Bathymetric Survey of Lionfish Habitat at a Mid-Shelf Rocky Ledge, Onslow Bay

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ABSTRACT

The problem of growing populations of the venomous lionfish, Pterois volitans, along the Southeastern United States coast has become an increasingly pressing issue for the regional fisheries of Onslow Bay. The lionfish has few natural predators allowing populations to reproduce rapidly and threaten indigenous populations. Beginning in 2005, researchers from the NOAA Center for Coastal Fisheries and Habitat Research (Beaufort, NC) began a multibeam sonar study of Onslow Bay, hoping to gain a better understanding of lionfish densities and habitat in order to address management concerns.

BACKGROUND

Onslow Bay, NC is of interest, as the rocky ledges of the area contain and support the venomous lionfish's (Fig. 2) native habitat in the Indo-Pacific. Once local habitat for this invasive species is determined, effective management will be more apt to handle the rapid growth of this dangerous fish (Whitfield 2005). Lionfish feed mainly on the larvae of shrimp, snapper, affecting the local and regional fishing economies (Quattrini et al. 2004). Several areas throughout Onslow Bay have been mapped using multibeam sonar to identify rocky ledge areas.

RESULTS

The rocky nature of the ledges is evident in the digitized profiles of Lobster South (Fig. 3c and e). Overall bathymetry of Lobster South ranges from 32 to 45 m) Lobster North and Lobster South were conducted aboard NOAA Ship NANCY FOSTER. Each year the area of study was expanded to build a larger, more concise bathymetric image of the sea floor. The bathymetric data have been processed using CARIS HIPS 7.0 and focus to build a larger, more concise bathymetric image of the sea floor. The 32 to 45 m) Lobster North and Lobster South were conducted aboard NOAA Ship NANCY FOSTER.

METHODS

Scientists from the Undersea Research Center in Wilmington, NC (Paula Whitfield, PI) conducted multibeam sonar mapping along the NOAA Ship NANCY FOSTER. Raw data from the study region was processed using CARIS HIPS 7.0 and focused on Lobster South using data collected in 2008 and 2009. New multibeam data coupled with data processed previously were used to assess the rocky ledges of Lobster South and Lobster North.

DISCUSSION AND CONCLUSIONS

- The areas of Lobster South and Lobster North of Onslow Bay, NC are both ideal habitats for the invasive lionfish. The rocky ledges of the regions are proximate to the native environments of the Indo-Pacific, and aided by the Gulf Stream the annual water temperature (Kimball et al. 2004) remains within the lionfish’s zone of comfort. These factors allow the lionfish to thrive and in density reports, and continuous monitoring of grouper, snapper, and shrimp fisheries populations.

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http://oceanica.cofc.edu/multibeam

REFERENCES
