

- EXPLANATION**
- 30 — SEDIMENT THICKNESS LINE IN MILLISECONDS OF TWO-WAY TRAVEL TIME—Contour interval 10 milliseconds. Thickness contours indicate sediments deposited over continental shelf during approximate by 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) Dal Norte 561¹ 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—Dots indicate offset of at least 50 milliseconds at a subsea-floor depth of about 250 milliseconds; open diamonds indicate fault intersects sea-floor surface. Short line indicates fault shown by acoustical profile but spacing of profiles too wide to indicate trend; hachure indicates downthrown side.
 - 2 m
◇ CORE HOLE—Depth to sediments of probable Pleistocene age shown. Depth from Shepard and Moore (1955, p. 1550-1557).
 - AREA IN WHICH THICKNESS OF POST-WISCONSIN SEDIMENTS EXCEEDS 40 MILLISECOND—Stippled indicates sediments characterized by poor acoustical return. Attenuation of sound by sediments within stippled area suggests either high organic content or relatively high gas content at shallow depth.
 - CARBONATE REEF OF PLEISTOCENE AGE—Dashed line indicates general outline of reef buried beneath post-Pleistocene sediments; black indicates outcrop of reef summit. A carbonate lump of probable algal origin on Southern reef has been radiocarbon dated as 18,900-370 years B.P. Two brain coral samples on Dream reef have been dated as 10,260-155 and 10,580-155 years B.P.
- ¹The use of brand names is for descriptive purposes only and does not necessarily constitute endorsement by the U.S. Geological Survey.

DISCUSSION

This map is one of a set of six environmental geologic maps for the Corpus Christi 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. The cumulative deformation caused by the interaction of sediment loading, diapirism, and sea-level changes over the past several hundred thousand years are shown on map F.

The maps of the Corpus Christi 1° x 2° quadrangle include the Federal base 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 Corpus Christi 1° x 2° quadrangle that can be used in planning specific site studies as well as more detailed topical investigations.

SUPPLEMENTARY READINGS

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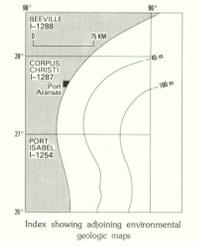
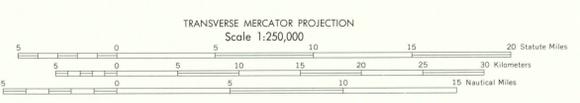
Base from U.S. National Ocean Survey.
Base map information including bathymetry, compiled by the U.S. National Ocean Survey from NOS hydrographic surveys supplemented by hydrographic information from other sources. Bathymetric contour intervals: 10 meters to the 200-meter depth, supplemented by 2-meter intervals, thence 50 meters to maximum depth. Datum MLLW.
Universal Transverse Mercator Grid, Zone 14, 10,000-meter ticks (—) are shown on the map.

EVALUATION OF BATHYMETRIC SURVEY ACCURACY

SURVEY NUMBER	SURVEY DATE	SCALE	SURVEY LINE SPACING (NAUT. MILES)	HORIZONTAL POSITION (METERS)
H-5612	1939	1:110,000	02-.12	15-30
H-5613	1934	1:110,000	02-.10	15-30
H-5693	1934-36	1:200,000	03-.12	20-40
H-5694	1934-36	1:200,000	02-.15	20-40
H-6394	1938	1:200,000	07-.15	20-40
H-6395	1938	1:200,000	04-.10	20-40
H-6396	1938	1:200,000	05-.15	20-40
H-6397	1938	1:200,000	06-.17	20-40
H-6401	1938	1:400,000	22-.80	30-100
H-6402	1938	1:400,000	12-1.28	30-100
H-6403	1938	1:400,000	41-1.21	30-100
H-6404	1938	1:800,000	55-2.10	40-200
H-6405	1938	1:800,000	10-2.00	40-200
H-6406	1938	1:400,000	08-1.24	30-100
H-6498	1939-39	1:800,000	36-1.70	40-200
H-6499	1939	1:240,000	50-15.3	600-1900
H-8002	1968	1:20,000	16-.22	20-40
H-9005	1968	1:20,000	16-.43	20-40

VERTICAL DEPTH ACCURACY (METERS)

Depth
0-20 0.3
20-50 0.5
50-200 1.0
Over 200 1% of depth



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

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