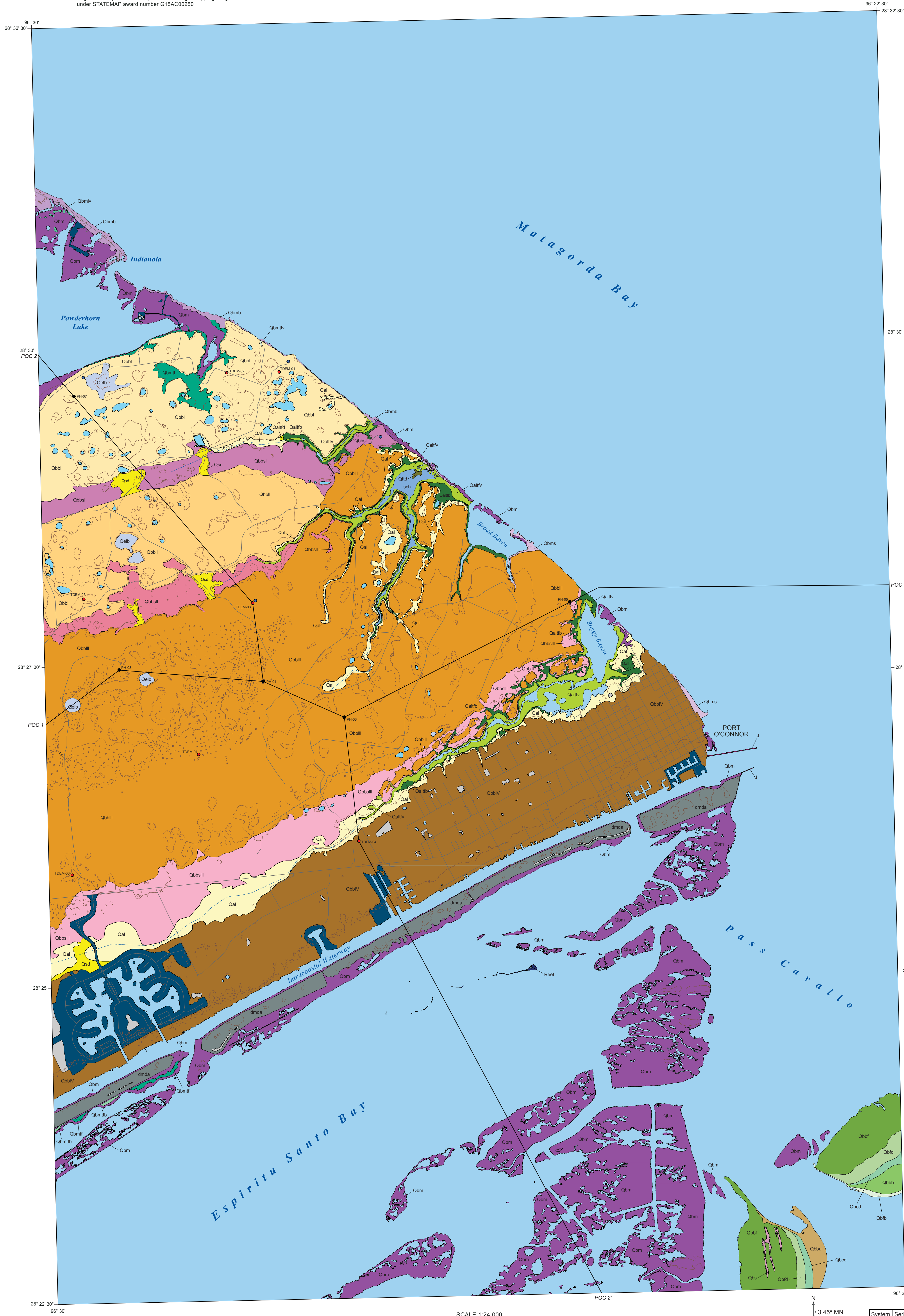




Explanation
Modern to Holocene

- Qal** **Qal**—Alluvium. Sand and clay.
- Qalfd** **Qalfd**—Fan delta. Sand and clay.
- Qalftb** **Qalftb**—Barren tidal flat deposits in emergent areas. Sand and mud.
- Qalftv** **Qalftv**—Vegetated tidal flat deposits in emergent areas. Sand and mud.
- Qbm** **Qbm**—Bay margin. Sand and mud.
- Qbms** **Qbms**—Bay margin spit or ridge. Sand.
- Qbmb** **Qbmb**—Bay margin beach deposits. Sand and shell.
- Qbmtf** **Qbmtf**—Bay margin tidal flat deposits. Sand and mud.
- Qbmtb** **Qbmtb**—Bay margin barren tidal flat deposits. Sand and mud.
- Qbmtv** **Qbmtv**—Bay margin vegetated tidal flat deposits. Sand and mud.
- Qbmiv** **Qbmiv**—Bay margin vegetated islands. Sand and mud.
- Qfd** **Qfd**—Flood-tidal delta. Sand and mud.
- Qbbu** **Qbbu**—Barrier island beach deposits undivided. Sand and shell.
- Qbbb** **Qbbb**—Barrier island backbeach deposits. Sand.
- Qbbf** **Qbbf**—Barrier island barrier flat deposits. Sand.
- Qbcd** **Qbcd**—Barrier island coppice dune deposits. Sand.
- Qbfb** **Qbfb**—Barrier island forebeach deposits. Sand.
- Qbfd** **Qbfd**—Barrier island foredune deposits. Sand.
- Qbs** **Qbs**—Barrier island swale deposits. Sand and mud.
- Reef** **Reef**—Oyster reef.

Holocene to Pleistocene (?)

- Qelb** **Qelb**—Ephemeral lake basin deposits. Mud and sand.
- Qsd** **Qsd**—Dune blowout deposits. Sand.

Pleistocene

- QbbIV** **QbbIV**—Ingleside barrier, Phase 4. Sand, silt, and lesser clay. Equivalent to the regional barrier facies of the upper Beaumont Formation. Unit includes undivided veneer of younger eolian sand.
- QbbIII** **QbbIII**—Ingleside barrier, Phase 3. Sand, silt, and lesser clay. Equivalent to the regional barrier facies of the upper Beaumont Formation. Unit includes undivided veneer of younger eolian sand.
- QbbII** **QbbII**—Ingleside barrier, Phase 2. Sand, silt, and lesser clay. Equivalent to the regional barrier facies of the upper Beaumont Formation. Unit includes undivided veneer of younger eolian sand.
- QbbI** **QbbI**—Ingleside barrier, Phase 1. Sand, silt, and lesser clay. Equivalent to the regional barrier facies of the upper Beaumont Formation. Unit includes undivided veneer of younger eolian sand.
- Qbbstl** **Qbbstl**—Ingleside swale separating QbbIII and QbbIV. Sand and mud.
- Qbbstl** **Qbbstl**—Ingleside swale separating QbbII and QbbIII. Sand and mud.
- Qbbstl** **Qbbstl**—Ingleside swale separating QbbI and QbbII. Sand and mud.
- Qb** **Qb**—Beaumont Formation. Clay, silt, sand, and minor gravel in fluvial-deltaic inter-distributary and distributary setting. Includes stream-channel, point-bar, natural-levee, crevasse-splay, and back-swamp deposits. Some coastal-marsh, mud-flat, and lagoon deposits. Stippled pattern indicates areas of sand-rich channel-system facies. Qbbd, at the surface and shallow subsurface. Qbbd contacts are gradational and approximate. Shown in cross section.

MAP SYMBOLS

- Contact; dashed where approximate.
- Elevation (ft); contour interval 5 ft
- TDEM sounding. Time-domain electromagnetic induction sounding for subsurface lithostratigraphic interpretations.
- Well logged with gamma and conductivity tools for subsurface lithostratigraphic interpretations.
- Intermittent stream or canal
- Road
- Water well
- Water: Bay
- Ephemeral lake
- sch—Selected channel tidally influenced
- dmda—Dredged material disposal area
- Selected ponded water
- Fill—Land artificially elevated by fill
- Pit
- J Jetty

Photography used and reviewed in the study was 1-m-pixel digital imagery, photographed in 2014, and Texas Parks and Wildlife Department (TPWD) 12-in-pixel digital imagery, photographed in 2015. Photography was obtained from Texas Natural Resources Information System (TNRIS). A 1-m-resolution digital elevation model (DEM) constructed from a 2015 airborne-lidar survey of the Powderhorn Ranch-Port O'Connor area was studied with data from a 2013 airborne-lidar survey of Espiritu Santo Bay and a 3-M DEM acquired by the U. S. Geological Survey in 2011. Previous regional maps that cover this area include the 1:125,000-scale Environmental Geologic Atlas, Port Lavaca Sheet (McGowan and others, 1976), the 1:125,000-scale map of Distribution of Wetlands and Benthic Macroinvertebrates (White and others, 1983), and the 1:250,000-scale Geologic Atlas of Texas, Beeville—Bay City Sheet (Arnold and others, 1975; revised 1987). The study included field observations of surficial deposits and collection and study of ground-based electromagnetic conductivity measurements, time-domain electromagnetic induction sounding measurements, and down-hole gamma and conductivity logging measurements for subsurface lithostratigraphic interpretations. The 1:250,000-scale interpretations of the Beeville—Bay City Sheet (Arnold, 1975; revised 1987) are displayed in digital data files developed by the Texas Water Development Board and U.S. Geological Survey as part of the 1:250,000-scale Statewide Digital Geologic Atlas of Texas created from hard-copy maps. Digital files for general topography adapted to this map came from TNRIS for the Port O'Connor U.S. Geological Survey topographic quadrangle map. Digital files of roads were also obtained through TNRIS. Water bodies were adapted from aerial photographs, a lidar-derived DEM, and the U.S. Geological Survey topographic map. BEG staff Kalamis Saylam, Tiffany Caudle, Aaron Averett, Ruth Costley, John Andrews, John Hagg, Tom Tremblay, and Rebecca Brown acquired and processed airborne-lidar data. Texas Parks and Wildlife Department staff Daniel Walker, Kim Ludeke, and David Riskind facilitated access to Powderhorn Ranch. Work for this map was supported partly by the U.S. Geological Survey, National Geologic Mapping Program, with the assistance of STATEMAP award G15AC00250, and partly by the BEG STARR funds for geologic mapping and study of geologic hazards. Views and conclusions contained in this map should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government. The authors disclaim any responsibility or liability for interpretations from this map or digital data or decisions based thereon.

Edward W. Collins, Project Coordinator
Graphics by Jana S. Robinson
Editing by Stephanie Jones

Selected References

Arnold, S., Brown, T. E., Brewton, J. L., Eargle, D. H., and Barnes, V. E., 1975, revised 1987, Beeville—Bay City Sheet: The University of Texas at Austin, Bureau of Economic Geology, Geologic Atlas of Texas, scale 1:250,000.

Fagg, D. B., 1957, The recent marine sediments and Pleistocene surface of Matagorda Bay, Texas: Gulf Coast Association of Geological Societies Transactions, v. 7, p. 119-113.

McGowan, J. H., Probst, G. V., Jr., Brown, L. F., Jr., Evans, T. H., Fisher, W. L., and Groat, C. G., 1976, Environmental geologic atlas of the Texas Coastal Zone: Port Lavaca area: The University of Texas at Austin, Bureau of Economic Geology, Geologic Atlas of Texas, scales 1:250,000 and 1:125,000, 107 p.

White, W. A., Calhoun, T. R., Morton, R. A., Kimbree, R. S., Littleton, T. G., McGowan, J. H., Nance, H. S., Schmiedes, K. E., and others, 1983, Submerged lands of Texas, Port Lavaca area: sediments, geochemistry, benthic macroinvertebrates, and associated wetlands: The University of Texas at Austin, Bureau of Economic Geology, 154 p.

GEOLOGIC MAP OF PORT O'CONNOR QUADRANGLE
TEXAS GULF OF MEXICO COAST

Jeffrey G. Paine and Edward W. Collins
2016

