

# DEEP-SHELF GAS PLAY OF TEXAS STATE WATERS



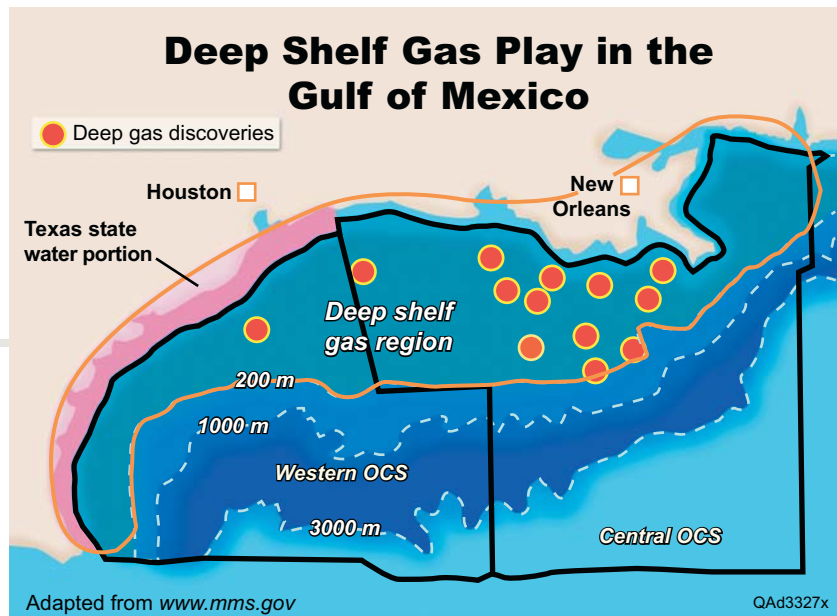
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## CHALLENGE

As the search for gas moves increasingly to reservoirs at depths of >15,000 ft, the greatest unknown and most critical risk factor is reservoir quality. The ability to predict reservoir quality (porosity and permeability) and physical characteristics of deep-reservoir rocks is critical to reducing exploration risk.

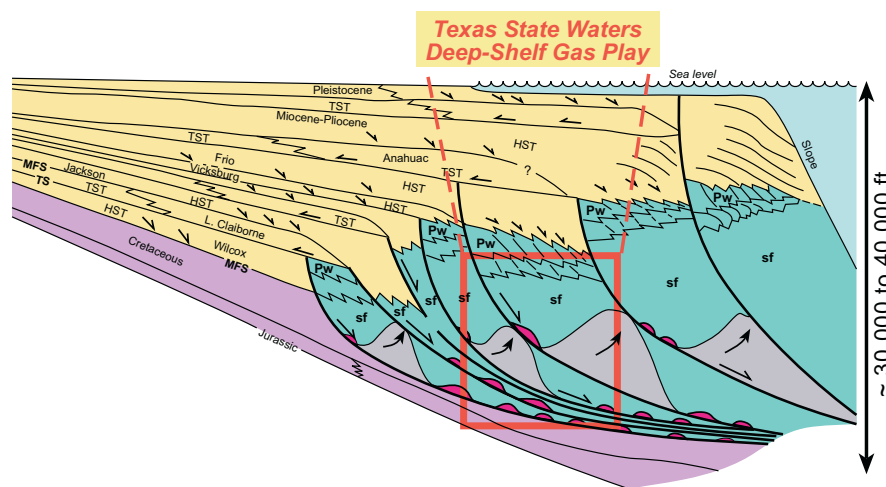
## IMPACT

Our major goal is to stimulate participation in the deep-shelf gas play by reducing risk in key technical areas of stratigraphic architecture and reservoir quality. Our project should decrease uncertainty by focusing exploration on lower risk areas and avoiding drilling below economic-reservoir basement.



## APPROACH

The focus of the research is the deep-shelf gas play in the Gulf of Mexico, where target reservoirs occur at depths from 15,000 to 30,000+ ft beneath the shallow waters of the inner shelf. Our goal is to decrease the exploration risk of sandstone-distribution and reservoir-quality prediction in Texas State Waters.



General sequence stratigraphic architecture for the Texas Gulf Coast area.  
The deep-shelf gas play of lowstand deposits is outlined by red box.

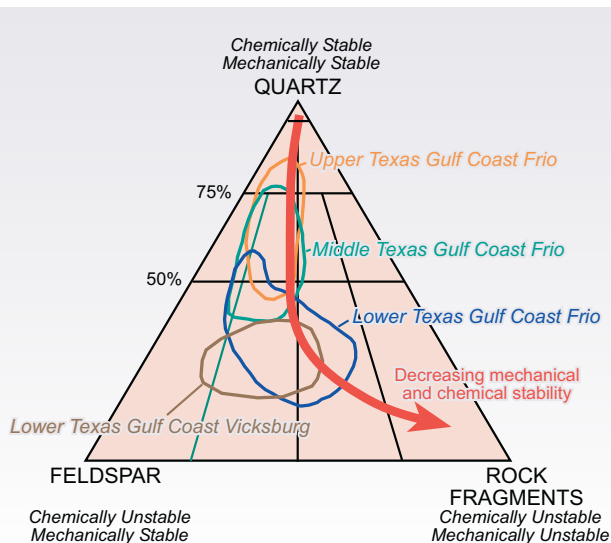
This multidisciplinary study, conducted by a team of experienced geoscientists, will include (1) mapping of deep stratigraphic architecture from seismic data, (2) isochron mapping of deep sedimentary packages, (3) seismic facies analysis of these packages, (4) petrographic and geochemical analysis of rock samples, (5) statistical analysis of porosity/permeability relationships to controlling parameters, and (6) wireline-log analysis for complete vertical data coverage in selected areas.

# DEEP-SHELF GAS PLAY OF TEXAS STATE WATERS



## RESEARCH PRODUCTS

- ◆ Maps and cross sections displaying architecture of primary depocenters of the deep to ultradeep stratigraphic section.
- ◆ Analysis of stratigraphic architecture of the deep to ultradeep stratigraphic section.
- ◆ Analysis of different types of structures of the deep to ultradeep stratigraphic section as they relate to sand occurrence.
- ◆ Seismic examples of the deep to ultradeep stratigraphic section where permitted by vendors.
- ◆ Databases of Texas GOM mineralogy, including onshore and offshore data.
- ◆ Databases of Texas GOM porosity and permeability organized by facies, depth, and age, including onshore and offshore data.
- ◆ Analysis of reservoir-quality trends versus depth on the basis of area, mineralogy, time, temperature, pressure, and stratigraphic position.
- ◆ Reservoir-quality fairway maps by selected age intervals, such as the Frio and Wilcox.
- ◆ Wireline-log model specifically designed for estimating porosity and permeability in deep GOM settings.
- ◆ Core-analysis database containing more than 17,000 data points from mostly onshore wells that can be used interactively online or in spreadsheets.



Oligocene Frio and Vicksburg sandstone composition along the Texas Gulf Coast.

## STAFF

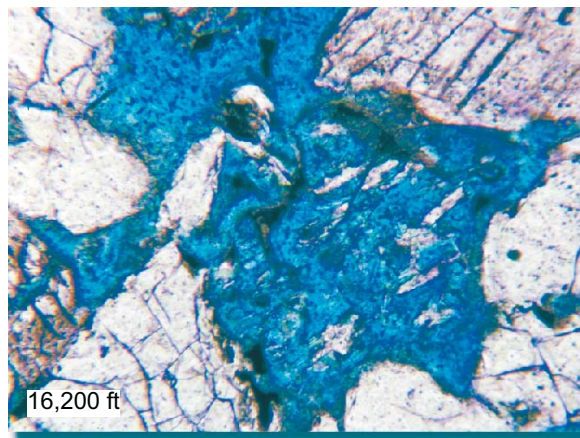
Shirley P. Dutton, co-principal investigator; diagenesis and burial history

Robert G. Loucks, co-principal investigator; diagenesis and stratigraphy

Angela McDonnell; seismic interpretation

L. Frank Brown; sequence stratigraphy

**We are seeking additional industry partners. For information, contact Shirley Dutton or Robert Loucks.**



Thin section of a Frio sandstone showing secondary pore in dissolved feldspar.

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