

HOLOCENE

Matagorda Formation
Eolian Deposits

- Qm-cd** **Qm-cd—Clay dune.** Semiconsolidated silt, clay, and sand deposited by wind adjacent to active and abandoned tidal flats. May include storm deposits. Common coastal prairie vegetation.
- Carancahua Member (Bay- and Estuarine-Margin Deposits)**
- Qmc-m** **Qmc-m—Marsh.** Unconsolidated mud and sand deposited in low-relief areas adjacent to the bay shoreline. Common tidal channels. Salt- or brackish-water marsh vegetation.
- Qmc-b** **Qmc-b—Beach or berm.** Unconsolidated sand, shell, and mud deposited along the bay shoreline from wave action. The beach is unvegetated; the berm may be sparsely vegetated.
- Qmc-ba** **Qmc-ba—Beach or berm; abandoned.** Unconsolidated sand, shell, and mud deposited in low berm along former bay shorelines from wave action. Commonly vegetated.
- Qmc-sp** **Qmc-sp—Spit.** Unconsolidated sand, shell, and mud deposited across bay and valley mouths from erosion of adjacent shorelines and lateral sediment migration.
- Qmc-tf** **Qmc-tf—Tidal flat.** Unconsolidated sand and mud deposited in a tidal flat that is periodically inundated by astronomical tides or wind-driven water at the margins of bays or tributary valleys. May include barren or vegetated areas and algal mats.

HOLOCENE TO PLEISTOCENE

- Qal** **Qal—Alluvium, undifferentiated.** Unconsolidated sand, silt, and clay deposited in various environments along streams and drainages. May include Holocene deposits.

PLEISTOCENE

Beaumont Formation

- Qb** **Qb—Beaumont Formation, undifferentiated.** Semiconsolidated clay, silt, sand, and minor gravel deposited in fluvial-deltaic, interdistributary, distributary, and bay and estuarine settings. Includes flood-plain and delta-plain deposits and channel, levee, and crevasse-splay deposits.
- Qb-s** **Qb-s—Beaumont Formation, sandy facies.** Semiconsolidated sandy mud, silt, and fine sand deposited in fluvial- and distributary-channel setting.
- Qb-ch** **Qb-ch—Beaumont Formation, channel facies.** Semiconsolidated sandy clay to clayey sand deposited in abandoned streams or distributary channels.
- Qbi** **Qbi—Ingeside barrier island, barrier peninsula, and strandplain, undifferentiated.** Semiconsolidated sand, silt, and lesser clay deposited in barrier islands, barrier peninsulas, or strandplain settings. Common pimple mounds, closed basins, and ridge-and-swale topography.
- Qbi-bf** **Qbi-bf—Ingeside barrier flat.** Semiconsolidated sand and mud deposited in a barrier-flat environment.
- Qbi-bbl** **Qbi-bbl—Ingeside back barrier and lagoon.** Semiconsolidated sand and mud deposited in the back barrier or lagoon environment.
- Qbi-dw** **Qbi-dw—Ingeside barrier drainage way.** Semiconsolidated sand, silt, and lesser clay deposited in former Ingeside larger swales, tidal channels, and washover channels. Generally low elevation with few pimple mounds.
- Qbi-elb** **Qbi-elb—Ingeside ephemeral lake basin.** Semiconsolidated sand and mud deposited in closed or connected topographic basins in a barrier-island or strandplain environment. May include younger lacustrine deposits.

Map Symbols

- Contact (distinct)
--- Contact (gradational)
--- Stream (active or intermittent), drainage ditch, canal, or tidal channel
--- Elevation (ft), contour interval 5 ft
--- Road
--- County line
--- Railroad
--- Pier
▲ Apparent electrical conductivity (in millisiemens per meter, or mS/m) of the ground measured using a Geonics EM31 ground-conductivity meter in the vertical dipole coil orientation. The value shown is bulk conductivity from the surface to depths of 10 to 20 ft (McNeill, 1980a, 1980b).
- Time-domain EM sounding for subsurface lithostratigraphic interpretation.
- Water; bay, large lake, or stream connected to bay.
SPW, selected ponded water.
Dredged or excavated canal, ditch, or pond
Fill; land artificially elevated by fill material.
DMDA; dredged material disposal area
DMR; dredged material, reworked
Sand or gravel pit
Pit
Airfield

Acknowledgments and Disclaimer

Photography used in the study included (1) 0.6-m pixel, natural color, National Agriculture Imagery Program (NAIP) digital imagery, photographed in 2022 and (2) a 1:24,000-scale Tobin aerial photographic mosaic of the Aransas Pass quadrangle flown in March and August 1930. NAIP imagery was obtained from the Texas Geographic Information Office (TXGEO). Photography was supplemented by 1-m cell size digital elevation models (DEMs) constructed from data acquired during an airborne lidar survey flown by the U.S. Geological Survey (USGS) in 2018. Previous regional maps that cover this area include the 1:250,000-scale Geologic Atlas of Texas, Corpus Christi Sheet (Brown and others, 1975); the 1:125,000-scale Environmental Geologic Atlas of Texas, Corpus Christi area (Brown and others, 1976); and the 1:125,000-scale map of Distribution of Wetlands and Benthic Macroinvertebrates from the Submerged Lands of Texas, Corpus Christi area (White and others, 1983). The rationale for the mapping approach to Holocene fluvial, deltaic, bay, and estuarine deposits is described in Paine and others (2026).

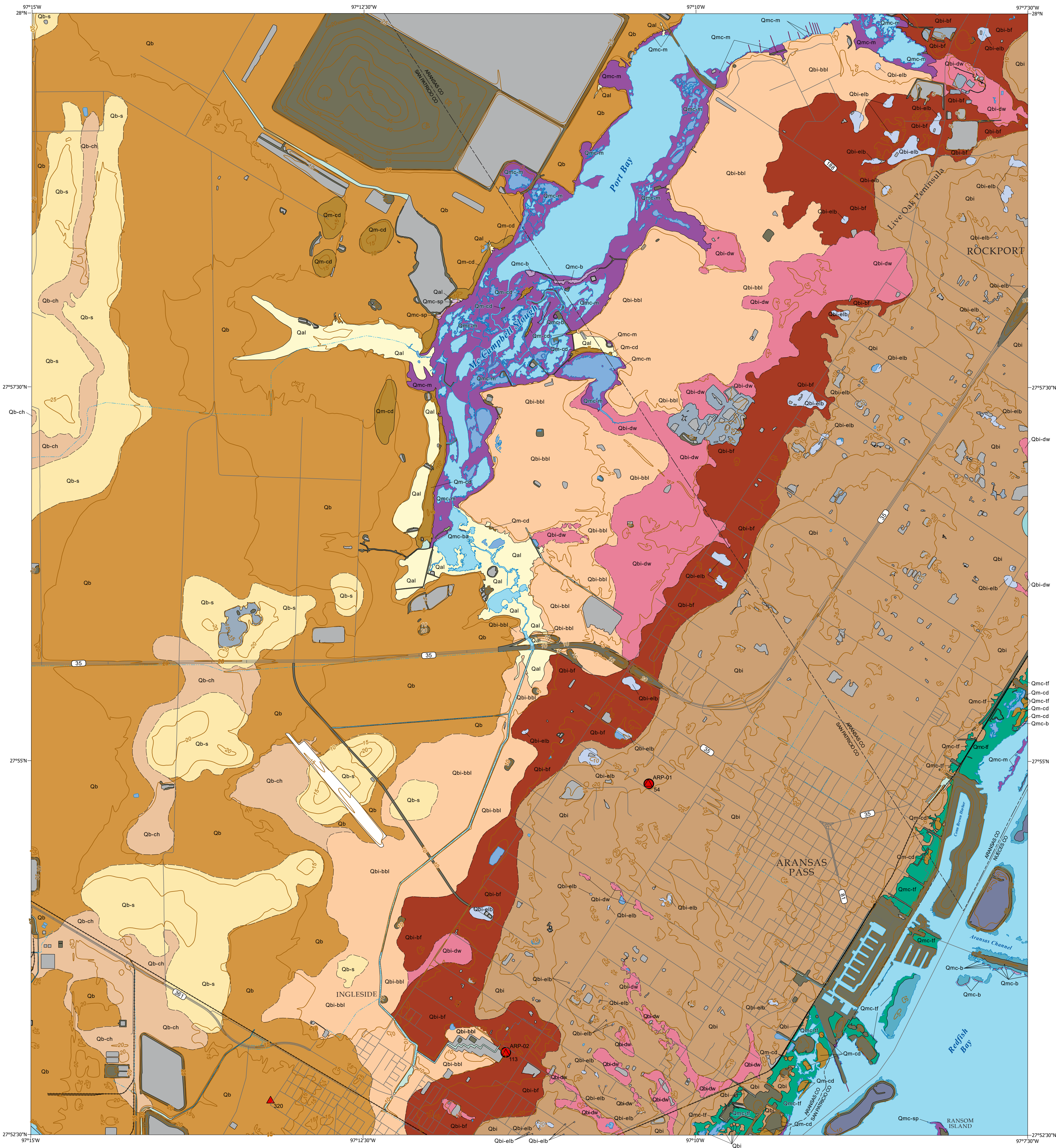
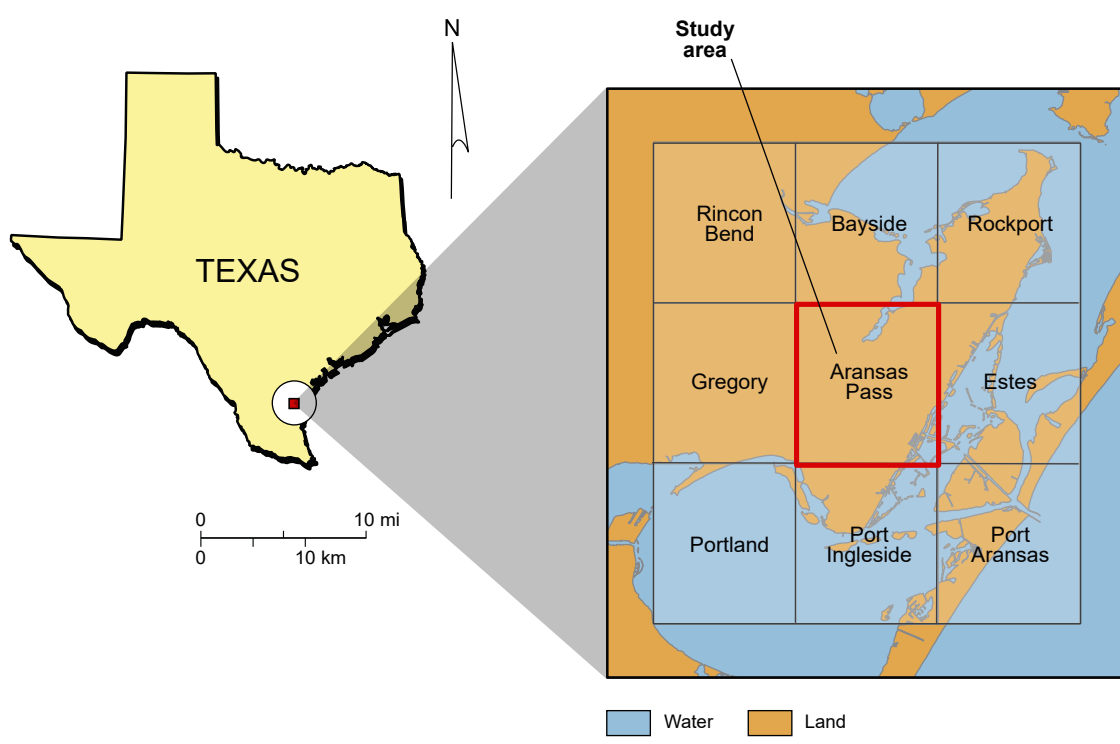
The study included field observations of surficial deposits and collection and interpretation of surfaces and subsurface electrical conductivities measured using ground-based electromagnetic induction conductivity meters (Geonics EM31 and EM36, McNeill, 1980a, 1980b) and time-domain electromagnetic induction instruments (TEMCompany sTEM). Elevation contours were obtained in GIS format from the U.S. Geological Survey. Roads and railroads were obtained from the Texas Department of Transportation in GIS format. Streams and drainage ditches were mapped from aerial imagery and the lidar-derived DEM.

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References

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System	Series	Time (ka)	Map Units								
Quaternary	Holocene	0	Eolian	Lacustrine	Fluvial and Deltaic	Bay and Estuarine		Gulf Margin			
		Qm-cd			Qmc-m	Qmc-b	Qmc-ba				
						Qmc-sp	Qmc-tf				
		~12			Qal						
	Pleistocene						Qbi-bbl				
	~2,600			Qb	Qb-s	Qb-ch		Qbi	Qbi-bf	Qbi-dw	Qbi-elb



SCALE 1:24,000
0 0.75 1.5 3 MILES
0 1 2 4 KILOMETERS
UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 14N NAD 83

**GEOLOGIC MAP OF THE ARANSAS PASS QUADRANGLE,
TEXAS GULF COAST**
Jeffrey G. Paine, Benjamin A. Grunau, and Jennifer N. Morris
2024

N
0.91°GN
12.74°MN
Approximate 2024 Magnetic North
(MN) declination