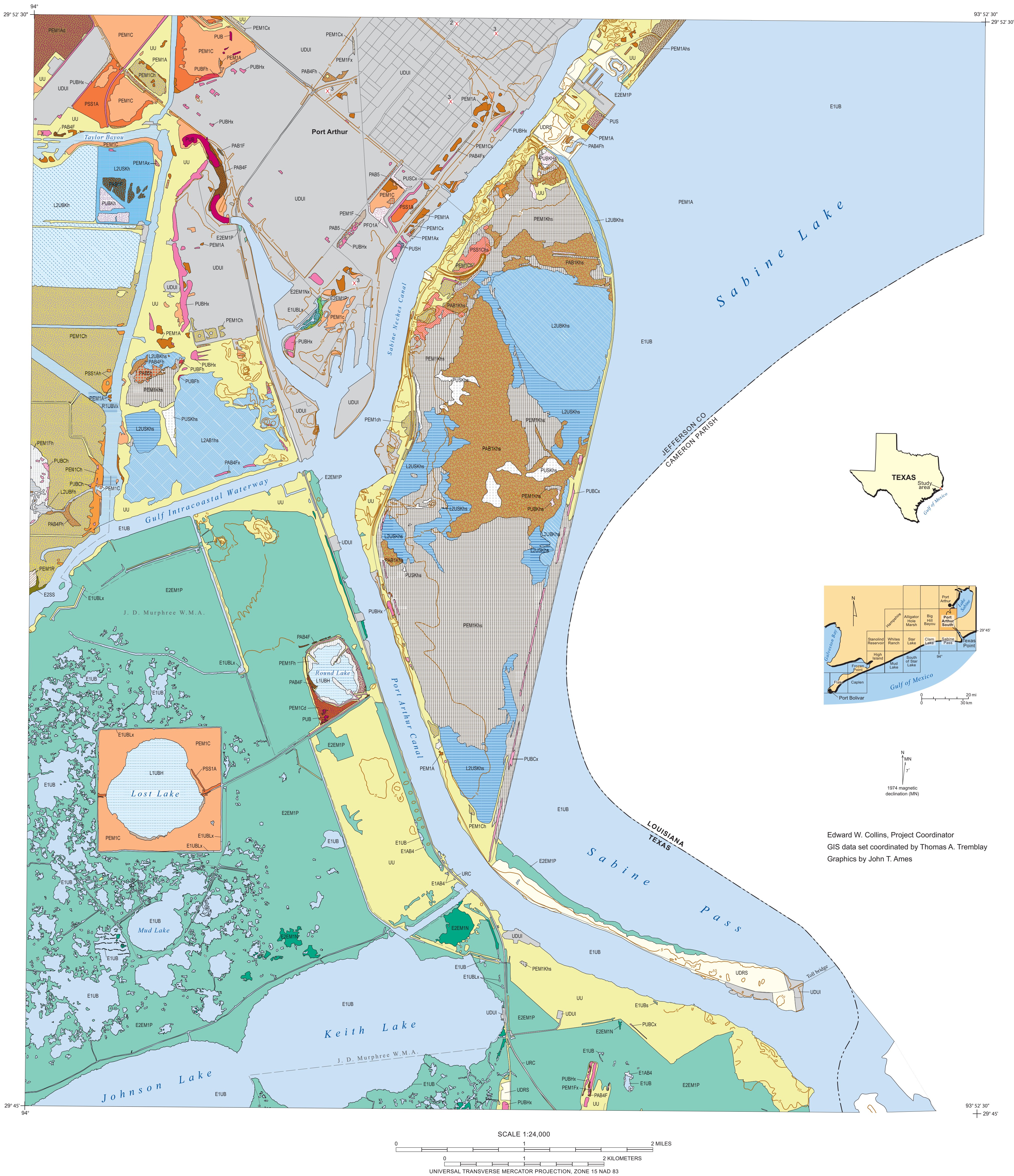




Marsh and Fluvial-Deltaic Settings
(Wetland classification of coastal geologic environments)
(Wetland terminology in *italics*)

MODERN TO HOLOCENE

Estuarine Environment

- E2EM1N—Low marsh; *intertidal, emergent, persistent, regularly flooded.*
- E2EM1Nx—Low marsh; *intertidal, emergent, persistent, regularly flooded, excavated.*
- E2EM1Ns—Low marsh; *intertidal, emergent, persistent, regularly flooded, spoil.*
- E2EM1P—High marsh; *intertidal, emergent, persistent, irregularly flooded.*
- E1AB4—Aquatic bed; *subtidal, floating vascular.*
- E1AB5x—Unknown aquatic bed; *subtidal, unknown submergent, excavated.*
- E1UB—Water; *subtidal, unconsolidated bottom.* Gulf Intracoastal Waterway excavated.
- E1UBx—Water; *subtidal, unconsolidated bottom.* Gulf Intracoastal Waterway excavated.
- E2SS—Scrub shrub area; *intertidal.*
- E2USN—Low flat; *intertidal, unconsolidated shore, regularly flooded.*
- E2USNx—Low flat; *intertidal, unconsolidated shore, regularly flooded, excavated.*
- E2USP—High flat; *intertidal, unconsolidated shore, irregularly flooded.*

Palustrine Environment

- PEM1A—Marsh; *emergent, persistent, temporarily flooded.*
- PEM1Ah—Marsh; *emergent, persistent, temporarily flooded, diked/impounded.*
- PEM1Ax—Marsh; *emergent, persistent, temporarily flooded, excavated.*
- PEM1C—Marsh; *emergent, persistent, seasonally flooded.*
- PEM1Cd—Marsh; *emergent, persistent, seasonally flooded, partly drained/ditched.*
- PEM1Ch—Marsh; *emergent, persistent, seasonally flooded, diked/impounded.*
- PEM1F—Marsh; *emergent, persistent, semipermanently flooded.*
- PEM1Fh—Marsh; *emergent, persistent, semipermanently flooded, diked/impounded.*
- PEM1Fx—Marsh; *emergent, persistent, semipermanently flooded, excavated.*
- PEM1Khs—Emergent area; *persistent, artificially flooded, spoil.*
- PAB1F—Aquatic bed; *algal, semipermanently flooded.*
- PAB1Khs—Aquatic bed; *algal, artificially flooded, partly drained/ditched, diked/impounded.*
- PAB4Fh—Aquatic bed; *floating vascular, semipermanently flooded, diked/impounded.*
- PAB5h—Aquatic bed; *unknown submergent, diked/impounded.*
- PSS1Chs—Scrub shrub area; *broad-leaved deciduous, seasonally flooded, diked/impounded spoil.*
- PUBCh—Water; *unconsolidated shore, seasonally flooded, diked/impounded.*
- PUBCx—Water; *unconsolidated shore, seasonally flooded, excavated.*
- PUBFh—Water; *unconsolidated shore, seasonally flooded, semipermanently flooded.*
- PUBHx—Water; *unconsolidated bottom, permanently flooded, excavated.*
- PUBKh—Water; *unconsolidated bottom, artificially flooded, diked/impounded.*
- PUBKhs—Water; *unconsolidated bottom, artificially flooded, diked/impounded spoil.*
- PUS—Water; *unconsolidated shore.*
- PUSH—Flat; *unconsolidated shore, diked/impounded.*
- PUSCx—Flat; *unconsolidated shore, seasonally flooded, excavated.*
- PUSKhs—Palustrine flat impounded; *unconsolidated shore, artificially flooded, diked/impounded, spoil.*

Lacustrine Environment

- L2USKhs—Water; *littoral, unconsolidated shore, artificially flooded, diked/impounded, spoil.*
- L2USKh—Water; *littoral, unconsolidated shore, artificially flooded, diked/impounded.*
- L2UBKh—Water; *littoral, unconsolidated bottom, artificially flooded, diked/impounded, spoil.*
- L2UBKhs—Water; *littoral, unconsolidated bottom, artificially flooded, diked/impounded, spoil.*
- L2AB1hs—Aquatic bed; *littoral, algal, diked/impounded, spoil.*

Riverine Environment

- R1UBV—Water; *tidal, unconsolidated bottom, permanently tidal.*
- R1UBVx—Water; *tidal, unconsolidated bottom, permanently tidal, excavated.*

Marine Environment

- M2USN—Low shore; *intertidal, unconsolidated shore, regularly flooded.*
- M2USP—High shore; *intertidal, unconsolidated shore, regularly flooded.*
- M1UB—Water; *subtidal, unconsolidated bottom.*

Uplands Environment

- UU—Undeveloped upland area, *mostly clay and silt, lesser sand; includes human-made levees and some drained marsh.*
- UDRS—Developed upland area within rural and suburban settings. Clay, silt, sand.
- UDUI—Developed upland area within urban and industrial settings.
- UJ—Jetty.
- URC—Major road corridor.

- Contour line and elevation (ft)
- Elevation (ft)
- Road

Selected References

- Aronow, Saul, and Barnes, V. E., 1968, Houston sheet: The University of Texas at Austin, Bureau of Economic Geology, Geologic Atlas of Texas, scale 1:250,000.
- Cowardin, L. M., Carter, B., Golet, F. C., and LaRoe, E. T., 1979, Classification of wetlands and deepwater habitats of the United States: U.S. Department of Interior, Fish and Wildlife Service, Washington, D.C., USA, 131 p.
- Fisher, W. L., Brown, L. F., Jr., McGowen, J. H., and Groat, C. G., 1973, Environmental geologic atlas of the Texas Coastal Zone—Beaumont-Port Arthur area: The University of Texas at Austin, Bureau of Economic Geology, maps 1:250,000 and 1:125,000, text 93 p.
- White, W. A., and Morton, R. A., 1997, Wetland losses related to fault movement and hydrocarbon production, southeastern Texas Coast: Journal of Coastal Research, v. 13, no. 4, p. 1305-1320.
- White, W. A., Calnan, T. R., Morton, R. A., Kimble, R. S., Littleton, T. G., McGowen, J. H., Nance, H. S., and others, 1987, Submerged lands of Texas, Beaumont-Port Arthur area: sediments, geochemistry, benthic macroinvertebrates, and associated wetlands: The University of Texas at Austin, Bureau of Economic Geology, 110 p., 67 figs., 16 tables, 6 pls., 3 apps.
- Photography used for base and mapping is 0.5-m pixel, color infrared digital imagery photographed in 2004. Previous regional maps that cover this map area include the 1:125,000-scale *Environmental Geology, Beaumont-Port Arthur Sheet* (Fisher and others, 1973), the 1:125,000-scale map of *Distribution of Wetlands and Benthic Macroinvertebrates, Beaumont-Port Arthur Area* (White and others, 1987), and the 1:250,000-scale *Geologic Atlas of Texas Houston Sheet* (Aronow and Barnes, 1968). Fault data from White and Morton (1997) and unpublished Bureau of Economic Geology coastal faults data set. Terminology related to the wetlands classification of the geologic environments mapped follows Cowardin and others (1979). Jeffery S. Vincent contributed map data linked to active processes such as erosion, deposition, and flooding. Boundaries of wildlife management areas approximate.

Work for this study was supported in part by the STATEMAP component of the National Cooperative Geologic Mapping Program, administered by the U.S. Geological Survey. This study also benefited from complementary studies supported by the Jackson School of Geosciences and by the National Oceanic and Atmospheric Administration (NOAA) administered by the General Land Office of Texas (GLO). The views and conclusions contained in this map are those of the author and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

**GEOENVIRONMENTAL MAP OF PORT ARTHUR SOUTH QUADRANGLE
TEXAS GULF OF MEXICO COAST**

Thomas A. Tremblay, Tiffany L. Caudle, and William A. White
2009