

# SOUTHEAST OFFSHORE STORAGE RESOURCE ASSESSMENT (SOSRA)

PROJECT NUMBER: DE-FE0026086

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U.S. DEPARTMENT OF  
**ENERGY**



VirginiaTech



UNIVERSITY OF  
SOUTH CAROLINA



Virginia Department of  
Mines Minerals and Energy



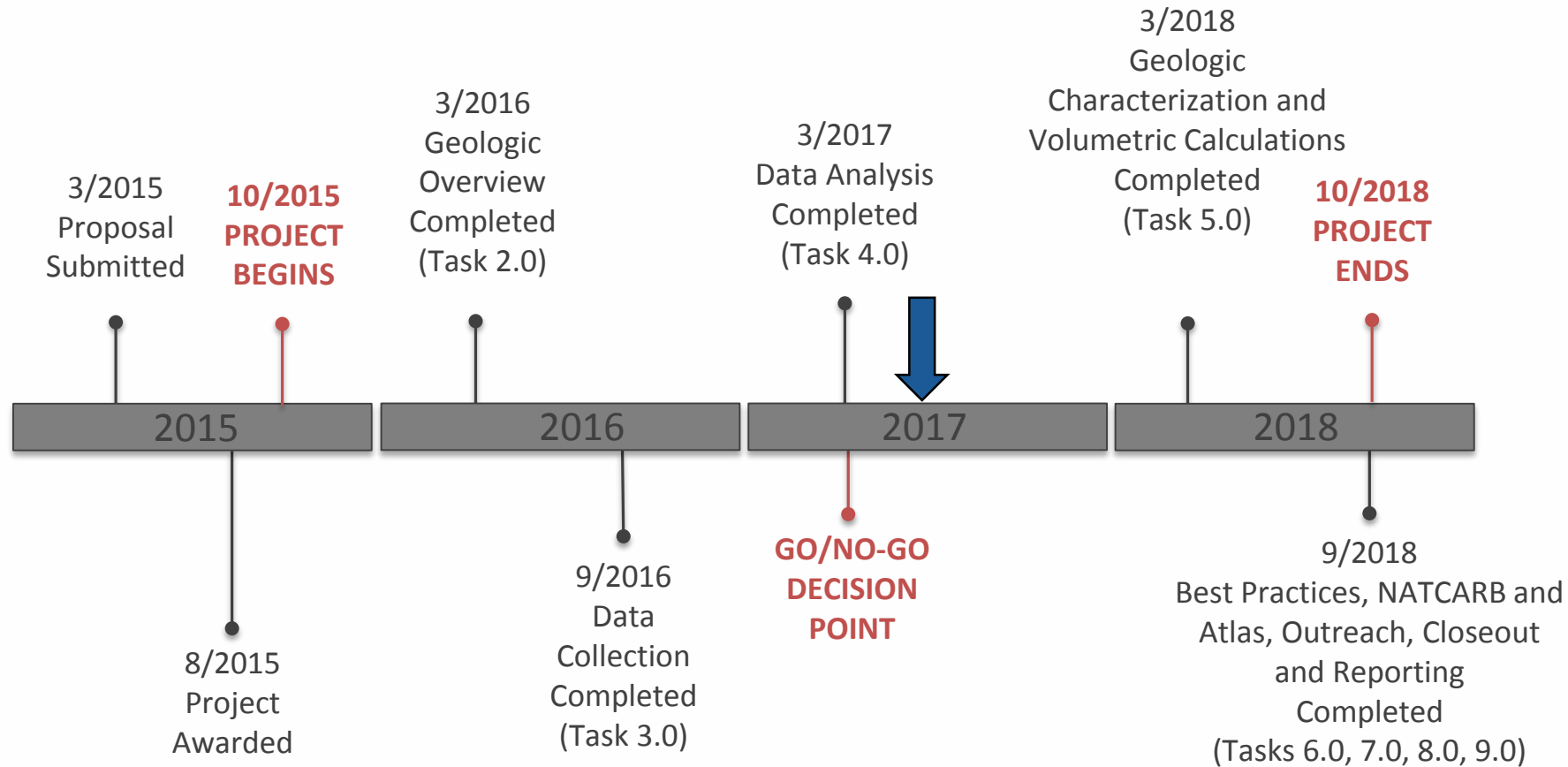
Advanced Resources  
International, Inc.

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Cost share and research support are provided by the Project Partners and an Advisory Committee.*

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2<sup>nd</sup> International Workshop on Offshore Geological CO<sub>2</sub> Storage  
Beaumont, TX  
June 20, 2017

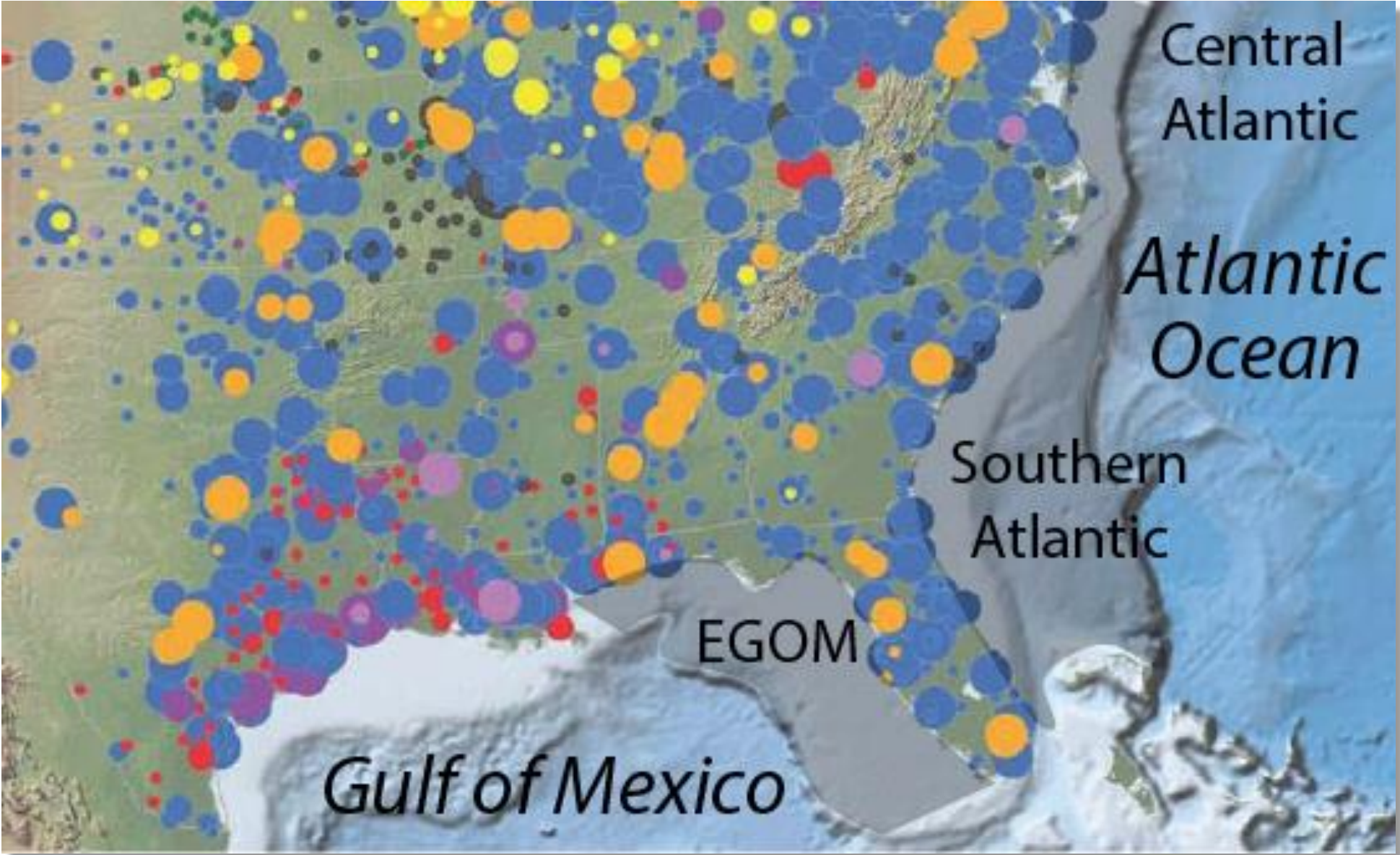
# SOSRA PROJECT TIMELINE



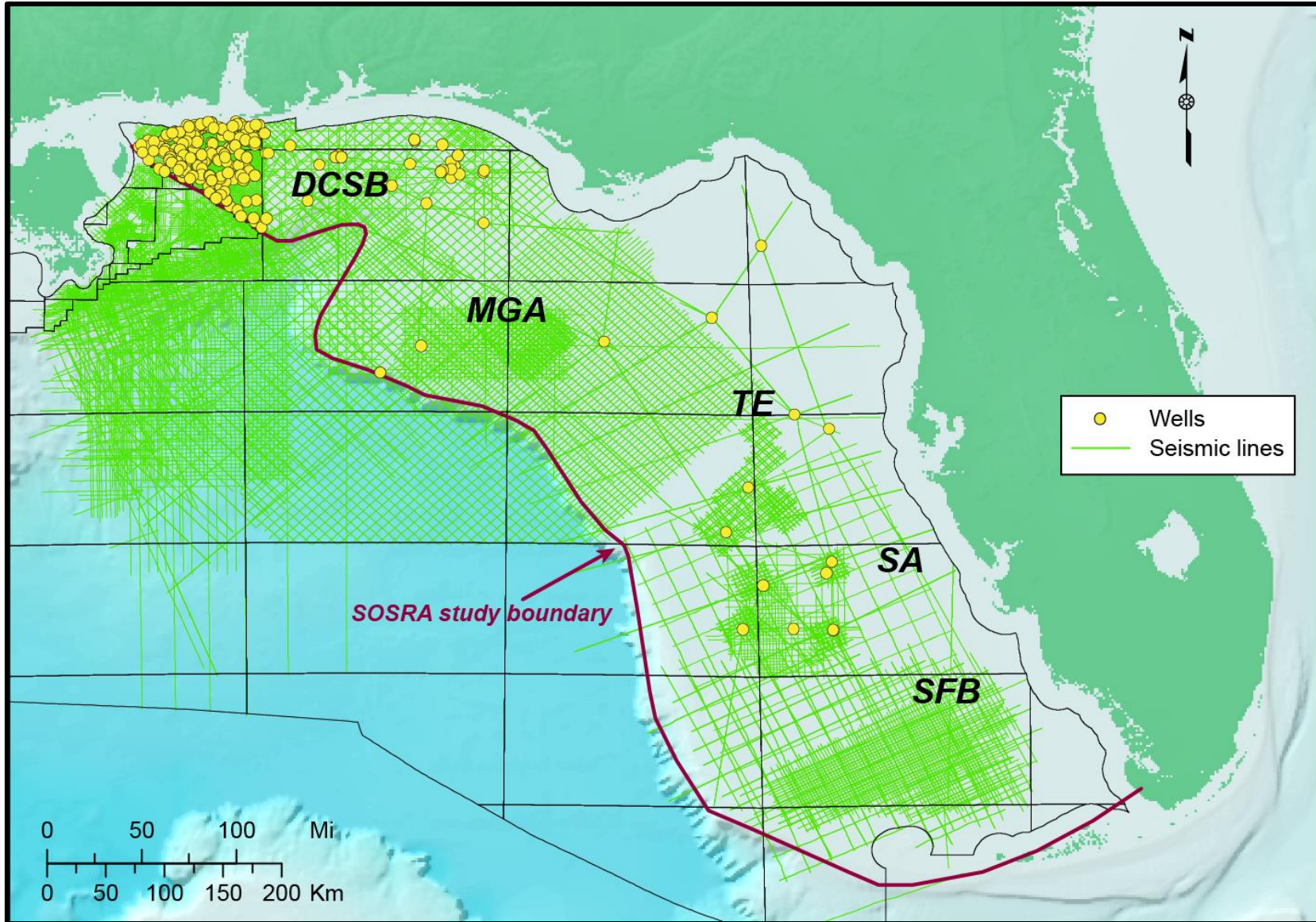
**GO/NO-GO DECISION POINT:** *The data collected and analyzed in Phase I is sufficient to perform a quality prospective storage resource assessment and the project should proceed to Phase II.*

*Note: Task 1.0, Project Management and Planning, extends throughout the entire program period.*

**LOCATION – SOSRA**



# EGOM STUDY AREA AND SUBREGIONS



**DCSB** DeSoto Canyon  
Salt Basin

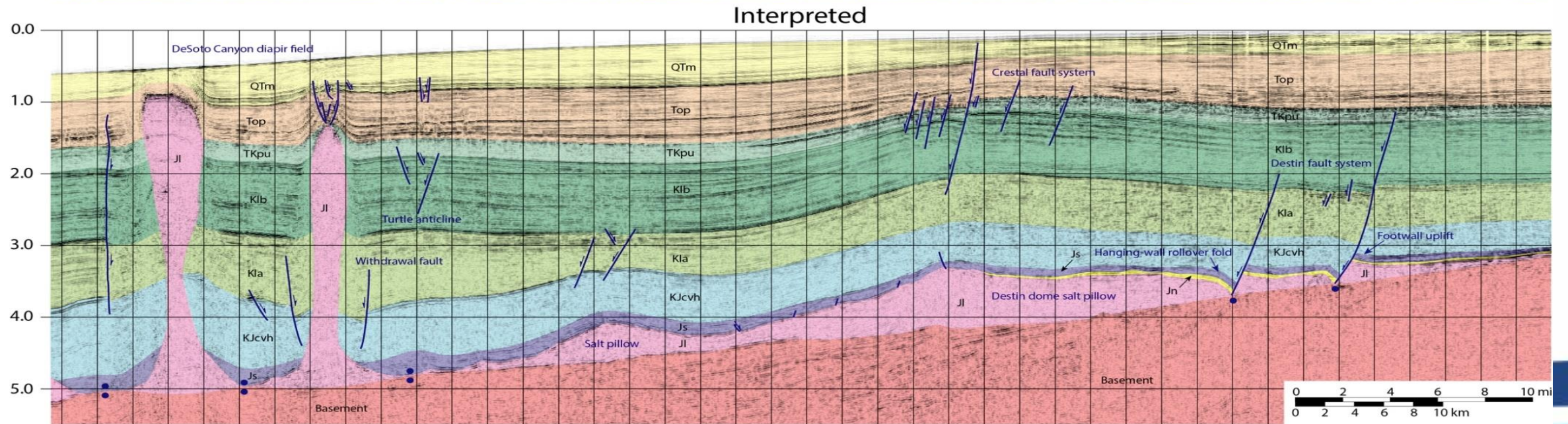
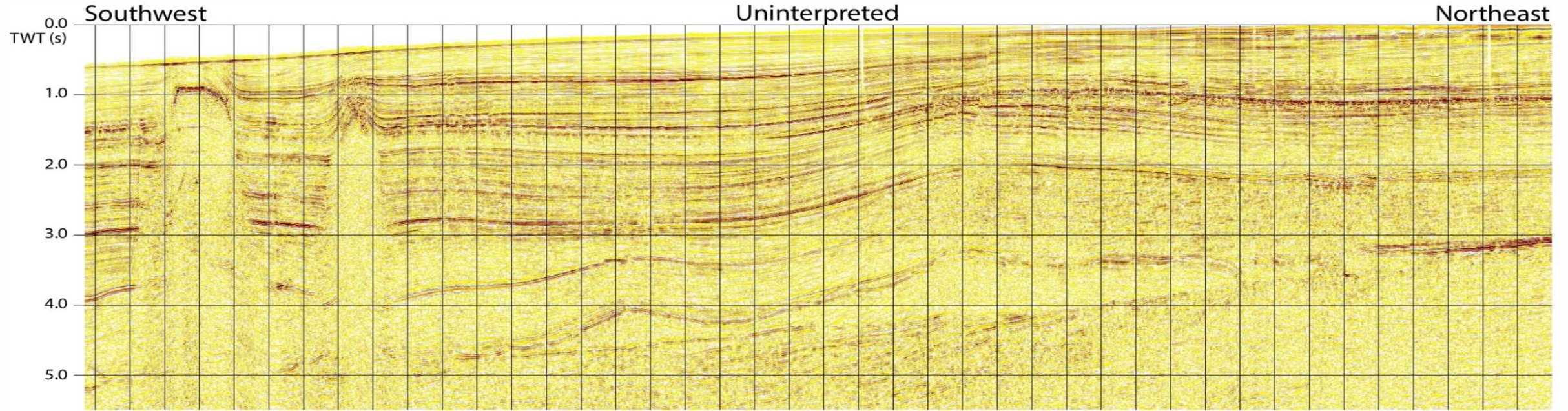
**MGA** Middle Ground  
Arch

**TE** Tampa  
Embayment

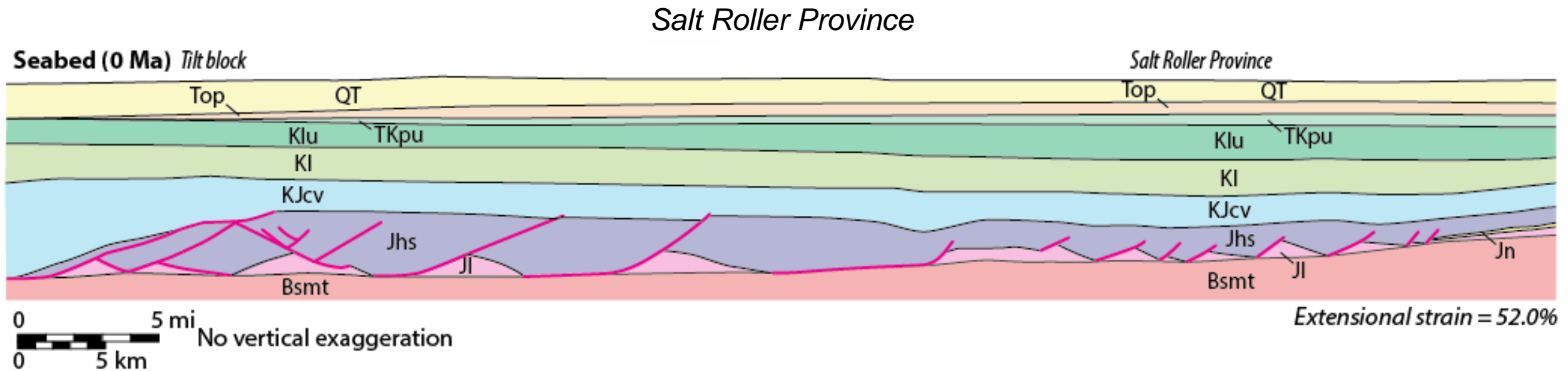
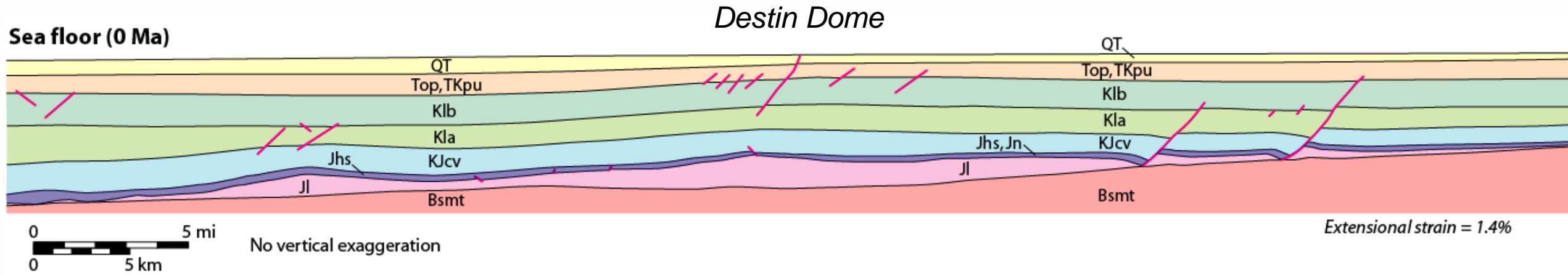
**SA** Sarasota Arch

**SFB** South Florida  
Basin

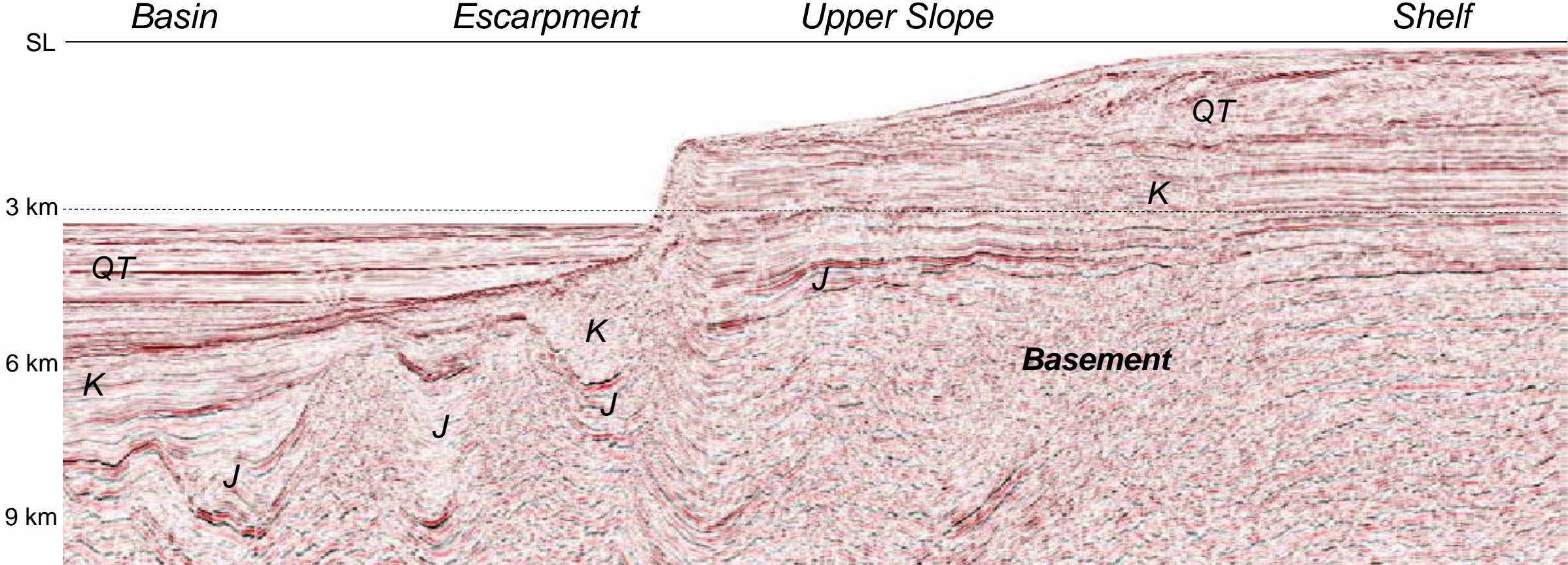
# DCSB DESTIN DOME



# DEPTH CONVERTED STRUCTURAL CROSS SECTIONS, DESOTO CANYON SALT BASIN



# WEST FLORIDA SHELF-ESCARPMENT

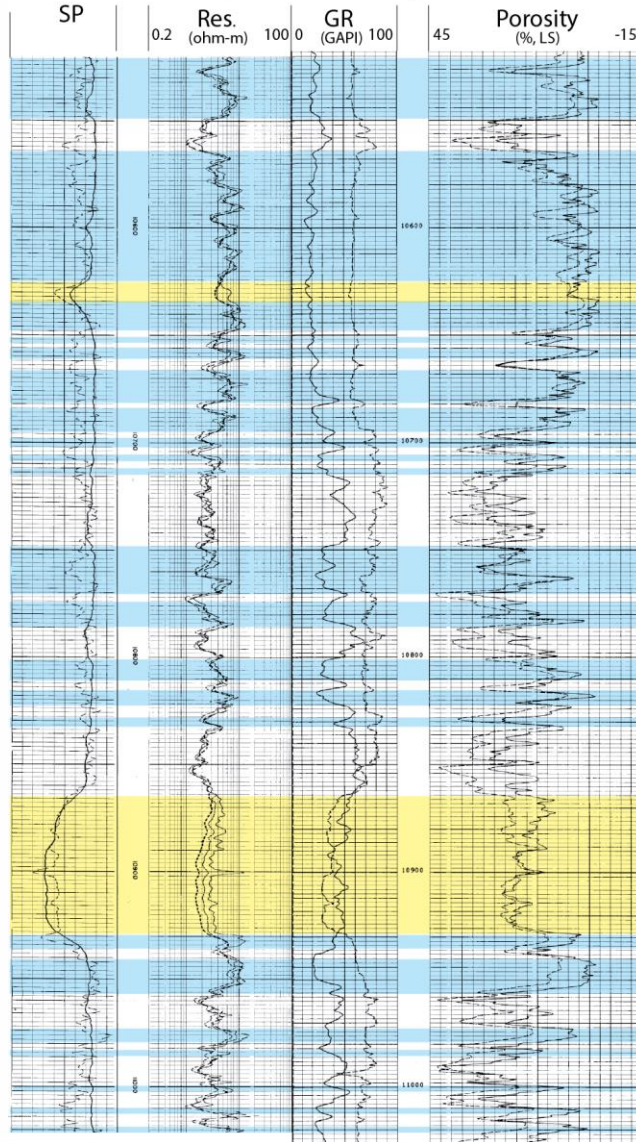


VE ~4x

Roberts and Erickson (2009)

# PROSPECTIVE EGOM SINKS

Well G02468, Desoto Canyon Salt Basin



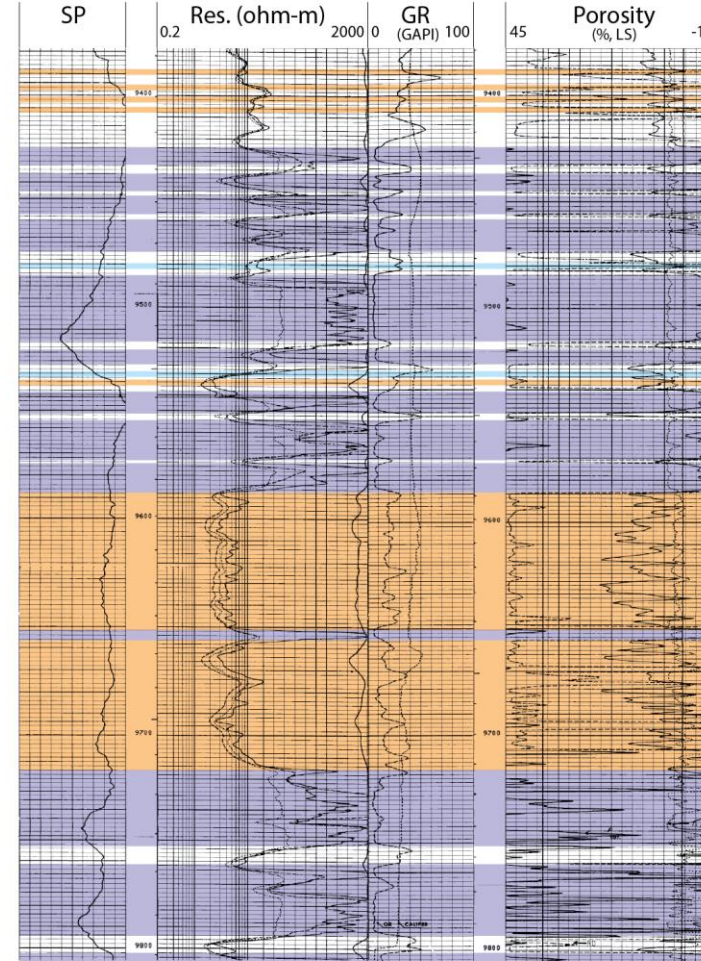
**Paluxy Formation**

*Major prospects in sandstone of Tuscaloosa Group and Paluxy Fm.*

*Topseal*

**Reservoir**  
*Porosity locally >20%*

Well G3912, West Florida Shelf



**Punta Gorda Anhydrite**

*Topseal*

**Reservoir**

*Porosity locally >15%*

**Reservoir**

*Major prospects in porous dolomite associated with anhydrite intervals*

Shale

Sandstone

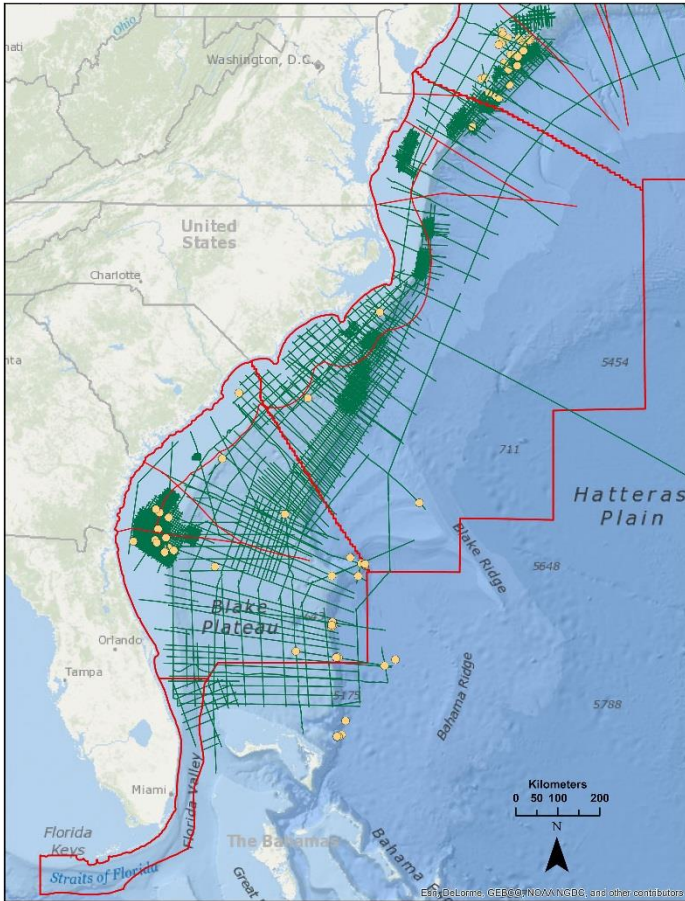
Limestone

Dolomite

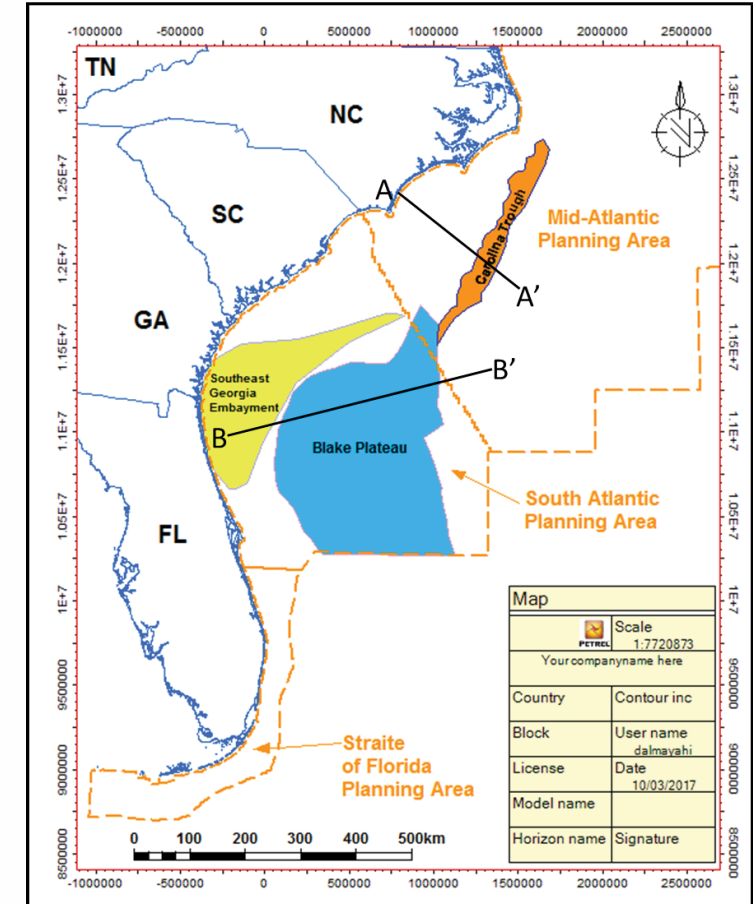
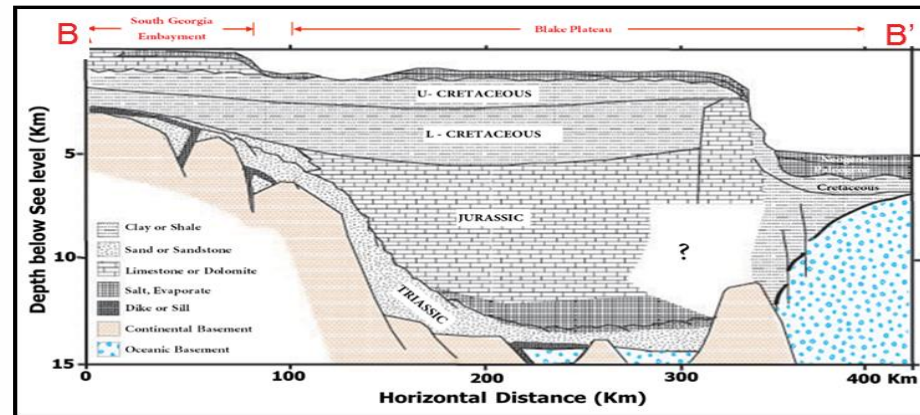
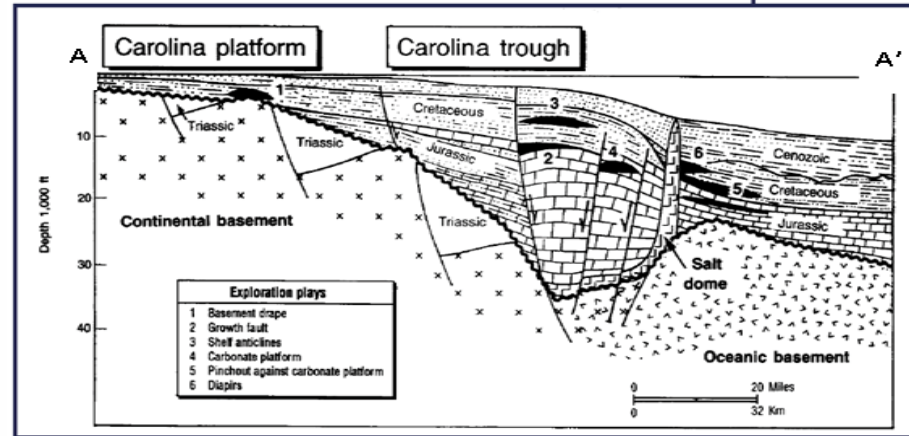
Anhydrite



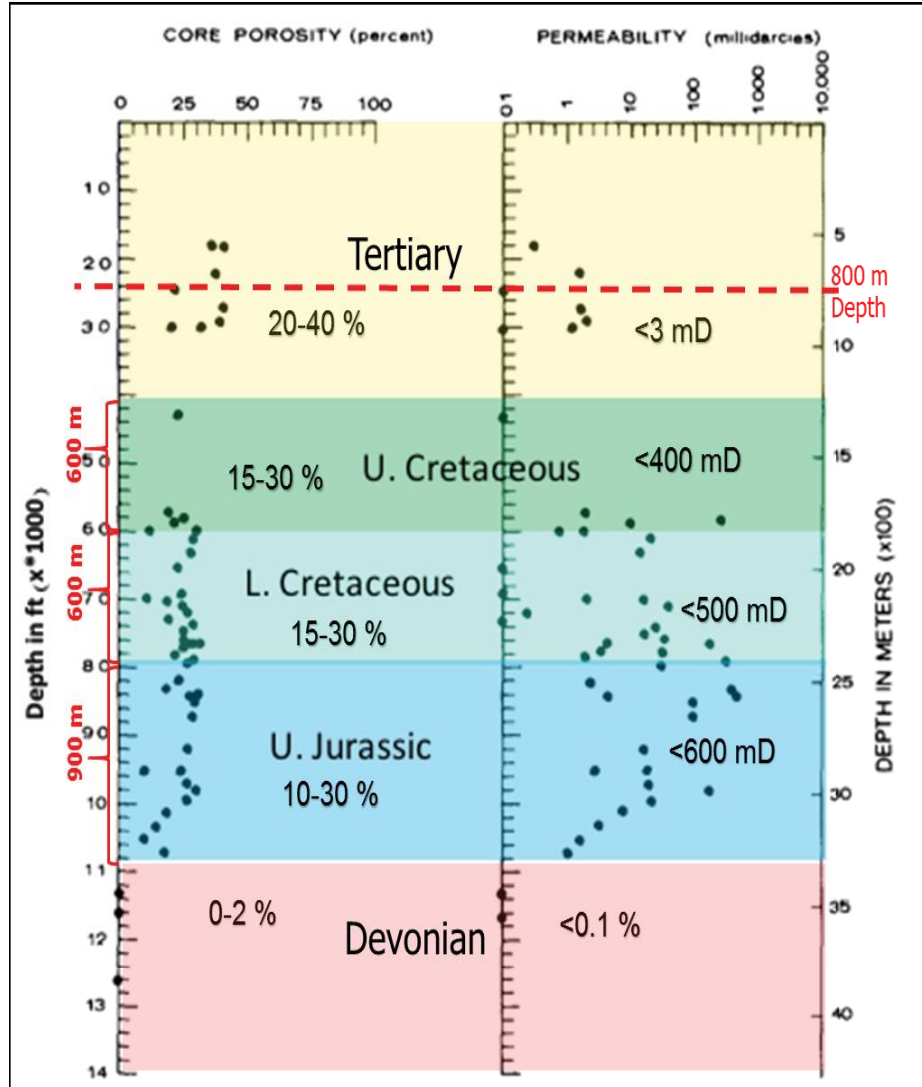
# SOUTH AND MID-ATLANTIC PLANNING AREAS



- Total of six exploration wells, on Georgia/Florida shelf
- Major depocenters in Carolina Trough and Blake Plateau Basin



# PROSPECTIVE MESOZOIC SECTION



Scholle (1979)

Reservoir Properties	Positive Indicators	Cautionary Indicators
Depth	>800 m, <2500 m	<800 m, >2500 m
Reservoir thickness	>50 m	<20 m
Porosity	>20%	<10%
Permeability	>500 mD	<200 mD
Salinity	>100 g l <sup>-1</sup>	<30 g l <sup>-1</sup>
Stratigraphy	Uniform	Complex lateral variation and complex connectivity of reservoir facies
Capacity	Estimated effective capacity much larger than total amount of CO <sub>2</sub> to be injected	Estimated effective capacity similar to total amount of CO <sub>2</sub> to be injected
<b>Caprock Properties</b>		
Lateral continuity	Stratigraphically uniform, small or no faults	Lateral variations, medium to large faults
Thickness	>100 m	<20 m

Chadwick et al (2008)

## DATA COVERAGE

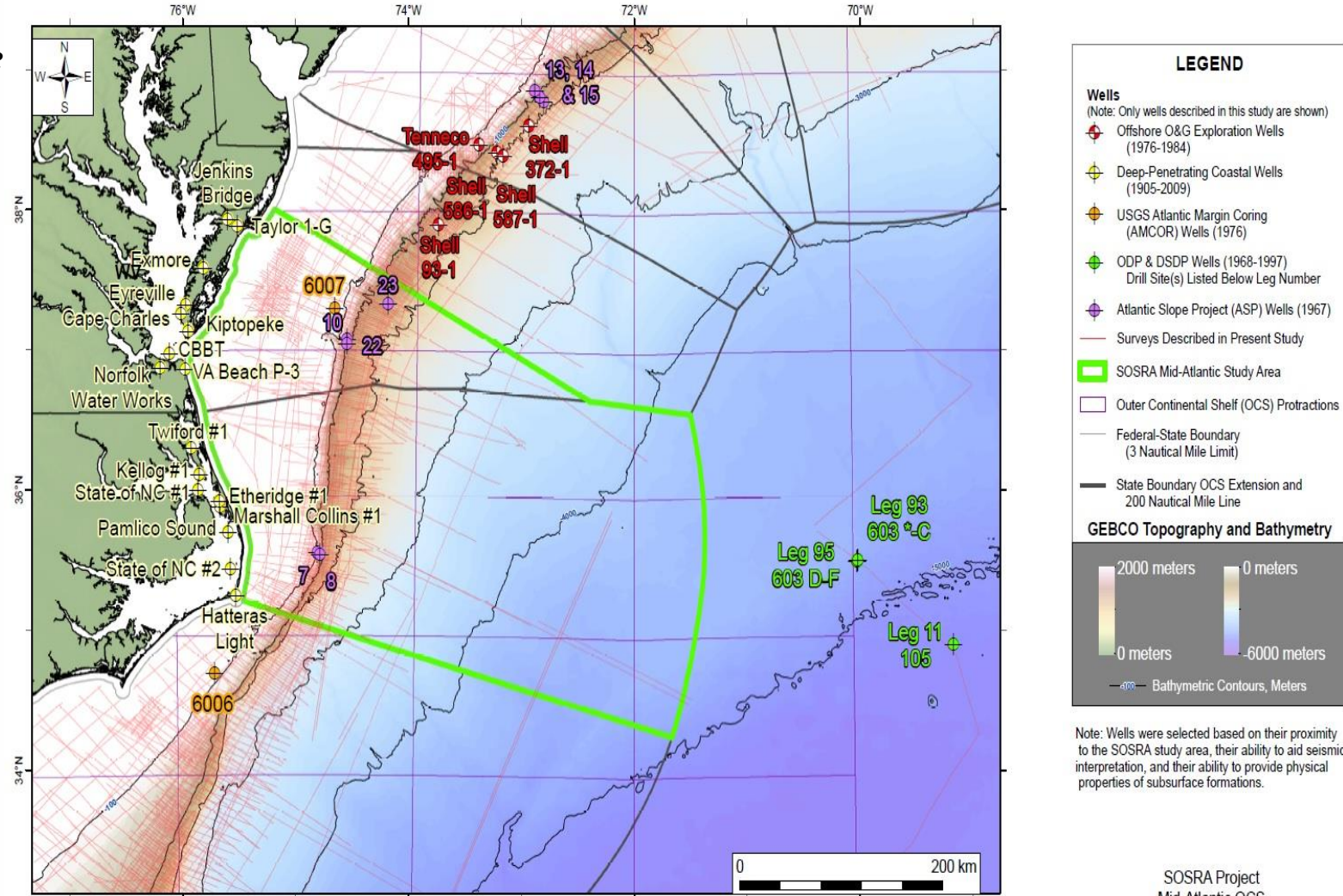
Over 1,000 lines and 34 wells (only 5 offshore) were selected for the study of the Mid-Atlantic Region.

### Areal Coverage Method:

- Line/grid Spacing: Regional, Semi-Regional, Exploration scale
- Location of offshore wells outside the study area. Presence of 5 exploration wells at the North of the region.

### Results:

**Unlike the sparse distribution of well data, the seismic data collected on the Mid-Atlantic margin is of sufficient density to perform the interpretation task.**



# QUALITY ANALYSIS

Over 1,000 lines and 34 wells (only 5 offshore) were selected for the study of the Mid-Atlantic Region.

## Quality Assessment Method:

- Resolution: frequency analysis, data stacked or migrated
- Survey Design: source volume and cable length
- Benefit of reprocessing: identify lines of poor quality and potentially reprocess if needed

## Results:

The quality varies from fair to poor and is better for more recent data. Offshore wells were QC'd to improve their quality.

