Segregation of Palaemonid Shrimp along the Shark River Estuary, Everglades National Park

Lauren C. McCarthy1 and Jennifer Rehage2
1Nova Southeastern University, Oceanographic Center, Dania Beach, FL, USA, lmccarth@nova.edu
2Florida International University, Department of Environmental Studies, Miami, FL, USA, rehagej@fiu.edu

INTRODUCTION
Palaemonid shrimp are found throughout the Everglades ecosystem, and species range in habitat types from fresh to marine. While considerable research has been done on Palaemonetes paludosus (riverine grass shrimp), which primarily inhabits freshwater marshes, little is known about the ecology of other palaemonid species present in the Everglades, except for early descriptive studies by McPherson et al. (1970) and Odm and Heard (1972). In the southeastern section of Everglades National Park (ENP), freshwater marshes transition to an expansive array of mangrove forests, islands, tidal bays, and creeks where salinity varies both seasonally and spatially. How organisms respond to this variation in salinity is poorly understood. Palaemonid shrimp may respond in both short (daily) and longer (seasonal) time scales by drifting with tides (Anderson, 1995). This may allow organisms to change distributions in response to seasonal variation in hydrological conditions, and thus occupy parts of the estuary with suitable salinity conditions.

RESEARCH QUESTIONS
This study asks the following questions: (1) How do palaemonid shrimp species segregate spatially along the Shark River Estuary?, (2) How does species distribution relate to the spatial and seasonal variation in hydrological conditions, particularly salinity?, (3) If species replacement occurs along the seasonally and spatially. How organisms respond to this variation in salinity is poorly understood. (4) Do they potentially compete with one another, such that competition may be a major determinant of their distributional patterns?

SAMPLING METHODS

• Palaemonetes paludosus
• Palaemonetes pugio
• Leander paulensis
• Palaemonetes intermedius

PRELIMINARY DRY SEASON STABLE-ISOTOPE RESULTS

- There is limited co-occurrence of species at each site, with most sites dominated by one species, making direct trophic placement comparisons between species difficult.
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13N signatures from marine and estuarine sites show less than a 3‰ difference indicating that the species in the estuary likely play similar roles in the community.

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13N signatures show species variation, with upstream sites being more depleted relative to downstream sites, which was also found by Cornett (2006) and Fry and Smith (2002).

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LITERATURE CITED