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## Carbon Capture and Storage Potential in the Chandeleur Sound, Offshore Louisiana

M. P. Phillips and R. Weber

### ABSTRACT

Carbon Capture and Storage (CCS) is emerging as a solution in response to climate change. CCS is being investigated by the Gulf Coast Carbon Center (GCCC) of the Bureau of Economic Geology in Austin, Texas, where CO<sub>2</sub> is captured after combustion, and before release into the atmosphere, and injected into deep geological reservoirs for long-term storage. The GCCC has been a leader in CCS research since 1998 and is currently managing the Gulf of Mexico Partnership for carbon capture and offshore geological storage (GoMCarb), a large-scale CCS investigation and collaboration funded by the Department of Energy and the National Energy Technology Laboratory. This collaboration includes the Gulf Basin Depositional Synthesis (GBDS) project group at the University of Texas Institute for Geophysics.

The GBDS is evaluating a 3D seismic survey area in the Chandeleur Sound offshore Louisiana, a small area virtually devoid of geological interpretation. The GBDS brings 25 years of scientific research and interpretation in the Gulf of Mexico, which we can extrapolate across this area, in addition to localized, detailed geological characterization. To date, the geological characterization of the Chandeleur Seismic Area includes 6 Cenozoic stratigraphic surfaces, faults, top of overpressure, paleoenvironment, and potential stratigraphic traps, none of which would have been possible without biostratigraphy. Biostratigraphy will also play a critical role in helping identify condensed sections, potential seals, and lateral continuity of seals when integrated with seismic data. The middle Miocene is the target interval.

CCS potential here relies on well log interpretation and seismic modeling to understand the lithology for storage and sealing capacity. Although 170 oil wells were drilled in this area, none of them produced, which calls into question the integrity of structural and stratigraphic seals. Emerging modeling, however, shows promise for Chandeleur as one hypothesis de-

scribes the potential of residual trapping mechanisms in heterogeneous lithology.