

Habitat Use by Estuarine Fish Assemblages: Assessing Community Structure in Natural and Altered Wetlands in Tampa Bay, Florida

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To assess fish-community response to habitat alteration, ecologists have initiated a 3-year sampling program at fixed sites in Tampa Bay. The primary hypothesis is that fish communities in natural wetland creeks differ from fish communities in wetlands altered by mosquito-control ditches. To address this hypothesis, our objectives include: (1) establishing a species inventory of wetland fishes, pink shrimp, and blue crabs; (2) characterizing habitats based on substrate, vegetation, hydrology, and water quality; and (3) determining spatial/temporal use of habitats by fish assemblages.

Fifty-four sites (creeks, ditches) randomly selected in three county or state preserves along a north-south gradient were sampled quarterly with a center bag seine. Each site was restricted at both ends (with block nets) and then seined three times consecutively to allow depletion estimates of relative fish abundance. Upon capture, fauna were identified, measured, counted, and released. During the first 10 months of sampling, 101,560 individuals representing 75 species were collected. Fourteen species composed 90% of the total catch. Overall fish density was similar between creeks (13.7 fish/m²) and ditches (14.0 fish/m²). Mosquitofish (*Gambusia holbrooki*), sailfin mollies (*Poecilia latipinna*), and rainwater killifish (*Lucania parva*) were the most abundant species in both habitats. The 13 most abundant species were the same between habitats, with minor rank differences. Species richness for economically valuable fishes was similar between creeks (n=15) and ditches (n=13), and the most abundant species were the same: young-of-the-year spot (*Leiostomus xanthurus*), blue crab (*Callinectes sapidus*), mullet (*Mugil* spp.), and red drum (*Sciaenops ocellatus*). Economically valuable species contributed a larger portion of the fish assemblage in creeks (15.8%) compared to ditches (9.7%), mostly because of greater spot abundance in creeks (1.05 fish/m²) compared to ditches (0.39 fish/m²). The results of this study will be used by reserve managers in planning restoration activities and in assessing restoration success from a fisheries viewpoint.