

DISCUSSION

This map is one of a set of six environmental geologic maps for the Beeville 1° x 2° quadrangle, Texas. The six maps constitute a marine geologic atlas that has been designed to integrate a variety of environmental data and to show the fundamental geologic and associated processes involved in the building and evolution of the Continental Shelf.

The topical maps interrelate data on water circulation and sedimentation, trace metals, geochemistry, biogeology, sea-level change, and deformational movements within the Continental Shelf, including folding, faulting, diapirism, and slumping. The types of data portrayed on individual maps are those that have a cause-and-effect interrelationship in the environment. For example, amounts of trace elements and numbers of invertebrates that live in bottom sediments are both closely related to the grain size or texture of the sediments. Likewise, the sediment-deposition rate is dependent on the speed and direction of oceanographic currents (both surface and subsurface). The maps are organized to emphasize the interactions of processes as a function of time and to demonstrate the long-term effects of the related processes. Thus, map A covers the most fundamental aspect of marine geology, the rate at which sediment introduced to the ocean is spread by its transporting medium, water. The rate of spreading varies from minutes and hours to seasons and years; therefore, yearly rates of sediment deposition are related to the movement of water averaged in both yearly and seasonal increments. Map B shows trace-metal data for surficial bottom sediments. Map C portrays somewhat longer term cumulative effects of the varying hydraulic regimes, as revealed by the grain size of surficial bottom sediments (sampled to a depth of 6 cm), and the variations in the texture and type of sediment deposited over hundreds or thousands of years, as revealed by gravity cores that penetrated to depths from a few tens of centimeters to 2 m. The amount of sediment deposited over the Continental Shelf and the extent and magnitude of faulting since the last low stand of sea level, about 18,000 years ago, are shown on map D. Map E shows paleogeography of the shelf when it was exposed as land. Map F shows deformation caused by the interaction of sediment loading, diapirism, and sea-level changes over the past several hundred thousand years as shown on map F.

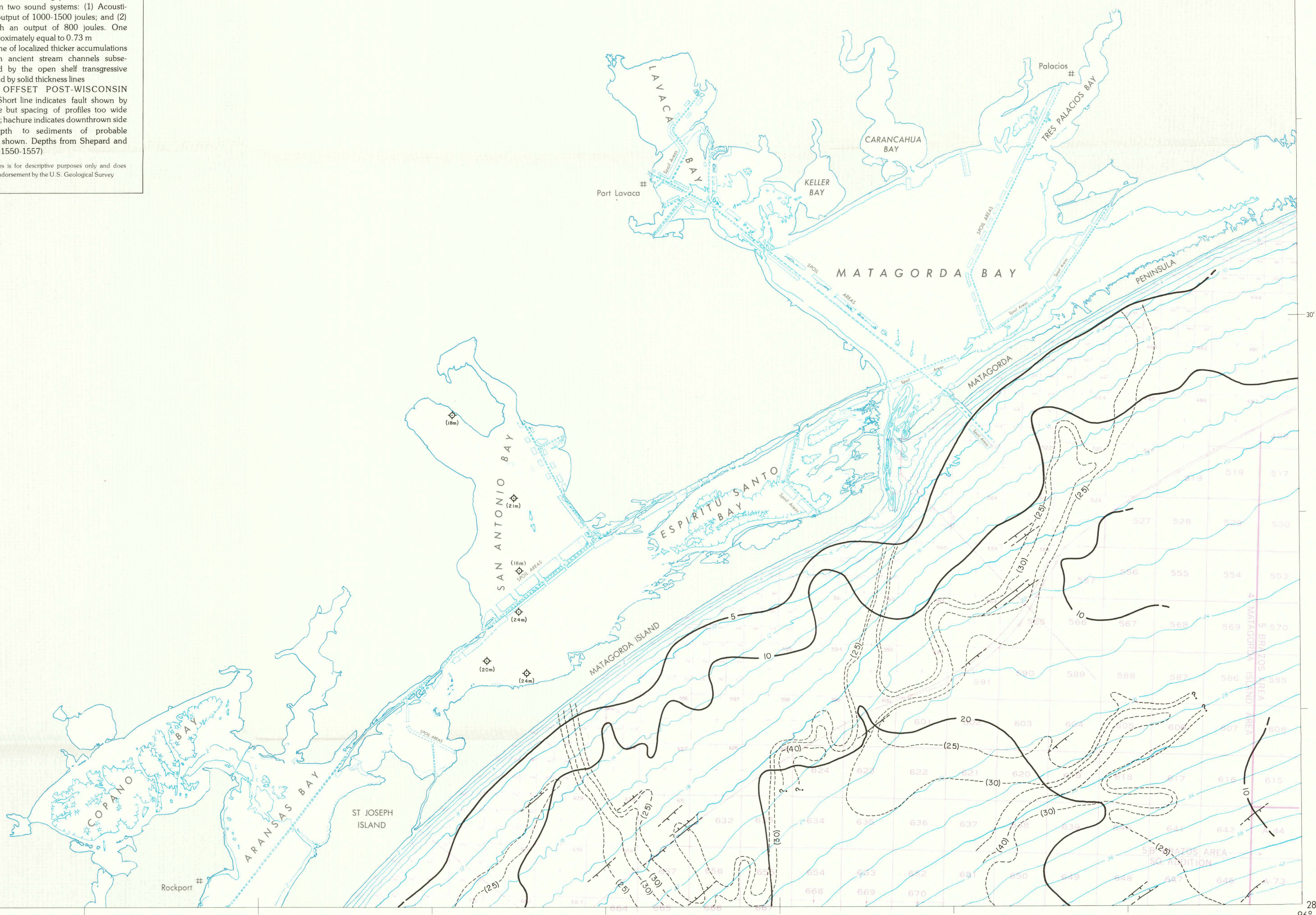
The maps of the Beeville 1° x 2° quadrangle include the Federal lease block grid and bathymetry, so that the data and interpretations can be easily tied to a specific legal geographic entity within the region at a scale large enough to permit reasonable accuracy of location. These maps provide a summary state-of-the-art inventory of the segment of the Continental Shelf located in the Beeville 1° x 2° quadrangle that can be used in planning specific site studies as well as more detailed topical investigations.

EXPLANATION

- 30— SEDIMENT THICKNESS LINE IN MILLISECONDS OF TWO-WAY TRAVEL TIME—Dashed where approximately located. Contour interval 10 milliseconds. Thickness contours indicate sediments deposited over Continental Shelf during approximately the last 18,000 years, or since the last low stand of sea level during Wisconsin time. Thickness based on acoustical properties of the sediments and interpreted from sound analog profiles. Acoustical survey based on two sound systems: (1) Acousti-pulse¹ with an output of 1000-1500 joules; and (2) minisparker with an output of 800 joules. One millisecond approximately equal to 0.73 m
 - - - (30) - - - Approximate outline of localized thicker accumulations of sediments in ancient stream channels subsequently covered by the open shelf transgressive deposits indicated by solid thickness lines
 - FAULTS THAT OFFSET POST-WISCONSIN SEDIMENTS—Short line indicates fault shown by acoustical profile but spacing of profiles too wide to indicate trend; hashure indicates downthrown side
 - 21m
◇ CORE HOLE—Depth to sediments of probable Pleistocene age shown. Depths from Shepard and Moore (1955, p. 1550-1557)
- ¹The use of brand names is for descriptive purposes only and does not necessarily constitute endorsement by the U.S. Geological Survey.

SUPPLEMENTARY READINGS

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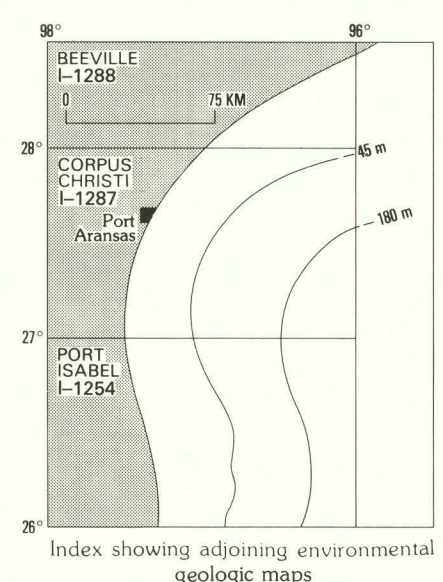
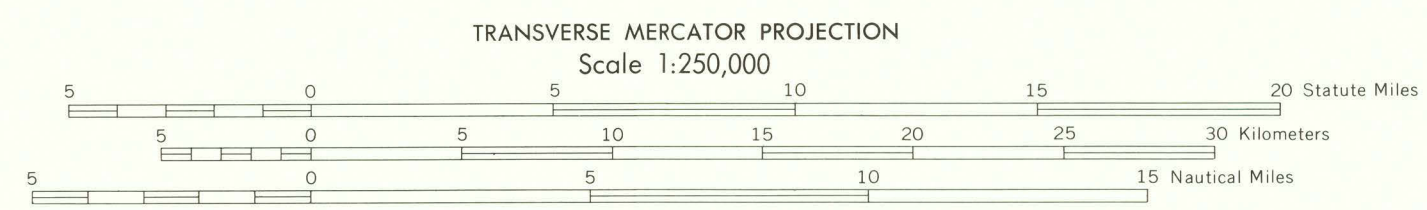
Base from U.S. National Ocean Survey. Base map information including bathymetry, compiled by the U.S. National Ocean Survey from NDS hydrographic surveys supplemented by hydrographic information from other sources. Bathymetric contour interval: 10 meters to the 200-meter depth, supplemented by 2-meter intervals, thence 50 meters to maximum depth. Datum MLLW.

Universal Transverse Mercator Grid, Zone 14; 10,000-meter ticks (1) are shown on the coastline.

Lack of sufficient data on portions of this map requires the use of generalized form lines to infer probable shape for circular or elliptical shaped features that would otherwise appear truncated. The form lines are not at the prescribed contour interval.

EVALUATION OF BATHYMETRIC SURVEY ACCURACY

SURVEY NUMBER	SURVEY DATE	SCALE	SURVEY LINE SPACING (NAUT. MILES)	HORIZONTAL LINE SPACING (METERS)
H-4693	1934-35	1:20,000	03-12	20-40
H-5913	1935	1:20,000	03-12	20-40
H-5857	1935	1:20,000	05-10	20-40
H-5864	1935	1:10,000	03-26	15-30
H-5865	1935	1:20,000	06-23	20-40
H-5866	1935	1:20,000	03-26	20-40
H-6875	1935	1:20,000	03-10	20-40
H-5877	1935	1:20,000	04-16	20-40
H-5914	1935	1:20,000	02-13	20-40
H-5917	1935	1:20,000	02-20	20-40
H-6392	1938	1:20,000	10-18	20-50
H-6393	1938	1:20,000	10-20	20-50
H-6394	1938	1:20,000	04-21	20-50
H-6395	1938	1:20,000	07-19	20-50
H-6396	1938	1:20,000	07-15	20-100
H-6400	1938	1:40,000	19-73	20-100
H-6401	1938	1:40,000	22-80	20-100
H-6404	1938	1:80,000	05-21	40-200
H-6405	1938	1:80,000	10-20	40-200



**MAP SHOWING POST-WISCONSIN SEDIMENTATION PATTERNS AND FAULTING
IN THE BEEVILLE 1° x 2° QUADRANGLE, TEXAS**

Compiled by
Henry L. Berryhill, Jr. and Anita R. Trippet