

**Kerwin J. Cuevas**

***Utilizing High Resolution sonar imagery with wide swath bathymetry as an oyster reef, artificial reef and derelict vessel management tool.***

***Biography***

A Biological Program Coordinator for the Mississippi Department of Marine Resources located in Biloxi Mississippi, Kerwin has been working with the Department for nine (9) years. He has an undergraduate degree in Marine Biology from the University of Southern Mississippi.

***Abstract***

Oyster resources from Mississippi reefs contribute substantially to the states economy. Proper management of these reefs is vital for continued harvest. The information acquired from side scan sonar provides a long-term record, which is used to detect changes in reef distribution by environmental perturbations and vessel groundings. Cultch planting is a key component of management measures conducted by the Mississippi Department of Marine Resources (MDMR). The use of sounding poles, tongs, dredges and/or scuba equipment has been used to gauge the area coverage by cultch planting. These methods are not efficient techniques when surveying large areas for cultch distribution. Using side scan sonar to monitor cultch plants has a number of advantages over these previously used methods.

In recent years, Mississippi has spent over 2.5 million dollars for artificial reef development in its territorial sea and adjacent waters of the EEZ. Mississippi and adjacent water bottoms are essentially a flat featureless plain with little or no irregular features. These artificial reefs provide habitat for reef fish which would not normally occur in these waters and has lead to an important offshore reef fishery for Mississippi. These man-made hard bottom habitats are monitored to ensure compliance with Corps of Engineering (COE) permits, navigational clearance, and to assess material performance (stability and durability). Artificial reefs generally occur over broad areas of water bottoms, which is a challenge for artificial reef managers. Side scan sonar can map large areas relatively quickly, can provide detailed information on location, orientation of materials, relief, footprint and scouring around the material.

In addition to using side scan sonar in the oyster and artificial reef programs, it is used within the derelict vessel program to show the location, orientation and any loose debris located around the sunken vessel. Post side scan ensures contractual obligation by the contractor that the vessel and associated debris have been removed. Side scan has also been useful to Marine Enforcement in search and recovery operations.