Quantifying the Value of a Nursery Habitat Using the Spotted Seatrout in an Estuarine System

Stacy Beharry, *Center for Quantitative Fisheries Ecology, Old Dominion University, Norfolk, VA 23529*

Cynthia Jones, *Center for Quantitative Fisheries Ecology, Old Dominion University, Norfolk, VA 23529*

Abstract: Nursery habitats such as seagrass beds are important for the health and sustainability of many fisheries. In fact, seagrass beds are considered to be essential nursery habitats and as a part of the Sustainable Fisheries Act (SFA) of 1996 it was mandated that these areas be protected. To designate an area as an essential fish habitat two main criteria must be met, 1) greater numbers of fish produced per area and 2) greater survival of juvenile fish to adulthood. In the Chesapeake Bay, seagrass beds are considered to be nursery habitat, but the mortality of juvenile fish on individual beds is unknown. To estimate mortality we are using fish otoliths, or ear bones, as a natural tag from spotted seatrout (*Cynocion nebulosus*) from different beds in the Bay. The seatrout is a model species for this work as individuals maintain a tight relationship with their natal beds. Juveniles obtain an otolith chemical signature unique to their natal bed which can be used to identify from which beds returning adults originated. From this, it will be possible to develop a mortality ratio estimator for the number of adults produced from the relative abundance of juveniles on each bed. This gives us a method for quantifying seagrass beds as essential habitat based on fish production. This work will have far reaching effects, as managers can use this research as an ecosystem-based approach to adequately assess the value of individual seagrass beds.