

## APPLICATION OF HIGH-RESOLUTION GEOPHYSICAL AND GEOTECHNICAL TECHNIQUES FOR SELECTING ARTIFICIAL REEF SITES ON THE LOUISIANA OUTER CONTINENTAL SHELF

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### POSTER SESSION ABSTRACT

Obsolete oil and gas platforms are used as artificial fishing reefs in Louisiana because of their abundance, structural design and durability, and proven ability to attract large numbers of fish. This paper describes techniques and criteria used to select sites for obsolete oil and gas platforms as artificial reefs on the Louisiana outer continental shelf (OCS).

Nautical charts, bathymetric maps, and offshore oil and gas maps were used to select eight regional planning areas. These areas range from 70 to 165 square miles (113 to 266 square kilometers) each, and are located in the Main Pass, West Delta, South Timbalier, Eugene Island, South Marsh Island (2), East Cameron and West Cameron Areas. Pipeline maps were acquired from federal agencies and private industry to determine their general locations within each planning area. Exclusion fairways of at least 2000 feet (610 meters) were then established along each pipeline route.

Approximately 1000 line miles (1610 line kilometers) of high-resolution geophysical data (3.5 to 7.0 kHz subbottom profiles, single-channel seismic, and 105 kHz side-scan sonar) collected by federal agencies and private industry was acquired for the eight planning areas. This data was interpreted to assess near-surface geologic conditions that could affect placement of the structures, such as active faults, gas seeps and gas-charged sediments, salt intrusions, and areas susceptible to mass wasting (slumps, slides, debris flows). Seismic acoustic reflection patterns were also characterized to evaluate near-bottom sedimentation processes. Geotechnical borings were used to determine the lithological and physical properties of the sediments, estimate the amount of settlement of the structure into the substrate, and for correlation with the geophysical data.

Since 1987, sites for seven obsolete production platforms have been selected on the Louisiana OCS using these techniques. Industry participants have realized a total savings of approximately \$850,000 by converting these structures into artificial reefs.

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