

Yegua Trend of Southern Texas



Gulf Coast Region

Yegua Trend of Southern Texas

Overview

The Yegua II report is designed to assist exploration and production geologists in their understanding of factors that control hydrocarbon distribution in the Yegua formation of the study area. The 7,500 square mile area investigated for this project is a swath approximately 50 miles wide in a depositional-dip direction, extending 150 miles along the Gulf Coast basin margin (depositional strike). Included within this area are portions of DeWitt, Victoria, Karnes, Goliad, Refugio, Bee, Live Oak, San Patricio, McMullen, Duval, and Jim Wells counties. This area was further subdivided into three subregions.

More than 2,300 well logs have been correlated to define the up-dip sandstone geometries and hydrocarbon trapping mechanisms. The delineation of at least 13 genetic units in the Yegua is based on the correlation of laterally persistent, low-resistivity shale markers. Net sand and interval isopach maps of these genetically significant units were generated to determine and document the distribution and characteristics of Yegua depositional axes.

Generally, the Yegua in this region of the Texas Gulf Coast basin did not prograde beyond the abandoned Wilcox deltaic platform margin. However, sand body

geometry was significantly affected by reactivated Wilcox-age faults. The interaction of depositional history and structural style has resulted in numerous structural and stratigraphic hydrocarbon traps throughout the study area.

The report documents the role of depositional systems in trapping hydrocarbons and develops predictive exploration models. These models, combined with net sand maps, make it possible to define fairways in the down-dip trend that have a higher probability for encountering significant sandstone reservoir facies.

The regional stratigraphic synthesis is based on detailed analysis of more than 2,300 well logs and represents several man-years of geological research. Thirteen regional seismic lines have also been examined to verify the correlations and to develop a structural framework. A variety of geological and geophysical data are integrated into the study. These data, as well as a suite of maps, cross sections, and other displays are supplied to both verify the study conclusions and to merge with additional data.

Database

2,322 Study Wells

12 Regional Shale Markers

Maps

Regional Maps

- 6 Net Sand Maps
- 5 Isopach Maps
- 2 Structure Maps

Reference Maps

- 3 Yegua Production Trend Maps
- 3 Yegua Oil and Gas Field Maps

Cross Sections

- 6 Regional Depositional-Dip Sections
- 2 Regional Depositional-Strike Sections

Seismic Data

- 13 Regional Seismic Lines Examined

Report Contents

TEXT AND FIGURES - This extensively illustrated report includes discussion, figures, and photographic plates on such topics as: Structural Setting, Depositional Systems, Interval Descriptions, Stratigraphic Evolution, Exploration Models and Bibliography.

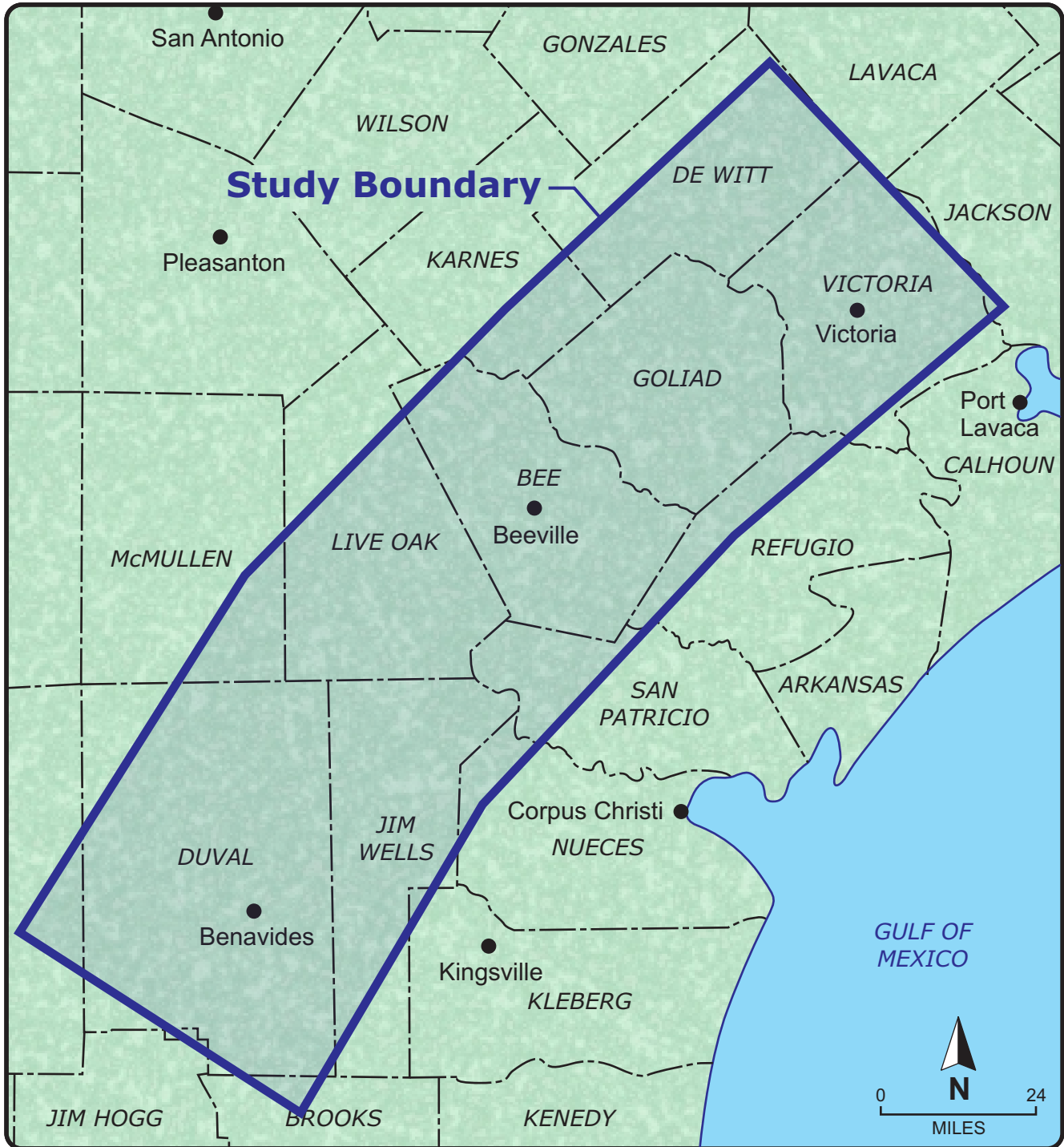
EXECUTIVE SUMMARY ATLAS - This section provides a brief review of major findings. It includes discussions on Updip Systems, Fluvial Deposits, Dwindip Systems, Growth-Faulted Elongated Deltas, Sea-Level Fluctuations, and Other Models, plus a summary of each of the major Yegua stratigraphic intervals.???

STRATIGRAPHIC DATA - This digital database lists all the markers correlated for

each log as well as the isopach thickness and net sand for every interval between correlated markers for the 2322 wells used in the study. These data are intended to permit explorationists the opportunity to transfer study results onto their own maps or logs. This information is referenced by well name, operator, and API number.

MAPS AND CROSS SECTIONS - These two files contain a grid of regional cross sections including two strike-oriented sections and six dip-oriented sections to depict the basic stratigraphic framework of the Yegua. The files also contain 13 regional maps. These maps include interval isopachs, net sand, and structure maps.

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LIST OF MAPS & CROSS SECTIONS

MAP AREA 1

MAPS

FIELD LOCATION MAP
AREA 1 O&G FIELDS

MAP AREA 2

MAPS

FIELD LOCATION MAP
AREA 2 O&G FIELDS

Y100 - Y200
Y200 - Y330
Y330 - Y400
Y400 - Y600

NET SAND
NET SAND
NET SAND
NET SAND

MAP AREA 3

MAPS

FIELD LOCATION MAP
AREA 3 O&G FIELDS

Y100 - Y330
Y100 - Y200
Y200 - Y330
Y330 - Y600

NET SAND
NET SAND
NET SAND
ISOPACH

REGIONAL MAPS

Y100-Y200	NET SAND
Y200-Y250	NET SAND
Y250-Y330/Y250-Y300	NET SAND
Y300-Y330/Y300-Y350	NET SAND
Y330-Y350	NET SAND
Y350-Y400	NET SAND
Y400-Y500/Y400-Y450	NET SAND
Y450-Y550	NET SAND
Y500-Y600/Y550-Y600	NET SAND
Y600-Y650	NET SAND
Y650-Y700	NET SAND
Y700-Y750	NET SAND
Y750-Y800/Y700-Y800	NET SAND
Y800-Y900	NET SAND

Y100-Y600 OIL AND GAS FIELD MAP
Y100-Y900 OIL AND GAS FIELD MAP
Y600-Y900 OIL AND GAS FIELD MAP

CROSS SECTIONS

MAP AREA 1

UPPER STRATIGRAPHIC STRIKE	PLATE 1 PLATE 2 PLATE 3
LOWER STRATIGRAPHIC STRIKE	PLATE 1 PLATE 2 PLATE 3
COTTONWOOD CREEK STRATIGRAPHIC DIP	PLATE 1 PLATE 2
CABEZA CREEK STRATIGRAPHIC DIP	PLATE 1 PLATE 2

MAP AREA 2

UPPER STRATIGRAPHIC STRIKE	PLATE 4 PLATE 5 PLATE 6
LOWER STRATIGRAPHIC STRIKE	PLATE 4 PLATE 5 PLATE 6
TULETA STRATIGRAPHIC DIP	PLATE 1 PLATE 2
LAGARTO STRATIGRAPHIC DIP	PLATE 1 PLATE 2

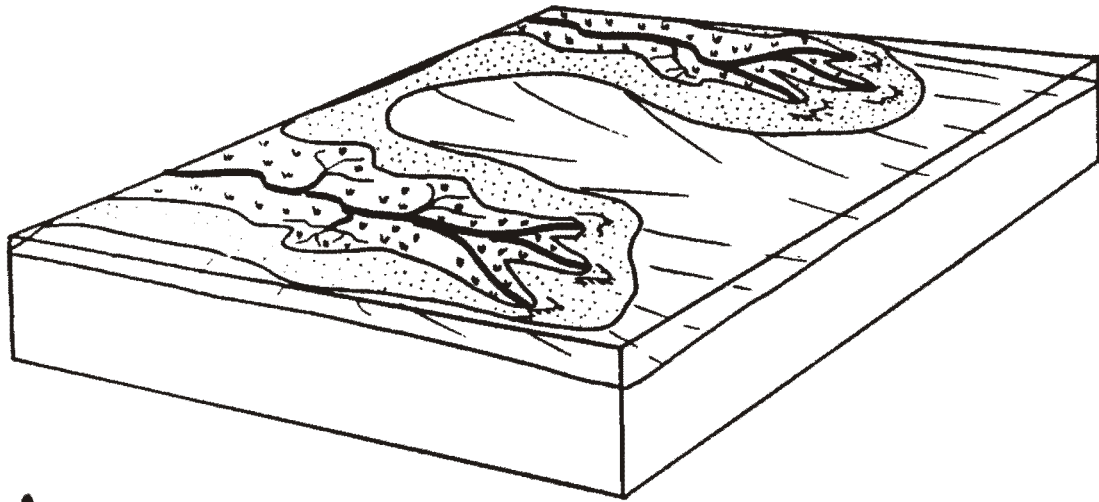
MAP AREA 3

UPPER STRATIGRAPHIC STRIKE	PLATE 7 PLATE 8 PLATE 9
LOWER STRATIGRAPHIC STRIKE	PLATE 7 PLATE 8 PLATE 9
ALICE STRATIGRAPHIC DIP	PLATE 1 PLATE 2
BENEVIDES STRATIGRAPHIC DIP	PLATE 1 PLATE 2

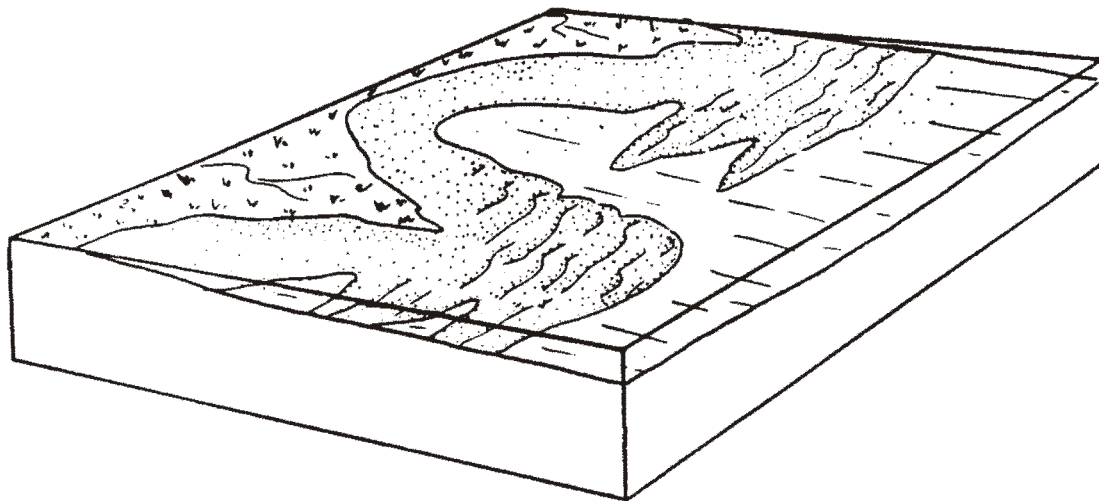
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Selected Figures from the Study

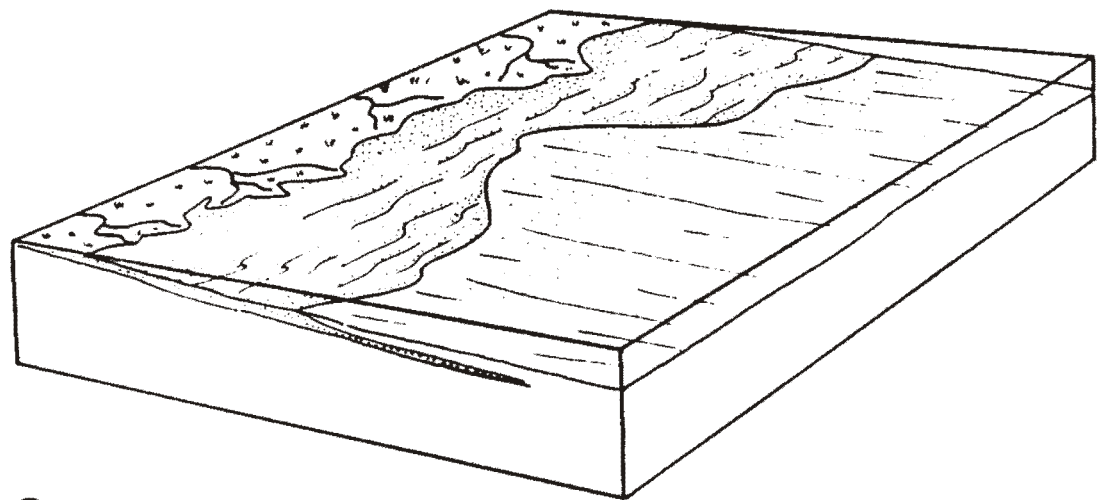




A.



B.



C.

Figure 3.30. A. Sketch of initial progradation of elongate deltas. B. Abandonment and initial reworking of the more distal portions of the deltas into a sand sheet. C. Complete reworking of delta deposits leads to formation of sand sheet.

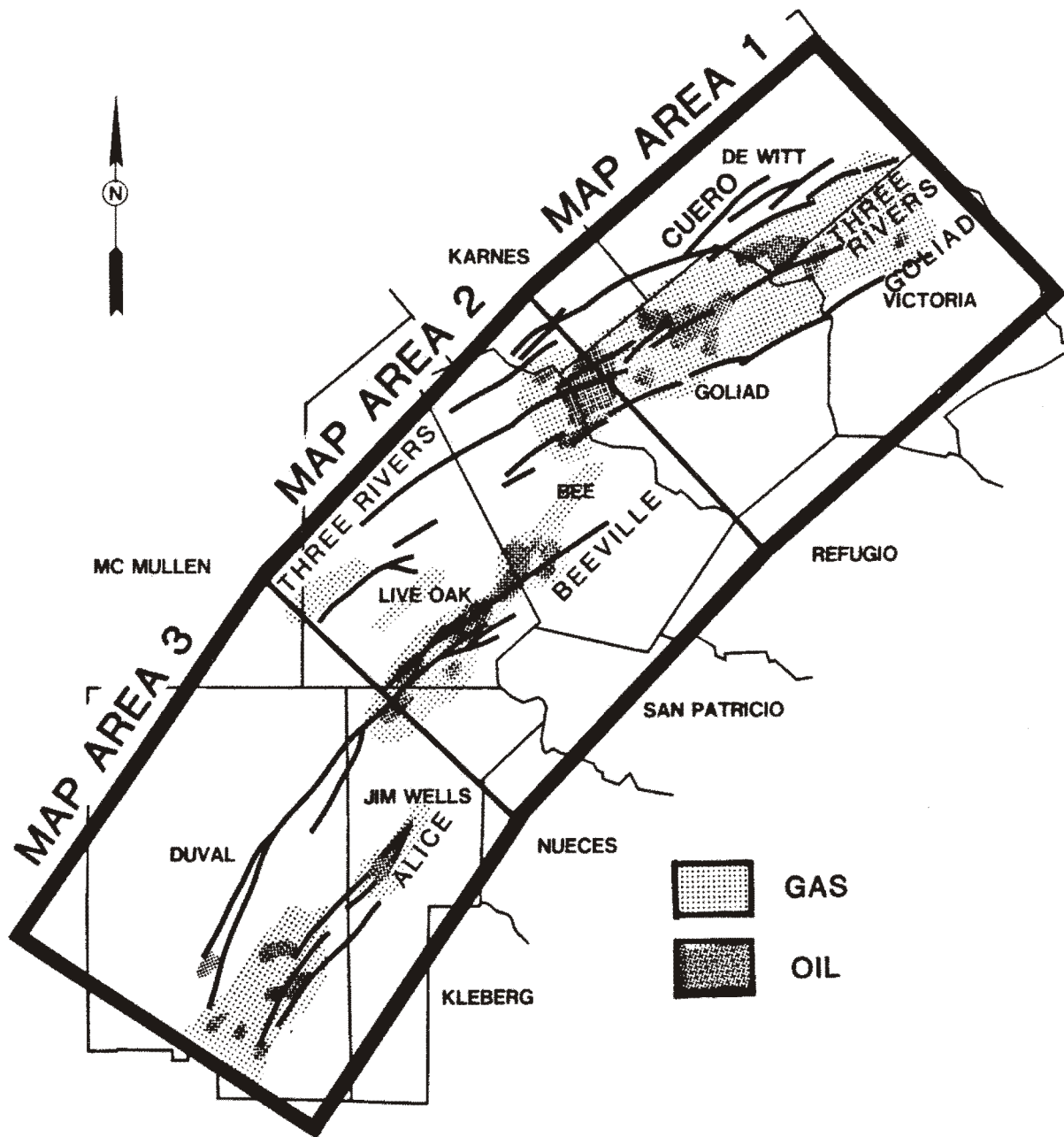


Figure E.18. Oil and gas production trends of wells penetrating Y100-Y900 interval in the Yegua II study area. The map illustrates areas of relatively high density of oil and gas production. Production trend maps were constructed for the entire Yegua interval (Y100-Y900), the upper Yegua (Y100-Y600), and the lower Yegua (Y600-Y900).

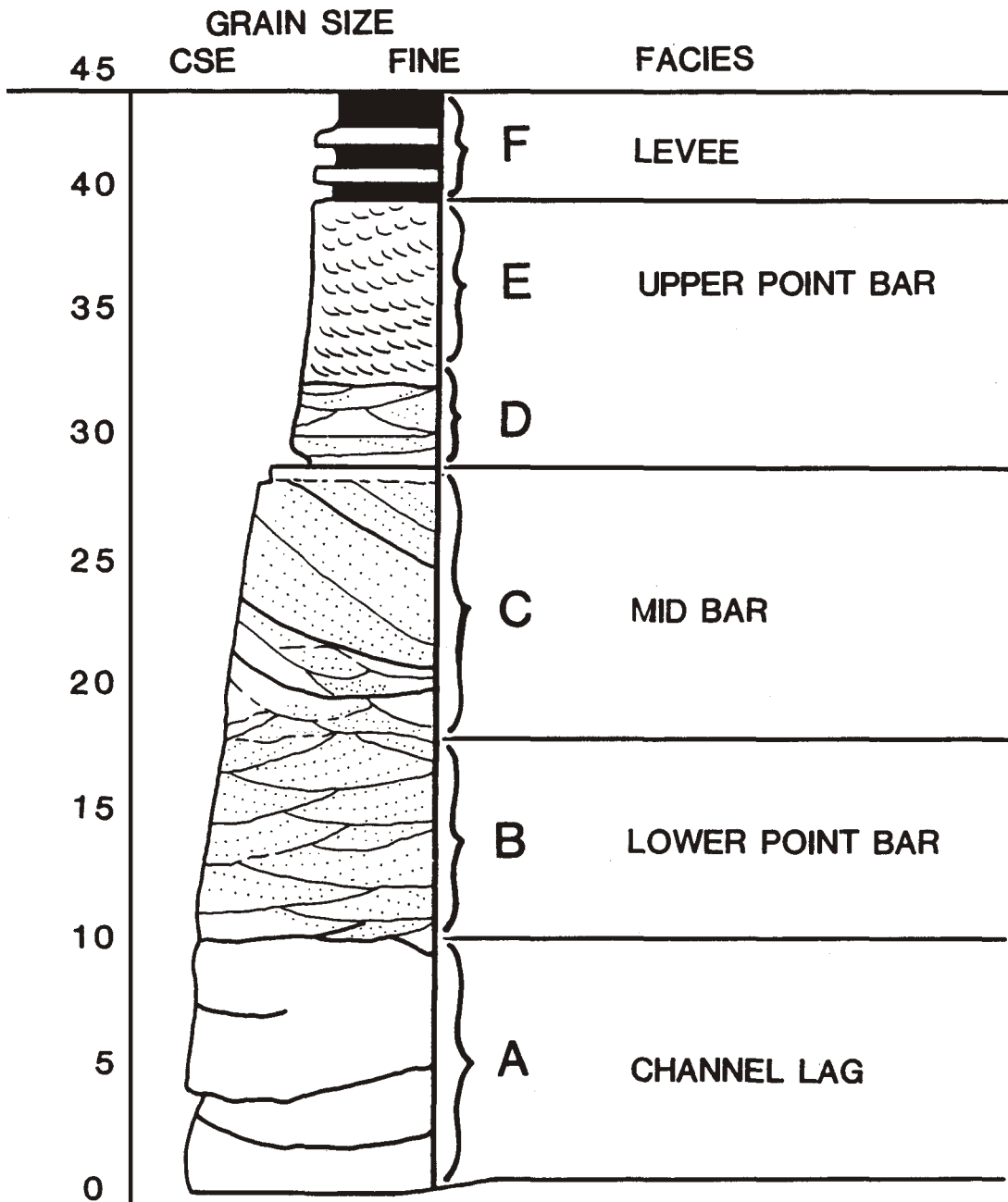
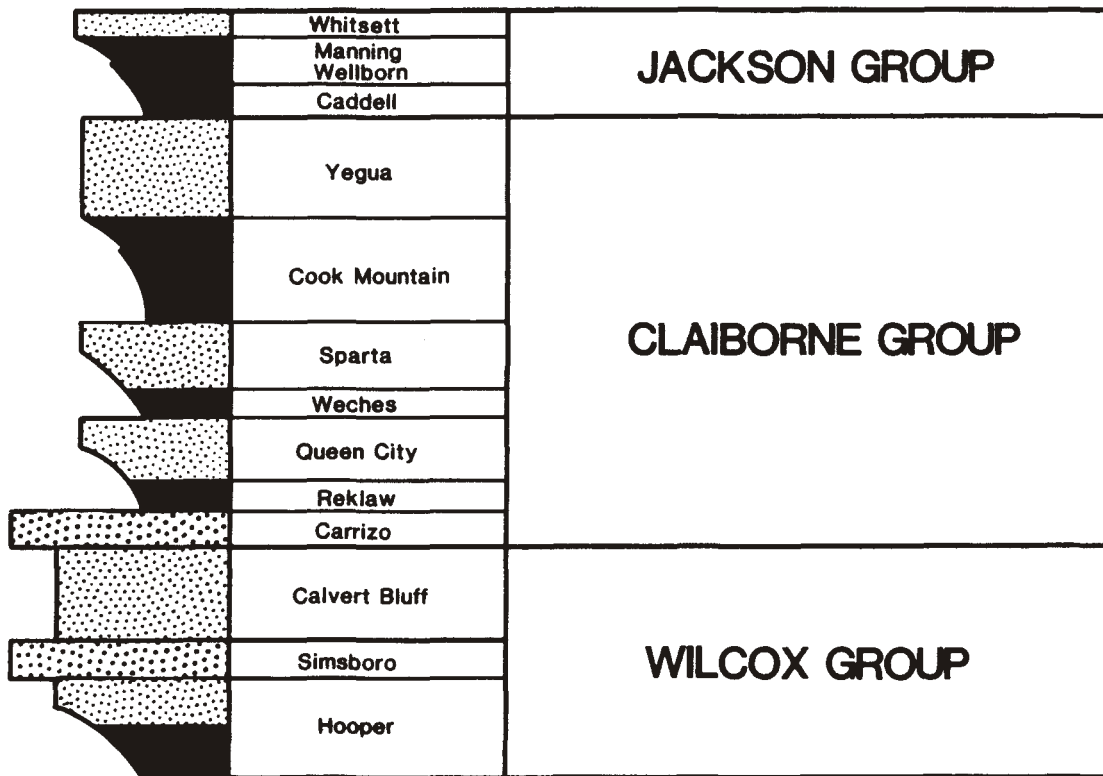


Figure 3.3. Vertical sequence from Brazos River point bar (modified from Morton and McGowen, 1980). Note grain size of sediments and scale of sedimentary structures tend to decrease upward. The vertical facies succession closely mimics the lateral facies tract (Scale in feet).



Modified from Kaiser others, 1978

- MARINE SHALES
- DELTAIC DEPOSITS
- FLUVIAL SANDSTONES

Figure 1.1. Eocene progradational units in South Texas. Although not as extensive as the Wilcox deltaic systems or the younger Oligocene Vicksburg and Frio, the Yegua units formed a major progradational wedge in South Texas.