HABITAT USE PATTERNS OF NEWLY-SETTLED SPOTTED SEATROUT *Cynoscion nebulosus* IN GULF COAST ESTUARIES.

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Abstract

Estuaries are notable for high diversity making them one of the most productive marine ecosystems. Many fish species of economic importance use estuaries during at least one phase of their life cycle. Despite the recognition of the importance of habitat within estuaries, there are considerable gaps in knowledge concerning the specific patterns of habitat use for many important fishery species including the spotted seatrout *Cynoscion nebulosus*. The primary goal of this study was to examine the habitat use patterns of newly-settled spotted seatrout in three Texas Coastal Bend bays. In each bay, newly-settled trout were sampled using an epibenthic sled in three different habitat types: seagrass (*Halodule wrightii*), marsh edge (*Spartina alterniflora*), and nonvegetated bottom. These results suggest bay specific patterns of habitat use with the highest juvenile spotted seatrout densities occurring in seagrass meadows. A secondary goal was to examine spotted seatrout habitat use in marsh dominated bay systems from Barataria Bay, Louisiana to the seagrass dominated systems of the Lower Laguna Madre, Texas using data provided by NOAA Fisheries Service, Galveston, Texas. The NOAA Fisheries Service determined nekton abundance using enclosure samplers along the Gulf Coast from 1982 to 1997. These data show that in areas with no submerged aquatic vegetation, highest densities of juvenile spotted seatrout occurred at the marsh edge open water interface. Spotted seatrout habitat selection was examined using experimental mesocosms. These trials were conducted for both hatchery-reared and wild-caught spotted seatrout by subjecting them to selection trials using every possible pair-wise combination of common estuarine habitat types. The general pattern was that hatchery-reared and wild-caught mesocosm fish showed selection patterns for structured habitats

(oyster reef, seagrass beds and marsh edge) over nonvegetated bottom, but selection among structured habitat types did not show strong patterns. Size related habitat selection patterns were also observed, where habitat selection was not as apparent for larger individuals. These results suggest that structured habitat types, particularly seagrass meadows and marshes, are important nursery habitat for juvenile spotted seatrout and strong habitat selection patterns may diminish as fish grow.

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