



Reach A, Hurricane and Storm Damage Risk Reduction Project Morganza to the Gulf of Mexico, Terrebonne Parish, Louisiana

Draft
Appendix B – Figures
February 2024

Figure B- 1. Construction Status on Alignment of the Morganza to the Gulf of Mexico Levee System



Morganza to the Gulf

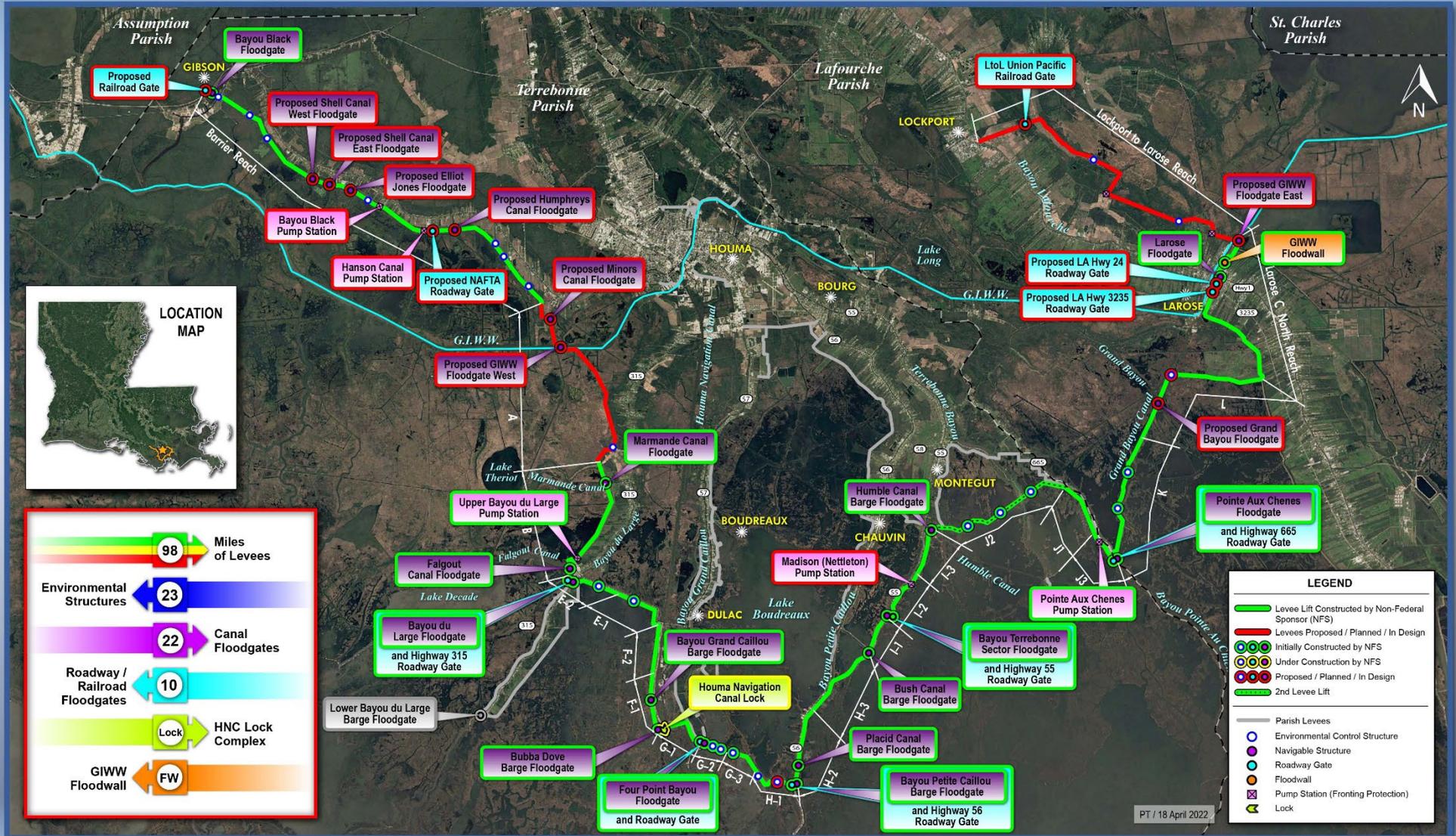
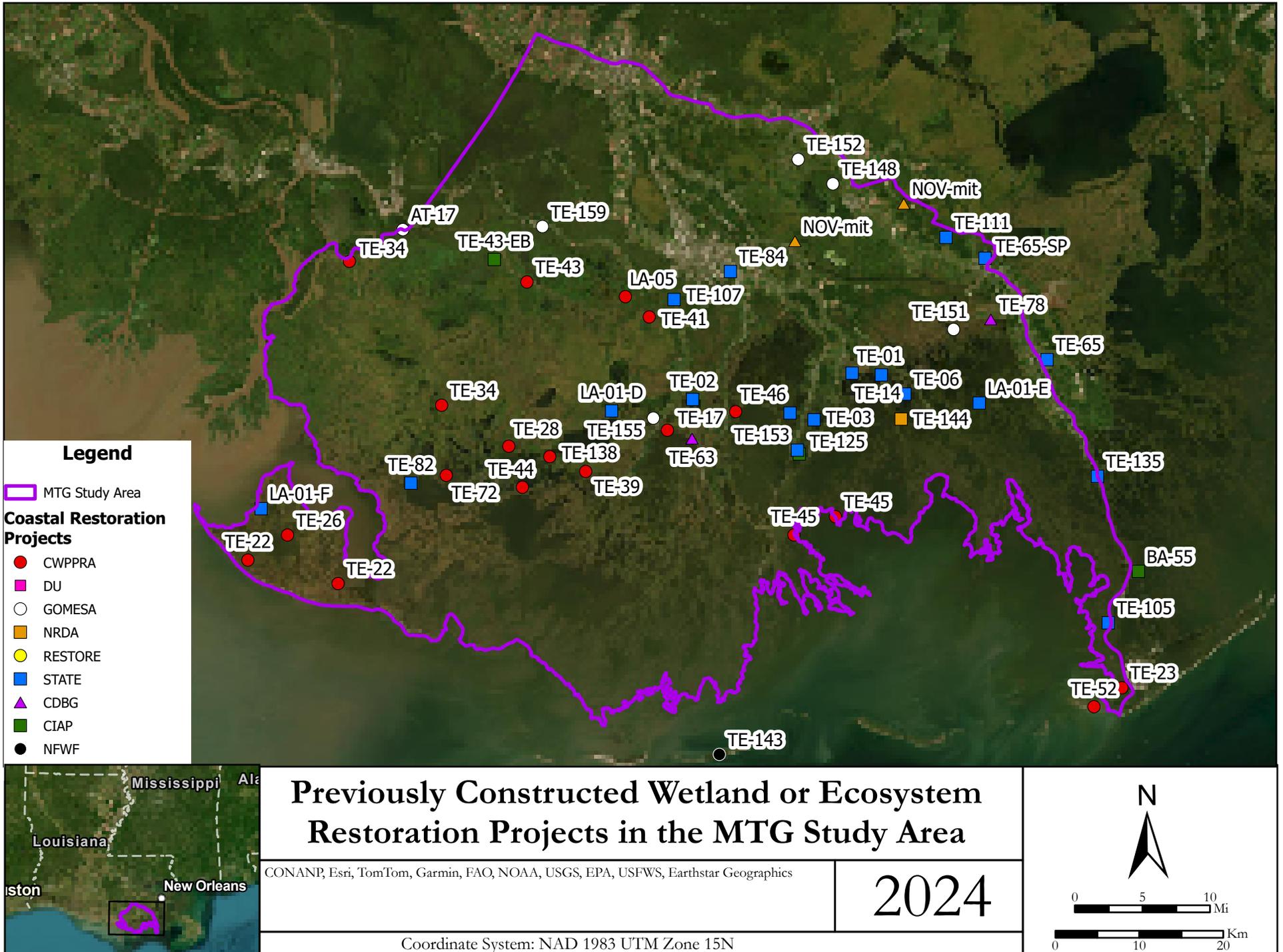


Figure B- 2. Reasonably Foreseeable Wetland or Ecosystem Restoration Projects in the MTG Study Area



Legend

- MTG Study Area
- Coastal Restoration Projects**
 - CWPPRA
 - DU
 - GOMESA
 - NRDA
 - RESTORE
 - STATE
 - CDBG
 - CIAP
 - NFWF

Previously Constructed Wetland or Ecosystem Restoration Projects in the MTG Study Area

CONANP, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Earthstar Geographics

2024

Coordinate System: NAD 1983 UTM Zone 15N

N

0 5 10 Mi

0 10 20 Km

Figure B- 3. Construction Status on Alignment of the Morganza to the Gulf of Mexico Levee System



Reasonably Foreseeable Wetland or Ecosystem Restoration Projects in the MTG Study Area

CONANP, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Earthstar Geographics

2024

Coordinate System: NAD 1983 UTM Zone 15N

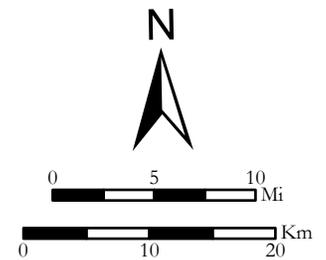


Figure B-4. CHAT Annual Mean 1-day temperature of HUC 08090302 West Central Louisiana Coastal

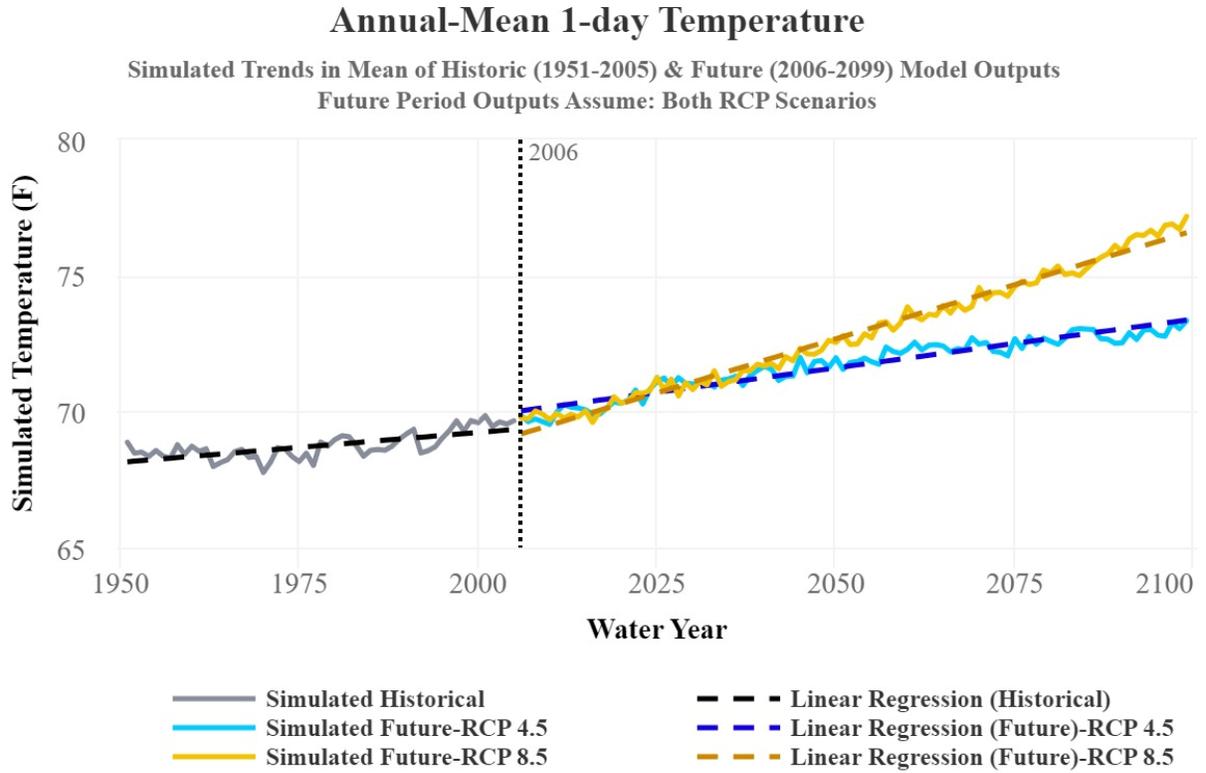


Figure B-5 CHAT Annual Maximum 1-day temperature of HUC 08090302 West Central Louisiana Coastal

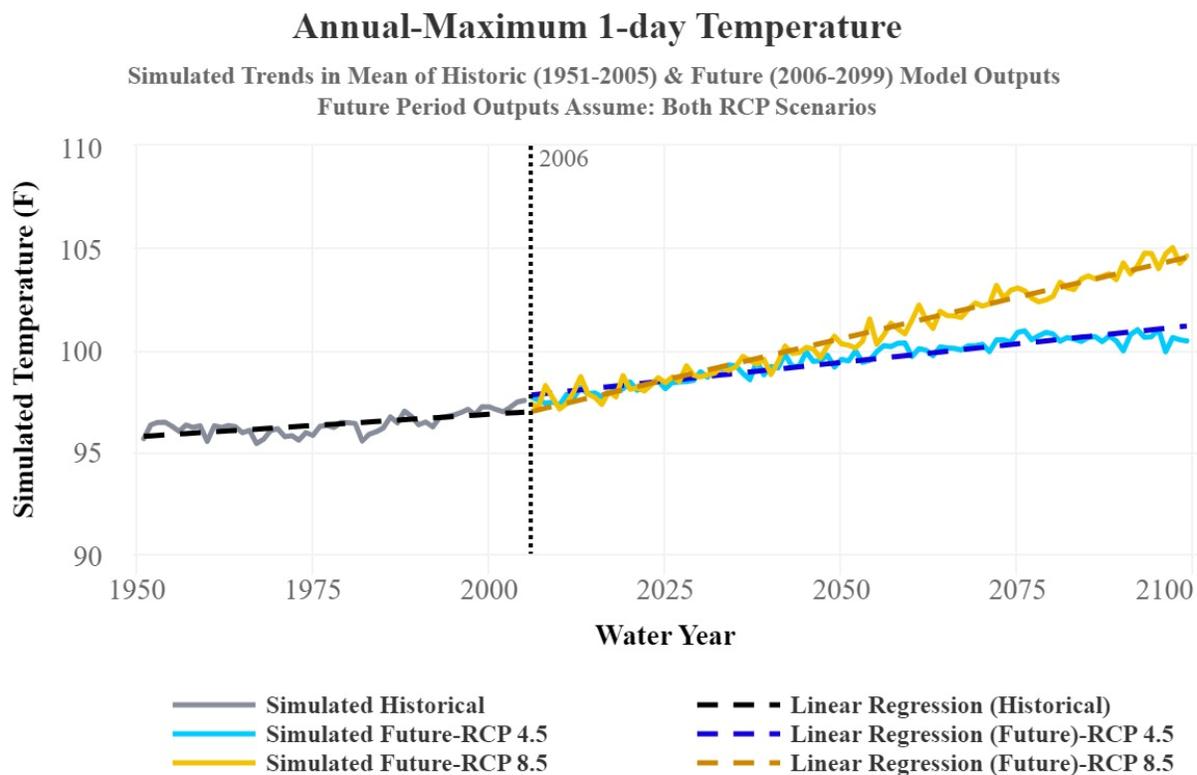


Figure B-6. CHAT Annual Minimum 1-day temperature of HUC 08090302 West Central Louisiana Coastal

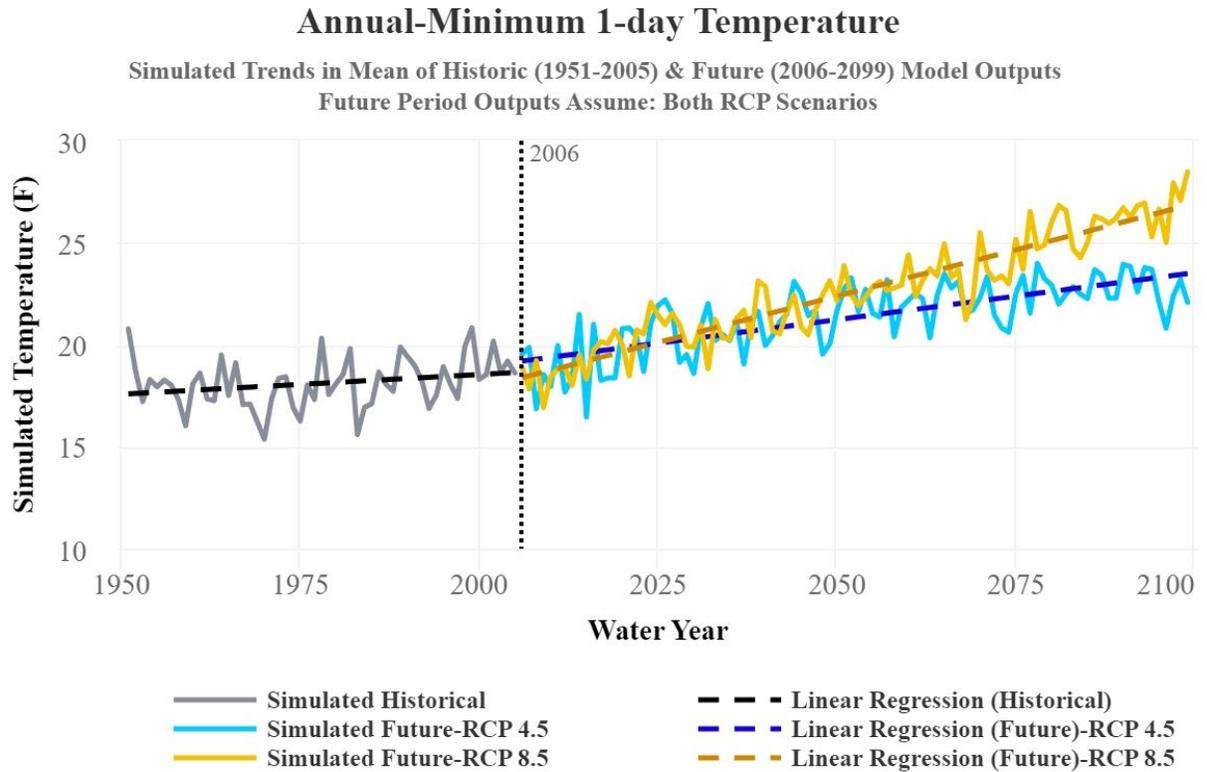


Figure B-7 CHAT Annual Accumulated Precipitation of HUC 08090302 West Central Louisiana Coastal

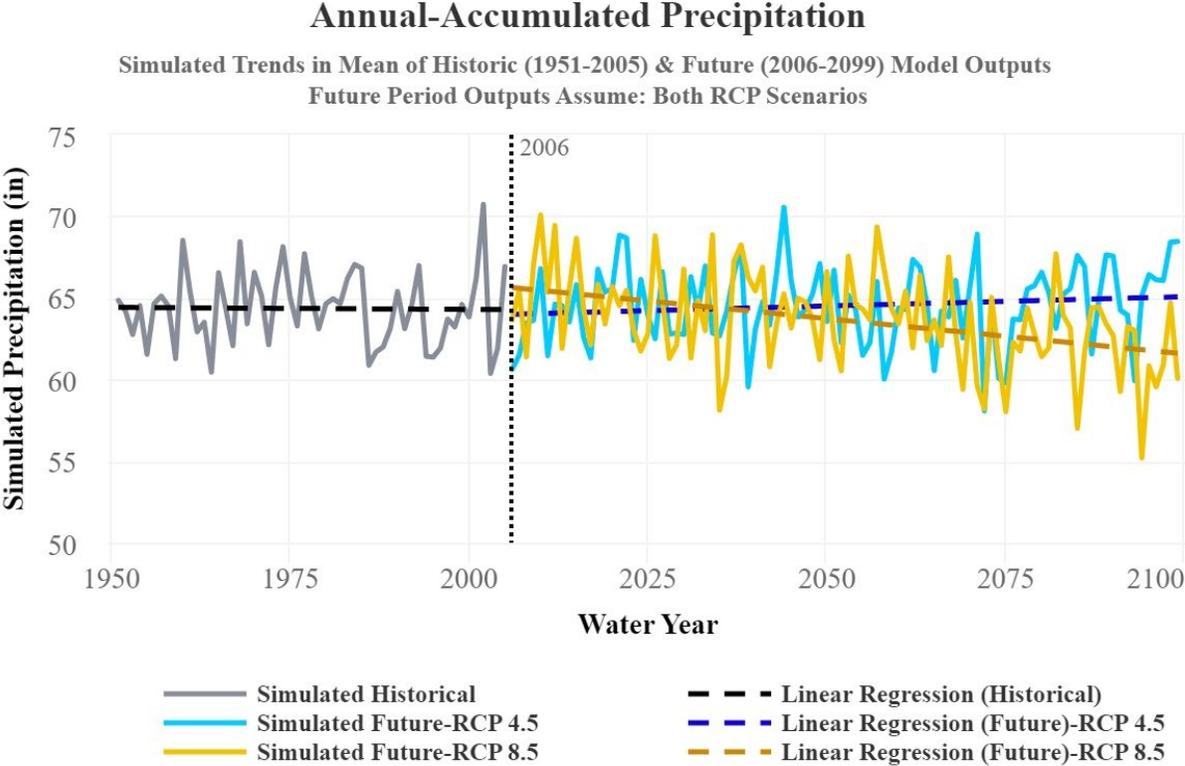


Figure B-8. CHAT Annual- Maximum of consecutive dry days of HUC 08090302 West Central Louisiana Coastal

Drought Indicator: Annual-Maximum of Number of Consecutive Dry Days

Simulated Trends in Mean of Historic (1951-2005) & Future (2006-2099) Model Outputs
Future Period Outputs Assume: Both RCP Scenarios

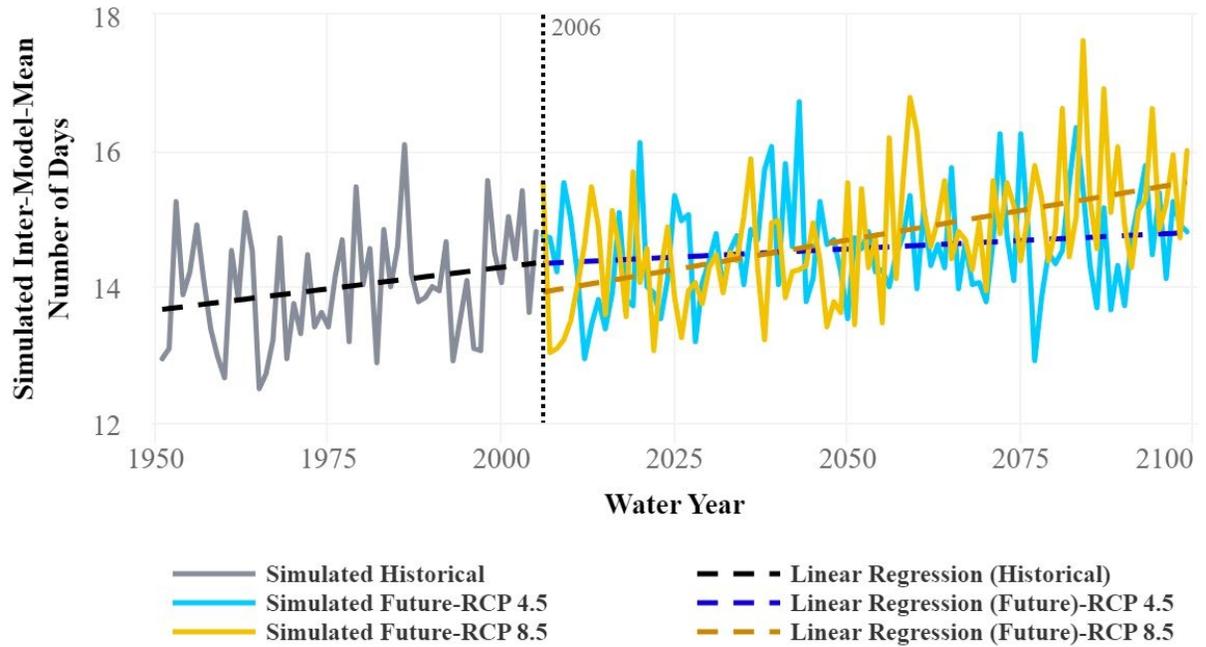


Figure B-9. CHAT Annual Maximum 1-day Precipitation of HUC 08090302 West Central Louisiana Coastal

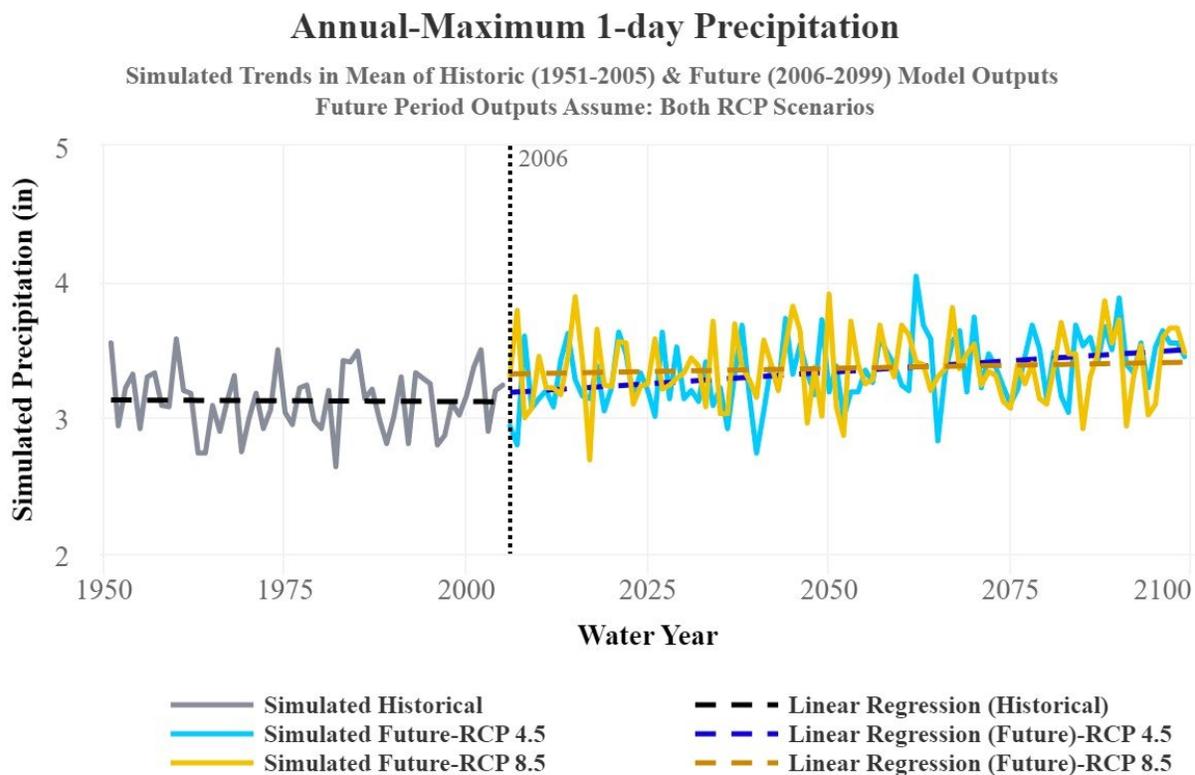


Figure B-10. Major Watershed Basins within Louisiana Recognized by LDEQ.

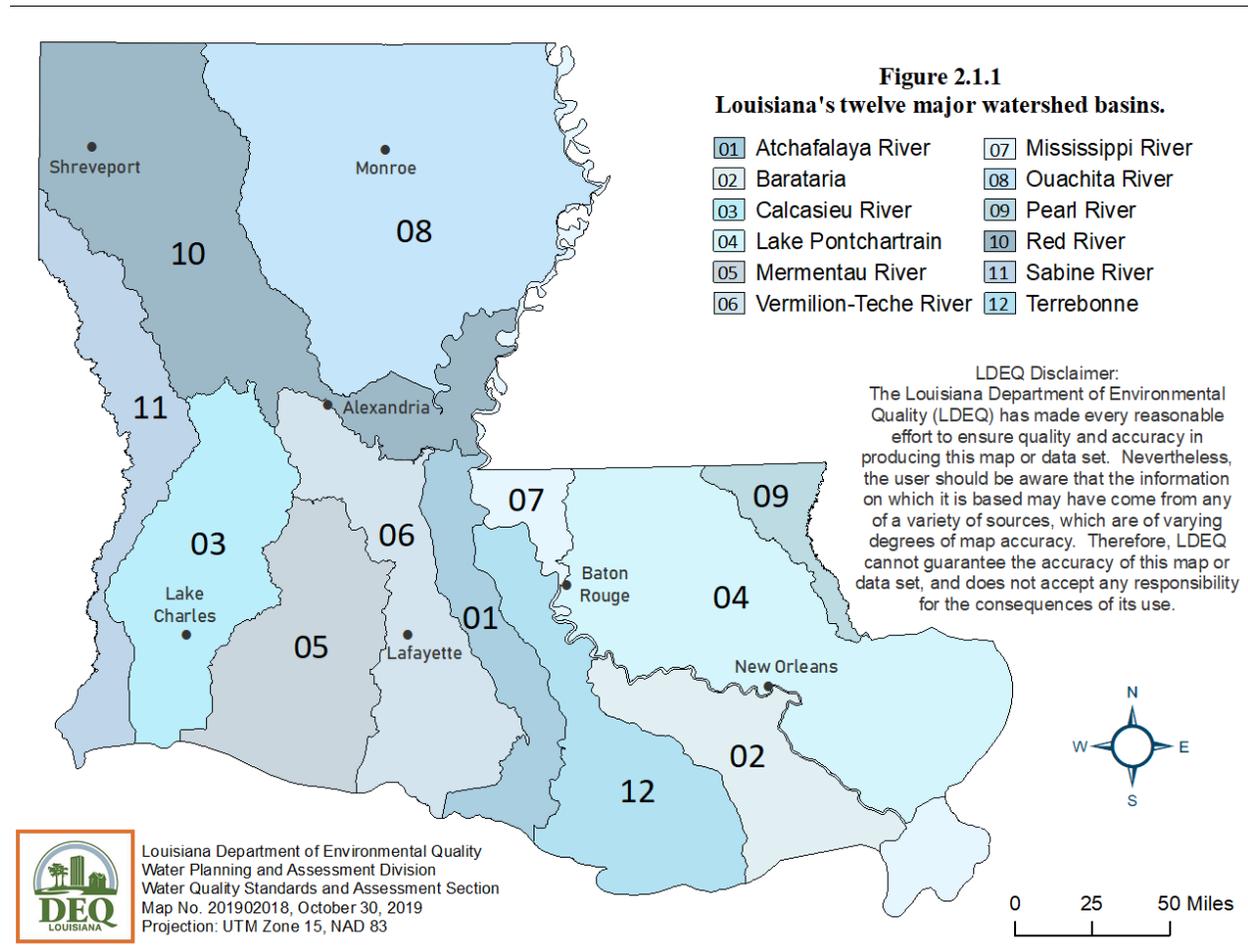
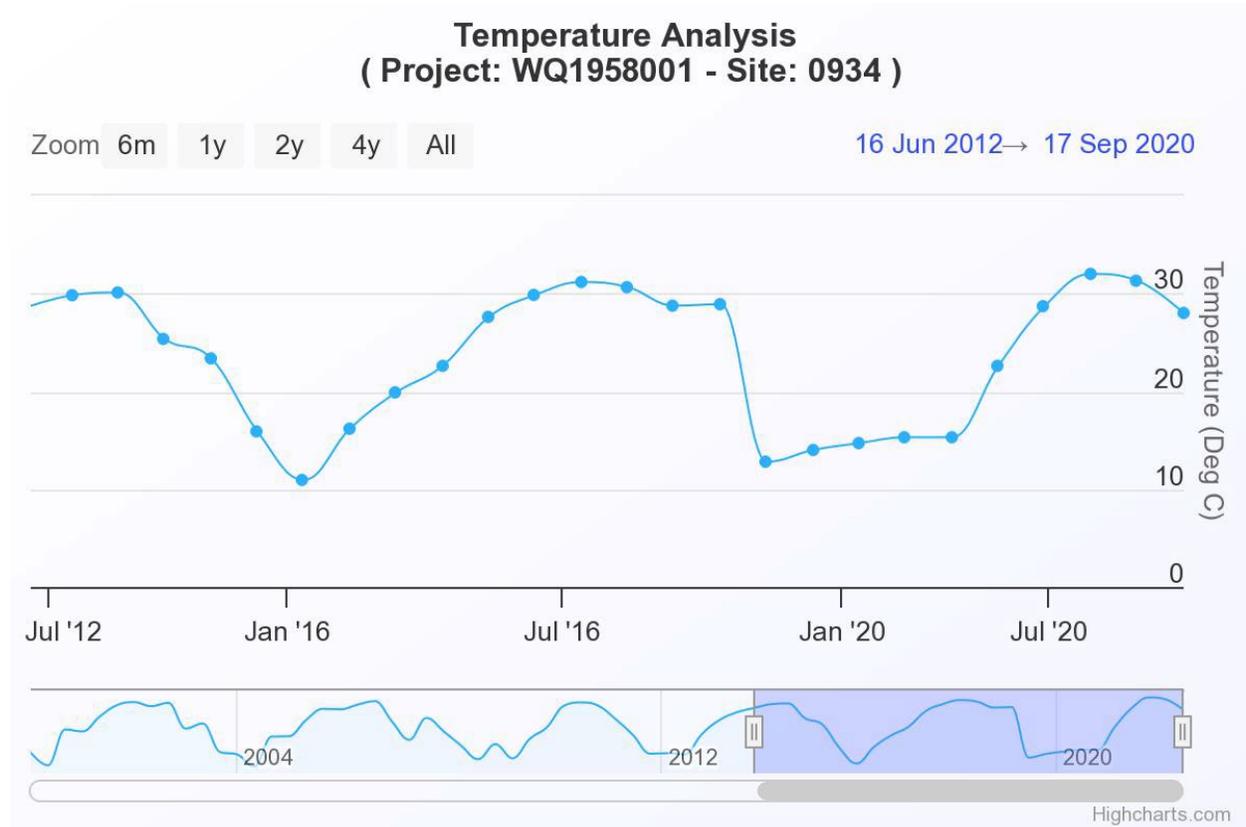


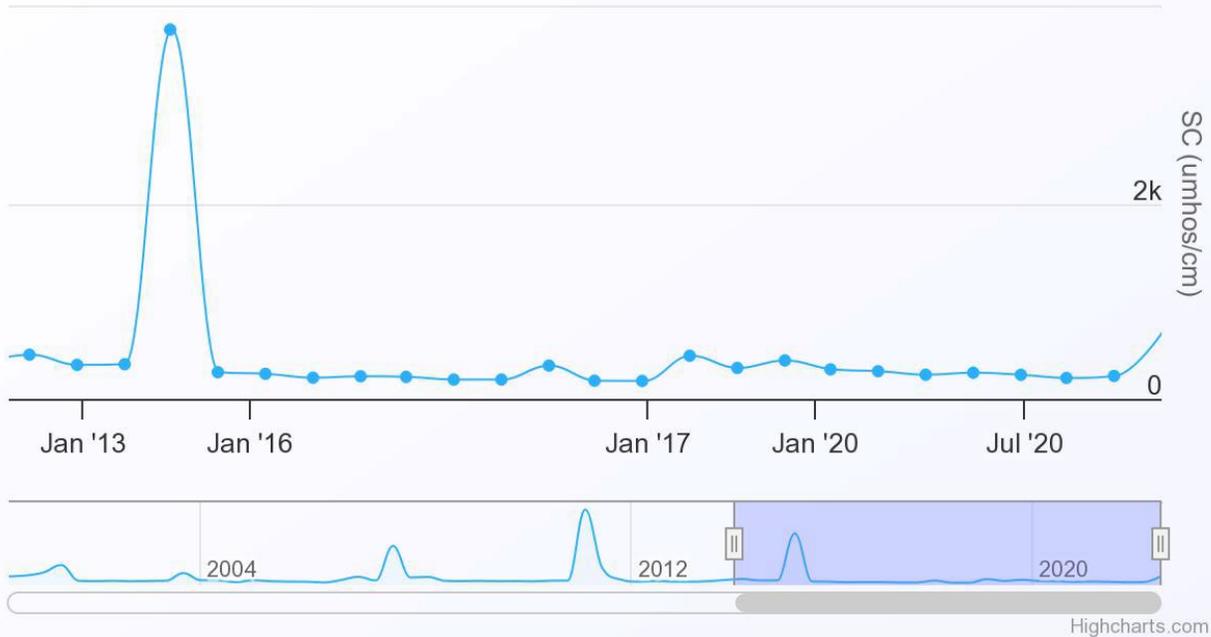
Figure B-11a-c. Water Quality Charts Showing pH, Temperature, Specific Conductance, and Dissolved Oxygen Trends between July 2012 to September 2020 for Subsegment LA120403_00-Intracoastal Waterway-From Bayou Boeuf Locks to Bayou Black in Houma; includes segments of Bayous Boeuf, Black, and Chene.



Specific Conductance Analysis (Project: WQ1958001 - Site: 0934)

Zoom 6m 1y 2y 4y All

1 Jul 2012 → 17 Sep 2020



Dissolved Oxygen Analysis (Project: WQ1958001 - Site: 0934)

Zoom 6m 1y 2y 4y All

16 Jun 2012 → 17 Sep 2020

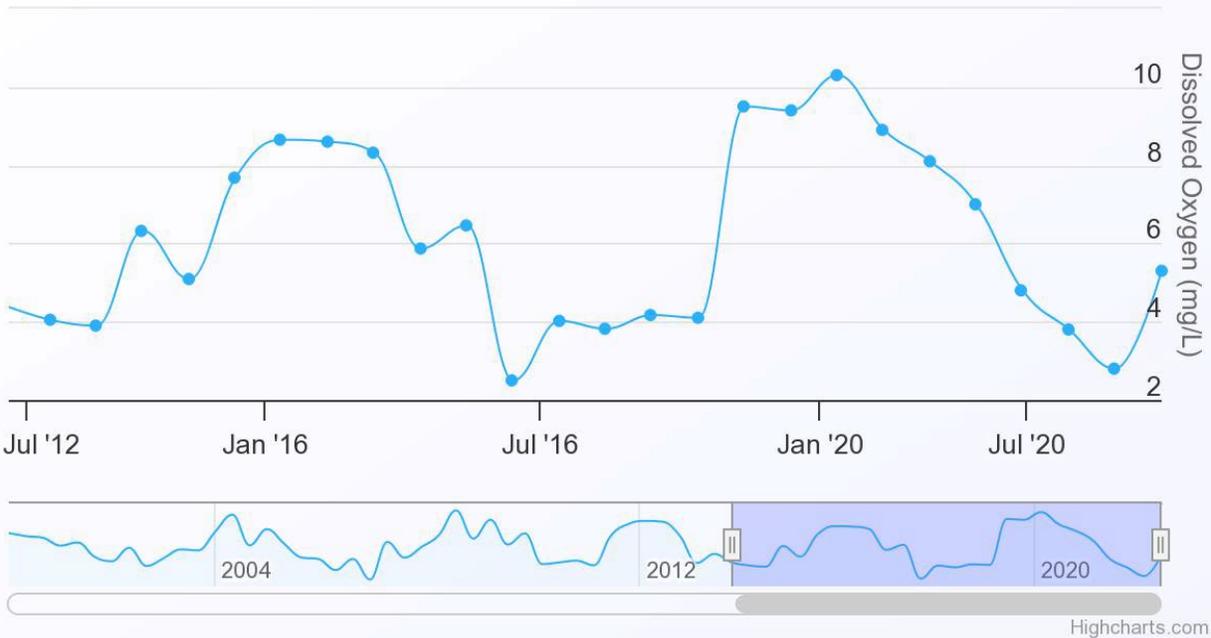
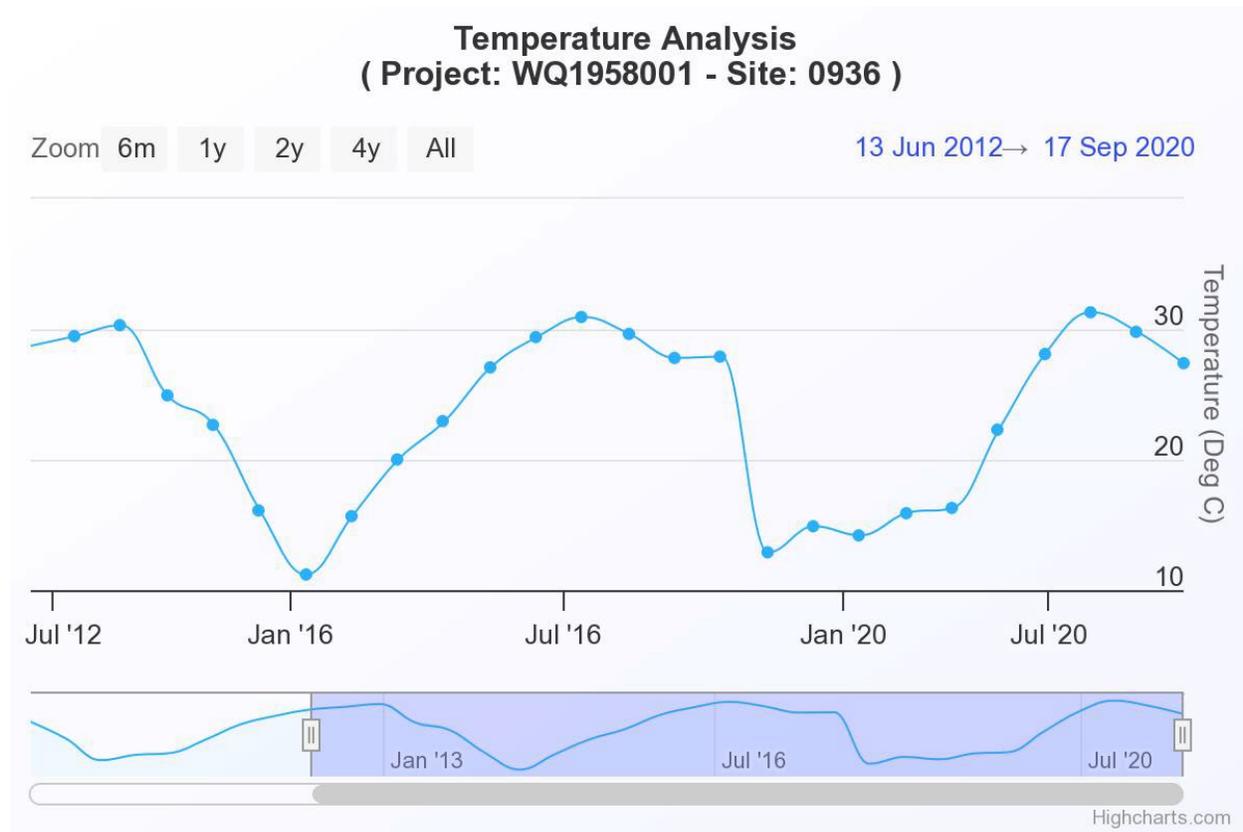


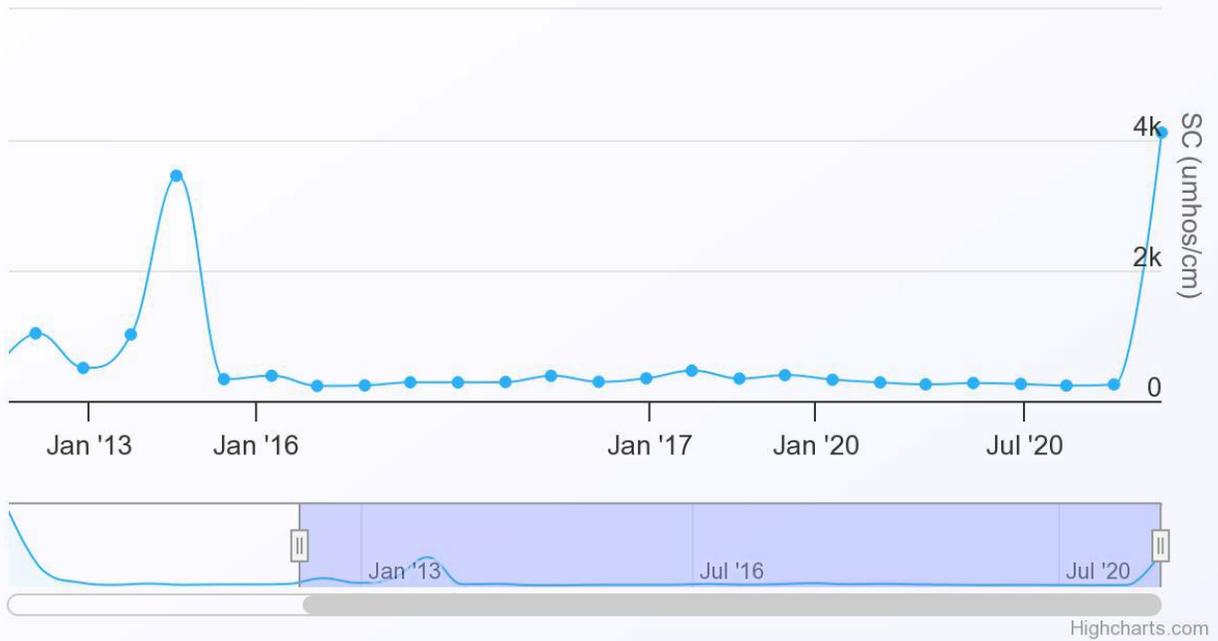
Figure B-12a-c. Water Quality Charts Showing pH, Temperature, Specific Conductance, and Dissolved Oxygen Trends between July 2012 to September 2020 for Subsegment LA120405_00-Lake Hache and Lake Theriot.



Specific Conductance Analysis (Project: WQ1958001 - Site: 0936)

Zoom 6m 1y 2y 4y All

26 Jun 2012 → 17 Sep 2020



Dissolved Oxygen Analysis (Project: WQ1958001 - Site: 0936)

Zoom 6m 1y 2y 4y All

21 Jun 2012 → 17 Sep 2020

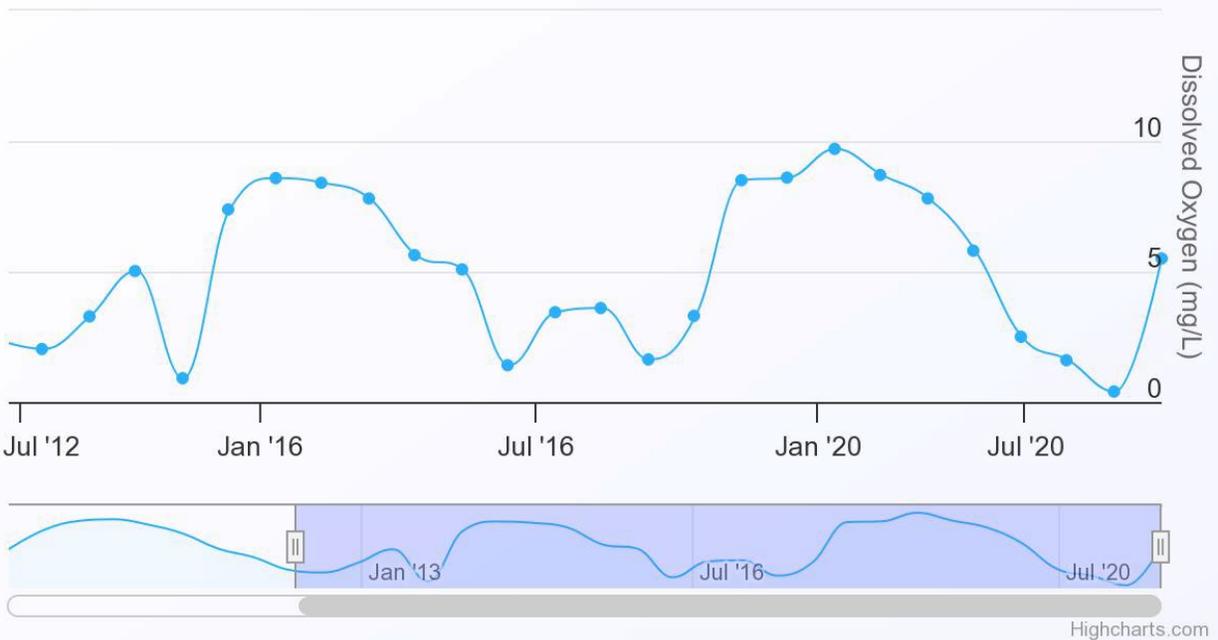


Figure B-13a-c. Water Quality Charts Showing pH, Temperature, Specific Conductance, and Dissolved Oxygen Trends between October 2012 to August 2021 for Subsegment LA120505_00-Bayou Du Large-From Houma to Marmande Canal.

**Specific Conductance Analysis
(Project: WQ1958001 - Site: 0940)**

Zoom 6m 1y 2y 4y All

8 Feb 2012 → 10 Aug 2021



**Temperature Analysis
(Project: WQ1958001 - Site: 0940)**

Zoom 6m 1y 2y 4y All

21 Apr 2011 → 10 Aug 2021

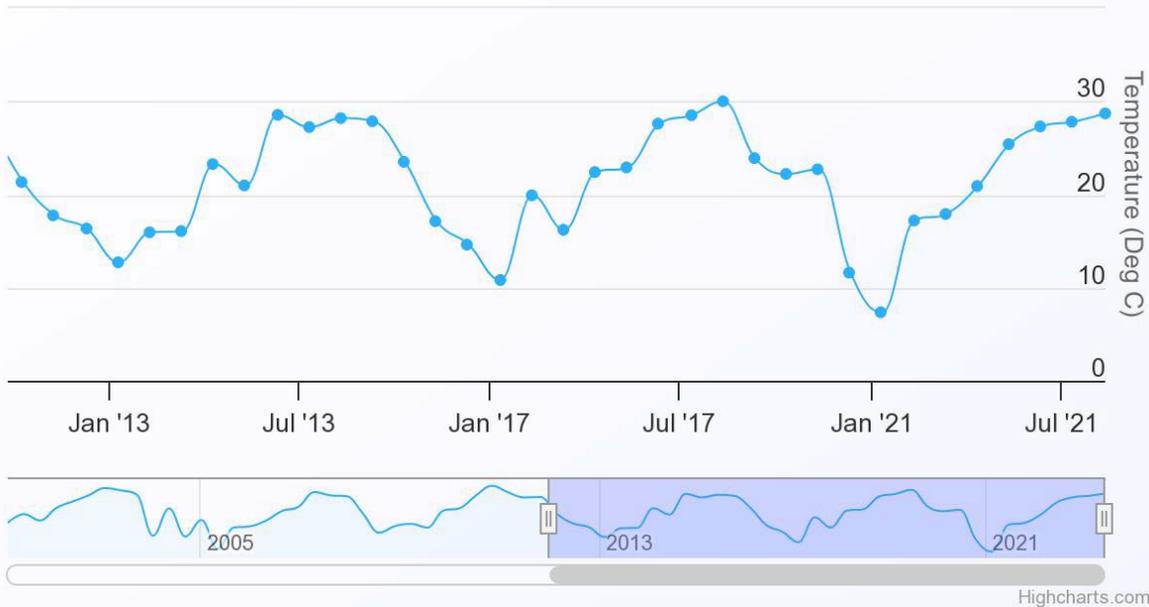


Figure B-14. Map of major soil associations in Terrebonne Parish, Louisiana (2013 PACR/RPEIS)

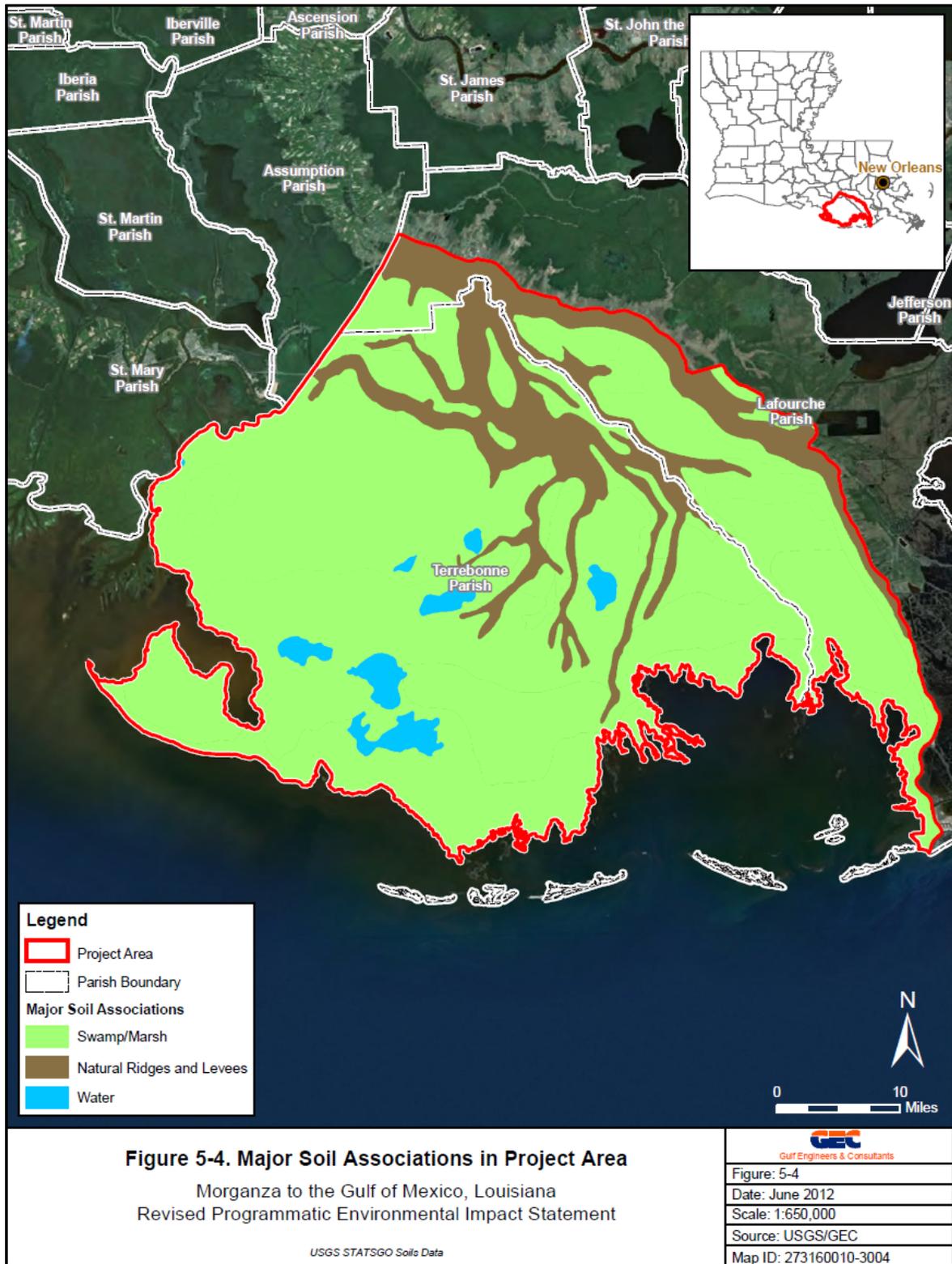


Figure B-15. FWOP conditions for Prime and Unique Farmland (2013 PACR/RPEIS).

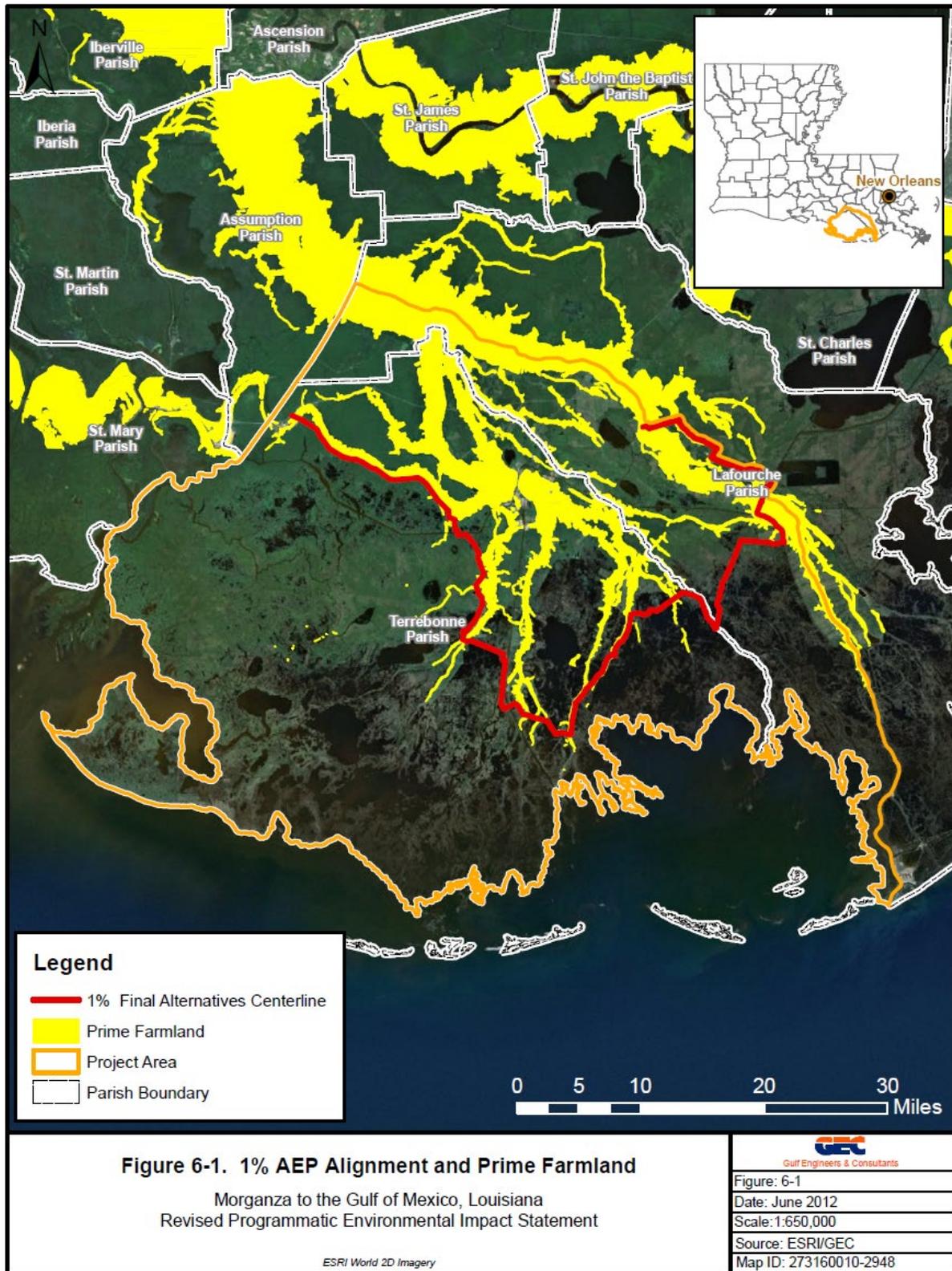


Figure B-16 Soil Map for the No Action PACR Alignment. The green color in the map depicts soils that are prime farmland, and the red color depicts soils that are not prime farmland.

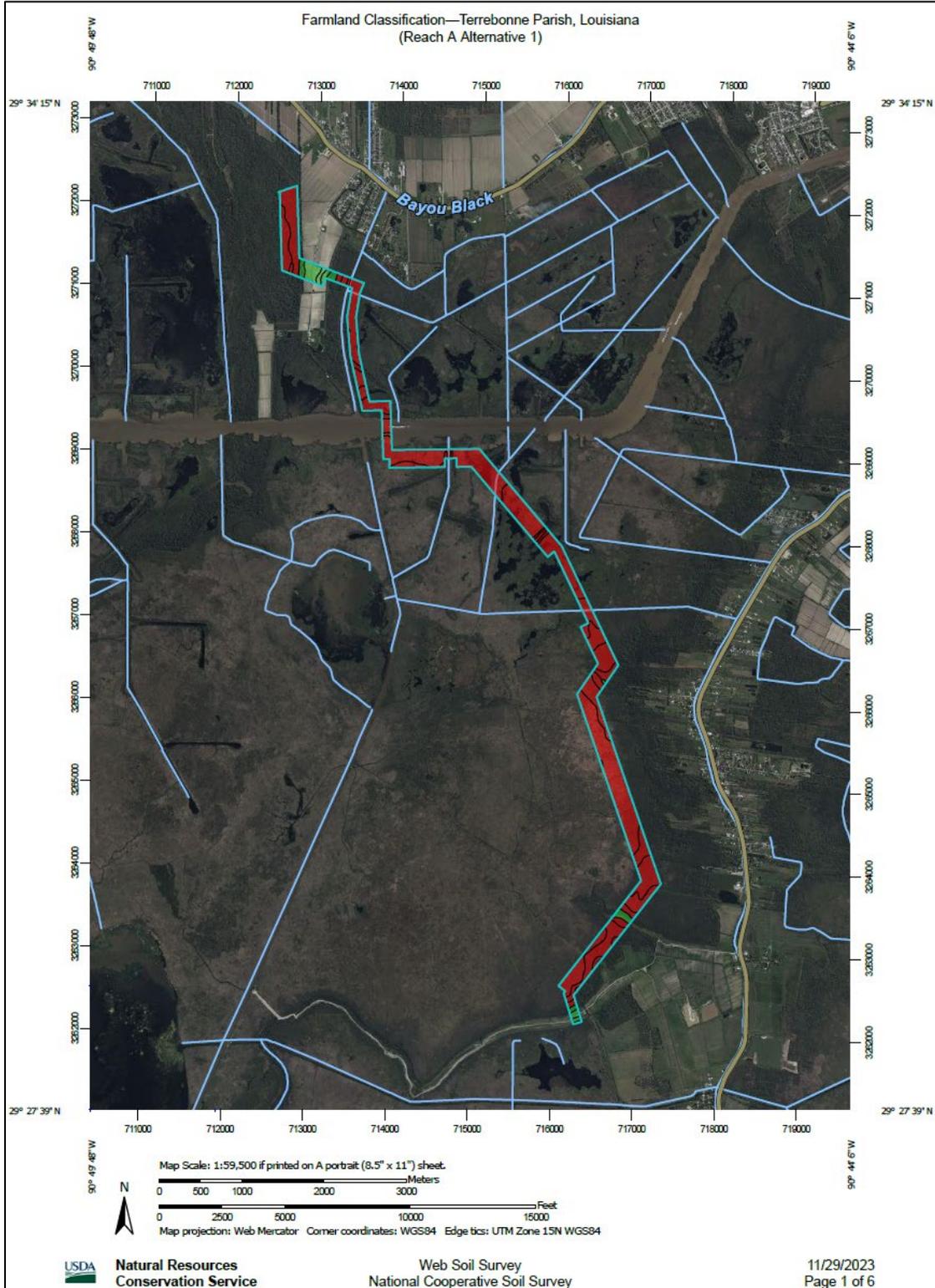


Figure B-17 Soil Map for Programmatic Features of the Proposed Action. The green color in the map depicts soils that are prime farmland, and the red color depicts soils that are not prime

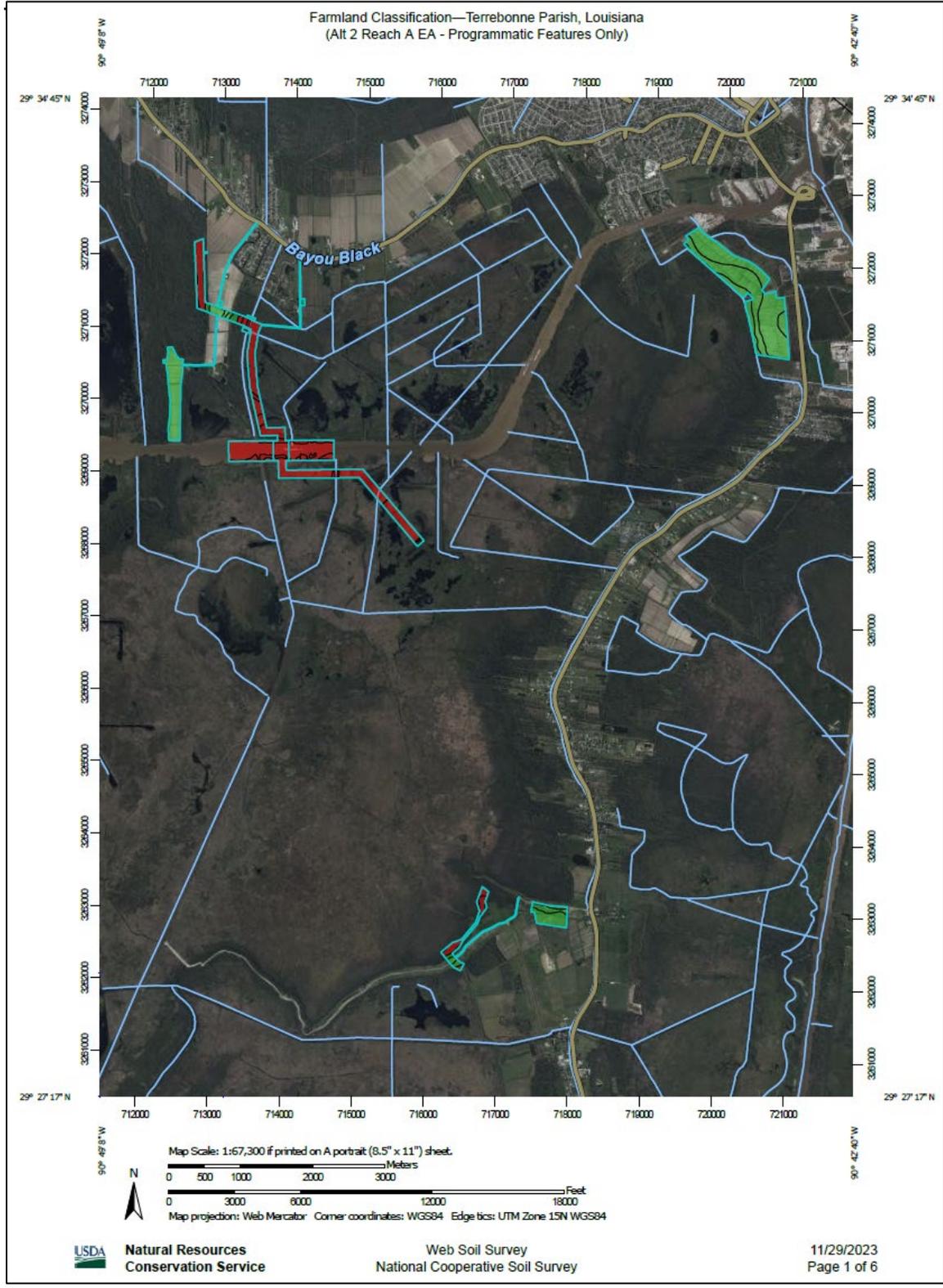
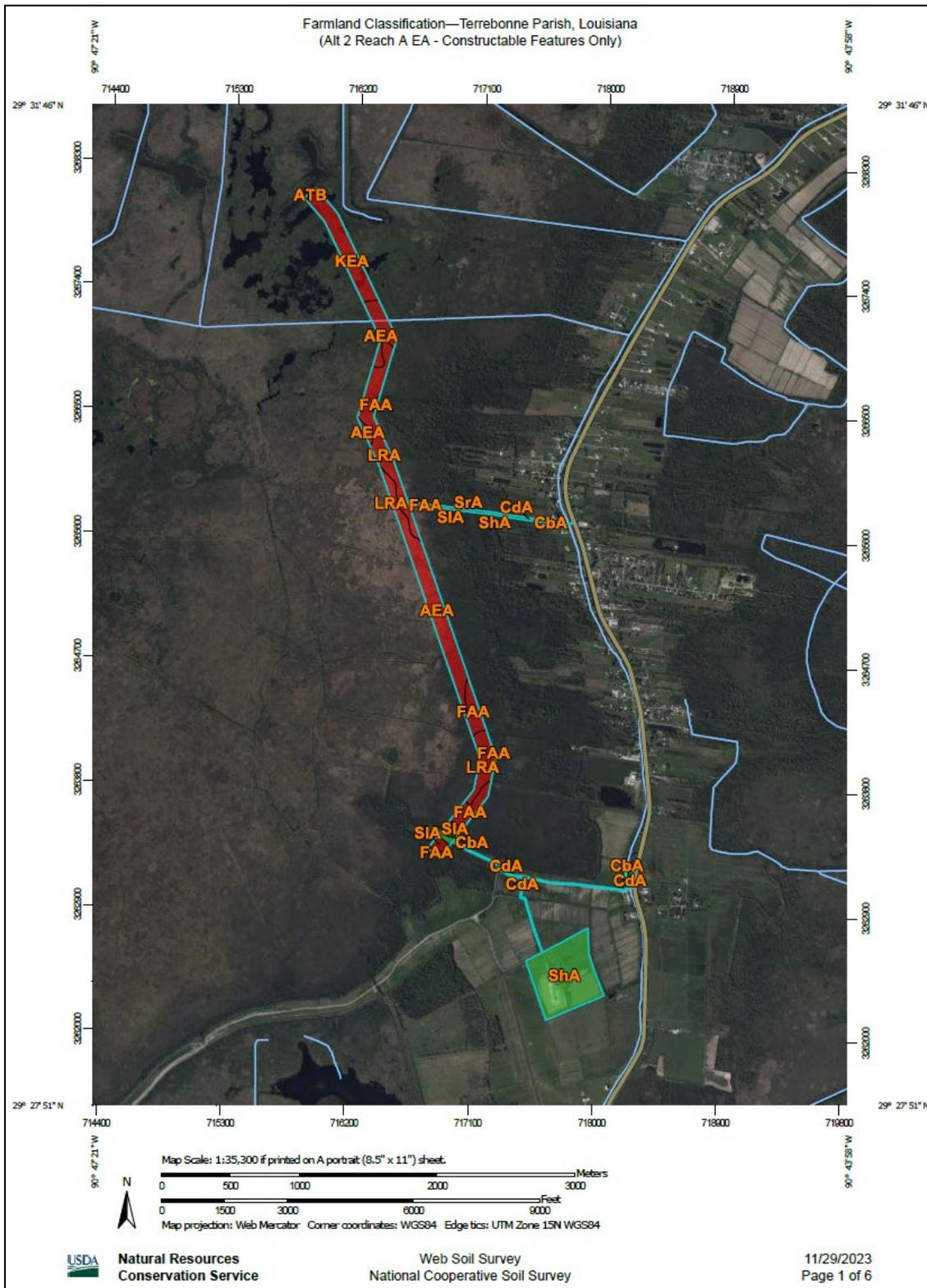


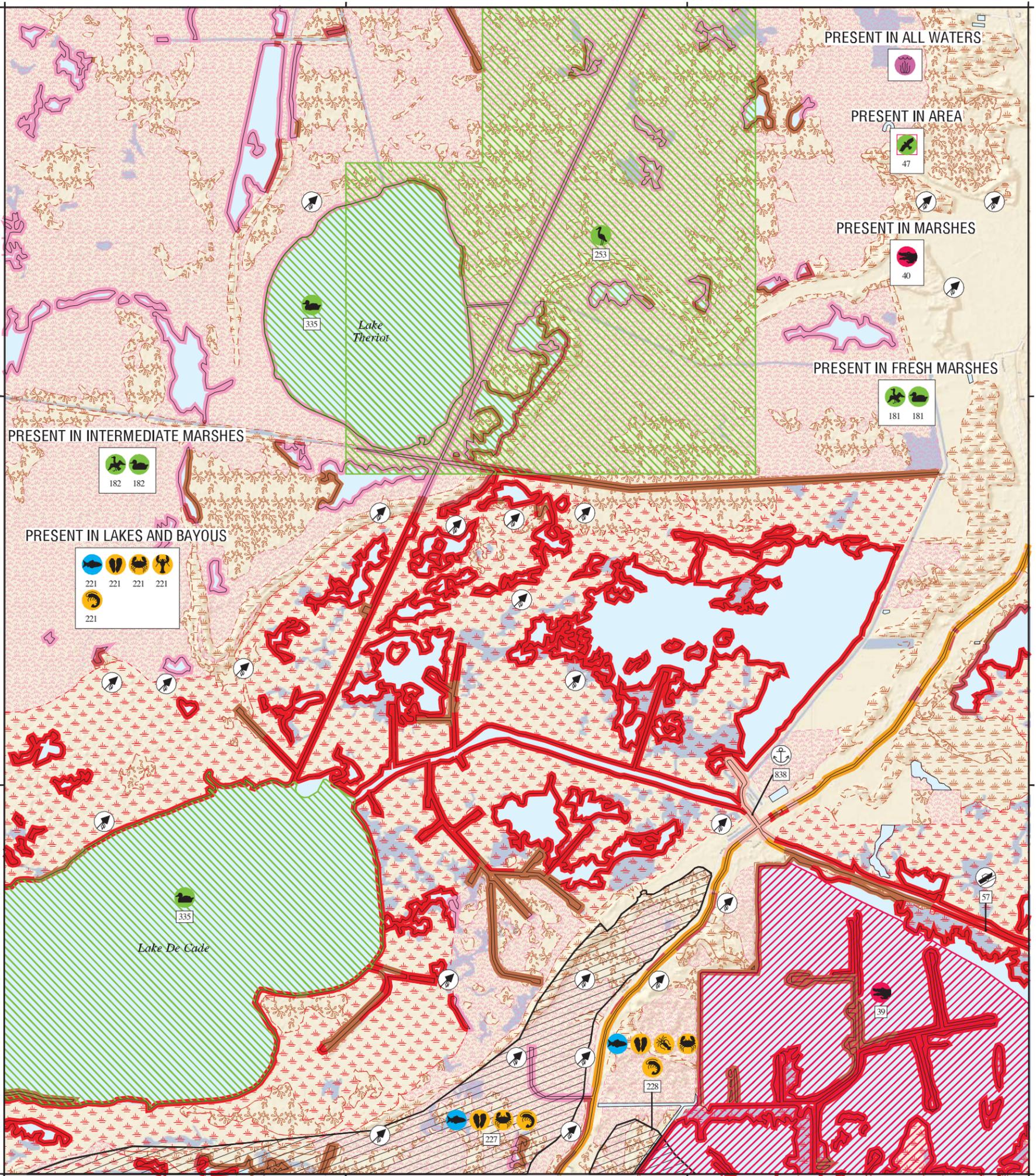
Figure B-18. Soil Map for Constructible Features of the Proposed Action. The green color in the map depicts soils that are prime farmland, and the red color depicts soils that are not prime farmland.



ENVIRONMENTAL SENSITIVITY INDEX MAP

90°52'30"

90°45'00"



29°22'30"

90°52'30"

29°22'30"

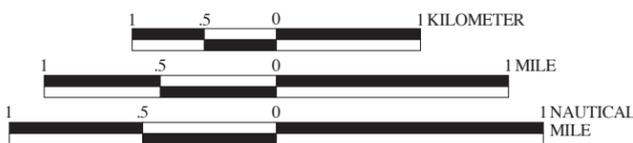
90°45'00"

SHORELINE HABITATS (ESI)

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY OR MUD
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY OR MUD
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL (SHELL) BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED SCARPS IN CLAY OR MUD
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 8E PEAT
- 9A SHELTERED TIDAL FLATS
- 9B VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMPS
- 10D SCRUB-SHRUB WETLANDS, INCLUDING BLACK MANGROVES

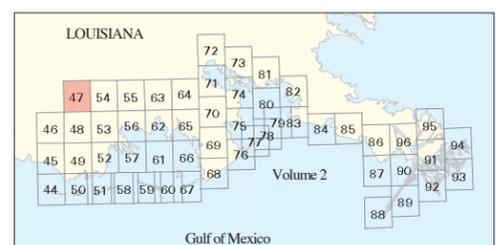


SCALE 1:50000



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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Emergency Response Division



Louisiana: ESIMAP 47

BIOLOGICAL RESOURCES:

BIRD:

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Nesting | Migrating | Molting |
|------|------------------------|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---------|-----------|---------|
| 47 | Bald eagle | E | X | X | X | X | X | | | | | X | X | X | NOV-APR | - | - |
| 181 | American coot | UP TO 1063 IND/SQ MI | X | X | X | X | | | | | | X | X | X | - | - | - |
| | American white pelican | 1000S | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - |
| | American wigeon | UP TO 98 IND/SQ MI | X | X | X | X | | | | | | X | X | X | - | - | - |
| | Blue-winged teal | UP TO 99 IND/SQ MI | X | X | X | X | | | | | | X | X | X | - | - | - |
| | Canvasback | UP TO 64 IND/SQ MI | X | X | X | | | | | | | X | X | | - | - | - |
| | Gadwall | UP TO 394 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Green-winged teal | UP TO 251 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Hooded merganser | UP TO 1 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Mallard | UP TO 338 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Mottled duck | UP TO 12 IND/SQ MI | X | X | X | X | X | X | X | X | X | X | X | X | MAR-JUN | - | - |
| | Northern pintail | UP TO 259 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Northern shoveler | UP TO 36 IND/SQ MI | X | X | X | X | X | | | | | X | X | X | - | - | - |
| | Ring-necked duck | UP TO 289 IND/SQ MI | X | X | X | | | | | | | X | X | | - | - | - |
| | Scaup | UP TO 281 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| 182 | American coot | UP TO 1058 IND/SQ MI | X | X | X | X | | | | | | X | X | X | - | - | - |
| | American white pelican | 100S | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - |
| | American wigeon | UP TO 113 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Blue-winged teal | UP TO 103 IND/SQ MI | X | X | X | X | | | | | | X | X | X | - | - | - |
| | Canvasback | UP TO 106 IND/SQ MI | X | X | X | | | | | | | X | X | | - | - | - |
| | Gadwall | UP TO 492 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Green-winged teal | UP TO 147 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Hooded merganser | UP TO 1 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Mallard | UP TO 32 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Mottled duck | UP TO 38 IND/SQ MI | X | X | X | X | X | X | X | X | X | X | X | X | MAR-JUN | - | - |
| | Northern pintail | UP TO 484 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| | Northern shoveler | UP TO 25 IND/SQ MI | X | X | X | X | X | | | | | X | X | X | - | - | - |
| | Ring-necked duck | UP TO 403 IND/SQ MI | X | X | X | | | | | | | X | X | | - | - | - |
| | Scaup | UP TO 196 IND/SQ MI | X | X | X | X | | | | | | X | X | | - | - | - |
| 253 | Wading birds | 120 PAIRS | X | X | X | X | X | X | X | X | X | X | X | X | FEB-AUG | - | - |
| 335 | American coot | | X | X | X | X | | | | | | X | X | X | - | - | - |
| | American wigeon | | X | X | X | X | | | | | | X | X | | - | - | - |
| | Blue-winged teal | | X | X | X | X | | | | | | X | X | X | - | - | - |
| | Canvasback | | X | X | X | | | | | | | X | X | | - | - | - |
| | Gadwall | | X | X | X | X | | | | | | X | X | | - | - | - |
| | Green-winged teal | | X | X | X | X | | | | | | X | X | | - | - | - |
| | Hooded merganser | | X | X | X | X | | | | | | X | X | | - | - | - |
| | Mallard | | X | X | X | X | | | | | | X | X | | - | - | - |
| | Mottled duck | | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - |
| | Northern pintail | | X | X | X | X | | | | | | X | X | | - | - | - |
| | Northern shoveler | | X | X | X | X | X | | | | | X | X | X | - | - | - |
| | Ring-necked duck | | X | X | X | | | | | | | X | X | | - | - | - |
| | Scaup | | X | X | X | | | | | | | X | X | | - | - | - |

FISH:

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Spawning | Eggs | Larvae | Juveniles | Adults |
|------|---------------------|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|----------|---------|---------|-----------|---------|
| 221 | Alligator gar | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | American eel | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Black drum | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Blue catfish | ABUNDANT | X | X | X | X | X | | | | | X | X | X | APR-JUN | APR-JUN | - | SEP-JUN | SEP-JUN |
| | Bowfin | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Bream | RARE | X | X | X | X | X | X | X | X | X | X | X | X | MAR-AUG | MAR-AUG | MAR-NOV | JAN-DEC | JAN-DEC |
| | Buffalo | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Channel catfish | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | APR-JUL | APR-JUL | - | - | JAN-DEC |
| | Crappie | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | FEB-MAY | FEB-MAY | FEB-JUN | JAN-DEC | JAN-DEC |
| | Croakers | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Flathead catfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Freshwater drum | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Gafftopsail catfish | ABUNDANT | | | | | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Gulf menhaden | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Largemouth bass | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | JAN-MAY | - | - | JAN-DEC | JAN-DEC |
| | Longnose gar | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-APR | MAR-APR | MAR-APR | MAR-JUN | JAN-DEC |
| | Paddlefish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Red drum | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | - |
| | Shad | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-MAY | MAR-MAY | MAR-JUN | MAR-JUL | JAN-DEC |
| | Sheepshead | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Southern flounder | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Spotted gar | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-APR | MAR-APR | MAR-APR | MAR-JUN | JAN-DEC |
| | Spotted seatrout | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | APR-SEP | JAN-DEC | JAN-DEC |
| | Striped mullet | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | White bass | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| 227 | Anchovies | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-SEP | MAR-SEP | MAR-SEP | JAN-DEC | JAN-DEC |
| | Atlantic spadefish | COMMON | | | | | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Black drum | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | JAN-JUL | - | - | JAN-DEC | JAN-DEC |
| | Blue catfish | ABUNDANT | X | X | X | X | X | | | | | X | X | X | APR-JUN | APR-JUN | - | DEC-JUN | DEC-JUN |
| | Bream | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-AUG | MAR-AUG | MAR-NOV | JAN-DEC | JAN-DEC |
| | Bull shark | COMMON | | | | | X | X | X | X | X | X | X | X | - | - | MAY-SEP | MAR-NOV | - |
| | Channel catfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | APR-JUL | APR-JUL | - | - | JAN-DEC |
| | Croakers | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Forage fish | ABUNDANT | | | | | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Gafftopsail catfish | ABUNDANT | | | | | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Gray snapper | PRESENT | | | | | X | X | X | X | X | X | X | X | - | - | - | SEP-DEC | - |
| | Gulf menhaden | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Killifish | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | APR-SEP | - | - | JAN-DEC | JAN-DEC |
| | King mackerel | PRESENT | | | | | X | X | X | | | | | | - | - | - | - | - |
| | Kingfishes | ABUNDANT | | | | | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Largemouth bass | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | JAN-MAY | - | - | JAN-DEC | JAN-DEC |
| | Pipefish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Red drum | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | - |
| | Shad | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Sheepshead | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Southern flounder | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Spanish mackerel | COMMON | | | | | X | X | X | X | X | X | X | X | - | - | - | MAR-OCT | - |
| | Spotted gar | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | MAR-APR | MAR-APR | MAR-APR | MAR-JUN | JAN-DEC |
| | Spotted seatrout | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Striped mullet | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | White trout | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| 228 | Anchovies | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-SEP | MAR-SEP | MAR-SEP | JAN-DEC | JAN-DEC |
| | Atlantic spadefish | ABUNDANT | | | | | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Atlantic tripletail | PRESENT | | | | | X | X | X | X | X | X | X | X | - | - | - | APR-OCT | APR-OCT |
| | Black drum | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Bull shark | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | - | - | MAY-SEP | JAN-DEC | - |
| | Croakers | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Forage fish | COMMON | X | X | | | | | | | | | | | | | | | |

Louisiana: ESIMAP 47 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH: (cont.)

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Spawning | Eggs | Larvae | Juveniles | Adults |
|------|-------------------|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|----------|---------|---------|-----------|---------|
| 228 | Killifish | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | APR-SEP | - | - | JAN-DEC | JAN-DEC |
| | Kingfishes | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Lane snapper | RARE | | | | | | | | | X | | | | - | - | - | - | - |
| | Red drum | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | - |
| | Shad | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Southern flounder | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | OCT-MAR | JAN-DEC | JAN-DEC |
| | Spanish mackerel | COMMON | | | | | | X | X | X | | | | | - | - | - | MAY-JUL | - |
| | Spotted gar | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-APR | MAR-APR | MAR-APR | MAR-JUN | JAN-DEC |
| | Spotted seatrout | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | APR-SEP | - | APR-SEP | JAN-DEC | JAN-DEC |
| | Striped mullet | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Tarpon | | | | | | | X | X | X | X | X | X | X | - | - | - | MAY-NOV | - |
| | White trout | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-SEP | - | MAR-SEP | JAN-DEC | JAN-DEC |

INVERTEBRATE:

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Spawning | Eggs | Larvae | Juveniles | Adults |
|------|------------------------|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|----------|---------|---------|-----------|---------|
| 221 | Atlantic rangia | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-NOV | - | MAR-NOV | JAN-DEC | JAN-DEC |
| | Blue crab | ABUNDANT | | X | X | X | X | X | X | X | X | X | X | X | APR-NOV | APR-NOV | APR-NOV | MAR-NOV | MAR-NOV |
| | Brown shrimp | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | FEB-NOV | FEB-DEC | - |
| | Red swamp crawfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-MAY | JAN-DEC | JAN-DEC | JAN-DEC | JAN-DEC |
| | River shrimp | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | APR-JUL | JUL-SEP | JAN-DEC |
| | White shrimp | ABUNDANT | | X | X | X | X | X | X | X | X | X | X | X | - | - | MAY-OCT | MAR-NOV | - |
| 227 | Atlantic rangia | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-NOV | - | MAR-NOV | JAN-DEC | JAN-DEC |
| | Atlantic seabob shrimp | ABUNDANT | | | | | | X | | | | | | | - | - | - | - | - |
| | Blue crab | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | APR-NOV | APR-NOV | APR-NOV | JAN-DEC | JAN-DEC |
| | Brown shrimp | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | FEB-NOV | JAN-DEC | - |
| | Fiddler crab | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | JUN-AUG | - | - | - | - |
| | Grass shrimp | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | White shrimp | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | MAY-NOV | JAN-DEC | - |
| 228 | Atlantic rangia | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-NOV | - | MAR-NOV | JAN-DEC | JAN-DEC |
| | Blue crab | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | APR-NOV | APR-NOV | APR-NOV | JAN-DEC | JAN-DEC |
| | Brown shrimp | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | FEB-NOV | JAN-DEC | - |
| | Fiddler crab | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | JUN-AUG | - | - | - | - |
| | Grass shrimp | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Squid | ABUNDANT | | X | X | X | X | X | X | X | X | X | X | X | - | - | - | MAR-OCT | MAR-OCT |
| | White shrimp | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | MAY-NOV | JAN-DEC | - |

REPTILE:

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Nesting | Hatching | Interesting | Juveniles | Adults |
|------|--------------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---------|----------|-------------|-----------|---------|
| 39 | American alligator | 76-125 AC/NEST | X | X | X | X | X | X | X | X | X | X | X | X | MAY-JUL | JUL-SEP | - | JAN-DEC | JAN-DEC |
| 40 | American alligator | <75 AC/NEST | X | X | X | X | X | X | X | X | X | X | X | X | MAY-JUL | JUL-SEP | - | JAN-DEC | JAN-DEC |

HUMAN USE RESOURCES:

BOAT RAMP:

| HUN# | Name | Contact | Phone |
|------|------------------|---------|-------|
| 57 | PUBLIC BOAT RAMP | | |

MARINA:

| HUN# | Name | Contact | Phone |
|------|---------------------|------------------------|--------------|
| 838 | SEMI-PRIVATE MARINA | LYNN VOISIN JAMIE BALL | 985/872-1638 |

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. The LDWF-LNHP provided information for some of the federally and state listed species and species of conservation concern for display in the ESI atlas and accompanying digital data in 2013. The available LNHP data sets are to be used for oil spill response and spill response planning only. These data represent existing information known to the LNHP at the time of the request and should never be substituted for consultation with the LNHP. The more spatially generalized 2011 polygonal waterbird colony data was provided by LNHP and the more spatially specific 2006 point waterbird colony data was provided by BTNEP. The display of these two data sets does not imply that EITHER or BOTH sets of polygons and/or points (especially if counts are aggregated) reflect current nest locations OR counts, but rather are to be used as a guide for what species could be present.

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE HABITATS (ESI)

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY OR MUD
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY OR MUD
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL (SHELL) BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED SCARPS IN CLAY OR MUD
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 8E PEAT
- 9A SHELTERED TIDAL FLATS
- 9B VEGETATED LOW BANKS
- 10A SALT-AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMPS
- 10D SCRUB-SHRUB WETLANDS, INCLUDING BLACK MANGROVES

SCALE 1:50000

1 0.5 0 1 KILOMETER

1 0.5 0 1 MILE

1 0.5 0 1 NAUTICAL MILE

LOUISIANA

Gulf of Mexico

Vol. 1, Vol. 2, Vol. 3

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Louisiana: ESIMAP 54

BIOLOGICAL RESOURCES:

BIRD:

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Nesting | Migrating | Molting |
|------|------------------------|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---------|-----------|---------|
| 47 | Bald eagle | E | X | X | X | X | X | | | | X | X | X | X | NOV-APR | - | - |
| 180 | American coot | UP TO 353 IND/SQ MI | X | X | X | X | | | | | X | X | X | X | - | - | - |
| | American white pelican | 1000S | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - |
| | American wigeon | UP TO 90 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Blue-winged teal | UP TO 87 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Canvasback | UP TO 3 IND/SQ MI | X | X | X | | | | | | X | X | | | - | - | - |
| | Gadwall | UP TO 800 IND/SQ MI | X | X | X | X | | | | | X | X | | | - | - | - |
| | Green-winged teal | UP TO 164 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Hooded merganser | UP TO 3 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mallard | UP TO 35 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mottled duck | UP TO 28 IND/SQ MI | X | X | X | X | X | X | X | X | X | X | X | X | MAR-JUN | - | - |
| | Northern pintail | UP TO 11 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Northern shoveler | UP TO 32 IND/SQ MI | X | X | X | X | X | | | | X | X | X | | - | - | - |
| | Ring-necked duck | UP TO 26 IND/SQ MI | X | X | X | | | | | | X | X | | | - | - | - |
| | Scaup | UP TO 90 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| 181 | American coot | UP TO 1063 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | American white pelican | 1000S | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - |
| | American wigeon | UP TO 98 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Blue-winged teal | UP TO 99 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Canvasback | UP TO 64 IND/SQ MI | X | X | X | | | | | | X | X | | | - | - | - |
| | Gadwall | UP TO 394 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Green-winged teal | UP TO 251 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Hooded merganser | UP TO 1 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mallard | UP TO 338 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mottled duck | UP TO 12 IND/SQ MI | X | X | X | X | X | X | X | X | X | X | X | X | MAR-JUN | - | - |
| | Northern pintail | UP TO 259 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Northern shoveler | UP TO 36 IND/SQ MI | X | X | X | X | X | | | | X | X | X | | - | - | - |
| | Ring-necked duck | UP TO 289 IND/SQ MI | X | X | X | | | | | | X | X | | | - | - | - |
| | Scaup | UP TO 281 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| 182 | American coot | UP TO 1058 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | American white pelican | 100S | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - |
| | American wigeon | UP TO 113 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Blue-winged teal | UP TO 103 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Canvasback | UP TO 106 IND/SQ MI | X | X | X | | | | | | X | X | | | - | - | - |
| | Gadwall | UP TO 492 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Green-winged teal | UP TO 147 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Hooded merganser | UP TO 1 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mallard | UP TO 32 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mottled duck | UP TO 38 IND/SQ MI | X | X | X | X | X | X | X | X | X | X | X | X | MAR-JUN | - | - |
| | Northern pintail | UP TO 484 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Northern shoveler | UP TO 25 IND/SQ MI | X | X | X | X | X | | | | X | X | X | | - | - | - |
| | Ring-necked duck | UP TO 403 IND/SQ MI | X | X | X | | | | | | X | X | | | - | - | - |
| | Scaup | UP TO 196 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| 184 | American coot | UP TO 2 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | American white pelican | HIGH | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - |
| | American wigeon | UP TO 19 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Blue-winged teal | UP TO 12 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Canvasback | UP TO 2 IND/SQ MI | X | X | X | | | | | | X | X | | | - | - | - |
| | Gadwall | UP TO 181 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Green-winged teal | UP TO 232 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Hooded merganser | UP TO 8 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mallard | UP TO 4 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mottled duck | UP TO 17 IND/SQ MI | X | X | X | X | X | X | X | X | X | X | X | X | MAR-JUN | - | - |
| | Northern pintail | UP TO 6 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Northern shoveler | UP TO 9 IND/SQ MI | X | X | X | X | X | | | | X | X | X | | - | - | - |
| | Ring-necked duck | UP TO 9 IND/SQ MI | X | X | X | | | | | | X | X | | | - | - | - |
| | Scaup | UP TO 468 IND/SQ MI | X | X | X | X | | | | | X | X | X | | - | - | - |
| 335 | American coot | | X | X | X | X | | | | | X | X | X | | - | - | - |
| | American wigeon | | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Blue-winged teal | | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Canvasback | | X | X | X | | | | | | X | X | | | - | - | - |
| | Gadwall | | X | X | X | X | | | | | X | X | | | - | - | - |
| | Green-winged teal | | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Hooded merganser | | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mallard | | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Mottled duck | | X | X | X | X | X | X | X | X | X | X | X | X | MAR-JUN | - | - |
| | Northern pintail | | X | X | X | X | | | | | X | X | X | | - | - | - |
| | Northern shoveler | | X | X | X | X | X | | | | X | X | X | | - | - | - |
| | Ring-necked duck | | X | X | X | | | | | | X | X | | | - | - | - |
| | Scaup | | X | X | X | X | | | | | X | X | | | - | - | - |

FISH:

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Spawning | Eggs | Larvae | Juveniles | Adults |
|------|---------------------|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|----------|---------|---------|-----------|---------|
| 223 | Alligator gar | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | American eel | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Anchovies | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-SEP | MAR-SEP | MAR-SEP | JAN-DEC | JAN-DEC |
| | Black drum | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Blue catfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | APR-JUL | APR-JUL | - | JAN-DEC | JAN-DEC |
| | Bowfin | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Bream | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-AUG | MAR-AUG | MAR-NOV | JAN-DEC | JAN-DEC |
| | Buffalo | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Channel catfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | APR-JUL | APR-JUL | - | - | JAN-DEC |
| | Crappie | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | FEB-MAY | FEB-MAY | FEB-JUN | JAN-DEC | JAN-DEC |
| | Croakers | COMMON | | | | | | | | | X | X | | | - | - | - | - | - |
| | Flathead catfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Freshwater drum | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Killifish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | APR-SEP | - | - | JAN-DEC | JAN-DEC |
| | Longnose gar | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-APR | MAR-APR | MAR-APR | MAR-JUN | JAN-DEC |
| | Paddlefish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Red drum | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | - |
| | Shad | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | MAR-MAY | MAR-MAY | MAR-JUN | MAR-JUL | JAN-DEC |
| | Sheepshead | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Southern flounder | ABUNDANT | X | X | X | | | | | | X | X | | | - | - | - | OCT-MAR | OCT-MAR |
| | Spotted gar | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | MAR-APR | MAR-APR | MAR-APR | MAR-JUN | JAN-DEC |
| | Spotted seatrout | COMMON | X | X | | | | | | | X | X | | | - | - | - | OCT-FEB | OCT-FEB |
| | Striped mullet | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | White bass | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| 225 | Alligator gar | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | American eel | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Anchovies | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-SEP | MAR-SEP | MAR-SEP | JAN-DEC | JAN-DEC |
| | Atlantic spadefish | ABUNDANT | | | | | | | | | X | X | X | X | - | - | - | - | - |
| | Atlantic tripletail | PRESENT | | | | | | | | | X | X | X | X | - | - | - | APR-OCT | APR-OCT |
| | Black drum | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | Blue catfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | APR-JUL | APR-JUL | - | JAN-DEC | JAN-DEC |
| | Bowfin | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Bream | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-AUG | | | | |

Louisiana: ESIMAP 54 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH: (cont.)

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Spawning | Eggs | Larvae | Juveniles | Adults |
|------|---------------------|-----------------|---|---|---|---|---|---|---|---|---|---|---|---------|----------|---------|---------|-----------|---------|
| 225 | Channel catfish | COMMON | X | X | X | X | X | X | X | X | X | X | X | X | APR-JUL | APR-JUL | - | - | JAN-DEC |
| | Crappie | PRESENT | X | X | X | X | X | X | X | X | X | X | X | FEB-MAY | FEB-MAY | FEB-JUN | JAN-DEC | JAN-DEC | |
| | Croakers | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | Flathead catfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | Forage fish | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | Freshwater drum | PRESENT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | Gafftopsail catfish | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | Gray snapper | ABUNDANT | | | | | | X | X | X | X | X | X | - | - | - | JUN-OCT | - | |
| | Gulf menhaden | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC | |
| | Killifish | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | APR-SEP | - | - | JAN-DEC | JAN-DEC | |
| | Kingfishes | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | Largemouth bass | PRESENT | X | X | X | X | X | X | X | X | X | X | X | JAN-MAY | - | - | JAN-DEC | JAN-DEC | |
| | Longnose gar | PRESENT | X | X | X | X | X | X | X | X | X | X | X | MAR-APR | MAR-APR | MAR-APR | MAR-JUN | JAN-DEC | |
| | Paddlefish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | Pipefish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | Red drum | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | - | |
| | Shad | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | MAR-MAY | MAR-MAY | MAR-JUN | MAR-JUL | JAN-DEC | |
| | Sheepshead | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC | |
| | Southern flounder | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | OCT-JUL | OCT-JUL | |
| | Spotted gar | PRESENT | X | X | X | X | X | X | X | X | X | X | X | MAR-APR | MAR-APR | MAR-APR | MAR-JUN | JAN-DEC | |
| | Spotted seatrout | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC | |
| | Striped mullet | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC | |
| | White bass | PRESENT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - | |
| | White trout | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC | |

INVERTEBRATE:

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Spawning | Eggs | Larvae | Juveniles | Adults |
|------|------------------------|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|----------|---------|---------|-----------|---------|
| 223 | Blue crab | ABUNDANT | X | X | | | | | | | | X | X | X | - | - | - | OCT-FEB | OCT-FEB |
| | Red swamp crawfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-MAY | JAN-DEC | JAN-DEC | JAN-DEC | JAN-DEC |
| | River shrimp | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | APR-JUL | JUL-SEP | JAN-DEC |
| 225 | Atlantic rangia | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-NOV | - | MAR-NOV | JAN-DEC | JAN-DEC |
| | Atlantic seabob shrimp | COMMON | | | | | | | | | X | X | X | X | - | - | - | - | - |
| | Blue crab | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | APR-NOV | APR-NOV | APR-NOV | JAN-DEC | JAN-DEC |
| | Brown shrimp | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | FEB-NOV | JAN-DEC | - |
| | Fiddler crab | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | JUN-AUG | - | - | - | - |
| | Grass shrimp | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |
| | Red swamp crawfish | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-MAY | JAN-DEC | JAN-DEC | JAN-DEC | JAN-DEC |
| | River shrimp | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | APR-JUL | JUL-SEP | JAN-DEC |
| | Squid | ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-NOV | MAR-NOV | MAR-NOV | JAN-DEC | JAN-DEC |
| | Stone crab | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | JAN-DEC | JAN-DEC |
| | White shrimp | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | - | - | MAY-NOV | JAN-DEC | - |
| 307 | Eastern oyster | PRESENT | X | X | X | X | X | X | X | X | X | X | X | X | MAR-NOV | MAR-NOV | MAR-NOV | JAN-DEC | JAN-DEC |

REPTILE:

| RAR# | Species | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Nesting | Hatching | Internesting | Juveniles | Adults |
|------|----------------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---------|----------|--------------|-----------|---------|
| 39 | American alligator | 76-125 AC/NEST | X | X | X | X | X | X | X | X | X | X | X | X | MAY-JUL | JUL-SEP | - | JAN-DEC | JAN-DEC |
| 40 | American alligator | <75 AC/NEST | X | X | X | X | X | X | X | X | X | X | X | X | MAY-JUL | JUL-SEP | - | JAN-DEC | JAN-DEC |
| 177 | Diamondback terrapin | | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | - |

HUMAN USE RESOURCES:

MANAGEMENT AREA:

| HUN# | Name | Contact | Phone |
|------|--------------|------------------------------------|-------|
| 775 | OYSTER LEASE | LDWF - OYSTER LEASE SURVEY SECTION | |

MARINA:

| HUN# | Name | Contact | Phone |
|------|---------------------|----------|--------------|
| 835 | SEMI-PRIVATE MARINA | MR. NANG | 985/580-0380 |

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. The LDWF-LNHP provided information for some of the federally and state listed species and species of conservation concern for display in the ESI atlas and accompanying digital data in 2013. The available LNHP data sets are to be used for oil spill response and spill response planning only. These data represent existing information known to the LNHP at the time of the request and should never be substituted for consultation with the LNHP. The more spatially generalized 2011 polygonal waterbird colony data was provided by LNHP and the more spatially specific 2006 point waterbird colony data was provided by BTNEP. The display of these two data sets does not imply that EITHER or BOTH sets of polygons and/or points (especially if counts are aggregated) reflect current nest locations OR counts, but rather are to be used as a guide for what species could be present.

LEVEES ANCHOR FLOOD CONTROL



More than 100 levee construction projects are planned.

Foremost among the flood-control works along the Lower Mississippi River is the 3,500-mile-long Mississippi River and Tributaries (MR&T) levee system. MR&T levees, which are constructed of compacted soil and clay, protect more than 4 million residents, 1.5 million homes, 33,000 farms, and vital transportation routes from destructive floods. The levees are designed to protect the Mississippi River valley against the maximum probable flood by confining flow to the channel and the river's 2-million-acre, leveed floodplain, except where it enters the natural backwater areas or is diverted purposely into floodway areas. The main stem levee system — levees, floodwalls and various control structures — is 2,203 miles long. Some 1,607 miles lie along the Mississippi River and 596 miles lie along the south banks of the Arkansas and Red rivers and in the Atchafalaya Basin. The levees are built by the federal government and are maintained by local interests, except when federal assistance is provided during major floods. Periodic inspections of levees and other flood-control works are made by personnel from the Corps and local levee and drainage districts.

PROJECT AREA

- Extends from Cape Girardeau, Missouri to the Gulf of Mexico.
- More than 100 levee construction and seepage-control projects planned.



ENVIRONMENTAL DESIGN OF MISSISSIPPI RIVER LEVEE BORROW AREAS



RECOMMENDATIONS FOR PRIVATE LANDOWNERS

This document was produced by the U.S. Army Corps of Engineers Memphis, Vicksburg and New Orleans districts; the Engineer Research and Development Center; and the Lower Mississippi River Conservation Committee.



US Army Corps of Engineers



ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER



LMRCC
CONSERVATION COMMITTEE

LEVEE WORK IMPACT STUDY

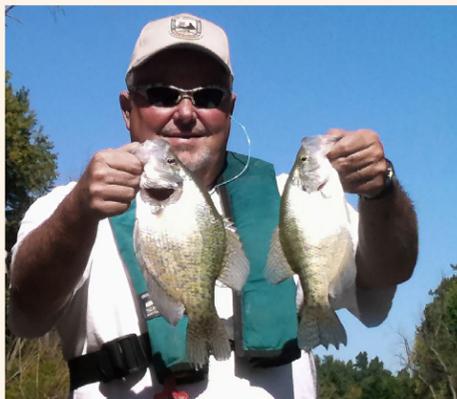
The U.S. Army Corps of Engineers has prepared a supplemental environmental impact statement to address the impacts associated with the construction of remaining authorized work on the Mississippi River mainline levees between Cape Girardeau, Missouri, and Head of Passes in Louisiana, where the river meets the Gulf of Mexico. Remaining work includes raising and widening portions of the levee using material from borrow areas and managing seepage to protect levee foundations. More than 100 new borrow areas are planned. The Corps is studying ways to minimize the environmental impacts of borrow area construction, as well as ways of designing new borrow areas so they harbor more fish and wildlife.



Raising a levee with new fill.

FROM PIT TO AQUATIC HABITAT

The Corps has conducted extensive biological studies of borrow areas along the Lower Mississippi River. Biologists have studied use of borrow areas by fish, migratory waterfowl, wading birds, forest birds, turtles, frogs and, other wildlife. Biologists also have studied the shape, depth, water quality, degree of river flooding, and other characteristics of borrow areas that influence what species of fish and other wildlife will inhabit them. River side borrow areas, or those on the unprotected side of the levee, may be occupied by up to 75 species of fish all or part of the year. The research has also shown that incorporating environmental design features in newly constructed borrow areas can greatly enhance the diversity of fish and other wildlife that inhabit them. Those features include making them mostly bowl-shaped, with deeper areas of up to 10 feet and shallower areas of less than 5 feet; creating sinuous, or curved, shorelines; planting native trees along shorelines; and creating islands. Private landowners can request that the Corps and local levee boards incorporate environment designs features when constructing borrow areas on their property.



Sport fish such as White Crappie are common in borrow areas.

BUILDING A BORROW AREA



The U.S. Army Corps of Engineers receives funding for a levee construction project, and project-specific planning and design work begins.



The Corps requests right-of-entry from a private landowner – through a non-federal sponsor such as a local levee district – where a borrow area and associated features are planned. Soil surveys and other preliminary work begins to determine soil suitability and embankment quantities required. During project design efforts, the Corps and non-federal sponsors will work with landowners to facilitate property goals and incorporate environmental features, where appropriate.

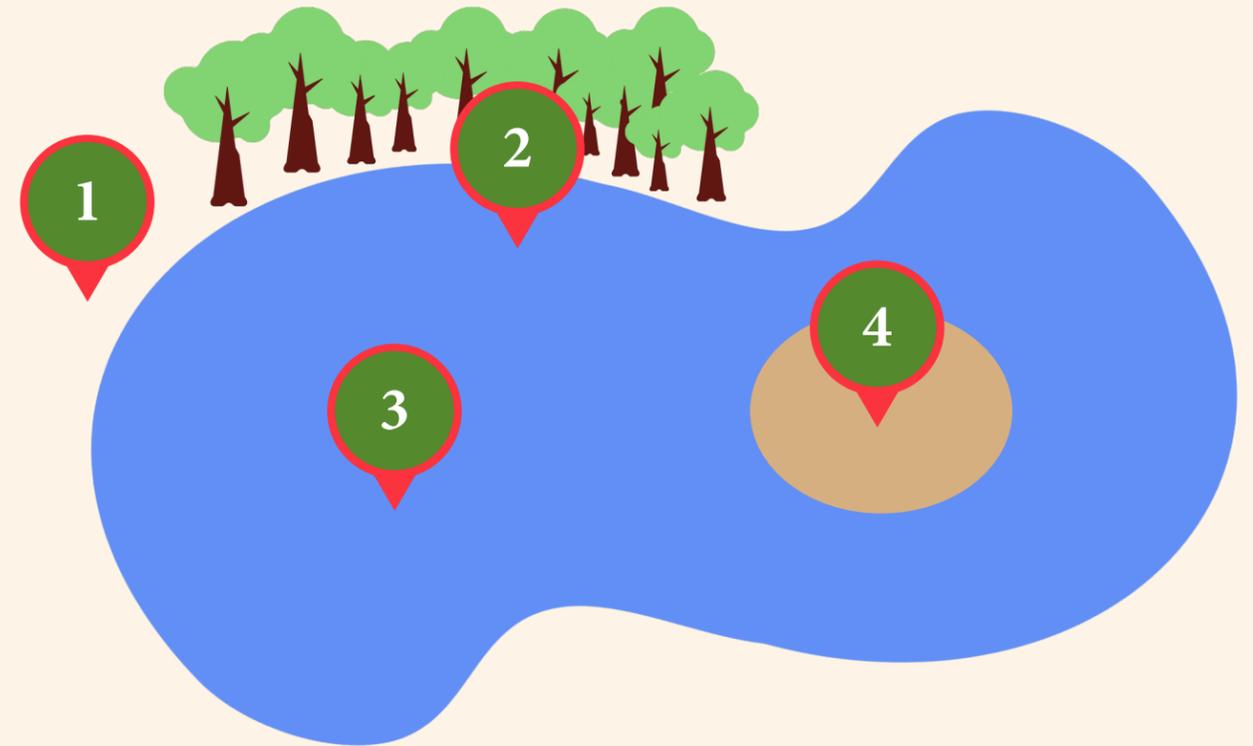


Upon design completion, the Corps requests that the non-federal sponsor acquire the necessary right-of-way for the project. The Corps will incorporate environmental features into the construction contract. Levee construction projects, including borrow area excavation, usually take two to three years to complete, but final acceptance of the project is not granted by the Corps until all project features are constructed and turf has been established on newly constructed levee features.

ENVIRONMENTAL DESIGN OF BORROW AREAS

1 Borrow areas can be constructed on the river side or land side of the levee. They can cover up to 20 acres or more.

2 Riparian buffers of native trees should border 50-75% of the periphery.



3 Should be bowl-shaped. Deep water (up to 10 feet, 1:3 slope) should cover up to 75%; shallow water (less than 5 feet, 1:10 slope) should cover 25%.

4 Islands and sinuous shorelines create varying depths and promote higher fish diversity.

FISH AND WILDLIFE INHABITING BORROW AREAS



Up to 75 species of fish occur in borrow areas. Riverside borrow areas typically harbor more species.



Wading birds such as Roseate Spoonbills, Wood Storks, and Great Egrets regularly feed in borrow areas.



Waterfowl such as Black-bellied Whistling Ducks, Wood Ducks, and Mallards feed and rest in borrow areas.



Forest and wetland birds such as Prothonotary Wablers frequent borrows areas with wooded shorelines.



Reptiles and amphibians such as the Red-eared Slider prefer still waters and woody debris for sunning.