



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

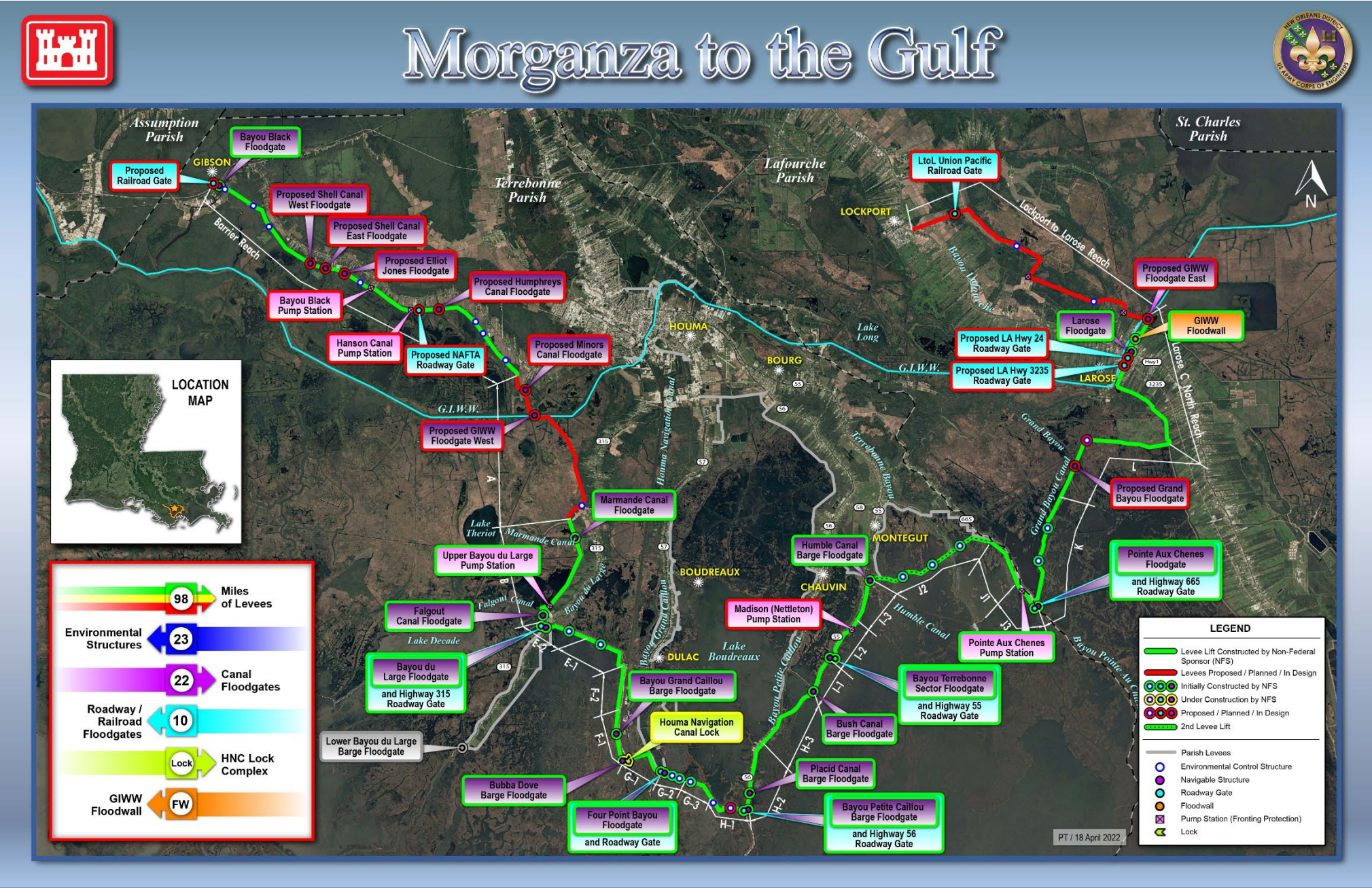


Figure B- 2. Reasonably Foreseeable Wetland or Ecosystem Restoration Projects in the MTG Study Area

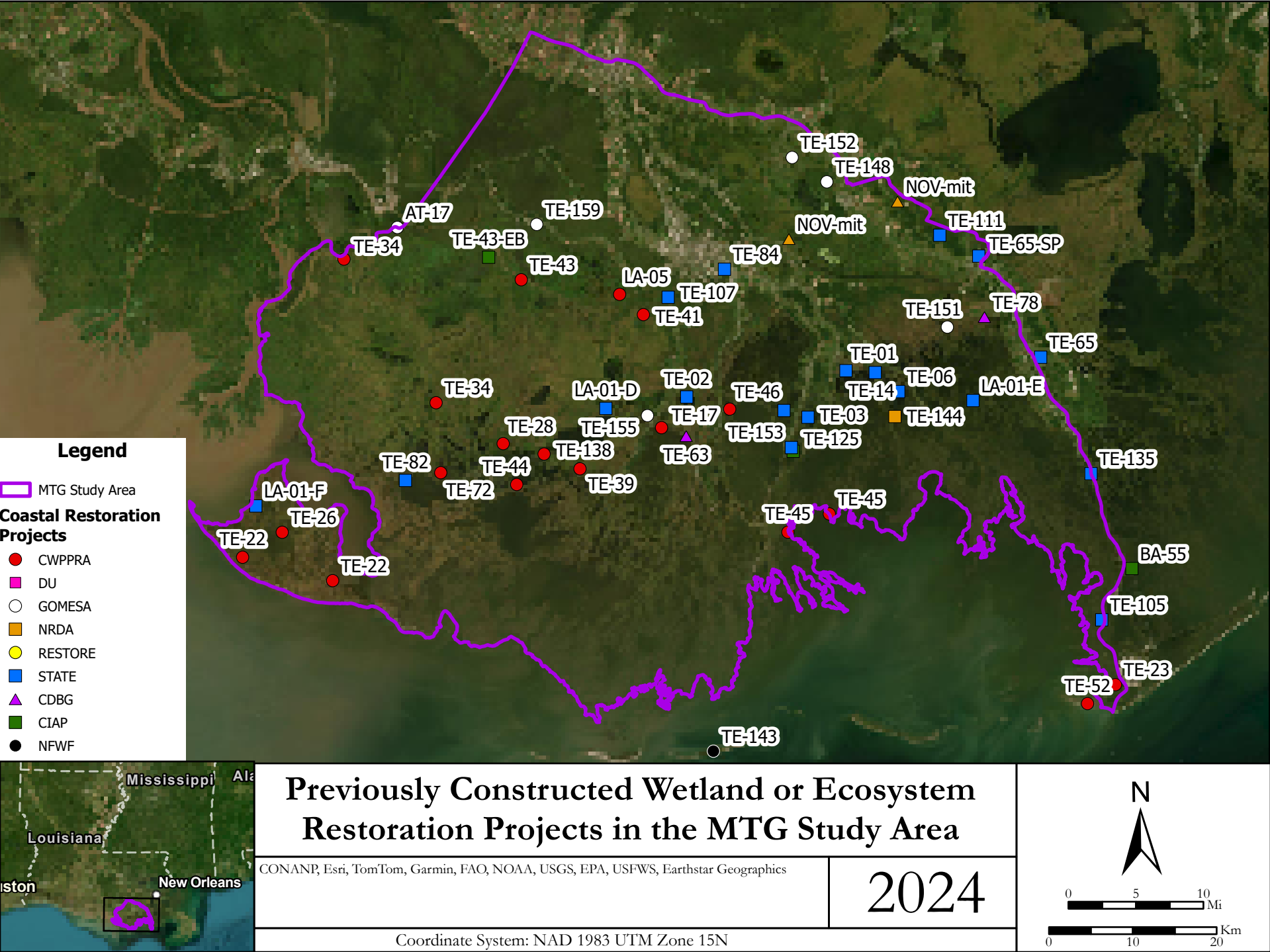


Figure B- 3. Construction Status on Alignment of the Morganza to the Gulf of Mexico Levee System

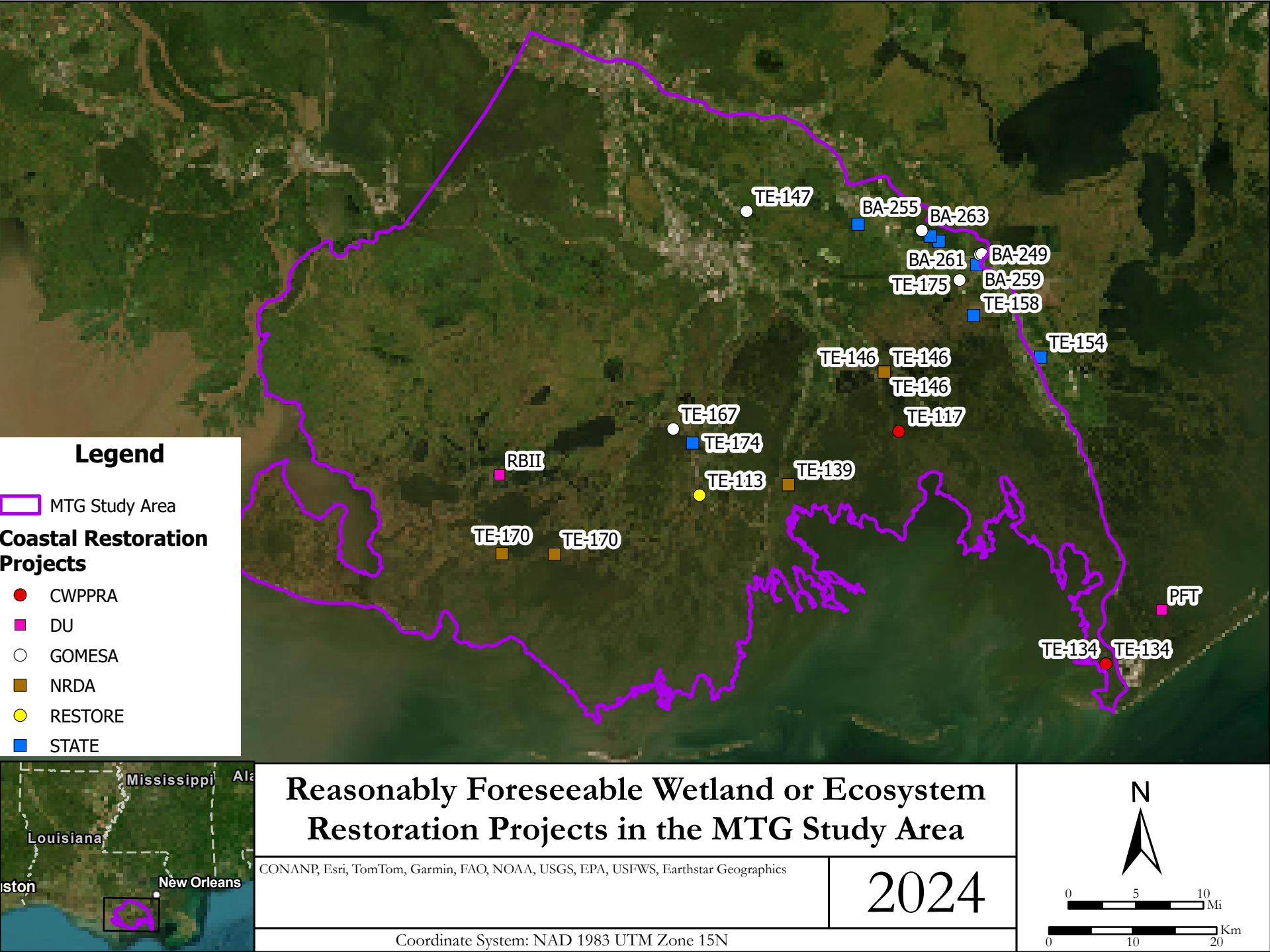


Figure B-4. CHAT Annual Mean 1-day temperature of HUC 08090302 West Central Louisiana Coastal

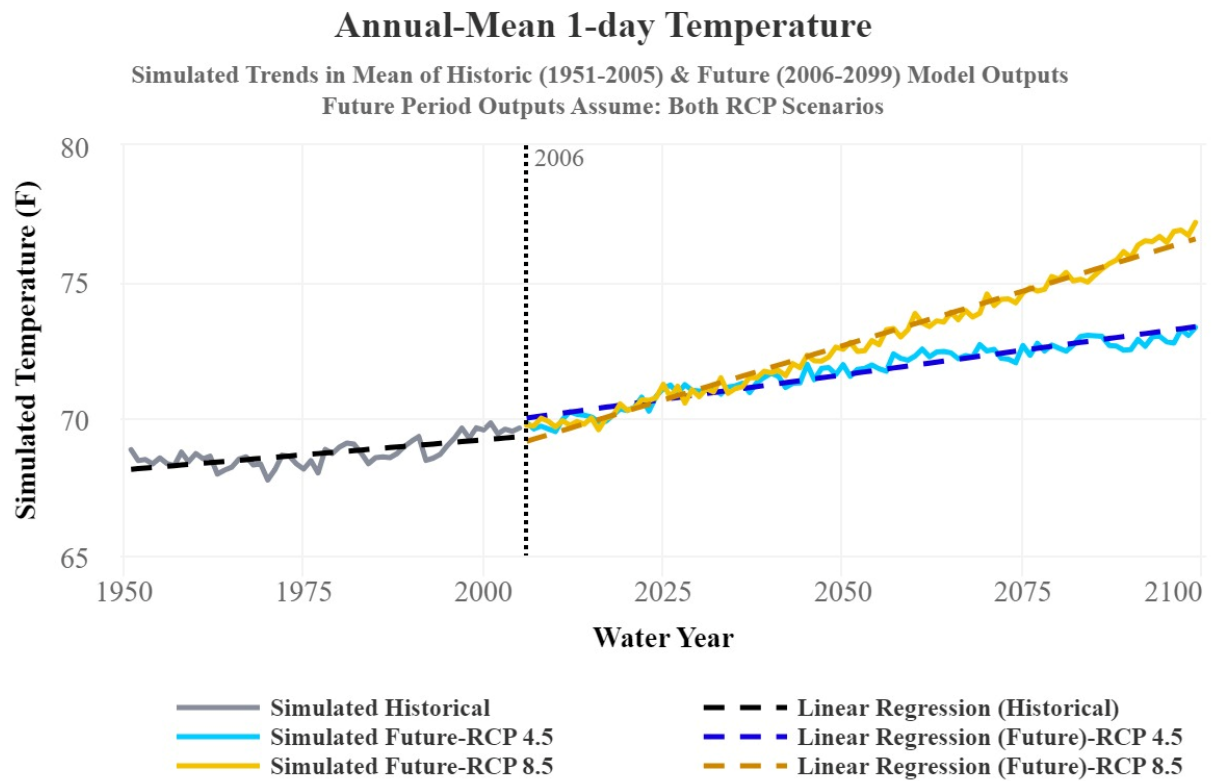


Figure B-5 CHAT Annual Maximum 1-day temperature of HUC 08090302 West Central Louisiana Coastal

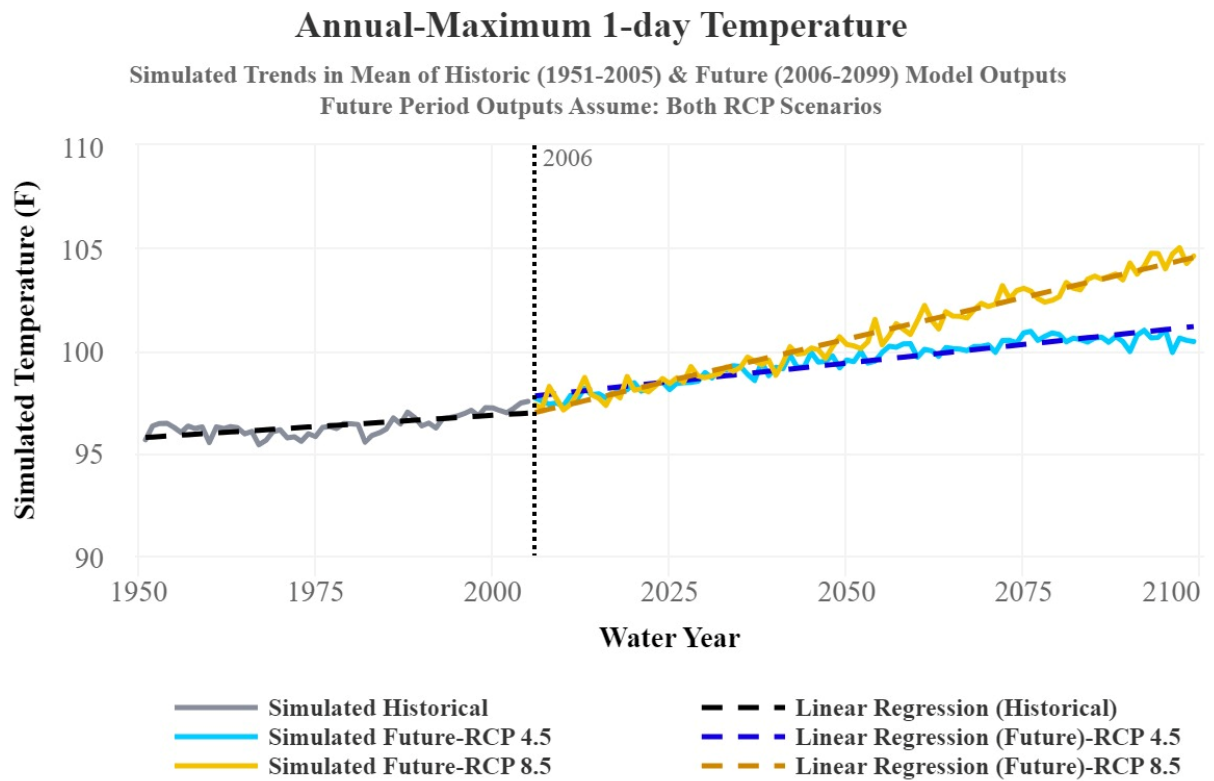


Figure B-6. CHAT Annual Minimum 1-day temperature of HUC 08090302 West Central Louisiana Coastal

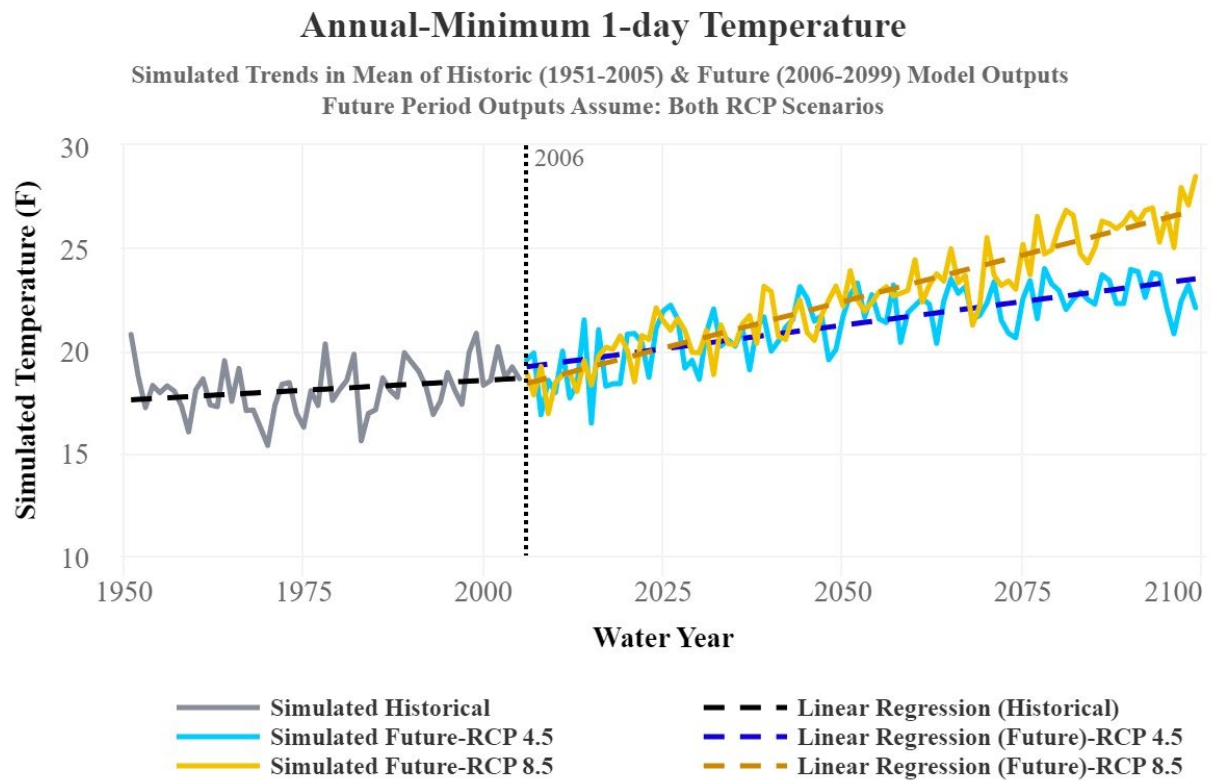


Figure B-7 CHAT Annual Accumulated Precipitation of HUC 08090302 West Central Louisiana Coastal

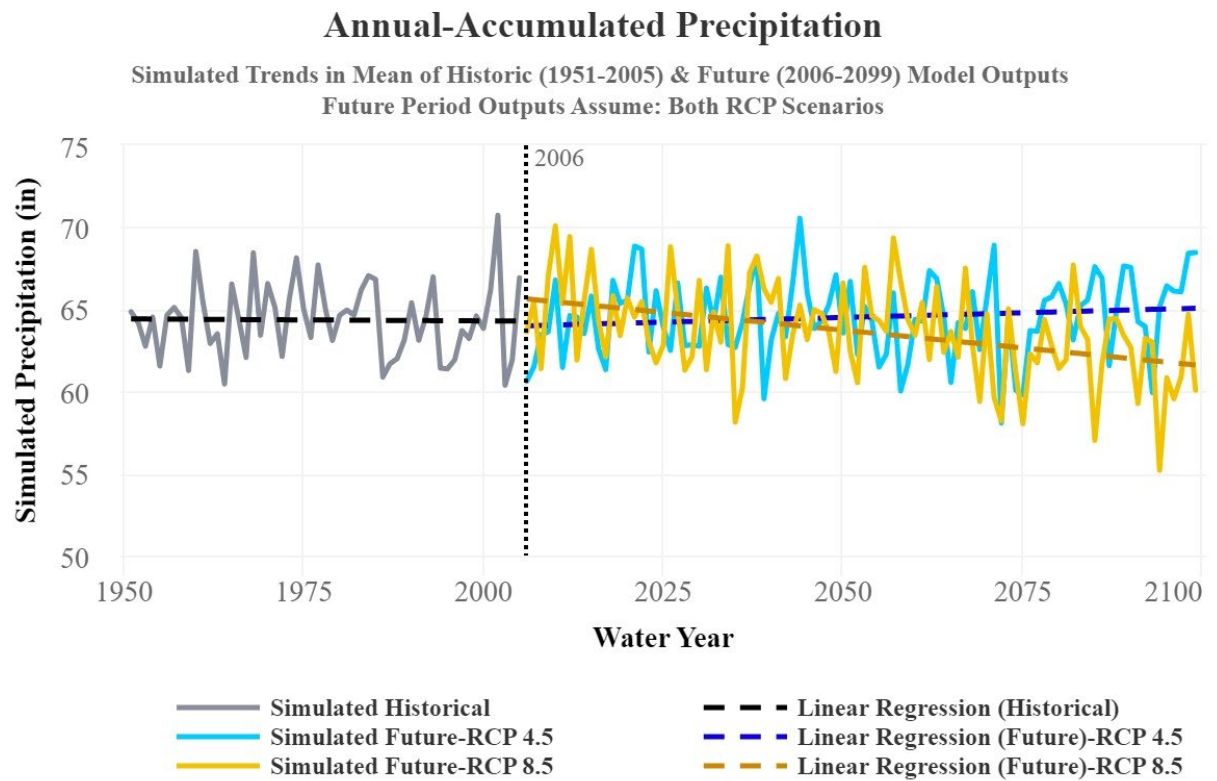


Figure B-8. CHAT Annual- Maximum of consecutive dry days of HUC 08090302 West Central Louisiana Coastal

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

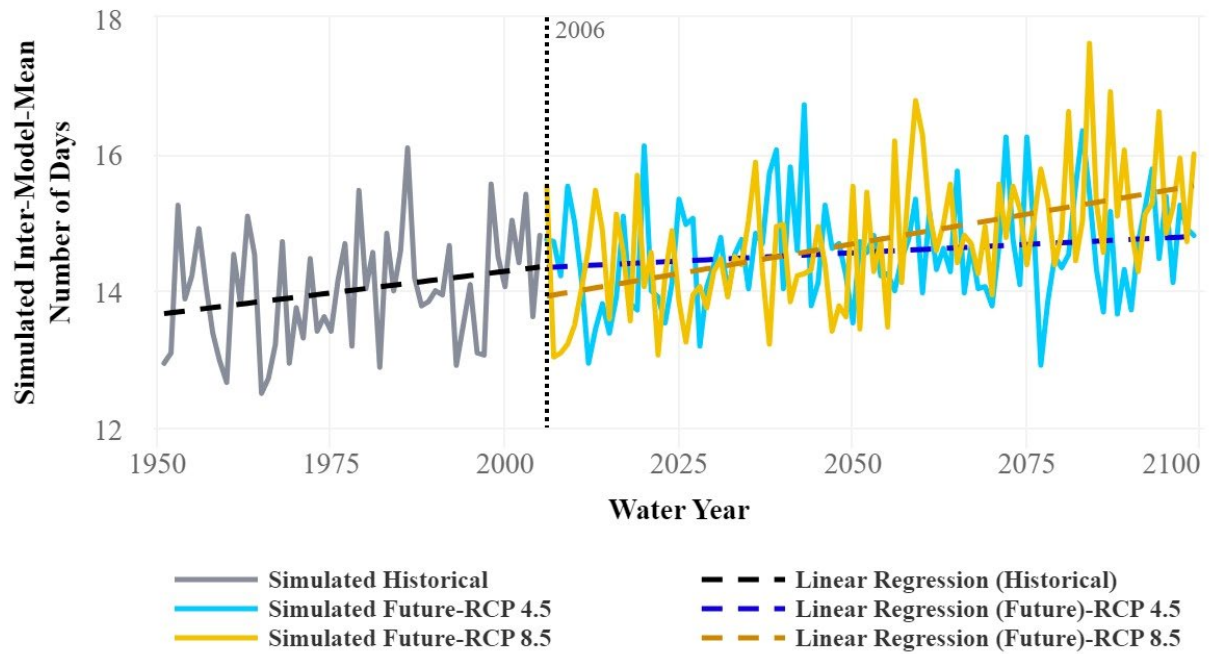


Figure B-9. CHAT Annual Maximum 1-day Precipitation of HUC 08090302 West Central Louisiana Coastal

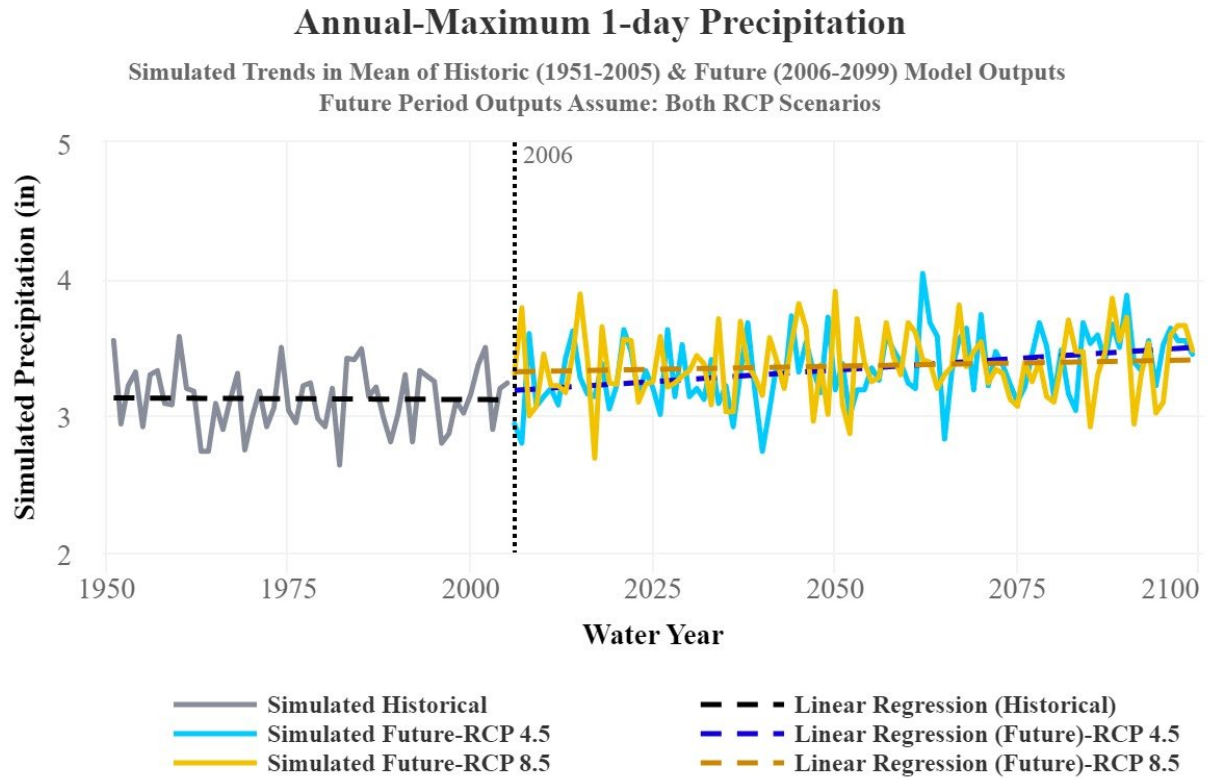


Figure B-10. Major Watershed Basins within Louisiana Recognized by LDEQ.

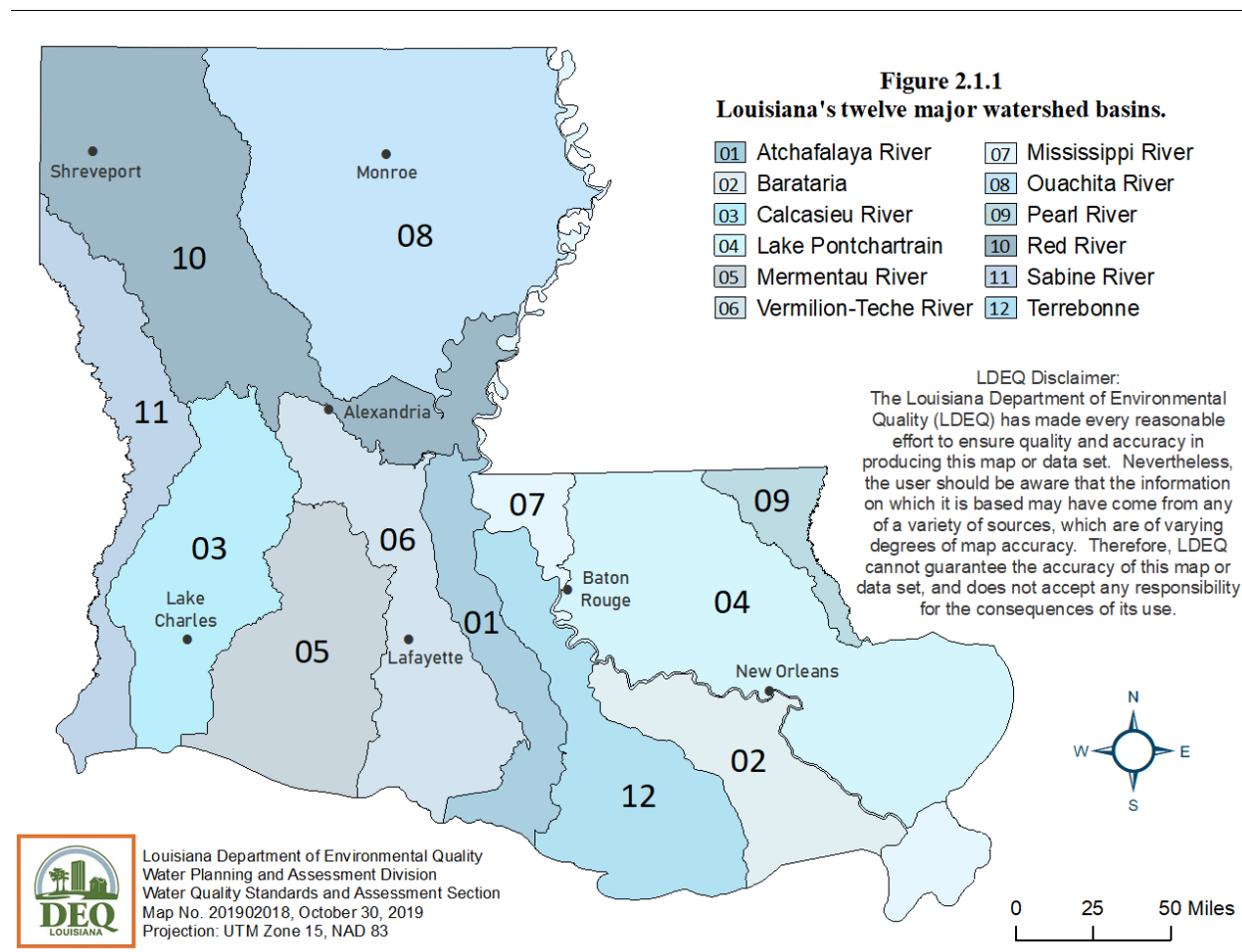
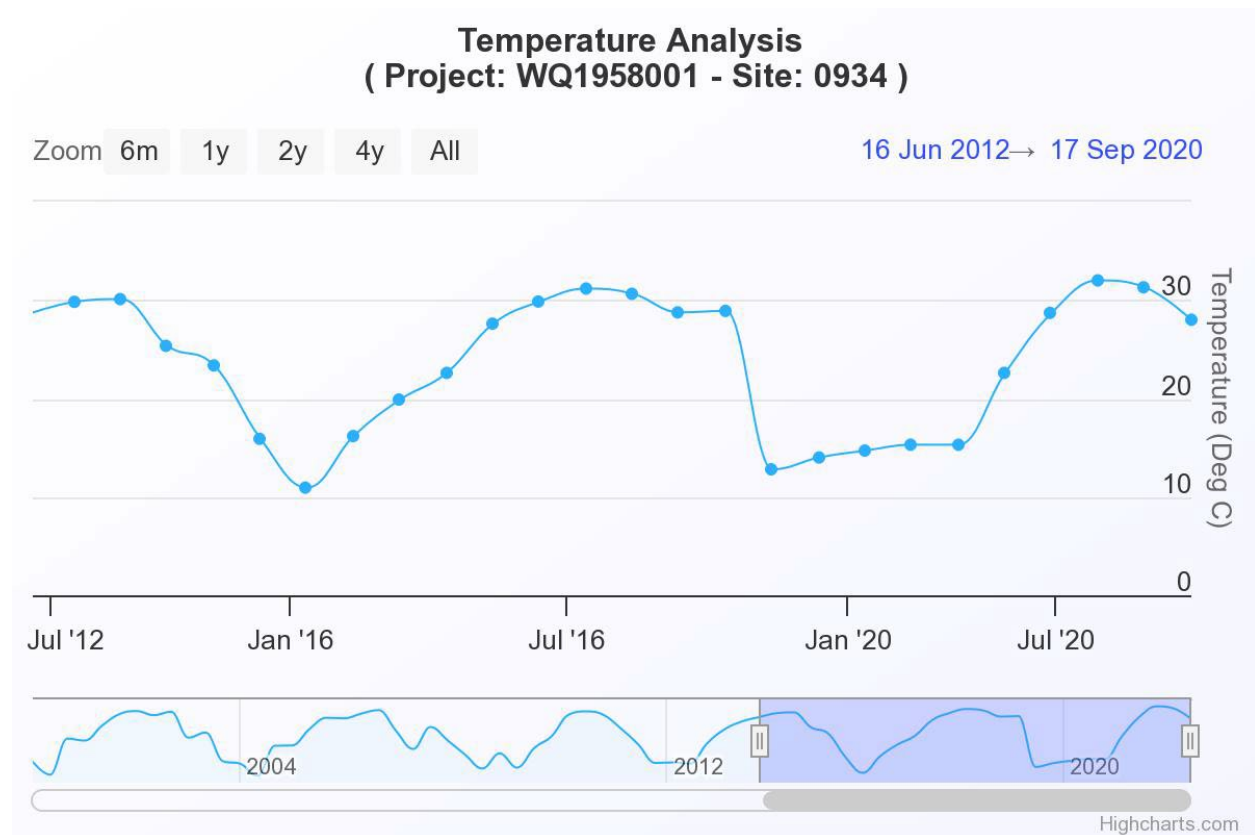


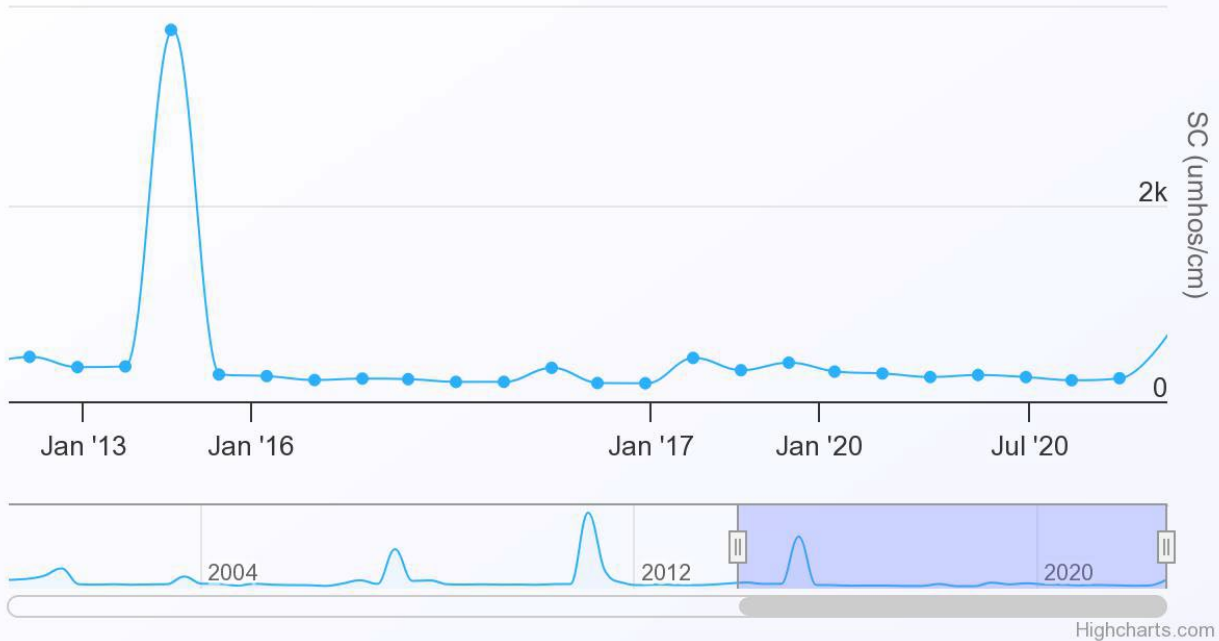
Figure B-11a-c. Water Quality Charts Showing pH, Temperature, Specific Conductance, and Dissolved Oxygen Trends between July 2012 to September 2020 for Subsegment LA120403_00-Intracoastal Waterway-From Bayou Boeuf Locks to Bayou Black in Houma; includes segments of Bayous Boeuf, Black, and Chene.



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

Zoom 6m 1y 2y 4y All

1 Jul 2012 → 17 Sep 2020



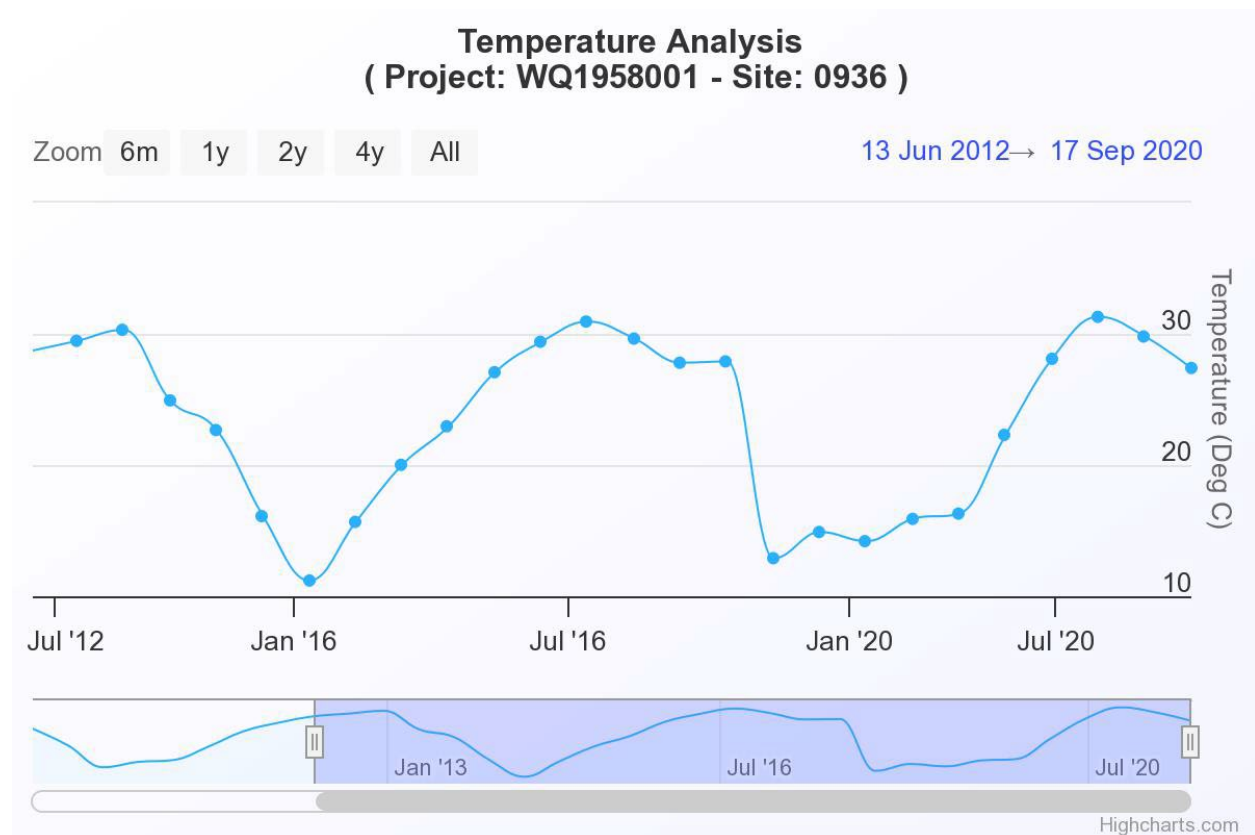
Dissolved Oxygen Analysis (Project: WQ1958001 - Site: 0934)

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

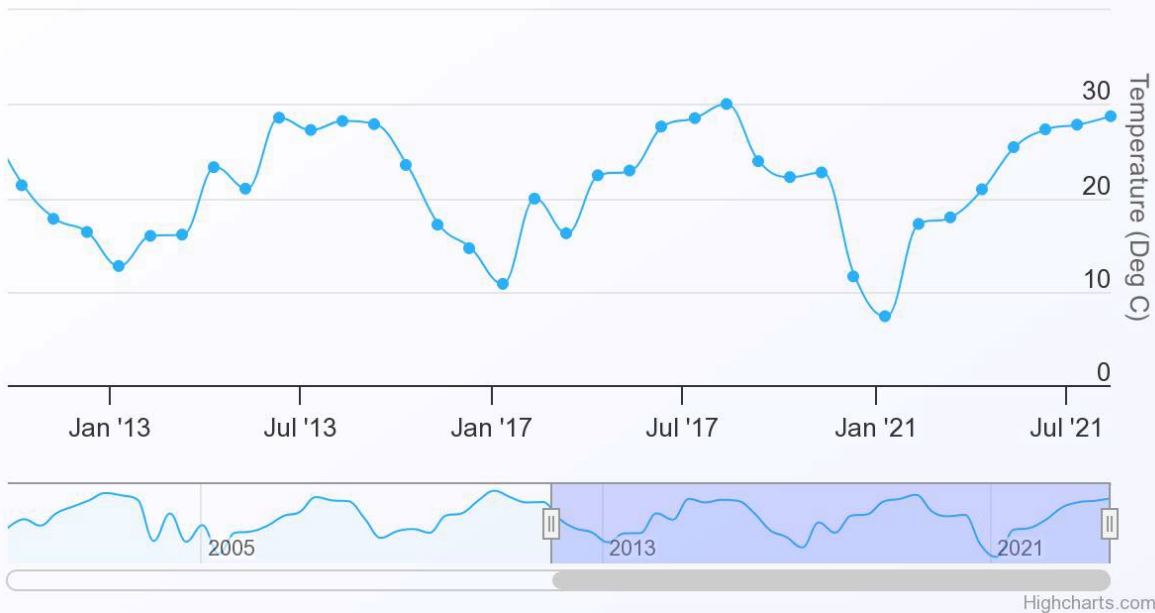


Figure B-14. Map of major soil associations in Terrebonne Parish, Louisiana (2013 PACR/RPEIS)

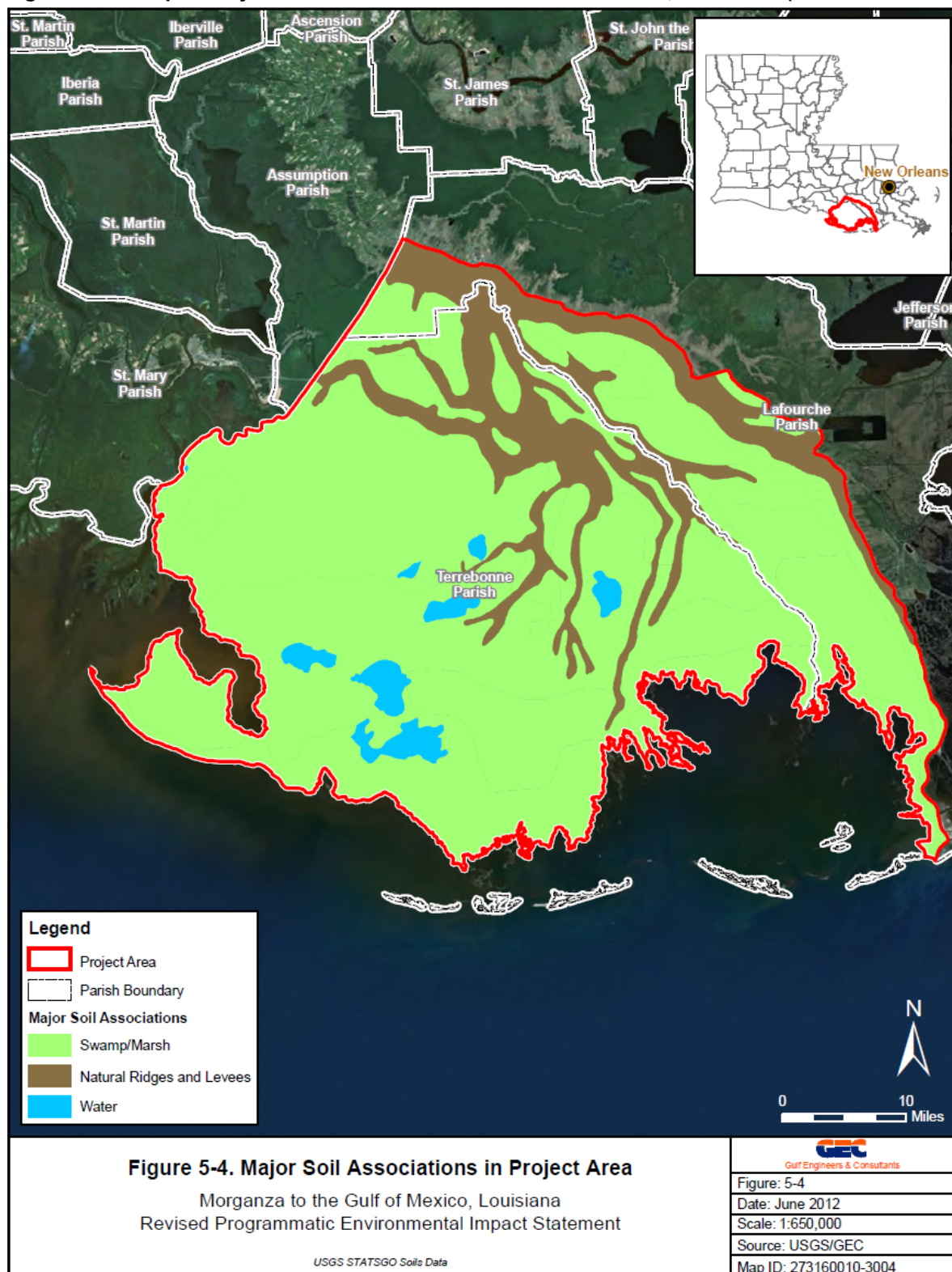


Figure B-15. FWOP conditions for Prime and Unique Farmland (2013 PACR/RPEIS).

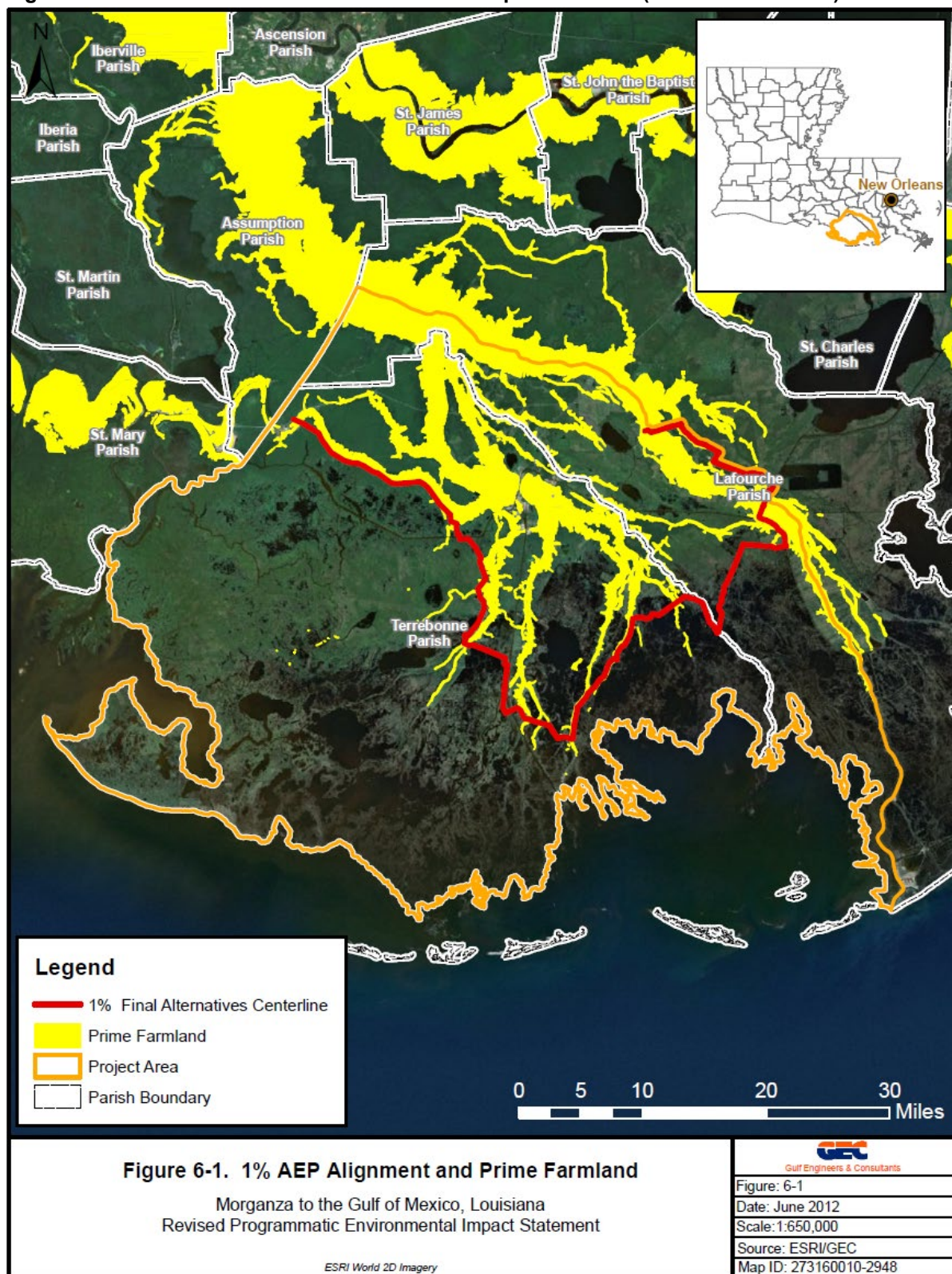


Figure B-16 Soil Map for the No Action PACR Alignment. The green color in the map depicts soils that are prime farmland, and the red color depicts soils that are not prime farmland.

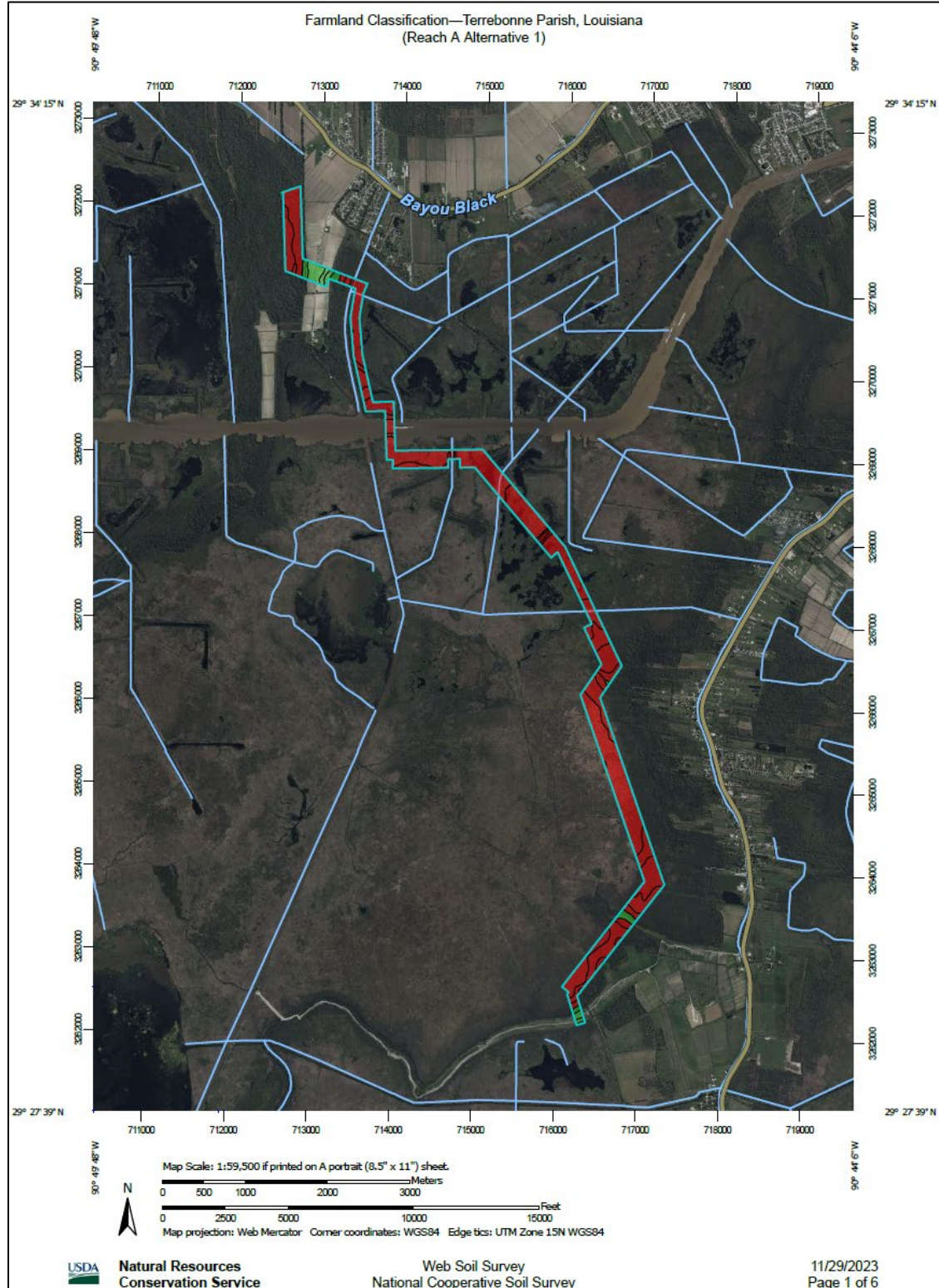


Figure B-17 Soil Map for Programmatic Features of the Proposed Action. The green color in the map depicts soils that are prime farmland, and the red color depicts soils that are not prime

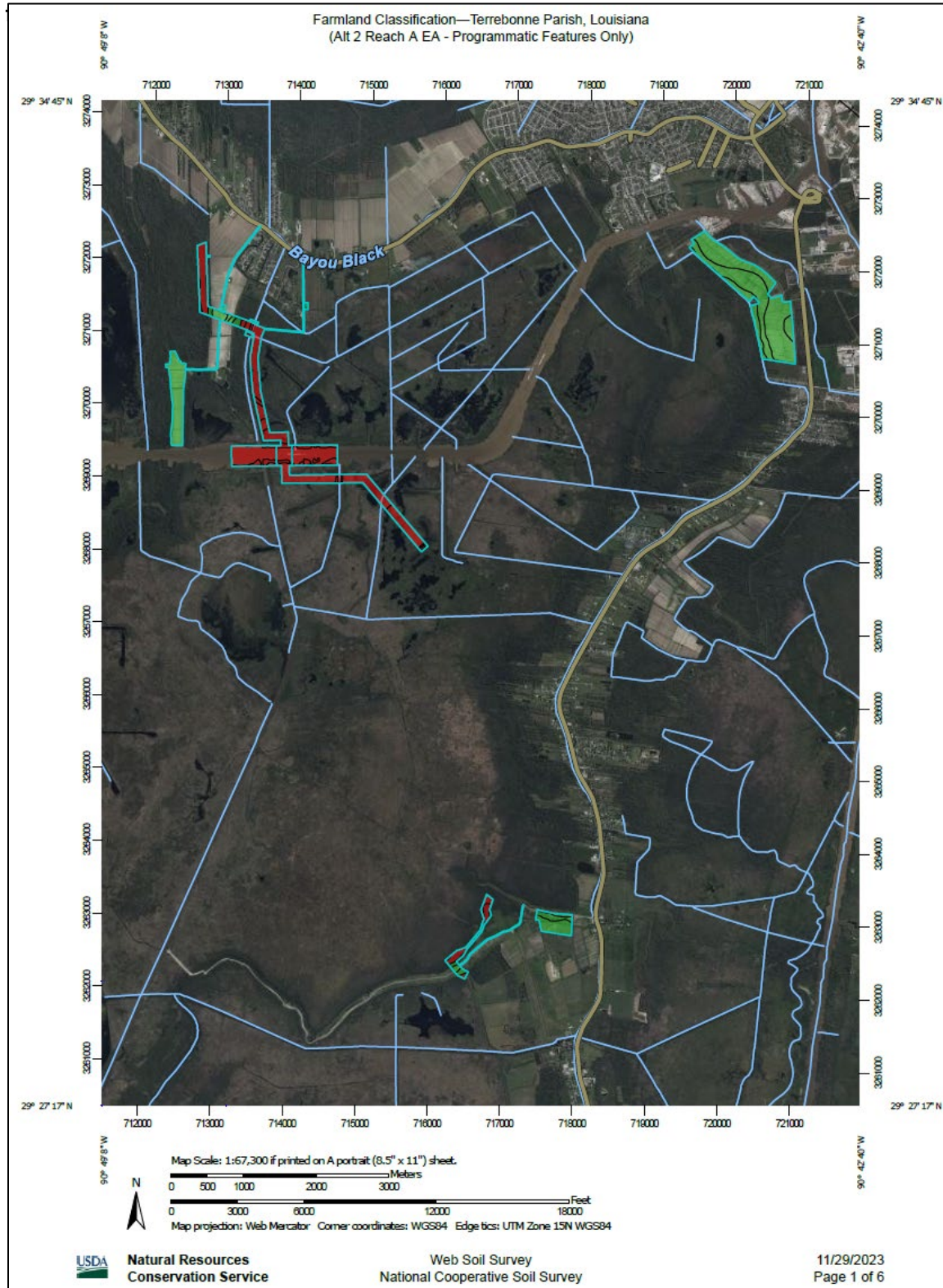
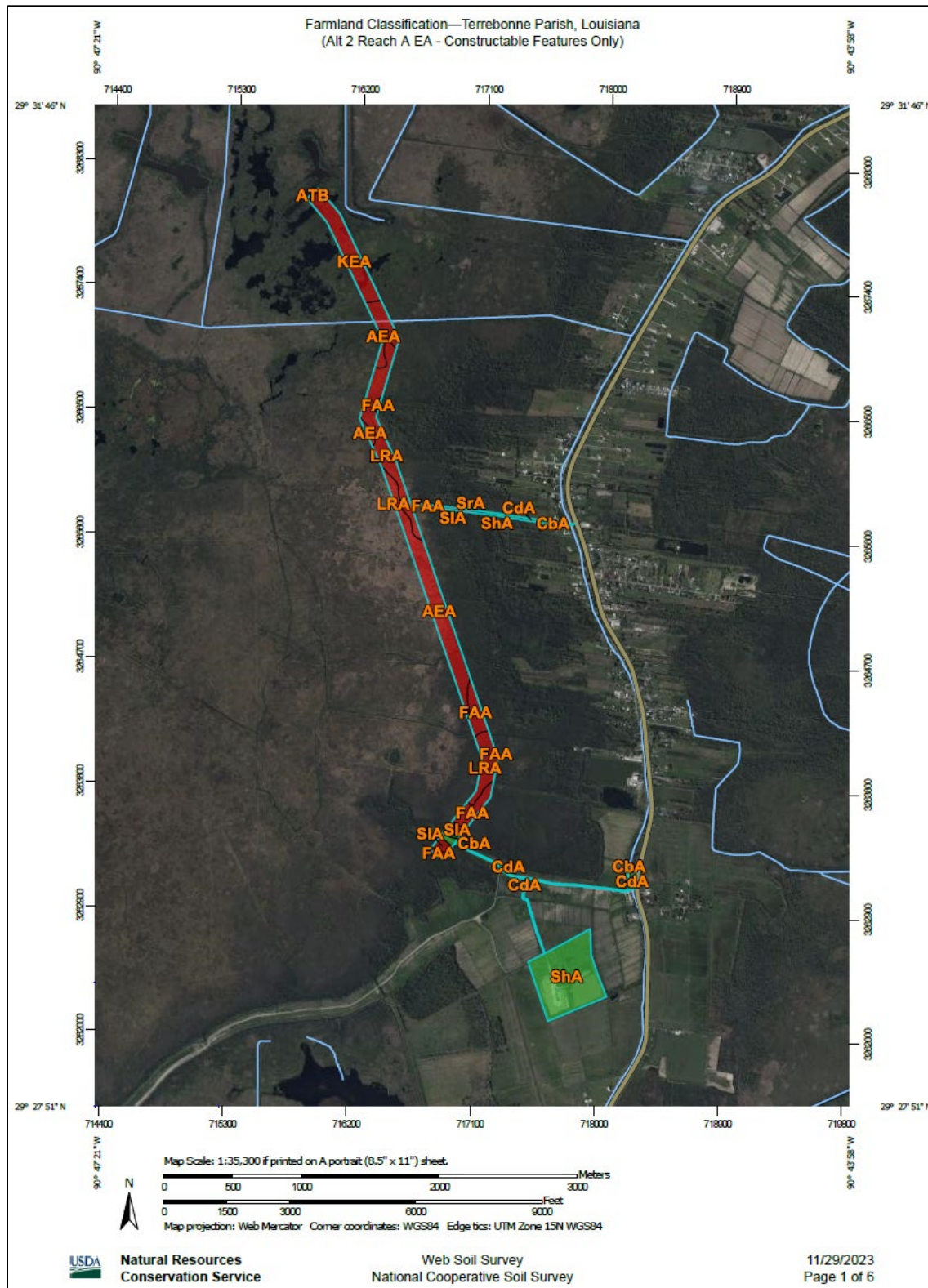
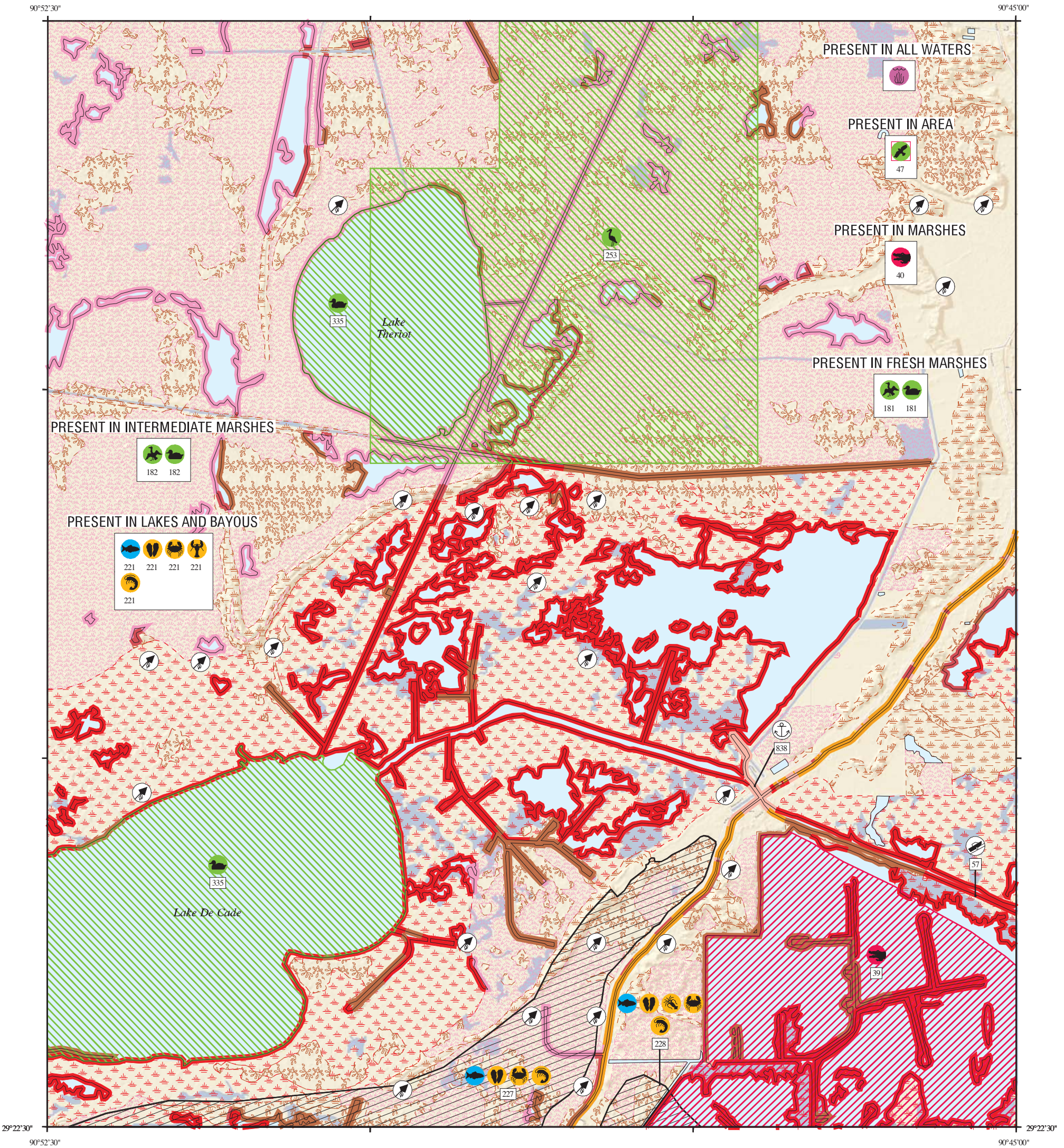


Figure B-18. Soil Map for Constructible Features of the Proposed Action. The green color in the map depicts soils that are prime farmland, and the red color depicts soils that are not prime farmland.

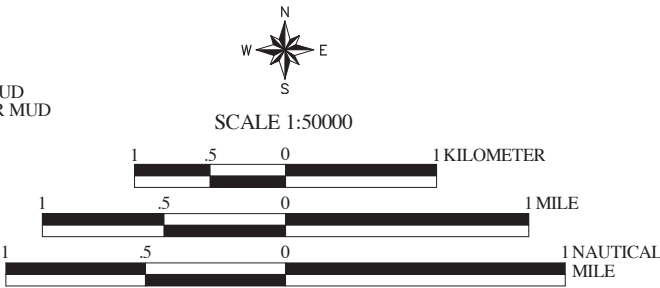


ENVIRONMENTAL SENSITIVITY INDEX MAP



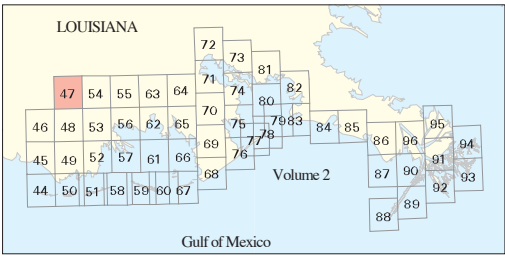
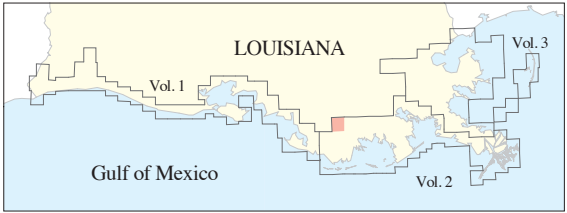
SHORELINE HABITATS (ESI)

- 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



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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	X	NOV-APR	-	-
181	American coot	UP TO 1063 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 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	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	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	X		-	-	-
182	American coot	UP TO 1058 IND/SQ MI	X	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	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	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	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	X	-	-	-
	American wigeon		X	X	X	X					X	X	X		-	-	-
	Blue-winged teal		X	X	X	X					X	X	X	X	-	-	-
	Canvasback		X	X	X						X	X			-	-	-
	Gadwall		X	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	-	-	-
	Northern pintail		X	X	X	X					X	X	X		-	-	-
	Northern shoveler		X	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	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				-	-	-	-	-
	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						-	-	-	-	-
	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				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				-	-	-	-	-
	Gafftopsail catfish	ABUNDANT				X	X	X	X	X	X	X			-	-	-	-	-
	Gray snapper	PRESENT									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			-	-	-	-	-
	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			-	-	-	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				-	-	-	-	-
	Atlantic tripletail	PRESENT				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	X	X	X	X	X	X	X	-	-	-	-	-
	Gafftopsail catfish	ABUNDANT				X	X	X	X	X	X	X			-	-	-	-	-
	Gray snapper	RARE									X	X			-	-	-	OCT-NOV	-
	Gulf menhaden	ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Herrings and sardines	PRESENT									X	X	X		-	-	-	-	-

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.

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	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Kingfishes	ABUNDANT	X X X X X X X X X X X	-	-	-	-	-
	Lane snapper	RARE	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	HIGHLY ABUNDANT	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	-	-	OCT-MAR	JAN-DEC	JAN-DEC
	Spanish mackerel	COMMON	X X X X X X X X X X	-	-	-	MAY-JUL	-
	Spotted gar	HIGHLY ABUNDANT	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	APR-SEP	-	APR-SEP	JAN-DEC	JAN-DEC
	Striped mullet	ABUNDANT	X X X X X X X X X X X	-	-	-	JAN-DEC	JAN-DEC
	Tarpon		X X X X X X X X X X	-	-	-	MAY-NOV	-
	White trout	ABUNDANT	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	MAR-NOV	-	MAR-NOV	JAN-DEC	JAN-DEC
	Blue crab	ABUNDANT	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	-	-	FEB-NOV	FEB-DEC	-
	Red swamp crawfish	PRESENT	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	-	-	APR-JUL	JUL-SEP	JAN-DEC
	White shrimp	ABUNDANT	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	MAR-NOV	-	MAR-NOV	JAN-DEC	JAN-DEC
	Atlantic seabob shrimp	ABUNDANT	X X X X X X X X X X	-	-	-	-	-
	Blue crab	HIGHLY ABUNDANT	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	-	-	FEB-NOV	JAN-DEC	-
	Fiddler crab	PRESENT	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	-	-	-	-	-
	White shrimp	HIGHLY ABUNDANT	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	MAR-NOV	-	MAR-NOV	JAN-DEC	JAN-DEC
	Blue crab	HIGHLY ABUNDANT	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	-	-	FEB-NOV	JAN-DEC	-
	Fiddler crab	PRESENT	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	-	-	-	-	-
	Squid	ABUNDANT	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	-	-	MAY-NOV	JAN-DEC	-

REPTILE:

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

HUMAN USE RESOURCES:

BOAT RAMP:

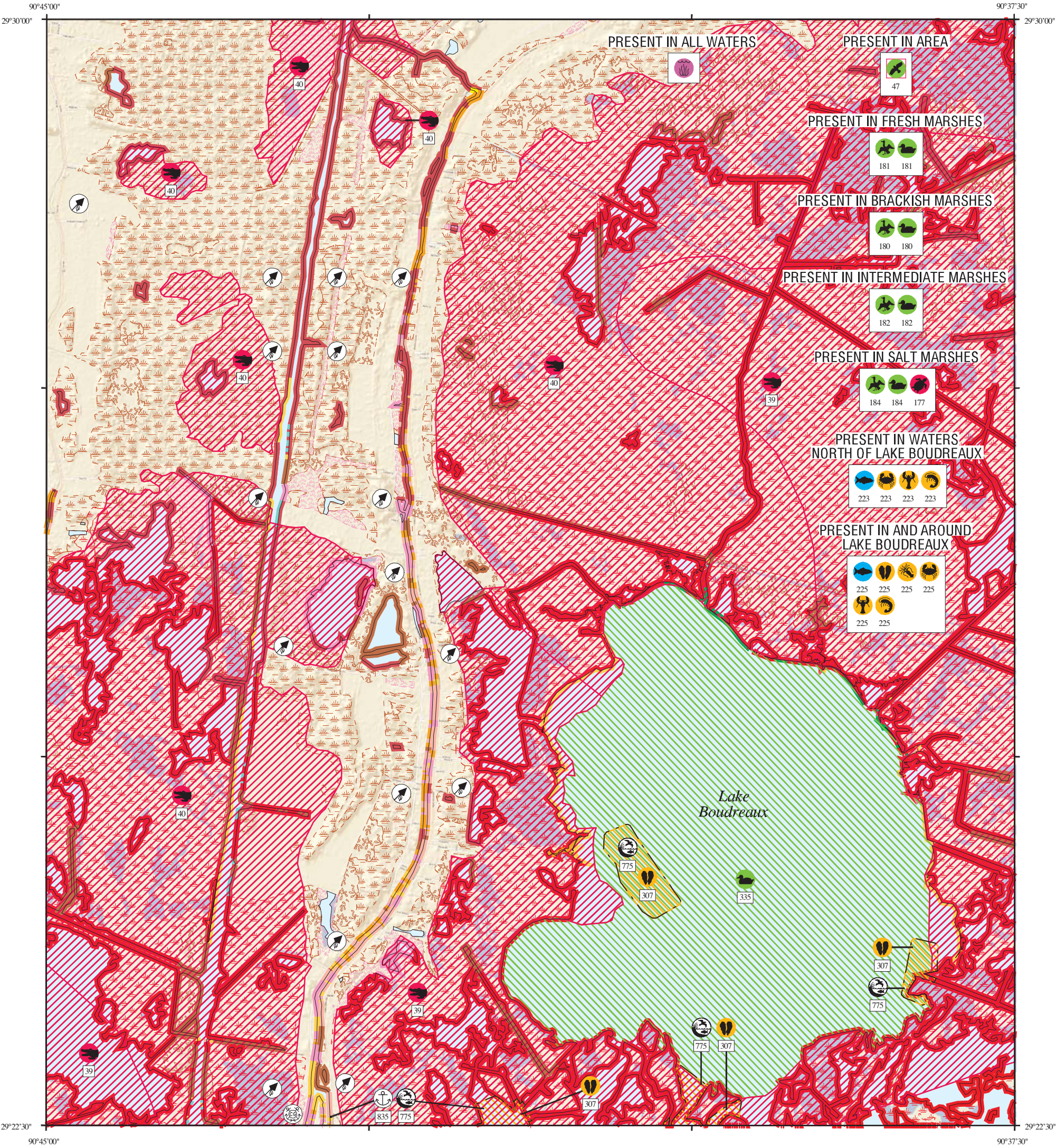
HUN#	Name	Contact	Phone
57	PUBLIC BOAT RAMP		

MARINA:

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

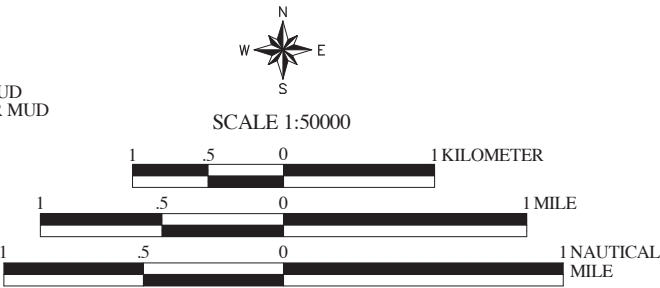
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ENVIRONMENTAL SENSITIVITY INDEX MAP



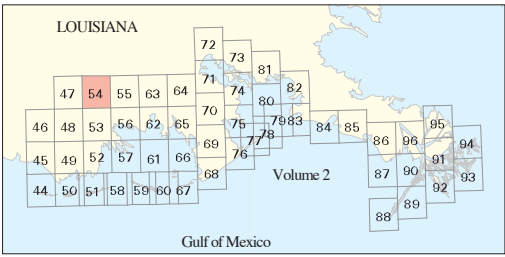
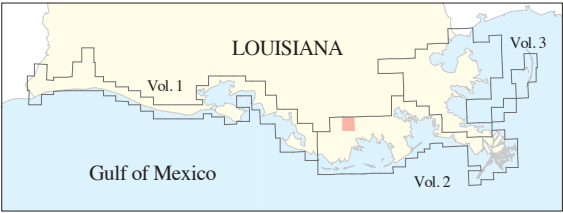
SHORELINE HABITATS (ESI)

- 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



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Office of Response and Restoration
Emergency Response Division



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	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	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	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	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	X		-	-	-
182	American coot	UP TO 1058 IND/SQ MI	X	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	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	X		-	-	-
184	American coot	UP TO 2 IND/SQ MI	X	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	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	X		-	-	-
335	American coot		X	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	X	-	-	-
	Canvasback		X	X	X						X	X			-	-	-
	Gadwall		X	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	-	-	-
	Northern pintail		X	X	X	X					X	X	X		-	-	-
	Northern shoveler		X	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
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	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	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	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	MAR-AUG	MAR-NOV	JAN-DEC	JAN-DEC
	Buffalo	PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Bull shark	COMMON				X	X	X	X	X	X	X			-	-	MAY-SEP	MAR-OCT	-

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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	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	-	-	-	-	-
	Gray snapper	ABUNDANT	X X 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	-	-	-	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 X X X X	-	-	-	OCT-FEB	OCT-FEB
	Red swamp crawfish	PRESENT	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	-	-	APR-JUL	JUL-SEP	JAN-DEC
225	Atlantic rangia	PRESENT	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 X X X X	-	-	-	-	-
	Blue crab	ABUNDANT	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	-	-	FEB-NOV	JAN-DEC	-
	Fiddler crab	PRESENT	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	-	-	-	-	-
	Red swamp crawfish	PRESENT	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	-	-	APR-JUL	JUL-SEP	JAN-DEC
	Squid	ABUNDANT	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	-	-	-	JAN-DEC	JAN-DEC
	White shrimp	HIGHLY ABUNDANT	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	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	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	MAY-JUL	JUL-SEP	-	JAN-DEC	JAN-DEC
177	Diamondback terrapin		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

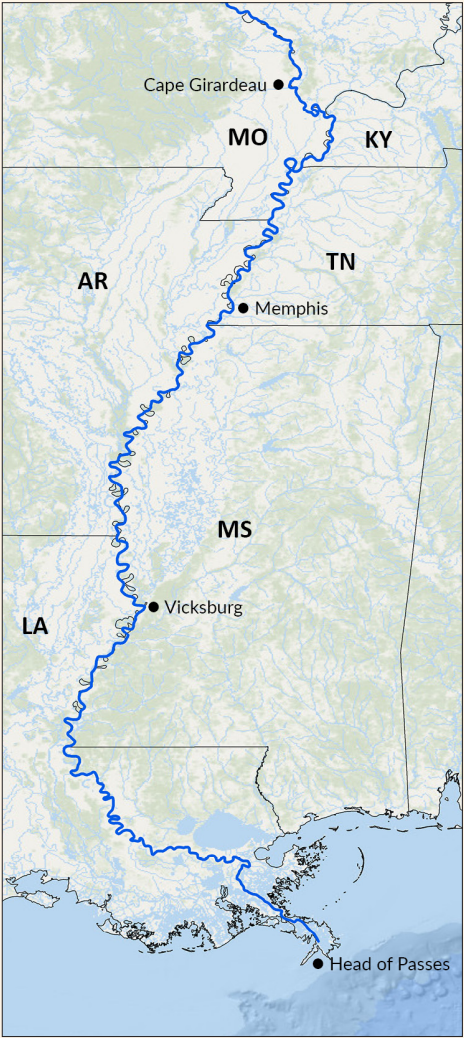


More than 100 levee construction projects are planned.

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.

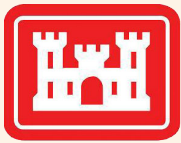


ENVIRONMENTAL DESIGN OF
MISSISSIPPI RIVER LEVEE BORROW AREAS



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®



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.

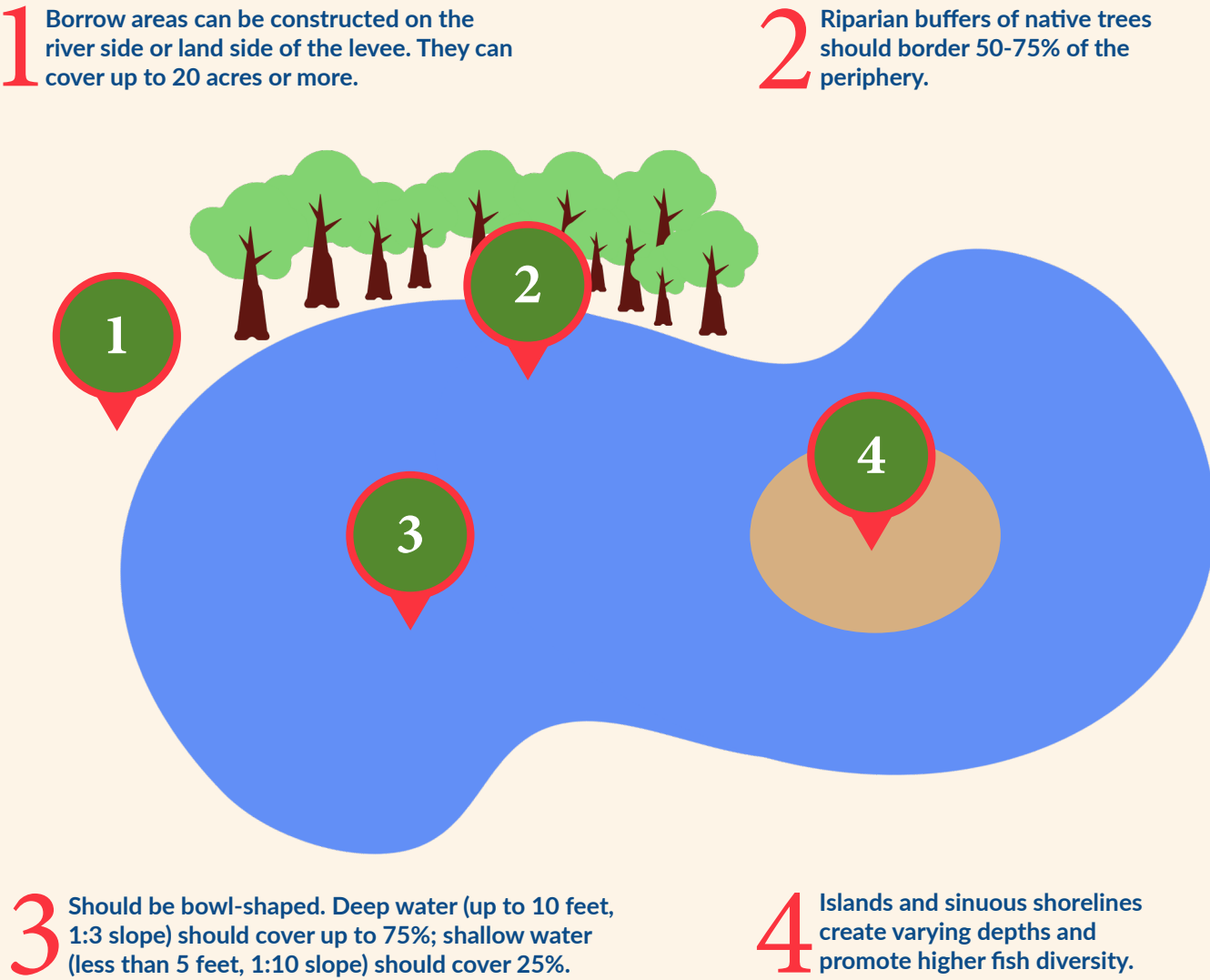
BUILDING A BORROW AREA

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



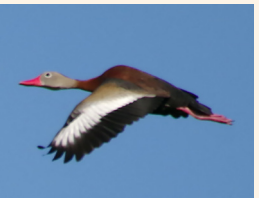
FISH AND WILDLIFE INHABITING BORROW AREAS



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.