/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20161225-001	12/25/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
AFA20161225-001	12/25/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
AFA20161227-001	12/27/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
AFA20161227-002	12/27/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
AFA20161229-001	12/29/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
AFA20161229-002	12/29/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
AKT20161229-001	12/29/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
AMW20161229-001	12/29/2016	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
AFA20161230-001	12/30/2016	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
AKT20161231-001	12/31/2016	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
JLM20170101-001	1/1/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AKT20170102-001	1/2/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMW20170102-001	1/2/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
AKT20170103-001	1/3/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore
TSL20170105-001	1/5/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Offshore
AFA20170105-001	1/5/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore
AFA20170105-002	1/5/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore
SHK20170107-001	1/7/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMO20170107-001	1/7/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMO20170107-002	1/7/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
CXR20170107-001	1/7/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20170107-002	1/7/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
DEB20170108-001	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
DEB20170108-002	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
KBE20170108-001	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
KBE20170108-002	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
KBE20170108-003	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
KBE20170108-004	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
KBE20170108-005	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
KMI20170108-001	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SHK20170108-001	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SHK20170108-002	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
JLM20170108-001	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
AMO20170108-001	1/8/2017	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-001	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-004	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
SWT20170108-005	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-006	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-007	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-008	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-009	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-010	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-011	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-012	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-013	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-014	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-016	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-017	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-018	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-019	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-020	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-021	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-022	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-023	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-024	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-025	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170108-026	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
DBT20170108-001	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
DBT20170108-004	1/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SFK20170109-001	1/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
SWT20170109-001	1/9/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
KXJ20170109-001	1/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
JLM20170111-001	1/11/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AMO20170113-001	1/13/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
CXR20170113-001	1/13/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AMO20170114-001	1/14/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AMO20170114-002	1/14/2017	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Offshore
AMO20170115-001	1/15/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
MMS20170117-001	1/17/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AKT20170117-001	1/17/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AXO20170118-001	1/18/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	3	20	Gulf of Mexico	Inshore
LXU20170119-001	1/19/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	3	20	Gulf of Mexico	Inshore
AFA20170120-001	1/20/2017	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	3	19	Gulf of Mexico	Offshore
AMW20170120-001	1/20/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
JSK20170123-001	1/23/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
MMS20170126-001	1/26/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
MWB20170129-001	1/29/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Inshore
AKT20170131-001	1/31/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMW20170201-001	2/1/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
ELP20170202-001	2/2/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	5	20	Gulf of Mexico	Inshore
MMS20170204-001	2/4/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AFA20170204-002	2/4/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AFA20170204-001	2/4/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AMO20170205-001	2/5/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AKT20170206-001	2/6/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
MMS20170207-001	2/7/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Offshore
MRB20170208-001	2/8/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
LMM20170210-001	2/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
AMW20170210-001	2/10/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	21	Gulf of Mexico	Offshore
TSL20170212-001	2/12/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
TSL20170212-002	2/12/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
TSL20170212-003	2/12/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMW20170213-001	2/13/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	21	Gulf of Mexico	Inshore
AMW20170213-002	2/13/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
AKT20170214-001	2/14/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
LXG20170215-001	2/15/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMW20170215-001	2/15/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
TSL20170216-001	2/16/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AKT20170218-001	2/18/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMO20170218-001	2/18/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMO20170219-001	2/19/2017	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	8	20	Gulf of Mexico	Offshore
AFA20170220-001	2/20/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AKT20170221-001	2/21/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
CMP20170222-001	2/22/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
CMP20170224-001	2/24/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
CMP20170224-002	2/24/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	8	20	Gulf of Mexico	Offshore
CMP20170224-003	2/24/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AMO20170226-001	2/26/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AFA20170226-001	2/26/2017	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AFA20170227-001	2/27/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AMW20170228-001	2/28/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
JSK20170302-001	3/2/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AKT20170303-001	3/3/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AMO20170304-001	3/4/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AMO20170304-002	3/4/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	9	20	Gulf of Mexico	Inshore
JXR20170304-001	3/4/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	9	20	Gulf of Mexico	Offshore
AMO20170305-001	3/5/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
AKT20170307-001	3/7/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Inshore
AKT20170308-001	3/8/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	10	19	Gulf of Mexico	Inshore
AMW20170309-001	3/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AFA20170310-001	3/10/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
AMW20170310-001	3/10/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
AFA20170311-001	3/11/2017	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
JSK20170313-001	3/13/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Offshore
AML20170314-001	3/14/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Inshore
CMP20170317-001	3/17/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
AKT20170318-001	3/18/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
AFA20170319-001	3/19/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	12	20	Gulf of Mexico	Offshore
AFA20170319-003	3/19/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	12	20	Gulf of Mexico	Offshore
AFA20170319-002	3/19/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	12	20	Gulf of Mexico	Offshore
AMO20170319-001	3/19/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
LXU20170320-001	3/20/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	12	19	Gulf of Mexico	Inshore
TSL20170323-001	3/23/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
AMO20170324-001	3/24/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
AFA20170325-001	3/25/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	12	19	Gulf of Mexico	Inshore
AKT20170325-001	3/25/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
AMO20170326-001	3/26/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Inshore
AFA20170327-001	3/27/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
AFA20170327-004	3/27/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
AFA20170327-003	3/27/2017	Kemp's ridley	Traditional stranding	Alive	TX	Aransas	13	19	Gulf of Mexico	Offshore
AFA20170327-002	3/27/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
AMW20170327-002	3/27/2017	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	13	20	Gulf of Mexico	Offshore
AMW20170327-001	3/27/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AMW20170330-001	3/30/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AMO20170402-002	4/2/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Inshore
AMO20170402-001	4/2/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
RDG20170404-001	4/4/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AMW20170404-001	4/4/2017	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Offshore
TSL20170406-001	4/6/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
JSK20170406-001	4/6/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
JJG20170407-001	4/7/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AMO20170407-001	4/7/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20170408-001	4/8/2017	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20170408-002	4/8/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20170409-001	4/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20170409-002	4/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20170409-003	4/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Inshore
AKT20170410-001	4/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Inshore
AFA20170412-002	4/12/2017	Kemp's ridley	Traditional stranding	Dried carcass	TX	Aransas	15	19	Gulf of Mexico	Offshore
AFA20170412-001	4/12/2017	Loggerhead	Traditional stranding	Alive	TX	Aransas	15	20	Gulf of Mexico	Offshore
AMW20170412-001	4/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMW20170412-002	4/12/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMW20170413-002	4/13/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMW20170413-001	4/13/2017	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20170414-001	4/14/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20170415-001	4/15/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20170416-001	4/16/2017	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AFA20170417-001	4/17/2017	Green turtle	Traditional stranding	Skeletal	TX	Aransas	16	19	Gulf of Mexico	Offshore
AKT20170417-001	4/17/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMW20170417-001	4/17/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMW20170417-002	4/17/2017	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
PBB20170418-001	4/18/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
LSR20170419-001	4/19/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMO20170423-002	4/23/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
TSL20170424-001	4/24/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMW20170426-002	4/26/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
MAH20170426-001	4/26/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMW20170426-001	4/26/2017	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
TSL20170427-001	4/27/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
JSK20170427-001	4/27/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMO20170428-001	4/28/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
AMO20170429-001	4/29/2017	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMO20170429-002	4/29/2017	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AKT20170430-001	4/30/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
RDG20170501-002	5/1/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
RDG20170501-001	5/1/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMW20170502-001	5/2/2017	Green turtle	Traditional stranding	Alive	TX	Aransas	18	20	Gulf of Mexico	Offshore
AMW20170502-002	5/2/2017	Green turtle	Traditional stranding	Alive	TX	Aransas	18	20	Gulf of Mexico	Offshore
AKT20170503-001	5/3/2017	Loggerhead	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMW20170505-001	5/5/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Inshore
AMW20170505-002	5/5/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Inshore
AMW20170506-001	5/6/2017	Unknown	Traditional stranding	Skeletal	TX	Aransas	18	20	Gulf of Mexico	Offshore
AFA20170507-001	5/7/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20170508-002	5/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
RKT20170510-001	5/10/2017	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	19	20	Gulf of Mexico	Offshore
AKT20170510-001	5/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
TSL20170511-001	5/11/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AKT20170512-001	5/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AKT20170512-002	5/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMW20170512-001	5/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
MAH20170513-001	5/13/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
LMM20170513-001	5/13/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Inshore
LMM20170513-002	5/13/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AMO20170513-001	5/13/2017	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
TSL20170515-001	5/15/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20170515-001	5/15/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
TSL20170515-002	5/15/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
JAH20170516-001	5/16/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
TSL20170516-001	5/16/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Inshore
AMW20170516-001	5/16/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20170516-002	5/16/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
RKT20170517-001	5/17/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
AMW20170517-001	5/17/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20170517-003	5/17/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AKT20170517-001	5/17/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20170517-002	5/17/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
LMA20170518-001	5/18/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
TSL20170518-001	5/18/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20170518-001	5/18/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20170519-001	5/19/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
MSM20170519-001	5/19/2017	Loggerhead	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
CXR20170522-001	5/22/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20170522-001	5/22/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
LEH20170522-001	5/22/2017	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMW20170523-002	5/23/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	21	19	Gulf of Mexico	Inshore
MJA20170523-001	5/23/2017	Kemp's ridley	Traditional stranding	Dried carcass	TX	Aransas	21	19	Gulf of Mexico	Offshore
AMW20170523-001	5/23/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMW20170524-003	5/24/2017	Green turtle	Traditional stranding	Alive	TX	Aransas	21	20	Gulf of Mexico	Inshore
LSR20170524-001	5/24/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AKT20170524-001	5/24/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
AMW20170524-001	5/24/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AMW20170524-002	5/24/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
TSL20170525-001	5/25/2017	Green turtle	Traditional stranding	Alive	TX	Aransas	21	20	Gulf of Mexico	Offshore
PCM20170525-001	5/25/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
RKT20170526-001	5/26/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMW20170526-001	5/26/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AML20170527-001	5/27/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
AMO20170527-001	5/27/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20170527-002	5/27/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
KMH20170529-001	5/29/2017	Loggerhead	Traditional stranding	Severely decomposed	TX	San Patricio	22	20	Gulf of Mexico	Offshore
MMS20170602-001	6/2/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20170602-002	6/2/2017	Green turtle	Traditional stranding	Alive	TX	San Patricio	22	20	Gulf of Mexico	Inshore
AMO20170603-002	6/3/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20170603-003	6/3/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
MER20170604-001	6/4/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20170604-001	6/4/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20170604-002	6/4/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AKT20170605-001	6/5/2017	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20170606-001	6/6/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
TXP20170607-001	6/7/2017	Green turtle	Traditional stranding	Alive	TX	Aransas	23	19	Gulf of Mexico	Offshore
TSL20170608-001	6/8/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20170609-001	6/9/2017	Green turtle	Traditional stranding	Alive	TX	Aransas	23	20	Gulf of Mexico	Inshore
AMO20170609-003	6/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20170609-002	6/9/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AXL20170610-001	6/10/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AFA20170611-001	6/11/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Inshore
RKT20170612-001	6/12/2017	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	24	19	Gulf of Mexico	Offshore
RKT20170612-002	6/12/2017	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	24	19	Gulf of Mexico	Offshore
MMS20170612-001	6/12/2017	Unknown	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
TSL20170613-001	6/13/2017	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
LHH20170615-001	6/15/2017	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
TSL20170617-001	6/17/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20170617-002	6/17/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20170618-002	6/18/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMW20170619-001	6/19/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
TSL20170620-001	6/20/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
TSL20170621-001	6/21/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
TSL20170621-002	6/21/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMW20170621-001	6/21/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
MER20170623-001	6/23/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
TSL20170624-002	6/24/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	25	20	Gulf of Mexico	Inshore
TSL20170624-001	6/24/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20170624-002	6/24/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20170624-001	6/24/2017	Loggerhead	Traditional stranding	Dried carcass	TX	Nueces	25	20	Gulf of Mexico	Offshore
LHH20170625-001	6/25/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
TSL20170625-001	6/25/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
AMO20170625-001	6/25/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
PCM20170630-001	6/30/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
TSL20170701-001	7/1/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AMO20170701-001	7/1/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AMW20170704-001	7/4/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
TSL20170704-001	7/4/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
LRS20170705-001	7/5/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
TSL20170706-001	7/6/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMW20170711-001	7/11/2017	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
AMW20170714-002	7/14/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
AMW20170714-001	7/14/2017	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	28	20	Gulf of Mexico	Inshore
AMW20170717-001	7/17/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
HRF20170726-002	7/26/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
HRF20170726-001	7/26/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMW20170727-001	7/27/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
TSL20170727-001	7/27/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
TSL20170728-001	7/28/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
MHS20170728-001	7/28/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
FPG20170728-001	7/28/2017	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
AFA20170801-001	8/1/2017	Loggerhead	Traditional stranding	Dried carcass	TX	Aransas	31	20	Gulf of Mexico	Offshore
AMO20170801-001	8/1/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
AMW20170802-001	8/2/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
AMO20170804-001	8/4/2017	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
AMO20170806-001	8/6/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Inshore
AMB20170806-001	8/6/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
HRF20170808-001	8/8/2017	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
CMP20170809-001	8/9/2017	Unknown	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
JWT20170811-001	8/11/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AMO20170812-001	8/12/2017	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AMO20170817-001	8/17/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Inshore
AMO20170818-001	8/18/2017	Green turtle	Traditional stranding	Skeletal	TX	Aransas	33	20	Gulf of Mexico	Offshore
GAW20170818-001	8/18/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AMB20170819-001	8/19/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	33	20	Gulf of Mexico	Inshore
AMO20170820-001	8/20/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AMO20170821-001	8/21/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AKT20170828-001	8/28/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
CMP20170828-001	8/28/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Inshore
KAJ20170903-001	9/3/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Inshore
AML20170904-001	9/4/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	36	20	Gulf of Mexico	Inshore
CMP20170906-001	9/6/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
CMP20170907-001	9/7/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
CMP20170911-001	9/11/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
CMP20170912-001	9/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
CMP20170912-002	9/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
CMP20170912-003	9/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
AKT20170912-001	9/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Inshore
AMO20170915-001	9/15/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	37	20	Gulf of Mexico	Inshore
AMW20170917-001	9/17/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
AMB20170923-001	9/23/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	38	20	Gulf of Mexico	Inshore
AMO20170923-001	9/23/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
AMO20170923-002	9/23/2017	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
AMO20170930-001	9/30/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AMO20170930-002	9/30/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AML20171002-001	10/2/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMW20171003-001	10/3/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AMG20171008-001	10/8/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
CMP20171009-001	10/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
AXL20171009-001	10/9/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
CMP20171011-001	10/11/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
AMW20171012-001	10/12/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
HRF20171013-001	10/13/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
HRF20171014-001	10/14/2017	Loggerhead	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
CMP20171020-001	10/20/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
TFB20171020-001	10/20/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
TFB20171020-002	10/20/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
CMP20171021-001	10/21/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
CMP20171021-002	10/21/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
AKT20171021-001	10/21/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
CMP20171022-001	10/22/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AML20171022-001	10/22/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AKT20171023-001	10/23/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Offshore
CMP20171024-001	10/24/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AKT20171030-001	10/30/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore
JWT20171031-001	10/31/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
CMP20171102-001	11/2/2017	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore
CMP20171104-001	11/4/2017	Unknown	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
KPH20171106-001	11/6/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Inshore
AXO20171107-001	11/7/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	45	19	Gulf of Mexico	Inshore
AXO20171107-002	11/7/2017	Unknown	Traditional stranding	Severely decomposed	TX	Aransas	45	19	Gulf of Mexico	Inshore
AML20171107-001	11/7/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
CMP20171107-001	11/7/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
CMP20171107-002	11/7/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMW20171108-001	11/8/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
CXR20171111-001	11/11/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
JWD20171112-001	11/12/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	46	19	Gulf of Mexico	Inshore
AMO20171112-001	11/12/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMB20171113-001	11/13/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
CMP20171114-001	11/14/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	46	20	Gulf of Mexico	Inshore
AMW20171114-001	11/14/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	46	19	Gulf of Mexico	Inshore
CAS20171115-001	11/15/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
AML20171116-001	11/16/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMW20171116-001	11/16/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
CMP20171116-001	11/16/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
CMP20171116-002	11/16/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
AXL20171117-001	11/17/2017	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	46	20	Gulf of Mexico	Inshore
AMO20171118-001	11/18/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
DBG20171119-001	11/19/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AML20171119-001	11/19/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	47	20	Gulf of Mexico	Inshore
AMW20171121-001	11/21/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Offshore
AMO20171124-001	11/24/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Offshore
AMO20171124-002	11/24/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AMO20171124-003	11/24/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20171125-001	11/25/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AMO20171126-001	11/26/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20171126-002	11/26/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
CMP20171128-001	11/28/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
CMP20171128-002	11/28/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
JWT20171129-001	11/29/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20171201-001	12/1/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20171202-001	12/2/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20171202-002	12/2/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AML20171203-001	12/3/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
AMG20171203-001	12/3/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20171203-001	12/3/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20171203-002	12/3/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
AKT20171204-001	12/4/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
SAW20171204-001	12/4/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-001	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-002	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-003	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-004	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-005	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-006	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-007	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-008	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-009	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-010	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-011	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-012	12/8/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
SWT20171208-014	12/8/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
KWL20171209-002	12/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
AMO20171209-005	12/9/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
CXR20171209-002	12/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
CXR20171209-003	12/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
DJS20171209-001	12/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
DJS20171209-002	12/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
JLM20171209-002	12/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
JLM20171209-003	12/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KDE20171209-023	12/9/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
AMG20171210-001	12/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMO20171210-001	12/10/2017	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	50	20	Gulf of Mexico	Inshore
CXR20171210-001	12/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
JLM20171210-006	12/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
JLM20171210-007	12/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
JLM20171210-008	12/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
PCM20171210-001	12/10/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMW20171211-001	12/11/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMB20171212-001	12/12/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMO20171216-001	12/16/2017	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMO20171216-002	12/16/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
AMO20171217-001	12/17/2017	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMW20171218-001	12/18/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
AMW20171218-002	12/18/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
JWT20171219-001	12/19/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMW20171220-001	12/20/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMW20171226-001	12/26/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMW20171226-002	12/26/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Offshore
TFB20171226-002	12/26/2017	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20171229-001	12/29/2017	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20171230-001	12/30/2017	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMW20180102-001	1/2/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SAW20180102-001	1/2/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SXK20180102-001	1/2/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SXK20180102-002	1/2/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SXK20180102-003	1/2/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMW20180103-005	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Aransas	1	20	Gulf of Mexico	Inshore
NJD20180103-022	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NJD20180103-024	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NJD20180103-025	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NJD20180103-027	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NJD20180103-028	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NJD20180103-029	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NJD20180103-030	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
PCM20180103-009	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
PCM20180103-011	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180103-009	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180103-022	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180103-041	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180103-044	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180103-048	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
SWT20180103-057	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180103-058	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
BDG20180103-002	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
BDG20180103-015	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
BDG20180103-020	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMW20180103-004	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMW20180103-009	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMW20180103-001	1/3/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
AKT20180103-002	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMW20180103-002	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMW20180103-003	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JFK20180103-001	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JFK20180103-002	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JML20180103-010	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JML20180103-011	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JXR20180103-005	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JXR20180103-011	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
KDE20180103-027	1/3/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SXH20180104-005	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Aransas	1	20	Gulf of Mexico	Inshore
CXR20180104-001	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-004	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-005	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-006	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-007	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-008	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-009	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-010	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-013	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-014	1/4/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-015	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-016	1/4/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-018	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-019	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLM20180104-045	1/4/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
GEN20180104-003	1/4/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
JLC20180104-001	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
CMP20180104-001	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
CMP20180104-009	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
CMP20180104-016	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SMK20180104-002	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NEL20180104-002	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NEL20180104-003	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
NEL20180104-009	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NEL20180104-029	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
NEL20180104-070	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMO20180104-004	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMW20180104-001	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
KDE20180104-030	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
KDE20180104-039	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
KDE20180104-049	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-008	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-014	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-025	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-033	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-034	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-064	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-087	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-095	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-097	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-103	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-107	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
SWT20180104-110	1/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
TLK20180105-003	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
TLK20180105-005	1/5/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
TLK20180105-008	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMO20180105-001	1/5/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMO20180105-004	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore
BAR20180105-006	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
JXH20180105-002	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
PCF20180105-001	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
RXC20180105-003	1/5/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
RXC20180105-019	1/5/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-001	1/5/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-015	1/5/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-028	1/5/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-031	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-033	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-035	1/5/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-036	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-042	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
STC20180105-044	1/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
DBG20180107-001	1/7/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AMO20180107-001	1/7/2018	Green turtle	Traditional stranding	Alive	TX	San Patricio	2	20	Gulf of Mexico	Inshore
CXG20180110-001	1/10/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
NAS20180111-001	1/11/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
HWC20180112-001	1/12/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AMO20180115-001	1/15/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
JLM20180117-024	1/17/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
EET20180117-001	1/17/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMW20180117-001	1/17/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMW20180117-002	1/17/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AKT20180118-001	1/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AKT20180118-002	1/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AKT20180118-003	1/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AKT20180118-004	1/18/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMW20180118-001	1/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	19	Gulf of Mexico	Inshore
AMW20180118-002	1/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMO20180118-003	1/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
CMP20180119-008	1/19/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
CMP20180119-031	1/19/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
CMP20180119-033	1/19/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
MPH20180119-001	1/19/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
JLM20180119-001	1/19/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMO20180120-001	1/20/2018	Green turtle	Traditional stranding	Alive	TX	Aransas	3	20	Gulf of Mexico	Inshore
AMO20180121-002	1/21/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	4	18	Gulf of Mexico	Inshore
AMO20180122-002	1/22/2018	Green turtle	Traditional stranding	Alive	TX	Aransas	4	18	Gulf of Mexico	Inshore
AMO20180122-001	1/22/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	4	20	Gulf of Mexico	Inshore
ELP20180123-001	1/23/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	4	19	Gulf of Mexico	Inshore
ELP20180123-002	1/23/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	4	19	Gulf of Mexico	Inshore
AKT20180123-001	1/23/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	4	18	Gulf of Mexico	Inshore
AMO20180128-001	1/28/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	5	20	Gulf of Mexico	Inshore
NJD20180129-002	1/29/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AMW20180130-001	1/30/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	5	20	Gulf of Mexico	Inshore
AMO20180203-001	2/3/2018	Green turtle	Traditional stranding	Alive	TX	Aransas	5	19	Gulf of Mexico	Inshore
AMO20180203-002	2/3/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AMO20180203-003	2/3/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AMO20180203-004	2/3/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AMO20180203-005	2/3/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
SDW20180205-001	2/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AML20180206-001	2/6/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AMB20180208-001	2/8/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AMO20180208-001	2/8/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AMO20180208-002	2/8/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
MJD20180209-001	2/9/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
NJD20180212-001	2/12/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AML20180213-001	2/13/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	7	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20180218-001	2/18/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	8	19	Gulf of Mexico	Inshore
CMP20180222-001	2/22/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
HDD20180222-001	2/22/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
HDD20180222-002	2/22/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
HDD20180222-003	2/22/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AML20180227-001	2/27/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	San Patricio	9	20	Gulf of Mexico	Inshore
AMW20180228-001	2/28/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
JWT20180301-001	3/1/2018	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	9	19	Gulf of Mexico	Inshore
JWT20180301-003	3/1/2018	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	9	20	Gulf of Mexico	Offshore
JWT20180301-006	3/1/2018	Green turtle	Traditional stranding	Alive	TX	Aransas	9	19	Gulf of Mexico	Inshore
JWT20180301-002	3/1/2018	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	9	19	Gulf of Mexico	Offshore
JWT20180301-004	3/1/2018	Kemp's ridley	Traditional stranding	Dried carcass	TX	Aransas	9	20	Gulf of Mexico	Inshore
JWT20180301-005	3/1/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	9	20	Gulf of Mexico	Offshore
KMA20180301-001	3/1/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
RJO20180305-001	3/5/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
AMO20180305-001	3/5/2018	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KMA20180308-001	3/8/2018	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	10	20	Gulf of Mexico	Inshore
AMO20180310-001	3/10/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
CMP20180315-001	3/15/2018	Green turtle	Traditional stranding	Skeletal	TX	Nueces	11	20	Gulf of Mexico	Inshore
AMO20180316-001	3/16/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AMO20180316-002	3/16/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Offshore
AXL20180317-001	3/17/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
CXG20180318-001	3/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
EXT20180321-001	3/21/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore
AMO20180325-002	3/25/2018	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Offshore
AMO20180325-001	3/25/2018	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AKT20180326-001	3/26/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
EAE20180328-001	3/28/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
EGD20180329-002	3/29/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
EGD20180329-003	3/29/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
EGD20180329-001	3/29/2018	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
AMO20180329-001	3/29/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
KHD20180331-001	3/31/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
RKT20180402-001	4/2/2018	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	14	20	Gulf of Mexico	Offshore
RKT20180402-002	4/2/2018	Kemp's ridley	Traditional stranding	Dried carcass	TX	Aransas	14	20	Gulf of Mexico	Offshore
AML20180402-001	4/2/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AMO20180402-001	4/2/2018	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
GXP20180402-001	4/2/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Offshore
AKT20180403-001	4/3/2018	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMW20180404-001	4/4/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
TLC20180404-001	4/4/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20180406-002	4/6/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
MAP20180406-001	4/6/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20180406-001	4/6/2018	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMW20180409-001	4/9/2018	Green turtle	Traditional stranding	Skeletal	TX	Aransas	15	19	Gulf of Mexico	Offshore
RXO20180409-001	4/9/2018	Green turtle	Traditional stranding	Skeletal	TX	Nueces	15	20	Gulf of Mexico	Inshore
AKT20180410-001	4/10/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AKT20180410-002	4/10/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Inshore
KHD20180411-001	4/11/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
WJT20180414-001	4/14/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	15	19	Gulf of Mexico	Inshore
RKT20180416-001	4/16/2018	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	16	20	Gulf of Mexico	Offshore
AKT20180416-001	4/16/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
MJG20180416-001	4/16/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMW20180419-001	4/19/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Inshore
AMO20180420-001	4/20/2018	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
TXK20180421-001	4/21/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	16	20	Gulf of Mexico	Offshore
ZSS20180421-001	4/21/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
RXG20180421-001	4/21/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
CMN20180422-001	4/22/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
GAK20180423-001	4/23/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
AMW20180426-001	4/26/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
WJT20180428-001	4/28/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	17	19	Gulf of Mexico	Inshore
RXG20180428-001	4/28/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
RXR20180428-001	4/28/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMO20180429-001	4/29/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
SJK20180430-001	4/30/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	San Patricio	18	20	Gulf of Mexico	Inshore
AMW20180504-001	5/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
EAE20180504-001	5/4/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMW20180504-002	5/4/2018	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMW20180506-001	5/6/2018	Hawksbill	Traditional stranding	Alive	TX	Aransas	19	20	Gulf of Mexico	Offshore
AKT20180506-001	5/6/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
EAE20180506-001	5/6/2018	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
GAP20180507-001	5/7/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AKT20180507-001	5/7/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
LXR20180510-001	5/10/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	19	20	Gulf of Mexico	Offshore
EGD20180510-001	5/10/2018	Unknown	Traditional stranding	Skeletal	TX	Aransas	19	19	Gulf of Mexico	Offshore
LXH20180510-001	5/10/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20180511-001	5/11/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Inshore
MAP20180511-001	5/11/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
CXR20180511-001	5/11/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	19	20	Gulf of Mexico	Inshore
AMO20180512-002	5/12/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
LXM20180512-001	5/12/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20180512-001	5/12/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
WJT20180513-001	5/13/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20180513-001	5/13/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Inshore
AMO20180513-002	5/13/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
EAE20180513-001	5/13/2018	Hawksbill	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
WXL20180513-001	5/13/2018	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
AMO20180513-003	5/13/2018	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20180514-001	5/14/2018	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	20	19	Gulf of Mexico	Offshore
AKT20180515-001	5/15/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
JWT20180517-001	5/17/2018	Green turtle	Traditional stranding	Skeletal	TX	Aransas	20	20	Gulf of Mexico	Offshore
JWT20180517-002	5/17/2018	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	20	19	Gulf of Mexico	Offshore
EAE20180517-001	5/17/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Inshore
AMO20180517-001	5/17/2018	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
EAE20180518-001	5/18/2018	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
KMS20180522-001	5/22/2018	Kemp's ridley	Traditional stranding	Dried carcass	TX	Aransas	21	19	Gulf of Mexico	Inshore
AKT20180522-001	5/22/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AKT20180523-001	5/23/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
TET20180524-001	5/24/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20180524-001	5/24/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20180524-003	5/24/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20180524-002	5/24/2018	Unknown	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AKT20180525-001	5/25/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMW20180525-001	5/25/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMW20180526-001	5/26/2018	Unknown	Traditional stranding	Alive	TX	Aransas	21	20	Gulf of Mexico	Inshore
AMO20180526-002	5/26/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
EAE20180526-001	5/26/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
JWT20180529-001	5/29/2018	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	22	19	Gulf of Mexico	Offshore
AKT20180530-001	5/30/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	22	19	Gulf of Mexico	Inshore
WJT20180601-001	6/1/2018	Kemp's ridley	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Inshore
AMO20180603-001	6/3/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AKT20180606-001	6/6/2018	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	23	20	Gulf of Mexico	Inshore
AMO20180608-001	6/8/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMO20180608-002	6/8/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMO20180610-001	6/10/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	24	20	Gulf of Mexico	Inshore
AMO20180610-002	6/10/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
JWT20180611-001	6/11/2018	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	24	20	Gulf of Mexico	Offshore
AMO20180611-001	6/11/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AKT20180612-001	6/12/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Inshore
AKT20180612-002	6/12/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20180614-001	6/14/2018	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20180616-001	6/16/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
NRW20180617-001	6/17/2018	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
AKT20180618-001	6/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
RGM20180621-001	6/21/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
MFH20180622-001	6/22/2018	Unknown	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20180623-001	6/23/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
JDR20180623-001	6/23/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Inshore
AMO20180623-002	6/23/2018	Hawksbill	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
WJT20180624-001	6/24/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
JWT20180625-001	6/25/2018	Unknown	Traditional stranding	Skeletal	TX	Aransas	26	19	Gulf of Mexico	Offshore
MAP20180628-001	6/28/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AMW20180628-001	6/28/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
WJT20180630-001	6/30/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
JWT20180703-001	7/3/2018	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	27	20	Gulf of Mexico	Offshore
AMW20180703-001	7/3/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
MAP20180706-001	7/6/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
HDD20180708-001	7/8/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AMW20180710-001	7/10/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Offshore
MAP20180712-001	7/12/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
AMW20180714-001	7/14/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
AMW20180714-002	7/14/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Offshore
AMW20180718-001	7/18/2018	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
AMW20180723-001	7/23/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
HLA20180726-001	7/26/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
JLC20180727-001	7/27/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
MAP20180731-001	7/31/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Offshore
NRW20180807-001	8/7/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AKT20180808-001	8/8/2018	Hawksbill	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Offshore
AMW20180808-001	8/8/2018	Loggerhead	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Offshore
EAE20180809-002	8/9/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
RHG20180817-001	8/17/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Offshore
AMO20180817-001	8/17/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Offshore
EAE20180825-001	8/25/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
EET20180827-001	8/27/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
JRV20180829-001	8/29/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	35	19	Gulf of Mexico	Inshore
JNR20180830-001	8/30/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Inshore
AMO20180831-001	8/31/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AMO20180902-001	9/2/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
AMW20180904-001	9/4/2018	Green turtle	Traditional stranding	Alive	TX	San Patricio	36	20	Gulf of Mexico	Inshore
AMW20180904-002	9/4/2018	Green turtle	Traditional stranding	Alive	TX	San Patricio	36	20	Gulf of Mexico	Inshore
AKT20180905-001	9/5/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	36	19	Gulf of Mexico	Inshore
AMO20180907-001	9/7/2018	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
AMO20180909-004	9/9/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Inshore
AKT20180911-001	9/11/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Inshore
AML20180917-001	9/17/2018	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	38	20	Gulf of Mexico	Inshore
AKT20180918-001	9/18/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMW20180919-001	9/19/2018	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
EMP20180920-001	9/20/2018	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
AMO20180923-002	9/23/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	39	20	Gulf of Mexico	Inshore
AKT20180924-001	9/24/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
NXT20180928-001	9/28/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
NJD20181003-001	10/3/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AMO20181005-001	10/5/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AMO20181005-002	10/5/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AMW20181005-001	10/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AMW20181005-002	10/5/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
AMW20181006-001	10/6/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Inshore
AMW20181006-002	10/6/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
RJO20181006-001	10/6/2018	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	40	20	Gulf of Mexico	Inshore
AMO20181007-001	10/7/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
AMO20181012-001	10/12/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
AMW20181012-001	10/12/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
AKT20181013-001	10/13/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Offshore
AMO20181013-001	10/13/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Offshore
RXG20181014-001	10/14/2018	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	42	19	Gulf of Mexico	Inshore
SFK20181014-001	10/14/2018	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Offshore
WDM20181015-001	10/15/2018	Hawksbill	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Offshore
AMO20181018-001	10/18/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AKT20181018-001	10/18/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
AMO20181019-001	10/19/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
AMO20181020-001	10/20/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
WJT20181021-001	10/21/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	43	19	Gulf of Mexico	Inshore
AKT20181024-001	10/24/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	43	20	Gulf of Mexico	Inshore
KMS20181025-001	10/25/2018	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	43	19	Gulf of Mexico	Offshore
AMO20181030-001	10/30/2018	Unknown	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20181101-001	11/1/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
HRF20181101-001	11/1/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20181102-001	11/2/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20181103-001	11/3/2018	Unknown	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
HRF20181106-001	11/6/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Inshore
MRE20181114-001	11/14/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
SWT20181114-004	11/14/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
DBM20181115-001	11/15/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
KMC20181117-001	11/17/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20181123-001	11/23/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20181123-002	11/23/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20181125-001	11/25/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20181125-002	11/25/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMW20181127-001	11/27/2018	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	48	20	Gulf of Mexico	Offshore
LRP20181129-001	11/29/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20181129-001	11/29/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20181130-001	11/30/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
DXW20181201-001	12/1/2018	Unknown	Traditional stranding	Severely decomposed	TX	Aransas	48	19	Gulf of Mexico	Inshore
AMO20181201-001	12/1/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
SSP20181202-001	12/2/2018	Green turtle	Traditional stranding	Alive	TX	Aransas	49	20	Gulf of Mexico	Offshore
JWT20181203-001	12/3/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20181203-001	12/3/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AKT20181204-001	12/4/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AKT20181204-002	12/4/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
MAP20181206-001	12/6/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
JLM20181206-001	12/6/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
AMO20181206-001	12/6/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
SSP20181209-001	12/9/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
DJW20181210-001	12/10/2018	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	50	20	Gulf of Mexico	Inshore
UCG20181213-001	12/13/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMO20181216-001	12/16/2018	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
AML20181216-001	12/16/2018	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	51	20	Gulf of Mexico	Inshore
MAP20181219-001	12/19/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
LXF20181220-001	12/20/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	51	20	Gulf of Mexico	Inshore
SSP20181223-001	12/23/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	21	Gulf of Mexico	Inshore
AMO20181223-001	12/23/2018	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AKT20181225-001	12/25/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
DXT20181227-001	12/27/2018	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
KXH20181227-001	12/27/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMW20181231-001	12/31/2018	Green turtle	Traditional stranding	Skeletal	TX	Nueces	53	20	Gulf of Mexico	Inshore
AMW20181231-002	12/31/2018	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
AMW20190105-001	1/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
WJT20190105-001	1/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AMO20190105-001	1/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
HDD20190106-001	1/6/2019	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	2	20	Gulf of Mexico	Inshore
WJT20190107-001	1/7/2019	Green turtle	Traditional stranding	Alive	TX	San Patricio	2	20	Gulf of Mexico	Inshore
AMW20190110-001	1/10/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
MAP20190111-001	1/11/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AKT20190118-001	1/18/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Offshore
MAP20190118-001	1/18/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
JWT20190124-001	1/24/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	4	19	Gulf of Mexico	Offshore
AMO20190124-001	1/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
SSP20190126-001	1/26/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
MAP20190130-001	1/30/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Inshore
MAP20190130-002	1/30/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
MAP20190131-001	1/31/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AKT20190204-001	2/4/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AML20190207-001	2/7/2019	Green turtle	Traditional stranding	Skeletal	TX	San Patricio	6	20	Gulf of Mexico	Inshore
AKT20190212-001	2/12/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
JWT20190214-001	2/14/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	7	19	Gulf of Mexico	Offshore
AKT20190220-001	2/20/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
EGD20190221-001	2/21/2019	Unknown	Traditional stranding	Skeletal	TX	Aransas	8	19	Gulf of Mexico	Offshore
AKT20190227-001	2/27/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
MAP20190228-001	2/28/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
AMO20190301-001	3/1/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
CMP20190305-001	3/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Inshore
AML20190311-001	3/11/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
MAP20190312-001	3/12/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Inshore
AMO20190313-001	3/13/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
JNZ20190313-001	3/13/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
MAP20190321-001	3/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore
EAE20190322-001	3/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
AKT20190323-001	3/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Inshore
AMO20190324-001	3/24/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	13	20	Gulf of Mexico	Offshore
RHG20190325-001	3/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Inshore
MAP20190327-001	3/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
MAP20190327-003	3/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
MAP20190327-002	3/27/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AMO20190328-001	3/28/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AMO20190330-001	3/30/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
JWT20190401-001	4/1/2019	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	14	20	Gulf of Mexico	Offshore
AMO20190401-001	4/1/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
JNZ20190402-001	4/2/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
JWT20190404-001	4/4/2019	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	14	20	Gulf of Mexico	Offshore
AMO20190405-001	4/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AMO20190405-002	4/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
RJO20190405-001	4/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Inshore
HDD20190405-001	4/5/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
AMO20190407-001	4/7/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
SSP20190407-001	4/7/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20190408-001	4/8/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
RKT20190410-001	4/10/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20190411-001	4/11/2019	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	15	19	Gulf of Mexico	Offshore
AMO20190414-001	4/14/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
AMO20190414-002	4/14/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMW20190415-001	4/15/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	16	20	Gulf of Mexico	Offshore
AMW20190415-002	4/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
RHG20190416-001	4/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore
MAP20190416-001	4/16/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
MAP20190416-002	4/16/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
RHG20190417-001	4/17/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore
KTH20190418-001	4/18/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore
SSP20190419-001	4/19/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
NKM20190420-001	4/20/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AKT20190420-001	4/20/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Inshore
SSP20190420-001	4/20/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	16	20	Gulf of Mexico	Offshore
SSP20190420-002	4/20/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	San Patricio	16	20	Gulf of Mexico	Inshore
AMW20190421-001	4/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
SSP20190421-001	4/21/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMW20190422-001	4/22/2019	Loggerhead	Traditional stranding	Dried carcass	TX	Aransas	17	20	Gulf of Mexico	Offshore
AMW20190422-002	4/22/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	17	20	Gulf of Mexico	Offshore
RHG20190422-001	4/22/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
CXL20190423-001	4/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
APS20190423-001	4/23/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
RHG20190424-001	4/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
RHG20190424-002	4/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
RKT20190429-001	4/29/2019	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	18	20	Gulf of Mexico	Offshore
RHG20190430-002	4/30/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	18	20	Gulf of Mexico	Inshore
RAC20190430-001	4/30/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
RHG20190430-001	4/30/2019	Loggerhead	Traditional stranding	Dried carcass	TX	Nueces	18	20	Gulf of Mexico	Offshore
PJG20190501-001	5/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
RHG20190501-001	5/1/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
RHG20190501-002	5/1/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
NEL20190502-001	5/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMW20190502-001	5/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
JWT20190502-002	5/2/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMW20190502-002	5/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
JWT20190502-001	5/2/2019	Loggerhead	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
MAW20190504-001	5/4/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	18	20	Gulf of Mexico	Inshore
SSP20190504-001	5/4/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
SSP20190505-001	5/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
TXP20190505-001	5/5/2019	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
KXJ20190506-002	5/6/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	19	20	Gulf of Mexico	Offshore
KXJ20190506-003	5/6/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	19	19	Gulf of Mexico	Offshore
KXJ20190506-001	5/6/2019	Loggerhead	Traditional stranding	Alive	TX	Aransas	19	20	Gulf of Mexico	Offshore
APS20190506-001	5/6/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
NKM20190506-001	5/6/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
JLC20190506-001	5/6/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
EXR20190507-001	5/7/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
EXR20190507-002	5/7/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
RHG20190507-001	5/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
RHG20190507-002	5/7/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
RHG20190507-003	5/7/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
NKM20190507-001	5/7/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
RHG20190508-001	5/8/2019	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
MRE20190509-001	5/9/2019	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
HRF20190510-001	5/10/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20190510-001	5/10/2019	Loggerhead	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20190511-001	5/11/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	19	20	Gulf of Mexico	Offshore
AMO20190511-002	5/11/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	19	20	Gulf of Mexico	Offshore
AMO20190512-003	5/12/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20190512-004	5/12/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20190512-001	5/12/2019	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20190512-002	5/12/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20190513-001	5/13/2019	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
NJL20190513-001	5/13/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
TNS20190514-001	5/14/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
APS20190515-001	5/15/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
BNN20190515-001	5/15/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
SCG20190516-001	5/16/2019	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	20	19	Gulf of Mexico	Inshore
AMO20190516-001	5/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AWF20190517-001	5/17/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20190517-001	5/17/2019	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20190518-001	5/18/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Inshore
TXD20190518-001	5/18/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
PCF20190519-001	5/19/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
NJL20190519-001	5/19/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190519-002	5/19/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
DXG20190519-001	5/19/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
DXG20190519-002	5/19/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
NJL20190519-002	5/19/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190519-001	5/19/2019	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190520-005	5/20/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	21	20	Gulf of Mexico	Inshore
AMO20190520-002	5/20/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
AMO20190520-003	5/20/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190520-004	5/20/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
PBB20190520-001	5/20/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190520-001	5/20/2019	Loggerhead	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
BKD20190521-001	5/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
CMP20190521-001	5/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
CMP20190521-002	5/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
CMP20190521-003	5/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
CMP20190521-004	5/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
CMP20190521-005	5/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
CMP20190521-006	5/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
CMP20190521-007	5/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
RHG20190521-001	5/21/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
RHG20190521-002	5/21/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	21	20	Gulf of Mexico	Offshore
CXR20190522-001	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
CXR20190522-002	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
CXR20190522-003	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
CXR20190522-004	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
LRP20190522-001	5/22/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
KNS20190522-001	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
RHG20190522-001	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AAL20190522-001	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AAL20190522-002	5/22/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AAL20190522-003	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AAL20190522-004	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AAL20190522-005	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AAL20190522-006	5/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
RHG20190522-002	5/22/2019	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EGD20190523-001	5/23/2019	Loggerhead	Traditional stranding	Alive	TX	Aransas	21	19	Gulf of Mexico	Offshore
EAE20190523-009	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-010	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-011	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-012	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-013	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-014	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-015	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-017	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-018	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-019	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-020	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-021	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-022	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-023	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-024	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-025	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-026	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-027	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-028	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-029	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
EAE20190523-030	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-031	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-032	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-033	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-034	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-035	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-036	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-037	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-038	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-039	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-001	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-002	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-003	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-004	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-005	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-006	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-007	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
EAE20190523-008	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190523-001	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190523-002	5/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-012	5/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMO20190524-013	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMW20190524-001	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	21	20	Gulf of Mexico	Offshore
HSL20190524-003	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-004	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-005	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-006	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-007	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-008	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-009	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-010	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-011	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-012	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-013	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-014	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-015	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-016	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-017	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-018	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-019	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-020	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-021	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
HSL20190524-022	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-023	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-024	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-025	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-026	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-027	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-028	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-029	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-030	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HSL20190524-031	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AKT20190524-001	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
JAF20190524-001	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-001	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-002	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-003	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-004	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-005	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-006	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-007	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-008	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-009	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-010	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190524-011	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
NFP20190524-001	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
NFP20190524-002	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
NFP20190524-003	5/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
KTH20190524-001	5/24/2019	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-001	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-002	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-003	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-004	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-005	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-006	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-007	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-008	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALC20190525-009	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20190525-001	5/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
LAA20190526-001	5/26/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
LAA20190526-002	5/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
RRZ20190526-001	5/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
RRZ20190526-002	5/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
RRZ20190526-003	5/26/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
LAA20190526-004	5/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
RRZ20190526-004	5/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
EAE20190526-001	5/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190526-001	5/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
CAS20190527-002	5/27/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
JAF20190527-001	5/27/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
MPH20190527-001	5/27/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
PCF20190527-002	5/27/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
PCF20190527-001	5/27/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
RHG20190527-001	5/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
SCG20190528-001	5/28/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	22	19	Gulf of Mexico	Inshore
AMW20190528-001	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Inshore
AMW20190528-003	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Inshore
AMW20190528-002	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Inshore
BNN20190528-001	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
BNN20190528-002	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
BNN20190528-003	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
BNN20190528-004	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
BNN20190528-006	5/28/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
BNN20190528-007	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
KNS20190528-001	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
PBB20190528-001	5/28/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
ALC20190528-001	5/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
LRP20190528-002	5/28/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
LRP20190528-001	5/28/2019	Unknown	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
PCF20190529-001	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
PCF20190529-002	5/29/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
PCF20190529-003	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NKM20190529-001	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NKM20190529-002	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NKM20190529-003	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NKM20190529-004	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NKM20190529-005	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NKM20190529-006	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
EAE20190529-001	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
EAE20190529-002	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
LRP20190529-001	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
KNS20190529-001	5/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
RHG20190529-001	5/29/2019	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
KNS20190530-001	5/30/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	22	19	Gulf of Mexico	Inshore
AMO20190530-005	5/30/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Inshore
EGD20190530-001	5/30/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	22	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20190530-006	5/30/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Inshore
AMO20190530-007	5/30/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Inshore
EGD20190530-002	5/30/2019	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	22	20	Gulf of Mexico	Offshore
TNS20190530-001	5/30/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
TNS20190530-002	5/30/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
TNS20190530-003	5/30/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190530-001	5/30/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190530-003	5/30/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190530-004	5/30/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AMW20190530-001	5/30/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190530-002	5/30/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190531-001	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190531-003	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190531-007	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190531-008	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
AMO20190531-009	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
AMO20190531-002	5/31/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190531-004	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190531-005	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190531-006	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190531-010	5/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
AMO20190601-001	6/1/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190601-002	6/1/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20190601-003	6/1/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
NFP20190601-001	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-002	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-003	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-004	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-005	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-006	6/1/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-007	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-008	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-009	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-010	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
NFP20190601-011	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
KTH20190601-002	6/1/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
KTH20190601-003	6/1/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
SSP20190601-001	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
SSP20190601-002	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
SSP20190601-003	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
SSP20190601-004	6/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
NRH20190602-001	6/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
PXS20190602-001	6/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190602-002	6/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMO20190602-001	6/2/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190603-001	6/3/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190603-001	6/3/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMO20190603-002	6/3/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-001	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-002	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-003	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-004	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-005	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-006	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-007	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-008	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMW20190605-009	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
RHG20190605-001	6/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
KNS20190606-001	6/6/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	23	20	Gulf of Mexico	Inshore
AMO20190606-002	6/6/2019	Green turtle	Traditional stranding	Skeletal	TX	Aransas	23	20	Gulf of Mexico	Inshore
GAC20190606-001	6/6/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190606-001	6/6/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
AWA20190607-001	6/7/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AWA20190607-002	6/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190607-005	6/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190607-004	6/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190607-003	6/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190607-002	6/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190607-001	6/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
SSP20190607-001	6/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
KNS20190607-001	6/7/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
RJO20190608-001	6/8/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
LXH20190608-001	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
TXC20190608-001	6/8/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20190608-002	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
SSP20190608-008	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
SSP20190608-007	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
SSP20190608-006	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
SSP20190608-005	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
SSP20190608-004	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
SSP20190608-003	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
SSP20190608-002	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
SSP20190608-001	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMO20190608-001	6/8/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
NFP20190608-001	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
SSP20190608-009	6/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
LXH20190609-001	6/9/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
EAE20190610-001	6/10/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
AMO20190610-002	6/10/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Inshore
AMO20190610-001	6/10/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	24	20	Gulf of Mexico	Inshore
SBD20190611-001	6/11/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
KNS20190611-001	6/11/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
LRP20190612-001	6/12/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
RHG20190612-002	6/12/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
RHG20190612-001	6/12/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMG20190613-001	6/13/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMK20190613-001	6/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20190613-001	6/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Inshore
SSP20190614-001	6/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Inshore
AMO20190614-001	6/14/2019	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
DGM20190615-001	6/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
GXG20190615-001	6/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
EAE20190616-001	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
EAE20190616-002	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
PCF20190616-001	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
PCF20190616-002	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
PCF20190616-003	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
PCF20190616-004	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
PCF20190616-005	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
APS20190616-001	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
CXO20190616-002	6/16/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
SSP20190616-001	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20190616-001	6/16/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
EAE20190618-001	6/18/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
EAE20190618-002	6/18/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMW20190618-001	6/18/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
MAW20190618-001	6/18/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	San Patricio	25	20	Gulf of Mexico	Inshore
JWB20190619-001	6/19/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	25	20	Gulf of Mexico	Inshore
JWT20190620-001	6/20/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	25	20	Gulf of Mexico	Offshore
JWT20190620-002	6/20/2019	Unknown	Traditional stranding	Skeletal	TX	Aransas	25	19	Gulf of Mexico	Offshore
LSR20190620-001	6/20/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
RHG20190620-001	6/20/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20190622-001	6/22/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
JMT20190622-001	6/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Inshore
RHG20190622-001	6/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Inshore
AMO20190623-001	6/23/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20190624-001	6/24/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
RHG20190624-001	6/24/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
RHG20190625-001	6/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
JWB20190625-002	6/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
JWB20190625-001	6/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
AMW20190625-001	6/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
RHG20190626-001	6/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
LRP20190626-001	6/26/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
EGD20190627-002	6/27/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	26	20	Gulf of Mexico	Inshore
EGD20190627-001	6/27/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	26	20	Gulf of Mexico	Inshore
RHG20190627-001	6/27/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
EAE20190628-001	6/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
EAE20190628-002	6/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AMO20190628-001	6/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
RJO20190629-001	6/29/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
SSP20190629-001	6/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
SSP20190629-002	6/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
SSP20190630-001	6/30/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20190630-001	6/30/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMW20190701-002	7/1/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
RHG20190701-002	7/1/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
RHG20190701-003	7/1/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
RHG20190701-004	7/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
RHG20190701-001	7/1/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AKT20190702-001	7/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
EAE20190702-001	7/2/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
GAC20190703-002	7/3/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
CAS20190703-001	7/3/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMW20190703-001	7/3/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
JNZ20190703-001	7/3/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	San Patricio	27	20	Gulf of Mexico	Inshore
AMW20190704-001	7/4/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMW20190704-002	7/4/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMW20190704-003	7/4/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMW20190704-004	7/4/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
EAE20190705-002	7/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
EAE20190705-003	7/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMW20190705-001	7/5/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20190705-003	7/5/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	27	20	Gulf of Mexico	Inshore
PCF20190705-001	7/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
PCF20190705-002	7/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
PCF20190705-003	7/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
PCF20190705-004	7/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20190705-001	7/5/2019	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
PCF20190706-001	7/6/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
PCF20190706-002	7/6/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
TPW20190706-001	7/6/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMO20190706-002	7/6/2019	Green turtle	Traditional stranding	Skeletal	TX	Nueces	27	20	Gulf of Mexico	Inshore
SSP20190706-001	7/6/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMO20190707-002	7/7/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	28	20	Gulf of Mexico	Inshore
AMO20190707-003	7/7/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	28	20	Gulf of Mexico	Inshore
AMO20190707-004	7/7/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	28	20	Gulf of Mexico	Inshore
AMO20190707-005	7/7/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	28	20	Gulf of Mexico	Inshore
PCF20190707-001	7/7/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
EAE20190708-001	7/8/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
EAE20190708-002	7/8/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
CXP20190708-001	7/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Offshore
AMO20190708-002	7/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
SXW20190708-001	7/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
AMO20190708-001	7/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
AMO20190708-003	7/8/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
AMW20190709-001	7/9/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
LRP20190709-001	7/9/2019	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
KNS20190711-001	7/11/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	28	20	Gulf of Mexico	Inshore
CXS20190711-001	7/11/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
AMW20190711-001	7/11/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
CAS20190712-001	7/12/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
CAS20190712-002	7/12/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
SSP20190713-001	7/13/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
RHG20190715-001	7/15/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AMW20190717-001	7/17/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
AMW20190717-002	7/17/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
AMW20190717-003	7/17/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
BMB20190718-001	7/18/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	20	Gulf of Mexico	Inshore
SSP20190721-001	7/21/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMW20190722-003	7/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMW20190722-004	7/22/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMW20190722-005	7/22/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMW20190722-006	7/22/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMW20190722-007	7/22/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMW20190722-008	7/22/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMW20190722-002	7/22/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMW20190723-001	7/23/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
GAC20190724-001	7/24/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore
LRP20190724-001	7/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMW20190724-001	7/24/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
JWT20190725-001	7/25/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	30	20	Gulf of Mexico	Offshore
JWT20190725-002	7/25/2019	Loggerhead	Traditional stranding	Dried carcass	TX	Aransas	30	20	Gulf of Mexico	Offshore
JWT20190725-003	7/25/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	30	19	Gulf of Mexico	Offshore
TPW20190726-001	7/26/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	30	19	Gulf of Mexico	Inshore
CLC20190726-001	7/26/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
SSP20190727-001	7/27/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	30	20	Gulf of Mexico	Inshore
RHG20190727-001	7/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
SSP20190727-002	7/27/2019	Olive ridley	Traditional stranding	Moderately decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
SSP20190728-001	7/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
SSP20190728-002	7/28/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
KTH20190728-001	7/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Offshore
AMW20190730-001	7/30/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
AMO20190802-001	8/2/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
LFV20190803-001	8/3/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Offshore
AMO20190804-001	8/4/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AMO20190805-001	8/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Offshore
KNS20190806-001	8/6/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
RHG20190806-001	8/6/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AMW20190806-001	8/6/2019	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
ARF20190808-001	8/8/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	32	20	Gulf of Mexico	Offshore
SCG20190809-001	8/9/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	32	19	Gulf of Mexico	Inshore
AMO20190809-001	8/9/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AMW20190809-001	8/9/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Offshore
AMW20190809-002	8/9/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Offshore
SSP20190810-001	8/10/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Inshore
AMO20190810-001	8/10/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
SSP20190811-001	8/11/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Offshore
AMO20190811-001	8/11/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	33	20	Gulf of Mexico	Offshore
AMO20190811-002	8/11/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AMW20190813-001	8/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Offshore
AMW20190813-002	8/13/2019	Green turtle	Traditional stranding	Skeletal	TX	Nueces	33	20	Gulf of Mexico	Inshore
RHG20190814-001	8/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Inshore
KTH20190814-001	8/14/2019	Loggerhead	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Offshore
JKL20190817-001	8/17/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	33	20	Gulf of Mexico	Inshore
TNS20190818-001	8/18/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
KED20190819-001	8/19/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-001	8/19/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AMO20190819-002	8/19/2019	Green turtle	Traditional stranding	Skeletal	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-003	8/19/2019	Green turtle	Traditional stranding	Skeletal	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-004	8/19/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-005	8/19/2019	Green turtle	Traditional stranding	Skeletal	TX	Nueces	34	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20190819-006	8/19/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-007	8/19/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-008	8/19/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-009	8/19/2019	Green turtle	Traditional stranding	Skeletal	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-010	8/19/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-011	8/19/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-012	8/19/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20190819-013	8/19/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMW20190819-001	8/19/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
KNS20190821-001	8/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
KNS20190822-001	8/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Inshore
AMW20190823-001	8/23/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
CXO20190825-001	8/25/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Offshore
TNS20190825-001	8/25/2019	Loggerhead	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Inshore
KTH20190826-001	8/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
EAE20190826-001	8/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
AMW20190829-002	8/29/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
JPP20190831-001	8/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
HMW20190901-001	9/1/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	36	20	Gulf of Mexico	Inshore
RIR20190902-001	9/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Inshore
SXT20190903-001	9/3/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Inshore
AMW20190905-001	9/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Inshore
REW20190905-001	9/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
REW20190906-001	9/6/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	36	20	Gulf of Mexico	Offshore
CXO20190908-001	9/8/2019	Green turtle	Traditional stranding	Skeletal	TX	Nueces	37	20	Gulf of Mexico	Offshore
AMO20190909-001	9/9/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
AMO20190909-002	9/9/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
KNS20190911-001	9/11/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	37	19	Gulf of Mexico	Inshore
RJO20190916-001	9/16/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
SSP20190921-001	9/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
JKL20190921-001	9/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Offshore
RHG20190922-001	9/22/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
AKT20190925-001	9/25/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	39	20	Gulf of Mexico	Inshore
TFW20190926-001	9/26/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	39	20	Gulf of Mexico	Inshore
KNS20190926-001	9/26/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	39	19	Gulf of Mexico	Inshore
AJH20190926-001	9/26/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	39	20	Gulf of Mexico	Inshore
KNS20190927-001	9/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	39	20	Gulf of Mexico	Inshore
AMO20190928-001	9/28/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	39	19	Gulf of Mexico	Inshore
AKT20190928-001	9/28/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Offshore
KNS20190930-001	9/30/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	40	19	Gulf of Mexico	Offshore
AMO20190930-001	9/30/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
KNS20191001-002	10/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KNS20191001-003	10/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	40	19	Gulf of Mexico	Inshore
KNS20191002-002	10/2/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
HMW20191003-001	10/3/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
RHG20191003-001	10/3/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
AMO20191005-001	10/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Inshore
RHG20191005-001	10/5/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Inshore
CMP20191006-001	10/6/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
AMO20191006-001	10/6/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
CAK20191007-001	10/7/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	41	20	Gulf of Mexico	Inshore
AMO20191007-001	10/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
RHG20191007-001	10/7/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
KNS20191009-001	10/9/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
AKT20191009-001	10/9/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
JWT20191010-001	10/10/2019	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	41	20	Gulf of Mexico	Offshore
KED20191011-001	10/11/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
JNZ20191012-001	10/12/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	41	20	Gulf of Mexico	Offshore
WBW20191013-002	10/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
WBW20191013-001	10/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
WBW20191013-003	10/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
AMO20191014-001	10/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
AMO20191014-002	10/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
RHG20191014-001	10/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Inshore
KTH20191015-001	10/15/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	42	20	Gulf of Mexico	Inshore
CAS20191015-001	10/15/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
KAK20191015-001	10/15/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
RHG20191016-001	10/16/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
EGD20191017-001	10/17/2019	Kemp's ridley	Traditional stranding	Skeletal	TX	Aransas	42	20	Gulf of Mexico	Offshore
AMO20191018-001	10/18/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
KNS20191022-001	10/22/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
KNS20191022-002	10/22/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
AMW20191022-001	10/22/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
CLJ20191023-001	10/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
RHG20191023-001	10/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
RHG20191023-002	10/23/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20191025-001	10/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20191026-001	10/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20191027-001	10/27/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
HMW20191029-001	10/29/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
KNS20191029-001	10/29/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore
KNS20191029-002	10/29/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AKT20191029-001	10/29/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
KNS20191029-003	10/29/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AKT20191030-001	10/30/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AKT20191031-001	10/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AKT20191031-002	10/31/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20191101-001	11/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
RHG20191101-001	11/1/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20191102-001	11/2/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore
KNS20191102-001	11/2/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore
JKL20191102-001	11/2/2019	Unknown	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
CMP20191103-001	11/3/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
CMP20191103-002	11/3/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
AMO20191103-001	11/3/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMO20191103-002	11/3/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMO20191103-003	11/3/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Inshore
JKL20191103-001	11/3/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
JKL20191103-002	11/3/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
JKL20191103-003	11/3/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMW20191104-001	11/4/2019	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20191105-001	11/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
KNS20191105-002	11/5/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
RHG20191106-001	11/6/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20191106-002	11/6/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
KNS20191106-003	11/6/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20191106-004	11/6/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20191106-001	11/6/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
KNS20191107-001	11/7/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20191107-002	11/7/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20191107-003	11/7/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
KNS20191107-004	11/7/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20191109-001	11/9/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
JKL20191110-003	11/10/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20191110-001	11/10/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
JKL20191110-001	11/10/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
JKL20191110-002	11/10/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20191111-001	11/11/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20191111-002	11/11/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
HMW20191111-001	11/11/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	46	20	Gulf of Mexico	Offshore
HMW20191113-007	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
EXC20191113-006	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
EXC20191113-017	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
EXC20191113-018	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
EXC20191113-019	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
TXP20191113-001	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
TXP20191113-002	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
TXP20191113-003	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
TXP20191113-004	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
TXP20191113-005	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
TXP20191113-006	11/13/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
SWT20191114-005	11/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMW20191114-002	11/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20191114-003	11/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191114-004	11/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191114-005	11/14/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191114-002	11/14/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-004	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-005	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-006	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-007	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-008	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-009	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-010	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-011	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-012	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-013	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-014	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-018	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-019	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-020	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-021	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-022	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-023	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-024	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20191115-025	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20191115-026	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20191115-027	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
AMO20191115-028	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-029	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-030	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-031	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-032	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-033	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-035	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-036	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-037	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191115-038	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20191115-034	11/15/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20191116-001	11/16/2019	Unknown	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
AKT20191117-001	11/17/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
CAS20191118-001	11/18/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
CAS20191118-002	11/18/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AMO20191119-002	11/19/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AKT20191119-001	11/19/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
KNS20191119-001	11/19/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
KAK20191119-001	11/19/2019	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
KNS20191120-001	11/20/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	47	20	Gulf of Mexico	Inshore
TPW20191120-001	11/20/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	47	20	Gulf of Mexico	Inshore
KNS20191120-002	11/20/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
KNS20191120-003	11/20/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
KNS20191120-004	11/20/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
KNS20191120-005	11/20/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
MRV20191120-001	11/20/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20191121-001	11/21/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
RHG20191121-001	11/21/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
JAZ20191122-001	11/22/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	47	19	Gulf of Mexico	Inshore
JKL20191122-001	11/22/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20191123-001	11/23/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20191123-002	11/23/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20191123-003	11/23/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20191123-004	11/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
KNS20191123-001	11/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Offshore
KNS20191123-002	11/23/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Offshore
KNS20191123-003	11/23/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
KNS20191123-004	11/23/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
KNS20191123-005	11/23/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
MRV20191123-001	11/23/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20191124-006	11/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	48	19	Gulf of Mexico	Inshore
AMO20191124-001	11/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20191124-002	11/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20191124-003	11/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20191124-004	11/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20191124-005	11/24/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
JWT20191125-002	11/25/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	48	20	Gulf of Mexico	Offshore
JWT20191125-001	11/25/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	48	20	Gulf of Mexico	Offshore
HMW20191125-001	11/25/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMW20191125-001	11/25/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
SEM20191125-001	11/25/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
KNS20191126-001	11/26/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	48	19	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMW20191126-001	11/26/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMW20191126-002	11/26/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Offshore
RJO20191126-001	11/26/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
HMW20191126-001	11/26/2019	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
CAS20191127-001	11/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMW20191127-001	11/27/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
KNS20191127-001	11/27/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Offshore
KAK20191127-001	11/27/2019	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	48	20	Gulf of Mexico	Inshore
JKL20191129-001	11/29/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
KNS20191130-001	11/30/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20191130-001	11/30/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
AMO20191201-001	12/1/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20191202-001	12/2/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20191202-002	12/2/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20191202-003	12/2/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20191202-004	12/2/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
CMP20191203-001	12/3/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
HMW20191203-001	12/3/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
KNS20191203-001	12/3/2019	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	49	20	Gulf of Mexico	Inshore
AMO20191206-001	12/6/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
KNS20191206-001	12/6/2019	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
KNS20191206-002	12/6/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
KNS20191206-003	12/6/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
RHG20191208-001	12/8/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
WBW20191208-001	12/8/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
AMO20191212-001	12/12/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
JKL20191213-002	12/13/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
KNS20191213-001	12/13/2019	Unknown	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
JKL20191213-001	12/13/2019	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	50	20	Gulf of Mexico	Inshore
JNZ20191214-001	12/14/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	21	Gulf of Mexico	Inshore
GXG20191215-001	12/15/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
MJE20191218-001	12/18/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
AMW20191218-001	12/18/2019	Green turtle	Traditional stranding	Skeletal	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMW20191218-002	12/18/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
KAK20191218-001	12/18/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
KNS20191218-001	12/18/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
JWT20191219-001	12/19/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	51	20	Gulf of Mexico	Offshore
AMO20191221-001	12/21/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
KNS20191221-001	12/21/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
JKL20191222-001	12/22/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	52	20	Gulf of Mexico	Offshore
JKL20191222-002	12/22/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	52	20	Gulf of Mexico	Offshore
JKL20191222-003	12/22/2019	Green turtle	Traditional stranding	Alive	TX	Aransas	52	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KNS20191224-001	12/24/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
KNS20191225-001	12/25/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
KNS20191225-002	12/25/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
KNS20191225-003	12/25/2019	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Offshore
KNS20191226-001	12/26/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
KNS20191226-002	12/26/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
KNS20191226-003	12/26/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20191227-001	12/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20191227-002	12/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20191227-003	12/27/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20191227-004	12/27/2019	Unknown	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20191229-001	12/29/2019	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
CMP20191231-001	12/31/2019	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
AMO20200104-001	1/4/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
JKL20200104-001	1/4/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore
KAK20200104-001	1/4/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	1	20	Gulf of Mexico	Inshore
JKL20200105-001	1/5/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
JKL20200105-002	1/5/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
KNS20200107-001	1/7/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
KNS20200107-002	1/7/2020	Unknown	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
KNS20200108-001	1/8/2020	Unknown	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
SXI20200109-001	1/9/2020	Kemp's ridley	Traditional stranding	Dried carcass	TX	Aransas	2	20	Gulf of Mexico	Offshore
AMO20200109-001	1/9/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Offshore
SXI20200109-001	1/9/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
JKL20200110-001	1/10/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
SXI20200110-001	1/10/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
SXI20200110-001	1/10/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
KAK20200111-001	1/11/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
JKL20200112-001	1/12/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AMO20200113-001	1/13/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
RHG20200113-001	1/13/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
SXI20200114-001	1/14/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
KNS20200115-003	1/15/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	3	19	Gulf of Mexico	Inshore
RHG20200115-001	1/15/2020	Green turtle	Traditional stranding	Alive	TX	Aransas	3	20	Gulf of Mexico	Offshore
SXI20200115-001	1/15/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
SXI20200115-002	1/15/2020	Unknown	Traditional stranding	Skeletal	TX	Nueces	3	20	Gulf of Mexico	Offshore
KNS20200116-001	1/16/2020	Green turtle	Traditional stranding	Skeletal	TX	Nueces	3	20	Gulf of Mexico	Inshore
SXI20200116-003	1/16/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
KNS20200116-002	1/16/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
SXI20200117-001	1/17/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
SXI20200120-001	1/20/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	4	20	Gulf of Mexico	Offshore
KNS20200121-001	1/21/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
SXI20200121-002	1/21/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
SXI20200121-003	1/21/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
SXI20200123-001	1/23/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	4	20	Gulf of Mexico	Inshore
AMO20200124-001	1/24/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	4	20	Gulf of Mexico	Inshore
SXI20200124-001	1/24/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
MRV20200125-001	1/25/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
SXI20200126-001	1/26/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AMO20200126-002	1/26/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Inshore
AMO20200126-003	1/26/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AMO20200127-001	1/27/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
KNS20200128-001	1/28/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
CAS20200128-001	1/28/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
AMW20200130-001	1/30/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
KNS20200201-001	2/1/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Offshore
AMO20200203-001	2/3/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
KTH20200204-001	2/4/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
JNZ20200205-001	2/5/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
KTH20200206-001	2/6/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AMO20200207-001	2/7/2020	Green turtle	Traditional stranding	Alive	TX	Aransas	6	20	Gulf of Mexico	Inshore
JLM20200207-001	2/7/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
KNS20200207-001	2/7/2020	Unknown	Traditional stranding	Dried carcass	TX	Nueces	6	20	Gulf of Mexico	Offshore
AMO20200208-001	2/8/2020	Green turtle	Traditional stranding	Alive	TX	Aransas	6	20	Gulf of Mexico	Inshore
KNS20200208-001	2/8/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Offshore
AMO20200208-002	2/8/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
SXI20200209-001	2/9/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
KNS20200211-001	2/11/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
CAS20200212-001	2/12/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
HMW20200212-001	2/12/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	7	20	Gulf of Mexico	Offshore
KTH20200213-001	2/13/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
GKP20200214-001	2/14/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMO20200214-001	2/14/2020	Unknown	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMO20200215-001	2/15/2020	Green turtle	Traditional stranding	Alive	TX	Aransas	7	20	Gulf of Mexico	Inshore
AMO20200215-002	2/15/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMO20200216-001	2/16/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AMO20200216-002	2/16/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	8	20	Gulf of Mexico	Offshore
JKL20200216-001	2/16/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
AMO20200217-001	2/17/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
RHG20200218-001	2/18/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
RHG20200218-002	2/18/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore
RHG20200219-001	2/19/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	8	19	Gulf of Mexico	Inshore
RHG20200219-002	2/19/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
KNS20200222-001	2/22/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	8	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
SXI20200224-001	2/24/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
KNS20200225-001	2/25/2020	Green turtle	Traditional stranding	Alive	TX	Aransas	9	20	Gulf of Mexico	Inshore
KAC20200225-003	2/25/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	9	19	Gulf of Mexico	Inshore
KAC20200225-001	2/25/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
KAC20200225-004	2/25/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
KAC20200225-002	2/25/2020	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
JWT20200227-002	2/27/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	9	19	Gulf of Mexico	Offshore
KNS20200227-001	2/27/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
KNS20200228-001	2/28/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	9	20	Gulf of Mexico	Inshore
KNS20200228-002	2/28/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
JLM20200229-001	2/29/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	9	20	Gulf of Mexico	Inshore
AMO20200301-001	3/1/2020	Unknown	Traditional stranding	Skeletal	TX	Nueces	10	20	Gulf of Mexico	Inshore
AMO20200302-001	3/2/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Inshore
KNS20200303-001	3/3/2020	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KNS20200305-002	3/5/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
KNS20200305-001	3/5/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Inshore
JNZ20200305-001	3/5/2020	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	10	20	Gulf of Mexico	Inshore
AMO20200307-001	3/7/2020	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	10	20	Gulf of Mexico	Inshore
AMO20200307-002	3/7/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KAK20200308-001	3/8/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
AKT20200311-001	3/11/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
RHG20200311-001	3/11/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Inshore
KNS20200312-001	3/12/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	11	20	Gulf of Mexico	Offshore
RHG20200313-001	3/13/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
RHG20200313-002	3/13/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AMO20200314-001	3/14/2020	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	11	20	Gulf of Mexico	Inshore
KAK20200314-001	3/14/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
KNS20200314-001	3/14/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AMO20200315-001	3/15/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
KAK20200315-001	3/15/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
HMW20200315-001	3/15/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
JLM20200315-001	3/15/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
EAE20200316-001	3/16/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
KTH20200316-001	3/16/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
PBB20200316-001	3/16/2020	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
NJK20200317-001	3/17/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
RHG20200317-001	3/17/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
RHG20200317-002	3/17/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
RHG20200318-001	3/18/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
KTH20200318-001	3/18/2020	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
AMO20200319-001	3/19/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	12	20	Gulf of Mexico	Inshore
KTH20200319-001	3/19/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMW20200320-001	3/20/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
KAK20200321-001	3/21/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
JKL20200322-001	3/22/2020	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
RJO20200322-001	3/22/2020	Unknown	Traditional stranding	Skeletal	TX	San Patricio	13	20	Gulf of Mexico	Inshore
AKT20200324-001	3/24/2020	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Inshore
AMO20200325-001	3/25/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
KNS20200325-001	3/25/2020	Green turtle	Traditional stranding	Skeletal	TX	Nueces	13	20	Gulf of Mexico	Inshore
KNS20200325-002	3/25/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
KNS20200325-003	3/25/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AMW20200326-001	3/26/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AMO20200327-002	3/27/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
AMO20200327-003	3/27/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
KLM20200327-001	3/27/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
AMO20200328-001	3/28/2020	Unknown	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Inshore
AMO20200330-001	3/30/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20200330-002	3/30/2020	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
SCG20200330-001	3/30/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
KNS20200401-001	4/1/2020	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
RAF20200402-001	4/2/2020	Green turtle	Traditional stranding	Alive	TX	San Patricio	14	20	Gulf of Mexico	Inshore
SAL20200405-001	4/5/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMW20200406-001	4/6/2020	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
JLM20200408-001	4/8/2020	Loggerhead	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Inshore
HMW20200409-001	4/9/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20200411-001	4/11/2020	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	15	20	Gulf of Mexico	Offshore
AMO20200411-002	4/11/2020	Unknown	Traditional stranding	Skeletal	TX	Aransas	15	20	Gulf of Mexico	Offshore
RMW20200412-001	4/12/2020	Loggerhead	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMW20200414-001	4/14/2020	Unknown	Traditional stranding	Skeletal	TX	Aransas	16	20	Gulf of Mexico	Offshore
MTB20200416-001	4/16/2020	Loggerhead	Traditional stranding	Dried carcass	TX	Aransas	16	20	Gulf of Mexico	Offshore
KNS20200418-001	4/18/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
RJO20200419-001	4/19/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
SAL20200419-001	4/19/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
MJV20200420-001	4/20/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
TSA20200420-001	4/20/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
AMW20200421-001	4/21/2020	Unknown	Traditional stranding	Skeletal	TX	Aransas	17	20	Gulf of Mexico	Offshore
AKT20200422-001	4/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
KNS20200422-001	4/22/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
KNS20200422-002	4/22/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
JKL20200424-001	4/24/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
KNS20200424-001	4/24/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMO20200424-001	4/24/2020	Unknown	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
HMW20200426-001	4/26/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20200426-001	4/26/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
CJK20200427-001	4/27/2020	Loggerhead	Traditional stranding	Alive	TX	Aransas	18	20	Gulf of Mexico	Offshore
KNS20200428-001	4/28/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
RHG20200429-001	4/29/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
RHG20200429-002	4/29/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
KNS20200430-001	4/30/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Inshore
SAL20200430-001	4/30/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
MES20200430-001	4/30/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Inshore
KAK20200501-001	5/1/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Inshore
KNS20200501-001	5/1/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Inshore
KNS20200502-001	5/2/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
NAD20200504-001	5/4/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	19	20	Gulf of Mexico	Offshore
RJO20200504-001	5/4/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AMO20200504-001	5/4/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
RHG20200506-001	5/6/2020	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20200507-001	5/7/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Inshore
KNS20200507-001	5/7/2020	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20200508-002	5/8/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20200511-001	5/11/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20200514-001	5/14/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
JLM20200514-001	5/14/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
LED20200515-001	5/15/2020	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
RIR20200515-001	5/15/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
AMO20200515-001	5/15/2020	Kemp's ridley	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
KNS20200516-001	5/16/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
AMO20200518-001	5/18/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
RHG20200518-001	5/18/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
KAK20200519-001	5/19/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Inshore
EXH20200520-001	5/20/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	21	20	Gulf of Mexico	Offshore
EXH20200520-002	5/20/2020	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMO20200520-001	5/20/2020	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMW20200521-001	5/21/2020	Kemp's ridley	Traditional stranding	Skeletal	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMW20200521-003	5/21/2020	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMW20200521-002	5/21/2020	Unknown	Traditional stranding	Skeletal	TX	Aransas	21	20	Gulf of Mexico	Offshore
PBB20200521-001	5/21/2020	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20200522-001	5/22/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
JKL20200522-001	5/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
KAK20200523-001	5/23/2020	Green turtle	Traditional stranding	Severely decomposed	TX	San Patricio	21	20	Gulf of Mexico	Inshore
AMO20200524-001	5/24/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Inshore
AMO20200524-002	5/24/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
JKL20200524-001	5/24/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20200526-001	5/26/2020	Leatherback	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Inshore
KAK20200526-001	5/26/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KNS20200526-001	5/26/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
KNS20200526-002	5/26/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20200527-001	5/27/2020	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20200528-001	5/28/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AMO20200530-001	5/30/2020	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
JKL20200531-001	5/31/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
MIB20200531-001	5/31/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
KEC20200601-001	6/1/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	23	19	Gulf of Mexico	Inshore
KDH20200602-001	6/2/2020	Kemp's ridley	Traditional stranding	Dried carcass	TX	Aransas	23	20	Gulf of Mexico	Offshore
JWT20200604-001	6/4/2020	Kemp's ridley	Traditional stranding	Skeletal	TX	Aransas	23	20	Gulf of Mexico	Offshore
JWT20200604-002	6/4/2020	Unknown	Traditional stranding	Skeletal	TX	Aransas	23	19	Gulf of Mexico	Offshore
JWT20200604-003	6/4/2020	Unknown	Traditional stranding	Skeletal	TX	Aransas	23	19	Gulf of Mexico	Offshore
CXG20200604-001	6/4/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMW20200605-001	6/5/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AKT20200609-001	6/9/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMW20200609-001	6/9/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMS20200611-001	6/11/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
KNS20200611-001	6/11/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
JKL20200612-001	6/12/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
MES20200612-001	6/12/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20200615-001	6/15/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
CFP20200617-001	6/17/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	25	20	Gulf of Mexico	Inshore
KNS20200617-001	6/17/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
MTB20200619-001	6/19/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	25	20	Gulf of Mexico	Offshore
JKL20200621-001	6/21/2020	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
CFP20200623-001	6/23/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
KAP20200623-001	6/23/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AMO20200627-001	6/27/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AMO20200627-002	6/27/2020	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
JWT20200629-002	6/29/2020	Green turtle	Traditional stranding	Alive	TX	Aransas	27	20	Gulf of Mexico	Offshore
JWT20200629-001	6/29/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	27	20	Gulf of Mexico	Offshore
AMO20200629-001	6/29/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AKT20200630-001	6/30/2020	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
KNS20200630-001	6/30/2020	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
KNS20200630-002	6/30/2020	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
CFP20200701-001	7/1/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
CFP20200701-002	7/1/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
LRP20200701-001	7/1/2020	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20200702-001	7/2/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
CFP20200702-001	7/2/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Offshore
KNS20200703-001	7/3/2020	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AKT20200704-001	7/4/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20200704-001	7/4/2020	Unknown	Traditional stranding	Skeletal	TX	Nueces	27	20	Gulf of Mexico	Inshore
CFP20200705-001	7/5/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
JWT20200705-001	7/5/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
CFP20200707-001	7/7/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
KNS20200707-001	7/7/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
KTH20200707-001	7/7/2020	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
JKL20200709-001	7/9/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
JKL20200710-001	7/10/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	28	20	Gulf of Mexico	Offshore
GKP20200711-001	7/11/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	28	20	Gulf of Mexico	Inshore
SLB20200711-001	7/11/2020	Loggerhead	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Inshore
RHG20200715-001	7/15/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
RIR20200715-001	7/15/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
CFP20200715-001	7/15/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	29	20	Gulf of Mexico	Inshore
KNS20200716-001	7/16/2020	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	29	19	Gulf of Mexico	Inshore
KNS20200718-003	7/18/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	29	20	Gulf of Mexico	Inshore
KNS20200718-001	7/18/2020	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	29	20	Gulf of Mexico	Inshore
KNS20200718-002	7/18/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
AKT20200719-001	7/19/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMO20200720-001	7/20/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMO20200720-002	7/20/2020	Unknown	Traditional stranding	Skeletal	TX	Nueces	30	20	Gulf of Mexico	Offshore
KNS20200722-001	7/22/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
KNS20200723-001	7/23/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
KNS20200723-003	7/23/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMO20200726-001	7/26/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
RHG20200726-001	7/26/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
AMO20200728-001	7/28/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
CXR20200728-001	7/28/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Offshore
AMW20200731-001	7/31/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Offshore
AMO20200801-001	8/1/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
AKT20200804-001	8/4/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Inshore
MKC20200805-001	8/5/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
KNS20200805-001	8/5/2020	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	32	19	Gulf of Mexico	Offshore
KNS20200806-001	8/6/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	32	20	Gulf of Mexico	Offshore
AMO20200809-001	8/9/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
APT20200812-001	8/12/2020	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
KNS20200813-001	8/13/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Offshore
AMO20200815-002	8/15/2020	Green turtle	Traditional stranding	Alive	TX	Aransas	33	20	Gulf of Mexico	Inshore
KNS20200815-001	8/15/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Inshore
AMO20200816-001	8/16/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Inshore
ALF20200817-001	8/17/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AMO20200818-001	8/18/2020	Hawksbill	Traditional stranding	Alive	TX	Aransas	34	19	Gulf of Mexico	Inshore
AMO20200818-002	8/18/2020	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20200818-003	8/18/2020	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
JDS20200819-001	8/19/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Inshore
KNS20200820-001	8/20/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	34	20	Gulf of Mexico	Inshore
ALF20200822-001	8/22/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Inshore
AMO20200824-001	8/24/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AMO20200824-002	8/24/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Offshore
KNS20200828-001	8/28/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Inshore
CFP20200910-001	9/10/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
CFP20200910-002	9/10/2020	Unknown	Traditional stranding	Moderately decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
EAE20200911-001	9/11/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
KNS20200912-001	9/12/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	37	20	Gulf of Mexico	Inshore
JKL20200918-001	9/18/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Inshore
HMW20200920-001	9/20/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	39	20	Gulf of Mexico	Offshore
AMO20200920-001	9/20/2020	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	39	20	Gulf of Mexico	Inshore
AMO20200921-001	9/21/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
AMO20200922-001	9/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
AMO20200922-002	9/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Offshore
AMO20200922-003	9/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
AMO20200922-004	9/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
AMO20200922-005	9/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
AMO20200922-006	9/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
KNS20200922-001	9/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	39	20	Gulf of Mexico	Inshore
RIR20200928-001	9/28/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
AMO20200929-001	9/29/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
KNS20200929-001	9/29/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Inshore
JWT20201001-001	10/1/2020	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	40	20	Gulf of Mexico	Offshore
JKL20201001-001	10/1/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Inshore
KNS20201003-001	10/3/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
RIR20201004-001	10/4/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
KAK20201007-001	10/7/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	41	20	Gulf of Mexico	Inshore
CFP20201009-001	10/9/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Offshore
CFP20201009-002	10/9/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
AMO20201011-001	10/11/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Offshore
AMO20201012-001	10/12/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	42	20	Gulf of Mexico	Inshore
CFP20201013-001	10/13/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
KEC20201015-001	10/15/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Offshore
KEC20201015-002	10/15/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
KAK20201016-001	10/16/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	42	20	Gulf of Mexico	Inshore
EAE20201016-001	10/16/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	42	20	Gulf of Mexico	Inshore
AMO20201020-001	10/20/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	43	20	Gulf of Mexico	Inshore
AMO20201023-001	10/23/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
KAK20201024-001	10/24/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20201026-001	10/26/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Offshore
MNL20201027-001	10/27/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20201030-001	10/30/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
KAK20201030-001	10/30/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
JKL20201031-001	10/31/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
JKL20201031-003	10/31/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
JKL20201031-002	10/31/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	44	20	Gulf of Mexico	Inshore
JKL20201101-001	11/1/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
GKP20201101-001	11/1/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Inshore
AMO20201102-001	11/2/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
JWT20201105-001	11/5/2020	Green turtle	Traditional stranding	Alive	TX	Aransas	45	20	Gulf of Mexico	Offshore
JKL20201105-001	11/5/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20201105-001	11/5/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
EAE20201107-001	11/7/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20201107-001	11/7/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
MNL20201107-001	11/7/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
TLC20201107-001	11/7/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
KNS20201108-001	11/8/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
GKP20201108-001	11/8/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
GKP20201108-002	11/8/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
JKL20201112-001	11/12/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
KAK20201112-001	11/12/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20201114-001	11/14/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20201114-002	11/14/2020	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Offshore
KTH20201115-001	11/15/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
RIR20201115-001	11/15/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
KNS20201119-001	11/19/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
JKL20201120-001	11/20/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
JKL20201120-002	11/20/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
KNS20201120-001	11/20/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
TLC20201121-001	11/21/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Inshore
TLC20201121-002	11/21/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AKT20201121-001	11/21/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
AKT20201122-001	11/22/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AMO20201123-001	11/23/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
KAK20201126-001	11/26/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
KEC20201127-001	11/27/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
KNS20201127-001	11/27/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Inshore
KTH20201129-001	11/29/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20201201-001	12/1/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore
SHC20201201-001	12/1/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
KNS20201202-001	12/2/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	49	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KNS20201204-001	12/4/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20201205-001	12/5/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
AMO20201207-001	12/7/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMO20201207-002	12/7/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
AKT20201208-001	12/8/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Inshore
KAK20201209-001	12/9/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMO20201211-001	12/11/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	50	19	Gulf of Mexico	Inshore
AMO20201211-002	12/11/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	50	20	Gulf of Mexico	Inshore
AMO20201212-001	12/12/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AKT20201212-001	12/12/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Inshore
AMO20201213-001	12/13/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMO20201213-002	12/13/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMO20201213-003	12/13/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMO20201213-004	12/13/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
KNS20201214-001	12/14/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
KNS20201214-002	12/14/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
KNS20201214-003	12/14/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
AMO20201215-001	12/15/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
AMO20201215-002	12/15/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	51	20	Gulf of Mexico	Inshore
RIR20201216-001	12/16/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
JKL20201217-001	12/17/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
KAG20201218-001	12/18/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
AMO20201220-001	12/20/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20201222-001	12/22/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20201223-002	12/23/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	52	20	Gulf of Mexico	Inshore
AMO20201223-001	12/23/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20201224-001	12/24/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20201224-002	12/24/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20201224-003	12/24/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20201225-001	12/25/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMW20201225-001	12/25/2020	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20201226-001	12/26/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20201226-002	12/26/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
RIR20201228-001	12/28/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
KNS20201228-001	12/28/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Offshore
KNS20201229-001	12/29/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Inshore
KNS20201229-002	12/29/2020	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
MRV20201230-001	12/30/2020	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Inshore
KNS20201230-001	12/30/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Inshore
KNS20201231-001	12/31/2020	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Offshore
KNS20210101-001	1/1/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
KNS20210101-002	1/1/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KNS20210102-001	1/2/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	1	20	Gulf of Mexico	Offshore
KNS20210102-002	1/2/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	1	20	Gulf of Mexico	Inshore
AKT20210103-001	1/3/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Offshore
MPH20210104-001	1/4/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
KNS20210104-001	1/4/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
RHG20210106-001	1/6/2021	Green turtle	Traditional stranding	Alive	TX	Aransas	2	20	Gulf of Mexico	Offshore
AMO20210106-001	1/6/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	2	20	Gulf of Mexico	Offshore
KAG20210106-001	1/6/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
NEL20210107-001	1/7/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AMO20210109-001	1/9/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
CAS20210109-001	1/9/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Offshore
AMO20210110-001	1/10/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AMO20210110-002	1/10/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
KNS20210111-001	1/11/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
KNS20210111-002	1/11/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
RHG20210112-002	1/12/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
KNS20210112-001	1/12/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
JTH20210112-001	1/12/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMO20210114-001	1/14/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	3	20	Gulf of Mexico	Offshore
AMO20210114-002	1/14/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	3	19	Gulf of Mexico	Offshore
AMO20210114-003	1/14/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	3	19	Gulf of Mexico	Offshore
RHG20210114-001	1/14/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	3	20	Gulf of Mexico	Offshore
AMO20210116-002	1/16/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	3	20	Gulf of Mexico	Inshore
AMO20210116-001	1/16/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Offshore
AKT20210116-001	1/16/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	3	20	Gulf of Mexico	Inshore
AMO20210117-001	1/17/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	4	20	Gulf of Mexico	Inshore
KNS20210118-001	1/18/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
KNS20210118-002	1/18/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	4	20	Gulf of Mexico	Inshore
AMO20210121-001	1/21/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	4	19	Gulf of Mexico	Offshore
RHG20210121-001	1/21/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
TPW20210121-001	1/21/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
TPW20210121-002	1/21/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
RHG20210122-001	1/22/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
MRV20210122-001	1/22/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
TSA20210122-001	1/22/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
AKT20210123-001	1/23/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	4	20	Gulf of Mexico	Offshore
AMO20210123-001	1/23/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	4	20	Gulf of Mexico	Offshore
WET20210123-001	1/23/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
KAG20210125-001	1/25/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
KAG20210125-002	1/25/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Inshore
AKT20210125-001	1/25/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Offshore
KXH20210125-001	1/25/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KXH20210125-002	1/25/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
CAS20210126-001	1/26/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Offshore
TSA20210126-001	1/26/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
KNS20210126-001	1/26/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
KNS20210127-003	1/27/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	5	19	Gulf of Mexico	Inshore
TSA20210127-001	1/27/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
KNS20210127-001	1/27/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
KNS20210127-002	1/27/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
KNS20210127-004	1/27/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Offshore
KNS20210127-005	1/27/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
KXH20210127-001	1/27/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AMO20210130-001	1/30/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	5	20	Gulf of Mexico	Inshore
KAG20210201-001	2/1/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
KNS20210203-001	2/3/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
TSA20210203-001	2/3/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AMO20210204-001	2/4/2021	Green turtle	Traditional stranding	Alive	TX	Aransas	6	20	Gulf of Mexico	Offshore
AMO20210204-002	2/4/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Offshore
TSA20210204-001	2/4/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
RHG20210205-001	2/5/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	6	20	Gulf of Mexico	Inshore
KNS20210208-001	2/8/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	7	20	Gulf of Mexico	Offshore
KNS20210208-002	2/8/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
KAG20210209-001	2/9/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
KAG20210210-001	2/10/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Offshore
KAG20210210-002	2/10/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	7	20	Gulf of Mexico	Inshore
TSA20210210-001	2/10/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
TSA20210210-002	2/10/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
TSA20210210-003	2/10/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
CRC20210212-001	2/12/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
KXH20210213-001	2/13/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
RHG20210215-002	2/15/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
RHG20210215-006	2/15/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
TSA20210220-001	2/20/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
TSA20210220-002	2/20/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
TSA20210221-001	2/21/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
CAS20210226-001	2/26/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
CAS20210226-002	2/26/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
LRP20210301-001	3/1/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
KNS20210302-001	3/2/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
KNS20210302-002	3/2/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KNS20210302-003	3/2/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
CAS20210302-001	3/2/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KNS20210303-003	3/3/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	10	19	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KNS20210303-001	3/3/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
KNS20210303-002	3/3/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
KNS20210303-004	3/3/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KEC20210304-001	3/4/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	10	19	Gulf of Mexico	Inshore
KTH20210304-001	3/4/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KTH20210304-002	3/4/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KTH20210304-003	3/4/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KTH20210304-004	3/4/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
TSA20210305-001	3/5/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	10	20	Gulf of Mexico	Inshore
RHG20210305-001	3/5/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
RHG20210305-002	3/5/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KTH20210305-001	3/5/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
CAS20210306-001	3/6/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Offshore
KXH20210307-001	3/7/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
KXH20210307-002	3/7/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
KNS20210308-001	3/8/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
TSA20210309-001	3/9/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
KNS20210309-001	3/9/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
KAG20210310-001	3/10/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
KNS20210310-001	3/10/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
JWT20210311-001	3/11/2021	Green turtle	Traditional stranding	Alive	TX	Aransas	11	20	Gulf of Mexico	Offshore
JWT20210311-002	3/11/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	11	19	Gulf of Mexico	Offshore
JKL20210311-001	3/11/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
KTH20210311-001	3/11/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AMO20210311-001	3/11/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	11	20	Gulf of Mexico	Inshore
KTH20210313-001	3/13/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
KNS20210313-001	3/13/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
KNS20210313-002	3/13/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	11	20	Gulf of Mexico	Offshore
AMO20210318-001	3/18/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	12	20	Gulf of Mexico	Offshore
LES20210320-001	3/20/2021	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	12	20	Gulf of Mexico	Inshore
AKF20210321-001	3/21/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
KAG20210322-001	3/22/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Inshore
KAG20210323-001	3/23/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
APS20210323-001	3/23/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
KAG20210324-002	3/24/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Inshore
KAG20210324-001	3/24/2021	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
KTH20210326-001	3/26/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	13	20	Gulf of Mexico	Offshore
KNS20210329-002	3/29/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
KNS20210329-003	3/29/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
KNS20210329-001	3/29/2021	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
KAG20210330-001	3/30/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
KAG20210403-001	4/3/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KAG20210403-002	4/3/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20210404-003	4/4/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20210404-002	4/4/2021	Leatherback	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
CMM20210405-002	4/5/2021	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	15	20	Gulf of Mexico	Offshore
KNS20210405-001	4/5/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
KAG20210406-001	4/6/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
KAG20210406-002	4/6/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AKT20210406-001	4/6/2021	Loggerhead	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Offshore
TSA20210407-001	4/7/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
TSA20210407-002	4/7/2021	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	15	20	Gulf of Mexico	Inshore
TSA20210407-003	4/7/2021	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	15	20	Gulf of Mexico	Inshore
KLP20210408-001	4/8/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
CMM20210412-002	4/12/2021	Green turtle	Traditional stranding	Skeletal	TX	Aransas	16	20	Gulf of Mexico	Offshore
CMM20210412-001	4/12/2021	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	16	20	Gulf of Mexico	Offshore
KLP20210413-001	4/13/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
AMO20210416-001	4/16/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMO20210416-002	4/16/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMO20210419-001	4/19/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	17	19	Gulf of Mexico	Offshore
KAG20210419-001	4/19/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Inshore
KAG20210426-001	4/26/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
KAG20210427-001	4/27/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	18	19	Gulf of Mexico	Inshore
KEC20210429-001	4/29/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	18	19	Gulf of Mexico	Inshore
JWT20210429-001	4/29/2021	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	18	19	Gulf of Mexico	Offshore
JWT20210429-002	4/29/2021	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	18	20	Gulf of Mexico	Offshore
JKL20210429-001	4/29/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Inshore
AMO20210429-001	4/29/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20210430-001	4/30/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20210501-001	5/1/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
KTH20210501-001	5/1/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20210503-001	5/3/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	19	20	Gulf of Mexico	Offshore
KNS20210504-001	5/4/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
KNS20210504-002	5/4/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
KLP20210505-001	5/5/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
KNS20210505-001	5/5/2021	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
KTH20210507-001	5/7/2021	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20210508-001	5/8/2021	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMW20210510-001	5/10/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
AMW20210510-002	5/10/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
KAG20210510-001	5/10/2021	Loggerhead	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
KNS20210511-001	5/11/2021	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
KAG20210512-001	5/12/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
KAG20210512-002	5/12/2021	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
TSA20210514-001	5/14/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Inshore
TSA20210514-002	5/14/2021	Green turtle	Traditional stranding	Skeletal	TX	Nueces	20	20	Gulf of Mexico	Inshore
TSA20210514-003	5/14/2021	Unknown	Traditional stranding	Skeletal	TX	Nueces	20	20	Gulf of Mexico	Inshore
TSA20210514-004	5/14/2021	Unknown	Traditional stranding	Skeletal	TX	Nueces	20	20	Gulf of Mexico	Inshore
AMO20210516-001	5/16/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
KNS20210518-001	5/18/2021	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20210522-002	5/22/2021	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMO20210522-001	5/22/2021	Loggerhead	Traditional stranding	Alive	TX	Aransas	21	20	Gulf of Mexico	Offshore
AMO20210523-001	5/23/2021	Loggerhead	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Offshore
AMW20210524-002	5/24/2021	Loggerhead	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Offshore
AMW20210524-003	5/24/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	22	20	Gulf of Mexico	Offshore
AMW20210524-001	5/24/2021	Loggerhead	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Offshore
KAG20210525-001	5/25/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
JNL20210526-001	5/26/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
JWT20210527-002	5/27/2021	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	22	20	Gulf of Mexico	Offshore
JWT20210527-001	5/27/2021	Loggerhead	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Offshore
PCF20210527-001	5/27/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
KAG20210528-001	5/28/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
CAS20210528-001	5/28/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
SJW20210530-001	5/30/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20210530-001	5/30/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
IDW20210530-002	5/30/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
HMW20210530-001	5/30/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
HMW20210531-002	5/31/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
KAG20210602-001	6/2/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
KNS20210603-001	6/3/2021	Loggerhead	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMW20210604-002	6/4/2021	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	23	20	Gulf of Mexico	Offshore
AMW20210604-001	6/4/2021	Unknown	Traditional stranding	Skeletal	TX	Aransas	23	20	Gulf of Mexico	Offshore
KLP20210604-001	6/4/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
KNS20210605-001	6/5/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
KTH20210605-001	6/5/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
KEC20210606-001	6/6/2021	Green turtle	Traditional stranding	Alive	TX	Aransas	24	20	Gulf of Mexico	Inshore
AMO20210607-001	6/7/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
KNS20210608-002	6/8/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMW20210608-001	6/8/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
KNS20210608-001	6/8/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
JWT20210610-001	6/10/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	24	19	Gulf of Mexico	Offshore
AMO20210610-001	6/10/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
KAG20210611-001	6/11/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
DEW20210612-001	6/12/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	24	20	Gulf of Mexico	Inshore
KTH20210614-001	6/14/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	25	20	Gulf of Mexico	Offshore
KAG20210615-001	6/15/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20210619-001	6/19/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	25	20	Gulf of Mexico	Inshore
KAG20210621-001	6/21/2021	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
JKL20210624-001	6/24/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
TJD20210625-001	6/25/2021	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	26	19	Gulf of Mexico	Inshore
RHG20210626-001	6/26/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AKT20210627-001	6/27/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMO20210627-001	6/27/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
KAG20210629-001	6/29/2021	Unknown	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
RHG20210630-001	6/30/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
KNS20210708-001	7/8/2021	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	28	19	Gulf of Mexico	Inshore
KTH20210708-001	7/8/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Offshore
JKL20210709-001	7/9/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	28	20	Gulf of Mexico	Offshore
RXL20210711-001	7/11/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Inshore
KAG20210719-001	7/19/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
JWT20210722-001	7/22/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	30	20	Gulf of Mexico	Offshore
TSA20210730-001	7/30/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	31	20	Gulf of Mexico	Inshore
KEC20210802-001	8/2/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	32	19	Gulf of Mexico	Inshore
AMO20210805-001	8/5/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	32	20	Gulf of Mexico	Inshore
KNS20210807-001	8/7/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	32	20	Gulf of Mexico	Inshore
AMO20210809-001	8/9/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	33	20	Gulf of Mexico	Inshore
KAG20210810-001	8/10/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Inshore
KNS20210813-001	8/13/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	33	20	Gulf of Mexico	Inshore
JKL20210815-001	8/15/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
JKL20210815-002	8/15/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Inshore
JKL20210815-003	8/15/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Inshore
KAG20210817-001	8/17/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
KNS20210817-001	8/17/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
KAG20210818-001	8/18/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	34	20	Gulf of Mexico	Offshore
JKL20210819-001	8/19/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
JKL20210819-002	8/19/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
KNS20210820-002	8/20/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	34	20	Gulf of Mexico	Offshore
AMO20210822-002	8/22/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	35	19	Gulf of Mexico	Offshore
AMO20210823-001	8/23/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Offshore
KAG20210825-001	8/25/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AMO20210825-001	8/25/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
JWT20210826-001	8/26/2021	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	35	20	Gulf of Mexico	Offshore
AMO20210826-001	8/26/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	35	20	Gulf of Mexico	Inshore
AMO20210826-002	8/26/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	35	20	Gulf of Mexico	Inshore
AMO20210830-002	8/30/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Inshore
AKT20210830-001	8/30/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Offshore
AMO20210830-001	8/30/2021	Green turtle	Traditional stranding	Skeletal	TX	Nueces	36	20	Gulf of Mexico	Inshore
JWT20210902-002	9/2/2021	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	36	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
JWT20210902-001	9/2/2021	Loggerhead	Traditional stranding	Skeletal	TX	Aransas	36	20	Gulf of Mexico	Offshore
KNS20210902-001	9/2/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	36	20	Gulf of Mexico	Inshore
AMO20210905-001	9/5/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	37	20	Gulf of Mexico	Inshore
KNS20210907-001	9/7/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Inshore
KNS20210908-001	9/8/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	37	20	Gulf of Mexico	Inshore
EMU20210910-001	9/10/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	37	20	Gulf of Mexico	Offshore
KNS20210911-001	9/11/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	37	20	Gulf of Mexico	Offshore
JWT20210916-001	9/16/2021	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	38	20	Gulf of Mexico	Offshore
AMO20210918-001	9/18/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	38	20	Gulf of Mexico	Inshore
KNS20210918-001	9/18/2021	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	38	20	Gulf of Mexico	Offshore
KNS20210928-001	9/28/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
KAG20210929-001	9/29/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Offshore
KAG20210929-002	9/29/2021	Loggerhead	Traditional stranding	Skeletal	TX	Nueces	40	20	Gulf of Mexico	Offshore
AKT20210930-001	9/30/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Inshore
KNS20211001-001	10/1/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	40	20	Gulf of Mexico	Inshore
KNS20211002-001	10/2/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
KNS20211002-002	10/2/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Offshore
MLH20211002-001	10/2/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	40	20	Gulf of Mexico	Inshore
KAG20211004-001	10/4/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
AKT20211009-001	10/9/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	41	20	Gulf of Mexico	Inshore
AMO20211014-001	10/14/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	42	20	Gulf of Mexico	Offshore
KAG20211019-001	10/19/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	43	20	Gulf of Mexico	Offshore
TSA20211022-001	10/22/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	43	20	Gulf of Mexico	Inshore
AMO20211024-001	10/24/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	44	20	Gulf of Mexico	Offshore
KEC20211024-001	10/24/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	44	19	Gulf of Mexico	Inshore
AMO20211026-001	10/26/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AMO20211026-002	10/26/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
KNS20211026-001	10/26/2021	Loggerhead	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
JKL20211029-001	10/29/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Inshore
AKT20211030-001	10/30/2021	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	44	20	Gulf of Mexico	Offshore
KLP20211102-001	11/2/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
KNS20211104-001	11/4/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	45	20	Gulf of Mexico	Inshore
KLP20211104-001	11/4/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	45	20	Gulf of Mexico	Offshore
PXA20211105-001	11/5/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	45	20	Gulf of Mexico	Inshore
KNS20211109-001	11/9/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
KLP20211111-001	11/11/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20211113-001	11/13/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	46	20	Gulf of Mexico	Inshore
KLP20211113-001	11/13/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	46	20	Gulf of Mexico	Inshore
AMO20211114-001	11/14/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	47	20	Gulf of Mexico	Inshore
AMO20211115-001	11/15/2021	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
KNS20211117-001	11/17/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
KLP20211117-001	11/17/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20211118-001	11/18/2021	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
PXA20211118-001	11/18/2021	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	47	20	Gulf of Mexico	Offshore
RHG20211121-001	11/21/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AKT20211121-001	11/21/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
KNS20211122-001	11/22/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
KLP20211123-001	11/23/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
KNS20211124-001	11/24/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	48	20	Gulf of Mexico	Offshore
JKL20211125-001	11/25/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	48	20	Gulf of Mexico	Inshore
AKT20211201-001	12/1/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	49	20	Gulf of Mexico	Inshore
AMO20211203-001	12/3/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
AMO20211203-002	12/3/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	49	20	Gulf of Mexico	Offshore
KEC20211204-001	12/4/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	49	19	Gulf of Mexico	Inshore
AMO20211206-001	12/6/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
AMW20211206-001	12/6/2021	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	50	20	Gulf of Mexico	Offshore
TSA20211208-001	12/8/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	50	20	Gulf of Mexico	Offshore
RHG20211215-001	12/15/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Inshore
AKT20211216-001	12/16/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Offshore
MRV20211216-001	12/16/2021	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
JKL20211217-001	12/17/2021	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	51	20	Gulf of Mexico	Offshore
KNS20211217-001	12/17/2021	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	51	20	Gulf of Mexico	Offshore
TSA20211218-001	12/18/2021	Green turtle	Traditional stranding	Alive	TX	San Patricio	51	20	Gulf of Mexico	Inshore
KNS20211220-001	12/20/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
KNS20211222-001	12/22/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	52	20	Gulf of Mexico	Inshore
AMO20211225-001	12/25/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	52	20	Gulf of Mexico	Offshore
AMO20211227-001	12/27/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Offshore
JKL20211228-001	12/28/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
JKL20211229-001	12/29/2021	Green turtle	Traditional stranding	Alive	TX	Nueces	53	20	Gulf of Mexico	Inshore
AMW20211231-001	12/31/2021	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	53	20	Gulf of Mexico	Offshore
NEL20220103-001	1/3/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AMO20220103-001	1/3/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AMO20220108-001	1/8/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	2	20	Gulf of Mexico	Inshore
AKT20220108-001	1/8/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	2	20	Gulf of Mexico	Inshore
AMO20220116-001	1/16/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	4	20	Gulf of Mexico	Inshore
AMO20220123-001	1/23/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
RHG20220125-002	1/25/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	5	19	Gulf of Mexico	Inshore
RHG20220125-001	1/25/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
TSA20220125-001	1/25/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
RHG20220126-001	1/26/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AMO20220128-001	1/28/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	5	20	Gulf of Mexico	Inshore
AMO20220131-001	1/31/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Offshore
AMO20220204-001	2/4/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore
AMO20220205-001	2/5/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	6	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
SXT20220208-001	2/8/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
SXT20220208-002	2/8/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
NAS20220209-001	2/9/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	7	20	Gulf of Mexico	Inshore
AMO20220213-001	2/13/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	8	19	Gulf of Mexico	Inshore
AMO20220213-002	2/13/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
TSA20220213-001	2/13/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
NAS20220215-001	2/15/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AMO20220217-001	2/17/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	8	20	Gulf of Mexico	Offshore
KLP20220217-001	2/17/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
NAS20220217-001	2/17/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
BDP20220217-001	2/17/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
BDP20220217-002	2/17/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AMO20220218-001	2/18/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	8	20	Gulf of Mexico	Inshore
AMO20220221-001	2/21/2022	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	9	20	Gulf of Mexico	Offshore
NAS20220222-001	2/22/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
RHG20220223-001	2/23/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Offshore
NAS20220225-001	2/25/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
NAS20220225-002	2/25/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
TSA20220225-001	2/25/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AMO20220226-001	2/26/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AKT20220226-001	2/26/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	9	20	Gulf of Mexico	Inshore
NAS20220226-001	2/26/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	9	20	Gulf of Mexico	Inshore
AMO20220227-001	2/27/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
KGE20220228-001	2/28/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
TSA20220228-001	2/28/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	10	20	Gulf of Mexico	Inshore
AMO20220317-001	3/17/2022	Green turtle	Traditional stranding	Dried carcass	TX	Aransas	12	20	Gulf of Mexico	Offshore
KGE20220317-001	3/17/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	12	20	Gulf of Mexico	Offshore
KGE20220323-001	3/23/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	13	20	Gulf of Mexico	Offshore
KGE20220328-001	3/28/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	14	20	Gulf of Mexico	Inshore
KGE20220330-001	3/30/2022	Green turtle	Traditional stranding	Alive	TX	Aransas	14	20	Gulf of Mexico	Offshore
JKL20220331-001	3/31/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
TSA20220401-001	4/1/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	14	20	Gulf of Mexico	Inshore
JKL20220401-001	4/1/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	14	20	Gulf of Mexico	Offshore
AMO20220402-001	4/2/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	14	19	Gulf of Mexico	Inshore
AMO20220404-001	4/4/2022	Kemp's ridley	Traditional stranding	Alive	TX	Aransas	15	20	Gulf of Mexico	Offshore
KGE20220404-001	4/4/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	15	20	Gulf of Mexico	Inshore
KGE20220404-002	4/4/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20220409-002	4/9/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	15	20	Gulf of Mexico	Inshore
AMO20220409-001	4/9/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	15	20	Gulf of Mexico	Offshore
AMO20220410-001	4/10/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMO20220411-002	4/11/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	16	19	Gulf of Mexico	Offshore
AMO20220411-001	4/11/2022	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	16	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KGE20220412-001	4/12/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
AMO20220412-001	4/12/2022	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	16	20	Gulf of Mexico	Inshore
ALB20220413-001	4/13/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore
AMO20220414-002	4/14/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Aransas	16	19	Gulf of Mexico	Offshore
AMO20220414-001	4/14/2022	Kemp's ridley	Traditional stranding	Alive	TX	Aransas	16	20	Gulf of Mexico	Offshore
AMO20220414-003	4/14/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Offshore
ALB20220414-001	4/14/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	16	20	Gulf of Mexico	Offshore
NEL20220415-001	4/15/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	16	20	Gulf of Mexico	Inshore
JKL20220415-001	4/15/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	16	20	Gulf of Mexico	Inshore
KLP20220417-001	4/17/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
AMW20220418-001	4/18/2022	Unknown	Traditional stranding	Skeletal	TX	Aransas	17	20	Gulf of Mexico	Offshore
AMO20220418-001	4/18/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	17	20	Gulf of Mexico	Offshore
ALB20220421-001	4/21/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	17	20	Gulf of Mexico	Offshore
JWT20220421-001	4/21/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	17	20	Gulf of Mexico	Offshore
JWT20220421-002	4/21/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	17	20	Gulf of Mexico	Offshore
JWT20220421-003	4/21/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	17	20	Gulf of Mexico	Offshore
JWT20220421-004	4/21/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	17	19	Gulf of Mexico	Offshore
AMO20220422-001	4/22/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
MRV20220422-001	4/22/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Offshore
TSA20220423-001	4/23/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	17	20	Gulf of Mexico	Inshore
KLP20220424-001	4/24/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20220425-002	4/25/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	18	20	Gulf of Mexico	Offshore
AMO20220425-003	4/25/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	18	20	Gulf of Mexico	Offshore
AMO20220425-001	4/25/2022	Unknown	Traditional stranding	Skeletal	TX	Aransas	18	20	Gulf of Mexico	Offshore
AMO20220426-001	4/26/2022	Green turtle	Traditional stranding	Alive	TX	Aransas	18	19	Gulf of Mexico	Offshore
AMO20220426-002	4/26/2022	Loggerhead	Traditional stranding	Skeletal	TX	Nueces	18	20	Gulf of Mexico	Inshore
AMO20220428-001	4/28/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	18	20	Gulf of Mexico	Offshore
AMO20220429-001	4/29/2022	Green turtle	Traditional stranding	Skeletal	TX	Nueces	18	20	Gulf of Mexico	Inshore
AMO20220429-002	4/29/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Inshore
PXA20220429-001	4/29/2022	Kemp's ridley	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20220429-003	4/29/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20220430-002	4/30/2022	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20220430-001	4/30/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMW20220430-001	4/30/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	18	20	Gulf of Mexico	Offshore
AMO20220430-003	4/30/2022	Unknown	Traditional stranding	Severely decomposed	TX	Nueces	18	20	Gulf of Mexico	Offshore
HMW20220501-001	5/1/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Inshore
AMO20220501-001	5/1/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20220502-001	5/2/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
KGE20220503-001	5/3/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
KGE20220503-002	5/3/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
ALB20220504-001	5/4/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20220505-001	5/5/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
PCF20220506-001	5/6/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
PCF20220506-002	5/6/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
PCF20220506-003	5/6/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
PCF20220506-004	5/6/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	19	20	Gulf of Mexico	Offshore
AMO20220506-001	5/6/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	19	20	Gulf of Mexico	Offshore
JKL20220507-001	5/7/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	19	19	Gulf of Mexico	Offshore
AMO20220508-005	5/8/2022	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
AMO20220508-003	5/8/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
AMO20220508-004	5/8/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	20	20	Gulf of Mexico	Offshore
AMO20220508-008	5/8/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	19	Gulf of Mexico	Offshore
AMO20220508-009	5/8/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	19	Gulf of Mexico	Offshore
AMO20220508-010	5/8/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	19	Gulf of Mexico	Offshore
AMO20220508-002	5/8/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20220508-001	5/8/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMW20220509-001	5/9/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
JWT20220509-001	5/9/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
PCM20220509-001	5/9/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Inshore
KGE20220510-002	5/10/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
ALB20220511-001	5/11/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
KGE20220511-001	5/11/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	20	20	Gulf of Mexico	Offshore
KGE20220512-001	5/12/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
JWT20220513-001	5/13/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
JWT20220513-003	5/13/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	20	19	Gulf of Mexico	Inshore
AMO20220514-002	5/14/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	20	20	Gulf of Mexico	Offshore
AMO20220514-003	5/14/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	20	20	Gulf of Mexico	Offshore
AMO20220515-001	5/15/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
ALB20220517-001	5/17/2022	Kemp's ridley	Traditional stranding	Severely decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20220519-001	5/19/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20220519-002	5/19/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Inshore
AKT20220519-001	5/19/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
KGE20220519-001	5/19/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
HMW20220520-001	5/20/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20220521-004	5/21/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	21	20	Gulf of Mexico	Offshore
AMO20220522-006	5/22/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	22	20	Gulf of Mexico	Offshore
AMO20220522-007	5/22/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	22	20	Gulf of Mexico	Offshore
AMO20220522-008	5/22/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	22	20	Gulf of Mexico	Offshore
AMO20220522-010	5/22/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Offshore
AMO20220522-002	5/22/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20220522-001	5/22/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMO20220522-003	5/22/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Inshore
AMW20220523-001	5/23/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	22	20	Gulf of Mexico	Offshore
AMO20220523-001	5/23/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
HMW20220524-001	5/24/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
AKT20220525-001	5/25/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	22	20	Gulf of Mexico	Offshore
MGR20220526-002	5/26/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	22	20	Gulf of Mexico	Offshore
AMW20220527-001	5/27/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	22	19	Gulf of Mexico	Offshore
AMO20220529-003	5/29/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	23	20	Gulf of Mexico	Offshore
AMO20220529-002	5/29/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	23	20	Gulf of Mexico	Offshore
KGE20220530-001	5/30/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMW20220531-002	5/31/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	23	19	Gulf of Mexico	Offshore
AMW20220601-001	6/1/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
AMW20220602-001	6/2/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	23	20	Gulf of Mexico	Offshore
AMW20220602-002	6/2/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	23	20	Gulf of Mexico	Offshore
AKT20220602-001	6/2/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	23	20	Gulf of Mexico	Offshore
JKL20220602-001	6/2/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
WET20220603-001	6/3/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Inshore
JKL20220604-002	6/4/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
JKL20220604-003	6/4/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
JKL20220604-001	6/4/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20220604-001	6/4/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Nueces	23	20	Gulf of Mexico	Offshore
AMO20220606-001	6/6/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	24	20	Gulf of Mexico	Offshore
KGE20220606-001	6/6/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
JWT20220609-003	6/9/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Aransas	24	20	Gulf of Mexico	Offshore
JWT20220609-005	6/9/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	24	20	Gulf of Mexico	Offshore
JWT20220609-006	6/9/2022	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Aransas	24	20	Gulf of Mexico	Offshore
JWT20220609-001	6/9/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	24	20	Gulf of Mexico	Offshore
JWT20220609-002	6/9/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	24	20	Gulf of Mexico	Offshore
JWT20220609-004	6/9/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	24	20	Gulf of Mexico	Offshore
SJW20220610-001	6/10/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20220611-002	6/11/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
SJW20220611-001	6/11/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Inshore
AMF20220611-001	6/11/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20220611-001	6/11/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	24	20	Gulf of Mexico	Offshore
AMO20220611-003	6/11/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	San Patricio	24	20	Gulf of Mexico	Inshore
AMO20220612-002	6/12/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	25	20	Gulf of Mexico	Offshore
AMO20220612-003	6/12/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	25	20	Gulf of Mexico	Offshore
AMO20220612-001	6/12/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	25	20	Gulf of Mexico	Offshore
KGE20220613-002	6/13/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Inshore
KGE20220613-001	6/13/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
NEL20220613-001	6/13/2022	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	San Patricio	25	20	Gulf of Mexico	Inshore
ALB20220616-001	6/16/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Inshore
AMO20220616-001	6/16/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	25	20	Gulf of Mexico	Offshore
AMO20220619-002	6/19/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	26	20	Gulf of Mexico	Offshore
AMO20220619-001	6/19/2022	Loggerhead	Traditional stranding	Dried carcass	TX	Aransas	26	20	Gulf of Mexico	Offshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
AMO20220619-003	6/19/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AMO20220619-004	6/19/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AMO20220620-001	6/20/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AMO20220620-003	6/20/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
AMO20220620-002	6/20/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
ALB20220622-001	6/22/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	26	19	Gulf of Mexico	Inshore
AMO20220622-001	6/22/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AMO20220623-001	6/23/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
KGE20220623-001	6/23/2022	Kemp's ridley	Traditional stranding	Moderately decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
AMO20220624-001	6/24/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
KGE20220624-001	6/24/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Offshore
HNO20220625-002	6/25/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Inshore
HNO20220625-001	6/25/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	26	20	Gulf of Mexico	Offshore
HMW20220625-001	6/25/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	26	20	Gulf of Mexico	Inshore
AMO20220626-001	6/26/2022	Green turtle	Traditional stranding	Alive	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMW20220627-001	6/27/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	27	20	Gulf of Mexico	Offshore
AMW20220627-005	6/27/2022	Loggerhead	Traditional stranding	Dried carcass	TX	Aransas	27	19	Gulf of Mexico	Offshore
AMO20220627-001	6/27/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20220627-002	6/27/2022	Green turtle	Traditional stranding	Dried carcass	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMO20220627-003	6/27/2022	Green turtle	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20220627-004	6/27/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Inshore
AMO20220630-001	6/30/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20220701-001	7/1/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
JKL20220701-001	7/1/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
HMW20220702-001	7/2/2022	Green turtle	Traditional stranding	Moderately decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20220702-001	7/2/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20220702-002	7/2/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	27	20	Gulf of Mexico	Offshore
AMO20220711-001	7/11/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	29	20	Gulf of Mexico	Offshore
JWT20220714-001	7/14/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	29	19	Gulf of Mexico	Offshore
KGE20220714-001	7/14/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	29	20	Gulf of Mexico	Offshore
JKL20220716-001	7/16/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	29	20	Gulf of Mexico	Offshore
MRT20220717-001	7/17/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	30	20	Gulf of Mexico	Inshore
AMO20220717-003	7/17/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMO20220717-002	7/17/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMO20220717-001	7/17/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMO20220718-001	7/18/2022	Loggerhead	Traditional stranding	Moderately decomposed	TX	Aransas	30	20	Gulf of Mexico	Offshore
AMO20220718-002	7/18/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	30	20	Gulf of Mexico	Offshore
AMO20220718-003	7/18/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	30	20	Gulf of Mexico	Offshore
AMO20220718-004	7/18/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	30	20	Gulf of Mexico	Offshore
AMO20220718-005	7/18/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	30	19	Gulf of Mexico	Offshore
AMO20220718-006	7/18/2022	Loggerhead	Traditional stranding	Fresh dead or mildly decomposed	TX	Aransas	30	19	Gulf of Mexico	Offshore
LAH20220718-001	7/18/2022	Green turtle	Traditional stranding	Fresh dead or mildly decomposed	TX	Nueces	30	20	Gulf of Mexico	Inshore

Stranding ID	Report Date	Species	Stranding Type	Initial Condition	State	County	Week Number	Zone	Body of Water	In or Offshore
KGE20220718-002	7/18/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
KGE20220718-001	7/18/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Nueces	30	20	Gulf of Mexico	Offshore
FRB20220721-001	7/21/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Offshore
AMO20220723-001	7/23/2022	Loggerhead	Traditional stranding	Severely decomposed	TX	Aransas	30	19	Gulf of Mexico	Offshore
AMO20220723-002	7/23/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	30	20	Gulf of Mexico	Inshore
AMO20220724-001	7/24/2022	Loggerhead	Traditional stranding	Alive	TX	Nueces	31	20	Gulf of Mexico	Inshore
AMO20220725-001	7/25/2022	Loggerhead	Traditional stranding	Alive	TX	Aransas	31	19	Gulf of Mexico	Offshore

Source: NOAA (2022).

Attachment 4

Sea Turtle Takes During USACE Galveston District Dredging Projects Conducted from 1995–2022

Attachment 4
Sea Turtle Takes During USACE Galveston District Dredging Projects Conducted from 1995–2022

Project	Project Start Date	Species	Age Class	Specimen Condition	Cubic Yards Dredged
Brazos Island Harbor - Entrance Channel	1/24/1995	GREEN	JUVENILE	DEAD	755,301
Brazos Island Harbor - Entrance Channel	1/24/1995	KEMP'S RIDLEY	JUVENILE	DEAD	755,301
Brazos Island Harbor - Entrance Channel	1/24/1995	GREEN	JUVENILE	ALIVE	755,301
Brazos Island Harbor - Entrance Channel	1/24/1995	GREEN	UNKNOWN	ALIVE	755,301
Brazos Island Harbor - Entrance Channel	1/24/1995	GREEN	UNKNOWN	ALIVE	755,301
Galveston Harbor and Channel - Entrance Channel	7/30/1995	KEMP'S RIDLEY	UNKNOWN	DEAD	261,221
Galveston Harbor and Channel - Entrance Channel	7/30/1995	KEMP'S RIDLEY	UNKNOWN	DEAD	261,221
Galveston Harbor and Channel - Entrance Channel	7/30/1995	KEMP'S RIDLEY	UNKNOWN	DEAD	261,221
Corpus Christi Ship Channel - Entrance Channel	8/9/1995	LOGGERHEAD	UNKNOWN	DEAD	724,339
Freeport Harbor - Entrance Channels	11/21/1995	LOGGERHEAD	UNKNOWN	DEAD	2,674,026
Freeport Harbor - Entrance Channels	6/27/1996	LOGGERHEAD	UNKNOWN	DEAD	393,394
Freeport Harbor - Entrance Channels	6/27/1996	LOGGERHEAD	UNKNOWN	DEAD	393,394
Freeport Harbor - Entrance Channels	6/27/1996	LOGGERHEAD	UNKNOWN	DEAD	393,394
Freeport Harbor - Entrance Channels	6/27/1996	LOGGERHEAD	UNKNOWN	DEAD	393,394
Matagorda Ship Channel - Entrance Channel	10/3/1996	LOGGERHEAD	SUB-ADULT	DEAD	488,383
Brazos Island Harbor - Entrance Channel	3/30/1997	LOGGERHEAD	UNKNOWN	DEAD	350,907
Brazos Island Harbor - Entrance Channel	3/30/1997	KEMP'S RIDLEY	UNKNOWN	DEAD	350,907
Sabine-Neches Waterway - Sabine Pass Outer Bar Channel	8/4/1997	KEMP'S RIDLEY	UNKNOWN	DEAD	4,727,775
Freeport Harbor - Entrance and Jetty Channels	10/11/1998	LOGGERHEAD	UNKNOWN	DEAD	2,334,436
Houston-Galveston Entrance Channel Extension	12/8/1998	KEMP'S RIDLEY	UNKNOWN	DEAD	3,199,401
Brazos Island Harbor - Entrance Channel	1/31/1999	GREEN	UNKNOWN	DEAD	186,571
Brazos Island Harbor - Entrance Channel	1/31/1999	GREEN	UNKNOWN	DEAD	186,571
Corpus Christi Ship Channel - Entrance Channel	6/11/1999	LOGGERHEAD	UNKNOWN	DEAD	1,417,492
Corpus Christi Ship Channel - Entrance Channel	6/11/1999	LOGGERHEAD	UNKNOWN	DEAD	1,417,492
Corpus Christi Ship Channel - Entrance Channel	6/11/1999	LOGGERHEAD	UNKNOWN	DEAD	1,417,492
Houston-Galveston Navigation Channel - Jetty and Entrance Channel	9/3/1999	GREEN	JUVENILE	DEAD	7,532,676
Freeport Harbor - Entrance and Jetty Channels	7/30/2000	LOGGERHEAD	ADULT	DEAD	1,859,847
Freeport Harbor - Entrance and Jetty Channels	7/30/2000	LOGGERHEAD	UNKNOWN	DEAD	1,859,847
Port Mansfield Channel - Entrance Channel	3/4/2002	GREEN	JUVENILE	DEAD	117,271
Port Mansfield Channel - Entrance Channel	3/4/2002	GREEN	UNKNOWN	DEAD	117,271
Brazos Island Harbor - Entrance Channel	3/9/2002	GREEN	UNKNOWN	DEAD	207,338
Brazos Island Harbor - Entrance Channel	3/9/2002	GREEN	UNKNOWN	DEAD	207,338
Sabine Pass Outer Bar and Sabine Bank Channels	7/27/2002	LOGGERHEAD	UNKNOWN	DEAD	2,877,918

Attachment 4
Sea Turtle Takes During USACE Galveston District Dredging Projects Conducted from 1995–2022

Project	Project Start Date	Species	Age Class	Specimen Condition	Cubic Yards Dredged
Houston-Galveston Navigation Channels - Mid-Bay Channel	9/29/2002	KEMP'S RIDLEY	UNKNOWN	DEAD	1,992,702
Brazos Island Harbor - Entrance Channel	12/13/2002	GREEN	UNKNOWN	DEAD	121,549
Brazos Island Harbor - Entrance Channel	12/13/2002	GREEN	UNKNOWN	DEAD	121,549
Corpus Christi Ship Channel	4/9/2003	LOGGERHEAD	JUVENILE	DEAD	996,204
Corpus Christi Ship Channel	4/9/2003	LOGGERHEAD	UNKNOWN	DEAD	996,204
Corpus Christi Ship Channel	4/9/2003	LOGGERHEAD	UNKNOWN	DEAD	996,204
Corpus Christi Ship Channel	4/9/2003	LOGGERHEAD	UNKNOWN	DEAD	996,204
Corpus Christi Ship Channel	4/9/2003	KEMP'S RIDLEY	UNKNOWN	DEAD	996,204
Houston-Galveston Navigation Channels - Entrance Channel	4/15/2003	LOGGERHEAD	JUVENILE	DEAD	2,095,580
Brazos Island Harbor - Brownsville Ship Channel	12/1/2003	GREEN	UNKNOWN	DEAD	355,957
Brazos Island Harbor - Brownsville Ship Channel	12/1/2003	GREEN	UNKNOWN	DEAD	355,957
Brazos Island Harbor - Brownsville Ship Channel	12/1/2003	GREEN	UNKNOWN	DEAD	355,957
Matagorda Ship Channel - Entrance Channel	1/18/2004	GREEN	JUVENILE	DEAD	365,226
Houston-Galveston Navigation Channels - Jetty and Entrance Channels	5/12/2004	KEMP'S RIDLEY	JUVENILE	DEAD	4,632,689
Houston-Galveston Navigation Channels - Jetty and Entrance Channels	5/12/2004	LOGGERHEAD	SUB-ADULT	DEAD	4,632,689
Houston-Galveston Navigation Channels - Jetty and Entrance Channels	5/12/2004	LOGGERHEAD	UNKNOWN	DEAD	4,632,689
Freeport Harbor	12/27/2005	GREEN	UNKNOWN	ALIVE	2,111,602
Freeport Harbor	12/27/2005	GREEN	UNKNOWN	ALIVE	2,111,602
Brazos Island Harbor - Brownsville Entrance Channel	2/23/2006	GREEN	ADULT	DEAD	332,721
Brazos Island Harbor - Brownsville Entrance Channel	2/23/2006	GREEN	SUB-ADULT	DEAD	332,721
Corpus Christi Ship - Entrance Channel	7/21/2006	LOGGERHEAD	UNKNOWN	DEAD	149,706
Sabine-Neches Waterway Project	7/28/2006	KEMP'S RIDLEY	SUB-ADULT	DEAD	1,524,203
Matagorda Ship Channel - Entrance Channel	7/31/2006	KEMP'S RIDLEY	JUVENILE	DEAD	336,720
Matagorda Ship Channel - Entrance Channel	7/31/2006	LOGGERHEAD	SUB-ADULT	DEAD	336,720
Matagorda Ship Channel - Entrance Channel	7/31/2006	KEMP'S RIDLEY	SUB-ADULT	DEAD	336,720
Matagorda Ship Channel - Entrance Channel	7/31/2006	LOGGERHEAD	SUB-ADULT	DEAD	336,720
Freeport Harbor - Entrance and Jetty Channel	10/7/2006	LOGGERHEAD	SUB-ADULT	DEAD	2,516,000
Brazos Island Harbor	2/20/2007	GREEN	JUVENILE	DEAD	443,000
Brazos Island Harbor	2/20/2007	GREEN	JUVENILE	DEAD	443,000

Attachment 4
Sea Turtle Takes During USACE Galveston District Dredging Projects Conducted from 1995–2022

Project	Project Start Date	Species	Age Class	Specimen Condition	Cubic Yards Dredged
Brazos Island Harbor	2/20/2007	GREEN	UNKNOWN	DEAD	443,000
Brazos Island Harbor	2/20/2007	LOGGERHEAD	UNKNOWN	DEAD	443,000
Brazos Island Harbor	2/20/2007	GREEN	UNKNOWN	DEAD	443,000
Brazos Island Harbor	2/20/2007	GREEN	UNKNOWN	DEAD	443,000
Corpus Christi Ship Channel	2/24/2007	LOGGERHEAD	ADULT	DEAD	954,566
Corpus Christi Ship Channel	2/24/2007	GREEN	JUVENILE	ALIVE	954,566
Corpus Christi Ship Channel	2/24/2007	GREEN	JUVENILE	ALIVE	954,566
Corpus Christi Ship Channel	2/24/2007	LOGGERHEAD	UNKNOWN	DEAD	954,566
Freeport Harbor Entrance and Jetty Channel	10/12/2007	KEMP'S RIDLEY	JUVENILE	DEAD	1,415,421
Freeport Harbor Entrance and Jetty Channel	10/12/2007	GREEN	JUVENILE	DEAD	1,415,421
Freeport Harbor Entrance and Jetty Channel	10/12/2007	KEMP'S RIDLEY	SUB-ADULT	DEAD	1,415,421
Brazos Island Harbor Jetty Channel	6/3/2008	GREEN	UNKNOWN	ALIVE	490,690
Brazos Island Harbor Jetty Channel	6/3/2008	LOGGERHEAD	UNKNOWN	DEAD	490,690
Freeport Harbor - Entrance and Jetty Channel	10/21/2008	LOGGERHEAD	ADULT	DEAD	1,577,096
Freeport Harbor - Entrance and Jetty Channel	10/21/2008	GREEN	UNKNOWN	ALIVE	1,577,096
Freeport Harbor - Entrance and Jetty Channel	10/21/2008	GREEN	UNKNOWN	DEAD	1,577,096
Brazos Island Harbor - Entrance Channel	10/31/2008	KEMP'S RIDLEY	JUVENILE	DEAD	237,772
Brazos Island Harbor - Entrance Channel	10/31/2008	GREEN	JUVENILE	DEAD	237,772
Brazos Island Harbor - Entrance Channel	10/31/2008	LOGGERHEAD	UNKNOWN	DEAD	237,772
Brazos Island Harbor - Entrance Channel	10/31/2008	LOGGERHEAD	UNKNOWN	DEAD	237,772
Galveston Jetty, Entrance, and Harbor Channels	9/1/2009	LOGGERHEAD	SUB-ADULT	DEAD	7,851,056
Galveston Jetty, Entrance, and Harbor Channels	10/1/2009	LOGGERHEAD	UNKNOWN	DEAD	4,119,690
Freeport Harbor - Jetty and Entrance Channel	10/30/2009	GREEN	JUVENILE	DEAD	2,420,755
Freeport Harbor Entrance Channel	12/22/2010	LOGGERHEAD	JUVENILE	DEAD	1,977,488
Galveston Harbor Entrance Channel	9/23/2011	LOGGERHEAD	JUVENILE	DEAD	4,050,000
Freeport Entrance Channel	12/25/2011	GREEN	JUVENILE	DEAD	
Matagorda	8/29/2012	GREEN	ADULT	DEAD	
Matagorda	8/29/2012	LOGGERHEAD	SUB-ADULT	ALIVE	
Sabine Pass Outer Bar & Bank Channel	9/10/2012	KEMP'S RIDLEY	SUB-ADULT	DEAD	5,601,718
Brazos Island Harbor	11/3/2012	GREEN	JUVENILE	FRESH DEAD	
Corpus Assignment	11/13/2012	LOGGERHEAD	SUB-ADULT	DEAD	
Brazos Island Harbor	4/1/2014	GREEN	UNKNOWN	ALIVE	304,629
Sabine Neches Waterway Outer Bar and Bank	8/8/2014	KEMP'S RIDLEY	JUVENILE	FRESH DEAD	4,131,901
Freeport Harbor	11/21/2014	GREEN	JUVENILE	FRESH DEAD	495,000
Freeport Harbor	11/21/2014	GREEN	JUVENILE	FRESH DEAD	495,000
Freeport Harbor	11/21/2014	GREEN	JUVENILE	FRESH DEAD	495,000

Attachment 4
Sea Turtle Takes During USACE Galveston District Dredging Projects Conducted from 1995–2022

Project	Project Start Date	Species	Age Class	Specimen Condition	Cubic Yards Dredged
Freeport Harbor	11/21/2014	GREEN	JUVENILE	FRESH DEAD	495,000
Freeport Harbor	11/21/2014	GREEN	UNKNOWN	FRESH DEAD	495,000
Corpus Christi Ship Channel	12/29/2014	GREEN	JUVENILE	FRESH DEAD	200,000
Corpus Christi Ship Channel	12/29/2014	GREEN	SUB-ADULT	FRESH DEAD	200,000
Freeport Harbor	9/12/2015	GREEN	JUVENILE	FRESH DEAD	2,096,850
Corpus Christi Ship Channel Maintenance	8/4/2016	LOGGERHEAD	ADULT	FRESH DEAD	846,600
Corpus Christi Ship Channel Maintenance	8/4/2016	LOGGERHEAD	ADULT	FRESH DEAD	846,600
Brazos Island Harbor	10/17/2016	GREEN	JUVENILE	FRESH DEAD	685,369
Brazos Island Harbor	10/17/2016	GREEN	JUVENILE	FRESH DEAD	685,369
Matagorda	1/2/2017	GREEN	JUVENILE	FRESH DEAD	195,000
Galveston Harbor	5/2/2017	KEMP'S RIDLEY	JUVENILE	FRESH DEAD	3,724,491
Freeport Harbor	9/5/2017	GREEN	JUVENILE	ALIVE	3,164,978
Freeport Harbor	8/14/2018	GREEN	JUVENILE	ALIVE	1,987,232
Freeport Harbor	8/14/2018	GREEN	JUVENILE	FRESH DEAD	1,987,232
Freeport Harbor	8/14/2018	LOGGERHEAD	SUB-ADULT	FRESH DEAD	1,987,232
Freeport Harbor	8/14/2018	UNKNOWN	SUB-ADULT	FRESH DEAD	1,987,232
Freeport Harbor	8/14/2018	LOGGERHEAD	SUB-ADULT	FRESH DEAD	1,987,232
Freeport Harbor	8/14/2018	LOGGERHEAD	SUB-ADULT	ALIVE	1,987,232
Freeport Harbor	8/14/2018	LOGGERHEAD	SUB-ADULT	FRESH DEAD	1,987,232
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	ADULT	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	KEMP'S RIDLEY	ADULT	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	ADULT	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	ADULT	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	ADULT	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	GREEN	JUVENILE	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	SUB-ADULT	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	KEMP'S RIDLEY	UNKNOWN	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	GREEN	JUVENILE	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	JUVENILE	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	GREEN	JUVENILE	ALIVE	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	JUVENILE	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	GREEN	JUVENILE	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	KEMP'S RIDLEY	JUVENILE	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	JUVENILE	SEVERELY DECOMPOSED	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	JUVENILE	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	GREEN	SUB-ADULT	FRESH DEAD	6,618,964

Attachment 4
Sea Turtle Takes During USACE Galveston District Dredging Projects Conducted from 1995–2022

Project	Project Start Date	Species	Age Class	Specimen Condition	Cubic Yards Dredged
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	SUB-ADULT	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	GREEN	SUB-ADULT	FRESH DEAD	6,618,964
Corpus Christi Ship Channel	4/3/2019	KEMP'S RIDLEY	UNKNOWN	MODERATELY DECOMPOSED	6,618,964
Corpus Christi Ship Channel	4/3/2019	LOGGERHEAD	UNKNOWN	MODERATELY DECOMPOSED	6,618,964
Corpus Christi Ship Channel	4/3/2019	GREEN		FRESH DEAD	6,618,964
Galveston Harbor	8/14/2019	LOGGERHEAD	JUVENILE	FRESH DEAD	2,382,000
Brazos Island Harbor	11/22/2019	GREEN	JUVENILE	FRESH DEAD	374,291
Brazos Island Harbor	11/22/2019	GREEN	JUVENILE	FRESH DEAD	374,291
Brazos Island Harbor	11/22/2019	GREEN	JUVENILE	FRESH DEAD	374,291
Brazos Island Harbor	11/22/2019	GREEN	JUVENILE	FRESH DEAD	374,291
Brazos Island Harbor	11/22/2019	GREEN	JUVENILE	FRESH DEAD	374,291
Brazos Island Harbor	11/22/2019	GREEN	JUVENILE	ALIVE	374,291
Brazos Island Harbor	11/22/2019	GREEN	SUB-ADULT	FRESH DEAD	374,291
Brazos Island Harbor	11/22/2019	GREEN		FRESH DEAD	374,291
Freeport Harbor	12/6/2019	GREEN	JUVENILE	FRESH DEAD	2,164,666
Freeport Harbor	12/6/2019	GREEN	JUVENILE	FRESH DEAD	2,164,666
Freeport Harbor	12/6/2019	GREEN	SUB-ADULT	ALIVE	2,164,666
Sabine-Neches Waterway	9/25/2020	KEMP'S RIDLEY	ADULT	FRESH DEAD	5,183,000
Freeport Harbor	1/20/2021	LOGGERHEAD	UNKNOWN	FRESH DEAD	
Brazos Island Harbor	5/27/2021	GREEN	JUVENILE	FRESH DEAD	
Galveston Harbor	6/4/2021	KEMP'S RIDLEY	JUVENILE	FRESH DEAD	
Galveston Harbor	6/4/2021	KEMP'S RIDLEY	UNKNOWN	FRESH DEAD	
Freeport Harbor	11/19/2021	GREEN	SUB-ADULT	FRESH DEAD	
Freeport Harbor	11/19/2021	GREEN	SUB-ADULT	FRESH DEAD	
Freeport Harbor	11/19/2021	GREEN	UNKNOWN	FRESH DEAD	
Freeport Harbor	11/19/2021	GREEN	UNKNOWN	FRESH DEAD	
Brazos Island Harbor	5/10/2022	KEMP'S RIDLEY	UNKNOWN	FRESH DEAD	

Source: Operations and Dredging Endangered Species System (2022).

Appendix D2

NMFS Biological Opinion

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
https://www.fisheries.noaa.gov/region/southeast

12/09/2022

F/SER31:MCB
SERO-2022-02122

Jayson M. Hudson
Regulatory Project Manager
Policy Analyst Branch
Galveston District Corps of Engineers
Department of the Army
P.O. Box 1229
Galveston, Texas 77553-1229

Ref.: SWG-2019-00067, Port of Corpus Christi, Corpus Christi Ship Channel Deepening Project, Port Aransas, Nueces County, Texas

Dear Mr. Hudson:

The enclosed Biological Opinion (Opinion) on the referenced action responds to your request for consultation, pursuant to Section 7 of the ESA of 1973, as amended (16 U.S.C. § 1531 et seq.). We assigned the Opinion with a tracking number: SERO-2022-02122; please use this tracking number in all future correspondence related to this action.

This Opinion evaluates the effects of the proposed deepening of the Corpus Christi Ship Channel on threatened and endangered species and designated critical habitat, and is based on information provided by you and the published literature cited within. We conclude that the proposed action is likely to adversely affect but is not likely to jeopardize the continued existence of green (North Atlantic and South Atlantic Distinct Population Segments [DPS]), loggerhead (Northwest Atlantic DPS), and Kemp's ridley sea turtles, as well as giant manta ray.

We are providing an Incidental Take Statement (ITS) with this Opinion, which describes Reasonable and Prudent Measures that we consider necessary or appropriate to minimize the impact of incidental take associated with this action. The ITS also specifies Terms and Conditions, including monitoring and reporting requirements with which you and your applicants must comply.

We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and critical habitat. If you have any questions regarding this consultation, please contact Michael C. Barnette, Consultation Biologist, by phone at (727) 551-5794, or by email at michael.barnette@noaa.gov.

Sincerely,

AMENDOLA.KIMBERLY.BARBARA.1365830769 Digitally signed by AMENDOLA.KIMBERLY.BARBARA.1365830769 Date: 2022.12.09 13:15:39 -05'00'

for Andrew J. Strelcheck
Regional Administrator

Enclosure (s):
NMFS Biological Opinion SERO-2022-02122
cc: D. Klemm
D. Bernhart
nmfs.ser.esa.consultations@noaa.gov
File: 1514-22.f.8.

Endangered Species Act - Section 7 Consultation
Biological Opinion

Action Agency: U.S. Army Corps of Engineers, Galveston District

Activity: Dredging and Disposal, Corpus Christi Ship Channel Deepening Project

Consulting Agency: National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division, St. Petersburg, Florida

NMFS Tracking Number SERO-2022-02122

Approved by:

AMENDOLA.KIMBERLY.BARBARA.1365830769 Digitally signed by AMENDOLA.KIMBERLY.BARBARA.1365830769 Date: 2022.12.09 13:16:08 -05'00'

for Andrew J. Strelcheck, Regional Administrator
NMFS, Southeast Regional Office
St. Petersburg, Florida

Date Issued: 12/09/2022

Table of Contents

Figures

Tables

Acronyms and Abbreviations

BIH	Brazos Island Harbor
BOEM	Bureau of Ocean Energy Management
CCL	curved carapace length
CCSC	Corpus Christi Ship Channel
CITES	Convention on International Trade in Endangered Species
CMP	coastal migratory pelagics
CPUE	catch per unit effort
DDT	dichlorodiphenyltrichloroethane
DNA	deoxyribonucleic acid
DO	dissolved oxygen
DPS	distinct population segment
DTRU	Dry Tortugas Recovery Unit
DWH	DEEPWATER HORIZON
ECO	Environmental Consultation Organizer
EEZ	exclusive economic zone
ESA	Endangered Species Act
FAST-41	Title 41 of the Fixing America’s Surface Transportation Act
FMP	fishery management plan
FP	Fibropapillomatosis
FPISC	Federal Permitting Improvement Steering Council
FR	Federal Register
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
FY	Fiscal Year
GADNR	Georgia Department of Natural Resources
GARFO	(NMFS) Greater Atlantic Regional Fisheries Office

GCRU	Greater Caribbean Recovery Unit
GMFMC	Gulf of Mexico Fishery Management Council
GRBO	Gulf of Mexico Regional Biological Opinion
HAB	harmful algal bloom
HMS	highly migratory species
IPCC	Intergovernmental Panel on Climate Change
ITS	incidental take statement
LCS	large coastal sharks
LDWF	Louisiana Department of Wildlife and Fisheries
MLLW	mean lower low water
MMF	Marine Megafauna Foundation
MSA	mixed stock analysis
MSFCMA	Magnuson Stevens Fishery Conservation and Management Act
NA	North Atlantic (Ocean)
NAST	National Assessment Synthesis Team
NCWRC	North Carolina Wildlife Resources Commission
NEAMAP	Northeast Area Monitoring and Assessment Program
NEFSC	(NMFS) Northeast Fisheries Science Center
NGMRU	Northern Gulf of Mexico Recovery Unit
NLAA	may affect, not likely to adversely affect
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	U.S. National Park Service
NRU	Northern Recovery Unit
NWA	Northwest Atlantic Ocean
ODESS	Operations and Dredging Endangered Species System
ODMDS	Ocean Dredged Material Disposal Site
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
PAIS	Padre Island National Seashore
PCB	polychlorinated biphenyls
PCCA	Port of Corpus Christi Authority
PFRU	Peninsular Florida Recovery Unit
PIM	post-interaction mortality
PLL	pelagic longline
PSO	protected species observer
PVA	population viability analysis
RPAs	reasonable and prudent alternatives
RPMs	reasonable and prudent measures
SA	South Atlantic (Ocean)
SCL	straight carapace length
SCS	small coastal shark
SD	standard deviation

SAFMC	South Atlantic Fishery Management Council
SCDNR	South Carolina Department of Natural Resources
SEFSC	(NMFS) Southeast Fisheries Science Center
SERO	(NMFS) Southeast Regional Office
STSSN	Sea Turtle Stranding and Salvage Network
TED	turtle excluder device
TEWG	Turtle Expert Working Group
TL	total length
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
YOY	young-of-year

Units of Measurement

°C	degree Celsius
°F	degree Fahrenheit
°N	degree north (latitude)
cm	centimeter
CY	cubic yards
ft	feet
hp	horsepower
in	inch
kg	kilogram
km	kilometer
kn	knots
L	liter
lb	pound
m	meter
mg	milligram
mi	miles
mm	millimeter
nm	nautical mile
oz	ounce

INTRODUCTION

Section 7(a)(2) of the ESA of 1973, as amended (16 U.S.C. § 1531 *et seq*.), requires each federal agency to "insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species." Section 7(a)(2) requires federal agencies to consult with the appropriate Secretary on any such action. We, along with the USFWS, share responsibilities for administering the ESA.

Consultation is required when a federal action agency determines that a proposed action "may affect" listed species or designated critical habitat. Consultation is concluded after we determine the action is not likely to adversely affect listed species or critical habitat or issues a Biological Opinion (Opinion) that identifies whether a proposed action is likely to jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat. The Opinion states the amount or extent of incidental take of the listed species that may occur, develops measures (i.e., RPMs) to reduce the effect of take, and recommends conservation measures to further the recovery of the species. Notably, no incidental destruction or adverse modification of designated critical habitat can be authorized, and thus there are no RPMs—only reasonable and prudent alternatives that must avoid destruction or adverse modification.

This document represents our Opinion on the effects of the proposed deepening of the CCSC on threatened and endangered species and designated critical habitat, in accordance with Section 7 of the ESA.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR Part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court's July 5 order, and on November 14, 2022, the District Court issued an order remanding the regulations to the agencies without vacatur. As a result, the 2019 regulations are once again in effect, and we are applying the 2019 regulations here.

1 CONSULTATION HISTORY

The following is the consultation history for the NMFS ECO tracking number, SERO-2022-02122 CCSC Deepening Project.

On August 10, 2022, we received a biological assessment and request for formal consultation under Section 7 of the ESA from the USACE to permit dredging of the CCSC. The FPISC added the proposed CCSC project to the inventory of covered projects pursuant to the requirements set forth in FAST-41. We initiated formal consultation on August 11, 2022.

2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

2.1 Proposed Action

The proposed action consists of deepening the CCSC (Figure 1) in 6 segments to -75 ft MLLW from the Gulf of Mexico to a station near Harbor Island, Texas, including the approximate 10-mi extension to the Entrance Channel necessary to reach sufficiently deep waters. Deepening would take place largely within the footprint of the currently authorized -54-ft MLLW channel. Dredging approximately 46.3 million CY over 5 years would be required with inshore and offshore placement of the material. Dredging would be conducted by both hopper and cutterhead dredges (Table 1). Dredged material would be placed in both inshore placement areas (with beneficial use objectives) and offshore at the ODMDS documented in Figure 2 below.

Table 1. CCSC Deepening Project Segments and Volume of Material to be Dredged.

Channel Segment	Year 1 Dredge Volume (CY)	Year 2 Dredge Volume (CY)	Year 3 Dredge Volume (CY)	Year 4 Dredge Volume (CY)	Year 5 Dredge Volume (CY)	Dredge Type
1	9,617,390	-	-	-	-	Hopper
2	-	10,154,381	10,154,381	-	-	Hopper
3	-	-	2,105,041	-	-	Hopper or Cutterhead
4	-	-	-	2,851,897	-	Cutterhead
5	-	-	-	2,951,614	-	Cutterhead
6	-	-	-	-	8,448,886	Cutterhead

USACE will employ measures to avoid and minimize adverse impacts to ESA-listed species during the proposed project. Specifically, these measures are:

1. Training: All contracted personnel involved in operating dredges may receive thorough training (as specified by NMFS or USFWS) on measures of dredge operation that will minimize impacts to listed species.
2. Observers: Typically, the PCCA would arrange for NMFS-approved PSOs to be aboard the hopper dredges to monitor the hopper bin, screening, and dragheads for sea turtles

and their remains. Observer coverage sufficient for 100% monitoring (i.e., 2 observers) of hopper dredging operations will be implemented.

3. Dredge Take Reporting: Observer reports of incidental take by hopper dredges would be submitted by email (takereport.nmfsser@noaa.gov) to SERO by onboard PSOs within 24 hours of any observed sea turtle take. Reports would contain information on location, start-up and completion dates, CY of material dredged, problems encountered, incidental takes, and sightings of protected species, mitigative actions taken, screening type, and daily water temperatures. An end-of-project summary report of the hopper dredging results and any documented sea turtle takes would be submitted to SERO within 30 working days of completion of the dredging project.
4. Seasonal Hopper Dredging Window: Hopper dredging activities would be completed between December 1 and March 31 if practicable, when sea turtle abundance is lower throughout Gulf coastal waters.
5. Sea Turtle Deflecting Draghead and Dredging Pumps: Typically, a state-of-the-art rigid deflector draghead would be used on hopper dredges at all times of the year. Typically, dredging pumps will be disengaged by the operator when the dragheads are not firmly on the bottom as indicated by sensors to prevent impingement or entrainment of sea turtles within the water column (especially important during dredging cleanup).
6. Non-hopper Type Dredging: Hydraulic or mechanical (bucket) dredges, which are not known to take turtles, may be used when possible between April 1 and November 30.
7. Cold Stunning Events: Vessel speed will be further reduced during cold weather events that are conducive to wildlife impacts. Occurrences of cold stunning events will be informed by PCCA participation in a regional group of experts led by academic professionals who model weather and water temperatures to give advance warning of potential cold stunning events. PCCA will also have a trained biologist on the vessel observing and monitoring for wildlife to stop operations accordingly during potential cold stunning events.
8. Dredge Lighting: From March 15 through October 1, sea turtle nesting and emergence season, all lighting aboard hopper dredges and support vessels operating within 3 nm of sea turtle nesting beaches would be limited to the minimal lighting necessary to comply with USCG and OSHA requirements. Non-essential lighting would be minimized through reduction, shielding, lowering, and appropriate placement.
9. Relocation Trawling: Typically, relocation trawling would be undertaken by a NMFS-approved protected species observer retained by the PCCA where any of the following conditions are met: (a) 2 or more turtles are taken in a 24-hour period in the project or, (b) 4 or more turtles are taken in the project. The purpose of the trawling would be to capture sea turtles that may be in the dredge path and relocate them away from the action area.
10. STSSN Notification: PCCA or its representative would notify the STSSN state representative of start-up and completion of dredging and relocation trawling operations. The STSSN would be notified of any turtle strandings in the project area that may bear the signs of interaction with a dredge. Stranded sea turtles would be reported to the Texas sea turtle hotline (1-866-TURTLE5 or 1-866-887-8535).

2.2 Action Area

The action area (Figure 1) for this consultation includes and is adjacent to Corpus Christi Bay, a 96,000-ac bay on the Texas central coast. The CCSC cuts through Corpus Christi Bay, which possesses an average depth of 11 ft, and extends past barrier islands and out into the Gulf of Mexico approximately 10 nm. The larger action area includes Nueces, San Patricio, Refugio, and Aransas Counties.

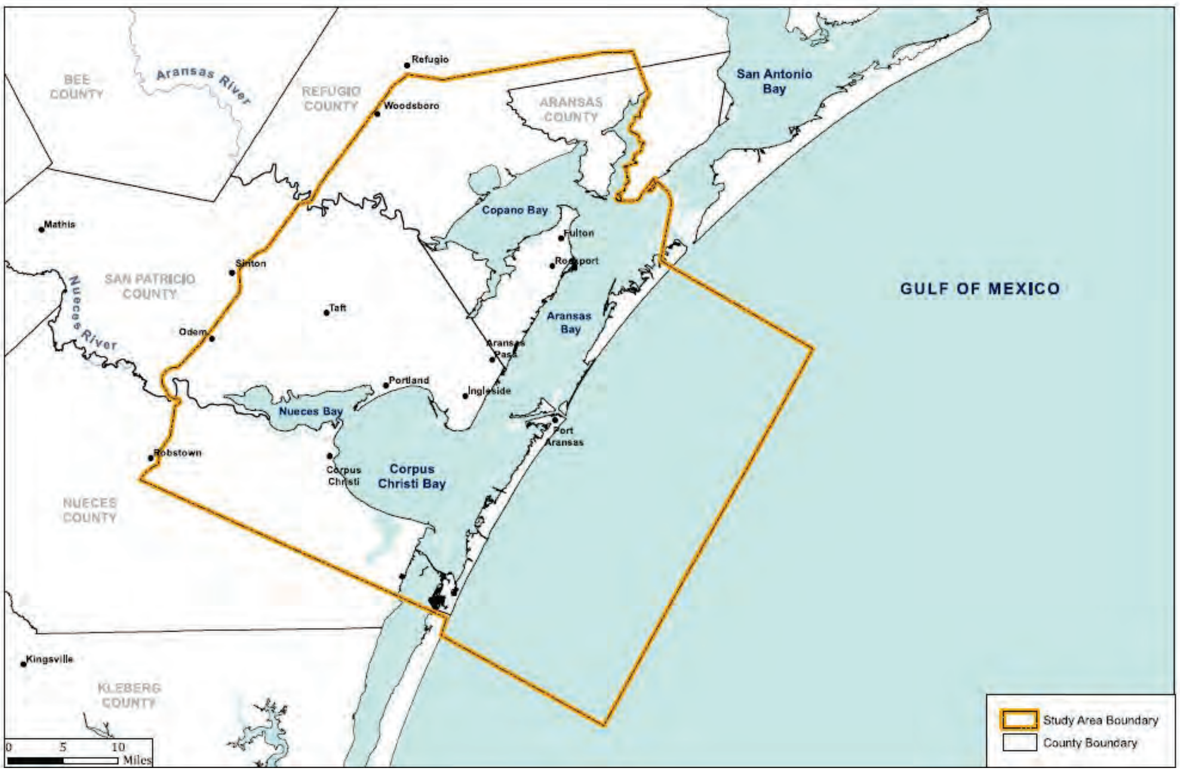


Figure 1. Map of the action area.

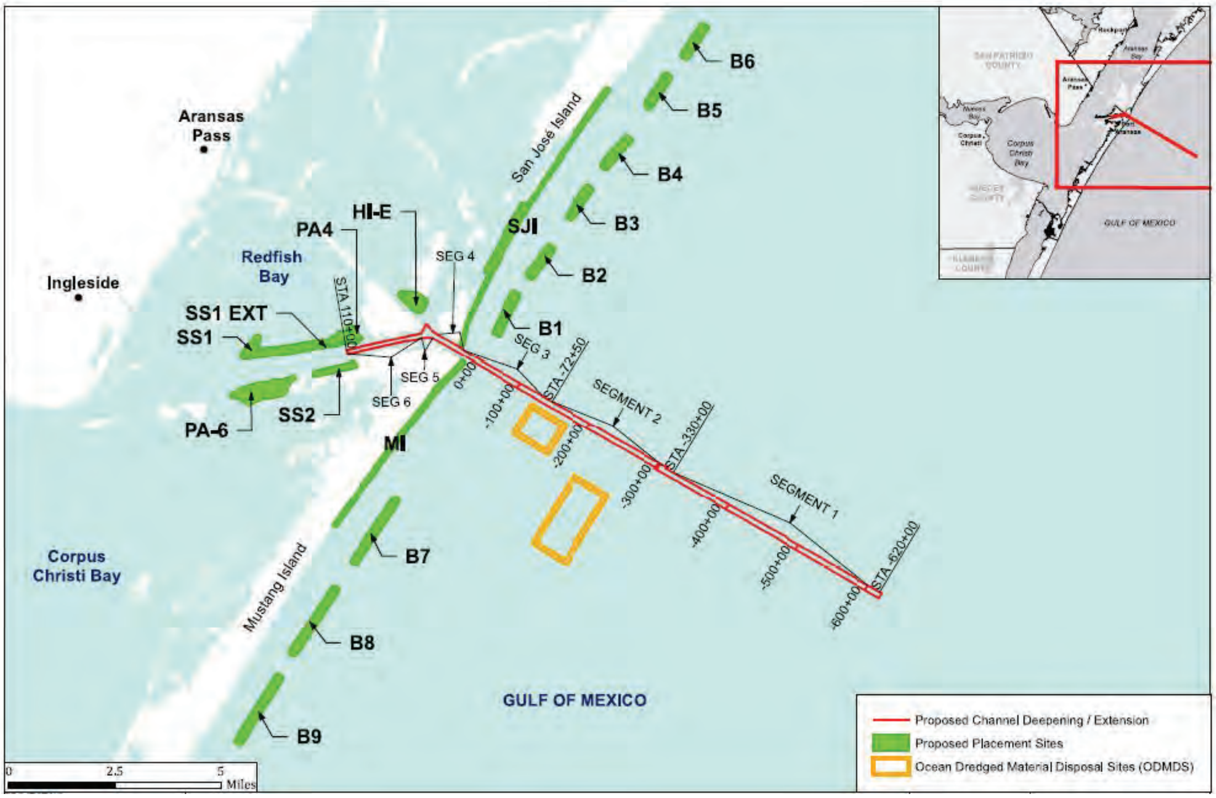


Figure 2. Map of the proposed project with placement areas (in green) and ODMDS sites (in orange).

2.3 Description of Primary Activities Conducted Under the Proposed Action

The primary activities conducted under the proposed action include dredging with hopper and cutterhead dredges, relocation trawling, and placement of dredged material. These activities are described in more detail below.

Hopper Dredging
A hopper dredge is a self-propelled ocean-going vessel with a section of the hull compartmented into 1 or more hoppers. Fitted with powerful pumps, the dredge sucks sediment from the surface of the seafloor through long intake pipes, called dragarms, and store it in the hoppers. Normal hopper dredge configuration has 2 dragarms, one on each side of the vessel. A dragarm is a pipe suspended over the side of the vessel with a suction opening called a draghead for contact with the bottom. Depending on the hopper dredge, a slurry of water and sediment is generated from the plowing of the draghead "teeth," the use of high pressure water jets, and the suction velocity of the pumps. The dredged slurry is distributed within the vessels hopper allowing for solids to settle out and the water portion of the slurry to be discharged from the vessel during operations through its overflow system. When the hopper attains a full load, dredging stops and the vessel travels to either an in-water placement site, where the dredged material is discharged through the

bottom of the ship, or a site to hook up to an in-water pipeline, where the dredged material is transported to a shore placement site (e.g., beach nourishment).

Hopper dredges are well suited to dredging heavy sands. They can work in relatively rough seas but safety, effectiveness, and costs are a concern. Because they are mobile, they can be used in high-traffic areas. They are often used at ocean entrances and offshore, but cannot be used in confined or shallow areas due to their size and draft. Hopper dredges can move quickly to disposal sites under their own power (i.e., maximum speed unloaded ≤ 17 kn; maximum loaded ≤ 16 kn), but since the dredging stops during the transit to and from the disposal area, the operation loses efficiency if the haul distance is too far. Based on the review of hopper dredge speed data provided by the USACE Dredging Quality Management program, the average speed for hopper dredges while dredging is between 1-3 kn, with most dredges never exceeding 4 kn (NMFS 2020).

Hopper dredges also have several limitations. Considering their normal operating conditions, hopper dredges cannot dredge continuously unlike other dredge types that continue to work and transfer dredged material to another location. Hopper dredges must stop dredging while transporting materials to the final destination. The precision of hopper dredging is lower than other types of dredges; therefore, they have difficulty dredging steep side banks and cannot effectively dredge around structures. For example, dragheads may "crab" or move under or onto side slopes as a result of bottom conditions, bottom currents, or location of the dredge in or near the side of the channel. Crabbing may result in dragheads not being maintained on the bottom due to the more frequent need to pick up and realign the dragarms. Therefore, there is an increased risk of sea turtle entrainment when dredging within environments that may result in a higher risk of crabbing.

In order to minimize the risk of incidental takes of sea turtles, sea turtle deflectors are added to the dragheads used on hopper-dredging projects where the potential for sea turtle interactions exist and the dredging environment does not reduce the efficacy of the deflector or increase the risk for sea turtle interaction. The leading edge of the deflector is designed to have a plowing effect of at least 6-in depth when the drag head is being operated. Appropriate instrumentation is required on board the vessel to ensure that the critical "approach angle" is attained in order to satisfy the 6-in plowing depth requirement.

Cutterhead Dredging
Cutterhead dredges are designed to handle a wide range of materials including clay, hardpan, silts, sands, gravel, and some types of rock formations without blasting. They are used for new work and maintenance in projects where suitable placement/disposal areas are available and operate in an almost continuous dredging cycle resulting in maximum production, economy, and efficiency. Cutterhead dredges are capable of dredging in shallow or deep water and have accurate bottom and side slope cutting capability. A cutterhead is a mechanical device that has rotating blades or teeth to break up or loosen the bottom material so that it can be transported through a dredge pipeline. Cutterhead dredges require an extensive array of support equipment

including a pipeline (floating, shore, and submerged), boats (crew, work, survey), barges, and pipe handling equipment. Limitations of these dredges include relative lack of mobility, long mobilization and demobilization, inability to work in high wave action and currents, and they are impractical in high traffic areas.

During the dredging operation, a cutterhead dredge is held in position by 2 spuds at the stern of the dredge, only one of which can be on the bottom while the dredge swings. Some cutterhead dredges use a system of anchors and winches to hold themselves in place and/or advance forward. There are 2 swing anchors some distance from either side of the dredge, which are connected by wire rope to the swing winches. The dredge swings to port and starboard alternately, passing the cutter through the bottom material until the proper depth is achieved. The dredge advances by "walking" itself forward on the spuds. This is accomplished by swinging the dredge to the port, using the port spud and appropriate distance, then the starboard spud is dropped and the port spud raised. The dredge is then swung an equal distance to the starboard and the port spud is dropped and the starboard spud raised.

In most cases, dredged material is pumped directly from the dredged area to a placement/disposal site including using the aforementioned pipeline to transport the dredged material to an upland location or a barge for transport to a hydraulic off-load site. As such, there is no opportunity to monitor for biological material on board the dredge. Monitoring at the placement/disposal site is also challenging due to the volume of material pumped, often to the uplands, and often unsafe for an observer. Because the cutterhead is typically buried in the sediment to promote operational efficiency, exposure in the water column to the suction field is limited and cutterhead dredging has historically resulted in significantly lower takes of ESA-listed species than hopper dredging.

Relocation Trawling

Relocation trawling minimizes the risk of lethal encounters with a hopper dredging operation by intentionally capturing ESA-listed species to reduce the abundance those species in a project location. Modified shrimp trawling equipment is used to sweep the sea floor to either startle ESA-listed species out of the area, with open net relocation trawling, or to capture and often relocate these species, through the use of closed net relocation trawling. This management technique was originally initiated in the early 1980s at Canaveral Harbor, Florida (Rudloe 1981) and has continued to be used as a take minimization measure for dredging in the southeast.

Relocation trawling must maintain a safe distance from the hopper dredge and other vessel traffic in the area. Therefore, the trawler is often not working directly in front of the hopper dredge, but is instead continuously working to remove ESA-listed species from the general dredging area. Trawlers may sometimes need to leave the dredge footprint such as a navigation channel to avoid collision with vessels in the area. Relocation trawling vessels are also smaller than hopper dredges and therefore more restricted by the weather conditions in which they can safely operate. Relocation trawling will be used as part of the activities proposed, as described and limited by the avoidance/minimization measures proposed by the action agency. These would include the use of relocation trawling when: (a) 2 or more turtles are taken in a 24-hour period in the project, or (b) 4 or more turtles are taken in the project.

Placement of Dredged Material
As mentioned, dredged material would be placed in both inshore placement areas (with beneficial use objectives) and offshore at the ODMDS as documented in Figure 2. Beneficial use of dredged material is defined by USACE as “consistent with sound engineering practices and meets all federal environmental requirements, including those established under the Clean Water Act and the Marine Protection, Research, and Sanctuaries Act (see 33 CFR 335.7, 53 FR 14902)”. The beneficial placement of material means that material dredged is able to be used for a desired purpose instead of a disposal site like an ODMDS.

The USACE considers beneficial use sites to include nearshore placement, placement alongside and downdrift of a navigation channel, and placement on a beach or other sandy habitat. Other beneficial uses include marsh creation, land creation, thin layer placement, fish and wildlife habitat enhancements, fisheries improvements, wetland restoration, etc.

The proposed action also includes the placement of material in the ODMDS sites identified by USACE and documented in Figure 2. The USACE informed us that expansion of the current ODMDS sites is not be required to complete the proposed dredging of CCSC described in the proposed action and, therefore, ODMDS expansion is not encompassed by this Opinion.

Vessel Traffic
The proposed action will employ a variety of vessels to complete the work including self-propelled hopper dredges, cutterhead dredges on barges tended by tug boats, crew and survey boats, and relocation trawlers. These vessels will largely be operating within the shipping channel and immediate adjacent areas, though hopper dredges will be transiting to and from ODMDS and other sediment placement areas noted in Figure 2.

3 EFFECTS DETERMINATIONS

Table 2 below documents listed species expected to occur within the action area, as well as action agency effects assessment; Table 3 documents listed critical habitat within the action area.

Table 2. Status of Listed Species that Potentially May Occur in the Action Area and Action Agency Effects Assessment (E=Endangered, T=Threatened, NLAA=Not Likely to be Adversely Affected, LAA=Likely to be Adversely Affected).

Species	Scientific Name	Status	Action Agency Effect Determination
Sperm whale	*Physeter macrocephalus*	E	NLAA
Giant manta ray	*Manta birostris*	T	NLAA
Loggerhead sea turtle, NWA DPS	*Caretta caretta*	T	LAA
Green sea turtle, NA and SA DPSs	*Chelonia mydas*	T	LAA
Leatherback sea turtle	*Dermochelys coriacea*	E	NLAA

Hawksbill sea turtle	*Eretmochelys imbricata*	E	LAA
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	LAA

Table 3. Critical Habitat in the Action Area.

Species Critical Habitat	Critical Habitat Unit	Action Agency Effect Determination
Loggerhead sea turtle, NWA DPS	LOGG-S-2: Gulf of Mexico Sargassum	No Conclusion Provided

3.1 Analysis of Listed Species and Critical Habitat Not Likely to be Adversely Affected by the Proposed Action

Sperm Whales

Sperm whales may be affected via vessel collisions with a dredge or other vessel associated with the proposed action. We believe this effect is extremely unlikely to occur. Sperm whales are predominantly found seaward of the continental shelf in waters distant from the proposed dredging of the CCSC. Sightings of sperm whales are almost exclusively in the continental shelf edge and continental slope areas (Scott and Sadove 1997). In the rare event that a listed whale is in the same vicinity of a dredge or other vessel associated with the proposed project, we expect the slow rate of vessel speed would give a whale or the vessel time to avoid a collision.

Leatherback Sea Turtle

We do not expect leatherback sea turtles to occur regularly within the action area. Leatherback sea turtles are pelagic typically and are found offshore. Sea turtle stranding records (i.e., traditional strandings excluding cold-stunning events) for the area (i.e., Neuces, San Patricio, and Aransas Counties) from 2012-2021 indicate leatherbacks are uncommonly encountered. During that time period, there were only 8 leatherback strandings documented out of over 3,900 stranding records (~0.2%). Of those 8 leatherback sea turtle stranding records, 4 were noted as severely decomposed, which could indicate they drifted for a significant period of time (i.e., from farther offshore). Only 1 leatherback sea turtle stranding was documented as alive. More directly relevant are the 161 sea turtle takes reported during USACE Galveston District dredging projects from 1995-2022, of which there have been no leatherback sea turtles documented. The lack of documented take is likely a result of the aforementioned pelagic habitat preference and the large size of leatherback sea turtles, which likely allow them to avoid entrainment by hopper dredges. As a result, we conclude the proposed action is not likely to adversely affect leatherback sea turtles.

Hawksbill Sea Turtle

While hawksbill sea turtles can be found in the action area, their presence is rare, as demonstrated by their less than 1% occurrence in sea turtle stranding reports (Table 7). Hawksbill sea turtles are closely associated with reef habitat and most prevalent in the Southeast Region in South Florida and the U.S. Caribbean. Because of their habitat presence, we do not believe hawksbill sea turtles will be entrained by the proposed hopper dredging. This is supported by the fact there are no reports of hawksbill sea turtles captured/taken during hopper dredging in the action area (or the larger Galveston District) from 1995-2022. Likewise, due to their general rarity within the action area (compared to other sea turtle species), we do not believe they will be captured by relocation trawling activities. In summary, we believe the proposed action is not likely to adversely affect hawksbill sea turtles.

Loggerhead Sea Turtle NWA DPS Critical Habitat
On July 10, 2014, we designated critical habitat along the southeast Atlantic coast of the United States, around the Florida peninsula, and through the Gulf of Mexico to Texas for the NWA DPS of the loggerhead sea turtle (79 FR 39855). Loggerhead critical habitat is divided into 5 different units: nearshore reproductive habitat, winter habitat, breeding habitat, constricted migratory habitat, and *Sargassum* habitat. The proposed action occurs within *Sargassum* habitat, but we do not expect the proposed action will affect the primary constituent elements (i.e., concentrated components of the *Sargassum* community in water temperatures and depths suitable for the optimal growth of *Sargassum* and inhabitance of loggerhead sea turtles). Therefore, we conclude the proposed action will have no effect on critical habitat for the NWA DPS of the loggerhead sea turtle.

3.2 Analysis of Potential Routes of Effects Not Likely to Adversely Affect Listed Species or Designated Critical Habitat

Effects Resulting from Cutterhead Dredge Interactions
Cutterhead dredges are a suction type dredge that operate when the cutterhead is generally embedded in sediment. The cutterhead creates a small zone of suction around the cutterhead; if the cutterhead were to be exposed to the water column and not completely embedded in sediment, it could entrain listed species.

Potential effects to sea turtles by cutterhead dredging include physical injury. We believe this route of effect is discountable based on information presented in other dredging Opinions (e.g., NMFS 2020). Specifically, we have only 1 documented sea turtle interaction with a cutterhead dredge, which was based on a live stranded green sea turtle discovered outside of the dredge discharge area with a cracked plastron and carapace. This stranding was 1 of 42 cold-stunned green sea turtle strandings during a cold front that swept through South Texas on December 22, 2004. Therefore, it cannot be linked definitively to injury caused by the cutterhead dredge. We have no other information or reported takes of sea turtles by cutterhead dredging, despite frequent use of cutterhead dredging within the action area and larger southeast U.S. Therefore, we believe the risk of physical injury or take of sea turtles by cutterhead dredging is an extremely unlikely event that we do not expect to occur during the proposed action. We continue to expect that sea turtles will move away from and avoid interaction with cutterhead dredging. Likewise, we believe the risk of injury to giant manta ray from cutterhead dredges is extremely unlikely due to their large size and ability to avoid the suction created by the cutterhead, pelagic lifestyle (i.e., versus benthic), and the location of planned cutterhead dredging operations close to shore or inshore (i.e., Segments 3-6 in Figure 2). In summary, we do not believe cutterhead dredge operations conducted under the proposed action will adversely affect sea turtles or giant manta ray.

Effects Resulting from Hopper Dredge Interactions
Hopper dredging may entrain or impinge giant manta ray; however, we believe these effects are extremely unlikely to occur. Giant manta ray are a large and extremely mobile species likely able to avoid the suction created by a hopper dredge. This conclusion is reinforced by our decades of experience with reporting of take from hopper dredging (i.e., since the 1980s), and a review of the available scientific literature, all of which document no known reports of hopper dredging entrainment of giant manta ray.

Hopper dredges are known to cause mortality to sea turtles, based on monitoring for sea turtle takes since 1980, by entrainment and impingement. We, therefore, believe that hopper dredging is likely to continue to adversely affect these species, as described below in Section 3.3, and as discussed in Section 6 of this Opinion.

Effects Resulting from Placement of Dredged Material
We believe that risk of a sea turtle or giant manta ray being caught in the discharge through the water column and buried on the sea floor is so low as to make the route of effect discountable. These mobile species would be able to detect the presence of the material being deposited and avoid being harmed by its placement. Placement in an open ocean environment such as an ODMDS or beneficial use site would allow room for species to move away from and around the placement. In addition, the presence of NMFS-approved PSOs (i.e., as required by this Opinion's Terms and Condition) allow for the monitoring of their presence, and activity will cease if they are detected in the immediate area.

Effects Resulting from Water Quality Issues
We believe changes in water quality resulting from turbidity from dredging and material placement analyzed under this Opinion may affect, but are not likely to adversely affect sea turtles or giant manta ray for the following reasons.

Cutterhead dredging may cause localized turbidity. Likewise, overflow from hopper dredging or from other equipment such as barges and scows could increase turbidity in the immediate area, and could likely cause a decrease in DO concentrations. We believe these effects on listed species will be insignificant. We expect that in open water environments these effects will be temporary, mobile species will avoid these disturbed areas, and turbidity will dissipate relatively quickly. Turbidity is not generally believed to impact sea turtles, as sea turtles breathe air and can therefore both move away from areas of poor water quality and surface to breathe air.

Effects from Vessel Traffic
The proposed action will include the use of several vessels including 2 hopper dredges, derrick and anchor barges for the cutterhead dredge, along with a tender and tow tug, crew and survey boats, and potentially relocation trawlers. ESA-listed species may be struck by these vessels during the proposed action. Sea turtles are air-breathing reptiles and may spend significant time at or near the water's surface, making them vulnerable to vessel strikes. We have STSSN data and other information documenting vessel impacts are a major source of mortality for sea turtles

in nearshore waters. Giant manta rays can be frequently observed traveling just below the surface and will often approach or show little fear toward humans or vessels (Coles 1916), which may also make them vulnerable to vessel strikes (Deakos 2010). However, information about interactions between vessels and giant manta rays is limited. We have at least some reports of vessel strike, including a report of 5 giant manta rays struck by vessels from 2016-2018; individuals had injuries (i.e., fresh or healed dorsal surface propeller scars) consistent with a vessel strike. These interactions were observed by researchers conducting surveys from Boynton Beach to Jupiter, Florida (J. Pate, Florida Manta Project, pers. comm. to M. Miller, NMFS OPR, 2018) and it is unknown where the manta was at the time of the vessel strike. This risk to sea turtles and giant manta ray is increased around inlets and shipping channels where vessel traffic will be more prevalent and some ESA-listed species may congregate (i.e., greater overlap of the risk and at-risk species).

We believe vessel traffic associated with the proposed action is extremely unlikely to affect ESA-listed species. While the proposed action will result in localized vessel traffic increases, given the significant ambient vessel traffic in the larger action area over the course of any given year, this increase will be insignificant. Further, only a small portion of anticipated vessel traffic will be conducted by hopper dredges to dispose of sediments (at ~15 kn). Vessel speeds for most of these vessels will be relatively slow (e.g., 5 kn). The hopper dredge has the potential to transit at approximately 15 kn to or from the ODMDS or other sediment placement areas, but typically it travels at 1-3 kn when actively dredging. In most cases, we believe sea turtles and giant manta ray have the ability and agility to move out of the way of vessels associated with the proposed action, should they be in the area. At this time, we are unaware of any sea turtles or giant manta ray identified with a vessel strike injury that have been directly related to dredging activities considered in any biological opinion (NMFS 2020).

3.3 Potential Routes of Effects Likely to Adversely Affect Listed Species

We anticipate that Kemp's ridley, green, and loggerhead sea turtles may be adversely affected by the proposed action due to the potential for hopper dredge take or capture by relocation trawler. We also anticipate that giant manta ray may be adversely affected by capture in the relocation trawler. A detailed discussion on these effects is included in Section 6.

Effects Resulting from Hopper Dredge Interactions

Hopper dredges are known to cause mortality to sea turtles, based on monitoring for sea turtle takes since 1980, by entrainment and impingement. We, therefore, believe that hopper dredging is likely to continue to adversely affect these species, as described below and discussed in Section 6 of this Opinion. Species can become entrained in hopper dredges as the draghead moves along the bottom. Entrainment occurs when the species cannot escape from the suction of the dredge and they are sucked into the dredge draghead, pumped through the intake pipe, and then killed as they cycle through the centrifugal pump and into the hopper. Because entrainment is believed to occur primarily while the draghead is operating on the bottom, it is likely that only those species feeding or resting on or near the bottom would be vulnerable to entrainment. They can also be entrained if suction is created in the draghead by current flow while the device is being placed or removed, or if the dredge is operating on an uneven or rocky substrate and rises off the bottom. Recent information from the USACE suggests that the risk of entrainment is highest when the bottom terrain is uneven or when the dredge is conducting "cleanup" operations at the end of a dredge cycle when the bottom is trenched and the dredge is working to level out the bottom. In these instances, it is difficult for the dredge operator to keep the draghead buried in the sediment, thus species near the bottom may be more vulnerable to entrainment. Sea turtles resting in deeper waters or holes in the channel may be at an increased risk of take from dredging activities conducted there. Species can also be crushed on the bottom by the moving draghead and not entrained.

Effects Resulting from Relocation Trawling

Relocation trawling is used to minimize the risk of lethal hopper dredging take by sweeping the area around a hopper dredge with modified shrimp trawl nets to capture and relocate ESA-listed species that may be in the dredging area. While relocation trawling is intended to reduce the occurrence of lethal take from hopper dredging, the process of relocating ESA-listed species is, in and of itself, a form of take under the ESA for those species that are caught. Relocation trawling covered under this Opinion will be monitored by observers based on the guidance provided in the Terms and Conditions in Section 9.4, and includes handling and reporting guidance for ESA-listed species captured during relocation trawling. Additional relocation trawling parameters limit tow times to 42 minutes (though 30 minute tows are typical) to minimize the risk of adverse effects on ESA-listed species, primarily mortality of sea turtles due to forced submergence (NRC 1990; Epperly et al. 2002).

A study of the effects of relocation trawling as a mitigation tool to minimize the risk of take from hopper dredging (Dickerson et al. 2008) and data provided by the USACE on relocation trawling take in their ODESS demonstrate both the risk and benefits of this method. The risks to ESA-listed species of directed take are the stress endured by these species in the process of being trawled and relocated, including any potential physical harm during this process and stress that may result in reduced fitness in the form of reduced foraging and reproductive success. Relocation trawling may also have varying levels of effectiveness as a minimization of take with hopper dredging depending on the timing, trawling effort, and project location features. In Section 6 of this Opinion, we consider these effects to species relocated in the action area.

4 STATUS OF ESA-LISTED SPECIES CONSIDERED FOR FURTHER ANALYSIS

4.1 Sea Turtles

4.1.1 General Threats Faced by All Sea Turtle Species

Sea turtles face numerous natural and man-made threats that shape their status and affect their ability to recover. Many of the threats are either the same or similar in nature for all listed sea turtle species. The threats identified in this section are discussed in a general sense for all sea turtles. Threat information specific to a particular species are then discussed in the corresponding status sections where appropriate.

Fisheries
Incidental bycatch in commercial fisheries is identified as a major contributor to past declines, and threat to future recovery, for all of the sea turtle species (NMFS and USFWS 1991; NMFS and USFWS 1992; NMFS and USFWS 1993; NMFS and USFWS 2008; NMFS et al. 2011). Domestic fisheries often capture, injure, and kill sea turtles at various life stages. Sea turtles in the pelagic environment are exposed to U.S. Atlantic pelagic longline and other fisheries. Sea turtles in the benthic environment in waters off the coastal United States are exposed to a suite of other fisheries in federal and state waters. These fishing methods include trawls, gillnets, purse seines, hook-and-line gear (including bottom longlines and vertical lines [e.g., bandit gear, handlines, and rod-reel], pound nets, and trap fisheries; refer to the Environmental Baseline section of this Opinion for more specific information regarding federal and state managed fisheries affecting sea turtles within the action area). The southeast U.S. shrimp fisheries have historically been the largest fishery threat to benthic sea turtles in the southeastern United States, and continue to interact with and kill large numbers of sea turtles each year.

In addition to domestic fisheries, sea turtles are subject to direct as well as incidental capture in numerous foreign fisheries, further impeding the ability of sea turtles to survive and recover on a global scale. For example, pelagic stage sea turtles, especially loggerheads, circumnavigating the Atlantic are susceptible to international longline fisheries including the Azorean, Spanish, and various other fleets (Aguilar et al. 1994; Bolten et al. 1994). Bottom longlines and gillnet fishing is known to occur in many foreign waters, including (but not limited to) the Northwest Atlantic, Western Mediterranean, South America, West Africa, Central America, and the Caribbean. Shrimp trawl fisheries are also occurring off the shores of numerous foreign countries and pose a significant threat to sea turtles similar to the impacts seen in U.S. waters. Many unreported captures or incomplete records by foreign fleets make it difficult to characterize the total impact that international fishing pressure is having on listed sea turtles. Nevertheless, international fisheries represent a continuing threat to sea turtle survival and recovery throughout their respective ranges.

Non-Fishery In-Water Activities
There are also many non-fishery impacts affecting the status of sea turtle species, both in the ocean and on land. In nearshore waters of the United States, the construction and maintenance of federal navigation channels has been identified as a source of sea turtle mortality. Hopper dredges, which are frequently used in ocean bar channels and sometimes in harbor channels and offshore borrow areas, move relatively rapidly and can entrain and kill sea turtles (NMFS 2020). Sea turtles entering coastal or inshore areas have also been affected by entrainment in the cooling-water systems of electrical generating plants. Other nearshore threats include harassment and/or injury resulting from private and commercial vessel operations, military detonations and training exercises, in-water construction activities, and scientific research activities.

Coastal Development and Erosion Control
Coastal development can deter or interfere with nesting, affect nesting success, and degrade nesting habitats for sea turtles. Structural impacts to nesting habitat include the construction of buildings and pilings, beach armoring and nourishment, and sand extraction (Bouchard et al. 1998; Lutcavage et al. 1997). These factors may decrease the amount of nesting area available to females and change the natural behaviors of both adults and hatchlings, directly or indirectly, through loss of beach habitat or changing thermal profiles and increasing erosion, respectively (Ackerman 1997; Witherington et al. 2003; Witherington et al. 2007). In addition, coastal development is usually accompanied by artificial lighting which can alter the behavior of nesting adults (Witherington 1992) and is often fatal to emerging hatchlings that are drawn away from the water (Witherington and Bjorndal 1991). In-water erosion control structures such as breakwaters, groins, and jetties can impact nesting females and hatchlings as they approach and leave the surf zone or head out to sea by creating physical blockage, concentrating predators, creating longshore currents, and disrupting of wave patterns.

Environmental Contamination
Multiple municipal, industrial, and household sources, as well as atmospheric transport, introduce various pollutants such as pesticides, hydrocarbons, organochlorides (e.g., DDT, PCB, and perfluorinated chemicals), and others that may cause adverse health effects to sea turtles (Garrett 2004; Grant and Ross 2002; Hartwell 2004; Iwata et al. 1993). Acute exposure to hydrocarbons from petroleum products released into the environment via oil spills and other discharges may directly injure individuals through skin contact with oils (Geraci 1990), inhalation at the water's surface and ingesting compounds while feeding (Matkin and Saulitis 1997). Hydrocarbons also have the potential to impact prey populations, and therefore may affect listed species indirectly by reducing food availability in the action area.
The April 20, 2010, explosion of the DWH oil rig affected sea turtles in the Gulf of Mexico. An assessment has been completed on the injury to Gulf of Mexico marine life, including sea turtles, resulting from the spill (DWH Trustees 2016). Following the spill, juvenile Kemp's ridley, green, and loggerhead sea turtles were found in *Sargassum* algae mats in the convergence zones, where currents meet and oil collected. Sea turtles found in these areas were often coated in oil and/or had ingested oil. The spill resulted in the direct mortality of many sea turtles and may have had sublethal effects or caused environmental damage that will impact other sea turtles into the future. Information on the spill impacts to individual sea turtle species is presented in the Status of the Species sections for each species.

Marine debris is a continuing problem for sea turtles. Sea turtles living in the pelagic environment commonly eat or become entangled in marine debris (e.g., tar balls, plastic bags/pellets, balloons, and ghost fishing gear) as they feed along oceanographic fronts where debris and their natural food items converge. This is especially problematic for sea turtles that spend all or significant portions of their life cycle in the pelagic environment (i.e., juvenile loggerhead and green sea turtles).

Climate Change

There is a large and growing body of literature on past, present, and future impacts of global climate change, exacerbated and accelerated by human activities. Some of the likely effects commonly mentioned are sea level rise, increased frequency of severe weather events, and change in air and water temperatures. NOAA's climate information portal provides basic background information on these and other measured or anticipated effects (see http://www.climate.gov). The potential effects, and the expected related effects to ESA-listed species, stemming from climate change are the result of a slow and steady shift over a long time-period, and forecasting any specific critical threshold that may occur at some point in the future (e.g., several decades) is fraught with uncertainty.

While we cannot currently predict impacts on sea turtles stemming from climate change with any degree of certainty, we are aware that significant impacts to the hatchling sex ratios of sea turtles may result (NMFS and USFWS 2007a). In sea turtles, sex is determined by the ambient sand temperature (during the middle third of incubation) with female offspring produced at higher temperatures and males at lower temperatures within a thermal tolerance range of 25°-35°C (Ackerman 1997). Increases in global temperature over time could potentially skew future sex ratios toward higher numbers of females (NMFS and USFWS 2007a).

The effects from increased temperatures may be intensified on developed nesting beaches where shoreline armoring and construction have denuded vegetation. Erosion control structures could potentially result in the permanent loss of nesting beach habitat or deter nesting females (NRC 1990). These impacts will be exacerbated by sea level rise. If females nest on the seaward side of the erosion control structures, nests may be exposed to repeated tidal overwash (NMFS and USFWS 2007b). Sea level rise from global climate change is also a potential problem for areas with low-lying beaches where sand depth is a limiting factor, as the sea may inundate nesting sites and decrease available nesting habitat (Baker et al. 2006; Daniels et al. 1993; Fish et al. 2005). The loss of habitat as a result of climate change could be accelerated due to a combination of other environmental and oceanographic changes such as an increase in the frequency of storms and/or changes in prevailing currents, both of which could lead to increased beach loss via erosion (Antonelis et al. 2006; Baker et al. 2006).

A combination of rising sea surface temperatures that could alter nesting behavior to more northern latitudes and sea level rise resulting in increased beach erosion north of Cape Hatteras, North Carolina (Sallenger et al. 2012) and reduced availability of existing beaches, could ultimately affect sea turtle nesting success in those areas. However, we expect those effects, should they occur, would likely occur over a fairly long time period encompassing several sea turtle generations, and not in the short term (e.g., over the next decade). Furthermore, modeled climate data from Van Houtan and Halley (2011) showed a future positive trend for loggerhead nesting in Florida, by far the species' most important nesting area in the Atlantic, with increases through 2040 as a result of the Atlantic Multidecadal Oscillation signal. A more recent study by Arendt et al. (2013), which is a follow up review and critique of the Van Houtan and Halley (2011) analysis, suggested the mechanistic underpinning between climate and loggerhead nesting

rates on Florida beaches was primarily acting on the mature adult females as opposed to the hatchlings. Nonetheless, Arendt et al. (2013) suggest that the population of loggerheads nesting in Florida could attain the demographic criteria for recovery by 2027 if annual nest counts from 2013-2019 are comparable to what were seen from 2008-2012. Since loggerhead sea turtles are known to nest on Florida beaches in large numbers (and likely will continue to do so in the short-term future), we believe that any impacts of the sea level rise described in Sallenger et al. (2012) are likely to be offset by increased nesting in Florida over the next few decades.
Other changes in the marine ecosystem caused by global climate change (e.g., ocean acidification, salinity, oceanic currents, dissolved oxygen [DO] levels, nutrient distribution, etc.) could influence the distribution and abundance of lower trophic levels (e.g., phytoplankton, zooplankton, submerged aquatic vegetation, crustaceans, mollusks, forage fish, etc.) which could ultimately affect the primary foraging areas of sea turtles.

Other Threats
Predation by various land predators is a threat to developing nests and emerging hatchlings. The major natural predators of sea turtle nests are mammals, including raccoons, dogs, pigs, skunks, and badgers. Emergent hatchlings are preyed upon by these mammals, as well as ghost crabs, laughing gulls, and the exotic South American fire ant (*Solenopsis invicta*). In addition to natural predation, direct harvest of eggs and adults from beaches in foreign countries continues to be a problem for various sea turtle species throughout their ranges (NMFS and USFWS 2008).

Diseases, toxic blooms from algae and other microorganisms, and cold stunning events are additional sources of mortality that can range from local and limited to wide-scale and impacting hundreds or thousands of animals.

4.1.2 Kemp's Ridley Sea Turtle

The Kemp's ridley sea turtle was listed as endangered on December 2, 1970, under the Endangered Species Conservation Act of 1969, a precursor to the ESA. Internationally, the Kemp's ridley is considered the most endangered sea turtle (Groombridge 1982; TEWG 2000; Zwinenberg 1977).

Species Description and Distribution
The Kemp's ridley sea turtle is the smallest of all sea turtles. Adults generally weigh less than 100 lb (45 kg) and have a carapace length of around 2.1 ft (65 cm). Adult Kemp's ridley shells are almost as wide as they are long. Coloration changes significantly during development from the grey-black dorsum and plastron of hatchlings, a grey-black dorsum with a yellowish-white plastron as post-pelagic juveniles, and then to the lighter grey-olive carapace and cream-white or yellowish plastron of adults. There are 2 pairs of prefrontal scales on the head, 5 vertebral scutes, usually 5 pairs of costal scutes, and generally 12 pairs of marginal scutes on the carapace. In each bridge adjoining the plastron to the carapace, there are 4 scutes, each of which is perforated by a pore.

Kemp's ridley habitat largely consists of sandy and muddy areas in shallow, nearshore waters less than 120 ft (37 m) deep, although they can also be found in deeper offshore waters. These areas support the primary prey species of the Kemp's ridley sea turtle, which consist of swimming crabs, but may also include fish, jellyfish, and an array of mollusks.

The primary range of Kemp's ridley sea turtles is within the Gulf of Mexico basin, though they also occur in coastal and offshore waters of the U.S. Atlantic Ocean. Juvenile Kemp's ridley sea turtles, possibly carried by oceanic currents, have been recorded as far north as Nova Scotia. Historic records indicate a nesting range from Mustang Island, Texas, in the north to Veracruz, Mexico, in the south. Kemp's ridley sea turtles have recently been nesting along the Atlantic Coast of the United States, with nests recorded from beaches in Florida, Georgia, and the Carolinas. In 2012, the first Kemp's ridley sea turtle nest was recorded in Virginia. The Kemp's ridley nesting population had been exponentially increasing prior to the recent low nesting years, which may indicate that the population had been experiencing a similar increase. Additional nesting data in the coming years will be required to determine what the recent nesting decline means for the population trajectory.

Life History Information

Kemp's ridley sea turtles share a general life history pattern similar to other sea turtles. Females lay their eggs on coastal beaches where the eggs incubate in sandy nests. After 45-58 days of embryonic development, the hatchlings emerge and swim offshore into deeper, ocean water where they feed and grow until returning at a larger size. Hatchlings generally range from 1.65-1.89 in (42-48 mm) straight carapace length (SCL), 1.26-1.73 in (32-44 mm) in width, and 0.3-0.4 lb (15-20 g) in weight. Their return to nearshore coastal habitats typically occurs around 2 years of age (Ogren 1989), although the time spent in the oceanic zone may vary from 1-4 years or perhaps more (TEWG 2000). Juvenile Kemp's ridley sea turtles use these nearshore coastal habitats from April through November, but they move towards more suitable overwintering habitat in deeper offshore waters (or more southern waters along the Atlantic coast) as water temperature drops.

The average rates of growth may vary by location, but generally fall within 2.2-2.9 ± 2.4 in per year (5.5-7.5 ± 6.2 cm/year) (Schmid and Barichivich 2006; Schmid and Woodhead 2000). Age to sexual maturity ranges greatly from 5-16 years, though NMFS et al. (2011) determined the best estimate of age to maturity for Kemp's ridley sea turtles was 12 years. It is unlikely that most adults grow very much after maturity. While some sea turtles nest annually, the weighted mean remigration rate for Kemp's ridley sea turtles is approximately 2 years. Nesting generally occurs from April to July. Females lay approximately 2.5 nests per season with each nest containing approximately 100 eggs (Márquez M. 1994).

Population Dynamics

Of the 7 species of sea turtles in the world, the Kemp's ridley has declined to the lowest population level. Most of the population of adult females nest on the beaches of Rancho Nuevo, Mexico (Pritchard 1969). When nesting aggregations at Rancho Nuevo were discovered in

1947, adult female populations were estimated to be in excess of 40,000 individuals (Hildebrand 1963). By the mid-1980s, however, nesting numbers from Rancho Nuevo and adjacent Mexican beaches were below 1,000, with a low of 702 nests in 1985. Yet, nesting steadily increased through the 1990s, and then accelerated during the first decade of the twenty-first century (Figure 3), which indicates the species is recovering.

It is worth noting that when the Bi-National Kemp's Ridley Sea Turtle Population Restoration Project was initiated in 1978, only Rancho Nuevo nests were recorded. In 1988, nesting data from southern beaches at Playa Dos and Barra del Tordo were added. In 1989, data from the northern beaches of Barra Ostionales and Tepehuajes were added, and most recently in 1996, data from La Pesca and Altamira beaches were recorded. Currently, nesting at Rancho Nuevo accounts for just over 81% of all recorded Kemp's ridley nests in Mexico. Following a significant, unexplained 1-year decline in 2010, Kemp's ridley nests in Mexico increased to 21,797 in 2012 (Gladys Porter Zoo 2013). From 2013 through 2014, there was a second significant decline, as only 16,385 and 11,279 nests were recorded, respectively. More recent data, however, indicated an increase in nesting. In 2015 there were 14,006 recorded nests, and in 2016 overall numbers increased to 18,354 recorded nests (Gladys Porter Zoo 2016). There was a record high nesting season in 2017, with 24,570 nests recorded (J. Pena, pers. comm., August 31, 2017), but nesting for 2018 declined to 17,945, with another steep drop to 11,090 nests in 2019 (Gladys Porter Zoo data, 2019). Nesting numbers rebounded in 2020 (18,068 nests) and 2021 (17,671 nests) (CONAMP data, 2021). At this time, it is unclear whether the increases and declines in nesting seen over the past decade represents a population oscillating around an equilibrium point or if nesting will decline or increase in the future.

A small nesting population is also emerging in the United States, primarily in Texas, rising from 6 nests in 1996 to 42 in 2004, to a record high of 353 nests in 2017 (National Park Service [NPS] data). It is worth noting that nesting in Texas has paralleled the trends observed in Mexico, characterized by a significant decline in 2010, followed by a second decline in 2013-2014, but with a rebound in 2015, the record nesting in 2017, and then a drop back down to 190 nests in 2019, rebounding to 262 nests in 2020, and back to 195 nests in 2021 (NPS data).

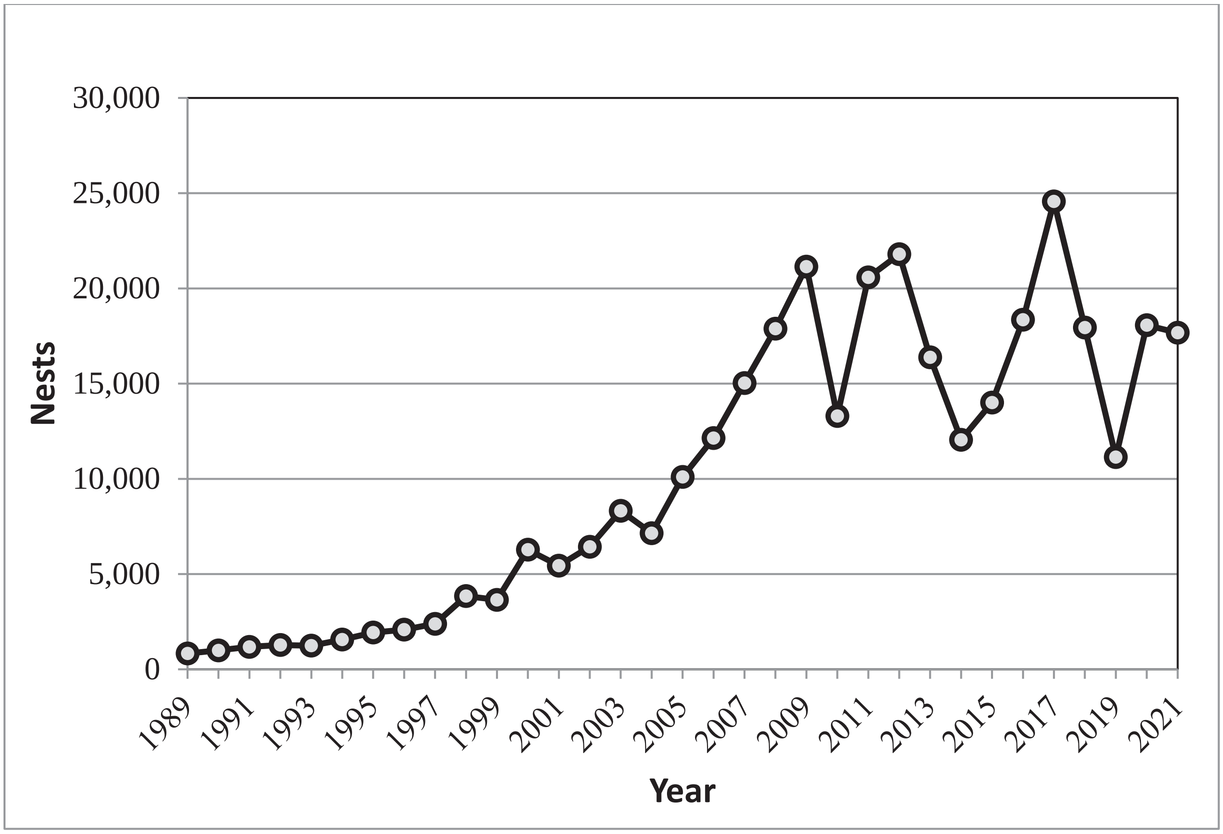


Figure 3. Kemp's ridley nest totals from Mexican beaches (Gladys Porter Zoo nesting database 2019).

Through modelling, Heppell et al. (2005) predicted the population is expected to increase at least 12-16% per year and could reach at least 10,000 females nesting on Mexico beaches by 2015. NMFS et al. (2011) produced an updated model that predicted the population to increase 19% per year and to attain at least 10,000 females nesting on Mexico beaches by 2011. Approximately 25,000 nests would be needed for an estimate of 10,000 nesters on the beach, based on an average 2.5 nests/nesting female. While counts did not reach 25,000 nests by 2015, it is clear that the population has increased over the long term. The increases in Kemp's ridley sea turtle nesting over the last 2 decades is likely due to a combination of management measures including elimination of direct harvest, nest protection, the use of TEDs, reduced trawling effort in Mexico and the United States, and possibly other changes in vital rates (TEWG 1998; TEWG 2000). While these results are encouraging, the species' limited range as well as low global abundance makes it particularly vulnerable to new sources of mortality as well as demographic and environmental randomness, all factors which are often difficult to predict with any certainty. Additionally, the significant nesting declines observed in 2010 and 2013-2014 potentially indicate a serious population-level impact, and there is cause for concern regarding the ongoing recovery trajectory.

Threats
Kemp's ridley sea turtles face many of the same threats as other sea turtle species, including destruction of nesting habitat from storm events, oceanic events such as cold-stunning, pollution (plastics, petroleum products, petrochemicals, etc.), ecosystem alterations (nesting beach development, beach nourishment and shoreline stabilization, vegetation changes, etc.), poaching, global climate change, fisheries interactions, natural predation, and disease. A discussion on general sea turtle threats can be found in Section 4.1.1; the remainder of this section will expand on a few of the aforementioned threats and how they may specifically impact Kemp's ridley sea turtles.

As Kemp's ridley sea turtles continue to recover and nesting *arribadas* are increasingly established, bacterial and fungal pathogens in nests are also likely to increase; *arribada* is the Spanish word for "arrival" and is the term used for massive synchronized nesting within the genus *Lepidochelys.* Bacterial and fungal pathogen impacts have been well documented in the large arribadas of the olive ridley at Nancite in Costa Rica (Mo 1988). In some years, and on some sections of the beach, the hatching success can be as low as 5% (Mo 1988). As the Kemp's ridley nest density at Rancho Nuevo and adjacent beaches continues to increase, appropriate monitoring of emergence success will be necessary to determine if there are any density-dependent effects.

Since 2010, we have documented (via STSSN data) elevated sea turtle strandings in the Northern Gulf of Mexico, particularly throughout the Mississippi Sound area. For example, in the first 3 weeks of June 2010, over 120 sea turtle strandings were reported from Mississippi and Alabama waters, none of which exhibited any signs of external oiling to indicate effects associated with the DWH oil spill event. A total of 644 sea turtle strandings were reported in 2010 from Louisiana, Mississippi, and Alabama waters, 561 (87%) of which were Kemp's ridley sea turtles. During March through May of 2011, 267 sea turtle strandings were reported from Mississippi and Alabama waters alone. A total of 525 sea turtle strandings were reported in 2011 from Louisiana, Mississippi, and Alabama waters, with the majority (455) having occurred from March through July, 390 (86%) of which were Kemp's ridley sea turtles. During 2012, a total of 384 sea turtles were reported from Louisiana, Mississippi, and Alabama waters. Of these reported strandings, 343 (89%) were Kemp's ridley sea turtles. During 2014, a total of 285 sea turtles were reported from Louisiana, Mississippi, and Alabama waters, though the data is incomplete. Of these reported strandings, 229 (80%) were Kemp's ridley sea turtles. These stranding numbers are significantly greater than reported in past years; Louisiana, Mississippi, and Alabama waters reported 42 and 73 sea turtle strandings for 2008 and 2009, respectively. It should be noted that stranding coverage has increased considerably due to the DWH oil spill event.

Nonetheless, considering that strandings typically represent only a small fraction of actual mortality, these stranding events potentially represent a serious impact to the recovery and survival of the local sea turtle populations. While a definitive cause for these strandings has not been identified, necropsy results indicate a significant number of stranded turtles from these events likely perished due to forced submergence, which is commonly associated with fishery interactions (B. Stacy, NMFS, pers. comm. to M. Barnette, NMFS PRD, March 2012). Yet, available information indicates fishery effort was extremely limited during the stranding events. The fact that 80% or more of all Louisiana, Mississippi, and Alabama stranded sea turtles in the past 5 years were Kemp's ridleys is notable; however, this could simply be a function of the species' preference for shallow, inshore waters coupled with increased population abundance, as reflected in recent Kemp's ridley nesting increases.

In response to these strandings, and due to speculation that fishery interactions may be the cause, fishery observer effort was shifted to evaluate the inshore skimmer trawl fisheries beginning in 2012. During May-July of that year, observers reported 24 sea turtle interactions in the skimmer trawl fisheries. All but a single sea turtle were identified as Kemp's ridleys (1 sea turtle was an unidentified hardshell turtle). Encountered sea turtles were all very small juvenile specimens, ranging from 7.6-19.0 in (19.4-48.3 cm) curved carapace length (CCL). Subsequent years of observation noted additional captures in the skimmer trawl fisheries, including some mortalities. The small average size of encountered Kemp's ridleys introduces a potential conservation issue, as over 50% of these reported sea turtles could potentially pass through the maximum 4-in bar spacing of TEDs currently required in the shrimp fisheries. Due to this issue, a proposed 2012 rule to require 4-in bar spacing TEDs in the skimmer trawl fisheries (77 FR 27411) was not implemented. Following additional gear testing, however, we proposed a new rule in 2016 (81 FR 91097) to require TEDs with 3-in bar spacing for all vessels using skimmer trawls, pusher-head trawls, or wing nets. Ultimately, we published a final rule on December 20, 2019 (84 FR 70048), that requires all skimmer trawl vessels 40 ft and greater in length to use TEDs designed to exclude small sea turtles in their nets effective April 1, 2021. As we previously noted, we delayed the effective date of this final rule until August 1, 2021, due to safety and travel restrictions related to the COVID-19 pandemic that prevented necessary training and outreach for fishers. Given the nesting trends and habitat utilization of Kemp's ridley sea turtles, it is likely that fishery interactions in the Northern Gulf of Mexico may continue to be an issue of concern for the species, and one that may potentially slow the rate of recovery for Kemp's ridley sea turtles.

While oil spill impacts are discussed generally for all species in Section 4.1.1, specific impacts of the DWH oil spill event on Kemp's ridley sea turtles are considered here. Kemp's ridleys experienced the greatest negative impact stemming from the DWH oil spill event of any sea turtle species. Impacts to Kemp's ridley sea turtles occurred to offshore small juveniles, as well as large juveniles and adults. Loss of hatchling production resulting from injury to adult turtles was also estimated for this species. Injuries to adult turtles of other species, such as loggerheads, certainly would have resulted in unrealized nests and hatchlings to those species as well. Yet, the calculation of unrealized nests and hatchlings was limited to Kemp's ridleys for several reasons. All Kemp's ridleys in the Gulf belong to the same population (NMFS et al. 2011), so total population abundance could be calculated based on numbers of hatchlings because all individuals that enter the population could reasonably be expected to inhabit the northern Gulf of Mexico throughout their lives (DWH Trustees 2016).

A total of 217,000 small juvenile Kemp's ridleys (51.5% of the total small juvenile sea turtle exposures to oil from the spill) were estimated to have been exposed to oil. That means approximately half of all small juvenile Kemp's ridleys from the total population estimate of 430,000 oceanic small juveniles were exposed to oil. Furthermore, a large number of small juveniles were removed from the population, as up to 90,300 small juveniles Kemp's ridleys are estimated to have died as a direct result of the exposure. Therefore, as much as 20% of the small oceanic juveniles of this species were killed during that year. Impacts to large juveniles (>3 years old) and adults were also high. An estimated 21,990 such individuals were exposed to oil (about 22% of the total estimated population for those age classes); of those, 3,110 mortalities were estimated (or 3% of the population for those age classes). The loss of near-reproductive and reproductive-stage females would have contributed to some extent to the decline in total nesting abundance observed between 2011 and 2014. The estimated number of unrealized Kemp's ridley nests is between 1,300 and 2,000, which translates to between approximately 65,000 and 95,000 unrealized hatchlings (DWH Trustees 2016). This is a minimum estimate, however, because the sublethal effects of the DWH oil spill event on turtles, their prey, and their habitats might have delayed or reduced reproduction in subsequent years, which may have contributed substantially to additional nesting deficits observed following the DWH oil spill event. These sublethal effects could have slowed growth and maturation rates, increased remigration intervals, and decreased clutch frequency (number of nests per female per nesting season). The nature of the DWH oil spill event effect on reduced Kemp's ridley nesting abundance and associated hatchling production after 2010 requires further evaluation. It is clear that the DWH oil spill event resulted in large losses to the Kemp's ridley population across various age classes, and likely had an important population-level effect on the species. Still, we do not have a clear understanding of those impacts on the population trajectory for the species into the future.

4.1.3 Green Sea Turtle

The green sea turtle was originally listed as threatened under the ESA on July 28, 1978, except for the Florida and Pacific coast of Mexico breeding populations, which were listed as endangered. On April 6, 2016, the original listing was replaced with the listing of 11 DPSs (81 FR 20057 2016) (Figure 4). The Mediterranean, Central West Pacific, and Central South Pacific DPSs were listed as endangered. The North Atlantic, South Atlantic, Southwest Indian, North Indian, East Indian-West Pacific, Southwest Pacific, Central North Pacific, and East Pacific DPSs were listed as threatened. For the purposes of this consultation, only the North Atlantic DPS (NA DPS) and South Atlantic DPS (SA DPS) will be considered, as they are the only 2 DPSs with individuals occurring in the Atlantic and Gulf of Mexico waters of the United States.

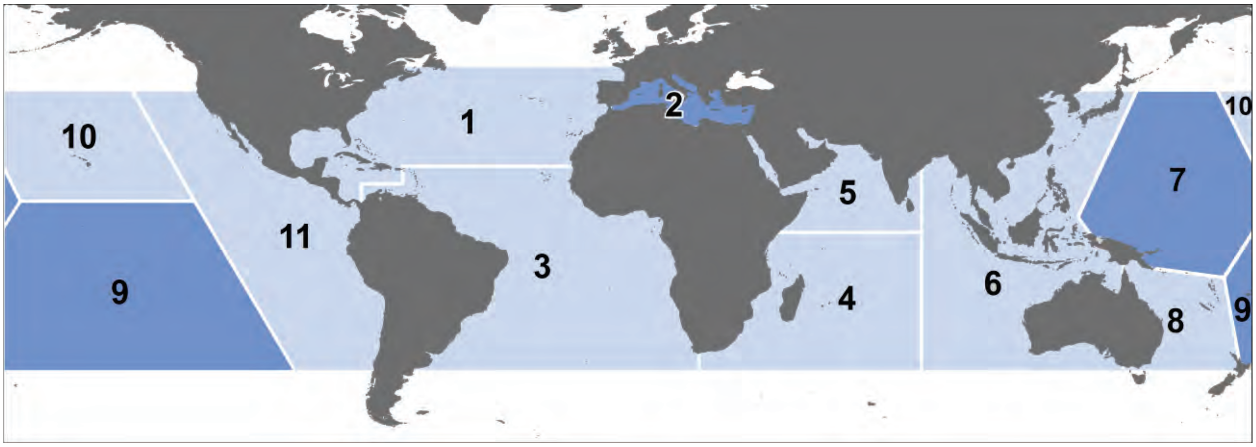


Figure 4. Threatened (light) and endangered (dark) green turtle DPSs: 1. North Atlantic (NA); 2. Mediterranean; 3. South Atlantic (SA); 4. Southwest Indian; 5. North Indian; 6. East Indian-West Pacific; 7. Central West Pacific; 8. Southwest Pacific; 9. Central South Pacific; 10. Central North Pacific; and 11. East Pacific.

Species Description and Distribution
The green sea turtle is the largest of the hardshell marine turtles, growing to a weight of 350 pounds (lb) (159 kilograms [kg]) with an SCL of greater than 3.3 ft (1 m). Green sea turtles have a smooth carapace with 4 pairs of lateral (or costal) scutes and a single pair of elongated prefrontal scales between the eyes. They typically have a black dorsal surface and a white ventral surface, although the carapace of green sea turtles in the Atlantic Ocean has been known to change in color from solid black to a variety of shades of grey, green, or brown and black in starburst or irregular patterns (Lagueux 2001).

With the exception of post-hatchlings, green sea turtles live in nearshore tropical and subtropical waters where they generally feed on marine algae and seagrasses. They have specific foraging grounds and may make large migrations between these forage sites and natal beaches for nesting (Hays et al. 2001). Green sea turtles nest on sandy beaches of mainland shores, barrier islands, coral islands, and volcanic islands in more than 80 countries worldwide (Hirth 1997). The 2 largest nesting populations are found at Tortuguero, on the Caribbean coast of Costa Rica (part of the NA DPS), and Raine Island, on the Pacific coast of Australia along the Great Barrier Reef.

Differences in mitochondrial deoxyribonucleic acid (DNA) properties of green sea turtles from different nesting regions indicate there are genetic subpopulations (Bowen et al. 1992; FitzSimmons et al. 2006). Despite the genetic differences, sea turtles from separate nesting origins are commonly found mixed together on foraging grounds throughout the species' range. Within U.S. waters individuals from both the NA and SA DPSs can be found on foraging grounds. While there are currently no in-depth studies available to determine the percent of NA and SA DPS individuals in any given location, 2 small-scale studies provide an insight into the degree of mixing on the foraging grounds. An analysis of cold-stunned green turtles in St. Joseph Bay, Florida (northern Gulf of Mexico) found approximately 4% of individuals came from nesting stocks in the SA DPS (specifically Suriname, Aves Island, Brazil, Ascension Island, and Guinea Bissau) (Foley et al. 2007). On the Atlantic coast of Florida, a study on the foraging grounds off Hutchinson Island found that approximately 5% of the turtles sampled came from the Aves Island/Suriname nesting assemblage, which is part of the SA DPS (Bass and Witzell 2000). All of the individuals in both studies were benthic juveniles. Available information on green turtle migratory behavior indicates that long distance dispersal is only seen for juvenile turtles. This suggests that larger adult-sized turtles return to forage within the region of their natal rookeries, thereby limiting the potential for gene flow across larger scales (Monzón-Argüello et al. 2010). While all of the mainland U.S. nesting individuals are part of the NA DPS, the U.S. Caribbean nesting assemblages are split between the NA and SA DPS. Nesters in Puerto Rico are part of the NA DPS, while those in the U.S. Virgin Islands are part of the SA DPS. We do not currently have information on what percent of individuals on the U.S. Caribbean foraging grounds come from which DPS.

NA DPS Distribution

The NA DPS boundary is illustrated in Figure 4. Four regions support nesting concentrations of particular interest in the NA DPS: Costa Rica (Tortuguero), Mexico (Campeche, Yucatan, and Quintana Roo), U.S. (Florida), and Cuba. By far the most important nesting concentration for green turtles in this DPS is Tortuguero, Costa Rica. Nesting also occurs in the Bahamas, Belize, Cayman Islands, Dominican Republic, Haiti, Honduras, Jamaica, Nicaragua, Panama, Puerto Rico, Turks and Caicos Islands, and North Carolina, South Carolina, Georgia, and Texas, U.S.A. In the eastern North Atlantic, nesting has been reported in Mauritania (Fretey 2001).

The complete nesting range of NA DPS green sea turtles within the southeastern United States includes sandy beaches between Texas and North Carolina, as well as Puerto Rico (Dow et al. 2007; NMFS and USFWS 1991). The vast majority of green sea turtle nesting within the southeastern United States occurs in Florida (Johnson and Ehrhart 1994; Meylan et al. 1995). Principal U.S. nesting areas for green sea turtles are in eastern Florida, predominantly Brevard south through Broward counties.

In U.S. Atlantic and Gulf of Mexico waters, green sea turtles are distributed throughout inshore and nearshore waters from Texas to Massachusetts. Principal benthic foraging areas in the southeastern United States include Aransas Bay, Matagorda Bay, Laguna Madre, and the Gulf inlets of Texas (Doughty 1984; Hildebrand 1982; Shaver 1994), the Gulf of Mexico off Florida from Yankeetown to Tarpon Springs (Caldwell and Carr 1957), Florida Bay and the Florida Keys (Schroeder and Foley 1995), the Indian River Lagoon system in Florida (Ehrhart 1983), and the Atlantic Ocean off Florida from Brevard through Broward Counties (Guseman and Ehrhart 1992; Wershoven and Wershoven 1992). The summer developmental habitat for green sea turtles also encompasses estuarine and coastal waters from North Carolina to as far north as Long Island Sound (Musick and Limpus 1997). Additional important foraging areas in the western Atlantic include the Culebra archipelago and other Puerto Rico coastal waters, the south coast of Cuba, the Mosquito Coast of Nicaragua, the Caribbean coast of Panama, scattered areas along Colombia and Brazil (Hirth 1971), and the northwestern coast of the Yucatán Peninsula.

SA DPS Distribution

The SA DPS boundary is shown in Figure 4, and includes the U.S. Virgin Islands in the Caribbean. The SA DPS nesting sites can be roughly divided into 4 regions: western Africa, Ascension Island, Brazil, and the South Atlantic Caribbean (including Colombia, the Guianas, and Aves Island in addition to the numerous small, island nesting sites).

The in-water range of the SA DPS is widespread. In the eastern South Atlantic, significant sea turtle habitats have been identified, including green turtle feeding grounds in Corisco Bay, Equatorial Guinea/Gabon (Formia 1999); Congo; Mussulo Bay, Angola (Carr and Carr 1991); as well as Principe Island. Juvenile and adult green turtles utilize foraging areas throughout the Caribbean areas of the South Atlantic, often resulting in interactions with fisheries occurring in those same waters (Dow et al. 2007). Juvenile green turtles from multiple rookeries also frequently utilize the nearshore waters off Brazil as foraging grounds as evidenced from the frequent captures by fisheries (Lima et al. 2010; López-Barrera et al. 2012; Marcovaldi et al. 2009). Genetic analysis of green turtles on the foraging grounds off Ubatuba and Almofala, Brazil show mixed stocks coming primarily from Ascension, Suriname and Trindade as a secondary source, but also Aves, and even sometimes Costa Rica (NA DPS) (Naro-Maciel et al. 2007; Naro-Maciel et al. 2012). While no nesting occurs as far south as Uruguay and Argentina, both have important foraging grounds for South Atlantic green turtles (Gonzalez Carman et al. 2011; Lezama 2009; López-Mendilaharsu et al. 2006; Prosdocimi et al. 2012; Rivas-Zinno 2012).

Life History Information

Green sea turtles reproduce sexually, and mating occurs in the waters off nesting beaches and along migratory routes. Mature females return to their natal beaches (i.e., the same beaches where they were born) to lay eggs (Balazs 1982; Frazer and Ehrhart 1985) every 2-4 years while males are known to reproduce every year (Balazs 1983). In the southeastern United States, females generally nest between June and September, and peak nesting occurs in June and July (Witherington and Ehrhart 1989b). During the nesting season, females nest at approximately 2-week intervals, laying an average of 3-4 clutches (Johnson and Ehrhart 1996). Clutch size often varies among subpopulations, but mean clutch size is approximately 110-115 eggs. In Florida, green sea turtle nests contain an average of 136 eggs (Witherington and Ehrhart 1989b). Eggs incubate for approximately 2 months before hatching. Hatchling green sea turtles are approximately 2 in (5 cm) in length and weigh approximately 0.9 ounces (oz). Survivorship at any particular nesting site is greatly influenced by the level of man-made stressors, with the more pristine and less disturbed nesting sites (e.g., along the Great Barrier Reef in Australia) showing higher survivorship values than nesting sites known to be highly disturbed (e.g., Nicaragua) (Campell and Lagueux 2005; Chaloupka and Limpus 2005).

After emerging from the nest, hatchlings swim to offshore areas and go through a post-hatchling pelagic stage where they are believed to live for several years. During this life stage, green sea turtles feed close to the surface on a variety of marine algae and other life associated with drift lines and debris. This early oceanic phase remains one of the most poorly understood aspects of green sea turtle life history (NMFS and USFWS 2007c). Green sea turtles exhibit particularly slow growth rates of about 0.4-2 in (1-5 cm) per year (Green 1993), which may be attributed to their largely herbivorous, low-net energy diet (Bjorndal 1982). At approximately 8-10 in (20-25 cm) carapace length, juveniles leave the pelagic environment and enter nearshore developmental habitats such as protected lagoons and open coastal areas rich in sea grass and marine algae. Growth studies using skeletochronology indicate that green sea turtles in the western Atlantic shift from the oceanic phase to nearshore developmental habitats after approximately 5-6 years (Bresette et al. 2006; Zug and Glor 1998). Within the developmental habitats, juveniles begin the switch to a more herbivorous diet, and by adulthood feed almost exclusively on seagrasses and algae (Rebel 1974), although some populations are known to also feed heavily on invertebrates (Carballo et al. 2002). Green sea turtles mature slowly, requiring 20-50 years to reach sexual maturity (Chaloupka and Musick 1997; Hirth 1997).

While in coastal habitats, green sea turtles exhibit site fidelity to specific foraging and nesting grounds, and it is clear they are capable of “homing in” on these sites if displaced (McMichael et al. 2003). Reproductive migrations of Florida green sea turtles have been identified through flipper tagging and/or satellite telemetry. Based on these studies, the majority of adult female Florida green sea turtles are believed to reside in nearshore foraging areas throughout the Florida Keys and in the waters southwest of Cape Sable, and some post-nesting turtles also reside in Bahamian waters as well (NMFS and USFWS 2007c).

Status and Population Dynamics

Accurate population estimates for marine turtles do not exist because of the difficulty in sampling turtles over their geographic ranges and within their marine environments. Nonetheless, researchers have used nesting data to study trends in reproducing sea turtles over time. A summary of nesting trends and nester abundance is provided in the most recent status review for the species (Seminoff et al. 2015), with information for each of the DPSs.

<u>NA DPS Status and Population Dynamics</u>

The NA DPS is the largest of the 11 green turtle DPSs, with an estimated nester abundance of over 167,000 adult females from 73 nesting sites. Overall this DPS is also the most data rich. Eight of the sites have high levels of abundance (i.e., <1000 nesters), located in Costa Rica, Cuba, Mexico, and Florida. All major nesting populations demonstrate long-term increases in abundance (Seminoff et al. 2015).

Quintana Roo, Mexico, accounts for approximately 11% of nesting for the DPS (Seminoff et al. 2015). In the early 1980s, approximately 875 nests/year were deposited, but by 2000 this increased to over 1,500 nests/year (NMFS and USFWS 2007c). By 2012, more than 26,000 nests were counted in Quintana Roo (J. Zurita, CIQROO, unpublished data, 2013, in Seminoff et al. 2015).

Tortuguero, Costa Rica is by far the predominant nesting site, accounting for an estimated 79% of nesting for the DPS (Seminoff et al. 2015). Nesting at Tortuguero appears to have been increasing since the 1970's, when monitoring began. For instance, from 1971-1975 there were approximately 41,250 average annual emergences documented and this number increased to an average of 72,200 emergences from 1992-1996 (Bjorndal et al. 1999). Troëng and Rankin (2005) collected nest counts from 1999-2003 and also reported increasing trends in the population consistent with the earlier studies, with nest count data suggesting 17,402-37,290 nesting females per year (NMFS and USFWS 2007c). Modeling by Chaloupka et al. (2008) using data sets of 25 years or more resulted in an estimate of the Tortuguero, Costa Rica population's growing at 4.9% annually.

In the continental United States, green sea turtle nesting occurs along the Atlantic coast, primarily along the central and southeast coast of Florida (Meylan et al. 1994; Weishampel et al. 2003). Occasional nesting has also been documented along the Gulf Coast of Florida (Meylan et al. 1995). Green sea turtle nesting is documented annually on beaches of North Carolina, South Carolina, and Georgia, though nesting is found in low quantities (up to tens of nests) (nesting databases maintained on www.seaturtle.org).

Florida accounts for approximately 5% of nesting for this DPS (Seminoff et al. 2015). Modeling by Chaloupka et al. (2008) using data sets of 25 years or more resulted in an estimate of the Florida nesting stock at the Archie Carr National Wildlife Refuge growing at an annual rate of 13.9% at that time. Increases have been even more rapid in recent years. In Florida, index beaches were established to standardize data collection methods and effort on key nesting beaches. Since establishment of the index beaches in 1989, the pattern of green sea turtle nesting has generally shown biennial peaks in abundance with a positive trend during the 10 years of regular monitoring (Figure 5). According to data collected from Florida's index nesting beach survey from 1989-2021, green sea turtle nest counts across Florida have increased dramatically, from a low of 267 in the early 1990s to a high of 40,911 in 2019. Two consecutive years of nesting declines in 2008 and 2009 caused some concern, but this was followed by increases in 2010 and 2011. The pattern departed from the low lows and high peaks in 2020 and 2021 as well, when 2020 nesting only dropped by half from the 2019 high, while 2021 nesting only increased by a small amount over the 2020 nesting (Figure 5).

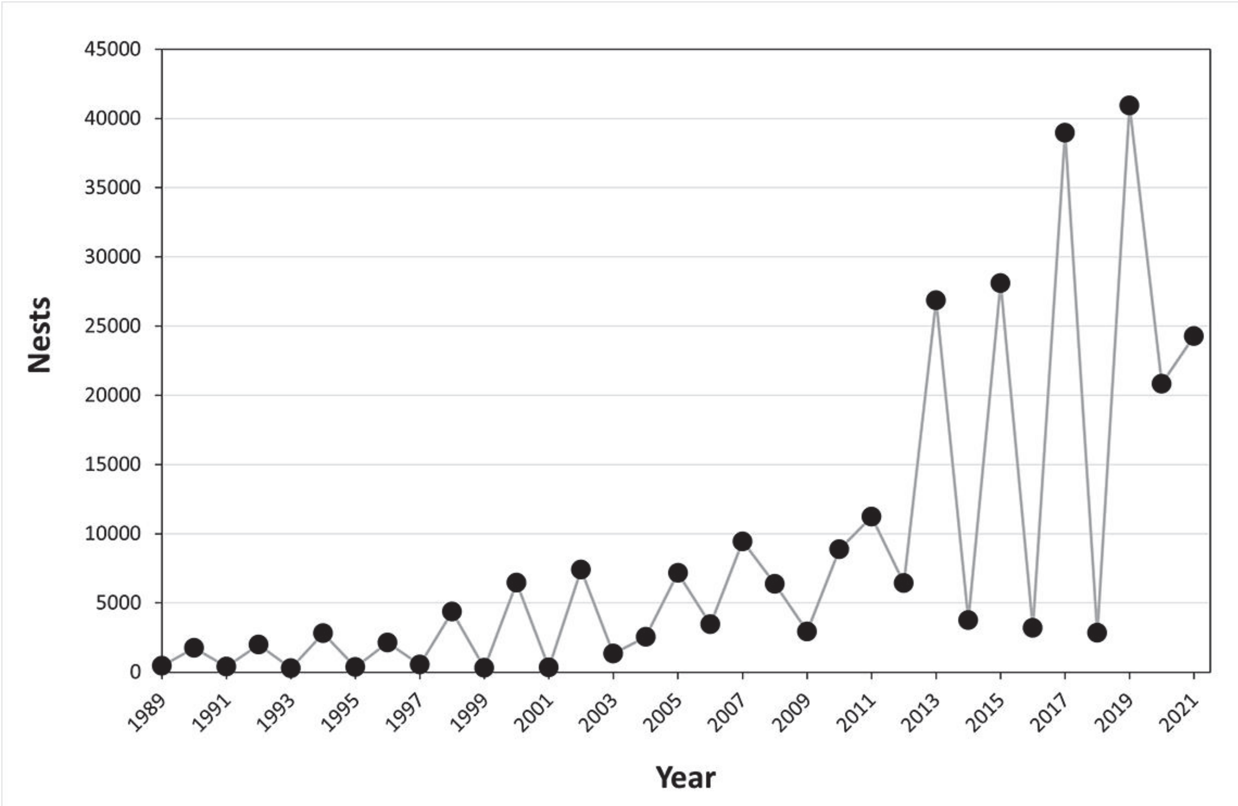


Figure 5. Green sea turtle nesting at Florida index beaches since 1989.

Similar to the nesting trend found in Florida, in-water studies in Florida have also recorded increases in green turtle captures at the Indian River Lagoon site, with a 661% increase over 24 years (Ehrhart et al. 2007), and the St Lucie Power Plant site, with a significant increase in the annual rate of capture of immature green turtles (SCL<90 cm) from 1977 to 2002 or 26 years (3,557 green turtles total; M. Bressette, Inwater Research Group, unpubl. data; (Witherington et al. 2006).

<u>SA DPS Status and Population Dynamics</u>

The SA DPS is large, estimated at over 63,000 nesters, but data availability is poor. More than half of the 51 identified nesting sites (37) did not have sufficient data to estimate number of nesters or trends (Seminoff et al. 2015). This includes some sites, such as beaches in French Guiana, which are suspected to have large numbers of nesters. Therefore, while the estimated number of nesters may be substantially underestimated, we also do not know the population trends at those data-poor beaches. However, while the lack of data was a concern due to increased uncertainty, the overall trend of the SA DPS was not considered to be a major concern as some of the largest nesting beaches such as Ascension Island (United Kingdom), Aves Island (Venezuela), and Galibi (Suriname) appear to be increasing. Others such as Trindade (Brazil), Atol das Rocas (Brazil), and Poilão (Guinea-Bissau) and the rest of Guinea-Bissau seem to be stable or do not have sufficient data to make a determination. Bioko (Equatorial Guinea) appears to be in decline but has less nesting than the other primary sites (Seminoff et al. 2015).

In the U.S., nesting of SA DPS green turtles occurs on the beaches of the U.S. Virgin Islands, primarily on Buck Island. There is insufficient data to determine a trend for Buck Island nesting, and it is a smaller rookery, with approximately 63 total nesters utilizing the beach (Seminoff et al. 2015).

Threats

The principal cause of past declines and extirpations of green sea turtle assemblages has been the overexploitation of the species for food and other products. Although intentional take of green sea turtles and their eggs is not extensive within the southeastern United States, green sea turtles that nest and forage in the region may spend large portions of their life history outside the region and outside U.S. jurisdiction, where exploitation is still a threat. Green sea turtles also face many of the same threats as other sea turtle species, including destruction of nesting habitat from storm events, oceanic events such as cold-stunning, pollution (e.g., plastics, petroleum products, petrochemicals), ecosystem alterations (e.g., nesting beach development, beach nourishment and shoreline stabilization, vegetation changes), poaching, global climate change, fisheries interactions, natural predation, and disease. A discussion on general sea turtle threats can be found in Section 4.1.1.

In addition to general threats, green sea turtles are susceptible to natural mortality from Fibropapillomatosis (FP) disease. FP results in the growth of tumors on soft external tissues (flippers, neck, tail, etc.), the carapace, the eyes, the mouth, and internal organs (gastrointestinal tract, heart, lungs, etc.) of turtles (Aguirre et al. 2002; Herbst 1994; Jacobson et al. 1989). These tumors range in size from 0.04 in (0.1 cm) to greater than 11.81 in (30 cm) in diameter and may affect swimming, vision, feeding, and organ function (Aguirre et al. 2002; Herbst 1994; Jacobson et al. 1989). Presently, scientists are unsure of the exact mechanism causing this disease, though it is believed to be related to both an infectious agent, such as a virus (Herbst et al. 1995), and environmental conditions (e.g., habitat degradation, pollution, low wave energy, and shallow water (Foley et al. 2005). FP is cosmopolitan, but it has been found to affect large numbers of animals in specific areas, including Hawaii and Florida (Herbst 1994; Jacobson 1990; Jacobson et al. 1991).

Cold-stunning is another natural threat to green sea turtles. Although it is not considered a major source of mortality in most cases, as temperatures fall below 46.4°-50°F (8°-10°C) turtles may lose their ability to swim and dive, often floating to the surface. The rate of cooling that precipitates cold-stunning appears to be the primary threat, rather than the water temperature itself (Milton and Lutz 2003). Sea turtles that overwinter in inshore waters are most susceptible to cold-stunning because temperature changes are most rapid in shallow water (Witherington and Ehrhart 1989a). During January 2010, an unusually large cold-stunning event in the southeastern United States resulted in around 4,600 sea turtles, mostly greens, found cold-stunned, and hundreds found dead or dying. A large cold-stunning event occurred in the western Gulf of

Mexico in February 2011, resulting in approximately 1,650 green sea turtles found cold-stunned in Texas. Of these, approximately 620 were found dead or died after stranding, while approximately 1,030 turtles were rehabilitated and released. During this same time frame, approximately 340 green sea turtles were found cold-stunned in Mexico, though approximately 300 of those were subsequently rehabilitated and released.

Whereas oil spill impacts are discussed generally for all species in Section 4.1.1, specific impacts of the DWH spill on green sea turtles are considered here. Impacts to green sea turtles occurred to offshore small juveniles only. A total of 154,000 small juvenile greens (36.6% of the total small juvenile sea turtle exposures to oil from the spill) were estimated to have been exposed to oil. A large number of small juveniles were removed from the population, as 57,300 small juveniles greens are estimated to have died as a result of the exposure. A total of 4 nests (580 eggs) were also translocated during response efforts, with 455 hatchlings released (the fate of which is unknown) (DWH Trustees 2016). Additional unquantified effects may have included inhalation of volatile compounds, disruption of foraging or migratory movements due to surface or subsurface oil, ingestion of prey species contaminated with oil and/or dispersants, and loss of foraging resources, which could lead to compromised growth and/or reproductive potential. There is no information currently available to determine the extent of those impacts, if they occurred.

While green turtles regularly use the northern Gulf of Mexico, they have a widespread distribution throughout the entire Gulf of Mexico, Caribbean, and Atlantic, and the proportion of the population using the northern Gulf of Mexico at any given time is relatively low. Although it is known that adverse impacts occurred and numbers of animals in the Gulf of Mexico were reduced as a result of the DWH oil spill of 2010, the relative proportion of the population that is expected to have been exposed to and directly impacted by the DWH event, as well as the impacts being primarily to smaller juveniles (lower reproductive value than adults and large juveniles), reduces the impact to the overall population. It is unclear what impact these losses may have caused on a population level, but it is not expected to have had a large impact on the population trajectory moving forward. However, recovery of green turtle numbers equivalent to what was lost in the northern Gulf of Mexico as a result of the spill will likely take decades of sustained efforts to reduce the existing threats and enhance survivorship of multiple life stages (DWH Trustees 2016).

4.1.4 Loggerhead Sea Turtle (NWA DPS)

The loggerhead sea turtle was listed as a threatened species throughout its global range on July 28, 1978. We, along with USFWS, published a final rule on September 22, 2011, which designated 9 DPSs for loggerhead sea turtles (76 FR 58868, effective October 24, 2011). This rule listed the following DPSs: 1) NWA (threatened); 2) Northeast Atlantic Ocean (endangered); 3) South Atlantic Ocean (threatened); 4) Mediterranean Sea (endangered); 5) North Pacific Ocean (endangered); 6) South Pacific Ocean (endangered); 7) North Indian Ocean (endangered); 8) Southeast Indo-Pacific Ocean (endangered); and 9) Southwest Indian Ocean (threatened). The

NWA DPS is the only one that occurs within the action area, and therefore it is the only one considered in this Opinion.

Species Description and Distribution

Loggerheads are large sea turtles. Adults in the southeast United States average about 3 ft (92 cm) SCL, and weigh approximately 255 lb (116 kg) (Ehrhart and Yoder 1978). Adult and subadult loggerhead sea turtles typically have a light yellow plastron and a reddish brown carapace covered by non-overlapping scutes that meet along seam lines. They typically have 11 or 12 pairs of marginal scutes, 5 pairs of costals, 5 vertebrals, and a nuchal (precentral) scute that is in contact with the first pair of costal scutes (Dodd Jr. 1988).

The loggerhead sea turtle inhabits continental shelf and estuarine environments throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans (Dodd Jr. 1988). Habitat use within these areas vary by life stage. Juveniles are omnivorous and forage on crabs, mollusks, jellyfish, and vegetation at or near the surface (Dodd Jr. 1988). Subadult and adult loggerheads are primarily found in coastal waters and eat benthic invertebrates such as mollusks and decapod crustaceans in hard bottom habitats.

The majority of loggerhead nesting occurs at the western rims of the Atlantic and Indian Oceans concentrated in the north and south temperate zones and subtropics (NRC 1990). For the NWA DPS, most nesting occurs along the coast of the United States, from southern Virginia to Alabama. Additional nesting beaches for this DPS are found along the northern and western Gulf of Mexico, eastern Yucatán Peninsula, at Cay Sal Bank in the eastern Bahamas (Addison 1997; Addison and Morford 1996), off the southwestern coast of Cuba (Gavilan 2001), and along the coasts of Central America, Colombia, Venezuela, and the eastern Caribbean Islands.

Non-nesting, adult female loggerheads are reported throughout the U.S. Atlantic, Gulf of Mexico, and Caribbean Sea. Little is known about the distribution of adult males who are seasonally abundant near nesting beaches. Aerial surveys suggest that loggerheads as a whole are distributed in U.S. waters as follows: 54% off the southeast U.S. coast, 29% off the northeast U.S. coast, 12% in the eastern Gulf of Mexico, and 5% in the western Gulf of Mexico (TEWG 1998).

Within the NWA DPS, most loggerhead sea turtles nest from North Carolina to Florida and along the Gulf Coast of Florida. Previous Section 7 analyses have recognized at least 5 western Atlantic subpopulations, divided geographically as follows: 1) a Northern nesting subpopulation, occurring from North Carolina to northeast Florida at about 29ºN; 2) a South Florida nesting subpopulation, occurring from 29°N on the east coast of the state to Sarasota on the west coast; 3) a Florida Panhandle nesting subpopulation, occurring at Eglin Air Force Base and the beaches near Panama City, Florida; 4) a Yucatán nesting subpopulation, occurring on the eastern Yucatán Peninsula, Mexico (Márquez M. 1990; TEWG 2000); and 5) a Dry Tortugas nesting subpopulation, occurring in the islands of the Dry Tortugas, near Key West, Florida (NMFS 2001).

The recovery plan for the Northwest Atlantic population of loggerhead sea turtles concluded that there is no genetic distinction between loggerheads nesting on adjacent beaches along the Florida Peninsula. It also concluded that specific boundaries for subpopulations could not be designated based on genetic differences alone. Thus, the recovery plan uses a combination of geographic distribution of nesting densities, geographic separation, and geopolitical boundaries, in addition to genetic differences, to identify recovery units. The recovery units are as follows: 1) the Northern Recovery Unit (Florida/Georgia border north through southern Virginia); 2) the Peninsular Florida Recovery Unit (Florida/Georgia border through Pinellas County, Florida); 3) the Dry Tortugas Recovery Unit (islands located west of Key West, Florida); 4) the Northern Gulf of Mexico Recovery Unit (Franklin County, Florida, through Texas); and 5) the Greater Caribbean Recovery Unit (Mexico through French Guiana, the Bahamas, Lesser Antilles, and Greater Antilles) (NMFS and USFWS 2008). The recovery plan concluded that all recovery units are essential to the recovery of the species. Although the recovery plan was written prior to the listing of the NWA DPS, the recovery units for what was then termed the Northwest Atlantic population apply to the NWA DPS.

Life History Information

The NWA Loggerhead Recovery Team defined the following 8 life stages for the loggerhead life cycle, which include the ecosystems those stages generally use: 1) egg (terrestrial zone); 2) hatchling stage (terrestrial zone); 3) hatchling swim frenzy and transitional stage (neritic zone [neritic refers to the nearshore marine environment from the surface to the sea floor where water depths do not exceed 200 m]); 4) juvenile stage (oceanic zone); 5) juvenile stage (neritic zone); 6) adult stage (oceanic zone); 7) adult stage (neritic zone); and 8) nesting female (terrestrial zone) (NMFS and USFWS 2008). Loggerheads are long-lived animals. They reach sexual maturity between 20-38 years of age, although age of maturity varies widely among populations (Frazer and Ehrhart 1985; NMFS 2001). The annual mating season occurs from late March to early June, and female turtles lay eggs throughout the summer months. Females deposit an average of 4.1 nests within a nesting season (Murphy and Hopkins 1984), but an individual female only nests every 3.7 years on average (Tucker 2010). Each nest contains an average of 100-126 eggs (Dodd Jr. 1988) which incubate for 42-75 days before hatching (NMFS and USFWS 2008). Loggerhead hatchlings are 1.5-2 in long and weigh about 0.7 oz (20 g).

As post-hatchlings, loggerheads hatched on U.S. beaches enter the “oceanic juvenile” life stage, migrating offshore and becoming associated with *Sargassum* habitats, driftlines, and other convergence zones (Carr 1986; Conant et al. 2009; Witherington 2002). Oceanic juveniles grow at rates of 1-2 in (2.9-5.4 cm) per year (Bjorndal et al. 2003; Snover 2002) over a period as long as 7-12 years (Bolten et al. 1998) before moving to more coastal habitats. Studies have suggested that not all loggerhead sea turtles follow the model of circumnavigating the North Atlantic Gyre as pelagic juveniles, followed by permanent settlement into benthic environments (Bolten and Witherington 2003; Laurent et al. 1998). These studies suggest some turtles may either remain in the oceanic habitat in the North Atlantic longer than hypothesized, or they move back and forth between oceanic and coastal habitats interchangeably (Witzell 2002). Stranding records indicate that when immature loggerheads reach 15-24 in (40-60 cm) SCL, they begin to reside in coastal inshore waters of the continental shelf throughout the U.S. Atlantic and Gulf of Mexico (Witzell 2002).

After departing the oceanic zone, neritic juvenile loggerheads in the Northwest Atlantic inhabit continental shelf waters from Cape Cod Bay, Massachusetts, south through Florida, the Bahamas, Cuba, and the Gulf of Mexico. Estuarine waters of the United States, including areas such as Long Island Sound, Chesapeake Bay, Pamlico and Core Sounds, Mosquito and Indian River Lagoons, Biscayne Bay, Florida Bay, as well as numerous embayments fringing the Gulf of Mexico, comprise important inshore habitat. Along the Atlantic and Gulf of Mexico shoreline, essentially all shelf waters are inhabited by loggerheads (Conant et al. 2009).

Like juveniles, non-nesting adult loggerheads also use the neritic zone. However, these adult loggerheads do not use the relatively enclosed shallow-water estuarine habitats with limited ocean access as frequently as juveniles. Areas such as Pamlico Sound, North Carolina, and Indian River Lagoon, Florida, are regularly used by juveniles but not by adult loggerheads. Adult loggerheads do tend to use estuarine areas with more open ocean access, such as the Chesapeake Bay in the U.S. mid-Atlantic. Shallow-water habitats with large expanses of open ocean access, such as Florida Bay, provide year-round resident foraging areas for significant numbers of male and female adult loggerheads (Conant et al. 2009).

Offshore, adults primarily inhabit continental shelf waters, from New York south through Florida, The Bahamas, Cuba, and the Gulf of Mexico. Seasonal use of mid-Atlantic shelf waters, especially offshore New Jersey, Delaware, and Virginia during summer months, and offshore shelf waters, such as Onslow Bay (off the North Carolina coast), during winter months has also been documented (Hawkes et al. 2007; Georgia Department of Natural Resources [GADNR], unpublished data; South Carolina Department of Natural Resources [SCDNR], unpublished data). Satellite telemetry has identified the shelf waters along the west Florida coast, the Bahamas, Cuba, and the Yucatán Peninsula as important resident areas for adult female loggerheads that nest in Florida (Foley et al. 2008; Girard et al. 2009; Hart et al. 2012). The southern edge of the Grand Bahama Bank is important habitat for loggerheads nesting on the Cay Sal Bank in the Bahamas, but nesting females are also resident in the bights of Eleuthera, Long Island, and Ragged Islands. They also reside in Florida Bay in the United States, and along the north coast of Cuba (A. Bolten and K. Bjorndal, University of Florida, unpublished data). Moncada et al. (2010) report the recapture of 5 adult female loggerheads in Cuban waters originally flipper-tagged in Quintana Roo, Mexico, which indicates that Cuban shelf waters likely also provide foraging habitat for adult females that nest in Mexico.

Status and Population Dynamics

A number of stock assessments and similar reviews (Conant et al. 2009; Heppell et al. 2003; NMFS 2009; NMFS 2001; NMFS and USFWS 2008; TEWG 1998; TEWG 2000; TEWG 2009) have examined the stock status of loggerheads in the Atlantic Ocean, but none have been able to develop a reliable estimate of absolute population size.

Numbers of nests and nesting females can vary widely from year to year. Nesting beach surveys, though, can provide a reliable assessment of trends in the adult female population, due to the strong nest site fidelity of female loggerhead sea turtles, as long as such studies are sufficiently long and survey effort and methods are standardized (e.g., NMFS and USFWS 2008). NMFS and USFWS (2008) concluded that the lack of change in 2 important demographic parameters of loggerheads, remigration interval and clutch frequency, indicate that time series on numbers of nests can provide reliable information on trends in the female population.

Peninsular Florida Recovery Unit

The PFRU is the largest loggerhead nesting assemblage in the Northwest Atlantic. A near-complete nest census (all beaches including index nesting beaches) undertaken from 1989 to 2007 showed an average of 64,513 loggerhead nests per year, representing approximately 15,735 nesting females per year (NMFS and USFWS 2008). The statewide estimated total for 2020 was 105,164 nests (FWRI nesting database).

In addition to the total nest count estimates, FWRI uses an index nesting beach survey method. The index survey uses standardized data-collection criteria to measure seasonal nesting and allow accurate comparisons between beaches and between years. This provides a better tool for understanding the nesting trends (Figure 6). FWRI performed a detailed analysis of the long-term loggerhead index nesting data (1989-2017; http://myfwc.com/research/wildlife/sea-turtles/nesting/loggerhead-trend/). Over that time period, 3 distinct trends were identified. From 1989-1998, there was a 24% increase that was followed by a sharp decline over the subsequent 9 years. A large increase in loggerhead nesting has occurred since, as indicated by the 71% increase in nesting over the 10-year period from 2007 and 2016. Nesting in 2016 also represented a new record for loggerheads on the core index beaches. While nest numbers subsequently declined from the 2016 high FWRI noted that the 2007-2021 period represents a period of increase. FWRI examined the trend from the 1998 nesting high through 2016 and found that the decade-long post-1998 decline was replaced with a slight but nonsignificant increasing trend. Looking at the data from 1989 through 2016, FWRI concluded that there was an overall positive change in the nest counts although it was not statistically significant due to the wide variability between 2012-2016 resulting in widening confidence intervals. Nesting at the core index beaches declined in 2017 to 48,033, and rose again each year through 2020, reaching 53,443 nests before dipping back to 49,100 in 2021. It is important to note that with the wide confidence intervals and uncertainty around the variability in nesting parameters (changes and variability in nests/female, nesting intervals, etc.) it is unclear whether the nesting trend equates to an increase in the population or nesting females over that time frame (Ceriani et al. 2019).

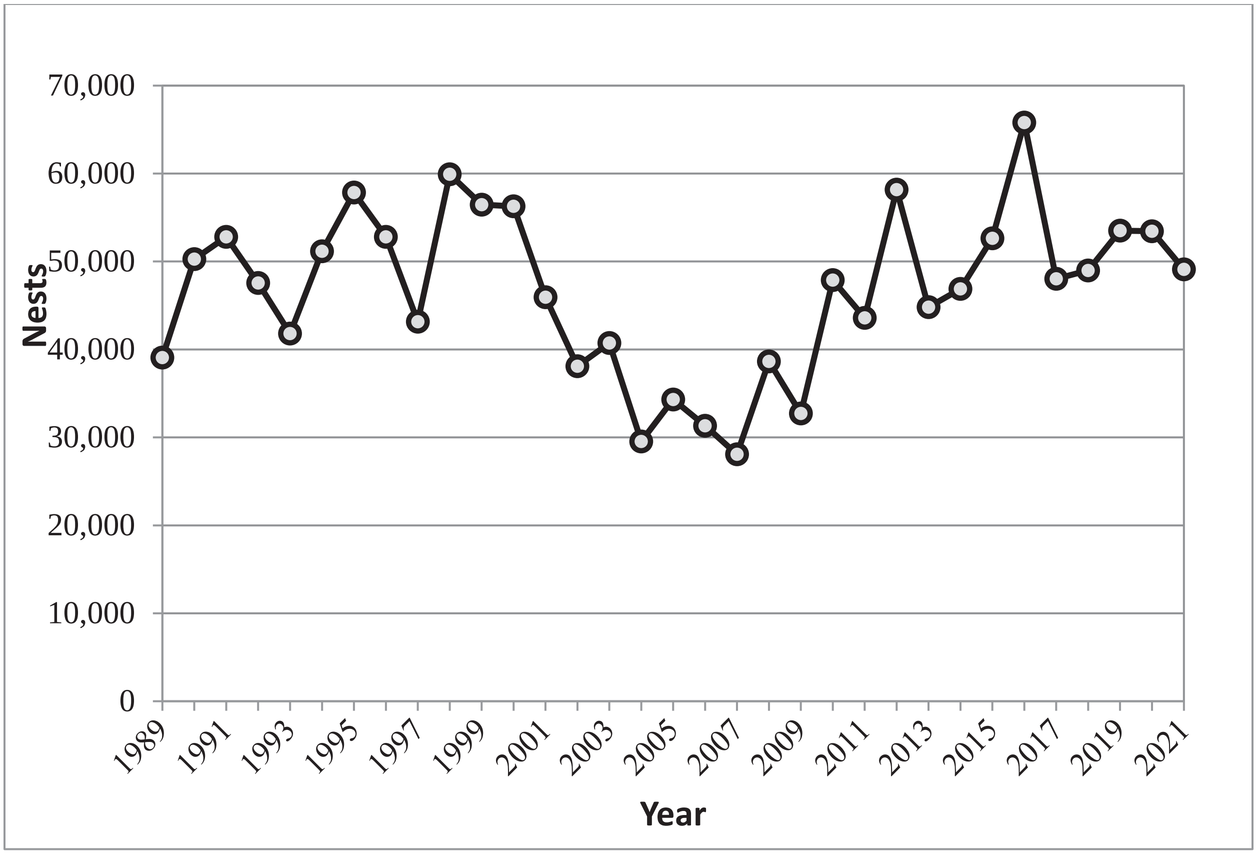


Figure 6. Loggerhead sea turtle nesting at Florida index beaches since 1989.

<u>Northern Recovery Unit</u>
Annual nest totals from beaches within the NRU averaged 5,215 nests from 1989-2008, a period of near-complete surveys of NRU nesting beaches (GADNR unpublished data, NCWRC unpublished data, SCDNR unpublished data), and represent approximately 1,272 nesting females per year, assuming 4.1 nests per female (Murphy and Hopkins 1984). The loggerhead nesting trend from daily beach surveys showed a significant decline of 1.3% annually from 1989-2008. Nest totals from aerial surveys conducted by SCDNR showed a 1.9% annual decline in nesting in South Carolina from 1980-2008. Overall, there are strong statistical data to suggest the NRU had experienced a long-term decline over that period of time.

Data since that analysis (Table 4) are showing improved nesting numbers and a departure from the declining trend. Georgia nesting has rebounded to show the first statistically significant increasing trend since comprehensive nesting surveys began in 1989 (Mark Dodd, GADNR press release, http://www.georgiawildlife.com/node/3139). South Carolina and North Carolina nesting have also begun to shift away from the past declining trend. Loggerhead nesting in Georgia, South Carolina, and North Carolina all broke records in 2015 and then topped those records again in 2016. Nesting in 2017 and 2018 declined relative to 2016, back to levels seen in 2013 to 2015, but then bounced back in 2019, breaking records for each of the 3 states and the overall recovery unit. Nesting in 2020 and 2021 declined from the 2019 records, but still remained high, representing the third and fourth highest total numbers for the NRU since 2008.

Table 4. Total Number of NRU Loggerhead Nests (GADNR, SCDNR, and NCWRC nesting datasets compiled at Seaturtle.org).

Nests Recorded				
Year	**Georgia**	**South Carolina**	**North Carolina**	**Totals**
2008	1,649	4,500	841	**6,990**
2009	998	2,182	302	**3,472**
2010	1,760	3,141	856	**5,757**
2011	1,992	4,015	950	**6,957**
2012	2,241	4,615	1,074	**7,930**
2013	2,289	5,193	1,260	**8,742**
2014	1,196	2,083	542	**3,821**
2015	2,319	5,104	1,254	**8,677**
2016	3,265	6,443	1,612	**11,320**
2017	2,155	5,232	1,195	**8,582**
2018	1,735	2,762	765	**5,262**
2019	3,945	8,774	2,291	**15,010**
2020	2,786	5,551	1,335	**9,672**
2021	2,493	5,639	1,448	**9,580**

South Carolina also conducts an index beach nesting survey similar to the one described for Florida. Although the survey only includes a subset of nesting, the standardized effort and locations allow for a better representation of the nesting trend over time. Increases in nesting were seen for the period from 2009-2013, with a subsequent steep drop in 2014. Nesting then rebounded in 2015 and 2016, setting new highs each of those years. Nesting in 2017 dropped back down from the 2016 high, but was still the second highest on record. After another drop in 2018, a new record was set for the 2019 season, with a return to 2016 levels in 2020 and 2021 (Figure 7).

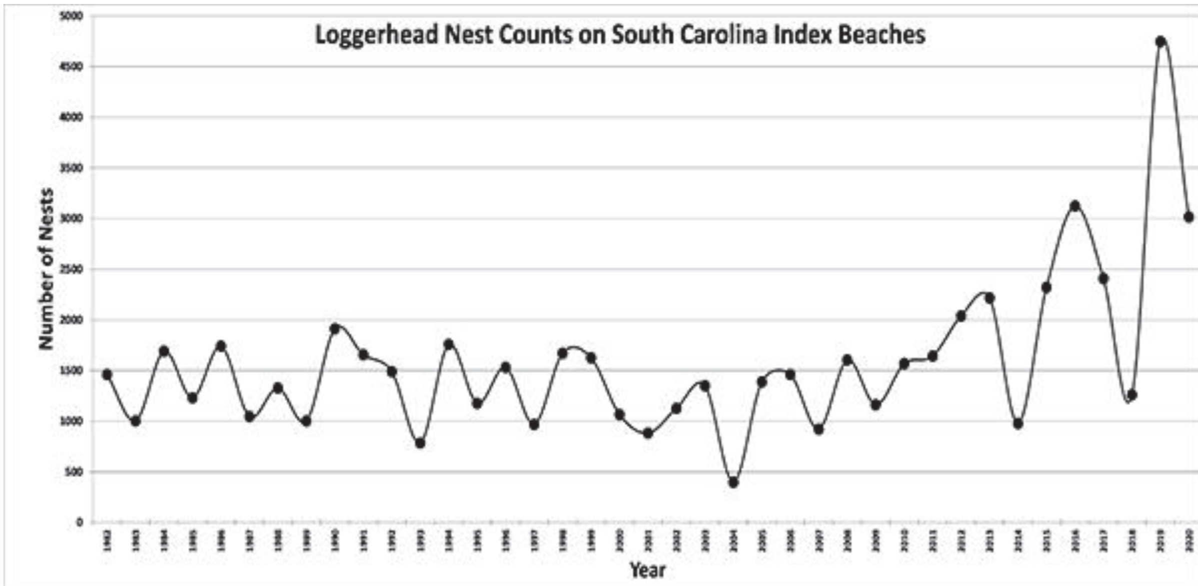


Figure 7. South Carolina index nesting beach counts for loggerhead sea turtles (from the SCDNR website: http://www.dnr.sc.gov/seaturtle/ibs.htm).

<u>Other NWA DPS Recovery Units</u>

The remaining 3 recovery units—(DTRU, NGMRU, and GCRU—are much smaller nesting assemblages, but they are still considered essential to the continued existence of the species. Nesting surveys for the DTRU are conducted as part of Florida's statewide survey program. Survey effort was relatively stable during the 9-year period from 1995-2004, although the 2002 year was missed. Nest counts ranged from 168-270, with a mean of 246, but there was no detectable trend during this period (NMFS and USFWS 2008). Nest counts for the NGMRU are focused on index beaches rather than all beaches where nesting occurs. Analysis of the 12-year dataset (1997-2008) of index nesting beaches in the area shows a statistically significant declining trend of 4.7% annually. Nesting on the Florida Panhandle index beaches, which represents the majority of NGMRU nesting, had shown a large increase in 2008, but then declined again in 2009 and 2010 before rising back to a level similar to the 2003-2007 average in 2011. From 1989-2018 the average number of NGMRU nests annually on index beaches was 169 nests, with an average of 1,100 counted in the statewide nesting counts (Ceriani et al. 2019). Nesting survey effort has been inconsistent among the GCRU nesting beaches, and no trend can be determined for this subpopulation (NMFS and USFWS 2008). Zurita et al. (2003) found a statistically significant increase in the number of nests on 7 of the beaches on Quintana Roo, Mexico, from 1987-2001, where survey effort was consistent during the period. Nonetheless, nesting has declined since 2001, and the previously reported increasing trend appears to not have been sustained (NMFS and USFWS 2008).

In-water Trends

Nesting data are the best current indicator of sea turtle population trends, but in-water data also provide some insight. In-water research suggests the abundance of neritic juvenile loggerheads is steady or increasing. Although Ehrhart et al. (2007) found no significant regression-line trend in a long-term dataset, researchers have observed notable increases in CPUE (Arendt et al. 2009; Ehrhart et al. 2007; Epperly et al. 2007). Researchers believe that this increase in CPUE is likely linked to an increase in juvenile abundance, although it is unclear whether this increase in abundance represents a true population increase among juveniles or merely a shift in spatial occurrence. Bjorndal et al. (2005), cited in NMFS and USFWS (2008), caution about extrapolating localized in-water trends to the broader population and relating localized trends in neritic sites to population trends at nesting beaches. The apparent overall increase in the abundance of neritic loggerheads in the southeastern United States may be due to increased abundance of the largest oceanic/neritic juveniles (historically referred to as small benthic juveniles), which could indicate a relatively large number of individuals around the same age may mature in the near future (TEWG 2009). In-water studies throughout the eastern United States, however, indicate a substantial decrease in the abundance of the smallest oceanic/neritic juvenile loggerheads, a pattern corroborated by stranding data (TEWG 2009).

Population Estimate
Our SEFSC developed a preliminary stage/age demographic model to help determine the estimated impacts of mortality reductions on loggerhead sea turtle population dynamics (NMFS 2009). The model uses the range of published information for the various parameters including mortality by stage, stage duration (years in a stage), and fecundity parameters such as eggs per nest, nests per nesting female, hatchling emergence success, sex ratio, and remigration interval. Resulting trajectories of model runs for each individual recovery unit, and the western North Atlantic population as a whole, were found to be very similar. The model run estimates from the adult female population size for the western North Atlantic (from the 2004-2008 time frame), suggest the adult female population size is approximately 20,000-40,000 individuals, with a low likelihood of females' numbering up to 70,000 (NMFS 2009). A less robust estimate for total benthic females in the western North Atlantic was also obtained, yielding approximately 30,000-300,000 individuals, up to less than 1 million (NMFS 2009). A preliminary regional abundance survey of loggerheads within the northwestern Atlantic continental shelf for positively identified loggerhead in all strata estimated about 588,000 loggerheads (interquartile range of 382,000-817,000). When correcting for unidentified turtles in proportion to the ratio of identified turtles, the estimate increased to about 801,000 loggerheads (interquartile range of 521,000-1,111,000) (NMFS 2011).

Threats
The threats faced by loggerhead sea turtles are well summarized in the general discussion of threats in Section 4.1.1. Yet the impact of fishery interactions is a point of further emphasis for this species. The joint Loggerhead Biological Review Team determined that the greatest threats to the NWA DPS of loggerheads result from cumulative fishery bycatch in neritic and oceanic habitats (Conant et al. 2009).

Regarding the impacts of pollution, loggerheads may be particularly affected by organochlorine contaminants; they have the highest organochlorine concentrations (Storelli et al. 2008) and metal loads (D'Ilio et al. 2011) in sampled tissues among the sea turtle species. It is thought that dietary preferences were likely to be the main differentiating factor among sea turtle species. Storelli et al. (2008) analyzed tissues from stranded loggerhead sea turtles and found that mercury accumulates in sea turtle livers while cadmium accumulates in their kidneys, as has been reported for other marine organisms like dolphins, seals, and porpoises (Law et al. 1991).

While oil spill impacts are discussed generally for all species in Section 4.1.1, specific impacts of the DWH oil spill event on loggerhead sea turtles are considered here. Impacts to loggerhead sea turtles occurred to offshore small juveniles as well as large juveniles and adults. A total of 30,800 small juvenile loggerheads (7.3% of the total small juvenile sea turtle exposures to oil from the spill) were estimated to have been exposed to oil. Of those exposed, 10,700 small juveniles are estimated to have died as a result of the exposure. In contrast to small juveniles, loggerheads represented a large proportion of the adults and large juveniles exposed to and killed by the oil. There were 30,000 exposures (almost 52% of all exposures for those age/size classes) and 3,600 estimated mortalities. A total of 265 nests (27,618 eggs) were also translocated during response efforts, with 14,216 hatchlings released, the fate of which is unknown (DWH Trustees 2016). Additional unquantified effects may have included inhalation of volatile compounds, disruption of foraging or migratory movements due to surface or subsurface oil, ingestion of prey species contaminated with oil and/or dispersants, and loss of foraging resources that could lead to compromised growth and/or reproductive potential. There is no information currently available to determine the extent of those impacts, if they occurred.

Unlike Kemp’s ridleys, the majority of nesting for the NWA DPS occurs on the Atlantic coast and, thus, loggerheads were impacted to a relatively lesser degree. However, it is likely that impacts to the NGMRU of the NWA DPS would be proportionally much greater than the impacts occurring to other recovery units. Impacts to nesting and oiling effects on a large proportion of the NGMRU recovery unit, especially mating and nesting adults likely had an impact on the NGMRU. Based on the response injury evaluations for Florida Panhandle and Alabama nesting beaches (which fall under the NFMRU), the DWH Trustees (2016) estimated that approximately 20,000 loggerhead hatchlings were lost due to DWH oil spill response activities on nesting beaches. Although the long-term effects remain unknown, the DWH oil spill event impacts to the Northern Gulf of Mexico Recovery Unit may result in some nesting declines in the future due to a large reduction of oceanic age classes during the DWH oil spill event. Although adverse impacts occurred to loggerheads, the proportion of the population that is expected to have been exposed to and directly impacted by the DWH oil spill event is relatively low. Thus, we do not believe a population-level impact occurred due to the widespread distribution and nesting location outside of the Gulf of Mexico for this species.

Specific information regarding potential climate change impacts on loggerheads is also available. Modeling suggests an increase of 2°C in air temperature would result in a sex ratio of over 80% female offspring for loggerheads nesting near Southport, North Carolina. The same increase in air temperatures at nesting beaches in Cape Canaveral, Florida, would result in close to 100% female offspring. Such highly skewed sex ratios could undermine the reproductive capacity of the species. More ominously, an air temperature increase of 3°C is likely to exceed the thermal threshold of most nests, leading to egg mortality (Hawkes et al. 2007). Warmer sea surface temperatures have also been correlated with an earlier onset of loggerhead nesting in the spring (Hawkes et al. 2007; Weishampel et al. 2004), short inter-nesting intervals (Hays et al. 2002), and shorter nesting seasons (Pike et al. 2006). We expect these issues may affect other sea turtle species similarly.

4.2 Giant Manta Ray

We listed the giant manta ray (*Manta birostris*) as threatened under the ESA (83 FR 2916, January 22, 2018) and determined that the designation of critical habitat is not prudent on (84 FR 66652, December 5, 2019). On December 4, 2019, we published a recovery outline for the giant manta ray (NMFS 2019b), which serves as an interim guidance to direct recovery efforts for giant manta ray.

Species Description and Distribution
The giant manta ray is the largest living ray, with a wingspan reaching a width of up to 7 m (23 ft), and an average size between 4-5 m (15-16.5 ft). The giant manta ray is recognized by its large diamond-shaped body with elongated wing-like pectoral fins, ventrally placed gill slits, laterally placed eyes, and wide terminal mouth. In front of the mouth, it has 2 structures called cephalic lobes that extend and help to introduce water into the mouth for feeding activities (making them the only vertebrate animals with 3 paired appendages). Giant manta rays have 2 distinct color types: chevron (mostly black back dorsal side and white ventral side) and black (almost completely black on both ventral and dorsal sides). Most of the chevron variants have a black dorsal surface and a white ventral surface with distinct patterns on the underside that can be used to identify individuals (Miller and Klimovich 2017). There are bright white shoulder markings on the dorsal side that form 2 mirror image right-angle triangles, creating a T-shape on the upper shoulders.

The giant manta ray is found worldwide in tropical and subtropical oceans and in productive coastal areas. In terms of range, within the Northern hemisphere, the species has been documented as far north as southern California and New Jersey on the United States west and east coasts, respectively, and Mutsu Bay, Aomori, Japan, the Sinai Peninsula and Arabian Sea, Egypt, and the Azores Islands (CITES 2013; Gudger 1922; Kashiwagi et al. 2010; Moore 2012). In the Southern Hemisphere, the species occurs as far south as Peru, Uruguay, South Africa, New Zealand and French Polynesia (CITES 2013; Mourier 2012). Within this range, the giant manta ray inhabits tropical, subtropical, and temperate bodies of water and is commonly found offshore, in oceanic waters, and near productive coastlines (Figure 8) (Kashiwagi et al. 2011; Marshall et al. 2009), as may occasionally occur within estuaries (e.g., lagoons and bays).

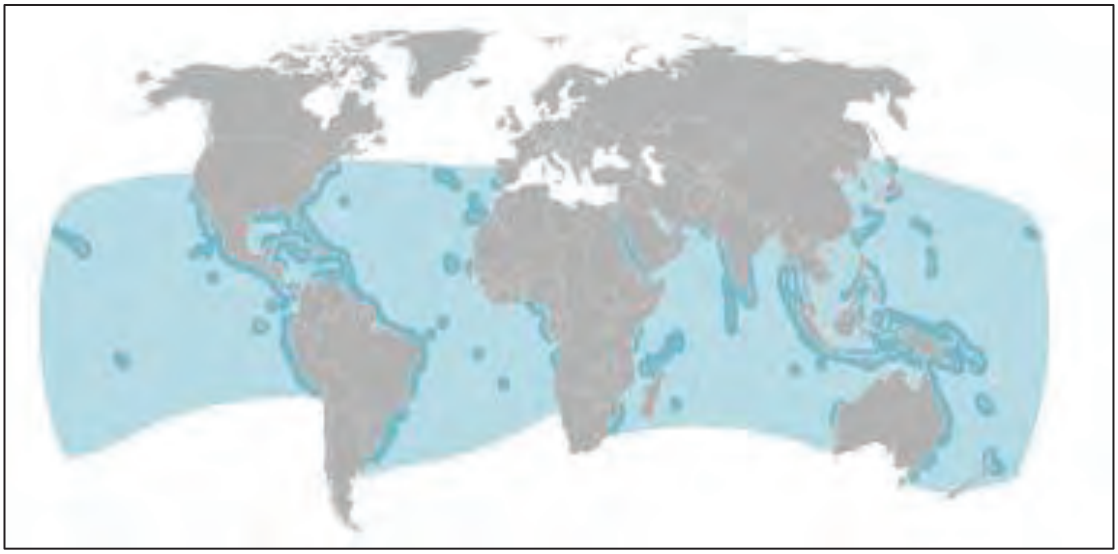


Figure 8. The Extent of Occurrence (dark blue) and Area of Occupancy (light blue) based on species distribution (Lawson et al. 2017).

Life History Information

Giant manta rays make seasonal long-distance migrations, aggregate in certain areas and remain resident, or aggregate seasonally (Dewar et al. 2008; Girondot et al. 2015; Graham et al. 2012; Stewart et al. 2016). The giant manta ray is a seasonal visitor along productive coastlines with regular upwelling, in oceanic island groups, and at offshore pinnacles and seamounts. The timing of these visits varies by region and seems to correspond with the movement of zooplankton, current circulation and tidal patterns, seasonal upwelling, seawater temperature, and possibly mating behavior. They have also been observed in estuarine waters inlets, with use of these waters as potential nursery grounds (J. Pate, Florida Manta Project, unpublished data; Adams and Amesbury 1998; Medeiros et al. 2015; Milessi and Oddone 2003).

Giant manta rays are known to aggregate in various locations around the world in groups usually ranging from 100-1,000 (Graham et al. 2012; Notarbartolo di Sciara and Hillyer 1989; Venables 2013). These aggregation locations function as feeding sites, cleaning stations, or sites where courtship interactions take place (Graham et al. 2012; Heinrichs et al. 2011; Venables 2013). The appearance of giant manta rays in these locations is generally predictable. For example, food availability due to high productivity events tends to play a significant role in feeding site aggregations (Heinrichs et al. 2011; Notarbartolo di Sciara and Hillyer 1989). Giant manta rays have also been shown to return to a preferred site of feeding or cleaning over extended periods of time (Dewar et al. 2008; Graham et al. 2012; Medeiros et al. 2015). In addition, giant and reef manta rays in Keauhou and Hoona Bays in Hawaii, appear to exhibit learned behavior. These manta rays learned to associate artificially lighting with high plankton concertation (primary food source) and shifted foraging strategies to include sites that had artificially lighting at night (Clark 2010). While little is known about giant manta ray aggregation sites, the Flower Garden Banks National Marine Sanctuary and the surrounding region might represent the first documented nursery habitat for giant manta ray (Stewart et al. 2018). Stewart et al. (2018) found the Flower Garden Banks National Marine Sanctuary provides nursery habitat for juvenile giant manta rays because small age classes have been observed consistently across years at both the population and individual level. The Flower Garden Banks National Marine Sanctuary may be an optimal nursery ground because of its location near the edge of the continental shelf and proximity to abundant pelagic food resources. In addition, small juveniles are frequently observed along a portion of Florida's east coast, indicating that this area may also function as a nursery ground for juvenile giant manta rays. Since directed visual surveys began in 2016, juvenile giant manta rays are regularly observed in the shallow waters (less than 5 m depth) from Jupiter Inlet to Boynton Beach Inlet (J Pate, Florida Manta Project, unpublished data). However, the extent of this purported nursery ground is unknown as the survey area is limited to a relatively narrow geographic area along Florida's southeast coast.

The giant manta ray appears to exhibit a high degree of plasticity in terms of its use of depths within its habitat. Tagging studies have shown that the giant manta rays conduct night descents from 200-450 m depths (Rubin et al. 2008; Stewart et al. 2016) and are capable of diving to depths exceeding 1,000 m (A. Marshall et al., unpublished data 2011, cited in Marshall et al. 2011). Stewart et al. (2016) found diving behavior may be influenced by season, and more specifically, shifts in prey location associated with the thermocline, with tagged giant manta rays (n=4) observed spending a greater proportion of time at the surface from April to June and in deeper waters from August to September. Overall, studies indicate that giant manta rays have a more complex depth profile of their foraging habitat than previously thought, and may actually be supplementing their diet with the observed opportunistic feeding in near-surface waters (Burgess et al. 2016; Couturier et al. 2013).

Giant manta rays primarily feed on planktonic organisms such as euphausiids, copepods, mysids, decapod larvae and shrimp, but some studies have noted their consumption of small and moderately sized fishes (Miller and Klimovich 2017). Based on field observations it was previously assumed that giant manta rays feed predominantly during the day on surface zooplankton, however, results from recent studies (Burgess et al. 2016; Couturier et al. 2013) indicate that these feeding events are not an important source of the dietary intake. When feeding, giant manta rays hold their cephalic lobes in an "O" shape and open their mouth wide, which creates a funnel that pushes water and prey through their mouth and over their gill rakers. They use many different types of feeding strategies, such as barrel rolling (doing somersaults repeatedly) and creating feeding chains with other mantas to maximize prey intake.

The giant manta ray is viviparous (i.e., gives birth to live young). They are slow to mature and have very low fecundity and typically give birth to only one pup every 2 to 3 years. Gestation lasts approximately 10-14 months. Females are only able to produce between 5 and 15 pups in a lifetime (CITES 2013; Miller and Klimovich 2017). The giant manta ray has one of the lowest maximum population growth rates of all elasmobranchs (Dulvy et al. 2014; Miller and Klimovich 2017). The giant manta ray's generation time (based on *M. alfredi* life history parameters) is estimated to be 25 years (Miller and Klimovich 2017).

Although giant manta rays have been reported to live at least 40 years, not much is known about their growth and development. Maturity is thought to occur between 8-10 years of age (Miller and Klimovich 2017). Males are estimated to mature at around 3.8 m disc width (slightly smaller than females) and females at 4.5 m disc width (Rambahiniarison et al. 2018).

Status and Population Dynamics

There are no current or historical estimates of global abundance of giant manta rays, with most estimates of subpopulations based on anecdotal observations. CITES (2013) found that only 10 populations of giant manta rays had been actively studied, 25 other aggregations have been anecdotally identified, all other sightings are rare, and the total global population may be small. Subpopulation abundance estimates range between 42 and 1,500 individuals, but are anecdotal and subject to bias (Miller and Klimovich 2017). The largest subpopulations and records of individuals come from the Indo-Pacific and eastern Pacific. Ecuador is thought to be home to the largest identified population (n=1,500) of giant manta rays in the world, with large aggregation sites within the waters of the Machalilla National Park and the Galapagos Marine Reserve (Hearn et al. 2014). Within the Indian Ocean, numbers of giant manta rays identified through citizen science in Thailand's waters (primarily on the west coast, off Khao Lak and Koh Lanta) was 288 in 2016. These numbers reportedly surpass the estimate of identified giant mantas in Mozambique (n=254), possibly indicating that Thailand may be home to the largest aggregation of giant manta rays within the Indian Ocean (Marshall and Holmberg 2016). Miller and Klimovich (2017) concluded that giant manta rays are at risk throughout a significant portion of their range, due in large part to the observed declines in the Indo-Pacific. There have been decreases in landings of up to 95% in the Indo-Pacific, although similar declines have not been observed in areas with other subpopulations, such as Mozambique and Ecuador. In the U.S. Atlantic and Caribbean, giant manta ray sightings are concentrated along the east coast as far north as New Jersey, within the Gulf of Mexico, and off the coasts of the U.S. Virgin Islands and Puerto Rico. Because most sightings of the species have been opportunistic during other surveys, researchers are still unsure what attracts giant manta rays to certain areas and not others and where they go for the remainder of the time (84 FR 66652, December 5, 2019).

The available sightings data indicate that giant manta rays occur regularly along Florida's east coast. In 2010, Georgia Aquarium began conducting aerial surveys for giant manta rays. The surveys are conducted in spring and summer and run from the beach parallel to the shoreline (0-2.5 nm), from St. Augustine Beach Pier to Flagler Beach Pier, Florida. The numbers, location, and peak timing of the manta rays to this area varies by year (H. Webb unpublished data). In addition, off southeast Florida, juvenile giant manta rays have also been regularly observed in inshore waters. Since 2016, researchers with the MMF have been conducting annual surveys along a small transect off Palm Beach, Florida, between Jupiter Inlet and Boynton Beach Inlet (~44 km, 24 nm) (J. Pate, MMF, pers. comm. to M. Miller, NMFS OPR, 2018). Results from these surveys indicate that juvenile manta rays are present in these waters for the majority of the year (observations span from May to December), with re-sightings data that suggest some manta rays may remain in the area for extended periods of time or return in subsequent years (J. Pate unpublished data). In the Gulf of Mexico, within the Flower Garden Banks National Marine

Sanctuary, 95 unique individuals have been recorded between 1982 and 2017 (Stewart et al. 2018).

Threats

The giant manta ray faces many threats, including fisheries interactions, environmental contaminants (microplastics, marine debris, petroleum products, etc.), vessel strikes, entanglement, and global climate change. Overall, the predictable nature of their appearances, combined with slow swimming speed, large size, and lack of fear towards humans, may increase their vulnerability to threats (Convention on Migratory Species 2014; O'Malley et al. 2013). The ESA status review determined that the greatest threat to the species results from fisheries-related mortality (Miller and Klimovich 2017; 83 FR 2916, January 22, 2018).

Commercial harvest and incidental bycatch in fisheries is cited as the primary cause for the decline in the giant manta ray and threat to future recovery (Miller and Klimovich 2017). We anticipate that these threats will continue to affect the rate of recovery of the giant manta ray. Worldwide giant manta ray catches have been recorded in at least 30 large and small-scale fisheries covering 25 countries (Lawson et al. 2016). Demand for the gills of giant manta rays and other mobula rays has risen dramatically in Asian markets. With this expansion of the international gill raker market and increasing demand for manta ray products, estimated harvest of giant manta rays, particularly in many portions of the Indo-Pacific, frequently exceeds numbers of identified individuals in those areas and are accompanied by observed declines in sightings and landings of the species of up to 95% (Miller and Klimovich 2017). In the Indian Ocean, manta rays (primarily giant manta rays) are mainly caught as bycatch in purse seine and gillnet fisheries (Oliver et al. 2015). In the western Indian Ocean, data from the pelagic tuna purse seine fishery suggests that giant manta and mobula rays, together, are an insignificant portion of the bycatch, comprising less than 1% of the total non-tuna bycatch per year (Chassot et al. 2008; Romanov 2002). In the U.S., bycatch of giant manta rays has been recorded in the coastal migratory pelagic gillnet, gulf reef fish bottom longline, Atlantic shark gillnet, pelagic longline, pelagic bottom longline, and trawl fisheries. Incidental capture of giant manta ray is also a rare occurrence in the elasmobranch catch within U.S. Atlantic and Gulf of Mexico, with the majority that are caught released alive. In addition to directed harvest and bycatch in commercial fisheries, the giant manta ray is incidentally captured by recreational fishers using vertical line (i.e., handline, bandit gear, and rod-and-reel). Researchers frequently report giant manta rays having evidence of recreational gear interactions along the east coast of Florida (e.g., manta rays with embedded fishing hooks and trailing monofilament line) (J. Pate, Florida Manta Project, unpublished data). Internet searches also document recreational interactions with giant manta rays. For example, recreational fishers will search for giant manta rays while targeting cobia, as cobia often accompany giant manta rays (anglers will cast at manta rays in an effort to hook cobia). In addition, giant manta rays are commonly observed swimming near or underneath public fishing piers where they may become foul-hooked. The current threat of mortality associated with recreational fisheries is expected to be low, given that we have no reports of recreational fishers retaining giant manta ray. However, bycatch in recreational fisheries remains a potential threat to the species.

Vessel strikes can injure or kill giant manta rays, decreasing fitness or contributing to non-natural mortality (Couturier et al. 2012; Deakos et al. 2011). Giant manta rays do not surface to breath, but they can spend considerable time in surface waters, while basking and feeding, where they are more susceptible to vessel strikes (McGregor et al. 2019). They show little fear toward vessels, which can also make them extremely vulnerable to vessel strikes (Deakos 2010; C. Horn. NMFS, personal observation). Five giant manta rays were reported to have been struck by vessels from 2016 through 2018; individuals had injuries (i.e., fresh or healed dorsal surface propeller scars) consistent with a vessel strike. These interactions were observed by researchers conducting surveys from Boynton Beach to Jupiter, Florida (J. Pate, Florida Manta Project, unpublished data). The giant manta ray is frequently observed in nearshore coastal waters and feeding within and around inlets. As vessel traffic is concentrated in and around inlets and nearshore waters, this overlap exposes the giant manta ray in these locations to an increased likelihood of potential vessel strike. Yet, few instances of confirmed or suspected mortalities of giant manta ray attributed to vessel strike injury (i.e., via strandings) have been documented. This lack of documented mortalities could also be the result of other factors that influence carcass detection (e.g., wind, currents, scavenging, decomposition etc.). In addition, manta rays appear to be able to heal from wounds very quickly, while high wound healing capacity is likely to be beneficial for their long-term survival, the fitness cost of injuries and number vessel strikes occurring may be masked (McGregory et al. 2019).

Filter-feeding megafauna are particularly susceptible to high levels of microplastic ingestion and exposure to associated toxins due to their feeding strategies, target prey, and, for most, habitat overlap with microplastic pollution hotspots (Germanov et al. 2019). Giant manta rays are filter feeders, and, therefore can ingest microplastics directly from polluted water or indirectly through-contaminated planktonic prey (Miller and Klimovich 2017). The effects of ingesting indigestible particles include blocking adequate nutrient absorption and causing mechanical damage to the digestive tract. Microplastics can also harbor high levels of toxins and persistent organic pollutants, and introduce these toxins to organisms via ingestion. These toxins can bioaccumulate over decades in long-lived filter feeders, leading to a disruption of biological processes (e.g., endocrine disruption), and potentially altering reproductive fitness (Germanov et al. 2019). Jambeck et al. (2015) found that the Western and Indo-Pacific regions are responsible for the majority of plastic waste. These areas also happen to overlap with some of the largest known aggregations of giant manta rays. For example, in Thailand, where recent sightings data have identified over 288 giant manta rays (Marshall and Holmberg 2016), mismanaged plastic waste is estimated to be on the order of 1.03 million tonnes annually, with up to 40% of this entering the marine environment (Jambeck et al. 2015). Approximately 1.6 million tonnes of mismanaged plastic waste is being disposed of in Sri Lanka, again with up to 40% entering the marine environment (Jambeck et al. 2015), potentially polluting the habitat used by the nearby Maldives aggregation of manta rays. While the ingestion of plastics is likely to negatively affect the health of the species, the levels of microplastics in manta ray feeding grounds and frequency of ingestion are presently being studied to evaluate the impact on these species (Germanov et al. 2019).

Mooring and boat anchor line entanglement may also wound giant manta rays or cause them to drown (Deakos et al. 2011; Heinrichs et al. 2011). There are numerous anecdotal reports of giant manta rays becoming entangled in mooring and anchor lines (C. Horn, NMFS, unpublished data), as well as documented interactions encountered by other species of manta rays (C. Horn, NMFS, unpublished data). For example, although a rare occurrence, reef manta rays on occasion entangle themselves in anchor and mooring lines. Deakos (2010) suggested that manta rays become entangled when the line makes contact with the front of the head between the cephalic lobes, the animal's reflex response is to close the cephalic lobes, thereby trapping the rope between the cephalic lobes, entangling the manta ray as the animal begins to roll in an attempt to free itself. In Hawaii, on at least 2 occasions, a reef manta ray was reported to have died after entangling in a mooring line (A. Cummins, pers. comm. 2007, K. Osada, pers. comm. 2009; cited in Deakos 2010). In Maui, Hawaii, Deakos et al. (2011) observed that 1 out of 10 reef manta rays had an amputated or disfigured non-functioning cephalic lobe, likely a result of line entanglement. Mobulid researchers indicate that entanglements may significantly affect the manta rays fitness (Braun et al. 2015; Convention on Migratory Species 2014; Couturier et al. 2012; Deakos et al. 2011; Germanov and Marshall 2014; Heinrichs et al. 2011). However, there is very little quantitative information on the frequency of these occurrences and no information on the impact of these injuries on the overall health of the species.

Because giant manta rays are migratory and considered ecologically flexible (e.g., low habitat specificity), they may be less vulnerable to the impacts of climate change compared to other sharks and rays (Chin et al. 2010). However, as giant manta rays frequently rely on coral reef habitat for important life history functions (e.g., feeding, cleaning) and depend on planktonic food resources for nourishment, both of which are highly sensitive to environmental changes (Brainard et al. 2011; Guinder and Molinero 2013), climate change is likely to have an impact on their distribution and behavior. Coral reef degradation from anthropogenic causes, particularly climate change, is projected to increase through the future. Specifically, annual, globally-averaged surface ocean temperatures are projected to increase by approximately 0.7 °C by 2030 and 1.4 °C by 2060 compared to the 1986-2005 average (IPCC 2013), with the latest climate models predicting annual coral bleaching for almost all reefs by 2050 (Heron et al. 2016). Declines in coral cover have been shown to result in changes in coral reef fish communities (Jones et al. 2004; Graham et al. 2008). Therefore, the projected increase in coral habitat degradation may potentially lead to a decrease in the abundance of fish that clean giant manta rays (e.g., *Labroides* spp., *Thalassoma* spp., and *Chaetodon* spp.) and an overall reduction in the number of cleaning stations available to manta rays within these habitats. Decreased access to cleaning stations may negatively affect the fitness of giant manta rays by hindering their ability to reduce parasitic loads and dead tissue, which could lead to increases in diseases and declines in reproductive fitness and survival rates.

Changes in climate and oceanographic conditions, such as acidification, are also known to affect zooplankton structure (size, composition, and diversity), phenology, and distribution (Guinder and Molinero 2013). As such, the migration paths and locations of both resident and seasonal aggregations of giant manta rays, which depend on these animals for food, may similarly be altered (Couturier et al. 2012). As research to understand the exact impacts of climate change on marine phytoplankton and zooplankton communities is still ongoing, the severity of this threat has yet to be fully determined (Miller and Klimovich 2017).

5 ENVIRONMENTAL BASELINE

This section describes the effects of past and ongoing human and natural factors contributing to the current status of the species, their habitats, and ecosystem within the action area without the additional effects of the proposed action. In the case of ongoing actions, this section includes the effects that may contribute to the projected future status of the species, their habitats, and ecosystem. The environmental baseline describes the species' health based on information available at the time of the consultation.

By regulation, the environmental baseline for an Opinion refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultation, and the impact of State or private actions, which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

Focusing on the impacts of the activities in the action area specifically, allows us to assess the prior experience and state (or condition) of the endangered and threatened individuals that will be exposed to effects from the action under consultation. This is important because, in some states or life history stages, or areas of their ranges, listed individuals will commonly exhibit, or be more susceptible to, adverse responses to stressors than they would be in other states, stages, or areas within their distributions. These localized stress responses or stressed baseline conditions may increase the severity of the adverse effects expected from the proposed action.

5.1 Status of Species within the Action Area

The status of the listed species in the action area, as well as the threats to each of these species, is supported by the species accounts in Section 4. As stated in Section 2.2, the proposed action would occur along the Texas central coast adjacent to Corpus Christi Bay.

5.2 Factors Affecting Listed Species within the Action Area

5.2.1 Federal Actions

We have undertaken a number of Section 7 consultations to address the effects of federally managed fisheries and other federal actions on threatened and endangered species, and when appropriate, has authorized the incidental taking of these species. Each of those consultations sought to minimize the adverse effects of the action on these affected species. The summary below of federal actions and the effects these actions have had on ESA-listed species includes only those federal actions in the action area, which have already concluded or are currently undergoing formal Section 7 consultation.

5.2.1.1 Fisheries

Within the action area, both recreational and commercial fisheries occur in state and federal waters. Globally, 6.4 million tons of fishing gear is lost in the oceans every year (Wilcox et al. 2015). Lost traps and disposed monofilament and other fishing lines are a documented source of mortality in sea turtles due to entanglement that may anchor an animal to the bottom. Materials entangled tightly around a body part may cut into tissues, enable infection, and severely compromise an individual's health (Derraik 2002). Entanglements also make animals more vulnerable to additional threats (e.g., predation and vessel strikes) by restricting agility and swimming speed. The majority of ESA-species that die from entanglement in fishing gear likely sink at sea rather than strand ashore, making it difficult to accurately determine the extent of such mortalities.

Fishery interaction remains a major factor in sea turtle recovery and, frequently, the lack thereof. Wallace et al. (2010) estimated that worldwide, 447,000 sea turtles are killed each year from bycatch in commercial fisheries. In the most recent Opinion on the Southeastern U.S. shrimp fisheries, we estimate 17,010 Kemp's ridley, 4,300 loggerhead, 3,400 green, 10 leatherback, and 10 hawksbill sea turtle mortalities over the next 10 years (NMFS 2021); this includes mortalities resulting from bycatch occurring in both state and federal waters. Although TEDs and other bycatch reduction devices have significantly reduced the level of bycatch to sea turtles and other marine species in U.S. waters, mortality still occurs. Giant manta ray are also caught as bycatch in fisheries.

In addition to commercial bycatch, recreational hook-and-line interactions also occur. Stacy et al. (2020) analyzed Texas sea turtle stranding data and determined evidence of fishing tackle/gear hooking injuries and entanglement in stranded turtles varied by species and stranding zone. For instance, evidence of fishing tackle/gear on stranded turtles were documented in 42.6% of stranded green sea turtles in Zone 20 (which includes Aransas Pass), but only 29.8% in Zone 21 to the south (Stacy et al. 2020). The authors concluded that presence of fishing tackle/gear injuries in stranded turtles was directly correlated to the proximity of inlets. Recreational hook-and-line interactions have also been documented with giant manta ray.

Fisheries in federal waters have been the subject of multiple Section 7 consultations in the action area and beyond. These fisheries include gillnet, longline, other types of hook-and-line gear, trawl gear, and pot fisheries. As described in Section 4 of this Opinion, available information suggests that mobile ESA-listed species can be captured in these gear types when the operation of the gear overlaps with the distribution of the species. For all fisheries for which there is a federal FMP, or for which any federal action has been taken to manage that fishery, impacts have been evaluated under Section 7. Formal Section 7 consultations have been conducted on the following fisheries, occurring at least in part within the action area, found likely to adversely affect threatened and endangered species: Atlantic shark fisheries, coastal migratory pelagic, and Southeast shrimp trawl fisheries. An ITS has been issued for the take in each of these fisheries. None of the Opinions for these fisheries concluded that the fisheries at issue were likely to jeopardize ESA-listed species or adversely modify designated critical habitat. Detailed information regarding the effects of each fishery can be found in the respective Opinions.

5.2.1.2 Federal Dredging Activity

Marine dredging vessels are common within U.S. coastal waters, and construction and maintenance of federal navigation channels and dredging in sand mining sites (borrow areas) have been identified as sources of sea turtle and mortality. Hopper dredges are capable of moving relatively quickly compared to sea turtle swimming speed and can thus overtake, entrain, and kill sea turtles as the suction draghead(s) of the advancing dredge overtakes the resting or swimming turtle. Entrained sea turtles rarely survive.

To reduce take of listed species, relocation trawling may be utilized to capture and move sea turtles. In relocation trawling, a boat equipped with nets precedes the dredge to capture sea turtles and then releases the animals out of the dredge pathway, thus avoiding lethal take. Seasonal in-water work periods, when the species is absent from the project area, also assists in reducing incidental take.

Although the underwater noises from dredge vessels are typically continuous in duration (for periods of days or weeks at a time) and strongest at low frequencies, they are not believed to have any long-term effect on sea turtles. In summary, dredging and disposal to maintain navigation channels, and removal of sediments for beach nourishment occurs frequently and throughout the range of sea turtles annually. This activity has, and continues to, threaten the species.

We originally completed regional Opinions on the impacts of USACE’s hopper-dredging operation in 2003 for operations in the Gulf of Mexico (i.e., GRBO). We revised the GRBO in 2007 (NMFS 2007a), which concluded that: 1) Gulf of Mexico hopper dredging would adversely affect Gulf sturgeon and 4 sea turtle species (i.e., green, hawksbill, Kemp’s ridley, and loggerheads) but would not jeopardize their continued existence; and 2) dredging in the Gulf of Mexico would not adversely affect leatherback sea turtles, smalltooth sawfish, or ESA-listed large whales. An ITS for adversely affected species was issued in this revised Opinion.

The above-listed regional Opinion considers maintenance dredging and sand mining operations. We have produced numerous other "free-standing" Opinions that analyzed the impacts of hopper dredging projects (e.g., navigation channel improvements and beach restoration projects) that did not fall partially or entirely under the scope of actions contemplated by this regional Opinion. Any free-standing Opinion had its own ITS and determined that hopper dredging during the proposed action would not adversely affect any species of sea turtles or other listed species, or destroy or adversely modify critical habitat of any listed species.

5.2.1.3 Federal Vessel Activity

Watercraft are the greatest contributors to overall noise in the sea and have the potential to interact with sea turtles and giant manta ray though direct impacts or propellers. Sound levels and tones produced are generally related to vessel size and speed. Larger vessels generally emit more sound than smaller vessels, and vessels underway with a full load, or those pushing or towing a load, are noisier than unladen vessels. Vessels operating at high speeds have the potential to strike sea turtles and giant manta ray. Potential sources of adverse effects from federal vessel operations in the action area include operations of the Bureau of Ocean Energy Management (BOEM), Federal Energy Regulatory Commission, USCG, NOAA, and USACE.

5.2.1.4 Offshore Energy

Federal and state oil and gas exploration, production, and development are expected to result in some sublethal effects to protected species, including impacts associated with the explosive removal of offshore structures, seismic exploration, marine debris, and oil spills. Many Section 7 consultations have been completed on BOEM oil and gas lease activities. Until 2002, these Opinions concluded only 1 sea turtle take may occur annually due to vessel strikes. Through the Section 7 process, where applicable, we have and will continue to establish conservation measures for all these agency vessel operations to avoid or minimize adverse effects to listed species. Subsequent Opinions (e.g., NMFS 2007b) have concluded that sea turtle takes may also result from marine debris and oil spills.

5.2.1.6 Construction and Operation of USACE-Permitted Fishing Piers

We have consulted with the USACE on the construction and operation of a number of fishing piers that may have adverse effects to sea turtles because of the potential impacts of recreational fishing from these piers on these species. For instance, in 2017 we consulted on the Quintana County Pier in Brazoria County, Texas, which concluded the action would not jeopardize listed species and provided an ITS for 3-year takes of 24 sea turtles (20 Kemp's ridley, 2 green, and 2 loggerhead sea turtles). We have conducted other similar pier consultations in Texas and throughout the larger Gulf of Mexico region.

5.2.1.7 ESA Permits

Regulations developed under the ESA allow for the issuance of permits allowing take of certain ESA-listed species for the purposes of scientific research under Section 10(a)(1)(a) of the ESA. Since issuance of the permit is a federal activity, the action must be reviewed for compliance with Section 7(a)(2) of the ESA to ensure that issuance of the permit does not result in jeopardy to the species or adverse modification of its critical habitat. Authorized activities range from photographing, weighing, and tagging sea turtles incidentally taken in fisheries, to blood sampling, tissue sampling (biopsy), and performing laparoscopy on intentionally captured sea turtles. The number of authorized takes varies widely depending on the research and species involved, but may involve the taking of hundreds of sea turtles annually. Most takes authorized under these permits are expected to be (and are) non-lethal.

5.2.2 State or Private Actions

A number of activities in state waters that may directly or indirectly affect listed species include recreational and commercial fishing, construction, discharges from wastewater systems, dredging, ocean pumping and disposal, and aquaculture facilities. The impacts from some of these activities are difficult to measure. However, where possible, conservation actions through the ESA Section 7 process, ESA Section 10 permitting, and state permitting programs are implemented to monitor or study impacts from these sources. Increasing coastal development and ongoing beach erosion will result in increased demands by coastal communities, especially beach resort towns, for periodic privately funded or federally sponsored beach nourishment projects. Additional discussion on some of these activities follows.

5.2.2.1 State Fisheries

Various fishing methods used in state commercial and recreational fisheries, including gillnets, fly nets, trawling, pot fisheries, pound nets, and vertical line are all known to incidentally take sea turtles, but information on these fisheries is sparse (NMFS 2001). Most of the state data are based on extremely low observer coverage, or sea turtles were not part of data collection; thus, these data provide insight into gear interactions that could occur but are not indicative of the magnitude of the overall problem.

Trawl Fisheries
Trawl fisheries, such as ones operating for shrimp, blue crab, and sheepshead, may also interact with sea turtles in state waters. Many of these vessels are shrimp trawlers that alter their gear in other times of the year to target these other species. At this time, however, we lack sufficient information to quantify the level of anticipated take that may be occurring in non-shrimp trawl fisheries.

Recreational Fishing
Recreational fishing from private vessels may occur in the action area, and these activities may interact with sea turtles and giant manta ray. For example, observations of state recreational

fisheries have shown that loggerhead sea turtles are known to bite baited hooks and frequently ingest the hooks. Hooked turtles have been reported by the public fishing from boats, fishing piers (see previous discussion in Section 5.2.1.1), and beach, banks, and jetties and from commercial anglers fishing for reef fish and for sharks with both single rigs and bottom longlines. Additionally, lost fishing gear such as line cut after snagging on rocks, or discarded hooks and line, can also pose an entanglement threat to sea turtles in the area. A detailed summary of the known impacts of hook-and-line incidental captures to loggerhead sea turtles can be found in the SEFSC TEWG reports (TEWG 1998; TEWG 2000).

5.2.2.2 Vessel Traffic

Commercial traffic and recreational boating pursuits can have adverse effects on sea turtles and giant manta ray in particular via propeller and boat strike damage. The STSSN includes many records of vessel interactions (propeller injury) with sea turtles, and giant manta ray are also frequently observed with prop scars on their dorsal surface. Data show that vessel traffic is one cause of sea turtle mortality (Hazel and Gyuris 2006; Lutcavage et al. 1997). Stranding data show that vessel-related injuries are noted in stranded sea turtles (https://www.fisheries.noaa.gov/national/marine-life-distress/sea-turtle-stranding-and-salvage-network). Data indicate that live- and dead-stranded sea turtles showing signs of vessel-related injuries continue in a high percentage of stranded sea turtles in coastal regions of the southeastern United States, particularly off Florida where there are high levels of vessel traffic.

5.2.2.3 Coastal Development

Beachfront development, lighting, and beach erosion control all are ongoing activities along the southeastern U.S. coastline (i.e., throughout the action area). These activities potentially reduce or degrade sea turtle nesting habitats or interfere with hatchling movement to sea. Nocturnal human activities along nesting beaches may also discourage sea turtles from nesting sites. The extent to which these activities reduce sea turtle nesting and hatchling production is unknown. Still, more and more coastal counties are adopting stringent protective measures to protect hatchling sea turtles from the disorienting effects of beach lighting.

5.2.3 Other Potential Sources of Impacts to the Environmental Baseline

5.2.3.1 Stochastic events

Stochastic (i.e., random) events, such as hurricanes, occur in the southeastern U.S., and can affect the action area. These events are by nature unpredictable, and their effect on the recovery of the species is unknown; yet, they have the potential to directly impede recovery if animals die as a result or indirectly if important habitats are damaged. Conversely, these events, such as the record 2020 Atlantic hurricane season, may also result in some benefits to listed species, particularly sea turtles. For example, the impacts of hurricanes may compromise fisheries infrastructure and reduce fishing effort, which may subsequently reduce fishery related bycatch. Other stochastic events, such as a winter cold snap, can injure or kill sea turtles.

5.2.3.2 Marine Pollution and Environmental Contamination

In general, marine pollution includes a wide variety of impacts stemming from a diversity of activities and sources. Sources of pollutants within or adjacent to the action area include, but are not limited to, marine debris and plastics, noise pollution from vessel traffic and military training activities, atmospheric loading of pollutants such as PCBs, agricultural and industrial runoff into rivers and canals emptying into bays and the ocean (e.g., Mississippi River into the Gulf of Mexico), and groundwater and other discharges. Nutrient loading from land-based sources such as coastal community discharges is known to stimulate plankton blooms in closed or semi-closed estuarine systems. The effects on larger embayments are unknown. An example is the large area of the Louisiana continental shelf with seasonally-depleted oxygen levels (< 2 mg/L) is caused by eutrophication from both point and non-point sources. Most aquatic species cannot survive at such low oxygen levels and these areas are known as "dead zones." The oxygen depletion, referred to as hypoxia, begins in late spring, reaches a maximum in mid-summer, and disappears in the fall. Since 1993, the average extent of mid-summer, bottom-water hypoxia in the northern Gulf of Mexico has been approximately 16,000 km^2, approximately twice the average size measured between 1985 and 1992. The hypoxic zone attained a maximum measured extent in 2002, when it was about 22,000 km^2, which is larger than the state of Massachusetts (USGS 2008). The 2020 Gulf of Mexico hypoxic zone measured 5,480 km^2 and was the 3rd smallest in the 34-year record of surveys; the 5-year average is now down to 14,007 km^2 (EPA 2020). The hypoxic zone has impacts on the animals found there, including sea turtles, and the ecosystem-level impacts continue to be investigated.

Additional direct and indirect sources of pollution include dredging (i.e., resuspension of pollutants in contaminated sediments), aquaculture, and oil and gas exploration and extraction, each of which can degrade marine habitats used by sea turtles (Colburn et al. 1996) and other listed species. The development of marinas and docks in inshore waters can negatively impact nearshore habitats. An increase in the number of docks built increases boat and vessel traffic. Fueling facilities at marinas can sometimes discharge oil, gas, and sewage into sensitive estuarine and coastal habitats. Although these contaminant concentrations do not likely affect the more pelagic waters, the species of turtles analyzed in this Opinion travel between near shore and offshore habitats and may be exposed to and accumulate these contaminants during their life cycles.

Sea turtles may ingest marine debris, particularly plastics, which can cause intestinal blockage and internal injury, dietary dilution, malnutrition, and increased buoyancy, which, in turn, can result in poor health, reduced growth rates and reproductive output, or death (Nelms et al. 2016). Entanglement in plastic debris (including ghost fishing gear) is known to cause lacerations, increased drag—which reduces the ability to forage effectively or escape threats—and may lead to drowning or death by starvation. While more widely documented in sea turtles, entanglement in marine debris has also been noted for giant manta ray.

The Gulf of Mexico is an area of high-density offshore oil extraction with chronic, low-level spills and occasional massive spills (e.g., DWH oil spill event). Oil spills can impact wildlife directly through 3 primary pathways: 1) ingestion—when animals swallow oil particles directly or consume prey items that have been exposed to oil; 2) absorption—when animals come into direct contact with oil; and 3) inhalation—when animals breath volatile organics released from oil or from "dispersants" applied by response teams in an effort to increase the rate of degradation of the oil in seawater. Several aspects of sea turtle biology and behavior place them at particular risk, including the lack of avoidance behavior, indiscriminate feeding in convergence zones, and large pre-dive inhalations (Milton et al. 2003). When large quantities of oil enter a body of water, chronic effects such as cancer, and direct mortality of wildlife becomes more likely (Lutcavage et al. 1997). Oil spills in the vicinity of nesting beaches just prior to or during the nesting season could place nesting females, incubating egg clutches, and hatchlings at significant risk (Fritts et al. 1982; Lutcavage et al. 1997; Witherington 1999). Continuous low-level exposure to oil in the form of tar balls, slicks, or elevated background concentrations also challenge animals facing other natural and anthropogenic stresses. Types of trauma can include skin irritation, altering of the immune system, reproductive or developmental damage, and liver disease (Keller et al. 2004; Keller et al. 2006). Chronic exposure may not be lethal by itself, but it may impair a turtle's overall fitness so that it is less able to withstand other stressors (Milton et al. 2003).

The earlier life stages of living marine resources are usually at greater risk from an oil spill than adults. This is especially true for sea turtle hatchlings, since they spend a greater portion of their time at the sea surface than adults; thus, their risk of exposure to floating oil slicks is increased (Lutcavage et al. 1995). One of the reasons might be the simple effects of scale: for example, a given amount of oil may overwhelm a smaller immature organism relative to the larger adult. The metabolic machinery an animal uses to detoxify or cleanse itself of a contaminant may not be fully developed in younger life stages. Also, in early life stages, animals may contain proportionally higher concentrations of lipids, to which many contaminants such as petroleum hydrocarbons bind. Most reports of oiled hatchlings originate from convergence zones, ocean areas where currents meet to form collection points for material at or near the surface of the water.

Unfortunately, little is known about the effects of dispersants on sea turtles, and such impacts are difficult to predict in the absence of direct testing. While inhaling petroleum vapors can irritate turtles' lungs, dispersants can interfere with lung function through their surfactant (detergent) effect. Dispersant components absorbed through the lungs or gut may affect multiple organ systems, interfering with digestion, respiration, excretion, and/or salt-gland function—similar to the empirically demonstrated effects of oil alone (Shigenaka et al. 2003). Oil cleanup activities can also be harmful. Earth-moving equipment can dissuade females from nesting and destroy nests, containment booms can entrap hatchlings, and lighting from nighttime activities can misdirect turtles (Witherington 1999).

There are studies on organic contaminants and trace metal accumulation in green and leatherback sea turtles (Aguirre et al. 1994; Caurant et al. 1999; Corsolini et al. 2000). Mckenzie et al. (1999) measured concentrations of chlorobiphenyls and organochlorine pesticides in sea turtles tissues collected from the Mediterranean (Cyprus, Greece) and European Atlantic waters (Scotland) between 1994 and 1996. Omnivorous loggerhead turtles had the highest organochlorine contaminant concentrations in all the tissues sampled, including those from green and leatherback turtles (Storelli et al. 2008). It is thought that dietary preferences were likely to be the main differentiating factor among species. Decreasing lipid contaminant burdens with turtle size were observed in green turtles, most likely attributable to a change in diet with age. Sakai et al. (1995) found the presence of metal residues points for material at or near the surface of the water. Sixty-five of 103 post-hatchling loggerheads in convergence zones off Florida's east coast were found with tar in the mouth, esophagus or stomach (Loehefener et al. 1989). Thirty-four percent of post-hatchlings captured in *Sargassum* off the Florida coast had tar in the mouth or esophagus and more than 50% had tar caked in their jaws (Witherington 1994). These zones aggregate oil slicks, such as a Langmuir cell, where surface currents collide before pushing down and around, and represents a virtually closed system where a smaller weaker sea turtle can easily become trapped (Carr 1987; Witherington 2002). Lutz and Lutcavage (1989) reported that hatchlings have been found apparently starved to death, their beaks and esophagi blocked with tarballs. Hatchlings sticky with oil residue may have a more difficult time crawling and swimming, rendering them more vulnerable to predation.

Frazier (1980) suggested that olfactory impairment from chemical contamination could represent a substantial indirect effect in sea turtles, since a keen sense of smell apparently plays an important role in navigation and orientation. A related problem is the possibility that an oil spill impacting nesting beaches may affect the locational imprinting of hatchlings, and thus impair their ability to return to their natal beaches to breed and nest (Milton et al. 2003). Whether hatchlings, juveniles, or adults, tar balls in a turtle's gut are likely to have a variety of effects – starvation from gut blockage, decreased absorption efficiency, absorption of toxins, effects of general intestinal blockage (such as local necrosis or ulceration), interference with fat metabolism, and buoyancy problems caused by the buildup of fermentation gases (floating prevents turtles from feeding and increases their vulnerability to predators and boats), among others. Also, trapped oil can kill the seagrass beds that turtles feed upon.

5.2.4 Conservation and Recovery Actions Shaping the Environmental Baseline

Under Section 6 of the ESA, we may enter into cooperative research and conservation agreements with states to assist in recovery actions of listed species. We have agreements with all states in the action area for sea turtles.

Along with cooperating states, we have established an extensive network of STSSN participants along the Atlantic and Gulf of Mexico coasts that not only collect data on dead sea turtles, but also rescue and rehabilitate any live stranded sea turtles. The network, which includes federal, state and private partners, encompasses the coastal areas of the 18-state region from Maine to

Texas, and includes portions of the U.S. Caribbean. Data are compiled through the efforts of network participants who document marine turtle strandings in their respective areas and contribute those data to the centralized STSSN database

We published a final rule (66 FR 67495, December 31, 2001) detailing handling and resuscitation techniques for sea turtles that are incidentally caught during scientific research or fishing activities. Persons participating in fishing activities or scientific research are required to handle and resuscitate (as necessary) sea turtles as prescribed in the final rule. These measures help to prevent mortality of hard-shelled turtles caught in fishing or scientific research gear.

A final rule (70 FR 42508) published on July 25, 2005, allows any of our agents or employees, the USFWS, the USCG, or any other federal land or water management agency, or any agent or employee of a state agency responsible for fish and wildlife, when acting in the course of his or her official duties, to take endangered sea turtles encountered in the marine environment if such taking is necessary to aid a sick, injured, or entangled endangered sea turtle, or dispose of a dead endangered sea turtle, or salvage a dead endangered sea turtle that may be useful for scientific or educational purposes. We already afford the same protection to sea turtles listed as threatened under the ESA (50 CFR 223.206(b)).

Other Actions

We helped to complete 5-year status reviews in 2007 for green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles. These reviews were conducted to comply with the ESA mandate for periodic status evaluation of listed species to ensure that their threatened or endangered listing status remains accurate. Each review determined that no delisting or reclassification of a species status (i.e., threatened or endangered) was warranted at this time. Further review of species data for the green, hawksbill, leatherback, and loggerhead sea turtles was recommended to evaluate whether DPSs should be established for these species (NMFS and USFWS 2007a; NMFS and USFWS 2007b; NMFS and USFWS 2007c; NMFS and USFWS 2007d; NMFS and USFWS 2007e). The Services completed a revised recovery plan for the loggerhead sea turtle on December 8, 2008 (NMFS and USFWS 2008) and published a final rule on September 22, 2011, listing loggerhead sea turtles as separate DPSs. A revised recovery plan for the Kemp's ridley sea turtle was completed on September 22, 2011. On October 10, 2012, we announced initiation of 5-year reviews of Kemp's ridley, olive ridley, leatherback, and hawksbill sea turtles, and requested submission of any pertinent information on those sea turtles that has become since their last status review in 2007.

Manta rays were included on Appendix II of CITES at the 16 Conference of the CITES Parties in March 2013, with the listing going into effect on September 14, 2014. Export of manta rays and manta ray products, such as gill plates, require Start CITES permits that ensure the products were legally acquired and that the Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species (after taking into account factors such as its population status and trends, distribution, harvest, and other biological and ecological elements). Although this CITES protection was not considered to be an action that decreased the current listing status of the threatened giant manta ray (due to its uncertain effects at reducing the threats of foreign domestic overutilization and inadequate regulations, and unknown post-release mortality rates from bycatch in industrial fisheries), it may help address the threat of foreign overutilization for the gill plate trade by ensuring that international trade of this threatened species is sustainable. Regardless, because the United States does not have a significant (or potentially any) presence in the international gill plate trade, we have concluded that any restrictions on U.S. trade of the giant manta ray that are in addition to the CITES requirements are not necessary and advisable for the conservation of the species.

5.3 Summary

In summary, several factors adversely affect sea turtles and giant manta ray in the action area. These factors are ongoing and are expected to continue to occur contemporaneously with the proposed action. Fisheries in the action area likely had the greatest adverse impacts on sea turtles in the mid to late 1980s, when effort in most fisheries was near or at peak levels. With the decline of the health of managed species, effort since that time has generally been declining. Over the past 5 years, the impacts associated with fisheries have also been reduced through the Section 7 consultation process and regulations implementing effective bycatch reduction strategies. However, interactions with commercial and recreational fishing gear are still ongoing and are expected to continue to occur contemporaneously with the proposed action. Other environmental impacts including effects of vessel operations, dredging, oil and gas exploration, permits allowing take under the ESA, private vessel traffic, and marine pollution have also had and continue to have adverse effects on sea turtles the action area in the past. The DWH oil spill is expected to have had an adverse impact on the baseline for sea turtles, but the extent of that impact is not yet well understood. While there is a paucity of information on impacts to giant manta ray, we expect ongoing and future research on the species will improve this deficit. Finally, actions to conserve and recover sea turtles have significantly increased over the past 10 years and are expected to continue.

5.4 Climate Change

The 2014 Assessment Synthesis Report from the Working Groups on the IPCC concluded climate change is unequivocal (IPCC 2014). The report concludes oceans have warmed, with ocean warming the greatest near the surface (e.g., the upper 75 m [246.1 ft] have warmed by 0.11°C per decade over the period 1971 through 2010) (IPCC 2014). The Atlantic Ocean appears to be warming faster than all other ocean basins except perhaps the southern oceans (Cheng et al. 2017). In the western North Atlantic Ocean, surface temperatures have been unusually warm in recent years (Blunden and Arndt 2016). A study by Polyakov et al. (2009), suggests that the North Atlantic Ocean overall has been experiencing a general warming trend over the last 80 years of 0.031±0.0006°C per decade in the upper 2,000 m (6,561.7 ft) of the ocean. The Fourth National Climate Assessment confirmed that the Atlantic and Gulf coasts in particular are facing above-average risks to ocean and coastal infrastructure (U.S. Global Change Research Program 2018). Also highlighted were rising water temperatures, ocean acidification, retreating arctic sea ice, sea level rise, high tide flooding, coastal erosion, higher storm surge, and heavier precipitation events as key threats to the nation's oceans and coasts (U.S. Global Change Research Program 2018). Climate change is expected to increase the frequency of extreme weather and climate events including, but not limited to, cyclones, tropical storms, heat waves, and droughts (IPCC 2014; U.S. Global Change Research Program 2018). Additional consequences of climate change include increased ocean stratification, decreased sea-ice extent, altered patterns of ocean circulation, and decreased ocean oxygen levels (Doney et al. 2012). Ocean acidity has increased by 26% since the beginning of the industrial era (IPCC 2014) and this rise has been linked to climate change.

Climate change has the potential to impact species abundance, geographic distribution, migration patterns, and susceptibility to disease and contaminants, as well as the timing of seasonal activities and community composition and structure in the action area (Evans and Bjørge 2013; IPCC 2014; Kintisch 2006; Learmonth et al. 2006; MacLeod et al. 2005; McMahon and Hays 2006; Robinson et al. 2009). Marine species' ranges are expected to shift as they align their distributions to match their physiological tolerances under changing environmental conditions (Doney et al. 2012). Though predicting the precise consequences of climate change on marine species is difficult (Simmonds and Isaac 2007), recent research has indicated a range of consequences already occurring (U.S. Global Change Research Program 2018).

Other examples include the McMahon and Hays (2006) study that found increased ocean temperatures are expanding the distribution of leatherback turtles into more northern latitudes in the Atlantic Ocean. On the opposite end of the spectrum, sessile species (e.g., corals and seagrasses) are unable to expand their ranges or leave certain areas to find more suitable habitat, making it more difficult for these species to adapt to warming temperatures.

6 EFFECTS OF THE ACTION

Effects of the action are all consequences to listed species that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. 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. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02).

In this section of our Opinion, we assess the effects of the continued action on listed species that are likely to be adversely affected. The analysis in this section forms the foundation for our jeopardy analysis found in Section 8. The quantitative and qualitative analyses in this section are based upon the best available commercial and scientific data on species biology and the effects of the action. Data are limited, so we make assumptions to overcome the limits in our knowledge. Sometimes, the best available information may include a range of values for a particular aspect under consideration, or different analytical approaches may be applied to the same data set. In those cases, the uncertainty is resolved in favor of the species. We generally select the value that would lead to conclusions of higher, rather than lower risk to endangered or threatened species. This approach provides the “benefit of the doubt” to threatened and endangered species. In this section, we assess the various effects of the proposed action on loggerhead, green, and Kemp’s ridley sea turtles, as well as giant manta ray.

6.1 Effects to Sea Turtles

6.1.1 Dredging Effects

To estimate take from hopper dredging covered under this Opinion, we reviewed the reported take of ESA-listed species from projects in the action area and greater USACE Galveston District provided in Table 6 and compared it to the reported volume of material dredged (effort) by those projects to calculate a hopper dredging CPUE for each species. The reported total volume of material dredged per fiscal year in Table 6 was gathered from multiple sources provided by and/or verified by the USACE, but still may not precisely reflect the volumes dredged. At this time, it is the best available information and will be used for the analysis of take for this Opinion. We assume all sea turtle takes by hopper dredge will be lethal.

Table 5. Sea Turtle Takes Documented in USACE Galveston District Dredging Projects, 2014-2020.

YEAR	PROJECT	CY DREDGED	LOGGERHEAD	GREEN	KEMP’S	UNKNOWN
2020	SABINE-NECHES	5,183,000			1	
2019	FREEPORT	2,164,666		3 (1 ALIVE)		
2019	BRAZOS ISLAND	374,291		8 (1 ALIVE)		
2019	GLAVESTON	2,382,000	1			
2019	CORPUS CHRISTI	6,618,964	9	7 (1 ALIVE)	3	
2018	FREEPORT	1,987,232	4 (1 ALIVE)	2		1
2017	FREEPORT	3,164,978		1 (ALIVE)		
2017	GALVESTON	3,724,491			1	
2017	MATAGORDA	195,000		1		
2016	BRAZOS ISLAND	685,369		2		
2016	CORPUS CHRISTI	846,000	2			
2015	FREEPORT	2,096,850		1		
2014	CORPUS CHRISTI	200,000		2		
2014	FREEPORT	495,000		5		
2014	SABINE-NECHES	4,131,901			1	
2014	BRAZOS ISLAND	304,629		1 (ALIVE)		
TOTAL		**34,554,371**	**16 (1 ALIVE)**	**33 (5 ALIVE)**	**6**	**1**

We first look at all projects in recent years (2014-2020) to estimate CPUE of sea turtles based on the volume of material removed by hopper dredge. Using the total of 34,554,371 CY of dredged material from USACE Galveston District projects 2014-2020 and dividing that by the 56 total turtle takes results in a CPUE of 617,042 CY/turtle. Because there may be geographical, environmental, or sea turtle abundance issues that result in significant differences in sea turtle take at CCSC, we also estimate CPUE for just the 3 projects conducted at CCSC between 2014-2020. The 7,664,964 CY of dredge material removed during USACE Corpus Christi projects from 2014-2020 resulted in 23 total turtle takes, which yields a CPUE of 333,259 CY/turtle.

Of the 46.3 million CY anticipated to be dredged during the proposed project, 32,031,193 CY are expected to be removed via hopper dredge (Table 1). The proposed action indicates that in year 3 the 2,105,041 CY of material may be dredged by either hopper or cutterhead dredge. Given the possibility this material could be removed by a hopper dredge, we will be conservative for the purposes of this analysis and assume this volume of material will be removed by hopper dredge.

We use the previously calculated CPUEs to extrapolate out for the proposed dredging of 32,031,193 CY of material at CCSC. Based on the CPUE estimated from all Galveston District projects between 2014-2020, we estimate 52 sea turtle takes will occur during the proposed action (32,031,193 CY / 617,042 CY/turtle = 52 total turtle takes). And when using the more conservative Corpus Christi projects between 2014-2020, we estimate 96 sea turtle takes will occur during the proposed action (32,031,193 CY / 333,259 CY/turtle = 96 total turtle takes).

In order to calculate species-specific take, we reviewed STSSN data for Texas strandings over the past 5 years (i.e., 2017-2021) to get insight into the relative abundance of sea turtle species in the action area, and to be sure it does not diverge from the species distribution in the USACE Texas dredge take data (Table 6). We use this relative abundance to calculate species-specific take from total anticipated takes calculated above. As presented in Table 7, we expect take to consist of green (75.30%), loggerhead (12.30%), and Kemp’s ridley (11.37%) sea turtles. As discussed in Section 3.2, we do not expect take of hawksbill or leatherback sea turtles due to habitat preferences and other rationale. These conclusions are supported by the general rarity of these species in available Texas strandings data, as presented in Table 7.

Table 6. Texas Sea Turtle Strandings (Traditional), 2017-2021 (STSSN Data). We believe the single olive ridley stranding to be an anomalous outlier, as the species is rarely found in the Gulf of Mexico.

SPECIES	NUMBER	PERCENTAGE
GREEN	3,954	75.30
LOGGERHEAD	646	12.30
KEMP’S RIDLEY	597	11.37
HAWKSBILL	43	0.82
LEATHERBACK	10	0.19
OLIVE RIDLEY	1	0.02
TOTAL	**5,251**	**100**

Therefore, erring on the side of the species and using the more conservative CCSC-specific take estimate of 96 total sea turtle takes that we calculated would occur during proposed hopper dredging activities, we further estimate this would consist of 72 green sea turtles (96 * 0.7530 = 72.29; NA and SA DPSs), 12 loggerhead sea turtles (96 * 0.1230 = 11.81), and 11 Kemp’s ridley sea turtles (96 * 0.1137 = 10.92). The sum of these species-specific estimates is different than the total sea turtle take estimated previously (i.e., 95 versus 96) due to rounding. So, while we would expect this additional turtle would likely be a green sea turtle based on relative abundance as represented in STSSN and USACE Texas dredge take data (Table 6) we will allocate and add the 1 remaining sea turtle take to any of the 3 affected sea turtle species (i.e., green, loggerhead, or Kemp's ridley).

6.1.2 Relocation Trawling Effects

We have limited information on the quantitative effects of relocation trawling associated with USACE dredging activities to listed species. Because hopper dredging occurs during various times of the year, we would expect associated relocation trawling take (i.e., CPUE) to vary greatly due to seasonality and differences in sea turtle abundance. Additionally, relocation trawling effort varies as well, as it is not always required and sometimes only implemented upon a project trigger (e.g., 2 sea turtle takes within 24 hours). Some past projects have used a single relocation trawler when required, and some projects have employed 2 relocation trawlers concurrently for better channel coverage. The USACE used to produce annual reports as required under the terms and conditions of the GRBO, but they no longer produce those annual reports (J. Hudson, USACE, pers. comm., September 26, 2022). Therefore, we present some historical information included in annual reports available on ODESS, as well as some recent data provided by USACE Galveston District to gain insight into relocation trawling activities and the potential extent of effects on listed species.

During Fiscal Year (FY) 2007, 4 maintenance-dredging projects were conducted by hopper dredges in the Galveston District, during which 4,583,566 CY of sediments were excavated. Where implemented, relocation trawling was performed on a 24-hour daily basis during dredging operations. Two trawlers worked concurrently to provide better channel coverage during dredging at BIH ,while one trawler was used at CCSP. During the course of 2,511 trawls, 102 turtles were relocated consisting of 65 green, 25 Kemp's ridley, and 12 loggerhead sea turtles; this total also includes 2 recaptures (Table 8).

Table 7. FY 2007 Galveston District Relocation Trawler Effort Associated with Dredging Projects (ODESS data).

PROJECT	NUMBER OF TOWS	NUMBER OF TURTLES	CPUE
BIH	996	65	0.0653
CCSP	1,515	37	0.0244
TOTALS	2,511	102	0.0406

During FY 2008, 6 maintenance-dredging projects were conducted by hopper Dredges in the Galveston District, during which 8,104,240 CY of sediments were excavated. Where implemented, relocation trawling was performed on a 24-hour daily basis during dredging operations. Two trawlers worked concurrently to provide better channel coverage during dredging at both BIH projects, while one trawler was used at Freeport. During the course of

2,145 trawls, 17 turtles were relocated; this includes 13 loggerhead, 3 Kemp's ridley, and 1 green sea turtle; this total also includes 3 recaptures (Table 9).

Table 8. FY 2008 Galveston District Relocation Trawler Effort Associated with Dredging Projects (ODESS data).

PROJECT	NUMBER OF TOWS	NUMBER OF TURTLES	CPUE
FREEPORT HARBOR	430	0	0.000
BIH – JETTY CHANNEL	1,304	14	0.0107
BIH – ENTRANCE CHANNEL	411	3	0.0073
TOTALS	2,145	17	0.0079

During FY 2009, 5 maintenance-dredging projects were conducted by hopper dredges in the Galveston District, during which 16,078,665 CY of sediments were excavated. Relocation trawling was only implemented during one project, where 2 trawlers worked concurrently on a 24-hour daily basis to provide better channel coverage during dredging. Over the course of 820 trawls, 1 loggerhead and 1 green sea turtle were relocated, corresponding to a combined CPUE of 0.002 turtles/tow.

In contrast, in FY 2013 and FY 2014 in the USACE Galveston District there were 7 and 5 maintenance dredging projects that removed 3,462,215 CY and 9,308,101 CY of material, respectively, but there were no relocation trawling activities. This helps to demonstrate the irregular use of relocation trawling based on a 2-turtle take trigger during USACE Galveston District projects and, moreover, the difficulty in estimating the effects of this action. This is reinforced by the highly variable CPUE rates presented in Table 10 below.

Recent data from a 2019 CCSC Improvement Project documented hopper dredges removed a total of 6,618,964 CY of material from April 2019 through February 2020 (ODESS data), with relocation trawling implemented from late June through mid-August 2019. During the relocation trawler effort, 2 trawlers worked concurrently to effectively sweep the area. A total of 2,337 tows were conducted that captured 17 loggerhead, 15 Kemp's ridley, and 4 green sea turtles, resulting in a combined CPUE of 0.0154 turtles/tow. For reference, hopper dredging is expected to remove approximately 32,031,193 CY of material over the course of the proposed action.

Table 9. Selected Dredging Activities and Associated Relocation Trawling Effort (ODESS, USACE Galveston District Data).

PROJECT	CY MATERIAL	TOWS	TURTLES	CPUE
FY 2007 GALVESTON DISTRICT TOTAL	4,583,566	2,511	102	0.0406
FY 2008 GALVESTON DISTRICT TOTAL	8,104,240	2,145	17	0.0079
FY 2009 GALVESTON DISTRICT TOTAL	16,078,665	820	2	0.002
2019 CCSC	6,618,964	2,337	36	0.0154

In summary, available information indicates relocation trawling effort varies greatly and, more importantly, the resultant CPUE of captured turtles during relocation trawling effort varies greatly as well.

Estimating the Extent of Effects
We have sporadic data over 15 years in Table 10, however, there are issues with using this data that should be considered. First, relocation trawling occurs over various times of the year where sea turtle abundance may vary. Second, relocation trawling typically is only initiated after 2 takes occur within 24 hours. And third, sea turtle populations have increased in recent years, particularly for green and Kemp's ridley sea turtles. As a result, we believe the 2019 CCSC relocation trawling work is the most applicable and representative to the proposed action. It is important to note this relocation trawling effort was conducted from June through August. The proposed action indicates it will conduct hopper dredging during seasonal windows (December 1 through March 31) when sea turtle abundance is expected to be lower than summer months, but it indicates this would be done "if practicable." Therefore, to be conservative and err on the side of the species, we will assume these seasonal dredge windows are not compulsory, and work could occur outside of these periods, but acknowledge this may result in an overestimate of relocation trawler take.

We use the 2,337 tows conducted during the removal of 6,618,964 CY of material in the 2019 CCSC project, and assume the rate of dredging and relocation trawling (2,337 tows/6,618,964 CY = 0.00035308 tows/CY) will be similar between the 2019 CCSC work and the proposed action. Based on this approach, we estimate the proposed action that will remove 32,031,193 CY of material via hopper dredge could result in 11,309 total relocation trawler tows (0.00035308 tows/CY * 32,031,193 CY = 11,309 tows) over the course of the proposed action.

As noted in Table 10, CPUE of turtles captured during relocation trawling effort varies greatly. To be consistent, however, we will use the 0.0154 CPUE of captured turtles documented in the 2019 CCSC dredging project. This rate is within the range of all documented CPUEs in Table 10 (i.e., 0.002–0.0406), represents recent data directly from the action area, and occurred during warmer summer months when sea turtle abundance may be higher than in colder, winter months. Therefore, given the possibility hopper dredging activities may occur outside of the seasonal dredging windows and the lack of more explicit and accurate relocation trawling effort, we believe the 0.0154 CPUE is conservative and appropriate to use to estimate take from the proposed action. We also acknowledge this could result in an overestimation of effects. Using this CPUE and applying it the 11,309 total estimated relocation trawler tows yields 174 relocation trawler captures of sea turtles over the course of the proposed action. We further examine the species-specific take from this total estimate below.

To calculate the species-specific number of takes from relocation trawling, we again use the relative abundance of sea turtles as represented in STSSN data for Texas (Table 7). As a result, we estimate the total take of 174 relocated sea turtles would consist of 131 green sea turtles (174 * 0.7530 = 131.02), 21 loggerhead sea turtles (174 * 0.1230 = 21.40), and 20 Kemp's ridley sea turtles (174 * 0.1137 = 19.78). The sum of these species-specific estimates is different than the total sea turtle take estimated previously (i.e., 172 versus 174) due to rounding. While we would expect these 2 additional turtles to be green sea turtles based on relative abundance as represented in USACE Texas dredge take and STSSN data (Tables 6 and 7),we will allocate and add the 2 remaining sea turtle take to any of the 3 affected sea turtle species (i.e., green, loggerhead, or Kemp's ridley). Due to the required limited tow times that avoid forced submergence issues, and required PSOs onboard relocation trawlers who implement protective handling and release guidelines for listed species, we expect all takes by relocation trawlers to be non-lethal.

6.2 Effects to Giant Manta Ray

Due to the large size and pelagic habitat preference (i.e., versus benthic habitat preference), we believe giant manta ray will not be adversely affected by hopper dredging itself. We believe the only likely route of adverse effects to giant manta ray is relocation trawling activity, which we discuss below.

Research on physiological stress and post-capture mortality of giant manta ray in the southeast U.S. shrimp trawl fisheries is currently lacking, though we assume the general effects of capture (e.g., changes in blood chemistry, injury from crowding/impacts in the trawl net, air exposure following capture, etc.) are similar to those documented for other elasmobranch species (Heard et al. 2014). The impact of a capture event on an individual animal is influenced by a range of biotic and abiotic variables that can be specific to the individual (e.g., size, age, maturity and degree of physical damage) or to the type of capture event (e.g., gear type, capture duration, rapid changes in temperature and pressure and handling procedures) (Davis 2002; Skomal 2007; Frick et al. 2010a, Frick et al. 2010b; Braccini et al. 2012; Skomal and Mandelman 2012; Wilson et al. 2014). Acute stress in elasmobranchs, such as that due to fisheries capture, often results in changes in blood chemistry as energy stores (e.g., glucose) are mobilized, ion balances are disrupted and metabolites (e.g., lactate and urea) move from the muscle cells into the bloodstream (Wendelaar Bonga 1997; Skomal and Mandelman 2012). In elasmobranch species, physiological indicators of stress may not peak until hours after a stressful event, making elasmobranchs more likely to succumb to PIM caused by the accumulation of harmful metabolic byproducts at a later stage than teleost species (Frick et al. 2009). Handling and removal from the trawl net likely adds a considerable amount of additional stress, particularly for large elasmobranch species such as giant manta ray.

Estimating the Extent of Effects
As noted in Section 6.1.2, we estimate the proposed action will remove 32,031,193 CY of material via hopper dredge, which could result in 11,309 total relocation trawler tows (0.00035308 tows/CY * 32,031,193 CY = 11,309 tows). Data on take of giant manta ray by relocation trawler is unavailable, but we are aware of anecdotal reports of past relocation trawler captures of giant manta ray. We will follow the same protocol used in the 2020 SARBO, which used a CPUE of 0.00019 based on NMFS Northeast Fisheries Observer Program data from 2001-2015 (NMFS 2020). This results in an estimated take of 2 takes of giant manta ray (11,309 tows * 0.00019 CPUE = 2.15) by relocation trawlers during the course of the proposed action.

We expect the limited tow times, required observers monitoring all relocation trawler tows, and relocation trawler crews following the required best handling and release practices will significantly minimize the risk of post-release mortality associated with relocation trawling activities. Therefore, we anticipate the potential estimated take of 2 giant manta ray by relocation trawlers over the course of the proposed action will be non-lethal.

6.3 Summary

We believe the proposed action will have lethal and non-lethal effects on green, loggerhead, and Kemp's ridley sea turtles from hopper dredging activities and relocation trawling effort, respectively, as well as non-lethal effects on giant manta ray from relocation trawling effort. We quantify the take of those species in Table 11 below. Due to rounding when calculating our estimates, an additional 1 sea turtle may be taken during hopper dredging activities, and could be attributed to any of the 3 affected species. Similarly, an additional 2 sea turtles may be taken during relocation trawling, and could be attributed to any of the 3 affected species. Therefore, the number in parenthesis indicates the potential greatest amount of take of the species by the indicated activity.

Table 10. Summary of Expected Take Resulting From the Proposed Action.

ACTIVITY	SPECIES TAKE			
	GREEN SEA TURTLE	LOGGERHEAD SEA TURTLE	KEMP'S RIDLEY SEA TURTLE	GIANT MANTA RAY
HOPPER DREDGING (LETHAL)	72 (73)	12 (13)	11 (12)	-
RELOCATION TRAWLING (NON-LETHAL)	131 (133)	21 (23)	20 (22)	2

7 CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area. 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 ESA and 50 CFR 402.14.

Cumulative effects from unrelated, non-federal actions occurring in the action area may affect sea turtles and giant manta ray, and their habitats. Stranding data indicate sea turtles in the action area die of various natural causes, including cold stunning and hurricanes, as well as human activities, such as incidental capture in state fisheries, ingestion of and/or entanglement in debris, ship strikes, and degradation of nesting habitat. The cause of death of most sea turtles recovered by the stranding network is unknown.

The fisheries described as occurring within the action area are expected to continue as described into the foreseeable future, concurrent with the proposed action. Numerous fisheries in state waters of the Gulf of Mexico are known to adversely affect sea turtles and giant manta ray. The past and present impacts of these activities have been discussed in Section 5 (Environmental

Baseline) of this Opinion. We are not aware of any proposed or anticipated changes in these fisheries that would substantially change the impacts each fishery has on sea turtles and giant manta ray covered by this Opinion.

As discussed in Section 4 and, more specifically, Section 5.4, we generally expect climate change may affect sea turtles and giant manta ray, and their habitats, in a variety of ways. These changes, however, are difficult to precisely predict and slowly develop over a long period (i.e., multiple decades or longer). We do not expect to observe any climate change effects during the time frame of the proposed action (i.e., 5 years) that would manifest in such a way to create a measureable risk for any species considered in this Opinion.

We did not find any information about non-federal actions other than what has already been described in Section 5 of this Opinion, most of which we expect will continue in the future. An increase in these activities could similarly increase their effect on ESA-listed species and, for some, increases in the future are considered reasonably certain to occur. Given current trends in global population growth, threats associated with climate change, pollution, fisheries bycatch, aquaculture, vessel strikes and approaches, and sound are likely to continue to increase in the future, although any increase in effect may be somewhat countered by an increase in conservation and management activities. We will continue to work with states to develop ESA Section 6 agreements and with researchers on Section 10 permits to enhance programs to quantify and mitigate these effects. For the remaining activities and associated threats identified in Section 5, and other unforeseen threats, the magnitude of increase and the significance of any anticipated effects remain unknown. The best scientific and commercial data available provide little specific information on any long-term effects of these potential sources of disturbance on ESA-listed species populations. Thus, this Opinion assumes effects in the action area in the future (i.e., over the 5-year time frame of the proposed action) would be similar to those in the past and, therefore, are reflected in the anticipated trends described in Sections 4 and 5.

8 JEOPARDY ANALYSIS

To "jeopardize the continued existence of" of a species means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and the recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). Thus, in making this determination for each species, we must look at whether the proposed actions directly or indirectly reduce the reproduction, numbers, or distribution of a listed species. If there is a reduction in 1 or more of these elements, we evaluate whether it would be expected to cause an appreciable reduction in the likelihood of both the survival and the recovery of the species.

The NMFS and USFWS's ESA Section 7 Handbook (USFWS and NMFS 1998) defines survival and recovery, as they apply to the ESA's jeopardy standard. Survival means "the species' persistence…beyond the conditions leading to its endangerment, with sufficient resilience to allow recovery from endangerment." The Handbook further explains that survival is the condition in which a species continues to exist into the future while retaining the potential for recovery. This condition is characterized by a sufficiently large population, represented by all necessary age classes, genetic heterogeneity, and number of sexually mature individuals producing viable offspring, which exists in an environment providing all requirements for completion of the species' entire life cycle, including reproduction, sustenance, and shelter. Per the Handbook and the ESA regulations at 50 CFR 402.02, recovery means the "improvement in the status of a listed species to the point at which listing is no longer appropriate under the criteria set out in Section 4(a)(1) of the Act." Recovery is the process by which species' ecosystems are restored or threats to the species are removed so self-sustaining and self-regulating populations of listed species can be supported as persistent members of native biotic communities.

The analyses conducted in the previous sections of this Opinion provide the basis on which we determine whether the proposed action would be likely to jeopardize the continued existence of green (NA and SA DPSs), loggerhead (NWA DPS), and Kemp's ridley sea turtles, as well as giant manta ray. In Section 6, we outlined how the proposed action would affect these species at the individual level and the extent of those effects in terms of the number of associated interactions, captures, and mortalities of each species, to the extent possible, with the best available data. Now we assess each of these species' response to this impact, in terms of overall population effects, and whether those effects of the proposed action, in the context of the Status of the Species (Section 4), the Environmental Baseline (Section 5), and the Cumulative Effects (Section 7), are likely to jeopardize their continued existence in the wild.

The status of each listed species or DPS likely to be adversely affected by the proposed action is reviewed in Section 4. For any species listed globally, our jeopardy determination must find the proposed action will appreciably reduce the likelihood of survival and recovery at the global species range. For any species listed as DPSs, a jeopardy determination must find the proposed action will appreciably reduce the likelihood of survival and recovery of that DPS. Below, we re-evaluate the responses of green (NA and SA DPSs), loggerhead (NWA DPS), and Kemp's ridley sea turtles, as well as giant manta ray, to the effects of the action.

8.1 Green Sea Turtle

As noted in Section 4, we anticipate green sea turtles within the action area affected by the proposed action would consist of 96% from the NA DPS and 4% from the SA DPS based on the majority of fishery effort occurring in the Gulf of Mexico. We provide separate jeopardy analyses for each DPS below based on this DPS percentage split, which are calculated in Table 12 below. Due to rounding when calculating our estimates, an additional 1 sea turtle may be taken during hopper dredging activities, and could be attributed to any of the 3 affected species. Similarly, an additional 2 sea turtles may be taken during relocation trawling, and could be attributed to any of the 3 affected species. Therefore, the number in parenthesis indicates the potential greatest amount of take of the species by the indicated activity.

Table 11. Total Green Sea Turtle Take Estimates by DPS.

ACTIVITY	GREEN SEA TURTLE		
	TOTAL	NA DPS (96%)	SA DPS (4%)
HOPPER DREDGING (LETHAL)	72 (73)	69 (70)	3 (4)
RELOCATION TRAWLING (NON-LETHAL)	131 (133)	126 (128)	5 (7)

8.1.1 Green Sea Turtle NA DPS

<u>Survival</u>

We estimate hopper dredging will result in the lethal take of up to 70 green sea turtles and relocation trawling effort will result in the non-lethal capture of up to 128 green sea turtles from the NA DPS. The non-lethal capture of up to 128 green sea turtles from the NA DPS over the 3 years of anticipated hopper dredging activity (see Table 1) is not expected to have any measurable impact on the reproduction, numbers, or distribution of this species. Non-lethal captures will not result in a reduction in numbers of the species, as we anticipate these non-lethal captures to fully recover such that no reductions in reproduction or numbers of this species are anticipated. Since these captures would be released within the same general area where caught (i.e., within 10 nm), we anticipate no change in the distribution of NA DPS green sea turtles. The potential mortality of up to 70 green sea turtles from the NA DPS over the course of the proposed action would reduce the number of NA DPS green sea turtles, compared to their numbers in the absence of the proposed action, assuming all other variables remained the same. These moralities would also result in a reduction in future reproduction, assuming some individuals would be female and would have survived to reproduce in the future. For example, an adult green sea turtle can lay 3-4 clutches of eggs every 2-4 years, with approximately 110-115 eggs/nest, of which a small percentage are expected to survive to sexual maturity. While these mortalities are anticipated to occur within the action area, green sea turtles in the NA DPS generally have large ranges; thus, no reduction in the distribution is expected from these mortalities.

Whether the reductions in numbers and reproduction of this species would appreciably reduce its likelihood of survival depends on the probable effect the changes in numbers and reproduction would have relative to current population sizes and trends. In Section 4 (Status of Species), we presented the status of the DPS, outlined threats, and discussed information on estimates of the number of nesting females and nesting trends at primary nesting beaches. In Section 5 (Environmental Baseline), we outlined the past and present impacts of all state, federal, or private actions and other human activities in or having effects in the action area that have affected and continue to affect this DPS. We also included an extensive section on Climate Change in Section 5.4. Section 7 (Cumulative Effects) discussed the effects of future state, tribal, local, or private actions that are reasonably certain to occur within the action area. These effects are in addition to the other ongoing effects to the species, such as bycatch in fisheries, effects from other federal actions, and the potential effects of climate change, all of which we discussed in detail in the preceding sections of this Opinion. It is important to note that virtually all of the effects discussed have been occurring and affecting the species for decades. All of the previously discussed effects are part of the baseline upon which this analysis is founded, and the associated population level implications for the species are reflected in the species current population trends.

Seminoff et al. (2015) estimated that there are greater than 167,000 nesting green sea turtle females in the NA DPS. The nesting at Tortuguero, Costa Rica, accounts for approximately 79% of that estimate (approximately 131,000 nesters), with Quintana Roo, Mexico (approximately 18,250 nesters; 11%), and Florida, U.S. (approximately 8,400 nesters; 5%), also accounting for a large portion of the overall nesting (Seminoff et al. 2015). At Tortuguero, Costa Rica, the number of nests laid per year from 1999 to 2010 increased, despite substantial human impacts to the population at the nesting beach and at foraging areas (Campell and Lagueux 2005; Troëng and Rankin 2005). Nesting locations in Mexico along the Yucatan Peninsula also indicate the number of nests laid each year has deposited, but by 2000 this increased to over 1,500 nests/year (NMFS and USFWS 2007a). By 2012, more than 26,000 nests were counted in Quintana Roo (J. Zurita, *El Centro De Investigaciones De Quintana Roo*, unpublished data, 2013, in Seminoff et al. 2015). In Florida, most nesting occurs along the eastern central Atlantic coast, where a mean of 5,055 nests were deposited each year from 2001 to 2005 (Meylan et al. 2006) and 10,377 each year from 2008 to 2012 (B. Witherington, FWC, pers. comm., 2013). As described in Section 4 of this Opinion, nesting has increased substantially over the last 20 years peaking in 2019 with 40,911 nests at the index beaches in Florida. Nesting dropped again in 2020 as expected with the regular biennial fluctuation, but not as much of a drop as in the fast fluctuations, and then rebounded a bit in 2021, as the extreme high/low pattern we've seen in the past appears to be changing to some degree.

Although the anticipated mortalities would result in an instantaneous reduction in absolute population numbers, the U.S. populations of green sea turtles would not be appreciably affected. For a population to remain stable, sea turtles must replace themselves through successful reproduction at least once over the course of their reproductive lives, and at least one offspring must survive to reproduce itself. If the hatchling survival rate to maturity is greater than the mortality rate of the population, the loss of breeding individuals would be exceeded through recruitment of new breeding individuals. Since the abundance trend information for green sea turtles is clearly increasing while mortalities have been occurring, we believe the mortalities attributed to the proposed action will not have any measurable effect on that trend. In addition, up to 70 green sea turtles over 3 years represents a very small fraction (<0.2% annually) of the overall NA DPS female nesting population estimated by Seminoff et al. (2015).

As mentioned in previous sections, some of the likely effects commonly associated with climate change are sea level rise, increased frequency of severe weather events, and change in air and water temperatures. The potential effects, and the expected related effects to ESA-listed species (e.g., impacts to sea turtle nesting beaches and hatchling sex ratios, associated effects to prey species, etc.) stemming from climate change are the result of a slow and steady shift over a long time-period, and forecasting any specific critical threshold that may occur at some point in the future (e.g., several decades) is fraught with uncertainty.

In summary, green sea turtle nesting at the primary nesting beaches within the range of the NA DPS has been increasing over the past 2 decades, against the background of the past and ongoing human and natural factors (i.e., the environmental baseline) that have contributed to the current status of the species. We believe these nesting trends are indicative of a species with a high number of sexually mature individuals. Since the abundance trend information for NA DPS green sea turtles is increasing, we believe the mortality of up to 70 green sea turtles over the period considered by this Opinion will not have any measurable effect on that trend. After analyzing the magnitude of the effects of the proposed action, in combination with the past, present, and future expected impacts to the DPS discussed in this Opinion, we believe the proposed action covered under this Opinion is not reasonably expected to cause an appreciable reduction in the likelihood of survival of the green sea turtle NA DPS in the wild.

Recovery

The recovery plan for Atlantic green sea turtles (NMFS and USFWS 1991) lists the following recovery objectives, which are relevant to the proposed action in this Opinion, and must be met over a period of 25 continuous years:

- The level of nesting in Florida has increased to an average of 5,000 nests per year for at least 6 years.
- A reduction in stage class mortality is reflected in higher counts of individuals on foraging grounds.

Along the Atlantic coast of eastern central Florida, a mean of 5,055 nests were deposited each year from 2001 to 2005 (Meylan et al. 2006) and 10,377 each year from 2008 to 2012 (B. Witherington, FWC, pers. comm., 2013, as cited in Seminoff et al. 2015). Nesting has increased substantially over the last 20 years and peaked in 2011 with 15,352 nests statewide (Chaloupka et al. 2007; B. Witherington, FWC, pers. comm., 2013 as cited in Seminoff et al. 2015). The status review estimated total nester abundance for Florida at 8,426 turtles (Seminoff et al. 2015). As described above, sea turtle nesting in Florida is increasing. For the most recent 5-year period of statewide nesting beach survey data, there were 53,102 in 2017, 4,546 in 2018, 53,011 in 2019, 26,656 in 2020, and 32,680 in 2021 (see https://myfwc.com/research/wildlife/sea-turtles/nesting/monitoring/). Thus, this recovery criterion continues to be met.

Several actions are being taken to address the second objective; however, there are currently few studies, and no estimates, available that specifically address changes in abundance of individuals on foraging grounds. A study in the central region of the Indian River Lagoon (along the east coast of Florida) found a 661% increase in juvenile green sea turtle capture rates over a 24-year study period from 1982-2006 (Ehrhart et al. 2007). Wilcox et al. (1998) found a dramatic increase in the number of green sea turtles captured from the intake canal of the St. Lucie nuclear power plant on Hutchinson Island, Florida beginning in 1993. During a 16-year period from 1976-1993, green sea turtle captures averaged 24 per year. Green sea turtle catch rates for 1993, 1994, and 1995 were 745%, 804%, and 2,084% above the previous 16-year average annual catch rates (Wilcox et al. 1998). In a study of sea turtles incidentally caught in pound net gear fished in inshore waters of Long Island, New York, Morreale and Standora. (2005) documented the capture of more than twice as many green sea turtles in 2003 and 2004 with less pound net gear fished, compared to the number of green sea turtles captured in pound net gear in the area during the 1990s. Yet other studies have found no difference in the abundance (decreasing or increasing) of green sea turtles on foraging grounds in the Atlantic (Bjorndal et al. 2005; Epperly et al. 2007). Given the clear increases in nesting, however, it is reasonably likely that numbers on foraging grounds have increased.

The potential lethal take of up to 70 green sea turtles from the NA DPS as a result of the proposed action considered in this Opinion is unlikely to have any detectable influence on the recovery objectives and trends noted above, even when considered in the context of the of the Status of the Species, the Environmental Baseline, and Cumulative Effects.. Thus, the proposed action will not impede achieving the recovery objectives above and will not result in an appreciable reduction in the likelihood of NA DPS green sea turtles' recovery in the wild.

Conclusion

The combined lethal and non-lethal take of green sea turtles from the NA DPS associated with the proposed action is not expected to cause an appreciable reduction in the likelihood of either the survival or recovery of the NA DPS of green sea turtles in the wild.

8.1.2 Green Sea Turtle SA DPS

Survival

We estimate hopper dredging will result in the lethal take of up to 4 green sea turtles and relocation trawling will result in the non-lethal capture of up to 7 green sea turtles from the SA DPS. The non-lethal capture of up to 7 green sea turtles from the SA DPS over the course of the project (i.e., 3 years of hopper dredging activity; see Table 1) is not expected to have any measurable impact on the reproduction, numbers, or distribution of this species. The individual suffering non-lethal injuries or stresses is expected to fully recover such that no reductions in reproduction or numbers of this species are anticipated. Since these captures would be released within the same general area where caught (i.e., within 10 nm), we anticipate no change in the distribution of SA DPS green sea turtles. The potential mortality of up to 4 green sea turtles from the SA DPS over the course of the proposed action would reduce the number of SA DPS green sea turtles, compared to their numbers in the absence of the proposed action, assuming all other variables remained the same. These moralities could also result in a potential reduction in future reproduction, assuming some individuals would be female and would have survived to reproduce in the future. For example, an adult green sea turtle can lay 3-4 clutches of eggs every 2-4 years, with approximately 110-115 eggs/nest, of which a small percentage are expected to survive to sexual maturity. While these mortalities are anticipated to occur within the action area, however, green sea turtles in the SA DPS generally have large ranges; thus, no reduction in the distribution is expected from these mortalities.

Whether the reductions in numbers and reproduction of this species would appreciably reduce its likelihood of survival depends on the probable effect the changes in numbers and reproduction would have relative to current population sizes and trends. In Section 4 (Status of Species), we presented the status of the DPS, outlined threats, and discussed information on estimates of the number of nesting females and nesting trends at primary nesting beaches. In Section 5 (Environmental Baseline), we outlined the past and present impacts of all state, federal, or private actions and other human activities in or having effects in the action area that have affected and continue to affect this DPS. We also included an extensive section on Climate Change in Section 5.4. Section 7 (Cumulative Effects) discussed the effects of future state, tribal, local, or private actions that are reasonably certain to occur within the action area. These effects are in addition to the other ongoing effects to the species, such as bycatch in fisheries, effects from other federal actions, and the potential effects of climate change, all of which were already discussed in detail in the preceding sections of this Opinion. It is important to note that virtually all of the effects discussed have been occurring and affecting the species for decades. All of the previously discussed effects are part of the baseline upon which this analysis is founded, and the associated population level implications for the species are reflected in the species current population trends.

The SA DPS is large, estimated at over 63,000 nesting females, but data availability is poor with 37 of the 51 identified nesting sites not having sufficient data to estimate number of nesters or trends (Seminoff et al. 2015). While the lack of data was a concern due to increased uncertainty, the overall trend of the SA DPS was not considered to be a major concern. Some of the largest nesting beaches such as Ascension and Aves Islands in Venezuela and Galibi in Suriname appear to be increasing, with others (e.g., Trindade and Atol das Rocas, Brazil; Poiläo and the rest of Guinea-Bissau) appearing to be stable. In the U.S., nesting of SA DPS green sea turtles occurs in the SA DPS on beaches of the U.S. Virgin Islands, primarily on Buck Island and Sandy Beach, St. Croix, although there are not enough data to establish a trend. We believe the proposed action is not reasonably expected to cause, directly or indirectly, an appreciable reduction in the likelihood of survival of green sea turtles from the SA DPS in the wild. Although the potential mortality of up to 4 sea turtles from this DPS may occur as a result of the proposed action and would result in a reduction in absolute population numbers, the population of green sea turtles in the SA DPS would not be appreciably affected. Likewise, the reduction in reproduction that could occur due to these mortalities would not appreciably affect reproduction output in the South Atlantic.

As mentioned in previous sections, some of the likely effects commonly associated with climate change are sea level rise, increased frequency of severe weather events, and change in air and water temperatures. The potential effects, and the expected related effects to ESA-listed species (e.g., impacts to sea turtle nesting beaches and hatchling sex ratios, associated effects to prey species, etc.) stemming from climate change are the result of a slow and steady shift over a long time-period, and forecasting any specific critical threshold that may occur at some point in the future (e.g., several decades) is fraught with uncertainty. But given the short time period of the proposed action (i.e., 3 years of potential effects from hopper dredging and relocation trawling), we do not expect the effects of climate change will present a risk to the SA DPS green sea turtle population.

After analyzing the magnitude of the effects, in combination with the past, present, and future expected impacts to the DPS discussed in this Opinion, we believe the proposed action is not reasonably expected to cause an appreciable reduction in the likelihood of survival of the SA DPS of green sea turtle in the wild.

Recovery

As discussed for the NA DPS, the recovery plan for Atlantic green sea turtles (NMFS and USFWS 1991) lists the following recovery objectives, which are relevant to the proposed action in this Opinion, and must be met over a period of 25 continuous years:

- The level of nesting in Florida has increased to an average of 5,000 nests per year for at least 6 years.
- A reduction in stage class mortality is reflected in higher counts of individuals on foraging grounds.

The nesting recovery objective is specific to the NA DPS, but demonstrates the importance of increases in nesting to recovery. As previously stated, nesting at the primary SA DPS nesting beaches has been increasing over the past 3 decades. There are currently no estimates available specifically addressing changes in abundance of individuals on foraging grounds. Given the clear increases in nesting and in-water abundance, however, it is likely that numbers on foraging grounds have increased.

The potential mortality of up to 4 green sea turtles from the SA DPS will result in a reduction in numbers when they occur, but it is unlikely to have any detectable influence on the trends noted above, even when considered in context with the Status of the Species, the Environmental Baseline, and Cumulative Effects discussed in this Opinion. Similarly, we do not expect the non-lethal capture of up to 7 green sea turtles from the SA DPS to have any detectable influence on the recovery objectives above and will not result in an appreciable reduction in the likelihood of the SA DPS of green sea turtles' recovery in the wild.

Conclusion

The potential lethal take of up to 4 green sea turtles from the SA DPS as a result of the proposed action considered in this Opinion is unlikely to have any detectable influence on the recovery objectives and trends noted above, even when considered in the context of the of the Status of the Species, the Environmental Baseline, and Cumulative Effects.

8.2 Loggerhead Sea Turtle (NWA DPS)

Survival

We estimate that hopper dredging will result in the lethal take of up to 13 loggerhead sea turtles and relocation trawling will result in the non-lethal capture of up to 23 loggerhead turtles from the NWA DPS. The non-lethal capture of up to 23 loggerhead sea turtles (NWA DPS) over the course of the project (i.e., 3 years of hopper dredging activity; see Table 1) is not expected to have any measurable impact on the reproduction, numbers, or distribution of this species. Individuals suffering non-lethal injuries or stresses are expected to fully recover such that no reductions in reproduction or numbers of this species are anticipated. Since these captures would be released within the same general area where caught (i.e., within 10 nm), we anticipate no change in the distribution of NWA DPS loggerhead sea turtles.

The potential mortality of up to 13 loggerhead sea turtles from the NWA DPS over the course of the proposed action would reduce the number of NWA loggerhead sea turtles, compared to their numbers in the absence of the proposed action, assuming all other variables remained the same.. These moralities could also result in a potential reduction in future reproduction, assuming some individuals would be female and would have survived to reproduce in the future. For example, an adult female loggerhead sea turtle can lay approximately 4 clutches of eggs every 3-4 years, with 100-126 eggs per clutch. Thus, the loss of adult females could preclude the production of thousands of eggs and hatchlings of which a small percentage would be expected to survive to sexual maturity. However, the potential lethal take during any consecutive 3-year period is expected to occur in a small, discrete area and loggerhead sea turtle generally have large ranges; thus, no reduction in the distribution is expected from the take of these individuals.

Whether the reductions in numbers and reproduction of this species would appreciably reduce its likelihood of survival depends on the probable effect the changes in numbers and reproduction would have relative to current population sizes and trends. In Section 4 (Status of Species), we presented the status of the DPS, outlined threats, and discussed information on estimates of the number of nesting females and nesting trends at primary nesting beaches. In Section 5 (Environmental Baseline), we outlined the past and present impacts of all state, federal, or private actions and other human activities in or having effects in the action area that have affected and continue to affect this DPS. We also included an extensive section on Climate Change in Section 5.4. Section 7 (Cumulative Effects) discussed the effects of future state, tribal, local, or private actions that are reasonably certain to occur within the action area. These effects are in addition to the other ongoing effects to the species, such as bycatch in fisheries, effects from other federal actions, and the potential effects of climate change, all of which were already discussed in detail in the preceding sections of this Opinion. It is important to note that virtually all of the effects discussed have been occurring and affecting the species for decades. All of the previously discussed effects are part of the baseline upon which this analysis is founded, and the associated population level implications for the species are reflected in the species current population trends.

Loggerhead sea turtles are a slow growing, late-maturing species. Because of their longevity, loggerhead sea turtles require high survival rates throughout their life to maintain a population. In other words, late-maturing species cannot tolerate too much anthropogenic mortality without going into decline. Conant et al. (2009) concluded that loggerhead natural growth rates are small, natural survival needs to be high, and even low to moderate mortality can drive the population into decline. Because recruitment to the adult population takes many years, population modeling studies suggest even small increased mortality rates in adults and subadults could substantially impact population numbers and viability (Chaloupka and Musick 1997; Crouse et al. 1987; Crowder et al. 1994).

NMFS (2009f) estimated the minimum adult female population size for the NWA DPS in the 2004-2008 time frame to likely be between approximately 20,000-40,000 individuals (median 30,050), with a low likelihood of being as many as 70,000 individuals; we refer to the NWA DPS, even when discussing information in references published prior to the 2011 DPS listing, for consistency and ease of interpretation in this analysis. Another estimate for the entire NWA DPS was a mean of 38,334 adult females using data from 2001-2010 (Richards et al. 2011). A much less robust estimate for total benthic females in the NWA DPS was also obtained, with a likely range of approximately 30,000-300,000 individuals, up to less than 1,000,000. NMFS (2011) preliminarily estimated the loggerhead population in the NWA DPS along the continental shelf of the Eastern Seaboard during the summer of 2010 at 588,439 individuals (estimate ranged from 381,941 to 817,023) based on positively identified individuals. Our NEFSC's point estimate increased to approximately 801,000 individuals when including data on unidentified sea turtles that were likely loggerheads. NMFS (2011) underestimates the total population of loggerheads since it did not include Florida's east coast south of Cape Canaveral or the Gulf of Mexico, which are areas where large numbers of loggerheads can also be found. In other words, it provides an estimate of a subset of the entire population. These numbers were derived prior to additional years of increased nesting.

Florida accounts for more than 90% of U.S. loggerhead nesting. FWRI examined the trend from the 1998 nesting high through 2016 and found that the decade-long post-1998 decline was replaced with a slight but non-significant increasing trend. Looking at the data from 1989 through 2016, FWRI concluded that there was an overall positive change in the nest counts although it was not statistically significant due to the wide variability from 2012-2016 resulting in widening confidence intervals. Nesting at the core index beaches declined in 2017 to 48,033, and rose again each year through 2020, reaching 53,443 nests before dipping back to 49,100 in 2021. However, it is important to note that with the wide confidence intervals and uncertainty around the variability in nesting parameters (changes and variability in nests/female, nesting intervals, etc.), it is unclear whether the nesting trend equates to an increase in the population or nesting females over that time frame (Ceriani et al. 2019).

We have not previously conducted a population viability analysis (PVA) for the NWA DPS of loggerhead sea turtles in the southeast U.S., and opted again not to conduct one for this Opinion. While we have utilized a PVA for loggerheads in some capacity for some fisheries (e.g., the

Atlantic sea scallop fishery, though that analysis did not model the viability of the entire loggerhead population), we ultimately decided not to pursue a PVA for this action as a PVA for the NWA DPS of loggerheads, or any other DPS for that matter, has not been constructed since there are no estimates of the number of mature males, immature males, and immature females in the population and the age structure of the population is unknown. The approach employed in this Opinion is consistent with past analyses conducted on this and other fisheries in the southeast U.S., and we believe its conclusions are sound and accurate.

In summary, abundance estimates accounting for only a subset of the entire loggerhead sea turtle population in the NWA DPS indicate the population is large (i.e., several hundred thousand individuals). Furthermore, overall long-term nesting trends have been level or increasing over the years.

The proposed action could remove up to 13 individuals over the duration of the proposed action (i.e., 3 years of hopper dredging activity; see Table 1), or an annual average of approximately 4 loggerhead sea turtles. These removed individuals represent approximately 0.00105% annually on the low end of the NMFS (2011) estimate of 381,941 loggerheads within the Northwest Atlantic continental shelf (as opposed to pelagic juveniles on the open ocean). As noted above, this estimate reflects a subset of the entire population for the NWA DPS of loggerhead sea turtles, and thus these individuals represent an even smaller proportion of the population removed. While the loss of up to 13 individuals is an impact to the population, in the context of the overall population's size and current trend, we do not expect it to result in a detectable change to the population numbers or trend. The amount of loss is likely smaller than the error associated with estimating (through extrapolation) the overall population in the 2011 report. Consequently, we expect the population within the NWA DPS to remain large (i.e., hundreds of thousands of individuals) and to retain the potential for recovery. We also expect the proposed action will not cause the population to lose genetic heterogeneity, broad demographic representation, or successful reproduction, nor affect loggerheads' ability to meet their lifecycle requirements, including reproduction, sustenance, and shelter.

After analyzing the magnitude of the effects, in combination with the past, present, and future expected impacts to the DPS discussed in this Opinion, we believe that the proposed action is not reasonably expected to cause an appreciable reduction in the likelihood of survival of the NWA DPS of loggerhead sea turtle in the wild.

Recovery

The recovery plan for the Northwest Atlantic population of loggerhead sea turtles (NMFS and USFWS 2008) was written prior to the loggerhead sea turtle DPS listings. However, this plan deals with the populations that comprise the current NWA DPS and is, therefore, the best information on recovery criteria and goals for the DPS. The plan's recovery goal for loggerhead sea turtles is "to ensure that each recovery unit meets its Recovery Criteria alleviating threats to the species so that protection under the ESA is no longer necessary" (NMFS and USFWS 2008). The plan then identifies 13 recovery objectives needed to achieve that goal. Elements of the proposed action support or implement the specific actions needed to achieve a number of these recovery objectives. Thus, we do not believe the proposed action impedes the progress of the recovery program or achieving the overall recovery strategy.

The plan lists the following recovery objectives that are relevant to the effects of the proposed action:

- Ensure that the number of nests in each recovery unit is increasing and that this increase corresponds to an increase in the number of nesting females.
- Ensure the in-water abundance of juveniles in both neritic and oceanic habitats is increasing and is increasing at a greater rate than strandings of similar age classes.

The recovery plan anticipates that, with implementation of the plan, the NWA DPS will recover within 50-150 years, but notes that reaching recovery in only 50 years would require a rapid reversal of the then-declining trends of the NRU, PFRU, and NGMRU. The minimum end of the range assumes a rapid reversal of the current declining trends; the higher end assumes that additional time will be needed for recovery actions to bring about population growth.

Ensuring that the number of nests in each recovery unit is increasing is the recovery plans first recovery objective and, moreover, is the plan's overarching objective with associated demographic criteria. Nesting trends in most recovery units have been stable or increasing over the past couple of decades. As noted previously, we believe the future takes predicted will be similar to the levels of take that have occurred in the past and those past takes did not impede the positive trends we are currently seeing in nesting during that time. We also indicated that the potential lethal take of up to 13 loggerhead sea turtles is so small in relation to the overall population on the continental shelf (which does not include the large, but unknown pelagic population numbers), that it would be hardly detectable. For these reasons, we do not believe the proposed action will impede achieving this recovery objective and will not result in an appreciable reduction in the likelihood of NWA DPS of loggerhead sea turtles' recovery in the wild.

While the take of neritic juveniles may occur during the proposed action, relocation trawling measures are in place to avoid or minimize lethal take by hopper dredges. For this reason, we do not believe the proposed action will impede achieving this recovery objective and will not result in an appreciable reduction in the likelihood of NWA DPS of loggerhead sea turtles' recovery in the wild.

Conclusion

The potential mortality of up to 13 loggerhead sea turtles from the NWA DPS will result in a reduction in numbers and reproduction when they occur, but it is unlikely to have any detectable influence on the trends noted above, even when considered in context with information in Sections 4 (Status of the Species), 5 (Environmental Baseline), and 7 (Cumulative Effects) discussed in this Opinion. Similarly, we do not expect the non-lethal capture of up to 23 loggerhead sea turtles from the NWA DPS to have any detectable influence on the recovery objectives. Therefore, we conclude the proposed action considered in this Opinion is unlikely to have any detectable influence on the recovery objectives and trends noted above, even when considered in the context of the of the Status of the Species, the Environmental Baseline, and Cumulative Effects.

8.3 Kemp's Ridley Sea Turtle

Survival

We estimate hopper dredging will result in the lethal take of up to 12 Kemp's ridley sea turtles, and relocation trawling will result in the non-lethal capture of up to 22 Kemp's ridley sea turtles. The non-lethal capture of up to 22 Kemp's ridley sea turtles over the course of the project (i.e., 3 years of hopper dredging activity; see Table 1) is not expected to have any measurable impact on the reproduction, numbers, or distribution of this species. The individual suffering non-lethal injuries or stresses are expected to fully recover such that no reductions in reproduction or numbers of this species are anticipated. Since these captures would be released within the same general area where caught (i.e., within 10 nm), we anticipate no change in the distribution of Kemp's ridley sea turtles. The mortality of up to 12 Kemp's ridley sea turtles over the course of the proposed action would reduce the species' population compared to the number that would have been present in the absence of the proposed actions, assuming all other variables remained the same. These moralities could also result in a potential reduction in future reproduction, assuming some individuals would be female and would have survived to reproduce in the future.

Whether the reductions in numbers and reproduction of this species would appreciably reduce its likelihood of survival depends on the probable effect the changes in numbers and reproduction would have relative to current population sizes and trends. In Section 4 (Status of Species), we presented the status of the species, outlined threats, and discussed information on estimates of the number of nesting females and nesting trends at primary nesting beaches. In Section 5 (Environmental Baseline), we outlined the past and present impacts of all state, federal, or private actions and other human activities in or having effects in the action area that have affected and continue to affect this species. We also included an extensive section on Climate Change in Section 5.4. Section 7 (Cumulative Effects) discussed the effects of future state, tribal, local, or private actions that are reasonably certain to occur within the action area. These effects are in addition to the other ongoing effects to the species, such as bycatch in fisheries, effects from other federal actions, and the potential effects of climate change, all of which were already discussed in detail in the preceding sections of this Opinion. It is important to note that virtually all of the effects discussed have been occurring and affecting the species for decades. All of the previously discussed effects are part of the baseline upon which this analysis is founded, and the associated population level implications for the species are reflected in the species current population trends.

Nest count data provides the best available information on the number of adult females nesting each year. As is the case with other sea turtles species, nest count data must be interpreted with caution given that these estimates provide a minimum count of the number of nesting Kemp's ridley sea turtles. In addition, the estimates do not account for adult males or juveniles of either sex. Without information on the proportion of adult males to females and the age structure of the population, nest counts cannot be used to estimate the total population size (Meylan 1982; Ross 1996). Nevertheless, the nesting data does provide valuable information on the extent of Kemp's ridley nesting and the trend in the number of nests laid, and represents the best proxy we have for estimating population changes.

Following a significant, unexplained 1-year decline in 2010, Kemp's ridley nests in Mexico increased to 21,797 in 2012 (Gladys Porter Zoo 2013). From 2013 through 2014, there was a second significant decline, as only 16,385 and 11,279 nests were recorded, respectively. More recent data, however, indicated an increase in nesting. In 2015 there were 14,006 recorded nests, and in 2016 overall numbers increased to 18,354 recorded nests (Gladys Porter Zoo 2016). There was a record high nesting season in 2017, with 24,570 nests recorded (J. Pena, pers. comm., August 31, 2017), but nesting for 2018 declined to 17,945, with another steep drop to 11,090 nests in 2019 (Gladys Porter Zoo data, 2019). Nesting numbers rebounded in 2020 (18,068 nests) and 2021 (17,671 nests) (CONAMP data, 2021). At this time, it is unclear whether the increases and declines in nesting seen over the past decade represents a population oscillating around an equilibrium point or if nesting will decline or increase in the future. A small nesting population is also emerging in the United States, primarily in Texas, rising from 6 nests in 1996 to 42 in 2004, to a record high of 353 nests in 2017 (NPS data). It is worth noting that nesting in Texas has paralleled the trends observed in Mexico, characterized by a significant decline in 2010, followed by a second decline in 2013-2014, but with a rebound in 2015, the record nesting in 2017, and then a drop back down to 190 nests in 2019, rebounding to 262 nests in 2020, and back to 195 nests in 2021 (NPS data).

Estimates of the adult female nesting population reached a low of approximately 250-300 in 1985 (NMFS and USFWS 2015; TEWG 2000). Galloway et al. (2016) developed a stock assessment model for Kemp's ridley to evaluate the relative contributions of conservation efforts and other factors toward this species' recovery. Terminal population estimates for 2012 summed over ages 2 to 4, ages 2+, ages 5+, and ages 9+ suggest that the respective female population sizes were 78,043 (SD = 14,683), 152,357 (SD = 25,015), 74,314 (SD =10,460), and 28,113 (SD = 2,987) (Gallaway et al. 2016). Using the standard IUCN protocol for sea turtle assessments, the number of mature individuals was recently estimated at 22,341 (Wibbels and Bevan 2019). The calculation took into account the average annual nests from 2016-2018 (21,156), a clutch frequency of 2.5 per year, a remigration interval of 2 years, and a sex ratio of 3.17 females:1 male. Based on the data in their analysis, the assessment concluded the current population trend is unknown (Wibbels and Bevan 2019). However, some positive outlooks for the species include recent conservation actions, including the expanded TED requirements in the skimmer trawl sector of the shrimp fisheries (84 FR 70048, December 20, 2019; 86 FR 16676, March 31, 2021) and a decrease in the amount of overall shrimping off the coast of Tamaulipas and in the Gulf of Mexico (NMFS and USFWS 2015).

Genetic variability in Kemp's ridley turtles is considered to be high, as measured by nuclear DNA analyses (i.e., microsatellites) (NMFS et al. 2011). If this holds true, then rapid increases in population over 1 or 2 generations would likely prevent any negative consequences in the genetic variability of the species (NMFS et al. 2011). Additional analysis of the mtDNA taken from samples of Kemp's ridley turtles at Padre Island, Texas, showed 6 distinct haplotypes, with one found at both Padre Island and Rancho Nuevo (Dutton et al. 2006).

The proposed action could remove up to 12 individuals over the duration of the proposed action (i.e., 3 years of hopper dredging activity as documented in Table 1), or an annual average of approximately 4 Kemp's ridley sea turtles. These removed individuals represent approximately 0.018% annually of the sexually-mature population estimated in Wibbels and Bevan (2019). While the loss of up to 12 individuals is an impact to the population, in the context of the overall population's size and current trend, we do not expect it to result in a detectable change to the population numbers or trend.

It is important to remember that with significant inter-annual variation in nesting data, sea turtle population trends necessarily are measured over decades and the long-term trend line better reflects the population increase in Kemp's ridleys. With the recent nesting data, the population trend has become less clear. Nonetheless, data from 1990 to present continue to support that Kemp's ridley sea turtles have shown a generally increasing nesting trend. Even with reported biennial fluctuations in nesting numbers from Mexican beaches, all years since 2006 have reported over 10,000 nests per year, indicating an increasing population over the previous decades. We believe this long-term trend in nesting is likely evidence of a generally increasing population, as well as a population that is maintaining (and potentially increasing) its genetic diversity. These nesting data are indicative of a species with a high number of sexually mature individuals. All of those positive population trends have arisen with all the adverse effects included in the baseline. The loss of 12 Kemp's ridleys over the course of the proposed action is not expected to change the trend in nesting, the distribution of, or the reproduction of Kemp's ridley sea turtles. Therefore, we do not believe the proposed action will cause an appreciable reduction in the likelihood of survival of this species in the wild.

Recovery

As to whether the dredging will appreciably reduce the species' likelihood of recovery, the recovery plan for the Kemp's ridley sea turtle (NMFS et al. 2011) lists the following relevant recovery objective:

- Demographic: A population of at least 10,000 nesting females in a season (as measured by clutch frequency per female per season) distributed at the primary nesting beaches (Rancho Nuevo, Tepehuajes, and Playa Dos) in Mexico is attained. Methodology and capacity to implement and ensure accurate nesting female counts have been developed.

With respect to the demographic recovery objective, the nesting numbers in the most recent 3 years indicate there were 11,090 nests in 2019, 18,068 in 2020, and 17,671 in 2021 on the main nesting beaches in Mexico. Based on 2.5 clutches/female/season, these numbers represent approximately 4,436 (2019), 7,227 (2020), and 7,068 (2021) nesting females in each season. The number of nests reported annually from 2010 to 2014 declined overall; however, they rebounded in 2015 through 2017, and declined again in 2018 and 2019. Although there has been a substantial increase in the Kemp's ridley population within the last few decades, the number of nesting females is still below the number of 10,000 nesting females per season required for downlisting (NMFS and USFWS 2015). Since we concluded that the potential loss of Kemp's ridley sea turtles is not likely to have any detectable effect on nesting trends, we do not believe the proposed action will impede progress toward achieving this recovery objective. Non-lethal captures of these sea turtles would not affect the adult female nesting population or number of nests per nesting season.

Conclusion
The potential lethal take of up to 12 Kemp's ridley sea turtles as a result of the proposed action considered in this Opinion is unlikely to have any detectable influence on the recovery objectives and trends noted above, even when considered in the context of the of the Status of the Species, the Environmental Baseline, and Cumulative Effects.

8.4 Giant Manta Ray

We estimate relocation trawling will result in the non-lethal capture of up to 2 giant manta ray.

Survival
The non-lethal capture of up to 2 giant manta ray over the course of the project (i.e., 3 years of hopper dredging activity; see Table 1) is not expected to have any measurable impact on the reproduction, numbers, or distribution of this species. The individuals captured are expected to fully recover such that no reductions in reproduction or numbers of this species are anticipated. Since these captures would be released within the same general area where caught (i.e., within 10 nm), we anticipate no change in the distribution of giant manta ray.

Recovery
A recovery plan for giant manta ray has not yet been developed; however, we published a recovery outline for the species (NMFS 2019). The recovery outline serves as an interim guidance to direct recovery efforts for giant manta ray. The recovery outline identifies two primary interim goals:

- Stabilize population trends through reduction of threats, such that the species is no longer declining throughout a significant portion of its range; and
- Gather additional information through research and monitoring on the species' current distribution and abundance, movement and habitat use of adult and juveniles, mortality rates in commercial fisheries (including at-vessel and PRM), and other potential threats that may contribute to the species' decline.

The major threats affecting the giant manta ray were summarized in the final listing rule (83 FR 2619, Publication Date January 22, 2018). The most significant threats to the giant manta ray are overutilization by foreign commercial and artisanal fisheries in the Indo-Pacific and Eastern Pacific and inadequate regulatory mechanisms in foreign nations to protect this species from the heavy fishing pressure and related mortality in these waters outside of U.S. jurisdiction. Other threats that potentially contribute to long-term risk of the species include: (micro)plastic ingestion rates, increased parasitic loads as a result of climate change effects, and potential disruption of important life history functions as a result of increased tourism. However, due to the significant data gaps, the likelihood and impact of these threats on the status of the species is highly uncertain. Recreational fishing interactions are not considered a major threat to this species and we do not believe the proposed action will appreciably reduce the recovery of giant manta ray, by significantly exacerbating effects of any of the major threats identified in the final listing rule.

The individuals suffering non-lethal capture are expected to fully recover such that no reductions in reproduction or numbers of giant manta rays are anticipated. The non-lethal capture will occur at in a discrete location and the action area encompasses only a portion of the overall range or distribution of giant manta rays. Any incidentally caught animal would be released within the general area where caught and no change in the distribution of giant manta rays would be anticipated. Therefore, the non-lethal capture of giant manta rays associated with the proposed action are not expected to cause an appreciable reduction in the likelihood of recovery of the giant manta rays in the wild.

Conclusion

The proposed action is not likely to impede giant manta rays from continuing to survive and will not impede the process of restoring the ecosystems that affect giant manta rays. The proposed action will not have any detectable effect on the overall size of the population; we do not expect it to affect the giant manta ray’s ability to meet its lifecycle requirements and to retain the potential for recovery; and operation of the fisheries will not alter the rates of dispersal and gene flow. Based on the evidence available, we conclude the estimated non-lethal capture of 2 giant manta rays as a result of the proposed action considered in this Opinion is unlikely to have any detectable influence on the recovery objectives and trends noted above, even when considered in the context of the of the Status of the Species, the Environmental Baseline, and Cumulative Effects.

9 INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and protective regulations issued pursuant to Section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that would otherwise be considered prohibited under Section 9 or Section 4(d), but which is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the RPMs and the terms and conditions of the ITS of the Opinion.

Section 7(b)(4)(c) of the ESA specifies that to provide an ITS for an endangered or threatened species of marine mammal, the taking must be authorized under Section 101(a)(5) of the MMPA. Since no incidental take of listed marine mammals is expected or has been authorized under Section 101(a)(5) of the MMPA, no statement on incidental take of protected marine mammals is provided and no take is authorized.

The take of the giant manta ray by the proposed action is not prohibited, as no Section 4(d) Rule for the species has been promulgated. However, a 9th Circuit Court case held that non-prohibited incidental take must be included in the ITS (*CBD v. Salazar*, 695 F.3d 893 [9th Cir. 2012]). Though the *Salazar* case is not a binding precedent for this action outside of the 9th Circuit, we find the reasoning persuasive and is following the case out of an abundance of caution and anticipates the ruling will be more broadly followed in future cases. Providing an exemption from Section 9 liability is not the only important purpose of specifying take in an ITS. Specifying incidental take ensures we have a metric against which we can measure whether or not reinitiation of consultation is required. It also ensures that we identify RPMs we believe are necessary or appropriate to minimize the impact of such incidental take.

9.1 Anticipated Incidental Take

As discussed in Section 6, we anticipate the proposed action will result in the take of green (NA and SA DPSs), loggerhead (NWA DPS), and Kemp’s ridley sea turtles, as well as giant manta ray, as summarized in Table 13. Due to rounding and other issues when calculating our estimates, an additional 1 sea turtle may be taken during hopper dredging activities, and could be attributed to any of the 3 affected species. An additional 2 sea turtles may be taken during relocation trawling, and could be attributed to any of the 3 affected species. Therefore, the number in parenthesis indicates the potential greatest amount of take of the species by the indicated activity.

Table 12. Summary of Expected Take Resulting From the Proposed Action.

ACTIVITY	SPECIES TAKE			
	GREEN SEA TURTLE	LOGGERHEAD SEA TURTLE	KEMP’S RIDLEY SEA TURTLE	GIANT MANTA RAY
HOPPER DREDGING (LETHAL)	72 (73)	12 (13)	11 (12)	0
RELOCATION TRAWLING (NON-LETHAL)	131 (133)	21 (23)	20 (22)	2

9.2 Effect(s) of the Take

We have determined that the anticipated take specified in Section 9.1 is not likely to jeopardize the continued existence of Kemp’s ridley, green (NA and SA DPSs), and loggerhead (NWA DPS) sea turtles, as well as giant manta ray, as a result of the proposed action.

9.3 Reasonable and Prudent Measures

Section 7(b)(4) of the ESA requires us to issue to any federal agency whose proposed action is found to comply with Section 7(a)(2) of the ESA, but may incidentally take individuals of listed species, a statement specifying the impact of that taking. The ITS must specify the RPMs necessary to minimize the impacts of the incidental taking from the proposed action on the species, and Terms and Conditions to implement those measures. Per Section 7(o)(2), and incidental taking that complies with the specified terms and conditions is not considered to be prohibited taking of the species concerned.

The RPMs and terms and conditions are required to document the incidental take by the proposed action and to minimize the impact of that take on ESA-listed species 50 CFR 402.14 (i)(1)(ii) and (iv). These measures and terms and conditions must be implemented by USACE for the protection of Section 7(o)(2) to apply. The USACE has a continuing duty to ensure compliance with the reasonable and prudent measures and terms and conditions included in this ITS. If it fails to adhere to the terms and conditions of the ITS through enforceable terms, or fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7(o)(2) may lapse. To monitor the impact of the incidental take, the USACE must report the progress of the action and its impact on the species to us, as specified in the ITS (per 50 CFR 402.14(i)(3)).

We have determined that the following RPMs are necessary and appropriate to minimize impacts of the incidental take of ESA-listed species related to the proposed action. The following RPMs and associated terms and conditions are established to implement these measures, and to document incidental takes. Only incidental takes that occur while these measures are in full implementation are authorized. These restrictions remain valid until reinitiation and conclusion of any subsequent Section 7 consultation.

RPM 1: Avoidance/Mitigation of Project-Related Effects

The USACE and its contractors must have measures in place to avoid and/or minimize interactions with any protected species resulting from the proposed action, as appropriate.

RPM 2: Handling

USACE must ensure observers handle sea turtles and giant manta ray in a manner that prevents injury and helps ensure survivability upon release.

RPM 3: Reporting

USACE must notify local STSSN of all activities and report to us any dredge takes that occur during the proposed action.

9.4 Terms and Conditions

To be exempt from take prohibitions established by Section 9 of the ESA, USACE must comply with the following terms and conditions, which implement the RPMs described above. These terms and conditions are mandatory.

The following terms and conditions implement RPM 1:

1. From March 15 through October 1, sea turtle nesting and emergence season, all lighting aboard all dredges and support vessels operating within 3 nm of sea turtle nesting beaches would be limited to the minimal lighting necessary to comply with USCG and OSHA requirements. Non-essential lighting must be minimized through reduction, shielding, lowering, and appropriate placement.
2. Any PSO contracted by USACE or PCCA must be NMFS-approved.
3. Relocation trawling must be undertaken by a NMFS-approved PSO retained by the PCCA if hopper dredging activities result in either (a) 2 or more lethal sea turtle takes occur in a 24-hour period or, (b) more than 4 lethal sea turtle takes occur during the proposed action.
4. A state-of-the-art rigid deflector draghead must be used on hopper dredges at all times of the year. Dredging pumps must be disengaged by the operator when the dragheads are not firmly on the bottom as indicated by sensors to prevent impingement or entrainment of sea turtles within the water column.
5. NMFS-approved PSOs must be aboard the hopper dredges or disposal barge during material placement. Operations shall cease if an ESA-listed species is observed within 150 feet of operations. Activities shall not resume until the protected species has departed the project area of its own volition (e.g., species was observed departing or 20 minutes have passed since the animal was last seen in the area).

The following term and condition implement RPM 2:

1. Proper handling of any protected species incidentally caught during relocation trawling operations is essential to increase the likelihood of its survival. For giant manta ray and sea turtles, observers must use the safe handling and release guidelines provided in Appendix 2.

The following terms and conditions implement RPM 3:

1. NMFS-approved PSOs must be aboard the hopper dredges to monitor the hopper bin, screening, and dragheads for sea turtles and their remains. Observer coverage sufficient for 100% monitoring (i.e., 2 observers) of hopper dredging operations must be implemented.
2. Observer reports of incidental take by hopper dredges must be submitted by email (takereport.nmfsser@noaa.gov) to us by onboard PSOs within 24 hours of any observed sea turtle take. Reports must contain information on location, start-up and completion dates, cubic yards of material dredged, problems encountered,

incidental takes, and sightings of protected species, mitigative actions taken, screening type, and daily water temperatures.

3. An end-of-project summary report of the project, including dredge takes by species and relocation trawler effort, must be posted to the USACE ODESS website within 30 working days of completion of the proposed action.
4. USACE will insure PCCA or its representative that it must notify the Texas STSSN representative of start-up and completion of dredging and relocation trawling operations. The STSSN must be notified of any turtle strandings in the project area that may bear the signs of interaction with a dredge. Stranded sea turtles would be reported to the Texas sea turtle hotline (1-866-TURTLE5 or 1-866-887-8535).

10 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authority to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations identified in Opinions can assist action agencies in implementing their responsibilities under Section 7(a)(1). Conservation recommendations are discretionary activities designed to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The following conservation recommendations are discretionary measures that we believe are consistent with this obligation and, therefore, should be carried out by USACE:

1. We recommend the USACE upload historical dredging reports to ODESS and maintain the repository to aid future Section 7 consultations on dredging projects.

2. We recommend the USACE require all personnel to report giant manta ray sightings to the giant manta ray recovery coordinator at SERO PRD. Giant manta ray's observations should be photographed and include the latitude/longitude, date, and environmental conditions at the time of the sighting.

11 REINITIATION OF CONSULTATION

This concludes formal consultation on the proposed action. As provided in 50 CFR 402.16, reinitiation of formal consultation is required and shall be requested by the USACE or by the Service, where discretionary federal action agency involvement or control over the action has been retained, or is authorized by law, and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action on listed species or designated critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the USACE must immediately request reinitiation of formal consultation and project activities may only resume if the USACE establishes that such continuation will not violate Sections 7(a)(2) and 7(d) of the ESA.

12 LITERATURE CITED

Abele, L.G., and W. Kim. 1986. An Illustrated Guide to the Marine Decapod Crustaceans of Florida. State of Florida Department of Environmental Regulation, Technical Series, 8. 760 pp.

Ackerman, R.A. 1997. The Nest Environment and the Embryonic Development of Sea Turtles. Pages 83-106 *in* P.L. Lutz and J.A. Musick, editors. The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Adams, D.H., and E. Amesbury. 1998. Occurrence of the Manta Ray, *Manta Birostris*, in the Indian River Lagoon, Florida. Florida Scientist, 61(1):7-9.

Addison, D. 1997. Sea Turtle Nesting on Cay Sal, Bahamas, Recorded June 2-4, 1996. Bahamas Journal of Science, 5(1):34-35.

Addison, D., and B. Morford. 1996. Sea Turtle Nesting Activity on the Cay Sal Bank, Bahamas. Bahamas Journal of Science, 3(3):31-36.

Aguilar, R., J. Mas, and X. Pastor. 1994. Impact of Spanish Swordfish Longline Fisheries on the Loggerhead Sea Turtle *Caretta Caretta* Population in the Western Mediterranean. Pages 91-96 *in* J.I. Richardson and T. H. Richardson, editors. Proceedings of the 12th Annual Workshop on Sea Turtle Biology and Conservation. U.S. Department of Commerce, Jekyll Island, Georgia.

Aguirre, A.A., G.H. Balazs, T. Spraker, S.K.K. Murakawa, and B. Zimmerman. 2002. Pathology of Oropharyngeal Fibropapillomatosis in Green Turtles *Chelonia Mydas*. Journal of Aquatic Animal Health, 14:298-304.

Aguirre, A.A., G.H. Balazs, B. Zimmerman, and F.D. Galey. 1994. Organic Contaminants and Trace Metals in the Tissues of Green Turtles (*Chelonia Mydas*) Afflicted with Fibropapillomas in the Hawaiian Islands. Marine Pollution Bulletin, 28(2):109-114.

Amos, A.F. 1989. The Occurrence of Hawksbills (*Eretmochelys Imbricata*) Along the Texas Coast. Pages 9-11 *in* S.A. Eckert, K.L. Eckert, and T.H. Richardson, editors. Ninth Annual Workshop on Sea Turtle Conservation and Biology, Jekyll Island, Georgia.

Antonelis, G.A., J.D. Baker, T.C. Johanos, R.C. Braun, and A.L. Harting. 2006. Hawaiian Monk Seal (*Monachus Schauinslandi*): Status and Conservation Issues. Atoll Research Bulletin 543:75-101.

Arendt, M., J. Byrd, A. Segars, P. Maier, J. Schwenter, J.B.D. Burgess, J.D. Whitaker, L. Liguori, L. Parker, D. Owens, and G. Blanvillain. 2009. Examination of Local Movement and Migratory Behavior of Sea Turtles During Spring and Summer Along the Atlantic Coast off the Southeastern United States. South Carolina Department of Natural Resources, Marine Resources Division.

Arendt, M.D., J.A. Schwenter, B.E. Witherington, A.B. Meylan, and V.S. Saba. 2013. Historical Versus Contemporary Climate Forcing on the Annual Nesting Variability of Loggerhead Sea Turtles in the Northwest Atlantic Ocean. PLOS ONE, 8(12).

Attrill, M.J., J. Wright, and M. Edwards. 2007. Climate-Related Increases in Jellyfish Frequency Suggest a More Gelatinous Future for the North Sea. Limnology and Oceanography, 52(1): 480-485.

Avens, L., J.C. Taylor, L.R. Goshe, T.T. Jones, and M. Hastings. 2009. Use of Skeletochronological Analysis to Estimate the Age of Leatherback Sea Turtles *Dermochelys Coriacea* in the Western North Atlantic. Endangered Species Research, 8(3):165-177.

Babcock, E.A., M.C. Barnette, J. Bohnsack, J.J. Isely, C. Porch, P.M. Richards, C. Sasso, and X. Zhang. 2018. Integrated Bayesian Models to Estimate Bycatch of Sea Turtles in the Gulf of Mexico and Southeastern U.S. Atlantic Coast Shrimp Otter Trawl Fishery. NOAA Technical Memorandum NMFS-SEFSC-721. 47 pp.

Baker, J., C. Littnan, and D. Johnston. 2006. Potential Effects of Sea-Level Rise on Terrestrial Habitat and Biota of the Northwestern Hawaiian Islands. Page 3 *in* Twentieth Annual Meeting Society for Conservation Biology Conference, San Jose, California.

Balazs, G.H. 1982. Growth Rates of Immature Green Turtles in the Hawaiian Archipelago. Pages 117-125 *in* K.A. Bjorndal, editor. Biology and Conservation of Sea Turtles. Smithsonian Institution Press, Washington, D.C.

Balazs, G.H. 1983. Recovery Records of Adult Green Turtles Observed or Originally Tagged at French Frigate Shoals, Northwestern Hawaiian Islands. National Oceanographic and Atmospheric Administration, National Marine Fisheries Service, NOAA-TM-NMFS-SWFC-36.

Balazs, G.H. 1985. Impact of Ocean Debris on Marine Turtles: Entanglement and Ingestion. Pages 387-429 *in* R.S. Shomura and H.O. Yoshida, editors. Workshop on the Fate and Impact of Marine Debris, Honolulu, Hawaii.

Bass, A.L., D.A. Good, K.A. Bjorndal, J.I. Richardson, Z. Hillis, J.A. Horrocks, and B.W. Bowen. 1996. Testing Models of Female Reproductive Migratory Behaviour and Population Structure in the Caribbean Hawksbill Turtle, *Eretmochelys Imbricata*, with mtDNA Sequences. Molecular Ecology, 5:321-328.

Bass, A.L., and W.N. Witzell. 2000. Demographic Composition of Immature Green Turtles (*Chelonia Mydas*) From the East Central Florida Coast: Evidence From mtDNA Markers. Herpetologica, 56(3):357-367.

Beale, C., J. Stewart, E. Setyawan, A. Sianipar, and M.V. Erdmann. 2019. Population Dynamics of Oceanic Manta Rays (*Mobula Birostris*) in the Raja Ampat Archipelago, West Papua, Indonesia, and the Impacts of the El Niño–Southern Oscillation on Their Movement Ecology. Diversity and Distributions, 25:10.1111/ddi.12962.

Beauvais, S.L., S.B. Jones, S.K. Brewer, and E.E. Little. 2000. Physiological Measures of Neurotoxicity of Diazinon and Malathion to Larval Rainbow Trout (*Oncorhynchus Mykiss*) and Their Correlation with Behavioral Measures. Environmental Toxicology and Chemistry, 19(7):1875-1880.

Benson, S.R., P.H. Dutton, C. Hitipeuw, B. Samber, J. Bakarbessy, and D. Parker. 2007a. Post-Nesting Migrations of Leatherback Turtles (*Dermochelys Coriacea*) from Jamursba-Medi, Bird's Head Peninsula, Indonesia. Chelonian Conservation and Biology, 6(1):150-154.

Benson, S.R., T. Eguchi, D.G. Foley, K.A. Forney, H. Bailey, C. Hitipeuw, B.P. Samber, R.F. Tapilatu, V. Rei, P. Ramohia, J. Pita, and P.H. Dutton. 2011. Large-Scale Movements and High-Use Areas of Western Pacific Leatherback Turtles, *Dermochelys Coriacea*. Ecosphere, 2(7).

Benson, S.R., K.A. Forney, J.T. Harvey, J.V. Carretta, and P.H. Dutton. 2007b. Abundance, Distribution, and Habitat of Leatherback Turtles (*Dermochelys Coriacea*) off California, 1990-2003. Fishery Bulletin, 105(3):337-347.

Berlin, W.H., R.J. Hesselberg, and M.J. Mac. 1981. Chlorinated Hydrocarbons as a Factor in the Reproduction and Survival of Lake Trout (*Salvelinus Namaycush*) in Lake Michigan. U.S. Fish and Wildlife Service, Technical Paper 105.

Berry, R.J. 1971. Conservation Aspects of the Genetical Constitution of Populations. Pages 177-206 *in* E.D. Duffey, and A.S. Watt, editors. The Scientific Management of Animal and Plant Communities for Conservation, Blackwell Scientific Publications, Oxford, England.

Bigelow, H.B., and W.C. Schroeder. 1953b. Sharks, Sawfishes, Guitarfishes, Skates, Rays, and Chimaeroids. *In* J. Tee-Van, C.M. Breder, F.F. Hildebrand, A.E. Parr, and W.E. Schroeder, editors. Fishes of the Western North Atlantic, Part 2. Sears Foundation of Marine Research, Yale University, New Haven, Connecticut. 514 pp.

Billsson, K., L. Westerlund, M. Tysklind, and P. Olsson. 1998. Developmental Disturbances Caused by Polychlorinated Biphenyls in Zebrafish (*Brachydanio Rerio*). Marine Environmental Research, 46(1-5):461-464.

Bjorndal, K.A. 1982. The Consequences of Herbivory for Life History Pattern of the Caribbean Green Turtle, *Chelonia Mydas*. Pages 111-116 *in* Biology and Conservation of Sea Turtles. Smithsonian Institution, Washington, D.C.

Bjorndal, K.A. 1997. Foraging Ecology and Nutrition of Sea Turtles. Pages 199-231 *in* The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Bjorndal, K.A., and A.B. Bolten. 2002. Proceedings of a Workshop on Assessing Abundance and Trends for In-Water Sea Turtle Populations. NOAA Technical Memorandum NMFS-SEFSC-445.

Bjorndal, K.A., A.B. Bolten, and M.Y. Chaloupka. 2005. Evaluating Trends in Abundance of Immature Green Turtles, *Chelonia Mydas*, in the Greater Caribbean. Ecological Applications, 15(1):304-314.

Bjorndal, K.A., A.B. Bolten, T. Dellinger, C. Delgado, and H.R. Martins. 2003. Compensatory Growth in Oceanic Loggerhead Sea Turtles: Response to a Stochastic Environment. Ecology, 84(5):1237-1249.

Bjorndal, K.A., J.A. Wetherall, A.B. Bolten, and J.A. Mortimer. 1999. Twenty-Six Years of Green Turtle Nesting at Tortuguero, Costa-Rica: An Encouraging Trend. Conservation Biology, 13(1):126-134.

Blunden, J., and D. S. Arndt (editors). 2016. State of the Climate in 2015. Bulletin of the American Meteorological Society, 97(8):300.

Bolten, A.B., K.A. Bjorndal, and H.R. Martins. 1994. Life History Model for the Loggerhead Sea Turtle (*Caretta Caretta*) Populations in the Atlantic: Potential Impacts of a Longline Fishery. Pages 48-55 *in* G.J. Balazs and S.G. Pooley, editors. Research Plan to Assess

Marine Turtle Hooking Mortality, Volume Technical Memorandum NMFS-SEFSC-201. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida.

Bolten, A.B., K.A. Bjorndal, H.R. Martins, T. Dellinger, M.J. Biscoito, S.E. Encalada, and B.W. Bowen. 1998. Transatlantic Developmental Migrations of Loggerhead Sea Turtles Demonstrated by mtDNA Sequence Analysis. Ecological Applications, 8(1):1-7.

Bolten, A.B., and B.E. Witherington. 2003. Loggerhead Sea Turtles. Smithsonian Books, Washington, D.C.

Bostrom, B.L., and D.R. Jones. 2007. Exercise Warms Adult Leatherback Turtles. Comparative Biochemistry and Physiology A: Molecular and Integrated Physiology, 147(2):323-31.

Bouchard, S., K. Moran, M. Tiwari, D. Wood, A. Bolten, P. Eliazar, and K. Bjorndal. 1998. Effects of Exposed Pilings on Sea Turtle Nesting Activity at Melbourne Beach, Florida. Journal of Coastal Research, 14(4):1343-1347.

Boulan, R.H.. 1983. Some Notes on the Population Biology of Green (*Chelonia Mydas*) and Hawksbill (*Eretmochelys Imbricata*) Turtles in the Northern U.S. Virgin Islands: 1981-1983. Report to the National Marine Fisheries Service, Grant No. NA82-GA-A-00044.

Boulon, R.H. 1994. Growth Rates of Wild Juvenile Hawksbill Turtles, *Eretmochelys Imbricata*, in St. Thomas, United States Virgin Islands. Copeia, 1994(3):811-814.

Bowen, B.W., A.B. Meylan, J.P. Ross, C.J. Limpus, G.H. Balazs, and J.C. Avise. 1992. Global Population Structure and Natural History of the Green Turtle (*Chelonia Mydas*) in Terms of Matriarchal Phylogeny. Evolution, 46(4):865-881.

Bowen, B.W., and W.N. Witzell. 1996. Proceedings of the International Symposium on Sea Turtle Conservation Genetics, Miami, Florida. NOAA Technical Memorandum NMFS-SEFSC-396. 177 pp.

Bowlby, C.E., G.A. Green, and M.L. Bonnell. 1994. Observations of Leatherback Turtles Offshore of Washington and Oregon. Northwestern Naturalist, 75(1):33-35.

Braccini M., J. Van Rijn, and L. Frick. 2012. High Post-Capture Survival for Sharks, Rays and Chimaeras Discarded in the Main Shark Fishery of Australia? PLOS ONE 7(2):e32547.

Brainard, R.E., C. Birkeland, C.M. Eakin, P. McElhany, M.W. Miller, M. Patterson, and G.A. Piniak. 2011. Status Review Report of 82 Candidate Coral Species Petitioned Under the U.S. Endangered Species Act. U.S. Department of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-27, 530 pp.

Braun, C.D., G.B. Skomal, S.R. Thorrold, and M.L. Berumen. 2015. Movements of the Reef Manta Ray (*Manta Alfredi*) in the Red Sea Using Satellite and Acoustic Telemetry. Marine Biology, 162(12):2351-2362.

Brautigam, A., and K.L. Eckert. 2006. Turning the Tide: Exploitation, Trade and Management of Marine Turtles in the Lesser Antilles, Central America, Columbia and Venezuela. TRAFFIC International, Cambridge, United Kingdom.

Bresette, M., R.A. Scarpino, D.A. Singewald, and E.P. de Maye. 2006. Recruitment of Post-Pelagic Green Turtles (*Chelonia Mydas*) to Nearshore Reefs on Florida's Southeast Coast. Page 288 *in* M. Frick, A. Panagopoulou, A.F. Rees, and K. Williams, editors.

Twenty-Sixth Annual Symposium on Sea Turtle Biology and Conservation. International Sea Turtle Society, Athens, Greece.
Broderick, A.C., B.J. Godley, S. Reece, and J.R. Downie. 2000. Incubation Periods and Sex Ratios of Green Turtles: Highly Female Biased Hatchling Production in the Eastern Mediterranean. Marine Ecology Progress Series, 202:273-281.
Brodeur, R.D., C.E. Mills, J.E. Overland, G.E. Walters, and J.D. Schumacher. 1999. Evidence for a Substantial Increase in Gelatinous Zooplankton in the Bering Sea, With Possible Links to Climate Change. Fisheries Oceanography, 8(4): 296-306.
Burgess, K.B., L.I.E. Couturier, A.D. Marshall, A.J. Richardson, S.J. Weeks, and M.B. Bennett. 2016. *Manta Birostris*, Predator of the Deep? Insight Into the Diet of the Giant Manta Ray Through Stable Isotope Analysis. Royal Society Open Science, 3(11):160717.
Caldwell, D.K., and A. Carr. 1957. Status of the Sea Turtle Fishery in Florida. Pages 457-463 *in* J.B. Trefethen, editor. Twenty-Second North American Wildlife Conference. Wildlife Management Institute, Statler Hotel, Washington, D.C.
Cameron, P., J. Berg, V. Dethlefsen, and H. Von Westernhagen. 1992. Developmental Defects in Pelagic Embryos of Several Flatfish Species in the Southern North Sea. Netherlands Journal of Sea Research, 29(1-3):239-256.
Campell, C.L., and C.J. Lagueux. 2005. Survival Probability Estimates for Large Juvenile and Adult Green Turtles (*Chelonia Mydas*) Exposed to an Artisanal Marine Turtle Fishery in the Western Caribbean. Herpetologica, 61(2):91-103.
Carballo, J.L., C. Olabarria, and T.G. Osuna. 2002. Analysis of Four Macroalgal Assemblages Along the Pacific Mexican Coast During and After the 1997-98 El Niño. Ecosystems, 5(8):749-760.
Carillo, E., G.J.W. Webb, and S.C. Manolis. 1999. Hawksbill Turtles (*Eretmochelys Imbricata*) in Cuba: An Assessment of the Historical Harvest and its Impacts. Chelonian Conservation and Biology, 3(2):264-280.
Carr, A.F. 1986. New Perspectives on the Pelagic Stage of Sea Turtle Development. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida.
Carr, A.F. 1987. Impact of Nondegradable Marine Debris on the Ecology and Survival Outlook of Sea Turtles. Marine Pollution Bulletin, 18(6, Supplement 2):352-356.
Carr, T., and N. Carr. 1991. Surveys of the Sea Turtles of Angola. Biological Conservation, 58(1):19-29.
Caurant, F., P. Bustamante, M. Bordes, and P. Miramand. 1999. Bioaccumulation of Cadmium, Copper and Zinc in Some Tissues of Three Species of Marine Turtles Stranded Along the French Atlantic Coasts. Marine Pollution Bulletin, 38(12):1085-1091.
Ceriani, S.A., P. Casale, M. Brost, E.H. Leone, and B.E. Witherington. 2019. Conservation Implications of Sea Turtle Nesting Trends: Elusive Recovery of a Globally Important Loggerhead Population. Ecosphere, 10(11):e02936.
CeTAP. 1982. A Characterization of Marine Mammals and Turtles in the Mid- and North Atlantic Areas of the U.S. Outer Continental Shelf : Final Report of the Cetacean and Turtle Assessment Program to the U.S. Deptartment of Interior Under Contract AA551-CT8-48.

Chaloupka, M.Y. 2002. Stochastic Simulation Modelling of Southern Great Barrier Reef Green Turtle Population Dynamics. Ecological Modelling, 148(1):79-109.

Chaloupka, M.Y., K.A. Bjorndal, G.H. Balazs, A.B. Bolten, L.M. Ehrhart, C.J. Limpus, H. Suganuma, S. Troëng, and M. Yamaguchi. 2007. Encouraging Outlook for Recovery of a Once Severely Exploited Marine Megaherbivore. Global Ecology and Biogeography, 17(2):297-304.

Chaloupka, M.Y., and C.J. Limpus. 1997. Robust Statistical Modelling of Hawksbill Sea Turtle Growth Rates (Southern Great Barrier Reef). Marine Ecology Progress Series, 146(1-3):1-8.

Chaloupka, M.Y., and C.J. Limpus. 2005. Estimates of Sex- and Age-Class-Specific Survival Probabilities for a Southern Great Barrier Reef Green Sea Turtle Population. Marine Biology, 146(6):1251-1261.

Chaloupka, M.Y., C.J. Limpus, and J. Miller. 2004. Green Turtle Somatic Growth Dynamics in a Spatially Disjunct Great Barrier Reef Metapopulation. Coral Reefs, 23(3):325-335.

Chaloupka, M.Y., and J.A. Musick. 1997. Age Growth and Population Dynamics. Pages 233-276 *in* P.L. Lutz and J.A. Musick, editors. The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Chaloupka, M.Y., T.M. Work, G.H. Balazs, S.K.K. Murakawa, and R. Morris. 2008. Cause-Specific Temporal and Spatial Trends in Green Sea Turtle Strandings in the Hawaiian Archipelago (1982-2003). Marine Biology, 154(5):887-898.

Chassot, E., M. Amandè, C. Pierre, R. Pianet, and R. Dédo. 2008. Some Preliminary Results on Tuna Discards and Bycatch in the French Purse Seine Fishery of the Eastern Atlantic Ocean. Collective Volume Of Scientific Papers, 64.

Cheng L, K.E. Trenberth, J. Fasullo, T. Boyer, J. Abraham, and J. Zhu. 2017. Improved Estimates of Ocean Heat Content from 1960 to 2015. Science Advances, 3(3).

Chin, A., P. Kyne, T. Walker, and R. McAuley. 2010. An Integrated Risk Assessment for Climate Change: Analysing the Vulnerability of Sharks and Rays on Australia's Great Barrier Reef. Global Change Biology, 16:1936-1953.

CITES. 2013. Consideration of Proposals for Amendment of Appendices I and II: Manta Rays. Convention on International Trace in Endangered Species of Wild Fauna and Flora (CITES), Sixteenth Meeting of the Conference of the Parties, CoP16 Prop. 46 (Rev. 2), Bangkok, Thailand.

Clark, T.B. 2010. Abundance, Home Range, and Movement Patterns of Manta Rays (*Manta Alfredi*, *M. Birostris*) in Hawaii. Dissertation. Univeristy of Hawaii at Mānoa, Honolulu, Hawaii.

Colburn, T., D. Dumanoski, and J.P. Myers. 1996. Our Stolen Future. Dutton/Penguin Books, New York, New York.

Coles, R.J. 1916. Natural History Notes on the Devilfish, *Manta Birostris* (Walbaum) and *Mobula Olfersi* (Muller). Bulletin of the American Museum of Natural History, 35(33):649-657.

Conant, T.A., P.H. Dutton, T. Eguchi, S.P. Epperly, C.C. Fahy, M.H. Godfrey, S.L. MacPherson, E.E. Possardt, B.A. Schroeder, J.A. Seminoff, M.L. Snover, C.M. Upite, and B.E. Witherington. 2009. Loggerhead Sea Turtle (*Caretta Caretta*) 2009 Status Review

Under the U.S. Endangered Species Act. National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

Convention on Migratory Species. 2014. Proposal for the Inclusion of the Reef Manta Ray (*Manta Alfredi*) in CMS Appendix I and II. Convention on Migratory Species (CMS), 18th Meeting of the Scientic Council, UNEP/CMS/ScC18/Doc.7.2.9, Bonn, Germany.

Cooper, K. 1989. Effects of Polychlorinated Dibenzo-P-Dioxins and Polychlorinated Dibenzofurans on Aquatic Organisms. Reviews in Aquatic Sciences, 1(2):227-242.

Corsolini, S., S. Aurigi, and S. Focardi. 2000. Presence of Polychlobiphenyls (PCBs) and Coplanar Congeners in the Tissues of the Mediterranean Loggerhead Turtle *Caretta Caretta*. Marine Pollution Bulletin, 40:952-960.

Couturier, L.I., A.D. Marshall, F.R. Jaine, T. Kashiwagi, S.J. Pierce, K.A. Townsend, S.J. Weeks, M.B. Bennett, and A.J. Richardson. 2012. Biology, Ecology and Conservation of the Mobulidae. Journal of Fish Biology, 80(5):1075-1119.

Couturier, L.I., C.A. Rohner, A.J. Richardson, A.D. Marshall, F.R. Jaine, M.B. Bennett, K.A. Townsend, S.J. Weeks, and P.D. Nichols. 2013. Stable Isotope and Signature Fatty Acid Analyses Suggest Reef Manta Rays Feed on Demersal Zooplankton. PLOS ONE, 8(10):e77152.

Coyne, M.S. 2000. Population Sex Ratio of the Kemp's Ridley Sea Turtle (*Lepidochelys Kempii*): Problems in Population Modeling. Unpublished Ph.D. Dissertation. Texas A&M University, College Station, Texas.

Coyne, M.S., and A.M. Landry Jr. 2007. Population Sex Ratio and Its Impact on Population Models. Pages 191-211 *in* P.T. Plotkin, editor. Biology and Conservation of Ridley Sea Turtles. Johns Hopkins University Press, Baltimore, Maryland.

Crabbe, M.J. 2008. Climate Change, Global Warming and Coral Reefs: Modelling the Effects of Temperature. Computational Biology and Chemistry, 32(5):311-314.

Crouse, D.T. 1999. Population Modeling and Implications for Caribbean Hawksbill Sea Turtle Management. Chelonian Conservation and Biology, 3(2):185-188.

Crouse, D.T., L.B. Crowder, and H. Caswell. 1987. A Stage-Based Population Model for Loggerhead Sea Turtles and Implications for Conservation. Ecology, 68(5):1412-1423.

Crowder, L.B., D.T. Crouse, S.S. Heppell, and T.H. Martin. 1994. Predicting the Impact of Turtle Excluder Devices on Loggerhead Sea Turtle Populations. Ecological Applications, 4(3):437-445.

Crowder, L.B., and S.S. Heppell. 2011. The Decline and Rise of a Sea Turtle: How Kemp's Ridleys Are Recovering in the Gulf of Mexico. Solutions, 2(1):67-73.

Culp, J.M., C.L. Podemski, and K.J. Cash. 2000. Interactive Effects of Nutrients and Contaminants From Pulp Mill Effluents on Riverine Benthos. Journal of Aquatic Ecosystem Stress and Recovery, 8(1):9.

D'Ilio, S., D. Mattei, M.F. Blasi, A. Alimonti, and S. Bogialli. 2011. The Occurrence of Chemical Elements and POPs in Loggerhead Turtles (*Caretta Caretta*): An Overview. Marine Pollution Bulletin, 62(8):1606-1615.

Dahl, T.E., and C.E. Johnson. 1991. Status and Trends of Wetlands in the Conterminous United States, Mid-1970s to Mid-1980s. U.S. Fish and Wildlife Service, Washington, D.C.

Daniels, R.C., T.W. White, and K.K. Chapman. 1993. Sea-Level Rise - Destruction of Threatened and Endangered Species Habitat in South Carolina. Environmental Management, 17(3):373-385.

Davenport, J. 1997. Temperature and the Life-History Strategies of Sea Turtles. Journal of Thermal Biology, 22(6): 479-488.

Davenport, J., D.L. Holland, and J. East. 1990. Thermal and Biochemical Characteristics of the Lipids of the Leatherback Turtle (*Dermochelys Coriacea*): Evidence of Endothermy. Journal of the Marine Biological Association of the United Kingdom, 70:33-41.

Davis, M.W. 2002. Key Principles for Understanding Fish Bycatch Discard Mortality. Canadian Journal of Fisheries and Aquatic Sciences, 59:1834-1843.

Deakos, M.H. 2010. Ecology and Social Behavior of a Resident Manta Ray (*Manta Alfredi*) Population of Maui, Hawaii. Dissertation. Univeristy of Hawaii at Mānoa, Honolulu, Hawaii.

Deakos, M.H., J.D. Baker, and L. Bejder. 2011. Characteristics of a Manta Ray *Manta Alfredi* Population Off Maui, Hawaii, and Implications for Management. Marine Ecology Progress Series, 429:245-260.

Derraik, J.G.B. 2002. The Pollution of the Marine Environment by Plastic Debris: A Review. Marine Pollution Bulletin, 44(9):842-852.

Dewald, J.R., and D.A. Pike. 2014. Geographical Variation in Hurricane Impacts Among Sea Turtle Populations. Journal of Biogeography, 41(2):307-316.

Dewar, H., P. Mous, M. Domeier, A. Muljadi, J. Pet, and J. Whitty. 2008. Movements and Site Fidelity of the Giant Manta Ray, *Manta Birostris*, in the Komodo Marine Park, Indonesia. Marine Biology, 155(2):121-133.

Dickerson, D.D., M. Wolters, and C. Theriot. 2008. Commitments of the Corps of Engineers: Navigation, dredging, and sea turtles. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southest Fisheries Science Center. NOAA Technical Memorandum NMFS-SEFSC-567, Miami, Florida.

Diez, C.E., and R.P. van Dam. 2002. Habitat Effect on Hawksbill Turtle Growth Rates on Feeding Grounds at Mona and Monito Islands, Puerto Rico. Marine Ecology Progress Series, 234:301-309.

Diez, C.E., and R.P. van Dam. 2007. In-Water Surveys for Marine Turtles at Foraging Grounds of Culebra Archipelago, Puerto Rico. Progress Report for FY 2006-2007.

Dodd Jr., C.K. 1988. Synopsis of the Biological Data on the Loggerhead Sea Turtle *Caretta Caretta* (Linnaeus 1758). U.S. Fish and Wildlife Service, 88(14).

Doney, S.C., M. Ruckelshaus, J.E. Duffy, J.P. Barry, F. Chan, C.A. English, H.M. Galindo, J.M. Grebmeier, A.B. Hollowed, N. Knowlton, J. Polovina, N.N. Rabalais, W.J. Sydeman, and L.D. Talley 2012. Climate Change Impacts on Marine Ecosystems. Annual Review of Marine Science, 4:11-37.

Doughty, R.W. 1984. Sea Turtles in Texas: A Forgotten Commerce. Southwestern Historical Quarterly, 88:43-70.

Dow, W., K. Eckert, M. Palmer, and P. Kramer. 2007. An Atlas of Sea Turtle Nesting Habitat for the Wider Caribbean Region. The Wider Caribbean Sea Turtle Conservation Network and The Nature Conservancy, Beaufort, North Carolina.

Drevnick, P.E., and M.B. Sandheinrich. 2003. Effects of Dietary Methylmercury on Reproductive Endocrinology of Fathead Minnows. Environmental Science and Technology, 37(19):4390-4396.

Duarte, C.M. 2002. The Future of Seagrass Meadows. Environmental Conservation, 29(2):192-206.

Dudley, P.N., R. Bonazza, and W.P. Porter. 2016. Climate Change Impacts on Nesting and Internesting Leatherback Sea Turtles Using 3D Animated Computational Fluid Dynamics and Finite Volume Heat Transfer. Ecological Modelling, 320:231-240.

Dulvy, N.K., S.A. Pardo, C.A. Simpfendorfer, and J.K. Carlson. 2014. Diagnosing the Dangerous Demography of Manta Rays Using Life History Theory. PeerJ Preprints, 2, e400.

Duque, V.M., V.M. Paez, and J.A. Patino. 2000. *Ecología de Anidación y Conservación de la Tortuga Cana, Dermochelys Coriacea, en la Playona, Golfo de Uraba Chocoano* (Colombia), *en 1998*. *Actualidades Biologicas Medellín*, 22(72):37-53.

Dutton, D.L., P.H. Dutton, M. Chaloupka, and R.H. Boulon. 2005. Increase of a Caribbean Leatherback Turtle *Dermochelys Coriacea* Nesting Population Linked to Long-Term Nest Protection. Biological Conservation, 126(2):186-194.

Dutton, P.H., B.W. Bowen, D.W. Owens, A. Barragan, and S.K. Davis. 1999. Global Phylogeography of the Leatherback Turtle (*Dermochelys Coriacea*). Journal of Zoology, 248(3):397-409.

Dutton, P.H., V. Pease, and D. Shaver. 2006. Characterization of MtDNA Variation Among Kemp’s Ridleys Nesting on Padre Island With Reference to Rancho Nuevo Genetic Stock. Page 189 *in* In M. Frick, A. Panagopoulou, A.F. Rees, and K. Williams, compilers. Proceedings of the 26th Annual Symposium on Sea Turtle Biology and Conservation, Athens, Greece.

DWH Trustees. 2016. Deepwater Horizon Oil Spill: Draft Programmatic Damage Assessment and Restoration Plan and Draft Programmatic Environmental Impact Statement. Retrieved from http://www.gulfspillrestoration.noaa.gov/restoration-planning/gulf-plan/.

Dwyer, K.L., C.E. Ryder, and R. Prescott. 2003. Anthropogenic Mortality of Leatherback Turtles in Massachusetts Waters. Page 260 *in* J.A. Seminoff, editor. Twenty-Second Annual Symposium on Sea Turtle Biology and Conservation, Miami, Florida.

Eckert, K.L. 1995. Hawksbill Sea Turtle (*Eretmochelys Imbricata*). Pages 76-108 *in* National Marine Fisheries Service and U.S. Fish and Wildlife Service Status Reviews for Sea Turtles Listed under the Endangered Species Act of 1973. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Silver Spring, Maryland.

Eckert, K.L., and S.A. Eckert. 1990. Embryo Mortality and Hatch Success *in Situ* and Translocated Leatherback Sea Turtle (*Dermochelys Coriacea*) Eggs. Biological Conservation, 53:37-46.

Eckert, K.L., S.A. Eckert, T.W. Adams, and A.D. Tucker. 1989. Inter-Nesting Migrations by Leatherback Sea Turtles (*Dermochelys Coriacea*) in the West Indies. Herpetologica, 45(2):190-194.

Eckert, K.L., J.A. Overing, and B.B. Lettsome. 1992. Sea Turtle Recovery Action Plan for the British Virgin Islands. UNEP Caribbean Environment Programme, Wider Caribbean Sea Turtle Recovery Team and Conservation Network, Kingston, Jamaica.

Eckert, K.L., B.P. Wallace, J.G. Frazier, S.A. Eckert, and P.C.H. Pritchard. 2012. Synopsis of the Biological Data on the Leatherback Sea Turtle (*Dermochelys Coriacea*). U.S. Fish and Wildlife Service.

Eckert, S.A. 1989. Diving and Foraging Behavior of the Leatherback Sea Turtle, *Dermochelys Coriacea*. University of Georgia, Athens, Georgia.

Eckert, S.A. 2006. High-Use Oceanic Areas for Atlantic Leatherback Sea Turtles (*Dermochelys Coriacea*) as Identified Using Satellite Telemetered Location and Dive Information. Marine Biology, 149(5):1257-1267.

Eckert, S.A., D. Bagley, S. Kubis, L. Ehrhart, C. Johnson, K. Stewart, and D. DeFreese. 2006. Internesting and Postnesting Movements and Foraging Habitats of Leatherback Sea Turtles (*Dermochelys Coriacea*) Nesting in Florida. Chelonian Conservation and Biology, 5(2):239-248.

Eckert, S.A., D.W. Nellis, K.L. Eckert, and G.L. Kooyman. 1984. Deep Diving Record for Leatherbacks. Marine Turtle Newsletter, 31:4.

Eckert, S.A., and L. Sarti. 1997. Distant Fisheries Implicated in the Loss of the World's Largest Leatherback Nesting Population. Marine Turtle Newsletter, 78:2-7.

Eguchi, T., P.H. Dutton, S.A. Garner, and J. Alexander-Garner. 2006. Estimating Juvenile Survival Rates and Age at First Nesting of Leatherback Turtles at St. Croix, U.S. Virgin Islands. Pages 292-293 *in* M. Frick, A. Panagopoulou, A.F. Rees, and K. Williams, editors. Twenty-Sixth Annual Symposium on Sea Turtle Biology and Conservation. International Sea Turtle Society, Athens, Greece.

Ehrhart, L.M. 1983. Marine Turtles of the Indian River Lagoon System. Florida Scientist, 46(3/4):337-346.

Ehrhart, L.M., W.E. Redfoot, and D.A. Bagley. 2007. Marine Turtles of the Central Region of the Indian River Lagoon System, Florida. Florida Scientist, 70(4):415-434.

Ehrhart, L.M., W.E. Redfoot, D.A. Bagley, and K. Mansfield. 2014. Long-Term Trends in Loggerhead (*Caretta Caretta*) Nesting and Reproductive Success at an Important Western Atlantic Rookery. Chelonian Conservation and Biology, 13(2):173-181.

Ehrhart, L.M., and R.G. Yoder. 1978. Marine Turtles of Merritt Island National Wildlife Refuge, Kennedy Space Centre, Florida. Florida Marine Research Publications, 33:25-30.

EPA. 2004. National Coastal Condition Report II. EPA-620/R-03/002. U.S. Environmental Protection Agency, Washington, D.C.

EPA. 2012. Climate Change. U.S. Environmental Protection Agency, Washington, D.C. www.epa.gov/climatechange/index.html.

EPA. 2020. Northern Gulf of Mexico Hypoxic Zone. Mississippi River/Gulf of Mexico Hypoxia Task Force, U.S. Environmental Protection Agency, Washington, D.C. https://www.epa.gov/ms-htf/northern-gulf-mexico-hypoxic-zone.

Epperly, S.P., L. Avens, L.P. Garrison, T. Henwood, W. Hoggard, J. Mitchell, J. Nance, J. Poffenberger, C. Sasso, E. Scott-Denton, and C. Yeung. 2002. Analysis of Sea Turtle

Bycatch in the Commercial Shrimp Fisheries of the Southeast U.S. Waters and the Gulf of Mexico. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SEFSC-490. 88 pp.

Epperly, S.P., J. Braun-McNeill, and P.M. Richards. 2007. Trends in Catch Rates of Sea Turtles in North Carolina, USA. Endangered Species Research, 3(3):283-293.

Evans, P.G.H., and A. Bjørge. 2013. Impacts of Climate Change on Marine Mammals. Marine Climate Change Impacts Partnership Science Review, pp. 134-148.

Evermann, B.W., and B.A. Bean. 1897. Report on the Fisheries of Indian River, Florida. United States Commission of Fish and Fisheries, Washington D.C.

Ferraroli, S., J.Y. Georges, P. Gaspar, and Y. Le Maho. 2004. Where Leatherback Turtles Meet Fisheries. Nature, 429:521-522.

Field, I.C., M.G. Meekan, R.C. Buckworth, and C.J.A. Bradshaw. 2009. Protein Mining the World's Cceans: Australasia as an Example of Illegal Expansion and Displacement Fishing. Fish and Fisheries, 10:323-328.

Fish, M.R., I.M. Cote, J.A. Gill, A.P. Jones, S. Renshoff, and A.R. Watkinson. 2005. Predicting the Impact of Sea-Level Rise on Caribbean Sea Turtle Nesting Habitat. Conservation Biology, 19(2):482-491.

FitzSimmons, N.N., L.W. Farrington, M.J. McCann, C.J. Limpus, and C. Moritz. 2006. Green Turtle Populations in the Indo-Pacific: A (Genetic) View from Microsatellites. Page 111 *in* N. Pilcher, editor. Twenty-Third Annual Symposium on Sea Turtle Biology and Conservation.

Fleming, E.H. 2001. Swimming Against the Tide: Recent Surveys of Exploitation, Trade, And Management of Marine Turtles In the Northern Caribbean. TRAFFIC North America, Washington, D.C.

Foley, A.M., B.A. Schroeder, and S.L. MacPherson. 2008. Post-Nesting Migrations and Resident Areas of Florida Loggerheads (*Caretta Caretta*). Pages 75-76 *in* H.J. Kalb, A.S. Rhode, K. Gayheart, and K. Shanker, editors. Twenty-Fifth Annual Symposium on Sea Turtle Biology and Conservation. U.S. Department of Commerce, Savannah, Georgia.

Foley, A.M., B.A. Schroeder, A.E. Redlow, K.J. Fick-Child, and W.G. Teas. 2005. Fibropapillomatosis in Stranded Green Turtles (*Chelonia Mydas*) from the Eastern United States (1980-98): Trends and Associations with Environmental Factors. Journal of Wildlife Diseases, 41(1):29-41.

Foley, A.M., K.E. Singel, P.H. Dutton, T.M. Summers, A.E. Redlow, and J. Lessman. 2007. Characteristics of a Green Turtle (*Chelonia Mydas*) Assemblage in Northwestern Florida Determined During a Hypothermic Stunning Event. Gulf of Mexico Science, 25(2):131-143.

Formia, A. 1999. *Les Tortues Marines de la Baie de Corisco*. *Canopee*, 14:i-ii.

Frankham, R., C.J.A. Bradshaw, and B.W. Brook. 2014. Genetics in Conservation Management: Revised Recommendations for the 50/500 Rules, Red List Criteria and Population Viability Analyses. Biological Conservation, 170:56-63.

Frazer, N.B., and L.M. Ehrhart. 1985. Preliminary Growth Models for Green (*Chelonia Mydas*) and Loggerhead (*Caretta Caretta*) Turtles in the Wild. Copeia, 1985(1):73-79.

Frazier, J.G. 1980. Marine Turtles and Problems in Coastal Management. Pages 2395-2411 *in* B.C. Edge, editor. Coastal Zone '80: Second Symposium on Coastal and Ocean Management 3. American Society of Civil Engineers, Washington, D.C.

Fretey, J. 2001. Biogeography and Conservation of Marine Turtles of the Atlantic Coast of Africa. CMS Technical Series Publication No. 6, UNEP/CMS Secretariat, Bonn, Germany. 429 pp.

Fretey, J., A. Billes, and M. Tiwari. 2007. Leatherback, *Dermochelys Coriacea*, Nesting Along the Atlantic Coast of Africa. Chelonian Conservation and Biology, 6(1):126-129.

Frick, L.H., R.D. Reina, and T.I. Walker. 2009. The Physiological Response of Port Jackson Sharks and Australian Swell Sharks to Sedation, Gillnet Capture, and Repeated Sampling in Captivity. North American Journal of Fisheries Management, 29:127-139.

Frick, L.H., R.D. Reina, and T.I Walker. 2010a. Physiological Changes and Post-Release Survival of Port Jackson Sharks (*Heterodontus Portusjacksoni*) and Gummy Sharks (*Mustelus Antarcticus*) Following Gill-Net and Longline Capture in Captivity. Journal of Experimental Marine Biology and Ecology, 385:29-37.

Frick, L.H., T.I. Walker, and R.D. Reina. 2010b. Trawl Capture of Port Jackson Sharks *Heterodontus Portusjacksoni* and Gummy Sharks *Mustelus Antarcticus*: Effects of Tow Duration, Air Exposure and Crowding. Fisheries Research, 6:344-350.

Fritts, T.H., S. Stinson, and R. Marquez. 1982. The Status of Sea Turtle Nesting in Southern Baja California, Mexico. Bulletin of the Southern California Academy of Sciences, 81:51-60.

Fuentes, M.M.P.B., A.J. Allstadt, S.A. Ceriani, M.H. Godfrey, C. Gredzens, D. Helmers, D. Ingram, M. Pate, V.C. Radeloff, D.J. Shaver, N. Wildermann, L. Taylor, and B.L. Bateman. 2020. Potential Adaptability of Marine Turtles to Climate Change May Be Hindered By Coastal Development in the USA. Regional Environmental Change, 20(3):104.

Fuentes, M.M.P.B., D.A. Pike, A. Dimatteo, and B.P. Wallace. 2013. Resilience of Marine Turtle Regional Management Units to Climate Change. Global Change Biology, 19(5):1399-1406.

FWC. 2009. Florida's Wildlife: On the Front Line of Climate Change. Climate Change Summit Report. 40 pp.

Galloway, B.J., W. Gazey, C.W. Caillouet Jr, P.T. Plotkin, F.A. Abreu Grobois, A.F. Amos, P.M. Burchfield, R.R. Carthy, M.A. Castro Martinez, J.G. Cole, A.T. Coleman, M. Cook, S.F. DiMarco, S.P. Epperly, M. Fujiwara, D.G. Gamez, G.L. Graham, W.L. Griffin, F. Illescas Martinez, M.M. Lamont, R.L. Lewison, K.J. Lohmann, J.M. Nance, J. Pitchford, N.F. Putman, S.W. Raborn, J.K. Rester, J.J. Rudloe, L. Sarti Martinez, M. Schexnayder, J.R. Schmid, D.J. Shaver, C. Slay, A.D. Tucker, M. Tumlin, T. Wibbels, and B.M. Zapata Najera. 2016. Development of a Kemp's Ridley Sea Turtle Stock Assessment Model. Gulf of Mexico Science, 33(2):138-157.

Garcia M., D., and L. Sarti. 2000. Reproductive Cycles of Leatherback Turtles. Page 163 *in* F. A. Abreu-Grobois, R. Briseno-Duenas, R. Marquez, and L. Sarti, editors. Eighteenth International Sea Turtle Symposium, Mazatlán, Sinaloa, Mexico.

Garduño-Andrade, M., V. Guzmán, E. Miranda, R. Briseño-Dueñas, and F.A. Abreu-Grobois. 1999. Increases in Hawksbill Turtle (*Eretmochelys Imbricata*) Nestings in the Yucatán Peninsula, Mexico, 1977-1996: Data in Support of Successful Conservation? Chelonian Conservation and Biology, 3(2):286-295.

Garner, J.A., D.S. MacKenzie, and D. Gatlin. 2017. Reproductive Biology of Atlantic Leatherback Sea Turtles at Sandy Point, St. Croix: The First 30 Years. Chelonian Conservation and Biology, 16(1):29-43.

Garrett, C. 2004. Priority Substances of Interest in the Georgia Basin - Profiles and Background Information on Current Toxics Issues. Canadian Toxics Work Group Puget Sound, Georgia Basin International Task Force, GBAP Publication No. EC/GB/04/79.

Gavilan, F.M. 2001. Status and Distribution of the Loggerhead Turtle, *Caretta Caretta*, in the Wider Caribbean Region. Pages 36-40 *in* K.L. Eckert and F.A. Abreu Grobois, editors. Marine Turtle Conservation in the Wider Caribbean Region—A Dialogue for Effective Regional Management, Santo Domingo, Dominican Republic.

Gelsleichter, J., C.J. Walsh, N.J. Szabo, and L.E.L. Rasmussen. 2006. Organochlorine Concentrations, Reproductive Physiology, and Immune Function in Unique Populations of Freshwater Atlantic Stingrays (*Dasyatis Sabina*) From Florida's St. Johns River. Chemosphere, 63(9):1506-1522.

Geraci, J.R. 1990. Physiologic and Toxic Effects on Cetaceans. Pages 167-197 *in* J.R. Geraci and D.J.S. Aubin, editors. Sea Mammals and Oil: Confronting the Risks. Academic Press, San Diego, California.

Germanov, E.S., and A.D. Marshall. 2014. Running the Gauntlet: Regional Movement Patterns of *Manta Alfredi* Through a Complex of Parks and Fisheries. PLOS ONE, 9(10):e110071.

Germanov, E.S., A.D. Marshall, I.G. Hendrawan, R. Admiraal, C.A. Rohner, J. Argeswara, R. Wulandari, M.R. Himawan, N.R. Loneragan. 2019. Microplastics On the Menu: Plastics Pollute Indonesian Manta Ray and Whale Shark Feeding Grounds. Frontiers in Marine Science, 6(679).

Giesy, J.P., J. Newsted, and D.L. Garling. 1986. Relationships Between Chlorinated Hydrocarbon Concentrations and Rearing Mortality of Chinook Salmon (*Oncorhynchus Tshawytscha*) Eggs from Lake Michigan. Journal of Great Lakes Research, 12(1):82-98.

Gilman, E.L., J. Ellison, N.C. Duke, and C. Field. 2008. Threats to Mangroves From Climate Change and Adaptation Options: a Review. Aquatic Botany, 89(2):237-250.

Gilmore, G.R. 1995. Environmental and Biogeographic Factors Influencing Ichthyofaunal Diversity: Indian River Lagoon. Bulletin of Marine Science, 57(1):153-170.

Girard, C., A.D. Tucker, and B. Calmettes. 2009. Post-Nesting Migrations of Loggerhead Sea Turtles in the Gulf of Mexico: Dispersal in Highly Dynamic Conditions. Marine Biology, 156(9):1827-1839.

Girondot, M., S. Bédel, L. Delmoitiez, M. Russo, J. Chevalier, L. Guéry, S.B. Hassine, H. Féon, and I. Jribi. 2015. Spatio-Temporal Distribution of *Manta Birostris* in French Guiana Waters. Journal of the Marine Biological Association of the United Kingdom, 95(1):153-160.

Gladys Porter Zoo. 2013. Gladys Porter Zoo's Preliminary Annual Report on the Mexico/United States of America Population Restoration Project for the Kemp's Ridley Sea Turtle, *Lepidochelys Kempii*, on the Coasts of Tamaulipas, Mexico, 2013.
Gladys Porter Zoo. 2016. Gladys Porter Zoo's Preliminary Annual Report on the Mexico/United States of America Population Restoration Project for the Kemp's Ridley Sea Turtle, *Lepidochelys Kempii*, on the Coasts of Tamaulipas, Mexico, 2016.
Gladys Porter Zoo. 2019. Gladys Porter Zoo's Preliminary Annual Report on the Mexico/United States of America Population Restoration Project for the Kemp's Ridley Sea Turtle, *Lepidochelys Kempii*, on the Coasts of Tamaulipas, Mexico, 2019.
Gledhill, S. 2007. Heating Up of Nesting Beaches: Climate Change and its Implications for Leatherback Sea Turtle Survival. Evidence Based Environmental Policy and Management, 1:40-52.
Glen, F., and N. Mrosovsky. 2004. Antigua Revisited: the Impact of Climate Change on Sand and Nest Temperatures At a Hawksbill Turtle (*Eretmochelys Imbricata*) Nesting Beach. Global Change Biology, 10(12): 2036-2045.
GMFMC. 1981. Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, United States Waters. Gulf of Mexico Fishery Management Council, Tampa, Florida.
GMFMC. 2016. Draft Options for Amendment 17B to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U.S. Waters. Gulf of Mexico Fishery Management Council, Tampa, Florida.
Godfrey, M.H., A.F. D'Amato, M.Â. Marcovaldi, and N. Mrosovsky. 1999. Pivotal Temperature and Predicted Sex Ratios for Hatchling Hawksbill Turtles From Brazil. Canadian Journal of Zoology, 77(9):1465-1473.
Goff, G.P., and J. Lien. 1988. Atlantic Leatherback Turtles, *Dermochelys Coriacea*, in Cold Water off Newfoundland and Labrador. Canadian Field-Naturalist, 102:1-5.
Gonzalez Carman, V., K. Alvarez, L. Prosdocimi, M.C. Inchaurraga, R. Dellacasa, A. Faiella, C. Echenique, R. Gonzalez, J. Andrejuk, H. Mianzan, C. Campagna, and D. Albareda. 2011. Argentinian Coastal Waters: A Temperate Habitat for Three Species of Threatened Sea Turtles. Marine Biology Research, 7:500-508.
Graham, N., T. Mcclanahan, A. Macneil, S. Wilson, N. Polunin, S. Jennings, P. Chabanet, S. Clark, M. Spalding, L. Bigot, R. Galzin, M. Ohman, K. Garpe, A. Edwards, and C. Sheppard. 2008. Climate Warming, Marine Protected Areas and the Ocean-Scale Integrity of Coral Reef Ecosystems. PLOS ONE, 3(8):e3039.
Graham, R.T., M.J. Witt, D.W. Castellanos, F. Remolina, S. Maxwell, B.J. Godley, and L.A. Hawkes. 2012. Satellite Tracking of Manta Rays Highlights Challenges to Their Conservation. PLOS ONE, 7(5).
Graham, T.R. 2009. Scyphozoan Jellies as Prey for Leatherback Sea Turtles off Central California. Master's Theses, San Jose State University.
Grant, S.C.H., and P.S. Ross. 2002. Southern Resident Killer Whales at Risk: Toxic Chemicals in the British Columbia and Washington Environment. Department of Fisheries and Oceans Canada, Sidney, B.C., Canada.
Green, D. 1993. Growth Rates of Wild Immature Green Turtles in the Galápagos Islands, Ecuador. Journal of Herpetology, 27(3):338-341.

Greene, C.H., A.J. Pershing, T.M. Cronin, and N. Ceci. 2008. Arctic Climate Change and Its Impacts on the Ecology of the North Atlantic. Ecology, 89(sp11):S24-S38.
Greer, A.E.J., J.D.J. Lazell, and R.M. Wright. 1973. Anatomical Evidence for a Counter-Current Heat Exchanger in the Leatherback Turtle (*Dermochelys Coriacea*). Nature, 244:181.
Griffin, L.P., C.R. Griffin, J.T. Finn, R.L. Prescott, M. Faherty, B.M. Still, and A.J. Danylchuk. 2019. Warming Seas Increase Cold-Stunning Events for Kemp's Ridley Sea Turtles in the Northwest Atlantic. PLOS ONE, 14(1):e0211503.
Groombridge, B. 1982. Kemp's Ridley or Atlantic Ridley, *Lepidochelys Kempii* (Garman 1980). The IUCN Amphibia, Reptilia Red Data Book, pp. 201-208.
Groombridge, B., and R. Luxmoore. 1989. The Green Turtle and Hawksbill (Reptilia: Cheloniidae): World Status, Exploitation and Trade. Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, Lausanne, Switzerland.
Gudger, E.W. 1922. The Most Northerly Record of the Capture in Atlantic Waters of the United States of the Giant Ray, *Manta Birostris*. Science, 55(1422):338-340.
Guinder, V.A., and J.C. Molinero. 2013. Climate Change Effects on Marine Phytoplankton. Pages 68-90 *in* A.H. Arias and M.C. Menendez, editors. Marine Ecology in a Changing World. CRC Press, Boca Raton, Florida.
Guseman, J.L., and L.M. Ehrhart. 1992. Ecological Geography of Western Atlantic Loggerheads and Green Turtles: Evidence from Remote Tag Recoveries. Page 50 *in* M. Salmon and J. Wyneken, editors. Eleventh Annual Workshop on Sea Turtle Biology and Conservation. U.S. Department of Commerce, Jekyll Island, Georgia.
GWC. 2006. Interbasin Transfer Fact Sheet. Georgia Water Coalition.
Hammerschmidt, C.R., M.B. Sandheinrich, J.G. Wiener, and R.G. Rada. 2002. Effects of Dietary Methylmercury on Reproduction of Fathead Minnows. Environmental Science and Technology, 36(5):877-883.
Hare, J.A., W.E. Morrison, M.W. Nelson, M.M. Stachura, E.J. Teeters, R.B. Griffis, M.A. Alexander, J.D. Scott, L. Alade, and R.J. Bell. 2016. A Vulnerability Assessment of Fish and Invertebrates to Climate Change on the Northeast U.S. Continental Shelf. PLOS ONE, 11(2):e0146756.
Harley, C.D.G., A.R. Hughes, K.M. Hultgren, B.G. Miner, C.J.B. Sorte, C.S. Thornber, L.F. Rodriguez, L. Tomanek, and S.L. Williams. 2006. The Impacts of Climate Change in Coastal Marine Systems. Ecology Letters, 9:228-241.
Hart, K.M., M.M. Lamont, I. Fujisaki, A.D. Tucker, and R.R. Carthy. 2012. Common Coastal Foraging Areas for Loggerheads in the Gulf of Mexico: Opportunities for Marine Conservation. Biological Conservation, 145:185-194.
Hartwell, S.I. 2004. Distribution of DDT in Sediments off the Central California Coast. Marine Pollution Bulletin, 49(4):299-305.
Hawkes, L.A., A.C. Broderick, M.H. Godfrey, and B.J. Godley. 2007. Investigating the Potential Impacts of Climate Change on a Marine Turtle Population. Global Change Biology, 13:1-10.

Hawkes, L.A., A.C. Broderick, M.H. Godfrey, and B.J. Godley. 2009. Climate Change and Marine Turtles. Endangered Species Research, 7: 137-154.

Hayhoe, K., J. Edmonds, R.E. Kopp, A.N. LeGrande, B.M. Sanderson, M.F. Wehner, and D.J. Wuebbles. 2017. Climate Models, Scenarios, and Projections. Pages 133-160 *in* D.J. Wuebbles *et al*., editors. Climate Science Special Report: Fourth National Climate Assessment, Volume I, Washington, D.C.

Hays, G.C., A.C. Broderick, F. Glen, and B.J. Godley. 2003. Climate Change and Sea Turtles: a 150-Year Reconstruction of Incubation Temperatures at a Major Marine Turtle Rookery. Global Change Biology, 9(4): 642-646.

Hays, G.C., S. Åkesson, A.C. Broderick, F. Glen, B.J. Godley, P. Luschi, C. Martin, J.D. Metcalfe, and F. Papi. 2001. The Diving Behavior of Green Turtles Undertaking Oceanic Migration to and from Ascension Island: Dive Durations, Dive Profiles, and Depth Distribution. Journal of Experimental Biology, 204:4093-4098.

Hays, G.C., A.C. Broderick, F. Glen, B.J. Godley, J.D.R. Houghton, and J.D. Metcalfe. 2002. Water Temperature and Internesting Intervals for Loggerhead (*Caretta Caretta*) and Green (*Chelonia Mydas*) Sea Turtles. Journal of Thermal Biology, 27(5):429-432.

Hays, G.C., J.D.R. Houghton, and A.E. Myers. 2004. Pan-Atlantic Leatherback Turtle Movements. Nature, 429:522.

Hazel J., and E. Gyuris. 2006. Vessel-Related Mortality of Sea Turtles in Queensland, Australia. Wildlife Research, 33:149-154.

Heard, M., J.A. Van Rijn, R.D. Reina, and C. Huveneers. 2014. Impacts of Crowding, Trawl Duration and Air Exposure on the Physiology of Stingarees (Family: Urolophidae). Conservation Physiology, 2(1).

Hearn, A., D. Acuña, J. Ketchum, C. Peñaherrera, J. Green, A. Marshall, M. Guerrero, and G. Shillinger. 2014. Elasmobranchs of the Galapagos Marine Reserve. Pages 23-59 *in* J. Denkinger and L. Vinueza, editors. Social and Ecological Interactions in the Galapagos Island, The Galapagos Marine Reserve: a Dynamic Social-Ecological System. Springer, New York, New York.

Heinrichs, S., M. O'Malley, H. Medd, and P. Hilton. 2011. Global Threat to Manta and Mobula Rays. Manta Ray of Hope, 2011 Report. 21 pp.

Heppell, S.S., D.T. Crouse, L.B. Crowder, S.P. Epperly, W. Gabriel, T. Henwood, R. Márquez, and N.B. Thompson. 2005. A Population Model to Estimate Recovery Time, Population Size, and Management Impacts on Kemp's Ridley Sea Turtles. Chelonian Conservation and Biology, 4(4):767-773.

Heppell, S.S., L.B. Crowder, D.T. Crouse, S.P. Epperly, and N.B. Frazer. 2003. Population Models for Atlantic Loggerheads: Past, Present, and Future. Pages 255-273 *in* A. Bolten and B. Witherington, editors. Loggerhead Sea Turtles. Smithsonian Books, Washington, D.C.

Heppell, S.S., L.B. Crowder, and T.R. Menzel. 1999. Life Table Analysis of Long-Lived Marine Species with Implications for Conservation and Management. Pages 137-148 *in* American Fisheries Society Symposium, American Fisheries Society, Bethesda, Maryland.

Heppell, S.S., M.L. Snover, and L. Crowder. 2003. Sea Turtle Population Ecology. Pages 275-306 *in* P. Lutz, J.A. Musick, and J. Wyneken, editors. The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Herbst, L.H. 1994. Fibropapillomatosis of Marine Turtles. Annual Review of Fish Diseases, 4:389-425.

Herbst, L.H., E.R. Jacobson, R. Moretti, T. Brown, J.P. Sundberg, and P.A. Klein. 1995. An Infectious Etiology for Green Turtle Fibropapillomatosis. Proceedings of the American Association for Cancer Research Annual Meeting, 36:117.

Heron, S.F., C.M. Eakin, J.A. Maynard, and R. van Hooidonk. 2016. Impacts and Effects of Ocean Warming on Coral Reefs. Pages 177-197 *in* D. Laffoley and J. M. Baxter, editors. Explaining Ocean Warming: Causes, Scale, Effects and Consequences. International Union for Conservation of Nature, Gland, Switzerland.

Hildebrand, H.H. 1963. *Hallazgo del Area de Anidacion de la Tortuga Marina "Lora", Lepidochelys Kempi* (Garman), *en la Costa Occidental del Golfo de Mexico*. *Ciencia* (Mexico), 22:105-112.

Hildebrand, H.H. 1982. A Historical Review of the Status of Sea Turtle Populations in the Western Gulf of Mexico. Pages 447-453 *in* K.A. Bjorndal, editor. Biology and Conservation of Sea Turtles. Smithsonian Institution Press, Washington, D.C.

Hillis, Z., and A.L. Mackay. 1989. Research Report on Nesting and Tagging of Hawksbill Sea Turtles *Eretmocheys Imbricata* at Buck Island Reef National Monument, U.S. Virgin Islands, 1987-88. National Park Service, Purchase Order PX 5380-8-0090.

Hilterman, M., E. Goverse, M. Godfrey, M. Girondot, and C. Sakimin. 2003. Seasonal Sand Temperature Profiles of Four Major Leatherback Nesting Beaches in the Guyana Shield. Pages 189-190 *in* J.A. Seminoff, editor. Twenty-Second Annual Symposium on Sea Turtle Biology and Conservation, Miami, Florida.

Hirth, H.F. 1971. Synopsis of Biological Data on the Green Turtle *Chelonia Mydas* (Linnaeus) 1758. Food and Agriculture Organization, Fisheries Synopsis.

Hirth, H.F. 1997. Synopsis of the Biological Data on the Green Turtle *Chelonia Mydas* (Linnaeus 1758). U.S. Fish and Wildlife Service, Washington, D.C. Biological Report 97(1):120.

Hirth, H.F., J. Kasu, and T. Mala. 1993. Observations on a Leatherback Turtle *Dermochelys Coriacea* Nesting Population Near Piguwa, Papua New Guinea. Biological Conservation, 65:77-82.

Hirth, H.F., and E.M.A. Latif. 1980. A Nesting Colony of the Hawksbill Turtle (*Eretmochelys Imbricata*) on Seil Ada Kebir Island, Suakin Archipelago, Sudan. Biological Conservation, 17:125-130.

Houghton, J.D.R., T.K. Doyle, M.W. Wilson, J. Davenport, and G.C. Hays. 2006. Jellyfish Aggregations and Leatherback Turtle Foraging Patterns in a Temperate Coastal Environment. Ecology, 87(8):1967-1972.

Houghton, J.D.R., A.E. Myers, C. Lloyd, R.S. King, C. Isaacs, and G.C. Hays. 2007. Protracted Rainfall Decreases Temperature Within Leatherback Turtle (*Dermochelys Coriacea*) Clutches in Grenada, West Indies: Ecological Implications for a Species Displaying

Temperature Dependent Sex Determination. Journal of Experimental Marine Biology and Ecology, 345(1):71-77.
Hughes, G.R. 1996. Nesting of the Leatherback Turtle (*Dermochelys Coriacea*) in Tongaland, KwaZulu-Natal, South Africa, 1963-1995. Chelonian Conservation Biology, 2(2):153-158.
Hulin, V., and J.M. Guillon. 2007. Female Philopatry in a Heterogeneous Environment: Ordinary Conditions Leading to Extraordinary ESS Sex Ratios. BMC Evolutionary Biology, 7(1):13.
Hulme, P.E. 2005. Adapting to Climate Change: Is There Scope for Ecological Management in the Face of a Global Threat? Journal of Applied Ecology, 42(5):784-794.
IPCC. 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller, editors. Cambridge University Press, Cambridge, United Kingdom. 996 pp.
IPCC. 2013. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press Cambridge, United Kingdom.
IPCC. 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. *In* Core Writing Team, R.K. Pachauri, and L.A. Meyer, L.A., editors. 151. IPCC, Geneva, Switzerland. Available from http://www.ipcc.ch.
Iwata, H., S. Tanabe, N. Sakai, and R. Tatsukawa. 1993. Distribution of Persistent Organochlorines in the Oceanic Air and Surface Seawater and the Role of Ocean on Their Global Transport and Fate. Environmental Science and Technology, 27(6):1080-1098.
Jacobson, E.R. 1990. An Update on Green Turtle Fibropapilloma. Marine Turtle Newsletter, 49:7-8.
Jacobson, E.R., J.L. Mansell, J.P. Sundberg, L. Hajjar, M.E. Reichmann, L.M. Ehrhart, M. Walsh, and F. Murru. 1989. Cutaneous Fibropapillomas of Green Turtles (*Chelonia Mydas*). Journal Comparative Pathology, 101:39-52.
Jacobson, E.R., S.B. Simpson Jr., and J.P. Sundberg. 1991. Fibropapillomas in Green Turtles. Pages 99-100 *in* G.H. Balazs, and S.G. Pooley, editors. Research Plan for Marine Turtle Fibropapilloma. NOAA Technical Memorandum NMFS-SWFSC-156.
Jambeck, J., R. Geyer, C. Wilcox, T. Siegler, M. Perryman, A. Andrady, R. Narayan, and K. Law. 2015. Marine Pollution. Plastic Waste Inputs From Land Into the Ocean. Science, 347:768-771.
James, M.C., S.A. Eckert, and R.A. Myers. 2005. Migratory and Reproductive Movements of Male Leatherback Turtles (*Dermochelys Coriacea*). Marine Biology, 147(4):845-853.
James, M.C., S.A. Sherrill-Mix, and R.A. Myers. 2007. Population Characteristics and Seasonal Migrations of Leatherback Sea Turtles at High Latitudes. Marine Ecology Progress, Series 337:245-254.

Johnson, D.R., J.A. Browder, P. Brown-Eyo, and M.B. Robblee. 2012. Biscayne Bay Commercial Pink Shrimp Fisheries, 1986-2005. Marine Fisheries Review, 74:28-43.
Johnson, S.A., and L.M. Ehrhart. 1994. Nest-Site Fidelity of the Florida Green Turtle. Page 83 *in* B.A. Schroeder and B.E. Witherington, editors. Thirteenth Annual Symposium on Sea Turtle Biology and Conservation.
Johnson, S.A., and L.M. Ehrhart. 1996. Reproductive Ecology of the Florida Green Turtle: Clutch Frequency. Journal of Herpetology, 30(3):407-410.
Jones, G.P., M.I. McCormick, M. Srinivasan, and J.V. Eagle. 2004. Coral Decline Threatens Fish Biodiversity in Marine Reserves. Proceedings of the National Academy of Sciences 101(21):8251-8253.
Jones, T.T., M.D. Hastings, B.L. Bostrom, D. Pauly, and D.R. Jones. 2011. Growth of Captive Leatherback Turtles, *Dermochelys Coriacea*, With Inferences on Growth in the Wild: Implications for Population Decline and Recovery. Journal of Experimental Marine Biology and Ecology, 399(1):84-92.
Jorgensen, E.H., O. Aas-Hansen, A.G. Maule, J.E.T. Strand, and M.M. Vijayan. 2004. PCB Impairs Smoltification and Seawater Performance in Anadromous Arctic Charr (*Salvelinus Alpinus*). Comparative Biochemistry and Physiology, Part C: Toxicology and Pharmacology, 138(2):203-212.
Kamel, S.J., and N. Mrosovsky. 2004. Nest Site Selection in Leatherbacks, *Dermochelys Coriacea*: Individual Patterns and Their Consequences. Animal Behaviour, 68(2): 357-366.
Karpinsky, M.G. 1992. Aspects of the Caspian Sea Benthic Ecosystem. Marine Pollution Bulletin, 24(8):384-389.
Kashiwagi, T., T. Ito, and F. Sato. 2010. Occurences of Reef Manta Ray, *Manta Alfredi*, and Giant Manta Ray, *M. Birostris*, in Japan, Examined by Photographic Records. Japanese Society for Elasmobranch Studies, 46:20-27.
Kashiwagi, T., A.D. Marshall, M.B. Bennett, and J.R. Ovenden. 2011. Habitat Segregation and Mosaic Sympatry of the Two Species of Manta Ray in the Indian and Pacific Oceans: *Manta Alfredi* and *M. Birostris*. Marine Biodiversity Records, 4:1-8.
Keinath, J.A., and J.A. Musick. 1993. Movements and Diving Behavior of a Leatherback Turtle, *Dermochelys Coriacea*. Copeia, 1993(4):1010-1017.
Keller, J.M., J.R. Kucklick, M.A. Stamper, C.A. Harms, and P.D. McClellan-Green. 2004. Associations Between Organochlorine Contaminant Concentrations and Clinical Health Parameters in Loggerhead Sea Turtles from North Carolina, USA. Environmental Health Perspectives, 112:1074-1079.
Keller, J.M., P.D. McClellan-Green, J.R. Kucklick, D.E. Keil, and M.M. Peden-Adams. 2006. Effects of Organochlorine Contaminants on Loggerhead Sea Turtle Immunity: Comparison of a Correlative Field Study and *In Vitro* Exposure Experiments. Environmental Health Perspectives, 114(1):70-76.
Kemmerer, A.J. 1989. Summary Report From Trawl Tow Time Versus Sea Turtle Mortality Workshop. National Marine Fisheries Service, Southeast Fisheries Science Center, Mississippi Laboratories, Pascagoula, Mississippi. 18 pp.
Kintisch, E. 2006. As the Seas Warm. Science, 313(5788):776-779.

Kraus, S.D., R.D. Kenney, A.R. Knowlton, and J.N. Ciano. 1993. Endangered Right Whales of the Southwestern North Atlantic. Report to the Minerals Management Service Under Contract Number 14-35-0001-30486. 69 pp.

Lagueux, C.J. 2001. Status and Distribution of the Green Turtle, *Chelonia Mydas*, in the Wider Caribbean Region. Pages 32-35 *in* K.L. Eckert and F.A. Abreu Grobois, editors. Marine Turtle Conservation in the Wider Caribbean Region—A Dialogue for Effective Regional Management, Santo Domingo, Dominican Republic.

Laloë, J.-O., J.-O. Cozens, B. Renom, A. Taxonera, and G.C. Hays. 2014. Effects of Rising Temperature on the Viability of an Important Sea Turtle Rookery. Nature Climate Change, 4:513-518.

Laloë, J.-O., N. Esteban, J. Berkel, and G.C. Hays. 2016. Sand Temperatures for Nesting Sea Turtles in the Caribbean: Implications for Hatchling Sex Ratios in the Face of Climate Change. Journal of Experimental Marine Biology and Ecology, 474:92-99.

Laurent, L., P. Casale, M.N. Bradai, B.J. Godley, G. Gerosa, A.C. Broderick, W. Schroth, B. Schierwater, A.M. Levy, D. Freggi, E.M.A. El-Mawla, D.A. Hadoud, H.E. Gomati, M. Domingo, M. Hadjichristophorou, L. Kornaraky, F. Demirayak, and C.H. Gautier. 1998. Molecular Resolution of Marine Turtle Stock Composition in Fishery By-Catch: A Case Study in the Mediterranean. Molecular Ecology, 7:1529-1542.

Law, R.J., C.F. Fileman, A.D. Hopkins, J.R. Baker, J. Harwood, D.B. Jackson, S. Kennedy, A.R. Martin, and R.J. Morris. 1991. Concentrations of Trace Metals in the Livers of Marine Mammals (Seals, Porpoises and Dolphins) from Waters Around the British Isles. Marine Pollution Bulletin, 22(4):183-191.

Lawson, J.M., S.V. Fordham, M.P. O'Malley, L.N.K. Davidson, R.H.L. Walls, M.R. Heupel, G. Stevens, D. Fernando, A. Budziak, C.A. Simpfendorfer, I. Ender, M.P. Francis, G. Notarbartolo di Sciara, and N.K. Dulvy. 2017. Sympathy For the Devil: a Conservation Strategy For Devil and Manta Rays. PeerJ, 5:e3027.

Learmonth, J.A., C.D. MacLeod, M.B.S. Vazquez, G.J. Pierce, H.Q.P. Crick, and R.A. Robinson. 2006. Potential Effects of Climate Change on Marine Mammals. Oceanography and Marine Biology: An Annual Review, 44:431-464.

León, Y.M., and C.E. Diez. 1999. Population Structure of Hawksbill Turtles on a Foraging Ground in the Dominican Republic. Chelonian Conservation and Biology, 3(2):230-236.

León, Y.M., and C.E. Diez. 2000. Ecology and Population Biology of Hawksbill Turtles at a Caribbean Feeding Ground. Pages 32-33 *in* F.A. Abreu-Grobois, R. Briseño-Dueñas, R. Márquez-Millán, and L. Sarti-Martinez, editors. Eighteenth International Sea Turtle Symposium. U.S. Department of Commerce, Mazatlán, Sinaloa, México.

Lezama, C. 2009. *Impacto de la Pesqueria Artesanal Sobre la Tortoga Verde* (*Chelonia Mydas*) *en las Costas del Rio de la Plata Exterior*. *Universidad de la República*.

Lima, E.H.S.M., M.T.D. Melo, and P.C.R. Barata. 2010. Incidental Capture of Sea Turtles by the Lobster Fishery off the Ceará Coast, Brazil. Marine Turtle Newsletter, 128:16-19.

Limpus, C.J. 1992. The Hawksbill Turtle, *Eretmochelys Imbricata*, in Queensland: Population Struture Within a Southern Great Barrier Reef Feeding Ground. Australian Wildlife Research, 19:489-506.

Limpus, C.J., and J.D. Miller. 2000. Final Report for Australian Hawksbill Turtle Population Dynamics Project. Queensland Parks and Wildlife Service.

Loehefener, R.R., W. Hoggard, C.L. Roden, K.D. Mullin, and C.M. Rogers. 1989. Petroleum Structures and the Distribution of Sea Turtles. Pages 31-25 *in* Proceedings: Spring Ternary Gulf of Mexico Studies Meeting. Minerals Management Service, U.S. Department of the Interior, New Orleans, Louisiana.

Lolavar, A., and J. Wyneken. 2015. The Effect of Rainfall on Loggerhead Turtle Nest Temperatures, Sand Temperatures and Hatchling Sex. Endangered Species Research, 28.

Longwell, A., S. Chang, A. Hebert, J. Hughes, and D. Perry. 1992. Pollution and Developmental Abnormalities of Atlantic Fishes. Environmental Biology of Fishes, 35(1):1-21.

López-Barrera, E.A., G.O. Longo, and E.L.A. Monteiro-Filho. 2012. Incidental Capture of Green Turtle (*Chelonia Mydas*) in Gillnets of Small-Scale Fisheries in the Paranaguá Bay, Southern Brazil. Ocean and Coastal Management, 60:11-18.

López-Mendilaharsu, M., A. Estrades, M.A.C. Caraccio, V.M. Hernández, and V. Quirici. 2006. *Biología, Ecología y Etología de las Tortugas Marinas en la Zona Costera Uruguaya*. Vida Silvestre, Montevideo, Uruguay.

Lum, L. 2006. Assessment of Incidental Sea Turtle Catch in the Artisanal Gillnet Fishery in Trinidad and Tobago, West Indies. Applied Herpetology, 3:357-368.

Lund, F.P. 1985. Hawksbill Turtle (*Eretmochelys Imbricata*) Nesting on the East Coast of Florida. Journal of Herpetology, 19(1):166-168.

Lutcavage, M.E., P.L. Lutz, G.D. Bossart, and D.M. Hudson. 1995. Physiologic and Clinicopathologic Effects of Crude Oil on Loggerhead Sea Turtles. Archives of Environmental Contamination and Toxicology, 28(4):417-422.

Lutcavage, M.E., P. Plotkin, B. Witherington, and P.L. Lutz. 1997. Human Impacts on Sea Turtle Survival. Pages 387-409 *in* P. Lutz and J.A. Musick, editors. The Biology of Sea Turtles, Volume 1. CRC Press, Boca Raton, Florida.

Lutz, P.L., and A. Dunbar-Cooper. 1987. Variations in the Blood Chemistry of the Loggerhead Sea Turtle *Caretta Caretta*. Fishery Bulletin, 85:37-44.

Lutz, P.L., and M.E. Lutcavage. 1989. The Effects of Petroleum on Sea Turtles: Applicability to Kemp's Ridley. Pages 52-54 *in* C.W. Caillouet and A.M. Landry, editors. First International Symposium on Kemp's Ridley Sea Turtle Biology, Conservation and Management. Texas A&M University, Sea Grant College Program, Galveston, Texas.

McMahon, C.R. and G.C. Hays. 2006. Thermal Niche, Large-Scale Movements and Implications of Climate Change for a Critically Endangered Marine Vertebrate. Global Change Biology, 12:1330-1338.

Mac, M.J., and C.C. Edsall. 1991. Environmental Contaminants and the Reproductive Success of Lake Trout in the Great Lakes: an Epidemiological Approach. Journal of Toxicology and Environmental Health, 33:375-394.

Mackay, A.L. 2006. 2005 Sea Turtle Monitoring Program the East End Beaches (Jack's, Isaac's, and East End Bay) St. Croix, U.S. Virgin Islands. Nature Conservancy.

MacLeod, C.D., S.M. Bannon, G.J. Pierce, C. Schweder, J.A. Learmonth, J.S. Herman, and R.J. Reid,. 2005. Climate Change and the Cetacean Community of North-West Scotland. Biological Conservation, 124(4):477-483.

Maharaj, A.M. 2004. A Comparative Study of the Nesting Ecology of the Leatherback Turtle *Dermochelys Coriacea* in Florida and Trinidad. University of Central Florida, Orlando, Florida.

Marcovaldi, N., B.B. Gifforni, H. Becker, F.N. Fiedler, and G. Sales. 2009. Sea Turtle Interactions in Coastal Net Fisheries in Brazil. Sea Turtle Interactions in Coastal Net Fisheries in Brazil. Page 28 *in* E. Gilman, editor. Proceedings of the Technical Workshop on Mitigating Sea Turtle Bycatch in Coastal Net Fisheries. Western Pacific Regional Fishery Management Council, Hawaii.

Márquez M., R. 1990. Sea Turtles of the World. An Annotated and Illustrated Catalogue of Sea Turtle Species Known to Date. FAO Fisheries Synopsis No. 125. Rome, Italy. 81 pp.

Márquez M., R. 1994. Synopsis of Biological Data on the Kemp's Ridley Sea Turtle, *Lepidochelys Kempii* (Garman, 1880). National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida.

Marshall, A.D., M.B. Bennett, G. Kodja, S. Hinojosa-Alvarez, F. Galvan-Magana, M. Harding, G. Stevens, and T. Kashiwagi. 2011. *Manta Birostris*, Giant Manta Ray. The IUCN Red List of Threatened Species. International Union for Conservation of Nature and Natural Resources.

Marshall, A.D., L.J.V. Compagno, and M.B. Bennett. 2009. Redescription of the Genus Manta with Resurrection of *Manta Alfredi* (Krefft, 1868) (Chondrichthyes; Myliobatoidei; Mobulidae). Zootaxa, 2301:1-28.

Marshall, A.D., and J. Holmberg. 2016. Manta Matcher Photo-Identification Library. https://mantamatcher.org.

Martin, S.L., S.M. Stohs, and J.E. Moore. 2014. Bayesian Inference and Assessment for Rare-Event Bycatch in Marine Fisheries: A Drift Gillnet Fishery Case Study. Ecological Applications, 25(2):416-429.

Matkin, C.O., and E. Saulitis. 1997. Restoration Notebook: Killer Whale (*Orcinus Orca*). Exxon Valdez Oil Spill Trustee Council, Anchorage, Alaska.

Matos, R. 1986. Sea Turtle Hatchery Project With Specific Reference to the Leatherback Turtle (*Dermochelys Coriacea*), Humacao, Puerto Rico 1986. Puerto Rico Department of Natural Resources, de Tierra, Puerto Rico.

Matta, M.B., C. Cairncross, and R.M. Kocan. 1997. Effect of a Polychlorinated Biphenyl Metabolite on Early Life Stage Survival of Two Species of Trout. Bulletin of Environmental Contamination and Toxicology, 59:146-151.

Mayor, P.A., B. Phillips, and Z. Hillis-Starr. 1998. Results of the Stomach Content Analysis on the Juvenile Hawksbill Turtles of Buck Island Reef National Monument, U.S.V.I. Pages 230-233 *in* S.P. Epperly and J. Braun, editors. Seventeenth Annual Sea Turtle Symposium, Orlando, Florida.

McDonald, D.L., and P.H. Dutton. 1996. Use of PIT Tags and Photoidentification to Revise Remigration Estimates of Leatherback Turtles (*Dermochelys Coriacea*) Nesting in St.

Croix, U.S. Virgin Islands, 1979-1995. Chelonian Conservation and Biology, 2(2):148-152.
McKenzie, C., B.J. Godley, R.W. Furness, and D.E. Wells. 1999. Concentrations and Patterns of Organochlorine Contaminants in Marine Turtles from Mediterranean and Atlantic Waters. Marine Environmental Research, 47:117-135.
McMahon, C.R., and G.C. Hays. 2006. Thermal Niche, Large-Scale Movements and Implications of Climate Change for a Critically Endangered Marine Vertebrate. Global Change Biology, 12(7):1330-1338.
McMichael, E., R.R. Carthy, and J.A. Seminoff. 2003. Evidence of Homing Behavior in Juvenile Green Turtles in the Northeastern Gulf of Mexico. Pages 223-224 *in* J.A. Seminoff, editor. Twenty-Second Annual Symposium on Sea Turtle Biology and Conservation.
Medeiros, A.M., O.J. Luiz, and C. Domit. 2015. Occurrence and Use of an Estuarine Habitat by Giant Manta Ray *Manta Birostris*. Journal of Fish Biology, 86(6):1830-1838.
Meylan, A.B. 1982. Estimation of Population Size in Sea Turtles. Pages 135-138 in K.A. Bjorndal, editor. Biology and Conservation of Sea Turtles. Smithsonian Institution Press, Washington, D.C.
Meylan, A.B. 1988. Spongivory in Hawksbill Turtles: A Diet of Glass. Science, 239(4838):393-395.
Meylan, A.B. 1999a. International Movements of Immature and Adult Hawksbill Turtles (*Eretmochelys Imbricata*) in the Caribbean Region. Chelonian Conservation and Biology, 3(2):189-194.
Meylan, A.B. 1999b. Status of the Hawksbill Turtle (*Eretmochelys Imbricata*) in the Caribbean Region. Chelonian Conservation and Biology, 3(2):177-184.
Meylan, A.B., and M. Donnelly. 1999. Status Justification for Listing the Hawksbill Turtle (*Eretmochelys Imbricata*) as Critically Endangered on the 1996 IUCN Red List of Threatened Animals. Chelonian Conservation and Biology, 3(2):200-224.
Meylan, A.B., B.A. Schroeder, and A. Mosier. 1994. Marine Turtle Nesting Activity in the State of Florida, 1979-1992. Page 83 *in* K.A. Bjorndal, A.B. Bolten, D.A. Johnson, and P.J. Eliazar, editors. Fourteenth Annual Symposium on Sea Turtle Biology and Conservation.
Meylan, A.B., B.A. Schroeder, and A. Mosier. 1995. Sea Turtle Nesting Activity in the State of Florida, 1979-1992. Florida Department of Environmental Protection, (52):63.
Meylan, A.B., B.E. Witherington, B. Brost, R. Rivero, and P.S. Kubilis. 2006. Sea Turtle Nesting in Florida, USA: Assessments of Abundance and Trends for Regionally Significant Populations of *Caretta*, *Chelonia*, and *Dermochelys*. Pages 306-307 *in* M. Frick, A. Penagopoulou, A.F. Rees, K. and Williams. Twenty-Sixth Annual Symposium on Sea Turtle Biology and Conservation.
Milessi, A.C., and M.C. Oddone. 2003. *Primer Registro de Manta Birostris* (Donndorff 1798) (Batoidea: Mobulidae) *en el Rio de La Plata, Uruguay*. Gayana, 67(1):126-129.
Miller, J.D. 1997. Reproduction in Sea Turtles. Pages 51-58 *in* P.L. Lutz and J.A. Musick, editors. The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Miller, M.H., and C. Klimovich. 2017. Endangered Species Act Status Review Report: Giant Manta Ray (*Manta Birostris*) and Reef Manta Ray (*Manta Alfredi*). U.S. Department of Commerce, National Oceanic and Atmoshperic Administration, National Marine Fisheries Servcie, Office of Protected Resources, Silver Spring, Maryland.

Milliken, T., and H. Tokunaga. 1987. The Japanese Sea Turtle Trade, 1970-1986. TRAFFIC (JAPAN), Center for Environmental Education, Washington, D.C.

Milton, S.L., and P.L. Lutz. 2003. Physiological and Genetic Responses to Environmental Stress. Pages 163-197 *in* P.L. Lutz, J.A. Musick, and J. Wyneken, editors. The Biology of Sea Turtles, Volume II. CRC Press, Boca Raton, Florida.

Mo, C.L. 1988. Effect of Bacterial and Fungal Infection on Hatching Success of Olive Ridley Sea Turtle Eggs. World Wildlife Fund-U.S.

Moncada, F., A. Abreu-Grobois, D. Bagley, K.A. Bjorndal, A.B. Bolten, J.A. Caminas, L. Ehrhart, A. Muhlia-Melo, G. Nodarse, B.A. Schroeder, J. Zurita, and L.A. Hawkes. 2010. Movement Patterns of Loggerhead Turtles *Caretta Caretta* in Cuban Waters Inferred from Flipper Tag Recaptures. Endangered Species Research, 11(1):61-68.

Moncada, F., E. Carrillo, A. Saenz, and G. Nodarse. 1999. Reproduction and Nesting of the Hawksbill Turtle, *Eretmochelys Imbricata*, in the Cuban Archipelago. Chelonian Conservation and Biology, 3(2):257-263.

Montero, N., S.A. Ceriani, K. Graham, and M.M.P.B. Fuentes. 2018. Influences of the Local Climate on Loggerhead Hatchling Production in North Florida: Implications From Climate Change. Frontiers in Marine Science, 5:262.

Montero, N., P.S. Tomillo, V.S. Saba, M.A.G. dei Marcovaldi, M. López-Mendilaharsu, A.S. Santos, and M.M.P.B. Fuentes. 2019. Effects of Local Climate on Loggerhead Hatchling Production in Brazil: Implications From Climate Change. Scientific Reports, 9(1).

Monzón-Argüello, C., L.F. López-Jurado, C. Rico, A. Marco, P. López, G.C. Hays, and P.L.M. Lee. 2010. Evidence From Genetic and Lagrangian Drifter Data for Transatlantic Transport of Small Juvenile Green Turtles. Journal of Biogeography, 37(9):1752-1766.

Moore, A., and C.P. Waring. 2001. The Effects of a Synthetic Pyrethroid Pesticide on Some Aspects of Reproduction in Atlantic Salmon (*Salmo Salar* L.). Aquatic Toxicology, 52(1):1-12.

Moore, A.B.M. 2012. Records of Poorly Known Batoid Fishes From the North-Western Indian Ocean (Chondrichthyes: Rhynchobatidae, Rhinobatidae, Dasyatidae, Mobulidae). African Journal of Marine Science, 34(2):297-301.

Morreale, S.J., and E. Standora. 2005. Western North Atlantic Waters: Crucial Developmental Habitat for Kemp's Ridley and Loggerhead Sea Turtles. Chelonian Conservation and Biology, 4(4):872-882.

Mortimer, J.A., J. Collie, T. Jupiter, R. Chapman, A. Liljevik, and B. Betsy. 2003. Growth Rates of Immature Hawksbills (*Eretmochelys Imbricata*) at Aldabra Atoll, Seychelles (Western Indian Ocean). Pages 247-248 *in* J.A. Seminoff, editor. Twenty-Second Annual Symposium on Sea Turtle Biology and Conservation, Miami, Florida.

Mortimer, J.A., M. Day, and D. Broderick. 2002. Sea Turtle Populations of the Chagos Archipelago, British Indian Ocean Territory. Pages 47-49 *in* A. Mosier, A. Foley, and B.

Brost, editors. Twentieth Annual Symposium on Sea Turtle Biology and Conservation, Orlando, Florida.
Mortimer, J.A., and M. Donnelly. 2008. Hawksbill Turtle (*Eretmochelys Imbricata*). *In* the IUCN Red List of Threatened Species, 2008.
Mourier, J. 2012. Manta Rays in the Marquesas Islands: First Records of *Manta Birostris* in French Polynesia and Most Easterly Location of *Manta Alfredi* in the Pacific Ocean, With Notes on Their Distribution. Journal of Fish Biology, 81(6):2053-2058.
Mrosovsky, N., P.H. Dutton, and C.P. Whitmore. 1984. Sex Ratios of Two Species of Sea Turtle Nesting in Suriname. Canadian Journal of Zoology, 62:2227-2239.
Mrosovsky, N., G.D. Ryan, and M.C. James. 2009. Leatherback Turtles: The Menace of Plastic. Marine Pollution Bulletin, 58(2):287-289.
Murdoch, P.S., J.S. Baron, and T.L. Miller. 2000. Potential Effects of Climate Change of Surface Water Quality in North America. Journal of the American Water Resources Association, 36(2):347-366.
Murphy, T.M., and S.R. Hopkins. 1984. Aerial and Ground Surveys of Marine Turtle Nesting Beaches in the Southeast Region. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Center, Miami, Florida.
Musick, J.A. 1999. Ecology and Conservation of Long-Lived Marine Animals. American Fisheries Society Symposium, 23:1-10.
Musick, J.A., and C.J. Limpus. 1997. Habitat Utilization and Migration in Juvenile Sea Turtles. Pages 137-163 *in* P.L. Lutz and J.A. Musick, editors. The Biology of Sea Turtles. CRC Press, New York, New York.
Nance, J., W. Keithly Jr., C. Caillouet Jr., J. Cole, W. Gaidry, B. Gallaway, W. Griffin, R. Hart, and M. Travis. 2008. Estimation of Effort, Maximum Sustainable Yield, and Maximum Economic Yield in the Shrimp Fishery of the Gulf of Mexico. NOAA Technical Memorandum NMFS-SEFSC-570. 71 pp.
Naro-Maciel, E., J.H. Becker, E.H.S.M. Lima, M.A. Marcovaldi, and R. DeSalle. 2007. Testing Dispersal Hypotheses in Foraging Green Sea Turtles (*Chelonia Mydas*) of Brazil. Journal of Heredity, 98(1):29-39.
Naro-Maciel, E., A.C. Bondioli, M. Martin, A. de Padua Almeida, C. Baptistotte, C. Bellini, M.A. Marcovaldi, A.J. Santos, and G. Amato. 2012. The Interplay of Homing and Dispersal in Green Turtles: A Focus on the Southwestern Atlantic. Journal of Heredity, 103(6):792-805.
NAST. 2000. Climate Change Impacts on the United States: the Potential Consequences of Climate Variability and Change. National Assessment Synthesis Team, U.S. Global Change Research Program, Washington D.C.
NCDC. 2019. Climate at a Glance: National Time Series. https://www.ncdc.noaa.gov/cag/.
NDMC. 2018. Drought Monitor. National Drought Mitigation Center, U.S. Department of Agriculture and the National Oceanic and Atmospheric Association. https://droughtmonitor.unl.edu/.
Nelms, S.E., E.M. Duncan, A.C. Broderick, T.S. Galloway, M.H. Godfrey, M. Hamann, P.K. Lindeque, and B.J. Godley. 2016. Plastic and Marine Turtles: a Review and Call for Research. ICES Journal of Marine Science, 73(2):165-181.

NMFS. 1981. Sea Turtle Excluder Trawl Development. Annual Report, National Marine Fisheries Service, Southeast Fisheries Center, Mississippi Laboratories, Division of Harvesting Systems and Surveys. 38 pp.

NMFS. 1987. Final Supplement to the Final Environmental Impact Statement on Listing and Protecting the Green Sea Turtle, Loggerhead Sea Turtle and the Pacific Ridley Sea Turtle under the Endangered Species Act of 1973. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, St. Petersburg, Florida.

NMFS. 1992. ESA Section 7 Consultation on Shrimp Trawling, as proposed by the Councils, in the Southeastern United States from North Carolina through Texas Under the 1992 Revised Sea Turtle Conservation Regulations. Biological Opinion. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 1994. ESA Section 7 Consultation on Shrimp Trawling in the Southeastern United States Under the Sea Turtle Conservation Regulations. Biological Opinion. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 1996. ESA Section 7 Consultation on Shrimp Trawling in the Southeastern United States Under the Sea Turtle Conservation Regulations. Biological Opinion. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 1998. ESA Section 7 Consultation on Shrimp Trawling in the Southeastern United States Under the Sea Turtle Conservation Regulations. Biological Opinion. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 1999. The use of the sidecast dredges FRY, MERRITT and SCHWEIZER, and the split-hull hopper dredge CURRITUCK. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Saint Petersburg, Florida.

NMFS. 2001. Stock Assessments of Loggerhead and Leatherback Sea Turtles and an Assessment of the Impact of the Pelagic Longline Fishery on the Loggerhead and Leatherback Sea Turtles of the Western North Atlantic. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida.

NMFS. 2002a. ESA Section 7 Consultation on Shrimp Trawling in the Southeastern United States Under the Sea Turtle Conservation Regulations and as Managed by the Fishery Management Plans for Shrimp in the South Atlantic and Gulf of Mexico. Biological Opinion. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected

Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 2002b. An Evaluation of Modified TED Flap Designs on Exclusion of Wild Sea Turtles off the Southeast Atlantic Coast, May 13-17, 2002. National Marine Fisheries Service, Southeast Fisheries Science Center, Pascagoula, Mississippi. Unpublished report. 5 pp.

NMFS. 2002c. Trip Report for Testing Modified Flaps for Sea Turtle Exclusion off the Atlantic Coast of Georgia and Florida, August 1-5, 2002. National Marine Fisheries Service, Southeast Fisheries Science Center, Pascagoula, Mississippi. Unpublished report. 5 pp.

NMFS. 2003. ESA Section 7 Consultation on the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic. Biological Opinion F/SER/2002/01305. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 2006. ESA Section 7 Consultation on the Continued Authorization of Shrimp Trawling as Managed under the Fishery Management Plan (FMP) for the Shrimp Fishery of the Gulf of Mexico (GOM) and its Effects on Smalltooth Sawfish. Biological Opinion. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 2007a. ESA Section 7 Consultation on the ESA Section 7 Consultation on the Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by USACE Galveston, New Orleans, Mobile, and Jacksonville Districts. Second Revised Biological Opinion, November 19, 2003. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3), St. Petersburg, Florida.

NMFS. 2007b. Endangered Species Act Section 7 Consultation on the Gulf of Mexico Oil and Gas Activities: Five-Year Leasing Plan for Western and Central Planning Areas 2007-2012. Biological Opinion F/SER/2006/02611. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3), St. Petersburg, Florida.

NMFS. 2009. An Assessment of Loggerhead Sea turtles to Estimate Impacts of Mortality on Population Dynamics. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center Contribution PRD-08/09-14.

NMFS. 2009d. ESA Section 7 Consultation on the Continued Authorization of Fishing under the Fishery Management Plan for Spiny Lobster in the South Atlantic and Gulf of Mexico. Biological Opinion F/SER/2005/07518. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 2009e. ESA Section 7 Consultation on the Continued Authorization of Fishing under the Fishery Management Plan for the Stone Crab Fishery of the Gulf of Mexico.

Biological Opinion F/SER/2005/07541. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 2009f. An Assessment of Loggerhead Sea Turtles to Estimate Impacts of Mortality Reductions on Population Dynamics. NMFS-SEFSC Contribution PRD-08/09-14. National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida.

NMFS. 2011. Preliminary Summer 2010 Regional Abundance Estimate of Loggerhead Turtles (*Caretta Caretta*) in Northwestern Atlantic Ocean Continental Shelf Waters. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 11-03.

NMFS. 2013. Reinitiation—Batched Biological Opinion for Seven New England FMPs. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Regional Office, Protected Resources Division, NER-2012-1956, Gloucester, Massachusetts.

NMFS. 2014. Reinitiation of Endangered Species Act (ESA) Section 7 Consultation on the Continued Implementation of the Sea Turtle Conservation Regulations, as Proposed to Be Amended, and the Continued Authorization of the Southeast U.S. Shrimp Fisheries in Federal Waters under the Magnuson-Stevens Act. Biological Opinion. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 2016. Endangered Species Act (ESA) Section 7 Consultation on the Continued Authorization of Snapper-Grouper Fishing in the U.S. South Atlantic Exclusive Economic Zone (EEZ) as Managed under the Snapper-Grouper Fishery Management Plan (SGFMP) of the South Atlantic Region, including Proposed Regulatory Amendment 16 to the SGFMP (SER-2016-17768). Biological Opinion. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3) and Sustainable Fisheries Division (F/SER2), St. Petersburg, Florida.

NMFS. 2018. Biological Opinion on Construction and Maintenance of Chesapeake Bay Entrance Channels and Use of Sand Borrow Areas for Beach Nourishment. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, Gloucester, Massachusetts.

NMFS. 2019a. Final Environmental Impact Statement to Reduce the Incidental Bycatch and Mortality of Sea Turtles in the Southeastern U.S. Shrimp Fisheries. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3), St. Petersburg, Florida. 417 pp.

NMFS. 2019b. Giant Manta Ray Recovery Outline. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland.

NMFS. 2020. South Atlantic Regional Biological Opinion for Dredging and Material Placement Activities in the Southeast United States. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3), St. Petersburg, Florida.

NMFS. 2021. Reinitiation of Endangered Species Act (ESA) Section 7 Consultation on the Implementation of the Sea Turtle Conservation Regulations under the ESA and the Authorization of the Southeast U.S. Shrimp Fisheries in Federal Waters under the MagnusonStevens Fishery Management and Conservation Act (MSFMCA). Biological Opinion F/SER/2021/00087. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division (F/SER3), St. Petersburg, Florida.

NMFS and USFWS. 1991. Recovery Plan for U.S. Population of the Atlantic Green Turtle (*Chelonia Mydas*). National Marine Fisheries Service, Washington, D.C.

NMFS and USFWS. 1992. Recovery Plan for Leatherback Turtles *Dermochelys Coriacea* in the U.S. Carribean, Atlantic, and Gulf of Mexico. National Marine Fisheries Service, Washington, D.C.

NMFS and USFWS. 1993. Recovery Plan for the Hawksbill Turtle *Eretmochelys Imbricata* in the U.S. Caribbean, Atlantic, and Gulf of Mexico. National Marine Fisheries Service, St. Petersburg, Florida.

NMFS and USFWS. 1995. Status Reviews for Sea Turtles Listed under the Endangered Species Act of 1973. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland.

NMFS and USFWS. 1998a. Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle (*Dermochelys Coriacea*). National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland.

NMFS and USFWS. 1998b. Recovery Plan for U.S. Pacific Populations of the Hawksbill Turtle (*Eretmochelys Imbricata*). National Marine Fisheires Service and U.S. Fish and Wildlife Service, Silver Spring, Maryland.

NMFS and USFWS. 2007a. Kemp's Ridley Sea Turtle (*Lepidochelys Kempii*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service and U.S. Fish and Wildlife Service, Silver Spring, Maryland.

NMFS and USFWS. 2007b. Loggerhead Sea Turtle (*Caretta Caretta*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service and U.S. Fish and Wildlife Service, Silver Spring, Maryland.

NMFS and USFWS. 2007c. Green Sea Turtle (*Chelonia Mydas*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service and U.S. Fish and Wildlife Service, Silver Spring, Maryland.

NMFS and USFWS. 2007d. Leatherback Sea Turtle (*Dermochelys Coriacea*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service and U.S. Fish and Wildlife Service, Silver Spring, Maryland.

NMFS and USFWS. 2007e. Hawksbill Sea Turtle (*Eretmochelys Imbricata*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service and U.S. Fish and Wildlife Service, Silver Spring, Maryland.

NMFS and USFWS. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta Caretta*), Second Revision. National Marine Fisheries Service, Silver Spring, Maryland.

NMFS and USFWS. 2013a. Leatherback Sea Turtle (*Dermochelys Coriacea*) 5-Year Review: Summary and Evaluation. NOAA, National Marine Fisheries Service, Office of Protected Resources and U.S. Fish and Wildlife Service, Southeast Region, Jacksonville Ecological Services Office, Jacksonville, Florida.

NMFS and USFWS. 2013b. Hawksbill Sea Turtle (*Eretmochelys Imbricata*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service, Silver Spring, Maryland.

NMFS and USFWS. 2015. Kemp's Ridley Sea Turtle (*Lepidochelys Kempii*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service, Silver Spring, Maryland.

NMFS and USFWS. 2020. Endangered Species Act Status Review of the Leatherback Turtle (*Dermochelys Coriacea*). Report to the National Marine Fisheries Service Office of Protected Resources and U.S. Fish and Wildlife Service.

NMFS, USFWS, and SEMARNAT. 2011. Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys Kempii*), Second Revision. National Marine Fisheries Service, Silver Spring, Maryland.

NOAA. 2012. Understanding Climate. http://www.climate.gov/#understandingClimate.

Northwest Atlantic Leatherback Working Group. 2018. Northwest Atlantic Leatherback Turtle (*Dermochelys Coriacea*) Status Assessment. B. Wallace and K. Eckert, compilers and editors. Conservation Science Partners and the Wider Caribbean Sea Turtle Conservation Network Technical Report No. 16., Godfrey, Illinois. 36 pp.

Notarbartolo di Sciara, G., and E.V. Hillyer. 1989. Mobulid Rays off Eastern Venezuela (Chondrichthyes, Mobulidae). Copeia, (3):607-614.

NPS. 2020. Review of the Sea Turtle Science and Recovery Program, Padre Island National Seashore. National Park Service, Denver, Colorado. Retrieved from: https://www.nps.gov/pais/learn/management/sea-turtle-review.htm.

NRC. 1990. Decline of the Sea Turtles: Causes and Prevention. National Research Council, Washington, D.C.

NRC. 2002. Effects of Trawling and Dredging on Seafloor Habitat. National Research Council, Washington, D.C. National Academies Press.

O'Malley, M.P., K. Lee-Brooks, and H.B. Medd. 2013. The Global Economic Impact of Manta Ray Watching Tourism. PLOS ONE 8(5):e65051.

Ogren, L.H. 1989. Distribution of Juvenile and Subadult Kemp's Ridley Sea Turtles: Preliminary Results From 1984-1987 Surveys. Pages 116-123 *in* C.W. Caillouet Jr. and A.M. Landry Jr., editors. First International Symposium on Kemp's Ridley Sea Turtle Biology, Conservation and Management. Texas A&M University, Sea Grant College, Galveston, Texas.

Oliver, S., M. Braccini, S.J. Newman, and E.S. Harvey. 2015. Global Patterns in the Bycatch of Sharks and Rays. Marine Policy, 54:86-97.

Orlando Jr., S.P., P.H. Wendt, C.J. Klein, M.E. Patillo, K.C. Dennis, and H.G. Ward. 1994. Salinity Characteristics of South Atlantic Estuaries. National Oceanic and Atmospheric Administration, Office of Ocean Resources Conservation and Assessment, Silver Spring, Maryland.

Paladino, F.V., M.P. O'Connor, and J.R. Spotila. 1990. Metabolism of Leatherback Turtles, Gigantothermy, and Thermoregulation of Dinosaurs. Nature, 344:858-860.

Palmer, M.A., C.A. Reidy Liermann, C. Nilsson, M. Flörke, J. Alcamo, P.S. Lake, and N. Bond. 2008. Climate Change and the World's River Basins: Anticipating Management Options. Frontiers in Ecology and the Environment, 6(2):81-89.

Parmesan, C., and G. Yohe. 2003. A Globally Coherent Fingerprint of Climate Change Impacts Across Natural Systems. Nature, 421:37-42

Parsons, J.J. 1972. The Hawksbill Turtle and the Tortoise Shell Trade. Pages 45-60 *in Études de Géographie Tropicale Offertes a Pierre Gourou*. Mouton, Paris, France.

Patino-Martinez, J., A. Marco, L. Quiñones, and L.A. Hawkes. 2012. A potential Tool to Mitigate the Impacts of Climate Change to the Caribbean Leatherback Sea Turtle. Global Change Biology, 18:401-411.

Patino-Martinez, J., A. Marco, L. Quiñones, and L.A. Hawkes. 2014. The Potential Future Influence of Sea Level Rise on Leatherback Turtle Nests. Journal of Experimental Marine Biology and Ecology, 461:116- 123.

Pershing, A.J., M.A. Alexander, C.M. Hernandez, L.A. Kerr, A. Le Bris, K.E. Mills, J.A. Nye, N.R. Record, H.A. Scannell, and J.D. Scott. 2015. Slow Adaptation in the Face of Rapid Warming Leads to Collapse of the Gulf of Maine Cod Fishery. Science, 350(6262):809-812.

Pike, D.A. 2013. Forecasting Range Expansion Into Ecological Traps: Climate-Mediated Shifts in Sea Turtle Nesting Beaches and Human Development. Global Change Biology, 19(10):3082-3092.

Pike, D.A. 2014. Forecasting the Viability of Sea Turtle Eggs in a Warming World. Global Change Biology, 20(1):7-15.

Pike, D.A., R.L. Antworth, and J.C. Stiner. 2006. Earlier Nesting Contributes to Shorter Nesting Seasons for the Loggerhead Sea Turtle, *Caretta Caretta*. Journal of Herpetology, 40(1):91-94.

Pike, D.A., E.A. Roznik, and I. Bell. 2015. Nest Inundation From Sea-Level Rise Threatens Sea Turtle Population Viability. Royal Society Open Science, 2(7):150127.

Plotkin, P.T. 2003. Adult Migrations and Habitat Use. Pages 225-241 *in* P.L. Lutz, J.A. Musick, and J. Wyneken, editors. The Biology of Sea Turtles, Volume 2. CRC Press, Boca Raton, Florida.

Plotkin, P.T., and A.F. Amos. 1988. Entanglement in and Ingestion of Marine Debris by Sea Turtles Stranded Along the South Texas Coast. Pages 79-82 *in* B.A. Schroeder, editor. Proceedings of the Eighth Annual Workship on Sea Turtle Biology and Conservation, Fort Fisher, North Carolina. NOAA Technical Memorandum NMF-SEFSC-214.

Plotkin, P.T., and A.F. Amos. 1990. Effects of Anthropogenic Debris on Sea Turtles in the Northwestern Gulf of Mexico. Pages 736-743 *in* R.S. Shoumura and M.L. Godfrey,

editors. Proceedings of the Second Internntional Conference on Marine Debris, Honolulu, Hawaii. NOAA Technical Memorandum NMFS SWFSC-154.
Poloczanska, E.S., C.J. Limpus, and G.C. Hays. 2009. Chapter 2: Vulnerability of Marine Turtles to Climate Change. Pages 151-211 *in* D.W. Sims, editor. Advances in Marine Biology, Volume 56. Academic Press. 420 pp.
Polyakov, I.V., V.A. Alexeev, U.S. Bhatt, E.I. Polyakova, and X. Zhang. 2009. North Atlantic Warming: Patterns of Long-Term Trend and Multidecadal Variability. Climate Dynamics, 34(2-3):439-457.
Post, G.W. 1987. Revised and Expanded Textbook of Fish Health. T.F.H. Publications, New Jersey.
Pritchard, P.C.H. 1969. The Survival Status of Ridley Sea Turtles in America. Biological Conservation, 2(1):13-17.
Pritchard, P.C.H., P. Bacon, F.H. Berry, A. Carr, J. Feltemyer, R.M. Gallagher, S. Hopkins, R. Lankford, M.R. Marquez, L.H. Ogren, W. Pringle Jr., H. Reichart, and R. Witham. 1983. Manual of Sea Turtle Research and Conservation Techniques, Second Edition. Center for Environmental Education, Washington, D.C.
Pritchard, P.C.H., and P. Trebbau. 1984. The Turtles of Venezuela. Contributions to Herpetology No. 2, Society for the Study of Amphibians and Reptiles. 403 pp.
Prosdocimi, L., V. González Carman, D.A. Albareda, and M.I. Remis. 2012. Genetic Composition of Green Turtle Feeding Grounds in Coastal Waters of Argentina Based on Mitochondrial DNA. Journal of Experimental Marine Biology and Ecology, 412:37-45.
Purcell, J. 2005. Climate Effects on Formation of Jellyfish and Ctenophore Blooms: A Review. Journal of the Marine Biological Association of the United Kingdom, 85:461-476.
Pyzik, L., J. Caddick, and P. Marx. 2004. Chesapeake Bay: Introduction to an Ecosystem. U.S. Environmental Protection Agency for the Chesapeake Bay Program, EPA 903-R-04-003, CBP/TRS 232100.
Rafferty, A.R., C.P. Johnstone, J.A. Garner, and R.D. Reina. 2017. A 20-Year Investigation of Declining Leatherback Hatching Success: Implications of Climate Variation. Royal Society Open Science, 4(10):170196.
Rambahiniarison J.M., M.J. Lamoste, C.A. Rohner, R. Murray, S. Snow, J. Labaja, G. Araujo, and A. Ponzo. 2018. Life History, Growth, and Reproductive Biology of Four Mobulid Species in the Bohol Sea, Philippines. Frontiers in Marine Science, 5:269.
Rebel, T.P. 1974. Sea Turtles and the Turtle Industry of the West Indies, Florida, and the Gulf of Mexico. University of Miami Press, Coral Gables, Florida.
Reddering, J.S.V. 1988. Prediction of the Effects of Reduced River Discharge on Estuaries of the Southeastern Cape Province, South Africa. South African Journal of Science, 84:726-730.
Reece, J., D. Passeri, L. Ehrhart, S. Hagen, A. Hays, C. Long, R. Noss, M. Bilskie, C. Sanchez, M. Schwoerer, B. Von Holle, J. Weishampel, and S. Wolf. 2013. Sea Level Rise, Land Use, and Climate Change Influence the Distribution of Loggerhead Turtle Nests at the Largest USA Rookery (Melbourne Beach, Florida). Marine Ecology Progress Series, 493:259-274.

Rhodin, A.G.J. 1985. Comparative Chondro-Osseous Development and Growth in Marine Turtles. Copeia, 1985:752-771.

Richards, P.M., S.P. Epperly, S.S. Heppell, R.T. King, C.R. Sasso, F. Moncada, G. Nodarse, D.J. Shaver, Y. Medina, and J. Zurita. 2011. Sea Turtle Population Estimates Incorporating Uncertainty: A New Approach Applied to Western North Atlantic Loggerheads *Caretta Caretta*. Endangered Species Research, 15:151-158.

Richardson, A.J., A. Bakun, G.C. Hays, and M.J. Gibbons. 2009. The Jellyfish Joyride: Causes, Consequences and Management Responses to a More Gelatinous Future. Trends in Ecology and Evolution, 24(6):312-322.

Richardson, J.I., R. Bell, and T.H. Richardson. 1999. Population Ecology and Demographic Implications Drawn From an 11-Year Study of Nesting Hawksbill Turtles, *Eretmochelys Imbricata*, at Jumby Bay, Long Island, Antigua, West Indies. Chelonian Conservation and Biology, 3(2):244-250.

Rivalan, P., A.C. Prevot-Julliard, R. Choquet, R. Pradel, B. Jacquemin, and M. Girondot. 2005. Trade-Off Between Current Reproductive Effort and Delay to Next Reproduction in the Leatherback Sea Turtle. Oecologia, 145(4):564-574.

Rivas-Zinno, F. 2012. *Captura Incidental de Tortugas Marinas en Bajos del Solis*, Uruguay. *Universidad de la Republica* Uruguay, *Departamento de Ecologia y Evolucion*.

Robinson, R.A., H.Q.P. Crick, J.A. Learmonth, I.M.D. Maclean, C.D. Thomas, F. Bairlein, M.C. Forchhammer, C.M. Francis, J.A. Gill, B.J. Godley, J. Harwood, G.C. Hays, B. Huntley, A.M. Hutson, G.J. Pierce, M.M. Rehfisch, D.W. Sims, B.M. Santos, T.H. Sparks, D.A. Stroud, and M.E. Visser. 2009. Travelling Through a Warming World: Climate Change and Migratory Species. Endangered Species Research, 7(2):87-99.

Romanov, E.V. 2002. Bycatch in the Tuna Purse-Seine Fisheries of the Western Indian Ocean. Fishery Bulletin, 100(1):90-105.

Rosel, P.E., P. Corkeron, L. Engleby, D. Epperson, K.D. Mullin, M.S. Soldevilla, and B.L. Taylor. 2016. Status Review of Bryde's Whales (*Balaenoptera edeni*) in the Gulf of Mexico Under the Endangered Species Act. NOAA Technical Memorandum NMFS-SEFSC-692. doi:10.7289/V5/TM-SEFSC-692.

Ross, J.P. 1996. Caution Urged in the Interpretation of Trends at Nesting Beaches. Marine Turtle Newsletter, 74:9-10.

Rubin, R.D., K.R. Kumli, and G. Chilcott. 2008. Dive Characteristics and Movement Patterns of Acoustic and Satellite-Tagged Manta Rays (*Manta Birostris*) in the Revillagigedos Islands of Mexico. American Elasmobranch Society, Montreal, Canada.

Rudloe, J. 1981. From the Jaws of Death. Canaveral Sea Turtles and the Corps of Engineers. Sports Illustrated, 54(13):60-70.

Saba, V.S., S.M. Griffies, W.G. Anderson, M. Winton, M.A. Alexander, T.L. Delworth, J.A. Hare, M.J. Harrison, A. Rosati, and G.A. Vecchi. 2016. Enhanced Warming of the Northwest Atlantic Ocean Under Climate Change. Journal of Geophysical Research: Oceans, 121(1):118-132.

SAFMC. 1993. Shrimp Fishery Management Plan for the South Atlantic Region. South Atlantic Fishery Management Council, Charleston, South Carolina.

SAFMC. 1996. Final Amendment 2 (Bycatch Reduction) to the FMP for the Shrimp Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, Charleston, South Carolina.

SAFMC. 1998. Final Habitat Plan for the South Atlantic Region: Essential Fish Habitat Requirements for Fishery Management Plans of the South Atlantic Fishery Management Council. South Atlantic Fishery Management Council, Charleston, South Carolina.

Sakai, H., H. Ichihashi, H. Suganuma, and R. Tatsukawa. 1995. Heavy Metal Monitoring in Sea Turtles Using Eggs. Marine Pollution Bulletin, 30:347-353.

Sallenger, A.H., K.S. Doran, and P.A. Howd. 2012. Hotspot of Accelerated Sea-Level Rise on the Atlantic Coast of North America. Nature Climate Change, 2(12):884-888.

Santidrián Tomillo, P., V.S. Saba, C.D. Lombard, J.M. Valiulis, N.J. Robinson, F.V. Paladino, J.R. Spotila, C. Fernández, M.L. Rivas, J. Tucek, R. Nel, and D. Oro. 2015. Global Analysis of the Effect of Local Climate on the Hatchling Output of Leatherback Turtles. Scientific Reports, 5(1):16789.

Santidrián Tomillo, P., E. Vélez, R.D. Reina, R. Piedra, F.V. Paladino, and J.R. Spotila. 2007. Reassessment of the Leatherback Turtle (*Dermochelys Coriacea*) Nesting Population at Parque Nacional Marino Las Baulas, Costa Rica: Effects of Conservation Efforts. Chelonian Conservation and Biology, 6(1):54-62.

Sanzenbach, E. 2011a. LDWF Restocking Pearl River After Fish Kill. Slidell Sentry, Slidell, Louisiana.

Sanzenbach, E. 2011b. LDWF Settles with Paper Plant from Fish Kill. Slidell Sentry, Slidell, Louisiana.

Sarti Martínez, L., A.R. Barragán, D.G. Muñoz, N. Garcia, P. Huerta, and F. Vargas. 2007. Conservation and Biology of the Leatherback Turtle in the Mexican Pacific. Chelonian Conservation and Biology, 6(1):70-78.

Sasso, C.R., and S.P. Epperly. 2006. Seasonal Sea Turtle Mortality Risk from Forced Submergence in Bottom Trawls. Fisheries Research, 81(1):86-88.

Saunders, M.I., J. Leon, S.R. Phinn, D.P. Callaghan, K.R. O'Brien, C.M. Roelfsema, C.E. Lovelock, M.B. Lyons, and P.J. Mumby. 2013. Coastal Retreat and Improved Water Quality Mitigate Losses of Seagrass From Sea Level Rise. Global Change Biology, 19(8):2569-2583.

Schmid, J.R., and J.A. Barichivich. 2006. *Lepidochelys Kempii*–Kemp's Ridley. Pages 128-141 *in* P.A. Meylan, editor. Biology and Conservation of Florida Turtles. Chelonian Research Monographs, Volume 3.

Schmid, J.R., and A. Woodhead. 2000. Von Bertalanffy Growth Models for Wild Kemp's Ridley Turtles: Analysis of the NMFS Miami Laboratory Tagging Database. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida.

Scholz, N.L., N.K. Truelove, B.L. French, B.A. Berejikian, T.P. Quinn, E. Casillas, and T.K. Collier. 2000. Diazinon Disrupts Antipredator and Homing Behaviors in Chinook Salmon (*Oncorhynchus Tshawytscha*). Canadian Journal of Fisheries and Aquatic Sciences, 57(9):1911-1918.

Schroeder, B.A., and A.M. Foley. 1995. Population Studies of Marine Turtles in Florida Bay. J.I. Richardson and T.H. Richardson, editors. Twelfth Annual Workshop on Sea Turtle Biology and Conservation.

Schulz, J.P. 1975. Sea Turtles Nesting in Surinam. *Zoologische Verhandelingen*, 143:3-172.

Scott, T.M., and S. Sadove. 1997. Sperm Whale, *Physeter Macrocephalus*, Sightings in the Shallow Shelf Waters off Long Island, New York. Marine Mammal Science, 13(2):4.

Scott, W.B., and E.J. Crossman. 1973. Freshwater Fishes of Canada. Fisheries Research Board of Canada, Bulletin 184. 966 pp.

Scott-Denton, E., P.F. Cryer, M.R. Duffy, J.P. Gocke, M.R. Harrelson, D.K. Kinsella, J.M. Nance, J.R. Pulver, R.C. Smith, and J.A. Williams. 2012. Characterization of the U.S. Gulf of Mexico and South Atlantic Penaeid and Rock Shrimp Fisheries Based on Observer Data. Marine Fisheries Review, 74(4).

Semeniuk, V. 1994. Predicting the Effect of Sea Level Rise on Mangroves in Northwestern Australia. Journal of Coastal Research, 10(4).

Seminoff, J.A., C.D. Allen, G.H. Balazs, P.H. Dutton, T. Eguchi, H.L. Haas, S.A. Hargrove, M.P. Jensen, D.L. Klemm, A.M. Lauritsen, S.L. MacPherson, P. Opay, E.E. Possardt, S.L. Pultz, E.E. Seney, K.S. Van Houtan, and R.S. Waples. 2015. Status Review of the Green Turtle (*Chelonia Mydas*) Under the Endangered Species Act. NOAA Technical Memorandum, NMFS-SWFSC-539.

Shaffer, M.L. 1981. Minimum Population Sizes for Species Conservation. BioScience, 31(2):131-134.

Shaver, D.J. 1994. Relative Abundance, Temporal Patterns, and Growth of Sea Turtles at the Mansfield Channel, Texas. Journal of Herpetology, 28(4):491-497.

Shenker, J.M. 1984. Scyphomedusae in Surface Waters Near the Oregon Coast, May-August, 1981. Estuarine, Coastal and Shelf Science, 19(6):619-632.

Shigenaka, G., S. Milton, P Lutz, R. Hoff, R. Yender, and A. Mearns. 2003. Oil and Sea Turtles: Biology, Planning, and Response. National Oceanic and Atmospheric Administration, National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Silver Spring, Maryland. 111 pp.

Shillinger, G.L., D.M. Palacios, H. Bailey, S.J. Bograd, A.M. Swithenbank, P. Gaspar, B.P. Wallace, J.R. Spotila, F.V. Paladino, R. Piedra, S.A. Eckert, and B.A. Block. 2008. Persistent Leatherback Turtle Migrations Present Opportunities for Conservation. PLOS Biology, 6(7):1408-1416.

Shoop, C.R., and R.D. Kenney. 1992. Seasonal Distributions and Abundances of Loggerhead and Leatherback Sea Turtles in Waters of the Northeastern United States. Herpetological Monographs, 6:43-67.

Short, F.T., and H.A. Neckles. 1999. The Effects of Global Climate Change on Seagrasses. Aquatic Botany, 63(34):169-196.

Simmonds, M.P., and S.J. Isaac. 2007. The Impacts of Climate Change on Marine Mammals: Early Signs of Significant Problems. Oryx, 41(1):19-26.

Sindermann, C.J. 1994. Quantitative Effects of Pollution on Marine and Anadromous Fish Populations. NOAA Technical Memorandum NMFS-F/NEC-104. National Marine Fisheries Service, Woods Hole, Massachusetts.

Skomal, G.B. 2007. Evaluating the Physiological and Physical Consequences of Capture on Post-Release Survivorship in Large Pelagic Fishes. Fisheries Management and Ecology, 14:81-89.

Skomal, G.B., and J.W. Mandelman. 2012. The Physiological Response to Anthropogenic Stressors in Marine Elasmobranch Fishes: A Review With a Focus on the Secondary Response. Comparative Biochemistry and Physiology, Part A, 162:146-155.

Snelson, F., and S. Williams. 1981. Notes on the Occurrence, Distribution, and Biology of Elasmobranch Fishes in the Indian River Lagoon System, Florida. Estuaries and Coasts, 4(2):110-120.

Snover, M.L. 2002. Growth and Ontogeny of Sea Turtles Using Skeletochronology: Methods, Validation and Application to Conservation. PhD Dissertation, Duke University.

Soldevilla, M.S., L.P. Garrison, E. Scott-Denton, and R.A. Hart. 2016. Estimated Bycatch Mortality of Marine Mammals in the Gulf of Mexico Shrimp Otter Trawl Fishery During 2012 and 2014. NOAA Technical Memorandum NMFS-SEFSC-697. 47 pp.

Soulé, M.E. 1980. Thresholds for Survival: Maintaining Fitness and Evolutionary Potential. Pages 151-170 *in* M.E. Soulé and B.A. Wilcox, editors. Conservation Biology: An Evolutionary-Ecological Perspective. Sinauer Associates, Sunderland, Massachusetts.

Southwood, A.L., R.D. Andrews, F.V. Paladino, and D.R. Jones. 2005. Effects of Diving and Swimming Behavior on Body Temperatures of Pacific Leatherback Turtles in Tropical Seas. Physiological and Biochemical Zoology, 78:285-297.

Spotila, J.R. 2004. Sea Turtles: A Complete Guide to their Biology, Behavior, and Conservation. Johns Hopkins University Press, Baltimore, Maryland.

Spotila, J.R., A.E. Dunham, A.J. Leslie, A.C. Steyermark, P.T. Plotkin, and F.V. Paladino. 1996. Worldwide Population Decline of *Dermochelys Coriacea*: Are Leatherback Turtles Going Extinct? Chelonian Conservation and Biology, 2(2):209-222.

Spotila, J.R., R.D. Reina, A.C. Steyermark, P.T. Plotkin, and F.V. Paladino. 2000. Pacific Leatherback Turtles Face Extinction. Nature, 405:529-530.

Stabenau, E.K., and K.R.N. Vietti. 2003. The Physiological Effects of Multiple Forced Submergences in Loggerhead Sea Turtles (*Caretta Caretta*). Fishery Bulletin, 101:889-899.

Stacy, B.A., J.L. Keene, and B.A. Schroeder. 2016. Report of theTechnical Expert Workshop: Developing National Criteria for Assessing Post-Interaction Mortality of Sea Turtles in Trawl, Net, and Pot/Trap Fisheries. NOAA Technical Memorandum NMFS-OPR-53.

Stacy, B., R. Hardy, D. Shaver, C. Purvin, L. Howell, H. Wilson, M, Devlin, A. Krauss, C. Macon, M. Cook, Z. Wang, L. Flewelling, J. Keene, A. Walker, P. Baker, T. Yaw. 2020. 2019 Sea Turtle Strandings in Texas: A Summary of Findings and Analyses. Department of Commerce, National Marine Fisheries Service, NOAA Technical Memorandum NMFS OPR-66, 64 pp.

Stapleton, S., and C. Stapleton. 2006. Tagging and Nesting Research on Hawksbill Turtles (*Eretmochelys Imbricata*) at Jumby Bay, Long Island, Antigua, West Indies: 2005 Annual Report. Jumby Bay Island Company, Ltd.

Starbird, C.H., A. Baldridge, and J.T. Harvey. 1993. Seasonal Occurrence of Leatherback Sea Turtles (*Dermochelys Coriacea*) in the Monterey Bay Region, With Notes on Other Sea Turtles, 1986-1991. California Fish and Game, 79(2):54-62.

Starbird, C.H., and M.M. Suarez. 1994. Leatherback Sea Turtle Nesting on the North Vogelkop Coast of Irian Jaya and the Discovery of a Leatherback Sea Turtle Fishery on Kei Kecil Island. Pages 143-146 *in* K.A. Bjorndal, A.B. Bolten, D.A. Johnson, and P.J. Eliazar, editors. Fourteenth Annual Symposium on Sea Turtle Biology and Conservation, Hilton Head, South Carolina.

Steadman, S., and T.E. Dahl. 2008. Status and Trends of Wetlands in the Coastal Watersheds of the Eastern United States 1998 to 2004. National Oceanic and Atmospheric Administration, National Marine Fisheries Service and U.S. Department of the Interior, U.S. Fish and Wildlife Service. 32 pp.

Stewart, J.D., E.M. Hoyos-Padilla, K.R. Kumli, and R.D. Rubin. 2016. Deep-Water Feeding and Behavioral Plasticity in *Manta Birostris* Revealed by Archival Tags and Submersible Observations. Zoology, 119(5):406-413.

Stewart, J.D., M. Nuttall, E.L. Hickerson, and M.A. Johnston. 2018. Important Juvenile Manta Ray Habitat at Flower Garden Banks National Marine Sanctuary in the Northwestern Gulf of Mexico. Marine Biology, 165(7):111.

Stewart, K., and C. Johnson. 2006. *Dermochelys Coriacea*—Leatherback Sea Turtle. Chelonian Research Monographs, 3:144-157.

Stewart, K., C. Johnson, and M.H. Godfrey. 2007. The Minimum Size of Leatherbacks at Reproductive Maturity, With a Review of Sizes for Nesting Females From the Indian, Atlantic and Pacific Ocean Basins. Herpetological Journal, 17(2):123-128.

Steyermark, A.C., K. Williams, J.R. Spotila, F.V. Paladino, D.C. Rostal, S.J. Morreale, M.T. Koberg, and R. Arauz-Vargas. 1996. Nesting Leatherback Turtles at Las Baulas National Park, Costa Rica. Chelonian Conservation and Biology, 2(2):173-183.

Storelli, M.M., G. Barone, A. Storelli, and G.O. Marcotrigiano. 2008. Total and Subcellular Distribution of Trace Elements (Cd, Cu and Zn) in the Liver and Kidney of Green Turtles (*Chelonia Mydas*) from the Mediterranean Sea. Chemosphere, 70(5):908-913.

Suchman, C., and R. Brodeur. 2005. Abundance and Distribution of Large Medusae in Surface Waters of the Northern California Current. Deep Sea Research Part II: Topical Studies in Oceanography, 52(1–2):51-72.

TEWG. 1998. An Assessment of the Kemp’s Ridley (*Lepidochelys Kempii*) and Loggerhead (*Caretta Caretta*) Sea Turtle Populations in the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-409. 96 pp.

TEWG. 2000. Assessment Update for the Kemp’s Ridley and Loggerhead Sea Turtle Populations in the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-444. 115 pp.

TEWG. 2007. An Assessment of the Leatherback Turtle Population in the Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-555. 116 pp.

TEWG. 2009. An Assessment of the Loggerhead Turtle Population in the Western North Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-575.

Titus, J.G., and V.K. Narayanan. 1995. The Probability of Sea Level Rise. U.S. Environmental Protection Agency, Washington, D.C.

Tiwari, M., B.P. Wallace, and M. Girondot. 2013. *Dermochelys Coriacea* (Northwest Atlantic Ocean Subpopulation). The IUCN Red List of Threatened Species, http://dx.doi.org/10.2305/IUCN.UK.2013-2.RLTS.T46967827A46967830.en.

Troëng, S., D. Chacón, and B. Dick. 2004. Possible Decline in Leatherback Turtle *Dermochelys Coriacea* Nesting Along the Coast of Caribbean Central America. Oryx, 38:395-403.

Troëng, S., E. Harrison, D. Evans, A.D. Haro, and E. Vargas. 2007. Leatherback Turtle Nesting Trends and Threats at Tortuguero, Costa Rica. Chelonian Conservation and Biology, 6(1):117-122.

Troëng, S., and E. Rankin. 2005. Long-Term Conservation Efforts Contribute to Positive Green Turtle *Chelonia Mydas* Nesting Trend at Tortuguero, Costa Rica. Biological Conservation, 121:111-116.

Tucker, A.D. 1988. A Summary of Leatherback Turtle *Dermochelys Coriacea* Nesting at Culebra, Puerto Rico From 1984-1987 With Management Recommendations. U.S. Fish and Wildlife Service.

Tucker, A.D. 2010. Nest Site Fidelity and Clutch Frequency of Loggerhead Turtles are Better Elucidated by Satellite Telemetry than by Nocturnal Tagging Efforts: Implications for Stock Estimation. Journal of Experimental Marine Biology and Ecology, 383(1):48-55.

USFWS. 2003. Draft Fish and Wildlife Coordination Act Report on Savannah River Basin Comprehensive Study. United States Fish and Wildlife Service, Southeast Region, Atlanta, Georgia.

USFWS. 2005. Fisheries Resources Office Annual Report. Panama City, Florida. 52 pp.

USFWS and NMFS. 1998. Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act.

U.S. Global Change Research Program. 2018. Fourth National Climate Assessment. Impacts, Risks, and Adaptation in the United States. Volume II. U.S. Global Change Research Program, Washington, D.C.

USGRG. 2004. U.S. National Assessment of the Potential Consequences of Climate Variability and Change, Regional Paper: The Southeast. U.S. Global Research Group, Washington, D.C., August 20, 2004.

USGS. 2008. The Gulf of Mexico Hypoxic Zone. Archived online at: https://toxics.usgs.gov/hypoxia/hypoxic_zone.html.

van Dam, R.P., and C. E. Diez. 1997. Predation by Hawksbill Turtles on Sponges at Mona Island, Puerto Rico. Pages 1421-1426 *in* H.A. Lessios and I.G. Macintyre, editors. Proceedings of the Eighth International Coral Reef Symposium, Panama City, Panama.

van Dam, R.P., and C.E. Diez. 1998. Home Range of Immature Hawksbill Turtles (*Eretmochelys Imbricata* (Linnaeus)) at Two Caribbean Islands. Journal of Experimental Marine Biology and Ecology, 220:15-24.

van Dam, R.P., L.M. Sarti, and D.J. Pares. 1991. The Hawksbills of Mona Island, Puerto Rico. Page 187 in M. Salmon and J. Wyneken, editors. Proceedings of the Eleventh Annual

Workshop on Sea Turtle Biology and Conservation, Jekyll Island, Georgia. NOAA Technical Memorandum NMFS-SEFSC-302.
van Dam, R.P., L.M. Sarti, and B.R. Pinto. 1990. Sea Turtle Biology and Conservation on Mona Island, Puerto Rico. Pages 265-267 *in* T.H. Richardson, J.I. Richardson, and M. Donnelly, editors. Proceedings of the Tenth Annual Workshop on Sea Turtle Biology and Conservation, Hilton Head, South Carolina. NOAA Technical Memorandum NMFS-SEFSC-278. 286 pp.
Van Houtan, K.S., and J.M. Halley. 2011. Long-Term Climate Forcing Loggerhead Sea Turtle Nesting. PLOS ONE, 6(4).
Venables, S. 2013. Short Term Behavioural Responses of Manta Rays, *Manta Alfredi*, to Tourism Interactions in Coral Bay, Western Australia. Thesis. Murdoch University, Perth, Australia.
Vladykov, V.D., and J.R. Greely. 1963. Order Acipenseroidei. *In* H.B. Bigelow and W.C. Schroeder, editors. Fishes of Western North Atlantic. Sears Foundation for Marine Research, Yale University Press, New Haven, Connecticut. 630 pp.
Von Westernhagen, H., H. Rosenthal, V. Dethlefsen, W. Ernst, U. Harms, and P.D. Hansen. 1981. Bioaccumulating Substances and Reproductive Success in Baltic Flounder (*Platichthys Flesus*). Aquatic Toxicology, 1(2):85-99.
Wallace, B.P., and T.T. Jones. 2008. What Makes Marine Turtles Go: A Review of Metabolic Rates and Their Consequences. Journal of Experimental Marine Biology and Ecology, 356(1):8-24.
Wallace, B.P., R.L. Lewison, S.L. McDonald, R.K. McDonald, C.Y. Kot, S. Kelez, R.K. Bjorkland, E.M. Finkbeiner, S. Helmbrecht, and L.B. Crowder. 2010. Global Patterns of Marine Turtle Bycatch. Conservation Letters, 3:1-12.
Waring, C.P., and A. Moore. 2004. The Effect of Atrazine on Atlantic Salmon (*Salmo Salar*) Smolts in Fresh Water and After Sea Water Transfer. Aquatic Toxicology, 66(1):93-104.
Waring, G.T., E. Josephson, C.P. Fairfield, and K. Maze-Foley. 2006. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments—2005. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Science Center.
Waring, G.T., J.M. Quintal, and C.P. Fairfield. 2002. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments—2002. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Science Center.
Weishampel, J.F., D.A. Bagley, and L.M. Ehrhart. 2004. Earlier Nesting by Loggerhead Sea Turtles Following Sea Surface Warming. Global Change Biology, 10:1424-1427.
Weishampel, J.F., D.A. Bagley, L.M. Ehrhart, and B.L. Rodenbeck. 2003. Spatiotemporal Patterns of Annual Sea Turtle Nesting Behaviors Along an East Central Florida Beach. Biological Conservation, 110(2):295-303.
Wendelaar Bonga, S.E. 1997. The Stress Response in Fish. Physiological Reviews, 77:591-625.
Wershoven, J.L., and R.W. Wershoven. 1992. Juvenile Green Turtles in Their Nearshore Habitat of Broward County, Florida: A Five-Year Review. Pages 121-123 *in* M. Salmon and J. Wyneken, editors. Eleventh Annual Workshop on Sea Turtle Biology and Conservation.

Whitfield, A.K., and M.N. Bruton. 1989. Some Biological Implications of Reduced Freshwater Inflow Into Eastern Cape Estuaries: a Preliminary Assessment. South African Journal of Science, 85:691-694.

Whiting, S.D. 2000. The Foraging Ecology of Juvenile Green (*Chelonia Mydas*) and Hawksbill (*Eretmochelys Imbricata*) Sea Turtles in North-Western Australia. Northern Territory University, Darwin, Australia.

Wibbels, T. 2003. Critical Approaches to Sex Determination in Sea Turtle Biology and Conservation. Pages 103-134 *in* P. Lutz, J.A. Musick, J. Wyneken, editors. Biology of Sea Turtles, Volume 2. CRC Press, Boca Raton, Florida.

Wibbels, T., and E. Bevan. 2019. *Lepidochelys Kempii*. The IUCN Red List of Threatened Species 2019. International Union for Conservation of Nature and Natural Resources.

Wilcox, J.R., J.R. Bouska, J. Gorham, B. Peery, and M. Bressette. 1998. Knee Deep in Green Turtles: Recent Trends in Capture Rates at the St. Lucie Nuclear Power Plant. Pages 147-148 in R. Byles and Y. Fernandesz, compilers. Proceedings of the Sixteenth Annual Symposium on Sea Turtle Biology and Conservation, Hilton Head, South Carolina. NOAA Technical Memorandum NMFS-SEFSC-412.

Wilcox, C., G. Heathcote, J. Goldberg, R. Gunn, D. Peel, and B.D. Hardesty. 2015. Understanding the Sources and Effects of Abandoned, Lost, and Discarded Fishing Gear on Marine Turtles in Northern Australia. Conservation Biology, 29(1):198-206.

Wiley, T.R., and C.A. Simpfendorfer. 2007. Site Fidelity/Residency Patterns/Habitat modeling. Final Report to the National Marine Fisheries Service, Grant Number WC133F-06-SE-2976. Mote Marine Laboratory, Sarasota, Florida.

Wilkinson, C. 2004. Status of Coral Reefs of the World: 2004. Australian Institute of Marine Science, ISSN 1447-6185.

Williams, A.B., and A.G. Abele. 1989. Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Decapod Crustaceans, Volume 2. Special Publication 17. American Fisheries Society, Bethesda, Maryland.

Wilson, S.M., G. Raby, N.J. Burnett, S.G. Hinch, and S. Cooke. 2014. Looking Beyond the Mortality of Bycatch: Sublethal Effects of Incidental Capture on Marine Animals. Biological Conservation, 171:61-72.

Winger, P.V., P.J. Lasier, D.H. White, and J.T. Seginak. 2000. Effects of Contaminants in Dredge Material from the Lower Savannah River. Archives of Environmental Contamination and Toxicology, 38(1):128-136.

Witherington, B.E. 1992. Behavioral Responses of Nesting Sea Turtles to Artificial Lighting. Herpetologica 48(1):31-39.

Witherington, B.E. 1994. Flotsam, Jetsam, Post-Hatchling Loggerheads, and the Advecting Surface Smorgasbord. Page 166 *in* K.A. Bjorndal, A.B. Bolten, D.A. Johnson, and P.J. Eliazar, editors. Proceedings of the 14th Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-351, Miami, Florida.

Witherington, B.E. 1999. Reducing Threats to Nesting Habitat. Pages 179-183 *in* K.L. Eckert, K.A. Bjorndal, F.A. Abreu-Grobois, and M. Donnelly, editors. Research and Management Techniques for the Conservation of Sea Turtles. IUCN/SSC Marine Turtle Specialist Group Publication, 4.

Witherington, B.E. 2002. Ecology of Neonate Loggerhead Turtles Inhabiting Lines of Downwelling Near a Gulf Stream Front. Marine Biology, 140(4):843-853.

Witherington, B.E., and K.A. Bjorndal. 1991. Influences of Artificial Lighting on the Seaward Orientation of Hatchling Loggerhead Turtles *Caretta Caretta*. Biological Conservation 55(2):139-149.

Witherington, B.E., M. Bresette, and R. Herren. 2006. *Chelonia Mydas*—Green Turtle. Chelonian Research Monographs, 3:90-104.

Witherington, B.E., and L.M. Ehrhart. 1989a. Hypothermic Stunning and Mortality of Marine Turtles in the Indian River Lagoon System, Florida. Copeia, 1989(3):696-703.

Witherington, B.E., and L.M. Ehrhart. 1989b. Status and Reproductive Characteristics of Green Turtles (*Chelonia Mydas*) Nesting in Florida. Pages 351-352 *in* L. Ogren *et al.*, editors. Second Western Atlantic Turtle Symposium.

Witherington, B.E., S. Hirama, and A. Moiser. 2003. Effects of Beach Armoring Structures on Marine Turtle Nesting. U.S. Fish and Wildlife Service.

Witherington, B.E., S. Hirama, and A. Moiser. 2007. Changes to Armoring and Other Barriers to Sea Turtle Nesting Following Severe Hurricanes Striking Florida Beaches. U.S. Fish and Wildlife Service.

Witt, M.J., A.C. Broderick, D.J. Johns, C. Martin, R. Penrose, M.S. Hoogmoed, and B.J. Godley. 2007. Prey Landscapes Help Identify Foraging Habitats for Leatherback Turtles in the NE Atlantic. Marine Ecology Progress Series, 337:231-243.

Witt, M.J., B.J. Godley, A.C. Broderick, R. Penrose, and C.S. Martin. 2006. Leatherback Turtles, Jellyfish and Climate Change in the Northwest Atlantic: Current Situation and Possible Future Scenarios. Pages 356-357 *in* M. Frick, A. Panagopoulou, A.F. Rees, and K. Williams, editors. Twenty-Sixth Annual Symposium on Sea Turtle Biology and Conservation. International Sea Turtle Society, Athens, Greece.

Witt, M.J., L.A. Hawkes, H. Godfrey, B.J. Godley, and A.C. Broderick. 2010. Predicting the Impacts of Climate Change on a Globally Distributed Species: The Case of the Loggerhead Turtle. The Journal of Experimental Biology, 213:901-911.

Witzell, W.N. 1983. Synopsis of Biological Data on the Hawksbill Sea Turtle, *Eretmochelys Imbricata* (Linnaeus, 1766). Food and Agricultural Organization of the United Nations, Rome, Italy.

Witzell, W.N. 2002. Immature Atlantic Loggerhead Turtles (*Caretta Caretta*): Suggested Changes to the Life History Model. Herpetological Review, 33(4):266-269.

Zug, G.R., and R.E. Glor. 1998. Estimates of Age and Growth in a Population of Green Sea Turtles (*Chelonia Mydas*) from the Indian River Lagoon System, Florida: A Skeletochronological Analysis. Canadian Journal of Zoology, 76(8):1497-1506.

Zug, G.R., and J.F. Parham. 1996. Age and Growth in Leatherback Turtles, *Dermochelys Coriacea*: A Skeletochronological Analysis. Chelonian Conservation and Biology, 2:244-249.

Zurita, J.C., R. Herrera, A. Arenas, M.E. Torres, C. Calderón, L. Gómez, J.C. Alvarado, and R. Villavicencia. 2003. Nesting Loggerhead and Green Sea Turtles in Quintana Roo, Mexico. Pages 25-127 *in* J. A. Seminoff, editor. Twenty-Second Annual Symposium on Sea Turtle Biology and Conservation, Miami, Florida.

Zwinenberg, A.J. 1977. Kemp's Ridley, *Lepidochelys Kempii* (Garman, 1880), Undoubtedly the Most Endangered Marine Turtle Today (With Notes on the Current Status of *Lepidochelys Olivacea*). Bulletin Maryland Herpetological Society, 13(3):170-192.

APPENDIX 1 ANTICIPATED INCIDENTAL TAKE OF ESA-LISTED SPECIES IN FEDERAL FISHERIES

Table A.1. Anticipated Incidental Takes of Sea Turtles in Federal Fisheries (Greater Atlantic Region)

Fishery	ITS Period	Sea Turtle Species				
		Loggerhead	Leatherback	Kemp's ridley	Green	Hawksbill
American Lobster (July 31, 2014)	1 year	1 (lethal or non-lethal)	7 (lethal or non-lethal)	-	-	-
Batched Consultation[1] (gillnet; March 10, 2016)	5 years	1,345: no more than 835 lethal	4: no more than 3 lethal	4: no more than 3 lethal	4: no more than 3 lethal	-
Batched Consultation (bottom trawl; March 10, 2016)	4 years	852: no more than 284 lethal	4: no more than 2 lethal	3: no more than 2 lethal	3: no more than 2 lethal	-
Batched Consultation (trap/pot; March 10, 2016)	1 year	1 (lethal or non-lethal)	4 (lethal or non-lethal)	-	-	-
Atlantic Sea Scallop (dredge; November 27, 2018)	2 years	322: no more than 92 lethal	2 lethal (gears combined)	3: no more than 2 lethal (gears combined)	2 lethal (gears combined)	-
Atlantic Sea Scallop (trawl; November 27, 2018)	5 years	700; no more than 330 lethal				
Red Crab (February 6, 2002)	1 year	1 (lethal or non-lethal)	1 (lethal or non-lethal)	-	-	-

[1] Batched consultation includes the Northeast Multispecies, Monkfish, Spiny Dogfish, Atlantic Bluefish, Northeast Skate Complex, Mackerel/Squid/Butterfish, and Summer Flounder/Scup/Black Sea Bass Fisheries

Table A.2. Anticipated Incidental Takes of Sea Turtles in Federal Fisheries (HMS)

Fishery	ITS Period	Sea Turtle Species				
		Loggerhead	Leatherback	Kemp's ridley	Green	Hawksbill
HMS, Excluding Pelagic Longline (January 10, 2020)	3 years	91: no more than 51 lethal	7: no more than 4 lethal	22: no more than 11 lethal	NA DPS, 46: no more than 25 lethal SA DPS, 3: no more than 2 lethal	2: no more than 1 lethal
HMS Pelagic Longline (May 15, 2020)	3 years	1,080: no more than 280 lethal	996: no more than 275 lethal	21: no more than 8 lethal in any combination		

Table A.3. Anticipated Incidental Takes of Sea Turtles in Federal Fisheries (Southeast Region)

Fishery	ITS Period	Sea Turtle Species				
		Loggerhead	Leatherback	Kemp's ridley	Green	Hawksbill
Caribbean Reef Fish (October 4, 2011)	3 years	None	18 (all lethal)	-	75 (all lethal)	51: no more than 3 lethal
Coastal Migratory Pelagics (November 18, 2017)	3 years	27 (7 lethal)	1 lethal	8 (2 lethal)	31 (9 lethal)	1 lethal
Dolphin-Wahoo (August 27, 2003)	1 year	12: no more than 2 lethal	12: no more than 1 lethal	3 for all species in combination: no more than 1 lethal		
Gulf of Mexico Reef Fish (September 30, 2011)	3 years	1,044: no more than 572 lethal	11 lethal	108: no more than 41 lethal	116: no more than 75 lethal	9: no more than 8 lethal
Caribbean Spiny Lobster (December 12, 2011)	3 years	-	9 (lethal or non-lethal)	-	12 (lethal or non-lethal)	12 (lethal or non-lethal)
Gulf of Mexico/South Atlantic Spiny Lobster (August 27, 2009)	3 years	3 (lethal or non-lethal)	1 (lethal or non-lethal)		3 (lethal or non-lethal)	1 (lethal or non-lethal)
South Atlantic Snapper-Grouper (December 1, 2016)	3 years	629: no more than 208 lethal	6: no more than 5 lethal	180: no more than 59 lethal	NA DPS, 111: no more than 42 lethal SA DPS, 6: no more than 3 lethal	6: no more than 4 lethal
Southeast Shrimp Fisheries (April 26, 2021)	5 years	72,670; 2,150 lethal	130; 5 lethal	84,495; 8,505 lethal	21,214; 1,700 lethal	170; 5 lethal

Table A.4. Anticipated Incidental Take of Giant Manta Ray in Federal Fisheries

Fishery	ITS Period	Giant Manta Ray
HMS, Excluding Pelagic Longline (January 10, 2020)	3 years	9 non-lethal
Southeast Shrimp Fisheries (April 26, 2021)	5 years	8,390 non-lethal

Sea Turtle Handling and Resuscitation Requirements

NOAA FISHERIES

Per federal regulations at 50 CFR 223.206(d)(1):

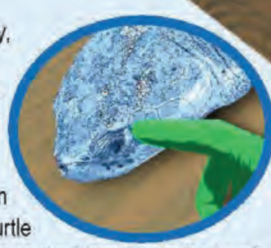
Any sea turtle taken incidentally during fishing must be handled with care to prevent injury, evaluated to make sure it is active, and safely returned to the water.

Unresponsive turtles could still be alive and resuscitation must be attempted.

- Turtles that are unresponsive after capture may survive if allowed to recover.
- Sea turtles should only be considered dead if the muscles are stiff (rigor mortis), their body becomes bloated with gas, or the skin is detaching.

Resuscitation of unresponsive or inactive sea turtles must be attempted using the following procedures:

1. **Elevate Tail End:** Place the turtle right side up and elevate the hindquarters at least 6" (~15 - 30°) to help drain water from the lungs. A board, tire, boat cushion, coiled rope, or other object can be used for elevation.
2. **Rock Gently**: Occasionally rock the turtle gently side to side by holding the outer edge of the shell and lifting one side about 3", then alternate to the other side.
3. **Check Eye Reflex:** Periodically, gently touch the corner of the eye or eyelid to see if the eyelid moves. This reflex will return as the turtle recovers.



4. **Keep Cool and Moist:** In warm weather (over 75°F), keep the turtle shaded and moist. Place a water-soaked towel over the head, shell, and flippers or regularly wet the turtle with seawater to keep the turtle cool and moist. Never put the turtle into a container with water.
5. **Release Active Turtle Carefully:** Release active, resuscitated turtles as close to the water as possible. When doing so make sure fishing gear is not in use, the engine is in neutral, and avoid areas where the turtle may be recaptured or injured by other vessels.
6. **Give Them Time:** Attempt resuscitation for at least 4 hours. If there are no signs of life after 24 hours on deck, or if the muscles are stiff and/or the flesh has begun to rot, consider the turtle dead and return it to the water in the same manner (unless a NMFS observer retains the carcass).

Do not put the turtle on its back or pump the bottom shell (plastron) or try to force water out, as this is dangerous to the turtle.

Need assistance with a sea turtle or marine mammal in distress? *Call 844-SEA-TRTL (844-732-8785)*

Southeast Shrimp Fisheries Giant Manta Ray Release Guidelines

The guidelines presented here describe procedures for releasing a large ray from a shrimp trawl. Under these procedures, the trawl is retrieved in a normal manner and the ray is not brought onboard the vessel. The objective is to bring portions of the net tail and body out of the water in order to maneuver the captured ray towards and out the mouth of the net.

The capture of a manta ray during a tow often provides cues to the crew that should trigger net haulback. Once caught, large rays create an increase in the overall drag associated with the trawl. In some instances, the increase in drag, along with the rays thrashing against the trawl webbing, can provide noticeable cues. These cues can include an irregular "jerking" motion of the trawl cable above the water, a decrease in engine RPMs associated with an engine "lugging" sound, and a decrease in vessel speed. If the vessel is rigged for side trawling with outriggers, the vessel may veer off course and in the direction of the net that has captured the ray.

Photo: Josh Stewart

Step 1: The haulback of all nets should proceed as usual. Bring doors to the block.

Step 2: Position the vessel so that the manta/trawl is on the windward/upwind side of the boat. Reduce speed or take the engine out of gear if possible. This will reduce drag on the animal, allowing it to move towards the mouth of the net in subsequent steps.

Step 3: Retrieve the bag and dump the catch as usual.

Step 4: Using a whip/lifting line positioned forward of the TED, raise sections of trawl netting out of the water as high as possible, causing the animal to slide toward the trawl mouth.

- It may require several lifts/whips, moving forward in the trawl body with each lift, to move the animal toward the trawl mouth.
- If the animal stops moving at any point, try lowering the trawl doors to the water. This will increase the angle of the whip line lifting point relative to the trawl mouth and help move the animal toward the trawl mouth.

Step 5: If the animal does not move after repetitive lifts are attempted, it may be necessary to cut portions of the trawl net webbing that appear to be under tension near or around the animal. Bring those areas of the trawl as close to the vessel as possible and make necessary cuts to relieve tension. Take care to avoid cutting the animal.

Step 6: Once released from the trawl, monitor the animal's direction of movement. The ray may remain at the surface while it regains mobility. Take care to maneuver the vessel away from the animal while it is recovering.

Step 7: Report the incident to Calusa Horn, NMFS Southeast Giant Manta Ray Recovery Coordinator, at 727-824-5312, or *via* email Calusa.Horn@noaa.gov.

Photo: NMFS, Galveston Lab

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service | Southeast Region

Appendix D3

USFWS Conference and Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
4444 Corona Drive, Suite 215
Corpus Christi, Texas 78411
PHONE: 361/994-9004
FAX: 361/994-8262

In Reply Refer To:
2022-0045444

January 13, 2023

Mr. Jayson M. Hudson
Regulatory Project Manager
Policy Analysis Branch
Department of the Army
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, Texas 77553-1229

Subject: Final Conference and Biological Opinion (BCO) for the Port of Corpus Christi Authority (PCCA) Channel Deepening Project, U.S. Corps of Engineers (USACE) Permit SWG-2019-00067, Port Aransas, Nueces County, Texas

Dear Mr. Hudson:

This document transmits the U.S. Fish and Wildlife Service's (Service) Final BCO based on our review of the effects of the proposed issuance of USACE's Permit SWG-2019-00067 for the deepening of the Corpus Christi Ship Channel (CCSC) on the endangered hawksbill sea turtle (*Eretmochelys imbricata*), Kemp's ridley sea turtle (*Lepidochelys kempii*) and the threatened loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), and eastern black rail (*Laterallus jamaicensis ssp. jamaicensis*, or designated critical habitat for the piping plover or proposed critical habitat for the red knot pursuant to section 7(a)(2) of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). Your request for formal consultation was received in a letter dated June 9, 2022, and included a Biological Assessment (BA) for review. The Service determined the BA was complete and initiated consultation on August 9, 2022, via email.

The USACE determined that the proposed action may affect, but not likely to adversely affect the whooping crane (*Grus americana*), and leatherback sea turtle (*Dermochelys coriacea*). We have analyzed the effects of the proposed action on these species and concur with the USACEs determination that the project may affect, but will not likely adversely affect the whooping crane and leatherback sea turtle due to the conservation measures outlined in this BCO and presence of environmental monitors for the duration of the project.

The USACE also determined that this action will have no effect on the ocelot (*Leopardus pardalis*), northern aplomado falcon (*Falco femoralis septentrionalis*), Attwater's greater prairie chicken (*Tympenuchus cupido attwateri*), false spike (*Fusconaia mitchelli*), Guadalupe orb (*Cyclonaias necki*), monarch butterfly (*Danaus plexippus*), slender rush-pea (*Hoffmannseggia tenella*), South Texas ambrosia (*Ambrosia cheiranthifolia*), and black lace cactus (*Echinocereus reichenbachii albertii*) because of lack of habitat or presence in the Action Area. The Service does not provide concurrences with no effect determinations; therefore, these species will not be further addressed in this BCO.

This BCO is based on information provided in the August 2022 BA, telephone conversations, field investigations, and other sources of information. Literature cited in this BCO is not a complete bibliography of all literature available on the species of concern, and its effects, or on other subjects considered in this BCO. A complete administrative record of this consultation is on file at Texas Ecological Services Field Office-Corpus Christi.

CONSULTATION HISTORY

June 9, 2022 – USACE requested initiation of formal consultation.

July 11, 2022 –The BA did not contain all information necessary to initiate formal consultation. The Service provided comments and recommended revisions.

August 2, 2022- The USACE provided a revised draft BA.

August 5, 2022- The Service provided a few additional comments and the USACE revised the BA the same day.

August 9, 2022- Formal consultation was initiated.

August 30, 2022- The USACE requested the Service include the black rail in the formal consultation.

December 20, 2022 – Preliminary Draft BCO provided to the USACE for review and comment.

January 5, 2023 – Draft BCO provided to the USACE for review and comment.

January 6, 2023 – Comments received from the USACE via email.

January 13, 2023 – Final BCO forwarded to USACE via email.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Regulations implementing the Act (50 CFR 402.02) define “action” as “all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies of the United States or upon the high seas.” The following is a summary of the proposed action, and a detailed description can be found in the BA and Public Notice dated August 1, 2019.

The proposed project begins in Port Aransas, Nueces County, Texas within the existing channel bottom of the CCSC near the southeast side of Harbor Island, and traverses easterly through Aransas Pass and extending an additional 5.5 miles beyond the existing terminus of the channel totaling approximately 13.8 miles (Figure 1). The study area included Nueces, San Patricio, Refugio, and Aransas counties, Texas (Figure 2). Triton Environmental Solutions, LLC (Triton) buffered each Beneficial Use Area (BU) boundary by 500 feet per USACE requirements. The total survey area encompassed approximately 2,268.48-acres across six Project Study Areas (PSAs) and included Placement Area (PA) 4 (Approximately 294.10-acres), SS1 (Approximately 589.90-acres), SS2 (Approximately 250.60-acres), HIE (Approximately 269.40-acres), MI (Approximately 764.48-acres) and SJI (Approximately 1,480.19-acres). The project area is much smaller and evaluated species that may be more-directly impacted by the construction and operation of the proposed project in Nueces and Aransas counties (Figure 3).

The proposed action consists of deepening the CCSC to –75 Mean Lower Low Water (MLLW) from the Gulf of Mexico (Gulf) to station 110+00 near Harbor Island, including the approximate 10-mile extension to the Entrance Channel necessary to reach sufficiently deep waters. Deepening would take place largely within the footprint of the currently authorized –54-foot MLLW channel. Dredging approximately 46.3 million cubic yards would be required with inshore and offshore placement of the material. Only berths at Harbor Island would be capable of fully loading very large crude carriers (VLCCs). Partially loaded VLCCs at Ingleside could top off at Harbor Island thereby reducing or eliminating reverse lightering. All dredged material would be placed in inshore and offshore PAs (with BU objectives) and offshore at the Ocean Dredged Material Disposal site.

PCCA intends to use both hopper and hydraulic cutter suction dredges to deepen the channel. Offshore Channel Segments 1 and 2 would be dredged with a hydraulic cutter suction dredge, Channel Segment 3 (within the jetties) may be dredged with either hopper and hydraulic cutter suction dredge (as PCCA has determined both are feasible methods and which one is yet to be determined), and Channel Segments 4 through 6 (inshore segments) would be dredged with hydraulic cutter suction (Figure 4). Additional dredge information, including equipment list, schedule, volumes, methods, and locations, are provided in Attachment 2.

Conservation Measures

The USACE and the PCCA will implement conservation measures with the intent to avoid and minimize adverse effects to marine and terrestrial wildlife from dredging and disposal of dredged material in the Ocean Dredged Material Disposal Site and construction activities of the proposed action. The Service has jurisdiction for terrestrial wildlife and nesting sea turtles, the National

Marine Fisheries Service (NMFS) has jurisdiction for marine species. Conservation measures listed below address only species under the Service's jurisdiction.

General Conservation Measures
Avoidance measures have been developed to avoid and minimize adverse impacts to piping plovers, red knots, eastern black rails, whooping crane, and nesting sea turtles from placement of dredged material during construction of the proposed project. These avoidances include reasonable and prudent measures that have largely been incorporated in USACE regulatory and civil works projects throughout the Gulf for more than a decade. These measures are:

1. Species Training and Monitoring – The following measures apply to species training and on-site monitoring during placement of dredged material for beneficial use in beach nourishment and in-water placement and construction activities:
    a. The PCCA would ensure all crew members (contractors, work crews, drivers, wildlife monitors, etc.) attend a half-day training session training prior to the initiation of, or their participation in, project work activities. Qualified biologist would conduct training and the scope of training will include: 1) recognition of sea turtles, eastern black rails, piping plovers, whooping cranes, northern aplomado falcons, and red knots, and their habitats; 2) avoidance and minimization measures; 3) reporting criteria; and 4) contact information for different rescue agencies in the area. Documentation of this training, including a list of attendees, would be submitted to the USACE and Service prior to the start of placement of dredged materials, including beach nourishment, and as new members are trained.
2. A minimum of one qualified wildlife monitor, separate from the equipment operator, would be assigned to each active work area. The wildlife monitor will inspect the active work areas prior to the start of work and continuously throughout the workday. Wildlife monitor qualifications would be submitted to the USACE and Service prior to the start of each beach nourishment project.
3. The PCCA would provide the USACE with the name of a single point of contact responsible for communicating with the crew and wildlife monitors and reporting on endangered species issues during the life of the project. Typically, wildlife monitors would be on-site to ensure listed species are not affected by placement of dredged materials, including beach nourishment activities.
4. Prior to the start of work each day, the PCCA would ensure that the wildlife monitors inspect the work area and surrounding areas before construction begins each morning. Wildlife monitors would communicate all activities to the point of contact and the point of contact would coordinate that information with the USACE and Service as required.
5. Typically, prior to the start of work each day, all contractors, work crews, drivers, etc., would attend a brief training on the recognition of sea turtles, manatees, piping plovers, and red knots, whooping cranes, eastern black rails (and their habitats) and updated on any previous day encounters, if any, with nesting or injured wildlife.
6. Measures that apply to construction site, access, and equipment for beach nourishment activities include:
    a) Beach nourishment activities would be conducted mechanically by means of trucks, backhoes, front-end loaders, bulldozers, cranes, and All Terrain Vehicles (ATVs). Other equipment could include a dredge pipe, booster pumps,

generators, lighting, and fuel trucks. The following measures may apply to construction access and equipment usage during beach nourishment activities.

b) Materials and equipment required for the Proposed Action would be staged in upland areas and transported as needed to the proposed work sites. Staging areas would be designated before work begins and would be solely within the construction footprint.
c) Construction vehicles would access the beach from public roads closest to the work sites to reduce the unnecessary vehicle traffic on the beach.
d) Ingress/egress routes would be flagged/marked with wooden laths/stakes to ensure that work activities remain within the approved project work area. These items would be removed once work is complete in designated areas.
e) Contractors would coordinate and sequence the work to minimize the frequency and density of vehicular traffic on the beach to the greatest extent practicable. Construction crews and vehicles would avoid the swash zone and the wrack line closest to the swash zone when possible. The swash zone is defined as the area of the beach intermittently covered and uncovered by wave run-up. The wrack line is defined as the vegetative area made up of but not limited to *Sargassum,* shell hash, vegetation, and some light trash, and litter.
f) Sand placement areas would be confined to a maximum 1,000-foot-long segment within the active work corridor. Vehicle access corridors could include up to an additional 2,000 feet. Work activities would run parallel to the shoreline and will shift linearly along the work corridor as sections of the beach template are completed to allow for birds to migrate to undisturbed portions of the beach.
g) The ends of the 1,000-foot-long segment within the active work area would be clearly marked with orange wooden barricades (or other temporary barriers) for the duration of project construction. Barricades would be shifted down the active work area as work is completed.
h) The number of vehicles transiting from upland areas to the active work sites will be kept to a minimum. All vehicles will use the same pathways and access will be confined to the closest access point to the immediate work area. Beach nourishment activities will occur from the landward side of the beach placement area whenever possible.
i) Vehicles would adhere to a reduced speed of 15 miles per hour.
j) Use of construction lighting at night would be minimized, directed toward the construction activity area, and shielded from view outside of the project area to the maximum extent practicable.

Sea Turtles

Peak nesting season for sea turtles begins March 15, extending through October 1. To minimize potential impacts to sea turtles during placement of dredged material, including beach nourishment activities, the PCCA and their contractor may implement the following measures:

1. Beach nourishment activities should avoid sea turtle nesting season which goes from March 15 to October 1.
2. The PCCA, in coordination with the USACE, would ensure that daily turtle patrols of the proposed beach nourishment area by wildlife monitors are conducted prior to the start of

work each day and continuously throughout the workday. No equipment would be powered on or working until the wildlife monitor is present and the equipment inspections are complete.

3. If a sea turtle (dead or alive), sea turtle tracks, or nest is located or identified, the siting would be documented, and beach nourishment activities would immediately cease within 100 feet of the nest, tracks, or turtle. The wildlife monitor would then call Padre Island National Seashore at 1-361-949-8173 extension 226 or 1-866-TURTLE5 (1-866-887-8535) or the Amos Rehabilitation Keep (ARK) at 361-749-6793.
4. Typically, all turtles, turtle tracks, turtle nests, or turtle eggs found during beach nourishment activities would be safeguarded until they can be re-located by properly permitted individual(s).
5. Contractors would use the minimum amount of light necessary through reduced wattage, shielding, lowering, and the use of low-pressure sodium lights during project construction to minimize the potential effects of artificial lighting on sea turtles.
6. Measures that apply to beach-quality sand placement during beach nourishment activities include:
    a) Only sand that meets the specifications of the local beach quality sand (i.e., consistent in grain size, color, composition, and mineralogy) and free of hazardous substances (as defined in Volume 40 of the Code of Federal Regulations, Part 302.4) would be used for beach nourishment activities. Detail on sediment testing can be found in Sections 3.2.5 and 4.1.4 of the Environmental Impact Statement (EIS) and is briefly summarized here. The proposed dredge area does not have heavy industry located on its banks and past maintenance material testing has not shown any signs of contamination (Montgomery and Bourne 2018). Further testing for the CCSC ruled out several volatile and semi-volatile chemical groups including volatile organic chemicals (VOC), ethers, and organonitrogens, and non-volatiles like dioxin. Testing for the remaining chemicals at the CCSC in the lower bay, Entrance Channel, and proposed channel extension, did not indicate issues with metals, polycyclic aromatic hydrocarbons, pesticides, or other chemical groups. Only beach quality sands from the CCSC should be placed as direct beach nourishment at locations previously breached by Hurricane Harvey.
    b) Sand would be placed and maintained at a gradual slope to minimize scarping.
    c) After project construction in an active work zone is complete, the project site would be regraded, and all vehicular ruts leveled.

Piping Plovers and Red Knots

The piping plovers and red knots wintering season begins July 15, extending through May 15. To minimize potential impacts to piping plovers, red knots, and other migratory birds during beach nourishment activities, the PCCA and their contractors may implement the following measures:

1. Wildlife monitors would be on-site to ensure piping plovers and red knots are not affected during beach nourishment activities. The wildlife monitors will ensure that beach nourishment activities will not begin until piping plovers and red knots leave the project area.

2. Wildlife monitors would typically escort equipment operating on to the beach. Typically, no equipment will be powered on or working until the wildlife monitors are present and the equipment inspections are complete.
3. Wildlife monitors would check under and around vehicles and heavy equipment before they are moved. Wildlife monitors should be aware that piping plovers and red knots are especially vulnerable during periods of cold temperature, inclement weather, and when roosting. Birds are also more susceptible to injury or disease during inclement winter weather. Careful consideration of construction activities and monitoring is advised when winter winds exceed 20 miles per hour and temperature drops below 40 degrees Fahrenheit (°F). These conditions can cause the birds to roost to conserve energy. Birds can be found in vehicle ruts or next to debris which can make them difficult to see. Construction workers will immediately notify the point of contact or wildlife monitor if listed species occur in the immediate vicinity of the active work area. If piping plovers or red knots are found in the active work area, work may be stopped within an area specified by monitors until the birds leave the construction site. Equipment would remain powered off and all personnel would be vacated from the work area until the bird has left. If the bird does not relocate (e.g., injured bird), the Service may be contacted to solicit additional guidance.
4. Disturbed areas of the beach (e.g., ruts, tread marks, etc.) would be smoothed out and loosened upon the completion of each workday.

Eastern Black Rail

In Texas, breeding populations of eastern black rails are found along the Gulf Coast from March to August. To minimize potential impacts, the PCCA and their contractors may implement the following Best Management Practices (Service 2022c):

1. Where known black rail habitat exists, disturbance activities should be avoided from March 1 to September 30.
2. If potential black rail habitat is proposed for removal or impact, black rail species surveys should be conducted prior to construction activity. The survey period for the species is from March 15 to June 15.
3. Limit project activity to daytime hours. If nighttime work is required, lighting in work zones should be limited and turned off when not in use. Permanent lighting should be pointed away from potential black rail habitat, down shielded, and follow Texas Bird City guidelines.
4. Black rail habitat should not all be removed within a day. Some pockets of herbaceous cover (refugia, approximately 10 feet by 20 feet) should be maintained. Refugia remaining within the project area may be cleared after two days.
5. Biological monitors should ensure that equipment and vehicles moving through potential black rail habitat should follow a sufficiently slow pace to allow birds to escape ahead of equipment. Eastern black rails run to escape oncoming disturbance and are unlikely to fly.
6. Revegetation of disturbed areas should use native plants to mimic the local site composition.

Whooping Crane
To protect whooping cranes, which winter in the Action Area and surrounding vicinity between November 1 and April 30:

1. The PCCA and their contractors would lower any equipment (taller than 15 feet) at night. If equipment cannot be laid down at dusk or overnight, then such equipment would be marked using surveyors flagging tape, red plastic balls or other suitable marking devices and lighted during inclement weather conditions when low light and/or fog is present.
2. If a whooping crane is observed within 1,000 feet of dredge material placement activities, the PCCA would immediately halt work until the Whooping Crane leaves the area.

West Indian Manatee

1. Training: All contracted personnel involved in operating dredges must receive training dredge operation measures that will minimize impacts to West Indian manatee takes.
2. Observers: Typically, the PCCA would arrange for NMFS-approved protected species observers to be aboard the hopper dredges. If a manatee is sighted, project observers should contact the Texas Coastal Ecological Services Field Office at 361-533-6765 and the Texas Marine Mammal Stranding Network at 800-962-6625 (800-9MAMMAL).
3. Staff and crew should not feed or water manatees.
4. All in-water operations, including vessels, must be shut down if a manatee comes within 50 feet of the operation. Activities would not resume until the manatee has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee has not reappeared within 50-feet of the operation.

Action Area
The action area is defined at (50 CFR 402.02) as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. The Service has determined that the action area for this project begins in Port Aransas, Nueces County, Texas within the existing channel bottom of the CCSC near the southeast side of Harbor Island, and traverses easterly through Aransas Pass and extends an additional 5.5 miles beyond the existing terminus of the channel. It is within the Corpus Christi Bay, a 96,000-acre bay on the Texas central coast with an average depth of 11 feet (Texas Parks and Wildlife Department (TPWD 2017, 2021). The Corpus Christi Bay estuary habitat types include uplands, wetlands, open-bay water, open-bay bottom, sea grass meadows, and intertidal mud flats. Existing habitat within the proposed project footprint includes developed and urbanized land, armored and natural shorelines, beaches, tidal flats, open water, brackish to saltwater wetlands, submerged aquatic vegetation, oyster reefs, uplands, sand dunes, coastal prairie, and mud flats (Service 2017a) (see Figure 1.)

Status of the Species and Critical Habitat

Sea Turtles
The Service has jurisdiction for protecting sea turtles in the terrestrial environment including nesting beaches. NMFS has jurisdiction for protecting sea turtles in the marine environment. Five species of sea turtles are found in U.S. waters and nest on U.S. and Texas beaches: leatherback, hawksbill, loggerhead, green, and Kemp's ridley.

Climate Change
Marine system changes are associated with rising water temperatures, changes in ice cover, salinity, oxygen levels and circulation. For all sea turtles rising sea levels is the most certain consequence of climate change (Titus and Narayanan 1995). These changes could result in shifts in ranges and changes in algal, plankton, and fish abundance which could affect sea turtle prey distribution and abundance (IPCC 2007). Sea turtles may also change their migratory behaviors because of increasing water temperatures. Nesting habitat could also be degraded by increased frequency and intensity of tropical storms and hurricanes and sea level results in increased erosion rate along nesting beach and could impact areas with low-lying beaches where sand depth is a limiting factor as it will inundate nesting sites and decrease nesting habitat. Erosion control structures can result in permanent loss of dry nesting beach or deter nesting females from reaching suitable nesting sites (National Research Council 1990). Increasing global temperatures may result in warmer incubation temperatures and may also affect sex ratios since they exhibit temperature-dependent sex determination (Glen and Mrosovsky 2004).

Kemp's ridley Sea Turtle
The Kemp's ridley sea turtle was listed as endangered throughout its entire range on July 28, 1978 (43 FR 32800).

Selected Life History
Kemp's ridleys are the smallest of the sea turtles, reaching about 2 feet (0.6 meter) in length and can weigh 70-100 pounds. The adult has an unusually broad, heart-shaped, keeled upper shell that is serrated behind the bridge or midsection, almost as wide as it is long, and is usually olive-gray. The upper shell has five pairs of scales or plates along the sides. In the bridge hooking the lower shell to the upper shell, there are four infra-marginal plates, each perforated by a pore. The lower shell is a light, yellowish color. The head has two pairs of prefrontal scales. The Kemp's ridley has a triangular-shaped head with a somewhat hooked beak with large crushing surfaces. Juveniles have a dark-charcoal colored shell that changes to olive-green or gray with age. Kemp's ridley sea turtles occurring in nearshore Gulf waters, bays, and passes, where they feed mostly on crabs, some fish, sea jellies and mollusks.

The Kemp's ridley distribution is one of the most restricted (Wibbels and Bevan 2019). Kemp's ridley nesting occasionally occurs in Florida, Alabama, Georgia, South Carolina, and North Carolina. Although, approximately 71.2 percent of nesting occurs along a 19-mile stretch of beach at Rancho Nuevo, Mexico (Wibbels and Bevan 2019), more Kemp's ridleys nest at Padre Island National Seashore than any other place in the United States. Nesting occurs primarily on beaches around Rancho Nuevo, Tamaulipas, Mexico, from April to June each year; however, Kemp's ridley nests have been recorded in Mexico as early as March and as late as August (Gaskill 2018). During preferred nesting conditions, which are precipitated by strong winds, the females come ashore, often in groups called "arribadas." Kemp's ridleys are predominately daytime nesters. Although some females breed annually, this species is considered to nest biannually and may nest as many as three times in a single season (NMFS et al 2011), producing an average of 2.5 clutches. Clutch size averages between 100-110 eggs. Hatchlings emerge after approximately 50 days of incubation. Sexual maturity is believed to be reached between 10 to 15 years of age. Some fidelity to nesting sites has been shown by Kemp's ridleys, both within one nesting season, and between nesting seasons (Gredzens and Shaver 2020). If conditions are unsuitable on a nesting beach or the female is disturbed, she may return to the water and attempt to nest elsewhere within several kilometers of the first site. The disturbance could also cause her to switch nesting beaches entirely (Gredzens and Shaver 2020). After the nesting season, adults migrate to feeding areas in the Gulf and remain there until the next reproductive season. Hatchlings that successfully emerge from the nest and enter the ocean are essentially pelagic for approximately two years (Ernst et. al. 1994). Approximately 99.9 percent of known nests are found on the coastal beaches of Tamaulipas and Veracruz, with approximately 21,000 nests protected in 2011. In 2017, approximately 27,000 nests were documented with 353 in Texas, 24,586 in Tamaulipas, and 2,000 located in Veracruz, Mexico (Gaskill 2018). In 2020, 262 nests were found and protected along Texas beaches (*Pers. Comm*., D. Shaver, Sea Turtle Coordinator, NPS 2021).

Habitat

Habitat includes areas that shelter the turtle from high winds and waves, with forage areas that include seagrass, oyster reefs, sandy bottoms, mud bottoms, and rock outcroppings. Their diet consists primarily of crabs, shrimp, snails, sea urchins, sea stars, fish, and occasionally marine plants. Preferred habitat for this species is shallow coastal and estuarine waters and occurs in the bays on the middle and upper Texas coast with regularity.

Population Dynamics

Kemp's ridley sea turtle numbers have precipitously declined since 1947, when more than 40,000 nesting females were estimated in a single arribada (NMFS et al 2011). The nesting population produced a low of 702 nests in 1985 (NMFS et al 2011). Since the mid-1980s, the number of nests laid in a season has been steadily increasing, primarily due to nest protection efforts and implementation of regulations requiring the use of turtle excluder devices (TEDs) in commercial fishing trawls. Less than 300 females were found nesting in Mexico in 1985 (NMFS et al 2011) but current estimates include 5,500 females nesting in Mexico annually and about 55 females nesting in Texas annually. Declining populations increased 12-19 percent annually in Texas and Mexico from 1997 through 2009 (NMFS et al 2011). Reduced numbers were found in 2010, 2013, 2014, and 2015; the numbers found in 2011 and 2012 were similar to 2009 levels. In 2017, the maximum annual abundance of nests over the past several decades was 25,654 and has averaged 21,156 from 2016 to 2018 (Wibbels and Bevan 2019). The reasons for this decline are unknown but could be related to fisheries bycatch, the 2010 Deepwater Horizon oil spill and current carrying capacity of the Gulf (Wibbels and Bevan 2019).

Status and Distribution

Reasons for Listing

Several factors contributed to the decline of sea turtle populations along the Atlantic and Gulf coasts, including commercial over-utilization of eggs and turtle parts, incidental catches during commercial fishing operations, disturbance of nesting beaches by coastal housing, marine pollution, and entanglement and ingestion of debris (NMFS et al 2011). Additional threats are expanding human populations adjacent to important nesting beaches, degradation of coastal foraging habitats, and the potential effects of global warming on sex ratios (NMFS and Service 2007, NMFS 2020a). Red tide, caused by harmful algal blooms as well as strandings threaten the Kemp's ridley (NMFS and Service 2016).

Range-wide Trend

Kemp's ridley has no known subpopulations (Wibbels and Beven 2019). In 2007, the population seemed to be improving, however, in 2009 the population growth (measured by numbers of nests) stopped. In 2014, approximately 4,395 females nested at the three primary nesting beaches (Rancho Nuevo, Tepehuajes, and Playa Dos), not meeting the predicted downlisting criterion of 10,000 nesting females in a season predicted to occur by 2011. An unprecedented mortality in subadult and adult females post-2009 nesting season may have altered the 2009 age structure which impacted the annual nests numbers in 2011-2014. With the availability of long-term nest counts (as an index of population abundance), and comparing it to historic population estimates from 1947, the current nesting data indicates that the current population represents a greater than 80 percent reduction in historic population size (i.e., 82.6-88.3 percent) (Wibbels and Bevan 2019). The results indicate the population is not recovering and cannot meet recovery goals unless survival rates improve and qualifying the Kemp's ridley as Critically Endangered under the International Union for Conservation of Nature and Natural Resources (IUCN) Red List Criterion A2BD.

Critical Habitat

Critical habitat has not been designated for this species.

Loggerhead Sea Turtle

The loggerhead sea turtle was listed as a threatened species on July 28, 1978 (43 Federal Register [FR] 32800).

Selected Life History

The head is very large with heavy strong jaws and the brownish red carapace is bony without ridges and has a large, non-overlapping rough scutes (scales) with 5 lateral scutes. The carapace is heart shaped. Typically, it is 2.5 to 3.5 feet in length and can weigh an average weight of about 200 pounds. It feeds mostly on shellfish that live on the bottom of the ocean. They eat horseshoe crabs, clams, mussels, and other invertebrates. They prefer to feed in coastal bays and estuaries as well as shallow water along the continental shelves of the Atlantic, Pacific, and Indian oceans. It occurs in temperate and tropical waters of both hemispheres. Historic nesting frequency on the Texas coast is poorly known.

Adult loggerhead sea turtles reach maturity in 25 to 30 years. Loggerheads are nocturnal nesters, although some daytime nesting occurs. They nest from one to seven times within a nesting season (average of approximately 4.1 clutches); clutch size averages 100-125 eggs along the southeastern U.S. coast (NMFS and Service 1991b). Hatchling emergence typically occurs at night. In the Gulf, there are distinct nesting populations on the coast of the Florida panhandle and the Yucatan Peninsula. Scattered nests can be found occasionally along other areas of the U.S. Gulf Coast from the Chandeleur Islands, Louisiana, south to the U.S./Mexico border.

Population Dynamics

Florida's long-term loggerhead nesting data (1989-2021) was analyzed. Observed nest counts on 27 core index beaches peaked at 65,807 in 20161998 to a low in 2007 of 28,876 (FWC 2021). These numbers do not represent Florida's total annual nest counts because they are collected only on a subset of Florida's beaches (27 out of 224) and only during a time window of 15 May through 31 August) (FWC 2021). Long-term loggerhead nesting data (1989-2021) shows three distinct phases: increasing (1989-1998), decreasing (1998-2007), and increasing (2007-2021). The fluctuations in annual nest counts are not fully understood but may be a part of a long-term cycle (FWC 2021).

Status and Distribution

Reason for Listing

Threats include incidental take from channel dredging and commercial trawling, longline, and gill net fisheries; loss or degradation of nesting habitat from coastal development and beach armoring; disorientation of hatchlings by beachfront lighting; excessive nest predation by native and non-native predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and disease.

Range-wide Trend

Hildebrand (1981) suggested that loggerhead nesting along the Texas coast has occurred within the last 300 years, but the earliest loggerhead nest that he was able to confirm for Texas was found in 1977. Total estimated loggerhead nesting in the U.S. is approximately 68,000 to 90,000 nests per year (NOAA 2013a). Long-term nesting data show the population is declining in southeast Florida, North Carolina, South Carolina, and Georgia. However, in Texas, during the last decade, nesting has remained stable, with 1-13 nests per year (*Pers. Comm*., D. Shaver, Sea Turtle Coordinator, NPS 2013). Nesting in the Caribbean is sparse. In the Mediterranean, nesting is almost exclusively confined to the eastern portion of the Mediterranean Sea. In the Indian Ocean, most trends on loggerhead nesting populations are unknown. In Honduras, Mexico, Colombia, Israel, Turkey, Bahamas, Cuba, Greece, Japan, and Panama loggerhead nesting population have been declining (NOAA 2013a).

Critical Habitat

Critical habitat has not been designated for this species.

Green Sea Turtle

The green turtle was listed under the Act on July 28, 1978. Breeding populations of the green turtle in Florida and along the Pacific Coast of Mexico were listed as endangered; all other populations were listed as threatened.

Selected Life History

Adult green sea turtles can grow to a shell length of 4 feet and range from 250 to 450 pounds. Hatchlings generally have a black carapace, white plastron, and white margins on the shell and limbs. The adult carapace is smooth, keelless, and light to dark brown with dark mottling; the plastron is whitish to light yellow. Adult heads are light brown with yellow markings. It is distributed circumglobally in tropical and sub-tropical waters. Adult green sea turtles reach maturity at 30 to 50 years of age. Females nest at night. From one to seven clutches are deposited within a breeding season (the average number is usually two to three clutches) (NMFS and Service 1991a). Average clutch size is usually 110-115 eggs. Hatchling emergence occurs at night. Nesting sites include southern Florida and scattered locations in Mexico, although a few nests are found in south Texas annually.

Habitat

Green turtles are generally found in shallow waters (except when migrating) inside reefs, bays, and inlets. The turtles are attracted to lagoons and shoals with an abundance of marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting. Green turtles have strong nesting site fidelity and often make long distance migrations between feeding grounds and nesting beaches. Hatchlings have been observed to seek refuge and food in sargassum rafts.

Population Dynamics

Within the U.S., green sea turtles nest in small numbers in the U.S. Virgin Islands, Puerto Rico, and Texas, and in larger and growing numbers along the east coast of Florida (NMFS and Service 1991a). Total population estimates for the green turtle are unavailable, however, green turtle nests on 27 index beaches ranged from less than 300 in 1989 to 41,000 in 2019. In 2021, green turtle nest counts on the 27 core index beaches reached more than 24,000 nests (FWC 2021). Nesting green turtles tend to follow a two-year reproductive cycle with wide year-to-year fluctuations in numbers of nests. Record highs were in 2001, 2013, 2015, 2017 and 2019. These numbers do not represent Florida’s total annual nest counts because they are collected only on a subset of Florida’s beaches (27 out of 224) and only during a time window of 15 May through 31 August) (FWC 2021). Populations in Surinam, and Tortuguero, Costa Rica, may be stable, but there is insufficient data for other areas to confirm a trend.

Status and Distribution

Reason for Listing

Major factors contributing to the green sea turtle's decline worldwide is commercial harvest for eggs and food, fibropapillomatosis (the development of multiple tumors on the skin and internal organs), loss or degradation of nesting habitat from coastal development and beach armoring, disorientation of hatchlings by beachfront lighting, excessive nest predation by native and non-native predators, degradation of foraging habitat, marine pollution and debris, watercraft strikes, and incidental take from channel dredging and commercial fishing operations.

Range-wide Trend

Globally there is a declining trend, however green turtle population growth rates are variable among nesting populations and regions (NOAA 2013b). Most green turtles in Texas waters are juveniles and their numbers are increasing (*Pers. Comm.*, D. Shaver, Sea Turtle Coordinator, NPS 2013). The Hawaiian green turtle population has increased 53 percent over the last 25 years (NOAA 2013b). The Martine Turtle Specialist Group indicates populations in all major ocean basins have declined over the past 100-150 years (NOAA 2013b).

Critical Habitat

NMFS designated critical habitat for the green sea turtle on October 2, 1998. Critical habitat includes waters extending seaward 3.5 miles from the mean high-water line of Isla de Culebra (Culebra Island, Puerto Rico). Critical habitat has not been designated in Texas.

Hawksbill Sea Turtle

The hawksbill sea turtle was listed as an endangered species on June 2, 1970 (35 FR 8491). It primarily occurs in tropical and subtropical seas of the Atlantic, Pacific, and Indian oceans inhabiting coastal waters of more than 108 countries. Young hawksbills occur with some regularity in Texas waters, since northern currents carry them from nesting beaches in Mexico (Hildebrand, 1981). Historic nesting by this species on the Texas coast is unknown.

Selected Life History
Hawksbills have a hawk-like beak, from which their name originates. They are small to medium-sized marine turtles, ranging from 176 to 279 pounds. Hawksbills are usually brown with ornate shells, which are dark amber with radiating streaks of brown or black. Their shells are also known as bekko or carey. The name "tortoise shell" was also given to their carapaces, which are made into many types of objects such as tortoise shell jewelry, combs, eyeglass frames, and tabletops. A combination of characters differentiates the hawksbill from other sea turtles: the pairs of prefrontal scales; thick, posterior overlapping scutes on the carapace; four pairs of costal scutes; two claws on each flipper; a beak-like mouth and, when on land, it has an alternating gait, unlike the leatherback and green sea turtles.

The nesting season for hawksbills varies geographically and may extend from April through October in the Caribbean and along the Gulf Coast of Mexico. Female hawksbill sea turtles nest mostly during the night, but rare daytime nesting is known, usually on small, isolated beaches above the high tide. They nest an average of 4.5 times per season (up to 12 clutches); clutch size averages approximately 140 eggs (NMFS and Service 1993). Hatchling emergence occurs at night. Hawksbills nest on scattered islands and beaches between 25° North and 25° South latitudes, including beaches in southeastern Florida and the states of Campeche and Yucatan in Mexico. Nesting does not regularly occur on the Texas coast.

Habitat
Hawksbills use different habitats, such as shallow coastal areas, lagoons, and coral reefs, at different stages of their life cycle. Females exhibit strong fidelity in nesting sites (NMFS and Service 2013c). Post hatching hawksbills take shelter in weed lines at convergence zones and later re-enter coastal waters when their carapace length reaches to approximately 8 to 10 inches.

Population Dynamics
Since the 2007, trends and distribution of the species' nesting populations in the eastern Pacific, Nicaragua, and western Caribbean appears to have improved, but throughout the globe largely is unchanged (NMFS and Service 2013c). The hawksbill turtle has declined in most areas over the last century and represents only a fraction of its historical populations (NMFS and Service 2013c). The populations were analyzed by ocean basin at 88 nesting sites in 10 different regions of the world. Historic trends for 25 of the sites are unknown and the remaining 63 sites declined in years 20 to 100. Trend data available for 41 sites was more optimistic with 10 sites (24 percent) increasing, 3 sites (7 percent) remaining stable, and 28 sites (68 percent) decreasing (NMFS and Service 2013c).

Status and Distribution
Reason for Listing
Threats to hawksbills in their nesting environment include poaching, beach erosion, erosion control methods, sand mining, landscaping of privately owned sites, artificial lighting, beach cleaning, increased human presence, beach vehicular driving, and nest depredation. Marine

threats include entanglement, ingestion of marine debris, commercial and recreational fishing, watercraft collisions, sedimentation and siltation, sewage, agricultural and industrial pollution, illegal exploitation, oil and gas exploration, development, transportation, and storage, anchoring and vessel groundings, and increases in international shipping traffic.

Range-wide Trend

Determining population trends or estimates on nesting beaches is difficult since hawksbill sea turtles are solitary nesters. The largest populations are found in the Caribbean, the Republic of Seychelles, Indonesia, and Australia. The largest in the U.S. occurs in Puerto Rico and the U.S. Virgin Islands, with approximately 500-1000 nests on Mona Island, Puerto Rico and another 100-150 nests on Buck Island Reef National Monument off St. Croix in the U.S. Virgin Islands (NOAA 2013c). Nesting is restricted in the southeast coast of Florida and the Florida Keys. In addition, the majority of nesting occurs in Mexico and Cuba with the largest nesting population of hawksbills in Australia, with approximately 2,000 nests on the northwest coast and 6,000 to 8,000 nests off the Great Barrier Reef each year (NOAA 2013c). Atlantic populations in general are doing better than in the Indian and Pacific Oceans and the Indian populations are doing better than the Pacific Ocean.

Critical Habitat

NMFS designated critical habitat for the hawksbill turtle on October 2, 1998. Critical habitat only includes waters extending seaward 3.5 miles from the mean high-water line of Mona and Monito Islands, Puerto Rico. No critical habitat has been designated in Texas.

Piping Plover

The piping plover was federally listed as endangered in the Great Lakes watershed, and as threatened elsewhere in its range, on January 10, 1986 (50 FR 50726) including migratory routes outside of the Great Lakes watershed and wintering grounds (Service 1985).

Piping plovers were listed principally because of habitat destruction and degradation, predation, and human disturbance. Three separate breeding populations have been identified, each with its own recovery criteria: the northern Great Plains (threatened), the Great Lakes (endangered), and the Atlantic Coast (threatened). The piping plover winters in coastal areas of the U.S. from North Carolina to Texas, and along the coast of eastern Mexico and on Caribbean islands from Barbados to Cuba and the Bahamas (Haig and Elliott-Smith 2004). Piping plovers from the Great Lakes and northern Great Plains breeding populations as well as birds that nest along the Atlantic coast may winter in the same coastal areas. There may be some overlap of birds on the wintering grounds. Piping plovers from the Atlantic population usually winter on the Atlantic coast of the United States as do a majority of the Great Lake breeding population. Birds from the northern Great Plains winter along the Gulf coast and Texas and Mexico (Gratto-Trevor and Abbott 2011). Mississippi, Louisiana, and Texas coast harbored 71 percent of observed birds from the northern Great Plains and 88 percent from Prairie Canada (Service 2020a). Only 2 percent of Great Lakes breeders were documented. No plovers from the Atlantic population have been recorded in the action area (*Pers. Comm*., D. Newstead, Biologist, CBBEP 2021). For the purpose of this BO, discussions will be focused on the Texas wintering piping plover population and its designated critical habitat.

Selected Life History

The piping plover is a small North American shorebird approximately 7 inches (17.7 centimeters) long with a wingspread of about 15 inches (38.1 centimeters). Breeding birds have white under parts, light beige back and crown, white rump, and black upper tail with a white edge. In flight, each wing shows a single, white wing stripe with black highlights at the wrist joints and along the trailing edges. Breeding plumage characteristics are a single black breast band, which is often incomplete, and a black bar across the forehead. The black breast band and brow bar are generally more pronounced in breeding males than females. The legs and bill are orange in summer, with a black tip on the bill (Service 2003).

Within the year, piping plovers are usually monogamous, but may nest with another female or male if a nest is lost. Pairs do not usually migrate or winter together. They lay approximately four eggs over six days and both females and males incubate the eggs and hatch after 26-28 days. Chicks fledge in 21-35 days and then migrate to the wintering areas.

Piping plovers winter along southern Atlantic and Gulf Coasts of the United States and into Mexico, as well as in the Caribbean. Southward migration to the wintering grounds along the southern Atlantic coast and Gulf shoreline extends from late July, August, and September. Piping plovers spend up to 10 months of their life cycle on their migration and winter grounds. They leave the wintering grounds and return north to breed as early as mid- February and as late as mid-May.

Behavioral observations of piping plovers on the wintering grounds suggest that they spend most of their time foraging (Nicholls and Baldassere 1990b, Drake 1999a, 1999b, Service 2003). When not foraging, plovers undertake various maintenance activities such as roosting, preening, bathing, aggressive encounters (with other piping plovers and other species) and moving among available habitat locations (Zonick and Ryan 1996).

Site fidelity appears to be strong on the wintering grounds and consists of Gulf beaches, and tidal flats. Individual plovers tend to return to the same wintering sites year after year (Nicholls and Baldassarre 1990a, Drake 1999a, Service 2003). Breeding birds from the prairie Canada and the U.S. Great Plains winter on the Atlantic coast while the Canada and U.S. Great Plains primarily winter on the Gulf coast, Texas, and Mexico (Gratto-Trevor and Abbott 2011). Piping plover's usage of a particular habitat largely depends on its availability. If tidal flats are inundated, they will move to the Gulf beach (Newstead and Hill 2021).

Habitat

Winter Habitat

Wintering plovers are dependent on a mosaic of habitat patches and move among these patches depending on local weather and tidal conditions (Nicholls and Baldassarre 1990a). Maddock et al. (2009) observed shifts to roosting habitats and behaviors during high-tide periods in South Carolina. In South Carolina, exposed intertidal areas were the dominant foraging substrate (accounting for 94 percent of observed foraging piping plovers) (Service 2009).

Atlantic Coast and Florida studies highlighted the importance of inlets for non-breeding piping plovers. Almost 90 percent of observations of roosting piping plovers at ten coastal sites in southwest Florida were on inlet shorelines (Lott et al. 2009). Piping plovers were among seven shorebird species found more often than expected at inlet locations versus non-inlet locations in an evaluation of 361 International Shorebird Survey sites from North Carolina to Florida (Harrington 2008). In Texas, high numbers of piping plovers are typically found along the sides of unjettied inlets (Bolivar Flats, San Luis, Wolf Island, Dacros Point, Cedar Bayou, Mansfield Pass) (Pers. Comm., R. Cobb, Biologist. Ecological Services 2010). In Texas, plovers use ocean beaches and bay shorelines and flats depending on the season and weather conditions.

This species exhibits a high degree of intra- and inter-annual wintering site fidelity (Nicholls and Baldassarre 1990a, Drake et al. 2001, Noel et al. 2005, Stucker and Cuthbert 2006, Gratto-Trevor et al. 2011). On the lower Texas coast, individual plovers are known to use areas about 3,000 acres in size, moving two miles or more between foraging sites as tidal movements shift the availability of productive tidal flats (TPWD 2003). Recent studies show significantly more stringent site fidelity with individual birds returning to more precise locations (+/-400 feet in lateral distance on the beach) each year.

Foraging Habitat
Behavioral observation of piping plovers on the wintering grounds suggests that they spend the majority of their time foraging (Nicholls and Baldassarre 1990a, Drake 1999a, 1999b). Feeding activities may occur during all hours of the day and night (Staine and Burger 1994, Zonick 1997), and at all stages in the tidal cycle (Hoopes 1993, Service 2009). Wintering plovers primarily feed on invertebrates such as polychaete marine worms, various crustaceans, fly larvae, beetles, and occasionally bivalve mollusks (Bent 1929, Cairns 1977, Zonick and Ryan 1996). They peck these invertebrates on top of the sand or from just beneath the surface. Plovers forage on moist substrate features such as 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 and adjacent to salt marshes (Service 2009, Zivojnovich 1987, Nicholls and Baldassarre 1990a, Loegering 1992, Service 2009).

Roosting Habitat
Several studies identified wrack (organic material including seaweed, seashells, driftwood, and other materials deposited on beaches by tidal action) as an important component of roosting habitat for nonbreeding piping plovers. In South Carolina, 45 percent of roosting piping plovers were in old wrack, and 18 percent were in fresh wrack. The remainder of roosting birds used intertidal habitat (22 percent), backshore (defined as zone of dry beach from mean high water line up to the toe of the dune)(8 percent), washover (2 percent) and ephemeral pools (1 percent) (Service 2009). In Texas, backshore beaches (supralittoral zone) and washover passes on barrier islands are important roost sites for plovers (Withers 2002; Foster et al. 2009).

Roosting allows birds to rest and conserve energy; however, roosting birds may be more vulnerable to injury or predation. In Texas, Gulf beaches are considered part of the state highway system and receive unrestricted public access from vehicles for recreation (https://statutes.capitol.texas.gov/Docs/NR/htm/NR.61.htm). The presence of vehicles on the beach increases shorebirds' vulnerability to injury and energetic cost from disturbance (Goss-Custard et al. 2006, Service 2012). Roosting in tire tracks or other depressions, and/or next to or under objects on the beach, provides the birds with shelter from cold wind to conserve energy, as well as provide camouflage or hiding places to avoid predation (Drake et al 2001, Newstead and

Hill 2022). Many species of shorebirds, including plovers, are known to roost together in flocks or small groups (Nicholls and Baldassarre 1990a). Cold and windy weather often triggers roosting behavior in shorebirds and disturbance should be avoided during cold spells (Goss-Custard et al. 2006, *Pers. Comm*. D. Newstead, Coastal Bend Bays & Estuaries Program 2022). Service files include reports of a vehicle-related mortality event whereby several shorebirds were run over by a vehicle at Mustang Island State Park. Because several shorebirds were killed together, species experts believed the birds were roosting at the time of the incident (*Pers. Comm*. R. Cobb, Service, retired 2022).

Population Dynamics

A consistent finding of all analyses of the demographic factors affecting the persistence and/or extinction of piping plover populations (Melvin and Gibbs 1994, Plissner and Haig 2000) is that vulnerability to extinction is greatly increased by even small declines in survival rates. Since piping plovers spend 55 to 80 percent of their annual cycle associated with wintering areas, factors that affect their well-being on the wintering grounds could substantially affect their survival and recovery (Service 1996).

Atlantic Coast - Between 2007 and 2008, the overall estimate of Atlantic Coast breeding pairs declined approximately 2 percent. Coast wide, 2008 productivity was slightly higher than in 2007, but remained below the long-term average. In 2010 Atlantic Coast piping plover population estimate was 1,782 pairs, more than double the 1986 estimate 790 pairs, increasing 86 percent between 1989 and 2010. In the Southern recovery unit, net growth was 54 percent between 1989 and 2010, with most of the increase occurring in 2003 to 2005. Annual productivity estimates were at their lowest in 2009 due to storm events, but rebounded in 2010, but remained low in New York (Service 2011). Atlantic Coast piping plovers rarely occur on Texas wintering grounds.

Northern Great Plains -The overall population on the U.S. Northern Great Plains remained relatively stable from 2007 to 2008. Adult numbers were down more than 10 percent in Nebraska in 2008, and the Kansas and Minnesota populations appear nearly extirpated. The 2009 reports from the Missouri River system and U.S. alkali lakes indicate a sharply declining net trend, with decreases on the Missouri River system substantially exceeding a gain on the alkali lakes. Approximately 10 percent of birds are banded. The northern Great Plains piping plover population size has increased but remains below the recovery goals set out in the 1988 recovery plan. The Service is currently in the process of revising the recovery plan and associated recovery criteria.

Great Lakes – Approximately 200 piping plovers from the Great Lakes population have been banded. There were once nearly 800 pairs of piping plovers on the shores of the Great Lakes, but, dropped to 13 in the 1990s (https://www.greatlakespipingplover.org/). There are currently 71 breeding pairs in the Great Lakes population, but due to low abundance, limited distribution and threats from habitat degradation, human disturbance, and predation this population is in danger of extinction.

Status and Distribution

Reasons for Listing

Habitat destruction and degradation are pervasive and have reduced physically suitable habitat.

Human disturbance and predators further reduce breeding and wintering habitat quality and affect survival. Contaminants, as well as genetic and geographic consequences of small population size, pose additional threats to piping plover survival and reproduction (Service 2003).

In the wintering grounds, the two greatest threats identified were habitat loss and degradation and human disturbance. For wintering birds along the Atlantic and Gulf coasts, loss of habitat to beach development and shoreline stabilization, beach grooming, beach nourishment, active vehicle use on the beach, dredging, dredge spoil placement, roads, oil and gas development, oil spills and disturbance by humans and dogs (Gratto-Trevor and Abbott 2011). In some areas, natural erosion of barrier islands may also result in habitat loss.

If an oil spill occurred on the coasts of Louisiana, Mississippi, Alabama, and northern Gulf coast of Florida, about 16 percent of the breeding population from the U.S. Great Plains and 9 percent of the prairie Canada population would be affected. If the spill reached the Texas coast, most of the U.S. Great Plains and Canadian Prairie birds would be affected.

Range-wide Trend:

Total piping plover numbers have fluctuated over time, with some areas experiencing increases and others decreases. Five range-wide International Piping Plover censuses (late January to early February) have been conducted at five-year intervals with published findings: 1991 (Haig and Plissner 1992), 1996 (Plissner and Haig 1997), 2001 (Ferland and Haig 2002) (Elliott- Smith et al. 2009), (Elliott-Smith et al 2015). Findings from these range-wide studies are summarized in Table 1.

Table 1. Abundance of wintering (W) and breeding (B) piping plovers reported from the International Piping Plover Census in 1991, 1996, 2001, 2006, and 2011.

	1991	1996	2001	2006	2011	1991	1996	2001	2006	2011
	W	W	W	W	W	B	B	B	B	B
Range- wide Population	3,451	2,515	2,389	3,884	3,973	5,484	5,931	5,945	8,092	5,723
Northern Great Plains Population	n/a	n/a	n/a	n/a	n/a	3,469	3,286	2,953	4,564	2,249
Texas Wintering Population	1,904	1,333	1,042	2,090	2,145	n/a	n/a	n/a	n/a	n/a

The Texas winter population censuses resulted in 1,904 wintering piping plovers counted in 1991, 1,333 in 1996, 1,042 in 2001, and 2,090 in 2006, and 2,145 in 2011. Between December 2, 2008 and March 13, 2009, 78 locations from Marco Island, Florida to Boca Chica beach in Texas were visited to locate banded piping plovers. There were 397 banded piping plover observations with 295 of those observations in Texas. Banded piping plover observations by populations were, 170 from Great Plains Canada, 176 from Great Plains United States, 29 unknown, 22 from the Great Lakes, and 0 were from Atlantic Canada or Atlantic United States (Maddock 2008). The northern Great Plains population winters mostly in Texas. In 2014, 363 piping plovers were observed on the Land Cut, in the Laguna Madre and in 2015 approximately 50 piping plovers were found on the flats in east Matagorda Bay (Service 2020b). Newstead and Hill (2022) estimated the Texas wintering population of piping plovers to be at least 4,000 individuals.

A simulation study on the U.S. northern Great Plains population indicated that variations in adult survival have the strongest potential to affect population trends. Because individuals tend to remain at a wintering site despite disturbance and degraded habitat, it can also lead to lower site-level survival (Gibson et al. 2018).

Critical Habitat

Critical habitat for wintering piping plovers that included individuals from the Great Lakes and northern Great Plains breeding populations as well as birds that nest along the Atlantic coast, was designated on July 2001 and included 142 areas encompassing about 1,793 miles of mapped shoreline and 165,211 acres of mapped area along the North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas coast lines. Four units within Cape Hatteras National Seashore, North Carolina were reconsidered and re-designated on October 21, 2008, and 18 critical habitat units in Texas were revised on May 19, 2009, after the Courts vacated and remanded the original designation.

<u>Climate Change</u>

Loss of habitat would increase with sea level rise and hurricane activity could result in mortality of actual birds. Armoring and other shoreline alterations may increase erosion and drought and flooding can make wetlands unavailable and diminish the water supply. An increased demand for wind power may also impact piping plovers as they potentially collide with wind turbines during migration (Service 2009).

Red Knot

There are six recognized subspecies of red knots, and on December 11, 2014, the Service published the final rule listing the rufa subspecies of red knot as a threatened species under the Act; that rule became effective on January 12, 2015.

<u>Selected Life History</u>

The red knot is a medium-sized shorebird about 9 to 11 inches in length. The red knot is easily recognized during the breeding season by its distinctive rufous (red) plumage. Nonbreeding plumage is dusky gray above and whitish below. Juveniles resemble nonbreeding adults, but the feathers of the scapulars and wing coverts are edged with white and have narrow, dark bands, giving the upperparts a scalloped appearance (Davis 1983).

The red knot’s range spans 40 states and 24 countries and extends from the species’ breeding grounds in the Canadian Arctic, to its migration stopover areas along the Atlantic and Gulf coasts of North America, to its wintering grounds throughout the Southeastern U.S., the Gulf coast, and South America (reaching as far south as Tierra del Fuego at the southern tip of South America). Little information is available about nonbreeding red knots. Unknown numbers of nonbreeding red knots remain south of the breeding grounds during the breeding season, and many, but not all, of these red knots are 1-year-old (i.e., immature) birds (Niles et al. 2008). Nonbreeding red knots, usually individuals or small groups, have been reported during June along the U.S. Atlantic and Gulf coasts, with smaller numbers around the Great Lakes and Northern Plains in both the United States and Canada (Niles et al. 2008). There is also little information on where juvenile red knots spend their winter months (Service and Conserve Wildlife Foundation of New Jersey 2012), and there may be at least partial segregation of juvenile and adult red knots on the wintering grounds. All juveniles of the Tierra del Fuego wintering region are thought to remain in the Southern Hemisphere during their first year of life, possibly moving to northern South America, but their distribution is largely unknown (Niles et al. 2008). In Texas, juvenile red knots do not migrate to the breeding grounds during their first full summer but instead spend approximately 22 straight months in Texas wintering grounds until they mature (Newstead and Hill 2022). Because there is little information on juvenile red knots, the Service uses the best available data from adult red knots to draw conclusions about juvenile foraging and habitat use.

Rufa red knots feed on invertebrates, especially small clams, mussels, and snails, but also crustaceans, marine worms, and horseshoe crab (*Limulus polyphemus*) eggs. On the breeding grounds, red knots mainly eat insects. Migrating red knots can complete non-stop flights of 1,500 miles or more, converging on vital stopover areas to rest and refuel.

Habitat

Habitats used by red knots in migration and wintering areas are generally coastal marine and estuarine habitats with large areas of exposed intertidal sediments and seagrasses. In many wintering and stopover areas, quality high tide roosting habitat (i.e., close to feeding areas, protected from predators, with sufficient space during the highest tides, free from excessive human disturbance) (Service 2015). The supra-tidal (above the high tide) sandy habitats of inlets provide important areas for roosting, especially at higher tides when intertidal habitats are inundated (Harrington 2008). In some localized areas, red knots will use artificial habitats that mimic natural conditions, such as nourished beaches, dredged spoil sites, elevated causeways, and impoundments; however, there is limited information regarding red knot use of such artificial habitats.

In North America, red knots are commonly found along sandy, gravel, or cobble beaches, tidal mudflats, salt marshes, peat banks, and shallow coastal impoundments, ponds, and lagoons along the Atlantic coast (Cohen et al. 2010, Cohen et al. 2009, Niles et al. 2008, Harrington 2001, Truitt et al. 2001). In Florida, the birds also use mangrove and brackish lagoons. Along the Texas coast, red knots forage on beaches, oyster reefs, and exposed bay bottoms and roost on high sand flats, reefs, and other sites protected from high tides. Red knots also show some fidelity to migration staging areas between years (Duerr et al. 2011, Harrington 2001).

Population Dynamics

Except for localized areas, there have been no long-term systematic surveys of red knots in Texas or Louisiana, and no information is available about the number of knots that winter in northeastern Mexico. From survey work in the 1970s, Morrison and Harrington (1992) reported peak winter counts of 120 red knots in Louisiana and 1,440 in Texas, although numbers in Texas between December and February were typically in the range of 100 to 300 birds. Records compiled by Skagen et al. (1999) give peak counts of 2,838 and 2,500 red knots along the coasts of Texas and Louisiana, respectively, between January and June over the period 1980 to 1996, but these figures could include spring migrants. Morrison et al. (2006) estimated only about 300 red knots wintering along the Texas coast, based on surveys in January 2003 (Niles et al. 2008). Higher counts of roughly 700 to 2,500 knots have recently been made on Padre Island, Texas during October, which could include wintering birds (Newstead et al. 2013).

Foster et al. (2009) found a mean daily abundance of 61.8 red knots on Mustang Island, Texas, based on surveys every other day from 1979 to 2007. Similar winter counts (26 to 120 red knots) were reported by Dey et al. (2011) for Mustang Island from 2005 to 2011. From 1979 to 2007, mean abundance of red knots on Mustang Island decreased 54 percent, but this may have been a localized response to increasing human disturbance, coastal development, and changing beach management practices (Newstead et al. 2013, Foster et al. 2009) (i.e., it is possible these birds shifted elsewhere in the region).

At several key sites, the best available data show that numbers of red knots declined and remain low relative to counts from the 1980s, although the rate of decline appears to have leveled off since the late 2000s. There are no current estimates for the size of the Northwest Gulf wintering group (Mexico to Louisiana). The best available current estimates for portions of this wintering region are about 2,000 in Texas (Niles 2012), or about 3,000 in Texas and Louisiana, with about half in each State and movement between them (Service 2015). Inferring long-term population trends from various national or regional datasets derived from volunteer shorebird surveys and other sources, Andres (2009) and Morrison et al. (2006) also concluded that red knot numbers declined, probably sharply, in recent decades.

Status and Distribution

Reasons for Listing/Threats to Survival

The Service has determined that the red knot is threatened due to loss of both breeding and nonbreeding habitat; likely effects related to disruption of natural predator cycles on the breeding grounds; reduced prey availability throughout the nonbreeding range; and increasing frequency and severity of asynchronies (‘‘mismatches’’) in the timing of the birds’ annual migratory cycle relative to favorable food and weather conditions. Main threats to the red knot in the United States include reduced forage base at the Delaware Bay migration stopover; 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. These and other threats in Canada and South America are detailed in the final listing rule (Service 2014). Unknown threats may occur on the breeding grounds.

Range-wide Trend

Strong historical evidence indicates that red knots were severely depleted by hunting in the 1800s, but at least partially recovered by the mid-1900s. During the 2000s, red knots from the Southern wintering population experienced a sharp decline that is generally attributed to the overharvest of the horseshoe crab and a resulting food shortage in the Delaware Bay staging area. The horseshoe crab harvest is now scientifically managed to avoid further impacts on red knots, but the southern wintering population shows no signs of recovery to date. Although less reliant on Delaware Bay, the Northwestern Gulf/Central American wintering population is also thought to have declined in recent decades. Two additional wintering populations, one on the north coast of South America and another in the Southeast United States and the Caribbean, are considered stable relative to the 1980s. Rufa Red Knot Species Status Assessment Report stated the decline of the Southern population drove a decline of the whole subspecies. Although less reliant on Delaware Bay, the Northwestern Gulf/Central American wintering population is also thought to have declined in recent decades, while the other two wintering populations are considered stable (Service 2020b).

Critical Habitat
Critical habitat was proposed on July 15, 2021, for red knots (86 FR 37410). Currently the proposed critical habitat includes 120 units in Massachusetts, New York, New Jersey, Delaware, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas. A total of approximately 649,066-ac (262,667-ha) were proposed to be designated critical habitat. There were 11 proposed critical habitat units [approximately 186,241-ac (75,369- ha) proposed to be designated in Texas. These areas were believed to contain the essential physical and biological elements for the conservation of red knots, and the physical features necessary for maintaining the natural processes that provides appropriate foraging, roosting, and sheltering habitat components.

Climate Change
Red knot's vulnerability to climate change indicates that loss or degradation of breeding habitat from artic warming and nonbreeding habitat, and loss of wintering habitat from sea level rise and increased frequency and severity of hurricanes increases the extinction rate (Service 2020b).

Eastern Black Rail
The eastern black rail was listed as threatened with a section 4(d) Rule on November 9, 2020 (85 FR 63764). Critical habitat has not been designated for this species. The species status assessment results indicated that eastern black rail currently have low to no resiliency in the contiguous United States. Populations occur within the Great Plains, Southwest Coastal Plain, and Southeast Coastal Plains. The Texas Black Rail Working Group was initiated by Texas Parks and Wildlife Department in partnership with the Texas Comptroller's Office in November 2016 (*Pers. Comm*. Shackelford 2018). The main purpose of the group is to provide a forum for collaboration between researchers and stakeholders, share information about what is known about the species, identify information needs, and support conservation actions.

Selected Life History
A subspecies of black rail, the eastern black rail, is the smallest rail in North America. Adults range from 4-6 inches total length and have a wingspan of 8 inches (Eddleman et al. 1994). Males and females are similar in size and adults are generally pale to blackish gray, with a small blackish bill and bright red eyes. The nape and upper back are chestnut and the remaining back, upper tail feathers, and remiges (wing flight feathers) are dark gray to blackish with small white spots and sometimes washed with chestnut-brown. Multiple vocalizations are known with the species, but the most common call is the "kic-kic-kerr" (Kellogg 1962), primarily made by adult territorial males and is the main advertisement call (Davidson 1992). Other calls are "grr" and

"churt", which serve as alarm and contact calls; "grr", or growling, also is used for territorial defense (Conway 2011).

Life cycle of the species, described in detail in the species status assessment, is considered to have four stages: egg, chick, juvenile, and adult. Clutches average seven eggs and are co-incubated by the parents for approximately 19 days. Adults may aggressively defend the nest site by raising their wings and charging potential predators (Flores and Eddleman 1993). There is evidence of pairs having two successful nests in a season (Hand 2017a); however, whether double brooding is common is unknown. Upon hatching the chicks can leave the nest within 24 hours and stay with the parents 1.5 months until the fledged juvenile stage. The chick stage occurs from May through September. Juvenile stage lasts up to 10.5 months when the breeding plumage appears (Eddleman et al. 1994).

Adult territorial range varies significantly throughout its range, however in the Texas populations a recent telemetry study for eastern black rails during the winter season calculated the average home range was 0.67 ha (n = 7 [6 males and 1 female]) (Moore et al. 2018). Adults undergo a complete post breeding molt (also known as a definitive pre-basic molt) each year between July and September on the breeding grounds (Pyle 2008, Hand 2017b). Individuals simultaneously lose all their remiges (wing flight feathers) and rectrices (tail flight feathers) and are temporarily unable to fly for approximately 3 weeks (Flores and Eddleman 1991, Eddleman et al. 1994). The species' lifespan is not known. Certain life stages, including eggs, chicks, nesting/brooding adults, and adults experiencing the flightless molt period, are particularly vulnerable.

<u>Habitat</u>

Eastern black rails occupy high marsh habitats, with soils moist or flooded to a shallow depth. The subspecies requires dense vegetative cover (i.e., greater than 6 stems at 10-20 cm) that allows movement underneath the canopy, and because birds are found in a variety of salt, brackish, and freshwater wetland habitats that can be tidally or non-tidally influenced, plant structure is considered more important than plant species composition in predicting habitat suitability. On the Gulf Coast, in Texas coastal salt marshes, black rails occupy high elevation zones dominated by gulf cordgrass (*Spartina spartinae*) and salt meadow cordgrass which may be accompanied by shrub species such as eastern baccharis (*Baccharis halimifolia*) or Jesuit's bark (Tolliver 2017). In addition, shallow pools that are 1-3 cm deep may be the most optimal for foraging and for chick-rearing. Some elevational variability in the substrate is needed; BLRAs require elevated refugia with dense cover to survive high water events due to the propensity of juvenile and adult black rails to walk and run rather than fly and chicks' inability to fly. The species status assessment established a dynamic occupancy model which calculated a detection probability of ~0.25 for the Southwest Coastal Plain analysis unit, meaning that when BLRAs are present at a site, there is a 25 percent probability of detecting them.

<u>Population Dynamics</u>

The eastern black rail is a cryptic marsh bird that occurs in salt, brackish, and freshwater wetlands in the eastern United States (east of the Rocky Mountains), Mexico, Central America, and the Caribbean. The remaining strongholds support a relatively small total population size across the contiguous United States, i.e., an estimated 1,299 individuals on the upper Texas coast within protected areas prior to Hurricane Harvey, and an estimated 355 – 815 breeding pairs on the Atlantic Coast from New Jersey to Florida (including the Gulf Coast of Florida). There are no current population estimates from the interior States (Colorado, Kansas, or Oklahoma). Some black rail populations maintain residence year-round, while other populations migrate; for example, birds that breed in Colorado and Kansas migrate to Texas to overwinter. The species status assessment Dynamic Occupancy analysis results indicated that black rails currently have low to no resiliency in the contiguous United States. The Southwest Coastal Plain analysis unit, consisting largely of the Texas coast, has low resiliency based on the occupancy model results, which indicate very low occupancy probabilities.

The Southwest Coastal Plain Analysis Unit (AU) had the longest predicted time to complete extinction, between 45 to 50 years from the present. The Southeast Coastal Plain and the Mid-Atlantic Coastal Plain AUs predicted the time to complete AU extinction is between 35 and 50 years from present depending on the scenario. The Great Plains had the shortest time to complete AU extinction, between 15 to 25 years from the present depending on the scenario. Three of the AUs (New England, Appalachians, and Central Lowlands) are effectively already extirpated. Results from the fully stochastic site occupancy projection model indicate the four remaining AUs (Mid-Atlantic Coastal Plain, Great Plains, Southwest Coastal Plain, and Southeast Coastal Plain) have a high probability of extirpation (extinction) under all scenarios by 2100.

Status and Distribution

Reason for Listing

Currently, the black rail is impacted by the loss, degradation, and fragmentation of wetland habitats resulting from sea level rise along the coast and ground-and surface-water withdrawals across the subspecies' range. In locations where the groundwater withdrawal rates are greater than the aquifer recharge rates, which will reduce soil moisture and surface water, and thus negatively impact wetland habitat. Incompatible land management techniques, such as application of poorly timed and planned prescribed fires, intense grazing, or haying, may have negative impacts on the black rail and its habitat, especially when conducted at sensitive times, such as the breeding season or the flightless molt period.

Range-wide Trend

Stochastic events, such as flood events and hurricanes, can also have significant impacts on populations of black rail. Modeling efforts suggest that the frequency of Category 4 and 5 tropical storms will increase despite an overall decrease in the number of tropical disturbances (Bender et al. 2010). Storms of increased intensity, which will have stronger winds, higher storm surge, and increased flooding, cause significant damage to coastal habitats by destroying vegetation and food sources, as well as resulting in direct mortality. For example, Hurricane Harvey flooded San Bernard National Wildlife Refuge with storm surge which was followed by runoff flooding from extreme rainfall. The saltmarsh, occupied by black rails, was inundated for several weeks (*Pers. Comm*. Woodrow 2017). Increases in storm frequency, coupled with sea level rise, may result in increased predation exposure of adults and juveniles if individuals are forced to emerge from dense vegetative cover (Evens and Page 1986, Takekawa et al. 2006).

Critical Habitat

No critical habitat has been designated for the eastern black rail.

Climate Change
Across the contiguous United States, the average annual temperature has increased 1.2°–1.8°F since the beginning of the 20th century (Vose et al. 2017). Future projections indicate that the annual average temperature will increase throughout the 21st century. Average temperatures are projected to increase by 2.5°F to 2.9°F from the period 2021–2050 compared to the period 1976–2005, depending on future emission scenarios (Vose et al. 2017). As a result of increasing temperatures leading to greater evapotranspiration, surface soil moisture is projected to decrease across regions and seasons in the contiguous United States (Wehner et al. 2017). When co-occurring with heat waves, droughts can affect bird abundance with changes of up to 15 percent; further, droughts and heat waves result in higher declines in ground nesting birds than other types of nesters, such as canopy nesters (Albright et al. 2010).

Weather alterations associated with climate change can have direct effects on the black rail leading to reduced survival of eggs, chicks, or adults, and indirect effects are likely to occur through a variety of means including long-term degradation of both inland and coastal wetland habitats. Other indirect effects may include more secondary causes such as loss of forage base of wetland dependent organisms. Warmer and drier conditions will most likely reduce overall habitat quality for the black rail. Because black rails require a narrow range of water levels and appear to tolerate minor variation within those water levels, drying of habitat as a result of extended droughts may result in habitat becoming unsuitable, either on a permanent or temporary basis (Watts 2016).

West Indian Manatee
The West Indian Manatee was federally listed as endangered in 1967, then the manatee was reclassified as threatened on March 30, 2017 (82 FR 16668, Service, 2017b). They were reclassified to threatened due to increases in their population estimate and improvements in their habitat. It is also protected as a depleted subpopulation under the Marine Mammal Protection act (16 U.S.C. 1361-1407).

The West Indian manatee, *Trichechus manatus*, is one of three living species of the genus Trichechus (Rice 1998). The West Indian manatee includes two recognized subspecies, the Antillean manatee, *Trichechus manatus manatus*, and the Florida manatee, *Trichechus manatus latirostris* (Rice 1998). Each subspecies has distinctive morphological features and occurs in discrete areas with rare overlap between ranges (Hatt 1934, Domning and Hayek 1986, and Alvarez-Aleman et al. 2010)

Selected Life History
The West Indian manatee is an aquatic mammal with a robust, fusiform body. They are greyish brown in color, thick, tough skin and sparsely covered with small, thick hairs, and bristles about the muzzle. At times it can be covered with barnacles and algae. They have no hind limbs but has paddle-like forearms. They can reach lengths between 9.8 feet to 14 feet long and can weigh around 2,200 to 3,000 pounds. Newborn calves are, on average, 4-4.5 feet long and weigh approximately 66 pounds. Due to their eating habits, they are nicknamed sea cows, because they eat seagrasses and aquatic plants.

The lifespan of the manatee is not known with certainty. There is a record in Florida of a captive 67-year-old manatee (Kelleher 2015), and there are documented longevity records of over 55 years in the wild. The average age of Florida manatees dying in Florida is 7.7 years (Pitchford 2009). Manatee mortality records from Puerto Rico found adults aged from 22 to 28 years old (Mignucci-Giannoni et al. 2000). Manatees generally become sexually mature between 3 to 5 years of age (Boyd et al. 1999), and female manatees continue reproducing in the wild into their thirties (Marmontel 1995). After a gestation period of between 11 and 14 months (Rathbun et al. 1995, Reynolds and Odell 1991), female manatees usually give birth to a single calf, although there are a few documented cases of twins (Marmontel 1995, Rathbun et al. 1995, Wells et al. 1999).

Habitat

West Indian manatees use a wide variety of freshwater, estuarine, and marine habitats for their life-history needs (i.e., feeding and drinking, traveling, resting, thermoregulation, mating, and nursing) and survival. Manatees feed on freshwater and marine plants, including submergent, emergent, and shoreline vegetation. Significantly, manatees seek out sources of fresh drinking water, especially when in marine and estuarine habitats. Manatees tend to travel along the waterward edges of plant beds and in and near channels. Sheltered embayments and other such areas are used for resting and, for mothers with calves, as areas to nurse and nurture offspring.

In the inland and coastal waters of peninsular Florida, manatees use warm-water springs, warm industrial outfalls, and other warm-water sites as shelter during the winter months (Hartman 1974, Lefebvre et al. 2001, Stith et al. 2006), several of which are designated manatee protection areas. In warmer months, manatees leave these sites and can disperse great distances. Several factors can affect the viability of manatee habitats. Human activities such as dredge and fill, soil runoff, propeller dredging, anchoring, etc., are known to result in the loss of seagrass and foraging habitat (Duarte 2002, Orth et al.)

Population Dynamics

The West Indian manatee population trend and status varies regionally. In the southeastern United States, the manatee population has grown, based on updated adult survival rate estimates and estimated growth rates (Runge et al. 2015). Historical and anecdotal accounts outside the southeastern United States suggest that manatees were once more common, leading scientists to hypothesize that significant declines have occurred (Lefebvre et al. 2001, UNEP 2010, Self-Sullivan and Mignucci-Giannoni 2012). Based on expert and local opinion, population trends are declining or unknown in 84 percent of the countries where manatees are found (UNEP 2010, Marsh et al. 2011, Self-Sullivan and Mignucci-Giannoni 2012, Table 1). The magnitude of decline is difficult to assess, given the qualitative nature of these accounts.

Status and Distribution

Reason for Listing

Human threats to the manatee include collisions with boats and ships, entrapment in gillnets and floodgates, poaching, and ingesting marine debris, habitat degradation and fragmentation. Natural mortality of manatees is caused by cold stress, starvation and outbreaks of red tide caused by algal blooms (Service 2001).

Range-wide Trend

The range of the West Indian manatee includes the southeastern United States (primarily Florida), the east coast of Mexico and Central America, northeastern South America, the Greater Antilles (Cuba, Hispaniola, Puerto Rico, and Jamaica), and parts of the Lesser Antilles, including Trinidad and Tobago. Manatees in the southeastern United States are found in Florida year-round and occasionally in Georgia and Alabama during the warmer months, and vagrants can be found as far north as Massachusetts and as far west as Texas (Domning and Hayek 1986, Lowery 1974, Gunter 1941). West Indian manatees are at the northern limit of their range in the southeastern United States. This limitation is based on the species' intolerance for cold. Prolonged exposure to cold water temperatures results in debilitation and/or death due to cold stress syndrome (Bossart et al. 2004).

Most of the United States population of manatees reside in Florida. During the warm summer months, manatees have been known to migrate towards Rhode Island or Texas. Historically, manatees have been found in the Laguna Madre of South Texas. Outside of the United States, West Indian manatees occur in the Greater Antilles, Trinidad, on the east coast of Mexico and Central America, and along the northern coast of South America (Service 2001). The total West Indian manatee population currently ranges between 8,396 and 13,142 (82 FR 16670). The United States has the largest population of manatees.

Critical Habitat

Critical Habitat is designated in Florida, but none has been designated in Texas (Service 2022b). The occurrence of West Indian Manatees in the study area is possible, but rare.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Project Area

The project area is located within the Corpus Christi Bay, an approximate 96,000-acre bay on the Texas central coast with an average depth is 11 feet (TPWD 2017, Service 2021). The Corpus Christi Bay estuary habitat types include uplands, wetlands, open-bay water, open-bay bottom, sea grass meadows, and intertidal mud flats. Existing habitat within the proposed project footprint includes developed and urbanized land, armored and natural shorelines, beaches, and tidal flats, open water, brackish to saltwater wetlands, submerged aquatic vegetation, oyster reefs, uplands, sand dunes, coastal prairie, and mud flats (Service 2017a). Corpus Christi Bay is the largest bay in Texas and the estuary is connected to the Gulf through a single direct passage, Aransas Pass, and indirectly by the Gulf Intracoastal Waterway (GIWW) and Packery Channel (Ward 1997).

Mott MacDonald/Triton wetland and Triton aquatic teams surveyed six PAs the PCCA is proposing to utilize in association with the proposed project. The study area totaled 3,648.67 acres with 1,287.39 acres in the six BU PAs. Table 2 lists each PA, the associated acreage and type of habitat that will be impacted. Acreages were derived from the survey areas depicted in Figures 7-13.

Table 2. Listed species and associated impact in acres.

PA BU site	Piping Plover and Red Knot	Eastern black rail	Eastern black rail	Eastern black rail	Eastern black rail	Piping Plover and Red Knot	Piping Plover and Red Knot	Sea Turtles, PP and RK	Sea Turtles, PP and RK
	Critical Habitat	Estuarine Low Marsh Wetland (ac)	Estuarine High Marsh Wetland (ac)	Upland Coastal Prairie (ac)	Palustrine Coastal Prairie Wetland (ac)	Tidal Flat	Algal Flat	Backshore Back Beach	Foreshore Wet Beach
SJI	672.01	3.04						152.78	51.36
PA4		18.39	2.10	95.51	37.40	3.24			
SS1		11.82	11.04	32.15	32.40	99.07	15.99		
SS2	71.90	5.10	2.36	68.79	20.20	13.59	57.91		
HI-E		22.93	9.96	39.96	50.24	18.18	15.97		
MI	245.39				22.91			149.41	44.66
Total	989.30	61.28	25.46	236.41	163.15	134.08	89.87	302.19	96.02

Surveys identified dominant macrohabitats and notable listed species microhabitats (i.e., tidal flats, foreshore, wrack, etc.) throughout the survey area. Descriptions of those habitats can be found to the BCO in Appendix A.

San Jose Island is privately owned, and the beaches experience minimal visitation by passengers from a small ferry operating from Port Aransas, with visitation mostly confined to the southmost portion adjacent to the North Jetty. The island is grazed by cattle, which sometimes visit the beach. Extensive mud and sand flats extend on the bay side of the island (Newstead and Vale 2014).

In contrast, Mustang Island is intensively developed on the north end at Port Aransas, with frequently high volumes of beach traffic (vehicles, people, dogs) and an active program of beach raking and sculpting to enhance recreational use (Newstead and Vale 2014). The bayside of northern Mustang Island has a network of mud, sand, and algal flats, much of which is protected as part of the Port Aransas Nature Preserve. In Redfish Bay, Harbor Island, Pelican Island, and other islands are located along the Corpus Christi Ship Channel. Most were created or enlarged by deposition of dredged material for the creation and maintenance of the ship channel. Harbor Island and Pelican Island contain tidal flats and sand flats known to be used by piping plovers.

Mustang Island is also subjected to man-made beach cleaning and raking to remove accumulated wrack. Removal of wrack can also eliminate a beach's natural sand trapping abilities and further destabilize the beach. In addition, sand adhering to the seaweed and trapped in the cracks and crevices of wrack of wrack is removed from the beach. Although the amount of sand lost due to single sweeping actions may be small, it adds up considerably over a period of years (Nordstrom et al. 2006, Neal et al 2007).

Status of the Species and Critical Habitat within the Action Area

Sea Turtles

Kemp's ridley and green sea turtles are known to occur in project area and have been known to nest on San Jose Island (SJI) and Mustang Island (MI) beaches. Loggerhead and hawksbill sea turtles within the area are uncommon but possible. Table 3 indicates a total of 1,299 sea turtles were documented along the Texas Gulf coast from 2018-2022. Of the 1,299 sea turtles 106 sea turtles were found on SJI and MI (103 Kemp's ridley, 1 loggerhead, 2 green sea turtles). No hawksbill or leatherback sea turtles were documented on SJI and MI (Shaver 2018, 2019, 2020, 2021, 2022). The number of sea turtles found on SJI and MI represent 8 percent of turtles documented over along the Texas Gulf coast from 2018-2022.

Table 3. Number of sea turtles documented on SJI and MI from 2018 – 2022.

	2018		2019		2020		2021		2022	
Total along TX Gulf Coast	261		209		301		203		325	
	SJI	MI	SJI	MI	SJI	MI	SJI	MI	SJI	MI
Kemp's Ridley	12	14	2	8	18	13	4	9	8	15
Loggerhead	0	0	1	0	0	0	0	0	0	0
Green	0	0	0	0	0	1	0	0	0	1
Hawksbill	0	0	0	0	0	0	0	0	0	0
Leatherback	0	0	0	0	0	0	0	0	0	0

Beach maintenance, which includes scraping or bulldozing, has been frequent on Texas beaches in response to, continuing retreat of the shoreline with rising sea level, recreational use and driving on the beach. Within in the action area, beach maintenance occurs on MI but not SJI. The Open Beach Act allows driving on the beach in Texas. Most of the driving occurs on MI.

In February 2021 a winter storm resulted in thousands of cold-stunned sea turtles along the Texas Coast. The survey teams discovered several deceased sea turtles on four of the six PSAs. Sixteen sea turtle carcasses were observed at PA4, SSI, SS2I and HI-E. Locations were reported and carcasses were sent to the ARK.

Piping Plover and Red Knot

There are wintering populations of piping plovers and red knots that are regularly observed within the project area as they may occur in similar tidal mud flat habitats. Piping plovers occur within the designated Critical Habitats TX-8, TX-14, and 16 (eBird 2022) (Figures 14, 15). Red knots can be found in red knot proposed critical habitat unit named Mustang Island, Unit TX-4 (Figure 16).

Results from radiotelemetry studies of piping plovers captured on Pelican Island, in Redfish Bay, indicated home ranges less than 1,000 acres, smaller than those from other Texas wintering sites (Newstead and Vale 2014).

PA4 contained an estimated 2.163 acres of preferred piping plover and red knot habitat and included estuarine low marsh wetlands and tidal flats. No federally listed avian species were encountered within the PA4 survey boundary. PSA SS1 contained considerable preferred piping plover and red knot habitat (126.88-acres). The piping plover and red knot were observed in three microclimates of SS1. The piping plover was observed foraging in algal and mangrove marsh and the red knot was foraging in the tidal flat. No listed avian species were recorded on SS2, or HI-E. PSA MI contained preferred piping plover and red knot habitat, but it is also the most active with substantial human use and residential and commercial development. MI also has designated critical habitat for piping plovers and proposed critical habitat for the red knot. Piping plover and red knot were also observed on SJI.

There are three piping plover critical habitat units within the Action Area. They are Unit TX-8, TX-14, and TX-16. Descriptions of the units are as follows:

Unit TX–8: Mustang Island Beach. 97 ha (239 ac) in Nueces County. This is a stretch of Gulf beach extending from Fish Pass to the Horace Caldwell Pier on Holiday Beach within the City of Port Aransas, TX. The landward boundary is beginning of dense vegetation, and the gulf-ward boundary is MLLW. This unit includes lands known as wind tidal flats that are infrequently inundated by seasonal winds.

Unit TX–14: East Flats. 194 ha (481 ac) in Nueces County. This unit is bordered on the north by dredge placement areas bordering the Corpus Christi Ship Channel, on the west by MLLW in Corpus Christi Bay, on the east by the limits of the City of Port Aransas, and on the south by an east-west line at the southern-most point of Pelone Island. It is also bisected by a navigation channel, which is not included in the critical habitat. A portion of this unit at the west end falls within State-owned Texas General Land Office (TGLO) intertidal lands. The remainder of the unit is privately owned. The upland areas extend to where densely vegetated habitat, not used by the piping plover, begins and where the constituent elements no longer occur, including upland areas used for roosting by the piping plover. This unit includes lands known as wind tidal flats that are infrequently inundated by seasonal winds.

Unit TX–16: San Jose Beach. 187 ha (463 ac) in Aransas County. This unit occupies a 33 km 20 mi) stretch of beach from the North Jetty of Aransas Pass at the south, to the confluence of Vinson Slough and Cedar Bayou at the north end of San Jose Island. The inland boundary is the line indicating the beginning of densely vegetated habitat, and the gulf-ward boundary is MLLW. This unit includes lands known as wind tidal flats that are infrequently inundated by seasonal winds.

There is one red knot proposed critical habitat unit within the Action Area. It is described as:

Unit TX-4: Mustang Island
Unit TX-4 consists of 648 ac (262 ha) in Nueces County, Texas. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northern boundary is the south jetty at Port Aransas and the southern boundary is the north jetty of Packery Channel. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location (FGDC 2013, pp. 11-12, 37). Lands within this unit include approximately 395 ac (160 ha; 61 percent) in State ownership and 253 ac (102 ha; 39 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreation including both pedestrian and vehicle disturbance, and ongoing beach maintenance/nourishment activities. Unit TX-4 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the fall migration period, serving as an important southbound stopover site. Portions of the unit overlap with 589 ac (238 ha) of two designated critical habitat units for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Eastern Black Rail
It is likely that black rails are found in the coastal marsh areas with short vegetation, but they are a cryptic species, which makes calculation of a precise baseline of individual occupation impractical. Surveying for eastern black rails will be conducted within the Action Area if suitable habitat is found in an area sand placement will occur. Specifically, distribution and abundance of these species will be estimated for high marsh habitats across habitats available in the Gulf.

No critical habitat has been designated for the eastern black rail.

West Indian Manatee
Manatees have historically been an uncommon visitor along the Texas Gulf coast. Within the Corpus Christi area, manatees were observed near Shoreline Boulevard in the Corpus Christi Bay in 2009, 2014, and 2019 (Ren 2019, Dawson 2019). In 2021, manatees were observed in Corpus Christi Bay (Guerra, J., KRIS-TV 2021) and in the Laguna Madre near the Barney Davis Substation in 2022 (Martinez, I., KRIS-TV 2022). In the project area, 150.36 acres of seagrasses were found to exist in PA4, SS1and HI-E. There was manatee habitat found in open water and near shoreline habitat was available.

EFFECTS OF THE ACTION

In accordance with 50 CFR 402.02, effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of all other activities that are caused by the proposed action. 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. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see §402.17). The Service has responsibility for sea turtles on the nesting beach. NMFS has jurisdiction for sea turtles in the marine environment.

Therefore, this BCO will not consider effects of dredging on sea turtles within the marine environment.

Sea Turtles

Sand placement

Sand placement activities may impact nesting and hatchling sea turtles and sea turtle nests occurring beach habitat at MI and SJI. Sand placement activities would occur within and adjacent to nesting habitat for sea turtles and dune habitats that ensure the stability and integrity of the nesting beach. The project would potentially impact loggerhead, green, hawksbill and Kemp's ridley nesting females, their nests, and hatchling sea turtles. The Service expects the proposed construction activities could directly and indirectly affect the availability of habitat for nesting and hatchling sea turtles. The timing of the sand placement activities could directly and indirectly impact nesting females, their nests, and hatchling sea turtles when conducted between March 15 and November 1.

An individual's potential for contributing offspring to future generations is its reproductive value. Because of delayed sexual maturity, reproductive longevity, and low survivorship in early life stages, nesting females are of high value to a population. The reproductive value for a nesting female has been estimated to be approximately 253 times greater than an egg or a hatchling (NMFS and Service 2008). Regarding indirect loss of eggs and hatchlings, on most beaches, nesting success typically declines for the first year or two following sand placement, even though more nesting habitat is available for turtles (Trindell et al. 1998, Ernest and Martin 1999, Herren 1999). Reduced nesting success on constructed beaches has been attributed to increased sand compaction, escarpment formation, and changes in beach profile (Nelson et al. 1987, Crain et al. 1995, Lutcavage et al. 1997, Steinitz et al. 1998, Ernest and Martin 1999, Rumbold et al. 2001). In addition, even though constructed beaches are wider, nests deposited there may experience higher rates of wash out than those on relatively narrow, steeply sloped beaches (Ernest and Martin 1999). This occurs because nests on with sand placement are more broadly distributed than those on natural beaches, where they tend to be clustered near the base of the dune. Nests laid closest to the waterline on constructed beaches may be lost during the first year or two following construction as the beach undergoes an equilibration process during which seaward portions of the beach are lost to erosion. As a result, the project may be anticipated to result in decreased nesting and loss or displacement of nests that are laid within the Action Area for two subsequent nesting seasons following the completion of the proposed sand placement.

Impacts could result in the loss of sea turtles through disruption of adult nesting activity and by burial or crushing of nests or hatchlings. While a nest monitoring and egg relocation program would reduce these impacts, nests may be inadvertently missed (when crawls are obscured by rainfall, wind, or tides) or misidentified as false crawls during daily patrols. Even under the best of conditions, about 7 percent of the nests can be misidentified as false crawls by experienced sea turtle nest surveyors (Schroeder 1994).

Sand compaction impacts can be minimized by using suitable sand. A change in sediment color on a beach could change the natural incubation temperatures of nests in an area, which, in turn, could alter natural sex ratios. To provide the most suitable sediment for nesting sea turtles, the color of the nourished sediments should resemble the natural beach sand in the area. Natural reworking of sediments and bleaching from exposure to the sun would help to lighten dark nourishment sediments; however, the timeframe for sediment mixing and bleaching to occur could be critical to a successful sea turtle nesting season.

Escarpments
On nourished beaches, steep escarpments may develop along their water line interface as they adjust from an unnatural construction profile to a more natural beach profile (Coastal Engineering Research Center 1984, Nelson et al. 1987). Escarpments can hamper or prevent access to nesting sites (Nelson and Blihovde 1998). Researchers have shown that female sea turtles coming ashore to nest can be discouraged by the formation of an escarpment, leading to situations where they choose marginal or unsuitable nesting areas to deposit eggs (e.g., in front of the escarpments, which often results in failure of nests due to prolonged tidal inundation). This impact can be minimized by leveling any escarpments prior to the nesting season.

Noise
A variety of noise from underwater activities associated with the project including from dredging, pile driving, and general construction. Dredge-related noise are produced from the rotating cutterhead, pumps, generators, ship propulsion, and from the sound of the sediment slurry moving through the pipe. Noise from dredging activities is dependent on the type of dredge used. A cutter suction dredge can produce noise from 168 to 175 decibels (dB). A trailing suction hopper dredge can produce noise ranging from 172 to 190 dB (McQueen et al., 2018). Vibratory or impact hammers used to drive piles into the sediment can produce noise up to 180 to 200 dB (NRC 2012). For example, manatees have been observed to prefer quieter seagrass beds away from high frequency boat noise above 175 dB (Miksis-Olds et al., 2007).

Sound waves can be used by fish, sea turtles, and marine mammals to interpret their surrounding environments, detect predators and prey, orient themselves during migration, attract mates, aggregate, engage in territorial behavior, and for acoustic communication. Anthropogenic noise can cause auditory masking and changes in individual and social behaviors. On land, noise from construction activity can potentially disturb nesting sea turtles and cause a false crawl. Noise impact is expected to be temporary because sea turtles would be able to move to adjacent habitats and recolonize the construction once dredging has completed. Construction noise can be reduced by utilizing air bubble curtains, temporary noise attenuation piles, filled fabric barriers, or cofferdams (NRC 2012).

Since the deepening of the channel is expected to decrease vessel traffic throughout the ship channel and Corpus Christi Bay, it is expected that the level of ocean noise within the area will decrease after the completion of the channel deepening project. Offshore vessel traffic and noise is expected to remain generally the same.

Heavy Equipment and Motor Vehicles
The use of heavy machinery on beaches during a sand placement or a construction project may have adverse effects on sea turtles. Equipment left on the nesting beach overnight can create barriers to nesting females emerging from the surf and crawling up the beach, causing a higher incidence of false crawls and unnecessary energy expenditure.

The operation of motor vehicles or equipment on the beach to complete the project work affects sea turtle nesting by interrupting or colliding with a nesting turtle on the beach, headlights disorienting or disorienting emergent hatchlings if work is necessary to continue at night, vehicles running over hatchlings attempting to reach the ocean, and vehicle ruts on the beach interfering with hatchlings crawling to the ocean. Apparently, hatchlings become diverted in a rut (Hughes and Caine 1994), the hatchlings lose their line of sight to the ocean horizon (Mann 1977). The extended period of travel required to negotiate tire ruts may increase the susceptibility of hatchlings to dehydration and depredation during migration to the ocean (Hosier et al. 1981).

Driving directly above or over incubating egg clutches or on the beach can cause sand compaction, which may result in adverse impacts on nest site selection, digging behavior, clutch viability, and emergence by hatchlings, as well as directly kill preemergent hatchlings (Mann 1977, Nelson and Dickerson 1987, Nelson 1988). Driving along the beachfront should be between the low and high tide water lines. To minimize the impacts to the beach, dunes, and dune vegetation, transport and access to the construction sites should be from the road to the maximum extent possible. However, if vehicular access to the beach is necessary, the areas for vehicle and equipment usage should be designated and marked.

Lighting

A significant reduction in sea turtle nesting activity has also been documented on beaches illuminated with artificial lights (Witherington 1992). Construction lights along a project beach and on the dredging, vessel may deter females from coming ashore to nest, misdirect females trying to return to the surf after a nesting event, and misdirect emergent hatchlings from adjacent non-project beaches.

Turbidity and Resuspended Sediments

Increased turbidity can affect fish, sea turtles, manatees, and shorebirds by interfering with foraging activities, gill tissue or respiratory damage, physical stress, and behavioral changes (Wilber and Clarke 2001). The level of impact would be limited to the exposure time and the concentration of suspended sediments. An increase in suspended sediments from dredging may cause sea turtles and marine mammals to alter their movements. Fish, sea turtles, manatees, and other marine mammals are mobile and can relocate to adjacent undisturbed areas. Increases in turbidity would be temporary, lasting only a few days after dredging and placement operations and would not extend far beyond the area of disturbance. Control measures, such as silt curtains, could be used if turbidity levels are excessive. Regular maintenance dredging to maintain the depth of the channel is also expected to cause temporary and localized turbidity.

Beneficial Effects

However, the Service acknowledges the potential benefits of the sand placement is it provides additional sea turtle nesting habitat. Nonetheless, an increase in sandy beach may not necessarily equate to an increase in suitable sea turtle nesting habitat.

Critical Habitat

There is no designated critical habitat for sea turtles along the Texas coast, therefore no impacts are anticipated.

Piping Plovers

Sand Placement

The Service expects the Action will result in direct and indirect, short, and long-term effects to piping plovers. Short-term and temporary impacts to piping plovers could result from project activities disturbing roosting plovers and degrading or removing currently occupied adjacent foraging areas. Since piping plovers can be present on these beaches year-round, construction is likely to occur while this species is utilizing beaches and associated habitats. Dredges operating in the Action Area may adversely affect piping plovers by disturbance and disruption of normal activities such as roosting and foraging, and possibly forcing birds to expend valuable energy reserves to seek available habitat elsewhere. Potential effects to piping plover include direct loss of foraging and roosting habitat in the Action Area and attraction of predators due to food waste from the construction crew. Plovers face predation by avian and mammalian predators that are present year-round on the wintering and nesting grounds.

Long-term and permanent impacts could preclude the creation of new habitat and increase recreational disturbance. The effects of the project construction include a long-term reduction in foraging habitat and a long-term decreased rate of change in coastal dynamics (e.g., sand movement to form shoals and other intertidal habitats) that may preclude habitat creation. Recreational activities that potentially adversely affect plovers include disturbance by unleashed pets and increased use by beach drivers and pedestrians. Piping plovers encountering pedestrians spend more time in non-foraging behavior.

The addition of dredged sediment can temporarily affect the benthic fauna of intertidal systems. Burial, crushing, and suffocation of invertebrate species will occur during the sand placement. Although some benthic species can burrow through a thin layer of additional sediment (38-89 cm for different species), thicker layers (i.e., >1 meter) are likely to smother these sensitive benthic organisms (Greene 2002). Numerous studies of such effects indicate that the recovery of benthic fauna after beach nourishment or sediment placement projects can take anywhere from six months to two years, and possibly longer in extreme cases (Thrush et al. 1996, Peterson et al. 2000, Zajac and Whitlatch 2003, Peterson et al. 2006). Sand placement projects bury the natural beach with up to millions of cubic yards of new sediment and grade the new beach and intertidal zone with heavy equipment to conform to a predetermined topographic profile. If the material used in a sand placement project does not closely match the native material on the beach, the sediment incompatibility may result in modifications to the macroinvertebrate community structure, because several species are sensitive to grain size and composition (Rakocinski et al. 1996, Peterson et al. 2000, 2006, Peterson and Bishop 2005, Colosio et al. 2007, Defeo et al. 2009). Delayed recovery of the benthic prey base or changes in their communities due to physical habitat changes may affect the quality of piping plover foraging habitat. The duration of the impact can adversely affect piping plovers because of their high site fidelity. Although recovery of invertebrate communities has been documented in studies, sampling designs have typically been inadequate and have only been able to detect large-magnitude changes (Schoeman et al. 2000, Peterson and Bishop 2005). Therefore, uncertainty persists about the impacts of various projects to invertebrate communities and how these impacts affect shorebirds, particularly the piping plover.

Noise

Noise impact is expected to be temporary because plovers would be able to move to adjacent habitats and recolonize the construction once dredging has completed. However, continuous movement between beach and bay would expend additional energy.

Heavy Equipment and Motor Vehicles

The construction window may extend into the piping plover winter seasons. Heavy machinery and equipment (e.g., trucks and bulldozers) operating on Action Area may adversely affect wintering piping plovers in the Action Area by disturbance and disruption of normal activities such as roosting and foraging, and possibly forcing birds to expend valuable energy reserves to seek available habitat elsewhere.

As stated previously, in Texas, Gulf beaches are considered part of the state highway system and receive unrestricted public access from vehicles for recreation. The presence of vehicles on the beach increases shorebirds' vulnerability to injury (Goss-Custard et al. 2006, Service 2012). Roosting in tire tracks or other depressions, and/or next to or under objects on the beach, provides the birds with shelter from cold wind to conserve energy, as well as provide camouflage or hiding places to avoid predation (Drake 1999a, Newstead and Hill 2022). Many species of shorebirds, including plovers, are known to roost together in flocks or small groups (Nicholls and Baldassarre 1990a). Cold and windy weather often triggers roosting behavior in shorebirds and disturbance should be avoided during cold spells (Goss-Custard et al. 2006, *Pers. Comm*. D. Newstead, Coastal Bend Bays & Estuaries Program 2022). Service files include reports of a vehicle-related mortality event whereby several shorebirds were run over by a vehicle at Mustang Island State Park. Because several shorebirds were killed together, species experts believed the birds were roosting at the time of the incident (*Pers. Comm*. R. Cobb, Service, retired 2022).

Turbidity and Resuspended Sediments

Turbidity and resuspended sediments could bury benthic communities. Benthic invertebrates are an important food source for piping plovers and red knots and the rates of recovery could range from a few weeks to several months (LaSalle et al. 1991).

Beneficial Effects

For some highly eroded beaches, sand placement will have a beneficial effect on the habitat's ability to support wintering piping plovers. Narrow beaches that do not support a productive wrack line may see an improvement in foraging habitat available to piping plovers following sand placement. The addition of sand to the sediment budget may also increase a sand-starved beach's likelihood of developing habitat features valued by piping plovers.

Critical Habitat

The Service anticipates critical habitat will be removed or otherwise adversely affected. A decrease in the survival of piping plovers on winter grounds due to the lack of optimal habitat may contribute to decreased survival rates, decreased productivity on the breeding grounds. Threats on the wintering grounds may impact piping plovers' breeding success if they start migration or arrive at the breeding grounds with a poor body condition. The dredging and sand placement will also cause a reduction in foraging and roosting habitat, and decreased rate of change in coastal dynamics that may preclude creation of new optimal habitat. However, the rest of the critical habitat unit and other critical habitat units should remain functional to serve the intended conservation role for the piping plover.

Red Knots

Sand Placement

Red knots may be directly disturbed if sand placement takes place while the birds are present. In addition to causing disturbance during construction, beach nourishment often increases recreational use of the widened beaches that, without careful management, can increase disturbance of red knots. Beach nourishment or sand placement of dredged material can also temporarily depress, and sometimes permanently alter, the invertebrate prey base on which shorebirds depend (Greene 2002). The artificial beach created by nourishment may provide only suboptimal habitat for red knots. By precluding overwash and wind driven sand, especially where large artificial dunes are constructed, beach nourishment can also lead to further erosion on the bayside and promote bayside vegetation growth, both of which can degrade the red knot's preferred foraging and roosting habitats. Preclusion of overwash also impedes the formation of new red knot habitats. Beach nourishment can also encourage further development, bringing further habitat impacts, reducing future alternative management options such as a retreat from the coast, and perpetuating the developed and stabilized conditions that may ultimately lead to inundation where beaches are prevented from migrating (Greene 2002). The quantity and quality of red knot prey may also be affected by the placement of sediment for beach nourishment or disposal of dredged material. Invertebrates may be crushed or buried during project construction. Although some benthic species can burrow through a thin layer of additional sediment, thicker layers (over 35 in (90 cm)) smother the benthic fauna (Greene 2002). By means of this vertical burrowing, recolonization from adjacent areas, or both, the benthic faunal communities typically recover. However, timeframes projected for benthic recruitment and re-establishment following beach nourishment are between 6 months to 2 years. Depending on actual recovery rates, impacts will occur even if sand placement activities occur outside the red knot wintering season. See piping plover section for additional applicable discussion.

Noise

See piping plover section as the effects are similar for red knots.

Heavy Equipment and Vehicles

See piping plover section as effects are similar for red knots.

Recreational disturbance in some wintering and stopover areas, red knots and recreational users are concentrated on the same beaches (Niles et al. 2008, Tarr 2008). Recreational activities affect red knots both directly and indirectly. These activities can cause habitat damage (Schlacher and Thompson 2008, Anders and Leatherman 1987), cause shorebirds to abandon otherwise preferred habitats, and negatively affect the birds' energy balances. Effects to red knots from vehicle and pedestrian disturbance can also occur during construction including beach nourishment. Red knots can also be disturbed by motorized and nonmotorized boats, fishing, kite surfing, aircraft, and research activities (Niles et al. 2008; Peters and Otis, 2007; Harrington 2005b; Meyer et al. 1999; Burger 1986) and by beach raking or cleaning.

Turbidity and Resuspended Sediments

Please see discussion in the piping plover section as the effects are similar for red knots.

Beneficial Effects
For some highly eroded beaches, sand placement may have a beneficial effect on the habitat's ability to support wintering red knots. The addition of sand to the sediment budget may increase a sand-starved beach's likelihood of developing habitat features valued by red knots.

Eastern Black Rail
Sand Placement
Eastern black rails could be killed or injured by the heavy equipment used during sand placement. The potential adverse consequence would be higher during black rail sensitive life-stages (i.e., breeding, nesting, and molting) compared to other life-stages. Habitat will temporarily be destroyed and unusable for black rails as these management activities crush or remove all or most of the vegetation. This will have adverse consequences on black rails by likely increasing the probability of predation, altering behavior, and changing the distribution of black rail within the action area. Additionally, if these activities occur within black rail habitat during sensitive life stages, these actions could result in the loss of reproductive success by killing black rails or crushing eggs in nests.

Noise and Vibration
Disturbance to eastern black rails caused by noise and vibration of machinery used to complete project activities could result in adverse consequences to the species. This is especially true if these activities occur during sensitive times (i.e., breeding, nesting, and molting); however, there is no scientific data that describes the effect of noise and vibrations on black rails.

Heavy Equipment and Vehicles
When machinery is used in black rail habitat, crushing and disturbance to vegetation is inevitable. However, no brush/woody threshold has been discerned for when habitat with woody encroachment becomes avoided by black rails.

West Indian Manatee
Sand Placement
Human activities such as dredge and fill, soil runoff, propeller dredging, anchoring, etc., are known to result in the loss of seagrass and foraging habitat (Duarte 2002, Orth et al. 2006). For example, dredging will directly remove seagrass, and sediment, suspended in the water column during dredge and fill activities, may cover neighboring seagrass beds (Auil 1998). A significant decrease of this resource could cause stress to the population by limiting manatee grazing habitats and range.

Collisions
Adult manatees are commonly found in fresh, brackish, or marine water habitats. They spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. Therefore, manatees could be struck by sand-excavating equipment or by vessels and barges that support dredging operations. Biological monitors monitoring for their presence help reduce potential collisions and injury. If work is required to occur at night the use of thermal imaging equipment may aid in the location of the manatee.

Noise
See sea turtle section as the effects are similar for manatee. Noise levels (dba) may vary.

Turbidity and Resuspended Sediments
See sea turtle section the effects similar discussion for manatees.

Beneficial Effects
No beneficial effects noted for manatees.

CUMMULATIVE EFFECTS

Cumulative effects are those "effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area" considered in this BCO (50 CFR 402.02).

Potential future state or private activities include the Shoreline Stabilization projects proposed by the Port of Corpus Christi for funding through the Texas Coastal Resiliency Master Plan. These sites are proposed as beneficial use sites in the mitigation of ocean-going vessel wakes, storm surge, and Sea level rise. Approximately 5.4 million cu yds of BU dredge material are estimated to be placed to create additional upland habitats that will be able to withstand the wake erosion of the increased vessel traffic. At this time, the PCCA cannot fund these projects with the existing grants available to them. It is uncertain if these projects will be funded through the TGLO. Three information packet pages were provided during the June 29, 2022, Technical Advisory Meeting. They included the Dagger Island, Buckeye, Pelican Island (M3) and PA9-S Island.

CONCLUSION

Sea Turtles
After reviewing the status of the Kemp's ridley, green, hawksbill and loggerhead, the environmental baseline for the Action Area, the effects of the proposed action and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the four sea turtles. No critical habitat has been designated for these species in Texas; therefore, none will be affected.

We base this conclusion on the following:
1. Placement of dredged material, including beach nourishment activities, the PCCA and their contractor will avoid sea turtle nesting season, March 15 to October 1.
2. Sea turtle patrols by wildlife monitors will be conducted prior to the start of the workday and continuously throughout the workday.
3. Protocol is established to document tracks, nest and/or dead or live sea turtles and notify appropriate rehab facilities and the Sea Turtle Coordinator at the Padre Island National Seashore.
4. All turtles, tracks, nests, or eggs found during beach nourishment activities will be safeguarded until they can be relocated by properly permitted individuals.
5. Artificial lighting will be minimized by downshielding and use of appropriate types of lighting during project construction.

6. Beach quality sand consistent in grain size, color, composition, and mineralogy and free of hazardous substances will be placed on identified PAs.
7. Sand will be placed at a gradual slope to minimize scarping and after the project construction is complete the site will be regraded, and all vehicular ruts and escarpments leveled.

Piping Plover and Red Knots
After reviewing the status of the piping plover and red knot, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the piping plover and red knot. It is also not likely not likely to destroy or adversely modify piping plover designated critical habitat or proposed red knot critical habitat.

We base this conclusion on the following:

1. Wildlife monitors will be on-site to ensure piping plovers are not affected by beach nourishment activities and that beach nourishment activities will not begin until each bird leaves the project area. Monitors will also escort equipment and ensure equipment checks are completed.
2. Wildlife monitors will monitor weather as piping plovers and red knots are vulnerable during periods of cold temperatures and inclement weather. Monitors will check under and around vehicles and equipment in search of birds that may be roost to conserve energy in vehicle ruts or next to debris.
3. If birds are found roosting in ruts or in or near vehicles and equipment in active work sites work will cease until the birds have relocated.
4. A protocol has been established how to contact points of contacts and in the event, birds do not relocate to contact the Service to solicit further guidance.
5. Disturbed areas of the beach will be smoothed out and loosened upon the completion of each workday.

Eastern Black Rail
After reviewing the status of the eastern black rail, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the eastern black rail. Although we anticipate incidental take to occur, the 4(d) Rule tailors the Act’s protections to allow activities that only have minor or temporary effects and are unlikely to affect the resiliency of black rail populations or viability of the species. No critical habitat has been designated for this species; therefore, none will be affected.

We base this conclusion on the following:

1. If potential black rail habitat is proposed for removal or impact black rail species surveys will be conducted prior to construction activity. Survey period is March 15 to June 15.
2. Where known black rail habitat exists, seasonal restrictions will be implemented to avoid disturbance activities from March 1 to September 30.
3. Project activity will be limited to daytime hours. If night work is required lighting will be limited, down shielded and turned off when not in use. Permanent lighting will be pointed away from potential black rail habitat and follow Texas Bird City Guidelines.

4. Pockets of herbaceous cover (refugia, approximately 10 feet by 20 feet) will be maintained. Black rail habitat will not be removed within in a day and remaining refugia may be cleared after two days.
5. Biological monitors will ensure that equipment and vehicles move at a slow pace through black rail habitat to allow birds to escape ahead of the equipment as they are unlikely to fly.

West Indian Manatee

After reviewing the status of the West Indian manatee, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the West Indian manatee. No critical habitat has been designated for this species in Texas; therefore, none will be affected.

We base this conclusion on the following:

1. Training is required for all contracted personnel involved in operating dredges on conservation measures to avoid and minimize impacts.
2. NMFS approved protected species observers will be on dredges and a protocol is established to contact the Service Field Office and the Texas Marine Mammal Stranding Network if a manatee is sighted.
3. Personnel will be instructed to not feed or water manatees.
4. All in-water operations and vessels will be shut down if a manatee comes within 50 feet of the operation. Activities can resume if the manatee moves beyond the 50-foot radius of the project operation, or until 30 minutes elapses and has not been seen within 50-feet of operation.

We also base the species conclusions on other general avoidance measures proposed by the USACE and PCCA that include:

1. Reporting criteria and documentation of training.
2. Daily briefings on recognition of listed species prior to the start of work each day.
3. Identification of proposed equipment to be used and staging areas.
4. The use of existing access roads closest to work sites to reduce vehicle traffic on the beach.
5. Flagging or marking of project work area boundaries and sand placement areas.
6. Avoidance of the swash zone and wrack line.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any conservation measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act 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. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by the USACE and/or PCCA as appropriate, for the exemption in section 7(o)(2) to apply. The USACE has a continuing duty to regulate the activity covered by this incidental take statement. If the USACE (1) fails to assume and implement the terms and conditions or (2) fails to require the PCCA to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the USACE and/or PCCA must report the progress of the action and its impact on the species as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Sea Turtles

The Service anticipates that the Action is reasonably certain to cause incidental take of individual sea turtles consistent with the definition of harass resulting from changes to the behavior of adult female sea turtles; berm slope, escarpment formation, noise, and sediment quality effects on the ability of the female sea turtles to access high quality nesting habitat; and wasted energy caused by increased numbers of false crawls.

The Service also anticipates that the Action is reasonably certain to cause incidental take of individual eggs and hatchling sea turtles consistent with the definition of harm resulting from reduced hatchling and emerging success; changes to incubation conditions within the nest; an increase in number of nests placed in areas that may wash out; and injury or death to hatchlings due to deterrence or misdirection from artificial lighting.

The amount of take is directly proportional to the spatial/temporal extent of occupied habitat that the Action affects and exceeding this extent would represent a taking that is not anticipated in this BCO. The Service anticipates incidental take of sea turtles will be difficult to detect for the following reasons: (1) all nests are not found because [a] natural factors, such as rainfall, wind, and tides may obscure crawls and [b] human caused factors, such as pedestrian and vehicular traffic, may obscure crawls, and result in nests being destroyed because they were missed during a nesting survey, nest mark and avoidance, or egg relocation program (2) the total number of hatchlings per undiscovered nest is unknown; (3) the reduction in percent hatching and emerging success per relocated nest over the natural nest site is unknown; (4) an unknown number of females may avoid the project beach and be forced to nest in a less than optimal area; (5) lights may misdirect an unknown number of hatchlings and cause death; and (6) escarpments may form and prevent an unknown number of females from accessing a suitable nesting site. However, the level of take of these species can be anticipated by the sand placement activities on suitable turtle nesting beach habitat because: (1) turtles nest within the Action Area; (2) the nourishment project will modify the incubation substrate, beach slope, and sand compaction; and (3) artificial lighting will deter and/or misdirect nesting hatchling turtles.

Sea Turtle take is expected to be in the form of harassment, injury, and/or death from: 1) destruction of all nests that may be constructed and eggs that may be deposited from March 15 through October 1 and missed by a nest survey and egg relocation program within the boundaries of the proposed project; 2) destruction of all nests constructed and eggs deposited from October 2 through March 14 when a nest survey and egg relocation program is not required to be in place within the boundaries of the proposed project; 3) injury or death from vehicles and or equipment driving over adult sea turtle, hatchling, stranded or post-hatchling washback, sea turtles and/or eggs from undetected unmarked/unprotected sea turtle nests; 4) harassment in the form of disturbing or interfering with female turtles attempting to nest within the sand placement area or on adjacent beaches as a result of dredging and sand placement activities; 5) behavior modification of nesting females due to escarpment formation within the SJI and MI during a nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; and 6) destruction of nests from escarpment leveling within a nesting season when such leveling has been approved by the Service.

Sea turtle recovery activities in Texas include annual nest surveys to document all nests found on Mustang and San Jose islands. The distance surveyed for sea turtle nests each year on SJI is approximately 19.1 miles, 7.25 miles of which is within the project impact area. The distance surveyed for sea turtle nests on MI is approximately 18 miles, of which 5.1 miles are within the project's impact area. Therefore, the total impacted beach area (12.35 miles) is 33.3 percent of the total surveyed area (37.1 miles). To estimate take for nesting sea turtles, the proportion of impacted beach (33.3 percent) was multiplied by the 5-year average number of nests for each species for the two islands. The result represents the proportion of nests that could occur within the impact area beaches, based upon 2018-2022 nest data (Table 4). This method assumes equal distribution of nests throughout each of the two islands.

Table 4. Five –year average number of sea turtle nests found on SJI and MI (calculated from Shaver 2018, 2019, 2020, 2021, and 2022), and predicted numbers of nests based on the 33.3 percent proportion of impact area to total area surveyed.

	5-year avg # of nests (2018-2022)			Predicted # of nests in impact area
	SJI	MI	SJI and MI combined	SJI and MI combined
Kemp's Ridley	8.8	11.8	20.6	6.8598
Loggerhead	0.2	0	0.2	0.0666
Green	0	0.4	0.4	0.1332
Hawksbill	0	0	0	0

Assuming conservation measures proposed reduced impacts by 30 to 50 percent, the estimated number of Kemp's ridley sea turtles that would be taken would range from 2-3 individual adults. Loggerhead, green and hawksbill could be upgraded to 1 each to err on the side of the species. Implementation of avoidance and minimization measures by the USACE and PCCA would reduce the estimated number of sea turtles that would be taken. The Kemp's ridley is the most frequently documented sea turtle occurring on SJI and MI, thus the potential for sand placement activities on the beach interacting with Kemp's ridley adults, hatchlings, or nests would be greater, thus the number of Kemp's ridley adults, hatchlings and nests at risk of "take" would also be greater.

The Service anticipates that despite avoidance and minimization measures implemented during sand placement activities, a risk still exists that an adult sea turtles could be struck by vehicles and nests could go undetected by the egg relocation program surveys on SJI and MI. Table 5 identifies the number of sea turtles anticipated to be taken by dredge and sand placement operations.

Table 5. Anticipated Take of Kemp's ridley, green, hawksbill, and loggerhead sea turtles

Placement Areas	Amount or Extent of Take	Life Stage	Form of Take
SJI and MI	3 Kemp's ridley sea turtles and 1 nest each including all hatchlings and/or eggs (up to approximately 300 eggs) could be taken during dredging and sand placement activities. 1 adult loggerhead sea turtle and 1 nest, including all hatchlings and/or eggs (up to approximately 200 eggs) could be taken during dredging and sand placement activities. 1 adult green sea turtle and 1 nest, including all hatchlings and/or eggs (up to approximately 200 eggs) could be taken	Adults/Eggs and Hatchlings	Harm/Harass

Placement Areas	Amount or Extent of Take	Life Stage	Form of Take
	during dredging and sand placement activities. 1 adult hawksbill sea turtle and 1 nest, including all hatchlings and/or eggs (up to approximately 160 eggs) could be taken during dredging and sand placement activities.		

If the agreed upon avoidance and minimization measures are deviated from or if the level of take is reached for any one of the species, we request the USACE contact the Service immediately to review the circumstance and revise the take analysis.

Piping Plovers

The Service anticipates that the Action is reasonably certain to cause incidental take of individual piping plovers and red knots consistent with the definition of harass resulting from disturbance and disruption of normal activities such as roosting and foraging, and possibly forcing birds to expend valuable energy reserves to seek available habitat elsewhere. The Service anticipates that the Action is reasonably certain to cause incidental take of individual piping plovers and red knots consistent with the definition of harm resulting from direct loss of optimal foraging and roosting habitat in the critical habitat unit (activities that affect or alter the use of optimal habitat or increase disturbance to the species may decrease the survival and recovery potential of the piping plover and red knot); burial, crushing, and suffocation of invertebrate prey species; delayed recovery of the benthic prey base or changes in their communities due to physical habitat changes; increased predation from avian and mammalian predators attracted to the Action Area by food waste; morphological changes to adjacent piping plover and red knot habitat that increase disturbance to the species and/or decrease survival; a decrease in the creation of optimal foraging and roosting habitat; and an increase the attractiveness of these beaches for recreation increasing recreational pressures.

The Service typically uses a surrogate to estimate the extent of take of piping plovers and red knots. The amount of take is directly proportional to the spatial/temporal extent of occupied habitat that the Action affects and exceeding this extent would represent a taking that is not anticipated in this BCO. It is difficult for the Service to estimate the exact number of piping plovers and red knots that could be migrating through, or wintering within the Action Area at any point in time and place during and after project construction. Disturbance to suitable habitat resulting from placement of sand would affect the ability of an undetermined number of piping plovers and red knots to find suitable foraging and roosting habitat during construction and for an unknown length of time after construction. The Service anticipates that directly and indirectly an unspecified amount of piping plovers and red knots along shoreline and intertidal habitats within (piping plover Critical Habitat Units TX-8, TX-14, and TX-16 and red knot proposed critical habitat unit TX-4), all at some point, potentially usable by piping plovers, could be taken in the form of harm and harassment as a result of this proposed action.

Incidental take of piping plovers will be difficult to detect for the following reasons: (1) harassment to the level of harm may only be apparent on the breeding grounds the following year; and (2) dead plovers and red knots may be carried away by waves or predators. However, the level of take of this species can be anticipated by the proposed activities because: (1) piping plovers and red knots migrate through and winter in the Action Area; (2) the placement of the sand is expected to affect the coastal morphology and prevent early successional stages, thereby precluding the maintenance and creation of additional recovery habitat; (3) increased levels of pedestrian and vehicular disturbance may be expected; and (4) a temporary reduction of food base will occur.

Table 6 identifies 622.16 acres of suitable piping plover and red knot foraging, and roosting habitat is anticipated to be taken as a result of the proposed action. See Table 2 for a breakdown of habitat type and total acres.

Table 6. Anticipated Take of Piping Plover and Red Knot

Placement Areas	Habitat	Amount or Extent of suitable foraging and roosting habitat (acres)	Life Stage	Form of Take
SJI	Backshore Back Beach and Foreshore Wet Beach	302.19	Adults	Harm/Harass
MI	Backshore Back Beach and Foreshore Wet Beach	96.02	Adults	Harm/Harass
PA4, SS1, SS2, HI-E	Tidal Flat	134.08	Adults	Harm/Harass
SS1, SS2, HI-E	Algal Flat	89.87	Adults	Harm/Harass
Total		622.16 acres		

Piping plover and red knot use similar habitat in these PAs. Therefore, the take of 622.16 acres will be considered together as not to double count acreage.

Table 7 identifies 989.30 acres of suitable piping plover critical habitat is anticipated to be taken as a result of the proposed action. See Table 2 for a breakdown of habitat type and total acres.

Table 7. Anticipated Take of Piping Plover Critical Habitat

Placement Areas	Habitat	Amount of Critical Habitat (acres)	Critical Habitat Unit	Form of Take
SJI	Designated PP and Proposed RK	672.01	TX-16	Temp/Permanent
SS2	Same	71.90	TX-14	Same

Placement Areas	Habitat	Amount of Critical Habitat (acres)	Critical Habitat Unit	Form of Take
MI	Same	245.39	TX-8	Same
Total		989.30 acres		

The USACE will monitor the extent of take using the surrogate measure specified in the table above and monitor piping plover abundance and distribution in the Action Area.

Red Knot
Please refer to piping plover section as piping plover and red knot are combined in our conclusion.

Piping plover and red knot use similar habitat in these PAs. Therefore, the take of 622.16 acres will be considered together as not to double count acreage.

Table 8 identifies 245.39 acres of suitable red knot proposed critical habitat is anticipated to be taken as a result of the proposed action. See Table 2 for a breakdown of habitat type and total acres.

Table 8. Anticipated Take of Red Knot Critical Habitat

Placement Areas	Habitat	Amount of Critical Habitat (acres)	Critical Habitat Unit	Form of Take
MI	Proposed CH	245.39	TX-4 Mustang Island	Same
Total		245.39 acres		

MI is the only PA that has proposed designated critical habitat for the red knot, TX-4.

The USACE will monitor the extent of take using the surrogate measure specified in the table above and monitor piping plover abundance and distribution in the Action Area.

Eastern Black Rail
The Service anticipates that the Action is reasonably certain to cause incidental take of individual eastern black rails consistent with the definition of harass resulting from disturbance and disruption of normal activities such as breeding, roosting, and foraging, and possibly forcing birds to expend valuable energy reserves to seek available habitat elsewhere. The Service anticipates that the Action is reasonably certain to cause incidental take of individual eastern black rails consistent with the definition of harm resulting from direct mortality by vehicular equipment, direct loss of optimal breeding foraging and roosting habitat (activities that affect or alter the use of optimal habitat or increase disturbance to the species may decrease the survival and recovery potential of the eastern black rail); burial, crushing, and suffocation of insects and invertebrate prey species; delayed recovery of the prey base or changes in their communities due to physical habitat changes; delayed recovery of habitat structure, increased predation from avian and mammalian predators attracted to the Action Area by food waste; morphological and

hydrological changes to adjacent black rail habitat that increase disturbance to the species and/or decrease survival; a decrease in the creation of optimal breeding, foraging and roosting habitat.

The Service typically uses a surrogate to estimate the extent of take for black rails. The amount of take is directly proportional to the spatial/temporal extent of occupied habitat that the Action affects and exceeding this extent would represent a taking that is not anticipated in this BCO. It is difficult for the Service to estimate the exact number of black rails that could be wintering within the Action Area at any one point in time and place during project activities. Disturbance to suitable habitat resulting from both construction and sand placement activities within the Action Area would affect the ability of an undetermined number of black rails to find suitable breeding, foraging and roosting habitat during any given year. The Service anticipates that directly and indirectly an unspecified number of black rails along low marsh and high marsh within the Action Area, all at some point, potentially usable by black rails, could be taken in the form of harm and harassment as a result of this proposed action.

The Service has reviewed the biological information for the eastern black rail, information presented by the USACE and District, and other available information relevant to this action. The level of incidental take may be difficult to detect and quantify for the following reasons: (1) the eastern black rail has a wide-ranging distribution; (2) detailed information on the eastern black rail life cycle and habitat requirements is incomplete, (3) it would be difficult to find or identify dead or impaired individuals; and (4) due to their secretive nature, it is difficult to confirm eastern black rail nesting activity in the Project.

Table 9 identifies 486.30 acres of suitable black rail breeding, foraging, and roosting habitat is anticipated to be taken as a result of the proposed action. See Table 2 for a breakdown of habitat type and total acres.

Table 9. Anticipated Take of Eastern Black Rail

Placement Areas	Habitat	Amount or Extent of suitable breeding, foraging and roosting habitat (acres)	Life Stage	Form of Take
SJI, PA4, SS1, SS2, HI-E	Estuarine Low Marsh Wetland	61.28	Eggs, Chicks, and Adults	Harm/Harass
Same	Estuarine High Marsh Wetland	25.46	Same	Same
Same	Upland Coastal Prairie	236.41	Same	Same
SJI, PA4, SS1, HI-E, MI	Palustrine Coastal Prairie Wetland	163.15	Same	Same
Total		486.30 acres		

The USACE will monitor the extent of take using the surrogate measure specified in the table above and monitor black rail abundance and distribution in the Action Area.

<u>West Indian Manatee</u>
No known surveys for West Indian manatee have been conducted in the Action Area. Implementation of avoidance and minimization measures by the USCAE and PCCA reduces the likelihood that the species could be taken. However, because there has been documented occurrences along the Gulf coast, Corpus Christi Bay and Port Aransas, Texas, the Service anticipates that the possibility exists that dredging operations may cause one West Indian manatee to be taken by harm or harassment by noise, human disturbance, or direct mortality.

If the level of take is reached during dredging or beach nourishment activities, it is requested the USACE contact the Service immediately to review the circumstances and revisit the take analysis.

Table 10 identifies the number of manatee anticipated to be taken by dredge operations. Because manatees have been documented as occurring along the Gulf coast, Corpus Christi Bay and Port Aransas, Texas, the Service anticipates dredging operations may take one West Indian manatee because of noise, human disturbance, and/or direct mortality.

Table 10. Anticipated Take of West Indian Manatee

Number of Manatee	Life Stage	Form of Take
1	Adult	Harm/Harass

EFFECT OF THE TAKE

In this BCO, we determined that the level of anticipated take is not likely to result in jeopardy to the Kemp’s ridley, green, hawksbill and loggerhead sea turtles, piping plover, red knot, or West Indian manatee. Although we anticipate some incidental take to occur, the implementation of the conservation measures proposed should ultimately result in avoidance and minimization of adverse effects. We also determined that this level of anticipated take is not likely to result in jeopardy to the eastern black rail. Although we anticipate incidental take to occur, the 4(d) Rule tailors the Act’s protections to allow activities that only have minor or temporary effects and unlikely to affect the resiliency of black rail populations or viability of the species.

No critical habitat has been designated for the sea turtles and West Indian manatee in Texas; therefore, none will be affected.

Critical habitat has been designated for the piping plover and proposed to be designated for the red knot and the level of take anticipated will not result in the destruction or adverse modification of piping plover critical habitat or proposed red knot critical habitat.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of sea turtles, non-breeding piping plovers and red knots, eastern black rails, and West Indian manatees:

1. Prevent and/or reduce escarpment formation on M1 and SJI.
2. Use black rail protocols for surveys.
3. Monitor black rail restoration of vegetation.

4. Submit an annual report.

Terms and Conditions
In order to be exempt from the prohibitions of section 9 of the Act, the USACE and PCCA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. Visual surveys for escarpments along the project area must be made immediately after completion of the project and prior to March 15 for **two** consecutive years to reduce the likelihood of impacting nesting and hatchling sea turtles. All escarpments shall be leveled, or the beach profile shall be reconfigured, to minimize escarpment formation.
2. During sea turtle season (March 15-0ctober 1) weekly surveys of the project area shall be conducted during the three consecutive nesting seasons following completion of sand placement as follows:
    a) The number of escarpments and their location shall be recorded during each weekly survey and reported relative to the length of the beach survey *(e.g.,* 50 percent escarpments). Notations on the height of these escarpments shall be included (0 to 2 feet, 2 to 4, and 4 feet or higher) as well as the maximum height of all escarpments; and escarpments that interfere with sea turtle nesting or that exceed 18 inches in height or longer than 100 feet must be leveled to the natural beach contour by March 15. An escarpment removal shall be reported. The Service must be contacted immediately if subsequent reformation of escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for 100 feet occur and persists for more than one week during the nesting and hatching season (March 15 to October 1) to determine the appropriate action to be taken. If it is determined escarpment leveling is required during the nesting season, the Service will provide written authorization that describes methods to be used to reduce the likelihood of impacting existing nests.
3. If potential black rail habitat is proposed for removal or impact, black rail species surveys should be conducted prior to construction activity between March 15 to June 15, and should surveys should be coordinated with the Service prior to performing them and should follow the attached *Black Rail Protocol Side-Board Document for Texas Coastal Ecological Services Field Office's (TCESFO) Area of Responsibility* dated September 2022.
4. The habitat which has been converted or destroyed though the course of the proposed action may follow this pattern of re-vegetation in which case the take of habitat shall be considered temporary. This is because natural vegetation recovery for the Central Texas coast is anticipated to occur within 2-5 years from natural stochastic events such as wildfire or hurricane. Further research is currently in progress under a NOAA grant. However, if the revegetation composition and structure has not returned in the 5 year period following the first habitat disruption date, then the habitat will be considered permanent take and would require manual redistribution of seeds and plantings to revegetate. Please note the dangers of direct mortality or harassment due to the project

are not affected by this, only the permanent removal of habitat which is necessary for the recovery of the species.

5. Reporting: A report describing the actions taken to implement the terms and conditions of this incidental take statement must be submitted to the Service within 60 days of completion of the proposed work for each year when the activity has occurred. This report will include the dates of actual construction activities, names and qualifications of personnel involved in any surveys and relocation activities, and post construction escarpment and any possible sand compaction surveys. Reports should be sent to the: U.S. Fish and Wildlife, Texas Coastal Ecological Services Field Office, 4444 Corona Drive, Suite 215, Corpus Christi, Texas 78411.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the Service's Law Enforcement Office, the Service's law Enforcement Office, at 19581 Lee Road, Humble, Texas and 281-876-1520 within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Land acquisition to support healthy and sustainable black rail populations.
2. Complete restoration and management of coastal habitats to ensure sustainability for the black rail into the future.
3. The Applicant should consider purchasing land for shorebird conservation which could include locations where natural shoreline processes can occur unimpeded. These might include not only undeveloped areas, but the potential "buy-out" of developments in areas that are sparsely developed or have been significantly impacted by hurricanes that have high potential habitat value (*e.g.*, proximity to feeding areas, close to coastal dune outlets, etc.).

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

Conference Opinion – Next Steps

This concludes the conference for Port of Corpus Christi Authority (PCCA) Channel Deepening Project. You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if critical habitat for the red knot is designated. The request must be in writing. If the Service determines there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion for the project and no further section 7 consultation will be necessary.

After designation of critical habitat and any subsequent adoption of this conference opinion, the USACE shall re-initiate consultation if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect designated critical habitat in a manner or to an extent not considered in the conference opinion; 3) the agency action is subsequently modified in a manner that causes an effect to designated critical habitat that was not considered in this opinion or written concurrences; or 4) a new species is listed or critical habitat designated that may be affected by the action.

The incidental take statement provided in this conference opinion does not become effective until red knot critical habitat is designated, and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the proposed species has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the proposed critical habitat may occur between the designation of critical habitat and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation. Although not required, we recommend that the USACE implement the reasonable and prudent measures and terms and conditions herein prior to our final listing decision. If critical habitat is designated, implementation of reasonable prudent measures and terms and conditions in any conference opinion adopted as a biological opinion, is mandatory.

Conclusion of Formal Consultation

This concludes formal consultation on the PCCA's Channel Deepening Project. As provided in 50 CFR §402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion or written concurrence; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Please refer to the consultation number, 2022-0045444 in future correspondence concerning this project. Should you require further assistance or if you have any questions, please contact Mary

Orms at 361-225-7315, email at mary_orms@fws.gov. or Mary Kay Skoruppa at 361-225-7314 or by email at mary_kay_skoruppa@fws.gov.

Sincerely,

CHARLES ARDIZZONE

Digitally signed by CHARLES ARDIZZONE
Date: 2023.01.13 13:18:06 -06'00'

Charles Ardizzone
Field Supervisor

LITERATURE CITED

Albright, T. P., Pidgeon, A. M., and Rittenhouse, C. D. 2010. Combined effects of heat wave and droughts on avian communities across the conterminous United States. Ecosphere, 1(5), 1-22.

Alvarez-Aleman, A, Beck, C. A. and Powell, J. A. (2010). First report of a Florida, manatee (*Trichechus manatus latirostris*) in Cuba. Aquatic Mammals, 36, 148-153.

Anders, F.J., and S.P. Leatherman. 1987. Disturbance of beach sediment by off-road vehicles. Environmental Geology and Water Sciences 9:183-189.

Andres, B.A. 2009. Analysis of shorebird population trend datasets. Unpublished report by the U.S. Fish and Wildlife Service, Denver, CO.

Auil, N. (1998). Belize Manatee Recovery Plan. UNDP/GEF Coastal Management Project, Belize (BZE/92/G31), 1-67.

Bender, M. A., Knutson, T. R., Tuleya, R. E., *c*, al. (2010). Modeled impact of anthropogenic warming on the frequency of intense Atlantic hurricanes. *Science*, 327, 454-458.

Bent, A.C. 1929. Life histories of North American Shorebirds. U.S. National Museum Bulletin 146:236-246.

Bossart, G. D., Meisner, R. A., Rommel, S.A., et al. (2004). Pathologic findings in Florida manatees (*Trichechus manatus latirostris*). Aquatic Mammals. 30, 434-440.

Boyd, I. L, Lockyer, C. and Marsh, H. (1999). Reproduction in marine mammals. In Biology of Marine Mammals, J. E. Reynolds III and S.A. Rommel (eds), Washington, DC: Smithsonian Institution Press, pp. 218-286.

Burger, J. 1986. The effect of human activities on shorebirds in two coastal bays in the Northeastern United States. Environmental Conservation 13:123-130.

Cairns, W.E. 1977. Breeding biology and behavior of the piping plover (*Charadrius melodus)* in southern Nova Scotia. M.S. Thesis. Dalhousie University, Halifax, Nova Scotia.

Coastal Engineering Research Center (CERC) (1984) Shore Protection Manual. US Army Corps of Engineers, Washington DC, Vol. I, 597, Vol. II, 603.

Cohen, J.B., S.M. Karpanty, J.D. Fraser, B.D. Watts, and B.R. Truitt. 2009. Residence probability and population size of red knots during spring stopover in the mid-Atlantic region of the United States. Journal of Wildlife Management 73:939-945.

Cohen, J.B., S.M. Karpanty, J.D. Fraser, and B.R. Truitt. 2010. The effect of benthic prey abundance and size on red knot (Calidris canutus) distribution at an alternative migratory stopover site on the US Atlantic Coast. Journal of Ornithology 151:355-364.

Conway, C. J. 2011. Standardized North American Marsh Bird Monitoring Protocol. Waterbirds, 34:319-346.

Colosio, F., M. Abbiati, and L. Airoldi. 2007. Effects of beach nourishment on sediments and benthic assemblages. Marine Pollution Bulletin 54(2007):1197-1206.

Crain, D.A., Bolten, A.B., and K.A. Bjorndal. 1995. Effects of Beach Nourishment on Sea Turtles: Review and Research Initiatives. Restoration Ecology, Vol. 3 No. 2, pp. 95-104.

Davidson, L. M. 1992. Black Rail, *Laterallus jamaicensis*. In K. J. Schneider, and D. M. Pence, Migratory nongame birds of management concern in the Northeast (pp. 119-134). Newton Corner, Massachusetts: U.S. Fish and Wildlife Service. Davis, T.H. 1983. 1, Loons to sandpipers. Pages 372-375 In J. Farrand, ed. The Audubon Society master guide to birding, Knopf, New York.

Davis, T.H. 1983. Loons to sandpipers. Pages 372-375 *In* J. Farrand, ed. The Audubon Society master guide to birding, Knopf, New York.

Dawson, P. 'Molly' the manatee spotted in Galveston Bay, third sighting along the Texas coast within a month. *Houston Chronicle*. August 2, 2019.

Defeo, O., A. McLachlan, D.S. Schoeman, T.A. Schlacher, J. Dugan, A. Jones, M. Lastra, and F. Scapini. 2009. Threats to sandy beach ecosystems: a review. Estuarine, Coastal and Shelf Science 81:1–12.

Dey, A., L. Niles, H. Sitters, K. Kalasz, and R.I.G. Morrison. 2011. Update to the status of the red knot *Calidris canutus* in the Western Hemisphere, April, 2011, with revisions to July 14, 2011. Unpublished report to New Jersey Department of Environmental Protection, Division of Fish and Wildlife, Endangered and Nongame Species Program.

Domning D.P. and L-A.C. Hayek. 1986. Interspecific and intraspecific morphological variation in manatees (Sirenia: *Trichechus*). Marine Mammal Science 2(2):87-144.

Drake, K. L. 1999a. Time allocation and roosting habitat in sympatrically wintering piping and snowy plovers. M. S. Thesis. Texas A&M University-Kingsville, Kingsville, TX.

Drake, K.R. 1999b. Movements, habitat use and survival of wintering piping plovers. M.S. Thesis. Texas A&M University-Kingsville, Kingsville, TX.

Drake, K.R., J.E. Thompson, K.L. Drake, and C. Zonick. 2001. Movements, habitat use, and survival of non-breeding Piping Plovers. Condor 103(2):259-267.

Duarte, Carlos. (2002). Duarte CM. 2002. The future of seagrass meadows. Environ Conserv. Environmental Conservation. 29. 192-206. 10.1017/S0376892902000127.

Duerr, A.E., B.D. Watts, and F.M. Smith. 2011. Population dynamics of red knots stopping over in Virginia during spring migration. Center for Conservation Biology technical report series. College of William and Mary and Virginia Commonwealth University, CCBTR-

11-04, Williamsburg, VA.

eBird. 2022. Piping plover interactive species range map. https://ebird.org/map/pipplo?neg=true&env.minX=-141.350123851396&env.minY=16.685462703879004&env.maxX=27.399876148603994&env.maxY=49.23423386346209&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=last10&byr=2008&eyr=2018.

Elliot-Smith, E., S.M. Haig, and B.M. Powers. 2009. Data from the 2006 International Piping Plover Census: U.S. Geological Survey Data Series 426.

Eddleman, W. R., Flores, R. E., and Legare, M. 1994. Black rail (*Laterallus jamaicensis*), version 2.0. (A. F. Poole, F. B. Gill, Editors, & Cornell Lab of Ornithology, Ithaca, New York). Retrieved January 2, 2017, from The Birds of North America: https://doi.org/10.2173/bna.123

Elliott-Smith, E., Haig, S.M., and Powers, B.M. 2009. Data from the 2006 International Piping Plover Census: U.S. Geological Survey Data Series 426, 332 p.

Elliott-Smith, E., Bidwell, M., Holland, A.E., and Haig, S.M. 2015. Data from the 2011 International Piping Plover Census: U.S. Geological Survey Data Series 922. 296 pp. http://dx.doi.org/10.3133/ds922.

Ernest, R.G. and R.E. Martin. 1999. Martin County beach nourishment project: sea turtle monitoring and studies. 1997 annual report and final assessment. Unpublished report prepared for the Florida Department of Environmental Protection.

Evens, J., and Page, G. W. 1986. Predation on black rails during high tides in salt marshes. The Condor, 88, 107-109.

Ferland, C.L. and S.M. Haig. 2002. 2001 International piping plover census. U.S. Geological Survey, Forest and Rangeland Ecosystem Science Center, Corvallis, Oregon.

Flores, R.E., and Eddleman, W.R. 1991. California black rail use of habitat in southwestern Arizona. J. Wildl. Manage. 59(2):357-363.

Flores, R. E., and Eddleman, W. R. 1993. Nesting biology of the California black rail in southwestern Arizona. Western Birds, 24, 81-88.

Foster, C., A. Amos, and L. Fuiman. 2009. Trends in abundance of coastal birds and human activity on a Texas barrier island over three decades. Estuaries and Coasts 32:1079-1089.

FWC (Florida Fish and Wildlife Conservation Commission) 2021. Index nesting beach survey totals (1989-2021). https://myfwc.com/research/wildlife/sea-turtles/nesting/beach-survey-totals/ . Accessed: January 21, 2021.

Gaskill, M. 2018. The 40-year Rescue. Texas Shores 44 (1): 14-17.

Gibson, D., M.K. Chaplin, K.L. Hunt, J.J. Friedrich, C.E., Weithman, et al. 2018. Impacts of anthropogenic disturbance on body condition, survival, and site fidelity of nonbreeding piping plovers. BioOne Complete. Published by American Ornithological Society. The Condor, 120(3): 566-580 URL: https://doi.org/10.1650/CONDOR-17-148.1.

Glen, F. and N. Mrosovsky. 2004. Antigua revisited: the impact of climate change on sand and nest temperatures at a hawksbill turtle (*Eretmochelys imbricata*) nesting beach. Global Climate Change Biology 10:2036-2045.

Goss-Custard, J.D., P. Triplet, F. Sueur, and A.D. West. 2006. Critical thresholds of disturbance by people and raptors in foraging wading birds. Biological Conservation 127:88-97.

Gratto-Trevor and S. Abbott. 2011. Conservation of piping plover (*Charadrius melodus*) n North America: science, successes and challenges. Canadian Journal of Zoology, Vol 89, Number 5, May 2011.

Gratto-Trevor, C., Amirault-Langlais, D., D. Catlin, F. Cuthbert, J. Fraser, S. Maddock, E. Roche and F. Shaffer. 2011. Connectivity in Piping Plovers: Do breeding populations have distinct winter distributions? Journal of Wildlife Management 76(2):348-355.

Gredzens, C., & Shaver, D. J. (2020). Satellite Tracking Can Inform Population-Level Dispersal to Foraging Grounds of Post-nesting Kemp’s Ridley Sea Turtles. Frontiers in Marine Science, 7. doi:10.3389/fmars.2020.

Greene, K. 2002. Beach nourishment: A review of the biological and physical impacts. ASMFC Habitat Management Series # 7. ASMFC, Washington, DC., Available at http://www.asmfc.org/publications/habitat/beachNourishment.pdf

Guerra, J. 2021. https://www.kristv.com/news/local-news/manatee-spotted-in-the-corpus-christi-bay.

Gunter, G. 1941. Occurrence of the manatee in the United States, with records from Texas. Journal of Mammalogy 22: 60-64.

Haig, S.M., and J.H. Plissner. 1992. The 1991 International Piping Plover Census. U.S. Fish and Wildlife Service, Twin Cities, MN.

Haig, S.M., and E. Elliott-Smith. 2004. Piping Plover. *In* A. Poole (eds.). The Birds of North America Online. Ithaca: Cornell Laboratory of Ornithology; Retrieved from The Birds of North American Online database: http://bna.birds.cornell.edu/BNA/account/Piping_Plover/.

Hand, C. 2017a. Assessing black rail (*Laterallus jamaicensis*) nesting ecology in coastal South Carolina. Green Pond: South Carolina Department of Natural Resources.

Hand, C. (2017b). Personal communication to W. Wiest. Wildlife Biologist, South Carolina Department of Natural Resources. Green Pond, South Carolina.

Harrington, B. A. 2001. Red Knot (*Calidris canutus*). *In* The Birds of North America, No. 563 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

Harrington, B.A. 2005b. Studies of disturbance to migratory shorebirds with a focus on Delaware Bay during north migration. Unpublished report by Manomet Center for Conservation Sciences, Manomet, MA.

Harrington, B.R. 2008. Coastal inlets as strategic habitat for shorebirds in the Southeastern United States. DOER Technical Notes Collection. ERDC TN-DOER-E25. Vicksburg, MS: U.S. Army Engineer Research and Development Center. Http://el.erdc.usace.army.mil/dots/doer/.

Hartman, D.S. 1974. Distribution, status and conservation of the manatee in the United States. National technical information service. PB81-140725; Springfield, Virginia.

Hatt, R.T. 1934. A manatee collected by the American Museum Congo Expedition, with observations on the recent manatees. Bulletin American Museum of Natural History 66(4):533-566.

Herren, R.M. 1999. The effect of beach nourishment on loggerhead (*Caretta caretta*) nesting and reproductive success at Sebastian Inlet, Florida. Unpublished Master of Science thesis. University of Central Florida, Orlando, Florida. 138 pages.

Hildebrand, H.H. 1981. A historical review of the status of sea turtle populations in the western Gulf of Mexico. *In* K.A. Bjorndal (ed.) Biology and Conservation of Sea Turtles, pp 447-453. Smithsonian Inst. Press. Washington, D.C.

Hoopes, E.M. 1993. Relationships between human recreation and piping plover foraging ecology and chick survival. M.S. Thesis. University of Massachusetts, Amherst, Massachusetts.

Hosier, P.E., M. Kochhar, and V. Thayer. 1981. Off-road vehicle and pedestrian track effects on the sea –approach of hatchling loggerhead turtles. Environmental Conservation 8:158-161.

Hughes, A.L. and E.A. Caine. 1994. The effects of beach features on hatchling loggerhead sea turtles. Pages 237 *in* Bjorndal, K.A., A.B. Bolten, D.A. Johnson, and P.J. Eliazar (compilers). Proceedings of the Fourteenth Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-351.

IPCC. 2007. IPCC, 2007: Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland.

Kelleher, S. 2015. “Manatee has spent 67 years in a tank-and never seen the ocean”. https://www.thedodo.com/manatee-spends-life-in-tank-1226810811.html

Kellogg, P. P. 1962. Vocalizations of the black rail (*Laterallus jamaicensis*) and the yellow rail (*Coturnicops noveboracensis*). The Auk, 79, 698-701.

LaSalle, Mark W., Clarke, Douglas G., Homziak, Jurij, Lunz, John D., and Fredette, Thomas J. 1991. “A framework for assessing the need for seasonal restrictions on dredging and disposal operations,” Technical Report D-91-1, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Lefebvre, L.W., M. Marmontel, J.P. Reid, G.B. Rathbun, and D.P. Domning. 2001. Status and biogeography of the West Indian manatee. Pp. 425-474 in C.A. Woods and F.E. Sergile, eds. Biogeography of the West Indies: Patterns and Perspectives. CRC Press, Boca Raton, FL.

Loegering, J.P. 1992. Piping plover breeding biology, foraging ecology and behavior on Assateague Island National Seashore, Maryland. M.S. Thesis. Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

Lott, C.A., C.S. Ewell Jr., and K.L. Volansky. 2009. Habitat associations of shoreline dependent birds in barrier island ecosystems during fall migration in Lee County, Florida. Prepared for U.S. Army Corps of Engineers, Engineer Research and Development Center, Technical Report. 103 pp.

Lowery, G.H., Jr. 1974. The mammals of Louisiana and its adjacent waters. Louisiana State University Press. 565 pp.

Lutcavage, M.E., P. Plotkin, B. Witherington, and P. Lutz. 1997. Human impacts on sea turtle survival. Page 51 ill P.L. Lutz and J.A. Musick. editors. The Biology of Sea Turtles. CRC Press Boca Raton, Florida.

Maddock, S. B. 2008. Wintering piping plover surveys 2006 2007, East Grand Terre, LA to Boca Chica, TX, December 20, 2006 – January 10, 2007, final report. Unpublished report prepared for the Canadian Wildlife Service, Environment Canada, Edmonton, Alberta. iv+ 66 pp.

Maddock, S., M. Bimbi, and W. Golder. 2009. South Carolina shorebird project, draft 2006 – 2008 piping plover summary report. Audubon North Carolina and U.S. Fish and Wildlife Service, Charleston, South Carolina. 135 pp.

Mann, T.M. 1977. Impact of developed coastline on nesting and hatchling sea turtles in southeastern Florida. Unpublished Master of Science thesis. Florida Atlantic University, Boca Raton, Florida.

Marmontel, M. 1995. Age and reproduction in female Florida manatees. Pages 98-119 in T.J. O’Shea, B.B. Ackerman, and H.F. Percival (eds.). Population Biology of the Florida Manatee. National Biological Service, Information and Technology Report No. 1. Washington, D.C.

Marsh, Helene, O'Shea, Thomas J., and Reynolds, John E. (2011) *Ecology and Conservation of* *the Sirenia: dugongs and manatees.* Conservation Biology, 18. Cambridge University Press, Cambridge, UK.

Martinez, I. 2022. https://www.kristv.com/news/local-news/rare-manatee-sighting-on-the-island.

McQueen, A.D., Suedel, B.C., Wilkens, J.L., and M.P. Fields. 2018. Evaluating biological effects of dredging-induced underwater sound. Proceedings of the Western Dredging Association Dredging Summit & Expo. https://westerndredging.org/phocadownload/2018_Norfolk/Proceedings/4b-.pdf. 12 pg.

Melvin, S.M. and J.P. Gibbs. 1994. Viability analysis for the Atlantic Coast population of piping plovers. Unpublished report to the U.S. Fish and Wildlife Service, Sudbury, Massachusetts.

Meyer, S.R., J. Burger, and L.J. Niles. 1999. Habitat use, spatial dynamics, and stopover ecology of red knots on Delaware Bay. Unpublished report to the New Jersey Endangered and Nongame Species Program, Division of Fish and Wildlife, Trenton, NJ. Moore, A. A., Tolliver, J. D., Green, M. C., & Weckerly, F. (2018). Texas Species Research IAC # 15-5545RR Black Rail (*Laterallus jamaicensis*). San Marcos: Texas State University.

Mignucci-Giannoni AA, Montoya-Ospina RA, JimenezMarrero NM, Rodriguez-Lopez MA, Williams EH, Bonde RK (2000) Manatee mortality in Puerto Rico. Environ Manag 25: 189−198.

Miksis-Olds, J. L., Donaghay, P. L., Miller, J. H., Tyack, P. L., & Nystuen, J. A. 2007. Noise level correlates with manatee use of foraging habitats. The Journal of the Acoustical Society of America, 121(5), 3011-3020. https://doi.org/10.1121/1.2713555.

Montgomery C.R., and E.M. Bourne. 2018. Sampling, Chemical Analysis, and Bioassessment in Accordance with MPSRA Section 103 Corpus Christi Ship Channel (CCSC) Improvement Project, Entrance Channel and Extension Corpus Christi, TX. USACE Engineer Research and Development Center, Environmental Laboratory, Vicksburg, Mississippi. February 26, 2018.

Moore, A. A., Tolliver, J. D., Green, M. C., & Weckerly, F. (2018). Texas Species Research IAC # 15-5545RR Black Rail (*Laterallus jamaicensis*). San Marcos: Texas State University.

Morrison, R.I.G., and B.A. Harrington. 1992. The migration system of the red knot (*Calidris canutus)* in the New World. Wader Study Group Bulletin 64:71-84.

Morrison, R.I.G., B.J. McCaffery, R.E. Gill, S.K. Skagen, S.L. Jones, W. Gary, C.L. Gratto-Trevor, and B.A. Andres. 2006. Population estimates of North American shorebirds. Wader Study Group Bull. 111:67-85.

National Research Council. 1990. Decline of the sea turtles: causes and prevention. National Academy Press; Washington, D.C.

Natural Resource Trustees. (NRC) 2012. Natural Resource Damage Assessment: April 2012 status update for the Deepwater Horizon oil spill. NOAA Restoration Center, Silver Spring, MD, Available at <http://www.gulfspillrestoration.noaa.gov/wpcontent/uploads/FINAL_NRDA_StatusUpdate_April2012.pdf>.

Neal, W.J., O.H. Pilkey, and J.T. Kelley. 2007. Atlantic coast beaches: a guide to ripples, dunes, and other natural features of the seashore. Mountain Press Publishing Company, Missoula, Montana. 250 pages.

Nelson, D.A., K. Mauck, and J. Fletemeyer. 1987. Physical effects of beach nourishment on sea turtle nesting, Delray Beach, Florida. Technical Report EL-87-15. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi.

Nelson, D.A. and D.D. Dickerson. 1987. Correlation of loggerhead turtle nest digging times with beach sand consistency. Abstract of the 7th Annual Workshop on Sea Turtle Conservation and Biology.

Nelson, D.A. 1988. Life history and environmental requirements of loggerhead turtles. U.S. Fish and Wildlife Service Biological Report 88(23). U.S. Army Corps of Engineers TR EL-86-2 (Rev.).

Nelson, D.A. and B. Blihovde. 1998. Nesting sea turtle response to beach scarps. Page 113 *in* Byles, R., and Y. Fernandez (compilers). Proceedings of the Sixteenth Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-412.

Newstead, D.J., Niles, L.J., Porter, R.R. Dey, A.D., Burger, J. & Fitzsimmons, O.N. 2013. Geolocation reveals mid-continent migratory routes and Texas wintering areas for Red Knots *Calidris canutus rufa*. Wader Study Group Bull. 120(1):53-59.

Newstead, D., and K. Vale. 2014. Protecting important shorebird habitat using Piping Plovers as an indicator species. Final report to U.S. Fish and Wildlife Service Agreement No. 1448-20181-A-J839, Corpus Christi, Texas.

Newstead, D. and B. Hill 2021. Piping plover population abundance, trend and survival at Boca Chica 2018-2021. Report by Coastal Bend Bays & Estuaries Program. 22 October 2021.

Newstead, D. and B. Hill. 2022. Piping Plover Abundance and Survival at Boca Chica, 2018-2021: Extended Analysis Incorporating Additional Data. Prepared by Coastal Bend Bays & Estuaries Program. 10 pp.

Nicholls, J.L. and G.A. Baldassarre. 1990a. Winter distribution of piping plovers along the Atlantic and Gulf Coasts of the United States. Wilson Ornith. Soc. 102(3): 440-412.

Nicholls, J.L. and G.A. Baldassarre. 1990b. Habitat selection and interspecific associations of piping plovers along the Atlantic and Gulf Coasts of the United States. M.S. Thesis.

Auburn University, Auburn, Alabama.

Niles, L.J., H.P. Siiters, A.D. Dey, P.W. Atkins, A.J. Baker, K.A. Bennett, K.E. Clark, N.A. Clark, C. Espoz, P.M. Gonzalez, B.A. Harrington, D.E. Hernandez, K.S. Kalasz, R. Matus, C.D. Minton, R.I. Morrison, M.K. Peck, and I.L. Serrano. 2008. Status of the Red Knot (*Calidris canutus rufa*) in the Western Hemisphere. May.

Niles, L.J. 2012. Blog - a rube with a view: Unraveling the Texas knot, Available at <http://arubewithaview.com/2012/05/01/unraveling-the-texas-knot/>.

NMFS and Service. 1991a. (National Marine Fisheries Service) and USFWS (U.S. Fish and Wildlife Service). Recovery Plan for U.S. Population of Atlantic Green sea turtle (*Chelonia mydas*). National Marine Fisheries Service, Washington, D.C.

NMFS and Service. 1991b. Recovery plan for U.S. population of loggerhead turtle (*Caretta caretta*). National Marine Fisheries Service, Washington, D.C.

NMFS and Service. 1993. Recovery plan for the hawksbill turtle (*Eretmochelys imbricata*) in the U.S. Caribbean, Atlantic and Gulf of Mexico. National Marine Fisheries Service, St Petersburg, Florida. 52 pages.

NMFS and Service. 2007. Kemp’s ridley sea turtle (*Lepidochelys kempii*) 5-year review: summary and evaluation. National Marine Fisheries Service Silver Spring, MD and U.S. Fish and Wildlife Service, Albuquerque, NM.

NMFS and Service. 2008. Recovery plan for the Northwest Atlantic population of the loggerhead sea turtle (*Caretta caretta*). Second Revision. National Marine Fisheries Service: Silver Spring, Maryland.

NMFS et al. 2011. National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and SEMARNAT. 2011. Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii)*, Second Revision. NMFS. Silver Spring, Maryland.

NMFS and Service. 2016. 5-Year Review: Summary and Evaluation of Kemp’s Ridley Sea Turtle (*Lepidochelys kempii*).

NMFS. 2020a. Kemp’s Ridley Sea Turtle (*Lepidochelys kempii*) species page. Retrieved from https://www.fisheries.noaa.gov/species/kemps-ridley-turtle

NOAA 2013a. National Oceanic and Atmospheric Administration. http://www.nmfs.noaa.gov/pr/species/turtles/loggerhead.htm 11/26/2013.

NOAA 2013b. National Oceanic and Atmospheric Administration. http://www.nmfs.noaa.gov/pr/species/turtles/green.htm 11/26/2013.

NOAA 2013c. National Oceanic and Atmospheric Administration. http://www.nmfs.noaa.gov/pr/species/turtles/hawksbill.htm 11/26/2013.

Noel, B.L., C.R. Chandler, and B. Winn. 2005. Report on migrating and wintering Piping Plover activity on Little St. Simons Island, Georgia in 2003-2004 and 2004-2005. Report to U.S. Fish and Wildlife Service.

Nordstrom, K.F., N.L. Jackson, A.H.F. Klein, D.J. Sherman, and P.A. Hesp. 2006. Offshore aoelian transport across a low foredune on a developed barrier island. Journal of Coastal Research. Volume 22, No. 5. Pp 1260-1267.

Orth, R.J. Carruthers, T.J.B., Dennison, W.C. et al. (2006). A global crisis for seagrass ecosystems. Bioscience 56, 987-99.8

Peters, K.A., and D.L. Otis. 2007. Shorebird roost-site selection at two temporal scales: Is human disturbance a factor? Journal of Applied Ecology 44:196-209.

Peterson, C. H., D. H. M. Hickerson, and G. G. Johnson. 2000. Short-term consequences of nourishment and bulldozing on the dominant large invertebrates of the sandy beach. Journal of Coastal Research 16(2):368-378.

Peterson, C.H., and M.J. Bishop. 2005. Assessing the environmental impacts of beach nourishment. BioScience 55(10):887-896.

Peterson, C.H., M.J. Bishop, G.A. Johnson, L.M. D'Anna, and L.M. Manning. 2006. Exploiting beach filling as an unaffordable experiment: Benthic intertidal impacts propagating upwards to shorebirds. Journal of Experimental Marine Biology and Ecology 338:205-221.

Pitchford, Meghan E. 2009. Life in the breakdown lane: age and life history analyses of the Florida manatee. Abstract from: Lefebvre, L.W., Reynolds III, J.E., Ragen, T.J. Langtimm, C.A., and Valade, J.A. eds., 2009, Manatee Population Ecology and Management Workshop Proceedings: U.S. Geological Survey, Gainesville, FL, April 2002, 66p.

Plissner, J.H. and S.M. Haig. 1997. 1996 International Piping Plover Census Report to U.S. Geological Survey, Biological Resources Division, Forest and Rangeland Ecosystems Science Center, Corvallis, Oregon. 231pp.

Plissner J.H. and S.M. Haig. 2000. Metapopulation models for piping plovers (*Charadrius melodus*). Biological Conservation 92:163-173.

Pyle, P. 2008. Identification Guide to North American Birds. Part II: Anatidae to Alcidae. Point Reyes Station, California: Slate Creek Press.

Rakocinski, C. F., R. W. Heard, S. E. LeCroy, J. A. McLelland, and T. Simons. 1996. Responses by macrobenthic assemblages to extensive beach restoration at Perdido Key, Florida, USA. Journal of Coastal Research 12(1):326-353.

Rathbun, G.B., J.P. Reid, R.K. Bonde and J.A. Powell. 1995. Reproduction in free-ranging

Florida manatees. Pages 135-156 in T.J. O'Shea, B.B. Ackerman, and H.F. Percival (eds.). Population Biology of the Florida Manatee. National Biological Service, Information and Technology Report No. 1. Washington D.C.

Ren, V. 2019. Rare Texas manatee sighting reported last week. *Austin American Statesman*. July 23, 2019.

Reynolds, J.E., III and D.K. Odell. 1991. Manatees and dugongs. Facts on File, Inc. New York. 192 pp.

Rice, D.W. 1998. Marine mammals of the world: systemics and distribution. *The Society for Marine Mammalogy Special Publication* 4,ix+231pp.

Rommel, S. and Reynolds III, J.E. 2000. Diaphragm structure and function in the Florida manatee (*Trichechus manatus latirostris*). Anatomical Record, 259, 41-51.

Rumbold, D.G., P.W. Davis, and C. Perretta. 2001. Estimating the effect of beach nourishment on Caretta caretta (loggerhead sea turtle) nesting. Restoration Ecology 9(3):304-310.

Runge, M. C., Lantimm, C. A., Martin, J., & Fonnesbeck, C. J. (2015). *Status and threats analysis for the Florida manatee (Trichechus manatus latirostris), 2012*. US Department of the Interior, Geological Survey.

Schlacher, T.A., and L.M.C. Thompson. 2008. Physical impacts caused by off-road vehicles (ORVs) to sandy beaches: Spatial quantification of car tracks on an Australian barrier island. Journal of Coastal Research 24:234-242.

Schoeman, D. S., A. McLachlan, and J. E. Dugan. 2000. Lessons from a disturbance experiment in the intertidal zone of an exposed sandy beach. Estuarine, Coastal and Shelf Science 50: 869-884.

Schroeder, B.A. 1994. Florida index nesting beach surveys: are we on the right track? Pages 132-133 in Bjorndal, K.A., A.B. Bolten, D.A. Johnson, and P.J. Eliazar (compilers). Proceedings of the 14th Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-351.

Self-Sullivan C, A. Mignucci-Giannoni (2008). (*Trichechus manatus ssp. manatus)*. IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2.www.iucnredlist.org (accessed on 22 May 2012).

Shaver, D.J. 2018. Report to the U.S. Fish and Wildlife Service for Federal Fish and Wildlife Permit TE840727. Padre Island National Seashore.

Shaver, D.J. 2019. Report to the U.S. Fish and Wildlife Service for Federal Fish and Wildlife Permit TE840727. Padre Island National Seashore.

Shaver, D.J. 2020. Report to the U.S. Fish and Wildlife Service for Federal Fish and Wildlife Permit TE840727. Padre Island National Seashore.

Shaver, D.J. 2021. Report to the U.S. Fish and Wildlife Service for Federal Fish and Wildlife Permit TE840727. Padre Island National Seashore.

Shaver, D.J. 2022. Personal communication. Email to Mary Kay Skoruppa, U.S. Fish and Wildlife Service, re: Texas nest update. Padre Island National Seashore. 26 September 2022.

Skagen, S.K., P.B. Sharpe, R.G. Waltermire, and M.B. Dillon. 1999. Biogeographical Profiles of Shorebird Migration in Midcontinental North America: U.S. Geological Survey Biological Science Report 2000-0003.

Staine, K.J., and J. Burger. 1994. Nocturnal foraging behavior of breeding piping plovers (*Charadrius melodus*) in New Jersey. Auk 111:579-587

Steinitz, M.J., M. Salmon, and J. Wyneken. 1998. Beach renourishment and loggerhead turtle reproduction: a seven year study at Jupiter Island, Florida. Journal of Coastal Research 14(3):1000-1013.

Stith, B. M., Slone, D. H. and Reid, J.P. (2006). Review and synthesis of manatee data in Everglades National Park. Gainesville: United States Geological Survey Florida Integrated Science Center. Available at: http://fl.biology.usgs.gov/Center Publications/Manatee_Publications_pi/Stith_et_al_ENP_Mantee_Administrative_Report.pdf.

Stucker, J.H., and F.J. Cuthbert. 2006. Distribution of non-breeding Great Lakes piping plovers along Atlantic and Gulf of Mexico coastlines: 10 years of band resightings. Final Report to U.S. Fish and Wildlife Service.

Takekawa, J. Y., Woo, I., Spautz, H., Nur, N., Grenier, J. L., Malamud-Roam, K., and Wainwright-De La Cruz, S. E. 2006. Environmental threats to tidal-marsh vertebrates of the San Francisco Bay estuary. Studies in Avian Biology, 32, 176-197.

Tarr, N.M. 2008. Fall migration and vehicle disturbance of shorebirds at South Core Banks, North Carolina. North Carolina State University, Raleigh, NC.

Texas Parks and Wildlife (TPWD). 2003. Endangered and threatened animals of Texas, their life history and management by Linda Campbell, revised and approved by USFWS 2003.

Texas Parks and Wildlife (TPWD). 2017. https://tpwd.texas.gov/fishing/sea-center-texas/flora-fauna-guide/bays-and-estuaries/bay-habitats/mud-flats-corpus-christi. Accessed 1/4/2023.

Texas Parks and Widlife (TPWD). 2021. Mud Flats-Corpus Christi. https://tpwd.texas.gov/fishing/sea-center-texas/flora-fauna- guide/bays-and-estuaries/bay-habitats/mud-flats-corpus-christi.

Thrush, S. F., R. B. Whitlatch, R. D. Pridmore, J. E. Hewitt, V. J. Cummings, and M. R. Wilkinson. 1996. Scale-dependent recolonization: the role of sediment stability in a dynamic sandflat habitat. Ecology 77: 2472–2487.

Titus, J.G. and V.K. Narayanan. 1995. The probability of sea level rise. U.S. Environmental Protection Agency EPA 230-R-95-008.

Tolliver, James D. M., A.A. Moore, M. C. Green, F.W. Weckerly, Coastal Texas black rail population states and survey effort, The Journal of Wildlife Management, 10.1002/jwmg.21589, 83, 2, (312-324), (2018).

Trindell, R., D. Arnold, K. Moody, and B. Morford. 1998. Post-construction marine turtle nesting monitoring results on nourished beaches. Pages 77-92 in Tait, L.S. (compiler). Proceedings of the 1998 Annual National Conference on Beach Preservation Technology. Florida Shore & Beach Preservation Association, Tallahassee, Florida.

Truitt, B.R., B.D. Watts, B. Brown, and W. Dunstan. 2001. Red knot densities and invertebrate prey availability on the Virginia barrier islands. Wader Study Group Bulletin 95:12.

UNEP. (United Nations Environmental Programme) (2010). Regional management plan for the West Indian manatee *(Triciu:cJmsmaHatus).* Compiled by E. Quintana-Rizzo and J. Reynolds III. CEP Technical Report No. 48. UNEP Caribbean Environment Programme.

U.S. Fish and Wildlife Service (Service). 1985. Endangered and Threatened Wildlife and Plants; Determination of Endangered and Threatened Status for the Piping Plover. Federal Register 50(238):50726-50734.

USFWS (Service). 1996. Piping plover (*Charadrius melodus*), Atlantic Coast population, revised recovery plan. Hadley, Massachusetts.

USFWS (Service). 2001. Florida Manatee Recovery Plan (*Trichechus manalus latirostris*), Third Revision. Atlanta, Georgia.

USFWS (Service). 2003. Recovery Plan for the Great Lakes Piping Plover (*Charadrius melodus*). Ft. Snelling, Minnesota. viii + 141 pp.

USFWS (Service). 2009. Piping plover (*Charadrius melodus*) 5-Year review: summary and evaluation. Northeast Region, Hadley Massachusetts and the Midwest Region’s East Lansing Field Office, Michigan *with major contributions from* North Dakota Field Office, Panama City, Florida Field Office, Corpus Christi, Texas Field Office, September 2009.

USFWS (Service) 2011. Abundance and productivity estimates-2010 update: Atlantic Coast piping plover population. Sudbury, Massachusetts.

USFWS (Service) and Conserve Wildlife Foundation of New Jersey. 2012. Cooperative Agreement. Project title: Identify juvenile red knot wintering areas.

USFWS. (Service) 2014. Rufa Red Knot Background Information and Threats Assessment. U.S. Fish and Wildlife Service, Pleasantville, New Jersey.

USFWS. (Service) 2015. Status of the species – red knot. November 2015.

USFWS. (Service) 2017a. Next Steps for a Healthy Gulf of Mexico Watershed: Lower Madre and Lower Rio Grande Village, Coastal Bend, Texas Mid Coast. Atlanta, GA. https://www.fws.gov/southeast/ gulf- restoration/next-steps/next-steps-by-focal-area/.

USFWS. (Service). 2017b. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Reclassification of the West Indian Manatee from Endangered to Threatened. *Federal Register*. April 5, 2017 (Vol. 82, No. 64), 16668–16704.

USFWS. (Service) 2020a. Species status assessment report for the rufa red knot (*Calidris canutus rufa*). Version 1.1. Ecological Services New Jersey Field Office, Galloway, New Jersey.

USFWS (Service) 2020b. 5-Year Review Summary and Evaluation of the Piping Plover (*Charadrius melodus*). U.S. Fish and Wildlife Service, Hadley, Massachusetts.

USFWS (Service) 2022c. Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) BLRA Informational handout v.3. 2 pg. Accessed: February 12, 2021.Withers, K. 2002. Shorebird use of coastal wetland and barrier island habitat in the Gulf of Mexico. The Scientific World Journal 2:514-536.

Vose, R. S., Easterling, D. R., Kunkel, K. E., LeGrande, A. N., & Wehner, M. F. 2017. Temperature changes in the United States. In D. J. Wuebbles, D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, & T. K. Maycock (Eds.), Climate Science Special Report: Fourth National Climate Assessment, Volume I (pp. 185-206). Washington, D.C., USA: U.S. Global Change Research Program.

Ward, G. H. 1997. Process and trends of circulation within the Corpus Christi Bay National Estuary Program study area. Report to Coastal Bend Bays & Estuaries Program. Report 21.

Watts, B. D. 2016. Status and distribution of the eastern black rail along the Atlantic and Gulf Coasts of North America. The Center for Conservation Biology Technical Report Series, CCBTR-16-09. College of William and Mary/Virginia Commonwealth University, Williamsburg, VA.

Wehner, M. F., Arnold, J. R., Knutson, T., Kunkel, K. E., & LeGrande, A. N. 2017. Droughts, floods, and wildfires. In D. J. Wuebbles, D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, & T. K. Maycock (Eds.), Climate Science Special Report: Fourth National Climate Assessment, Volume I (pp. 231-256). Washington, D.C.: U.S. Global Change Research Program.

Wells, R.S., D.J. Boness, and G.B. Rathbun. 1999. Behavior. Pages 324-422 in J.E. Reynolds, III, and S.A. Rommel (eds.). Biology of Marine Mammals. Smithsonian Institution Press. Washington, D.C.

Wibbels, T. and Bevan, E. 2019. *Lepidochelys kempii* (errata version published in 2019). The IUCN Red List of Threatened Species 2019: e.T11533A155057916. http://dx.doi.org/10.2305/IUCN.UK.2019-2.RLTS.T11533A155057916.en.

Wilber, D.H. and Clarke, D.G. 2001. Biological Effects of Suspended Sediments: A Review of Suspended Sediment Impacts on Fish and Shellfish with Relation to Dredging Activities in Estuaries. North American Journal of Fisheries Management, 21:855-875.

Witherington, B.E. 1992. Behavioral responses of nesting sea turtles to artificial lighting. Herpetologica 48:31-39.

Withers, K. 2002. Shorebird use of coastal wetland and barrier island habitat in the Gulf of Mexico. Scientific World Journal 2:514-536.

Zajac, R. N. and R. B. Whitlatch. 2003. Community and population-level responses to disturbance in a sandflat community. Journal of Experimental Marine Biology and Ecology 294:101-125.

Zivojnovich, M. 1987. Habitat selection, movements and numbers of piping plovers wintering in coastal Alabama. Alabama Department of Conservation and Natural Resources. Project Number W-44-12.

Zonick, C. and M. Ryan. 1996. The ecology and conservation of piping plovers (*Charadrius melodus*) wintering along the Texas Gulf Coast. Department of Fisheries and Wildlife, University of Missouri, Columbia, Missouri 65211. 1995 Annual Report.

Zonick, C. 1997. The use of Texas barrier island washover pass habitat by piping plovers and other coastal waterbirds. National Audubon Society. A Report to the Texas Parks and Wildlife Department and the U.S. Fish and Wildlife Service. 19 pp.

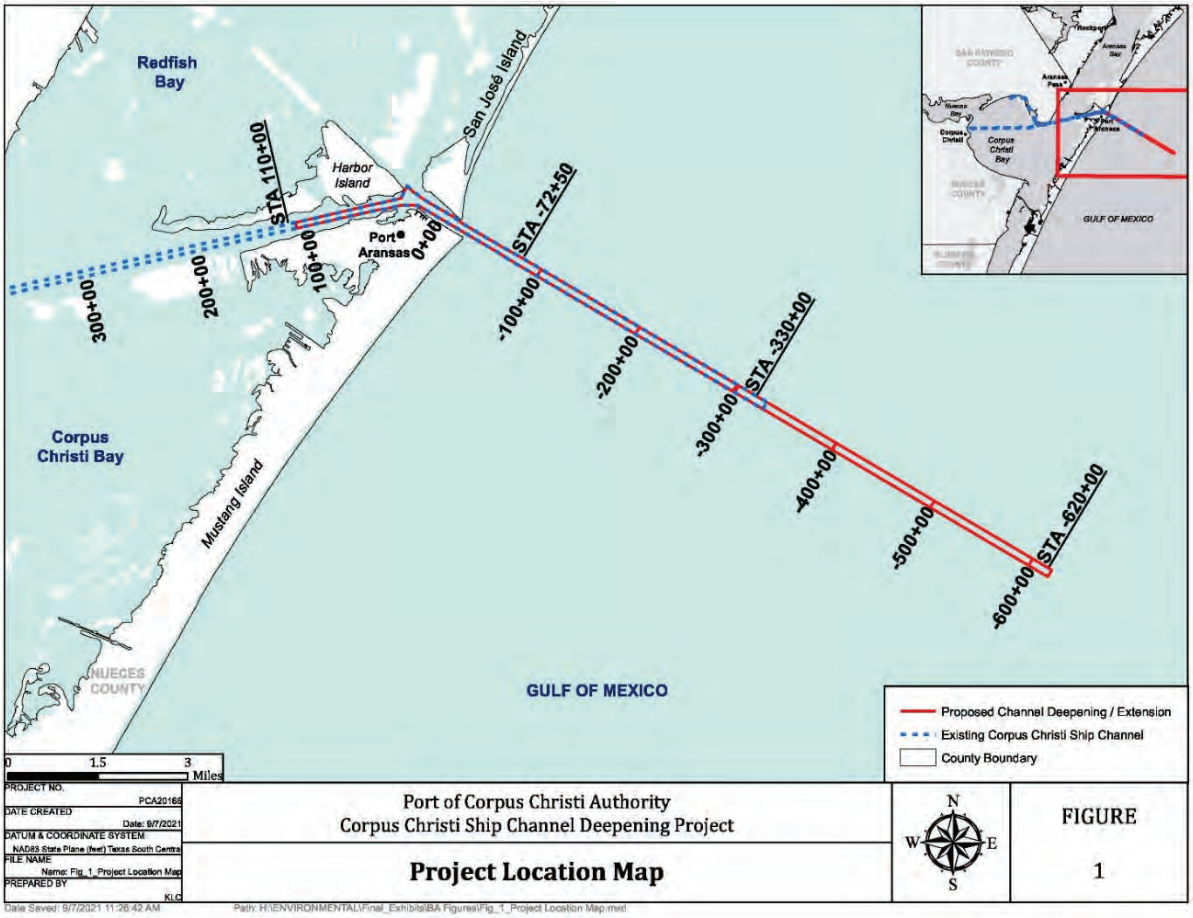


Figure 1. Project Location

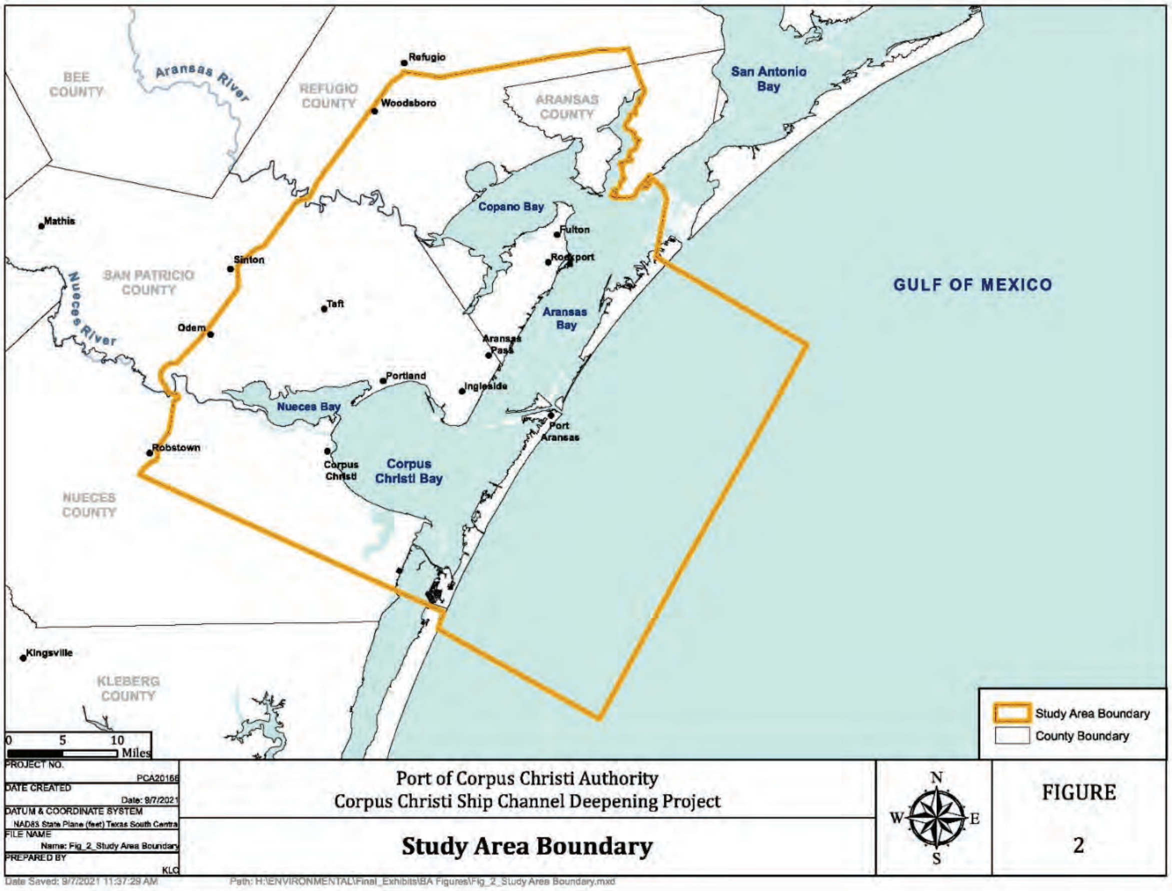


Figure 2. Study Area

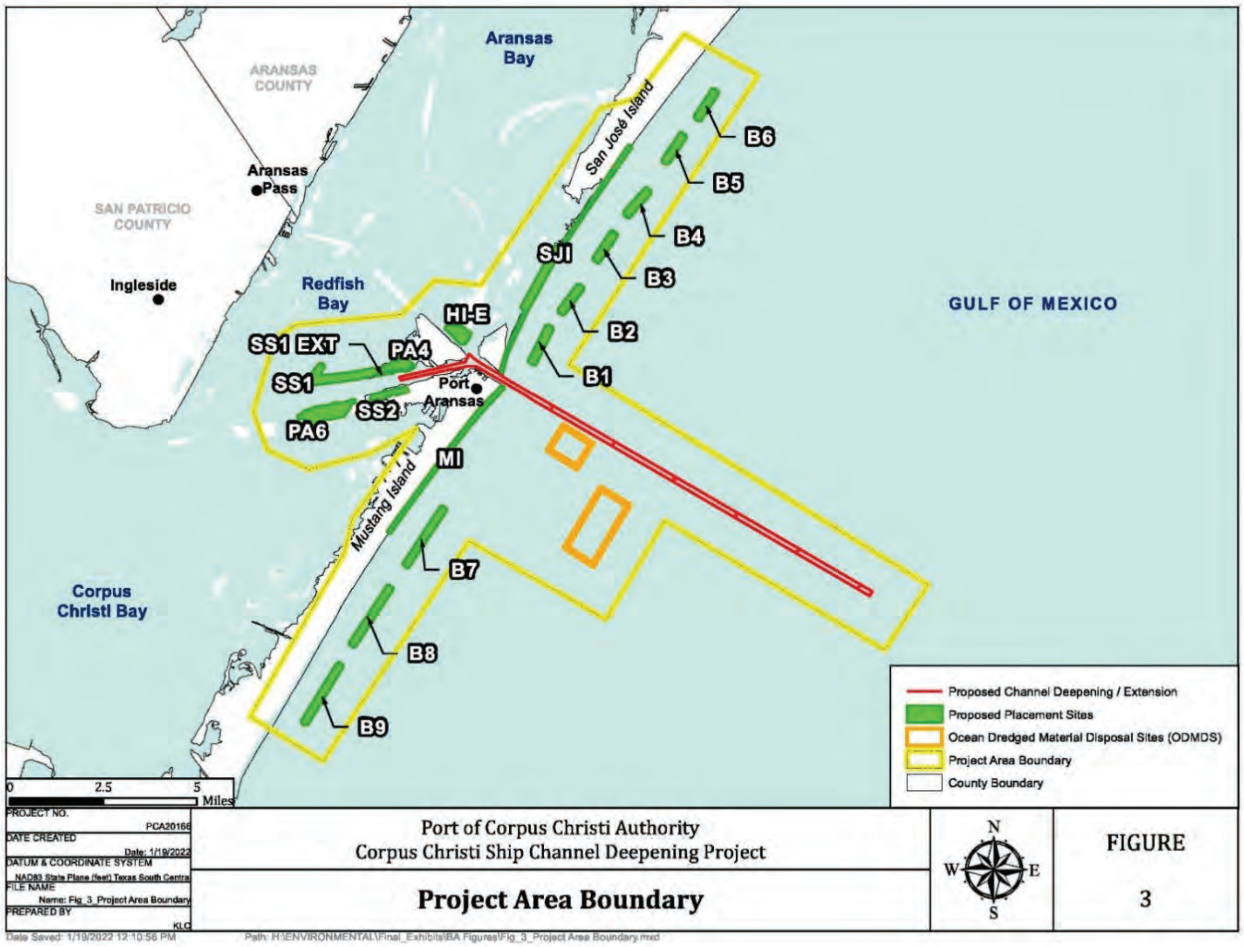


Figure 3. Action Area

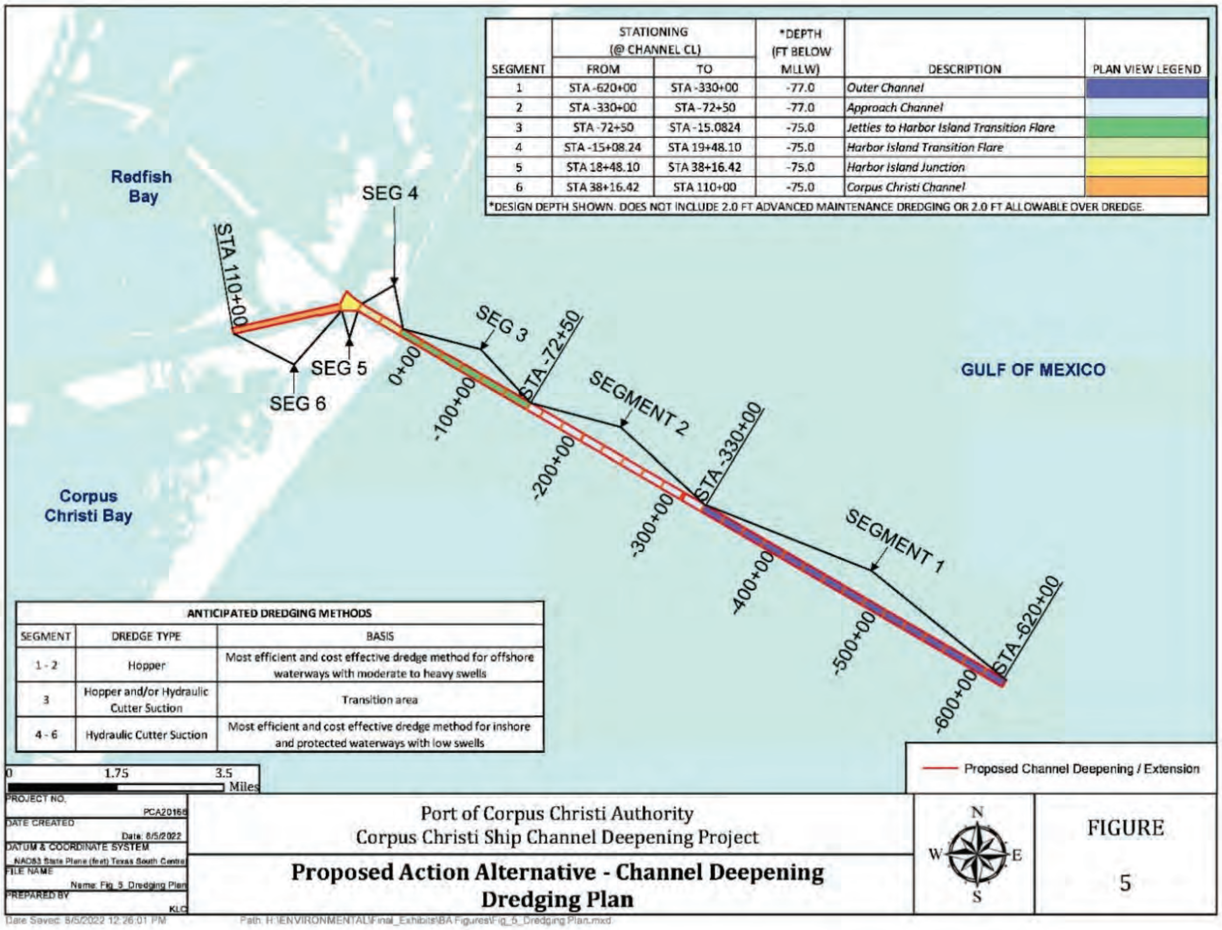


Figure 4. Dredging Plan Stations

Figure 5. Threatened and Endangered Species Survey Areas PA4, SS1, SS2, HI-E and MI

Figure 6. Threatened and Endangered Species Area SJI

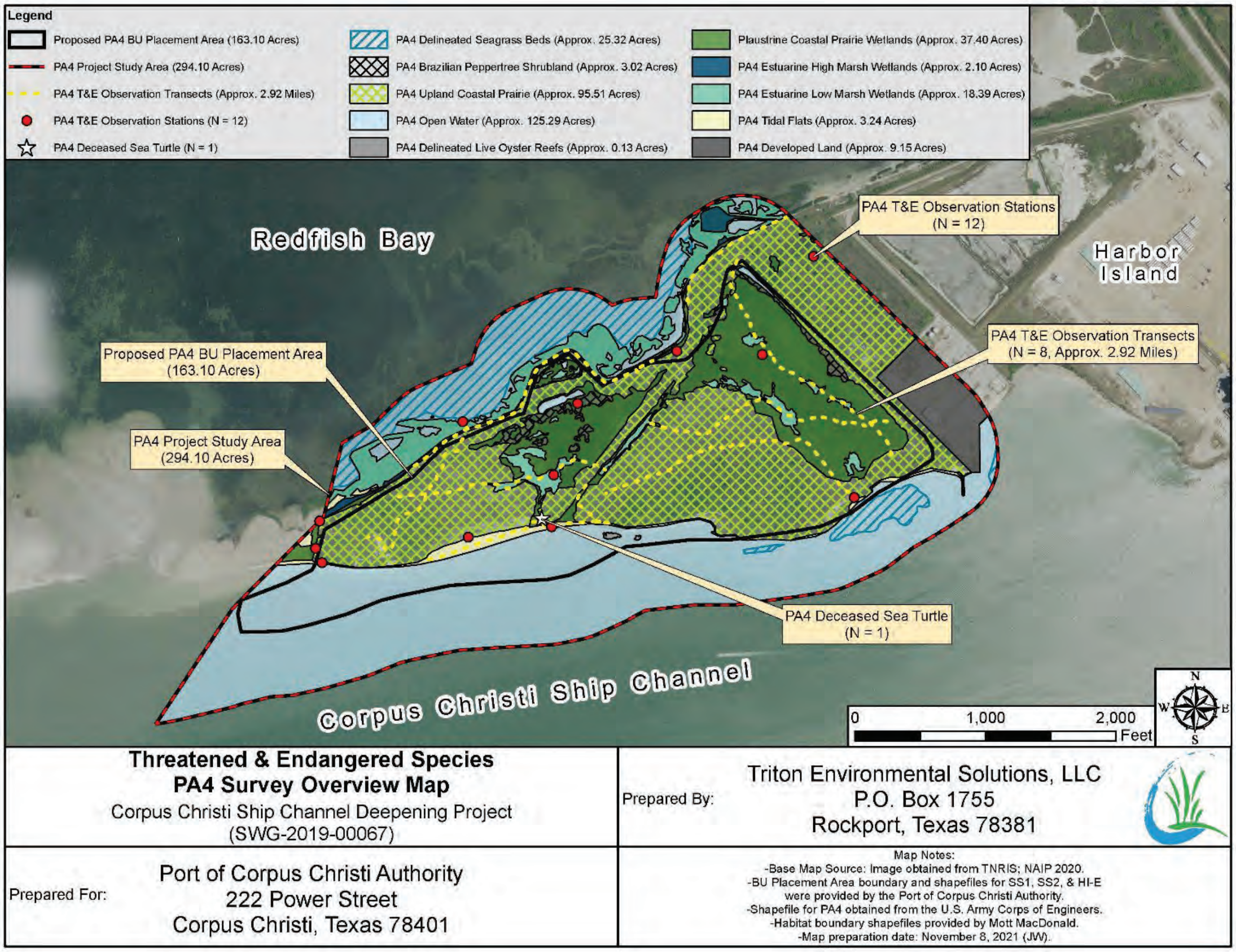


Figure 7. Threatened and Endangered Species Overview PA4

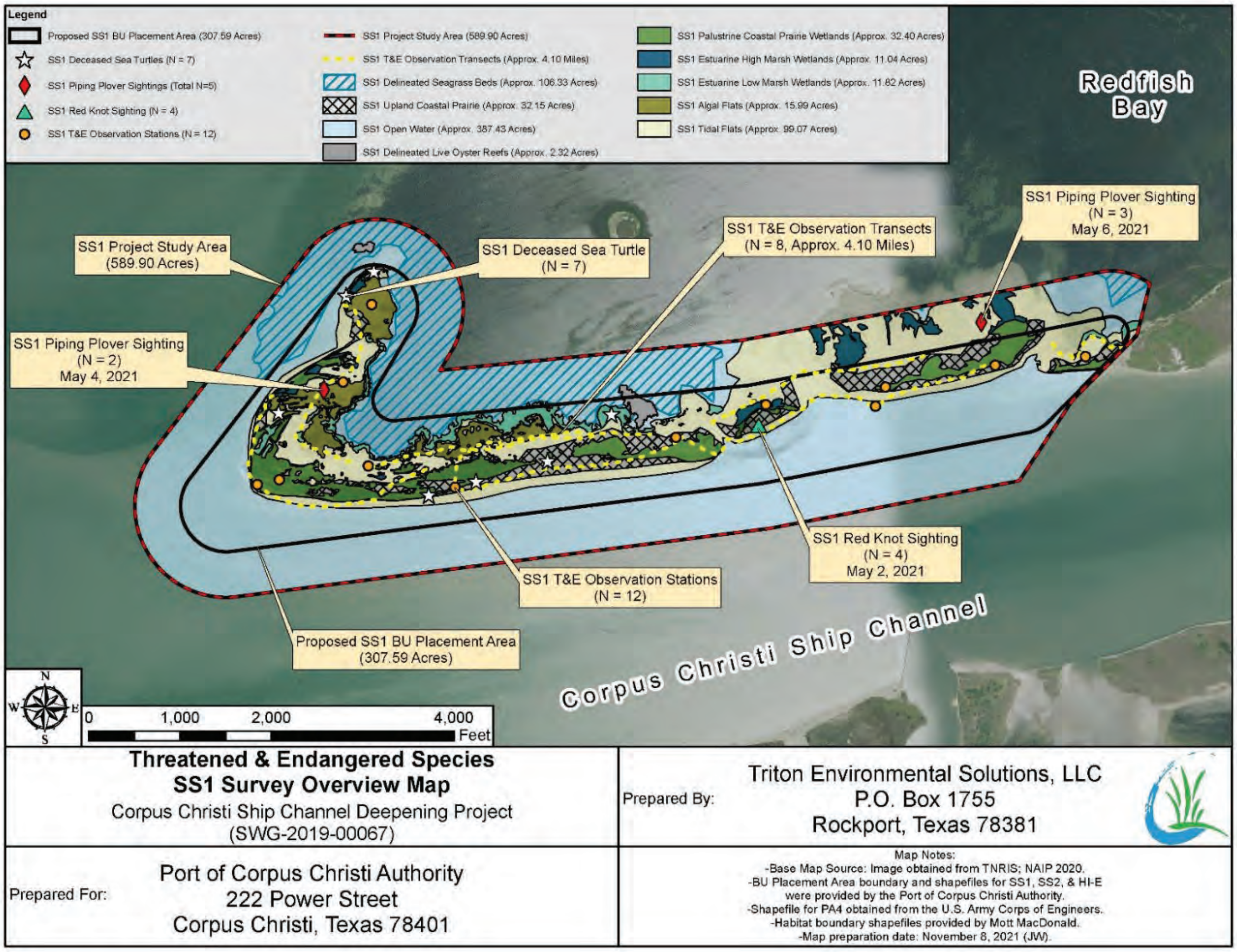


Figure 8. Threatened and Endangered Species Overview SS1

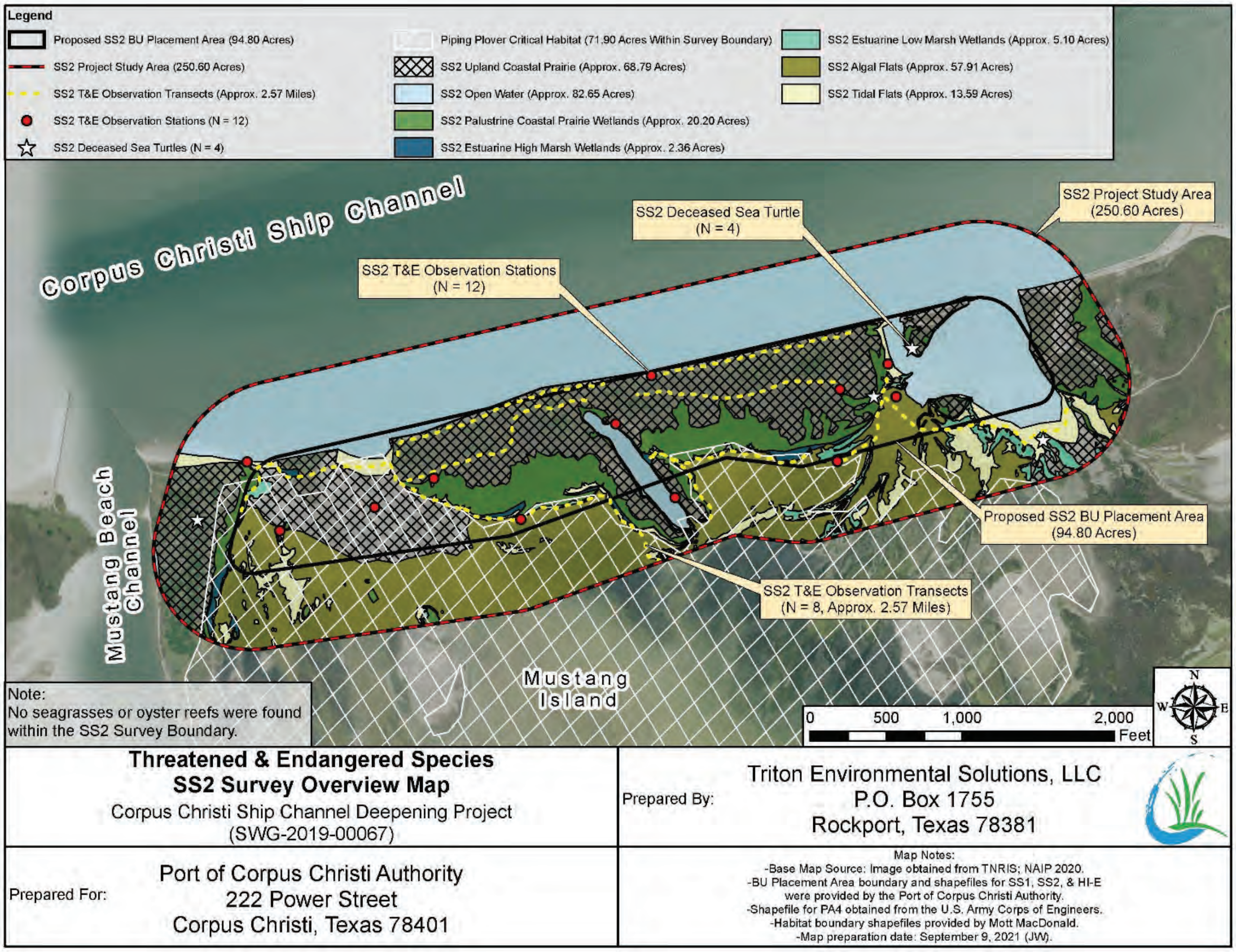


Figure 9. Threatened and Endangered Species Overview SS2

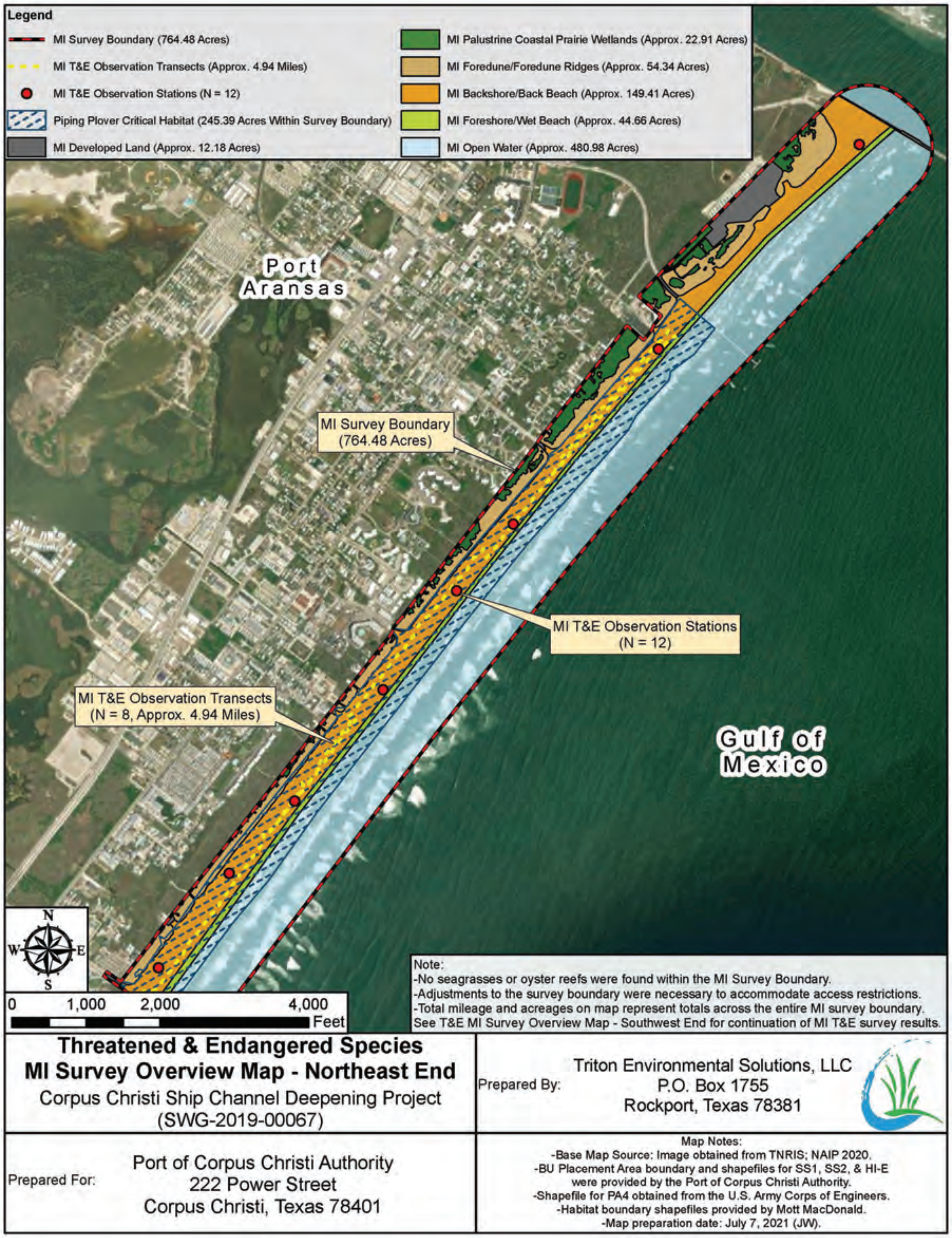


Figure 10. Threatened and Endangered Species Overview – MI Northeast End

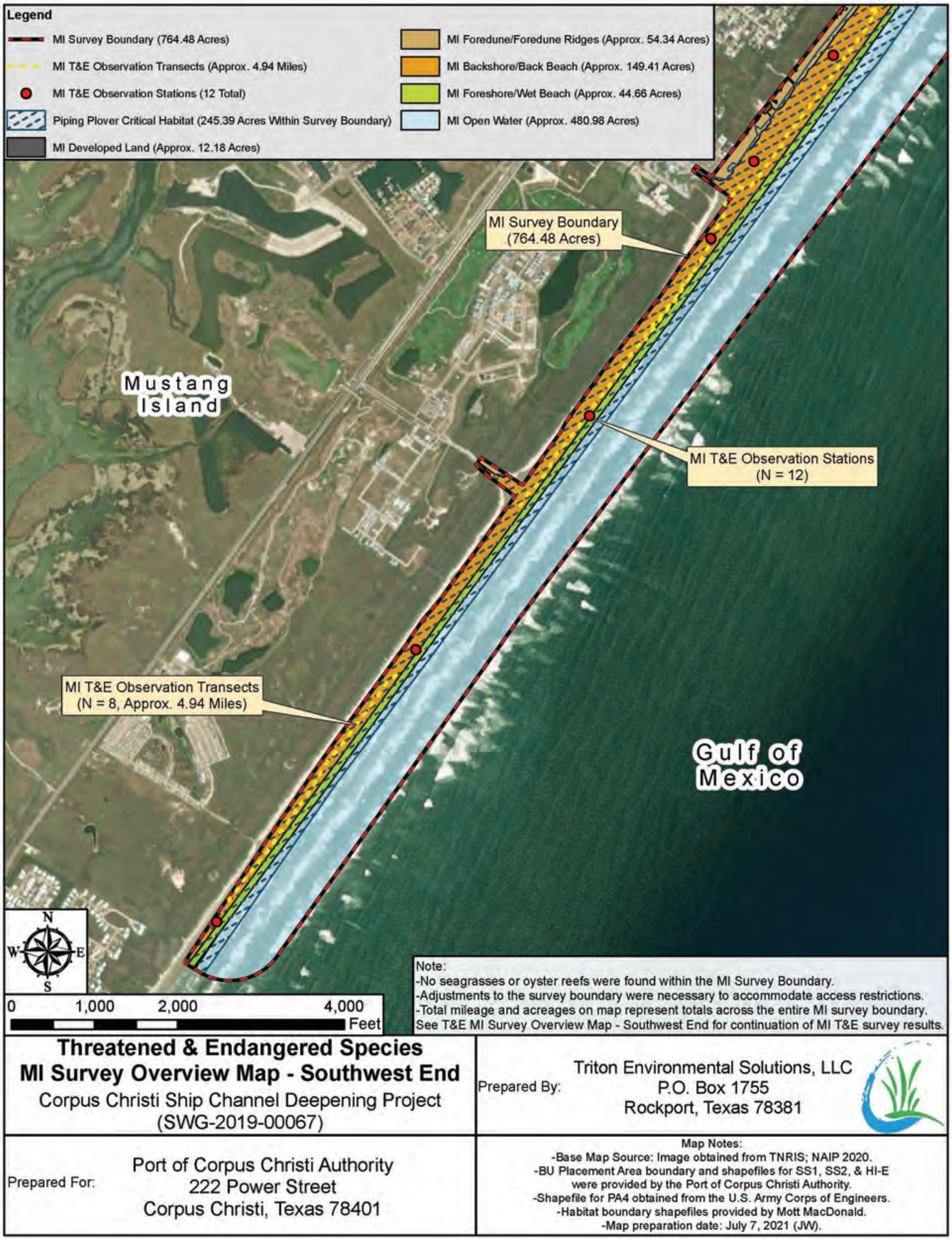


Figure 11. Threatened and Endangered Species Overview -MI Southwest End

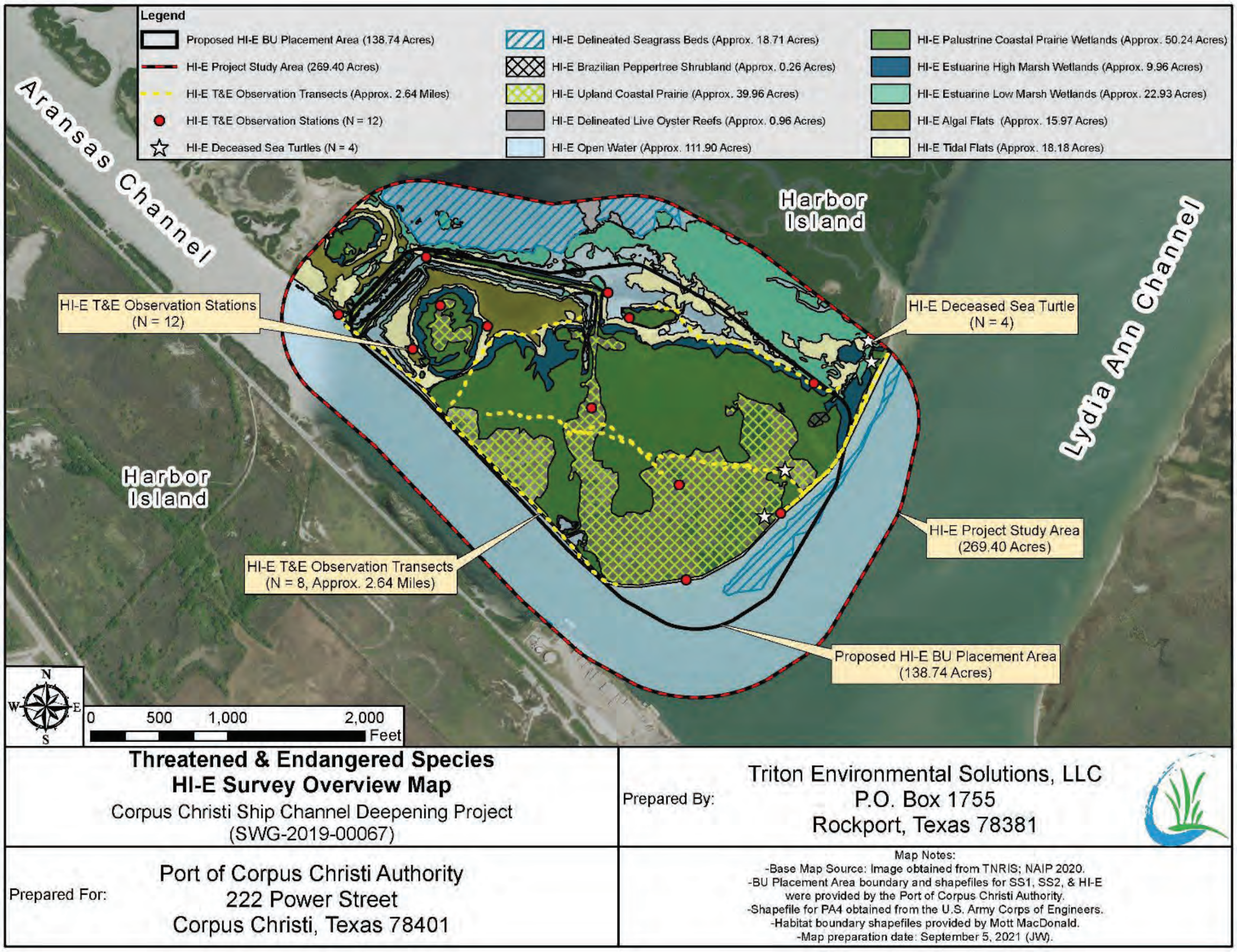


Figure 12. Threatened and Endangered Overview HI-E

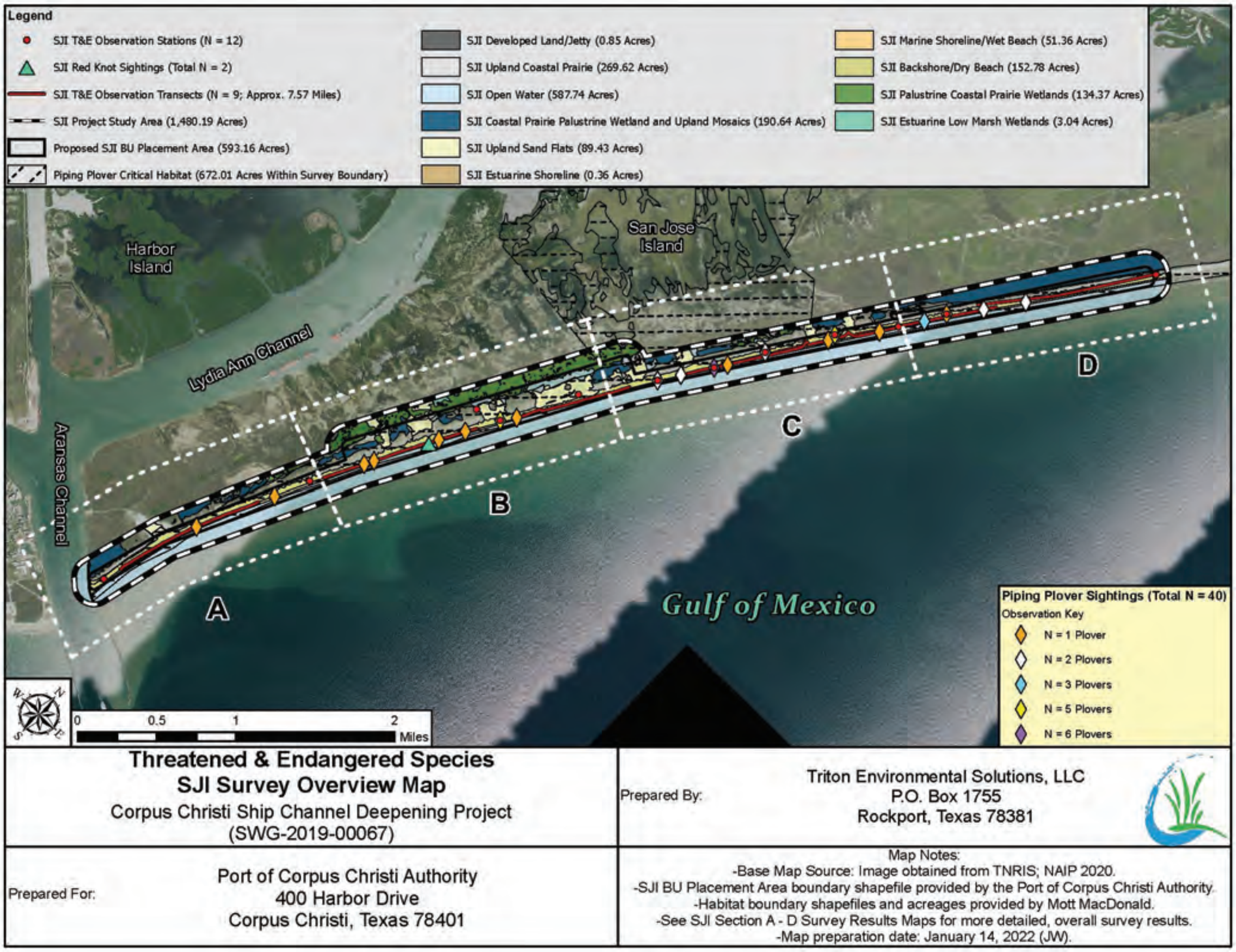


Figure 13. Threatened and Endangered Species Overview SJ1

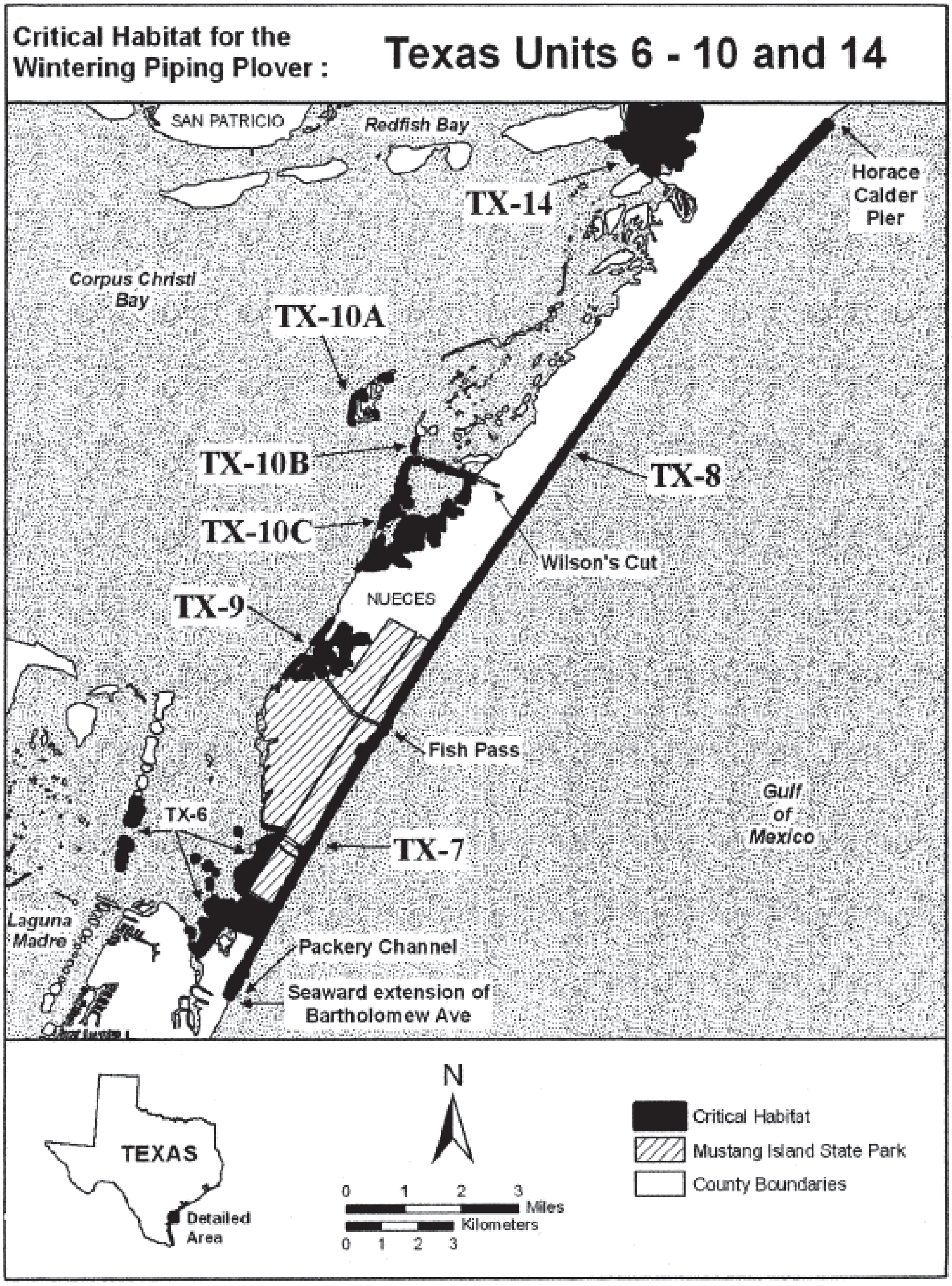


Figure 14. Piping Plover Critical Habitat Units TX-8 Mustang Island, TX-14 East Flats

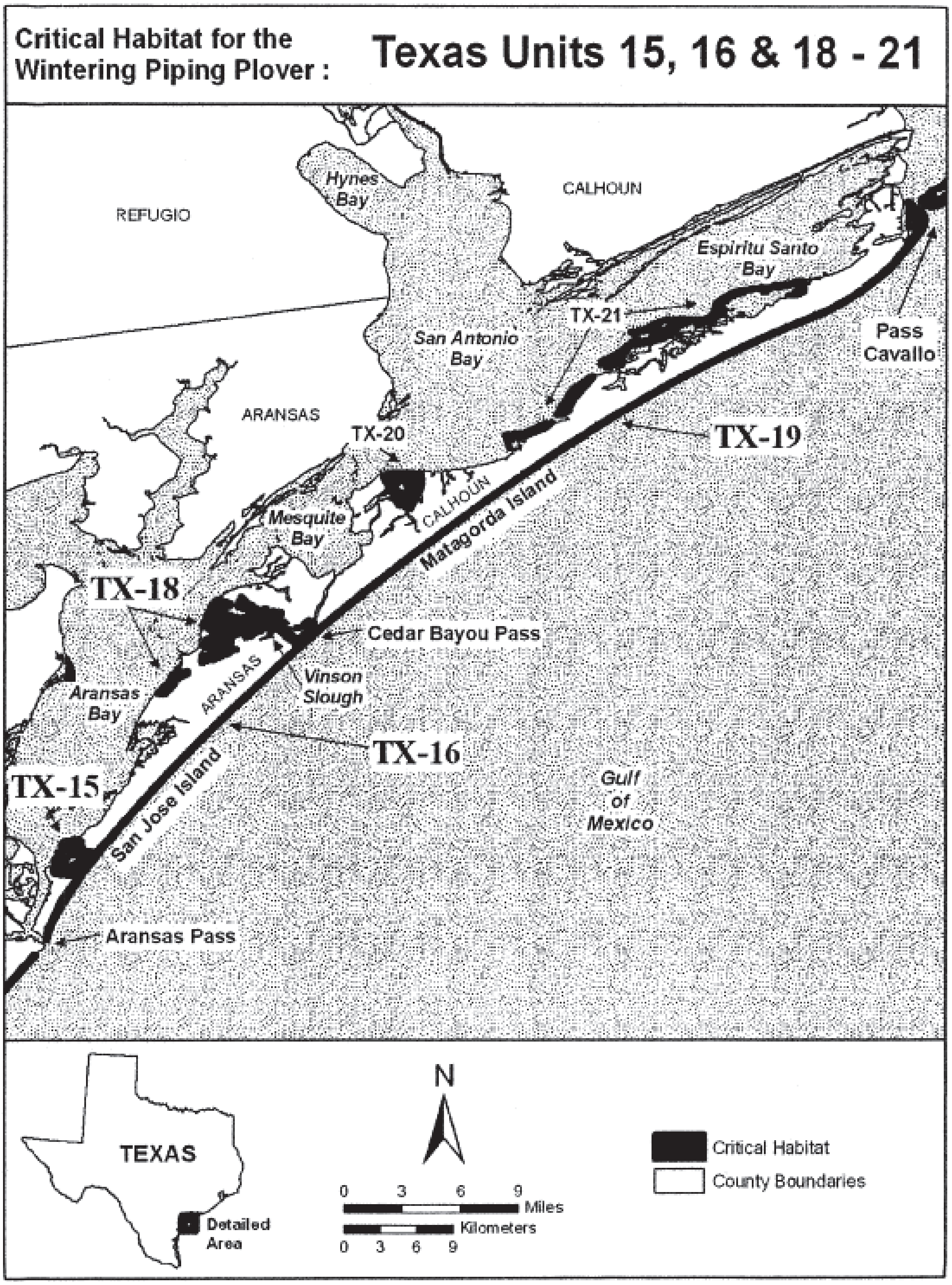


Figure 15. Piping Plover Critical Habitat Unit TX-16 San Jose Beach

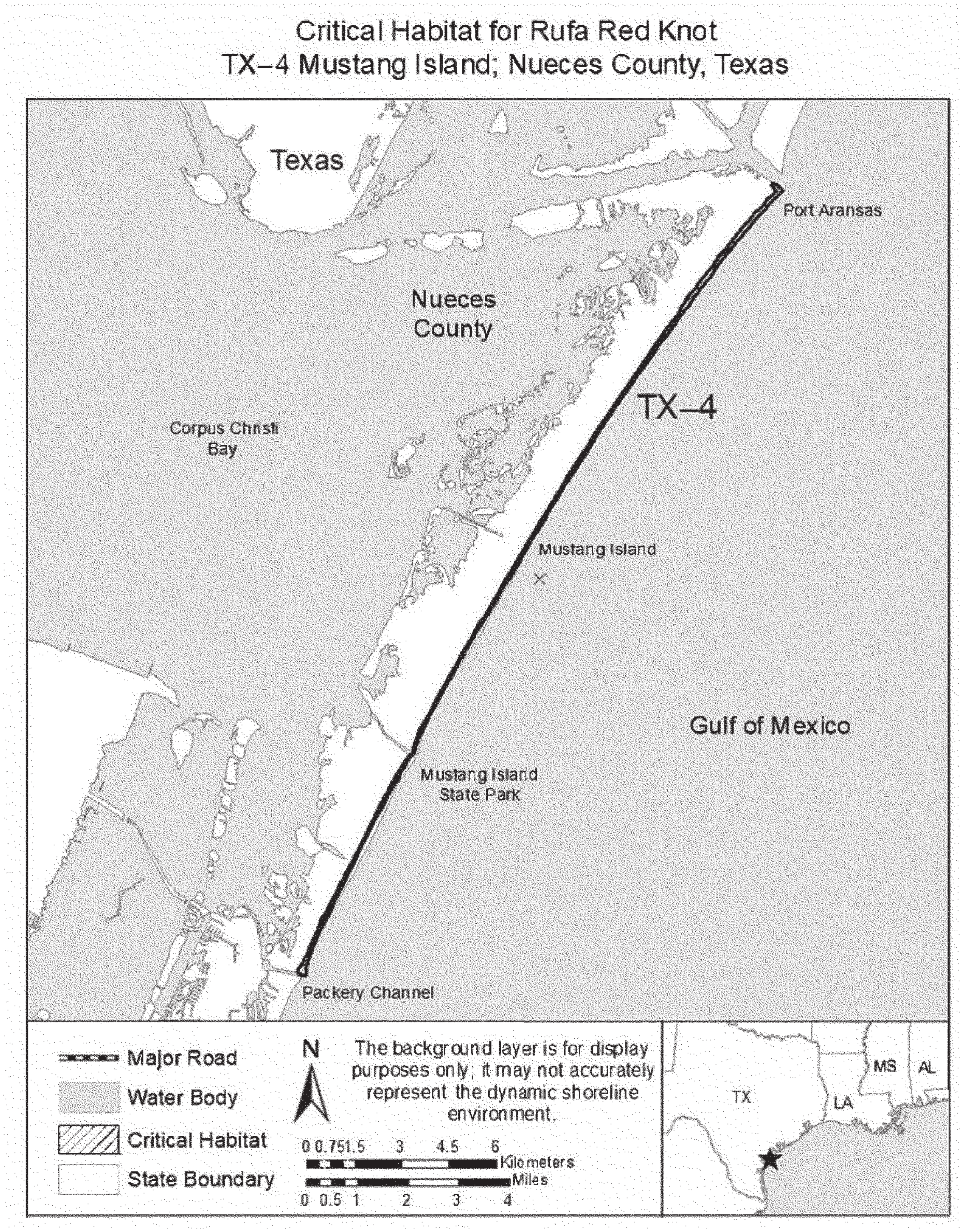


Figure 16. Red Knot Proposed Critical Habitat TX-4 Mustang Island

Attachment 2

PCCA CDP Dredge Equipment List

Attachment 2
PCCA CDP Dredge Equipment List

Channel Segment	Assembly Name
1	Hopper1
2	Hopper1
2	Hopper2
3	Hopper2 or Cutter1
4	Cutter1
4	Cutter2
5	Cutter1
5	Cutter2
6	Cutter1

Channel Segment/Estimated Dredge Volume (CY)	Year 1	Year 2	Year 3	Year 4	Year 5
1	9,617,390	-	-	-	-
2	-	10,154,381	10,154,381	-	-
3	-	-	2,105,041	-	-
4	-	-	-	2,851,897	-
5	-	-	-	2,951,614	-
6	-	-	-	-	8,448,886
Assembly Used	Hopper1	Hopper1	Hopper2	Cutter1	Cutter2
			Cutter1	Cutter2	

Assembly	Hopper1 - Hopper dredge with Disposal thorugh Bottom Doors		
	Equipment	Quantity	Total HP
Hopper1	Hopper Dredge	1	12,000
	Crew/ Survey Boat	1	800
	Trawler	1	400
Assembly	Hopper2 - Hopper dredge with BU or PA disposal and Crew		
Hopper2	Equipment	Quantity	Total HP
	Hopper Dredge	1	12,000
	Crew/ Survey Boat	1	800
	Dozer	3	200
	Front end loader	2	200
	Excavator	1	170
	Field Truck	1	180
	Light Towers	2	8
	Welder	2	50
	Trawler	1	400

Assembly	Cutter1 - Cutter Suction dredge with with BU or PA disposal and Crew		
Cutter1	Equipment	Quantity	Total HP
	30" Cutter Suction Dredge	1	14,000
	Anchor Barge	2	200
	Derrick Barge	1	2,500
	Tender Tug	4	750
	Tow Tug	1	5,000
	Crew/ Survey Boat	1	800
	Dozer	3	200
	Front end loader	2	200
	Excavator	1	170
	Field Truck	1	180
	Light Towers	2	8
	Welder	2	50
Assembly	Cutter2 - Cutter Suction dredge with Offshore Disposal		
Cutter2	Equipment	Quantity	Total HP
	30" Cutter Suction Dredge	1	14,000
	30"-Booster	1	5,000
	Anchor Barge	2	200
	Derrick Barge	1	2,500
	Spill Barge	1	150
	Tender Tug	4	750
	Tow Tug	1	5,000
	Crew/ Survey Boat	1	800

Attachment 2