

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

High-resolution seismic reflection profiles collected
August 4 to 28, 1979, between Cape Hatteras and Cape Fear,
North Carolina and off Georgia and northern Florida
(Cruise GS-7903-6)

by
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U.S. Bureau of Land Management

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

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The U.S. Geological Survey in cooperation with the U. S. Bureau of Land Management collected single-channel high-resolution, seismic-reflection data for 3290 km of traverse off the southeastern United States between Aug. 4-28, 1979. These data were collected from the Research Vessel JAMES M GILLISS (Cruise GS-7903-6) as part of a program to assess environmental aspects of offshore petroleum and hard minerals development.

The three areas of operation (fig. 1) and the purposes of data acquisition were as follows:

- Area 1: Continental Shelf, Slope, and Rise from Cape Hatteras to Cape Fear, North Carolina. Purpose: Regional geologic hazards and shallow stratigraphic study surrounding the Lease Sale 56 area.
- Area 2: Continental Shelf (Florida-Hatteras Shelf) 30°N to 32°N, offshore northern Florida and Georgia. Purpose: To assess possible geologic constraints to offshore development related to Oil and Gas Lease Sale 43.
- Area 3: Red Snapper Sink and northern Florida Shelf. Purpose: To study buried karst in the subsurface of the shelf and specifically to investigate karstification at Red Snapper Sink.

Single-channel, high-resolution, seismic-reflection and echo-sounder records were taken for all areas. In the Southeast Georgia Embayment, Uniboom records (1,352 km of traverse) were also collected.

Single-channel airgun data were gathered using several sources. In deeper water, two 40-in³ airguns with wave shapers were fired simultaneously at 2000 psi. In shallower water, smaller airguns were used. Returning signals were gathered by a 300-m-long 200-element, single-channel hydrophone steamer. Uniboom data were gathered by a 20-element steamer. Incoming signals were recorded on magnetic tape and displayed graphically on three or four separate EPC recorders at 0.5-, 1.0-, 2.0-, and 4.0-sec sweep rates. For display, records were band-pass filtered at 200 to 800, 30 to 150, and 80-256 Hz. Navigation was by an integrated system whereby range-range and hyperbolic Loran C, gyro compass, and doppler speed log readings were fed into a Hewlett-Packard 2112 minicomputer and periodically updated by satellite fixes.

Data are generally of very good to excellent quality. Original records can be seen and studied at the U.S. Geological Survey offices, Woods Hole, MA 02543. Microfilm copies of seismic-reflection profiles can be purchased only from the National Geophysical Data Center, NOAA/EDIS, NGDC, Code E-64, 325 Broadway, Boulder, Colorado 80303 (303-497-6338).

