Technical Announcement

MMS

U. S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

Date: August, 2009

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Post-Hurricane Assessment of Sensitive Habitats of the Flower Garden Banks Vicinity

OCS Study MMS 2009-032

The Minerals Management Service (MMS), Gulf of Mexico OCS Region, announces the availability of a new study report, *Post-Hurricane Assessment of Sensitive Habitats of the Flower Garden Banks Vicinity*.

A discontinuous arc of reef environments occurs along the edge of the Outer Continental Shelf of the northern Gulf of Mexico (GOM). At least 22 banks occur in this arc located about 100 miles (161 km) from shore. The MMS assessed damage to these banks caused by the passage of Hurricane Rita. This was a cooperative effort with the Flower Garden Banks National Marine Sanctuary.

Hurricane Rita crossed the shelf-edge on September 23, 2005, as a Category 3 hurricane with winds up to 125 mph. The MMS examined several sensitive habitats within the northwestern GOM that were close to the path of Hurricane Rita, including Sonnier Bank (15-mi or 24-km east), McGrail Bank (7 mi or 12 km west), Geyer Bank (36 mi or 58 km west), Bright Bank (47 mi or 75 km west), and the East Flower Garden Bank (EFGB) (58 mi or 93 km west). The East and West Flower Garden Banks are the most prominent banks with the greatest developed biological communities and are the most studied. The closest weather buoy, located 143 miles (230 km) west of the Flower Garden Banks, recorded wave heights close to 20 feet (6 m). Hindcast hydrodynamic models estimated wave heights at 66 ft (20 m) or higher on the shelf-edge banks.

The unique biological characteristics of the remote benthic communities at Sonnier, McGrail, Geyer, Bright, and EFGB highlight their intrinsic value within the northwestern GOM ecosystem. With predicted wave velocities of 8 knots acting on these banks during the passage of Hurricane Rita, the damage could have been catastrophic. The dataset generated for Sonnier, McGrail, Geyer, and Bright Banks suggests that Sonnier Bank suffered a loss of benthic cover but is recovering, with algae and sponges continuing to dominate. It is, however, unknown what impacts can be attributed to prior disturbances or the passage of the hurricane. No obvious hurricane damage was apparent at McGrail, Geyer, and Bright Banks and because these three banks are dominated by algae and sponges, any recovery from damage might have been completed in the 20 months following the storm. McGrail Bank, with its large *Stephanocoenia*

intersepta colonies, had no apparent coral damage and may have been protected by its depth (148 ft or 45 m); however, the absence of baseline (pre-hurricane) data limits the conclusions that can be drawn from the data collected during this study.

This report is available only in compact disc format from the Minerals Management Service, Gulf of Mexico OCS Region, at a charge of $15.00, by referencing OCS Study MMS 2009-032. The report may be downloaded from the MMS website through the Environmental Studies Program Information System (ESPIS). You will be able to obtain this report also from the National Technical Information Service in the near future. Here are the addresses. You may also inspect copies at selected Federal Depository Libraries.

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