Project Overview

Primary goal of the project is to characterize the Plio-Miocene sediments of the depleted oil/gas fields of the Ship Shoal Area for high volume CO₂ storage.

The Ship Shoal area is located on the continental shelf offshore Louisiana in the federal waters within the northern Gulf of Mexico.

## Findings To Date

### Geological Review

**Findings To Date**

**CO₂ Migration Model**

Modified from GOMsmart.com; Earth Science Associates

**Resource Estimation**

NETL Equation:

\[ G_{CO2} = A_t h_g \Omega_{tot} \rho \varepsilon_{saline} \]

where, \( G_{CO2} \) = CO₂ storage mass estimate, \( A_t \) = Total area, \( h_g \) = Gross thickness, \( \Omega_{tot} \) = Total porosity, \( \rho \) = Density of CO₂ at depth, and \( \varepsilon_{saline} \) = Storage efficiency factor. [1]

Using BOEM reservoir data, the existing oil/gas fields in northern Ship Shoal have the potential to store:

- **P10** = 12 million tons
- **P50** = 47 million tons
- **P90** = 127 million tons of CO₂

## Project Objectives

The project will proceed over two years.

### Objectives of Phase I:

- Complete detailed review and interpretation of publically available geologic data to identify targets and seals.
- Provide preliminary estimation of storage volume for each oil/gas field using NETL approved calculation.
- Produce Pliocene and Miocene structure maps of northern Ship Shoal.
- Develop detailed geologic model of Ship Shoal (SS) Block 107 field.

### Objectives of Phase II:

- Develop integrated 3D fluid-flow and geomechanics model of SS Block 107 field to simulate long-term injectivity, migration, storage permanence, and induced fault reactivation.
- Complete a risk assessment to evaluate the potential of leakage during CO₂ injection.
- Analyze existing infrastructure of oil and gas for CO₂ transport.
- Provide a refined storage capacity estimation for SS Block 107 field based on modeling and risk assessment.

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## References

