

The Role of Oyster Reefs as Habitat in Estuarine Ecosystems

Rachel A. Brewton,¹ *Harte Research Institute for Gulf of Mexico Studies, Texas A&M University-Corpus Christi, 6300 Ocean Drive, Corpus Christi, TX 78412*

Gregory W. Stunz, *Harte Research Institute for Gulf of Mexico Studies, Texas A&M University-Corpus Christi, 6300 Ocean Drive, Corpus Christi, TX 78412*

Isis E. Gain, *Harte Research Institute for Gulf of Mexico Studies, Texas A&M University-Corpus Christi, 6300 Ocean Drive, Corpus Christi, TX 78412*

Megan M. Robillard, *Harte Research Institute for Gulf of Mexico Studies, Texas A&M University-Corpus Christi, 6300 Ocean Drive, Corpus Christi, TX 78412*

Abstract: Oyster reefs (*Crassostrea virginica*) are an important component of marine ecosystems and are a valued fishery resource that may support high nekton abundances. The Magnuson-Stevens Fisheries Conservation and Management Act mandates necessary measures be taken to protect essential fish habitat; however few studies have assessed the potential for intertidal oyster reefs to serve as habitat. Previous research has documented high densities, rapid growth, refuge from predation, and reduced mortality in both seagrass beds (*Halodule wrightii*) and marsh edge (*Spartina alterniflora*) habitats, characterizing them as essential fish habitat. The objective of this study was to characterize the habitat usage and nekton density of intertidal oyster reefs relative to other potential habitat types. Specifically, we tested the null hypothesis of no difference in nekton density among the three habitats. In May and November 2008, we sampled replicate intertidal oyster reef, marsh edge, and seagrass habitats from two sites in Corpus Christi Bay, Texas, using a 1-m drop sampler. Samples were fixed in the field, then quantified and identified to the lowest possible taxon in the laboratory. Results suggest there is a significantly higher density of nekton using the intertidal oyster reefs as compared to vegetated habitats. Multivariate analyses revealed community differences, with intertidal oyster reef having a different community structure than the adjacent marsh edge and seagrass habitat types. These findings suggest oyster reefs may be critical for numerous estuarine species and may be characterized as essential fish habitat.

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1. Present address: Gulf Coast Research Laboratory, 703 East Beach Drive, Ocean Springs, MS 39564.