

Patuxent Wildlife Research Center

Development of a Multimetric Index for Integrated Assessment of Salt Marsh Condition in the Northeast Coastal and Barrier Network



The Challenge: The integrity and sustainability of salt marshes in National Park units of the Northeast Coastal and Barrier Network (NCBN) are severely threatened by human activities. These marshes provide critical fish and wildlife habitat and essential ecosystem services in the northeastern coastal zone, and are a high priority for NCBN Vital Signs monitoring. Biennial monitoring of nekton (i.e., fish and free-swimming crustaceans) and vegetation has been conducted in NCBN parks since 2008. There is now a critical need for tools to integrate Vital Signs measures in a way that allows assessment of the overall condition of park salt marshes.



The Science: We are integrating NCBN nekton and vegetation monitoring data into a multimetric index (MMI) for evaluating, predicting, and comparing salt marsh condition at local and regional scales. We will apply a theory-based algorithm to NCBN data to guide selection of the optimal set of metrics to include in the MMI. The final product will be a model-driven assessment tool that is maximally sensitive to disturbance, objective, and interpretable.



The Future: The MMI will provide NCBN with capabilities for reporting the overall condition of park salt marshes in a format that can be incorporated in State of the Park reporting. This information will be used to guide management decisions aimed at maintaining, enhancing, or restoring the integrity of park ecosystems.