

# SALTMARSH HABITAT & AVIAN RESEARCH PROJECT (SHARP): *Prioritizing action at the intersection of changing land and seascapes*

## **I. Principal Investigators:**

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## **II. Overall Project Objective:**

To identify important regions for tidal marsh birds along the non-barrier-island Atlantic States (Bird Conservation Region 30) and further to identify which regions and species within this area may be most sensitive to land and seascape change (e.g. sea-level rise, coastal or upland/watershed development, and fresh or marine water quality degradation).

## **III. Justification:**

The Atlantic Coast of North America possesses the largest expanse of tidal salt marsh and the highest concentration of tidal marsh endemics in the world. The properties of this ecosystem, however, present unique challenges to the conservation of its taxa. Successful conservation requires a regional and collaborative approach due to four key characteristics of the salt marsh:

1. Tidal salt marsh is largely linear in its distribution, and therefore crosses a large number of state and federal jurisdictions for its area.
2. As an ecotonal system, the health and integrity of the tidal marsh is driven by both terrestrial and marine inputs.
3. As a coastal ecosystem, there is a high risk of impact from some of the most human-disturbed terrestrial and marine areas on the continent.
4. With relatively simple food chains and habitat structure, tidal marshes are at an elevated risk of local species extinctions following environmental degradation. Birds, which occupy the highest trophic level of the tidal marsh specialists, may possess the greatest risk of extirpation.

## **IV. Target Species:**

Seaside Sparrow, Saltmarsh Sparrow, Nelson's Sparrow, Willet, American Black Duck and Clapper Rail

## **V. Three-tiered Approach:**

*Tier 1 – Extensive surveys to locate population centers*

We will assess the distribution and abundance of six important tidal marsh bird species by:

- Collating and standardizing data collected in well monitored regions
- Collecting new data in regional gaps, using a rapid assessment approach from the Tidal Marsh Bird Monitoring Protocol for BCR 30

*Tier 2 – Intensive surveys to assess broad geographic trends in demography*

Using intensive plots situated in the northern (Maine), central (Connecticut), and southern (New Jersey) portions of BCR 30, we will assess geographical trends in:

- Seasonal fecundity (all six species)
- Adult survival (all three songbird species)

### *Tier 3 – Resurveying historical locations to identify temporal trends*

For the subset of species with known state and federal survey data (>10 years old) we will assess changes in abundance and distribution through time by revisiting sites across portions of the range.

## **VI. Expected Project Results:**

The results of this project will allow us to:

1. Identify which regions/states/watersheds possess important core populations for the persistence of different tidal marsh bird species,
2. Identify which regions/states possess tidal marsh species with low densities or productivity, and thus identify which species within which regions are at greatest risk of local extirpation following landscape change,
3. Use these two results to develop ranking criteria for the importance of lands for tidal marsh birds within broad jurisdictions,
4. Predict the potential impact of tidal marsh management within regions/states on populations across BCR 30 as a whole, and
5. Establish biologically realistic, regionally specific goals to judge the success of tidal marsh management across BCR 30.

## **VII. Application of Results**

This project will make specific recommendations at a range-wide scale to inform regional, state, and local decisions for tidal marsh bird conservation. By identifying regions/states for each species with the highest relative abundance, population stability, fecundity, and adult survival, we will be able to recommend where effort should be directed to best alter:

- State wildlife and comprehensive landscape plans
- State laws governing coastal & riparian development
- Municipality zoning
- State and federal watershed and estuarine water quality laws
- State, federal, and local land acquisition for conservation

Additionally, the results of this project will assist other federally funded efforts by:

- Providing high-resolution data for the QA/QC of current modeling of the impact of watershed development and sea-level rise on wildlife populations (e.g. the ongoing efforts of the Atlantic Coast Joint Venture under A. O’Connell, et al.),
- Helping USFWS and other arms of the Department of Interior assess and respond to climate change threats in concordance with recent congressional requests,
- Providing prioritized information on American Black Duck nesting success in tidal marsh to the Black Duck Joint Venture (BDJV Research Implementation Plan 2009)
- Assisting in the establishment of a nation-wide protocol for monitoring wetland birds (Mark Seamans, et al.)