



SALTMARSH HABITAT & AVIAN RESEARCH PROGRAM:

Conserving tidal marsh birds in our changing land & seascapes

MAINE – Summary of key findings

I. Saltmarsh Vital Statistics:

- Maine supports 9,128 ha of saltmarsh
- Saltmarsh comprises <0.01% of the land area of Maine

II. SHARP Field Effort:

- 318 survey points visited in 2011 and 2012
- 6 demographic study plots, encompassing 66.6 ha total, investigated by U. Maine and UNH crews
- 1,488 birds banded across 6 species
- 325 nests monitored for 3 species



III. Survey Results:

- 4,289 ha of saltmarsh surveyed by SHARP
- 21 SGCN observed; tied with Connecticut and New York for 4th highest in northeast region
- Key tidal marsh bird responsibilities:
 - **Nelson's Sparrow:** highest abundance in northeast region; 96% of northeast regional population
 - **American Black Duck:** 1,500 individuals; 4th highest abundance in northeast region; 7% of northeast coastal marsh breeding population
- Abundance estimates of focal species: (95% CI)
 - **Clapper Rails:** out of species' normal breeding range
 - **Willetts:** 1,722 individuals (298 to 3,146 individuals)
 - **Nelson's Sparrow:** 6,423 individuals (3,670 to 9,177)
 - **Saltmarsh Sparrows:** 1,620 individuals (404 to 2,835)
 - **Seaside Sparrows:** out of species' normal breeding range
- Trend estimates of focal species:
 - **Clapper Rail:** Maine is out of species' normal breeding range; for USFWS Region 5, significant declines estimated at -4.6% annually since 1998
 - **Willet:** Maine data too sparse to model; for USFWS Region 5, no evidence of population change, 95% CI overlapped zero
 - **Nelson's Sparrow:** within Maine, no evidence of population change, 95% CI overlapped zero; for USFWS Region 5, significant declines estimated at -4.2% annually since 1998

SHARP

Information to conserve tidal marsh birds in our changing land & seascapes



- **Saltmarsh Sparrow:** within Maine, significant declines estimated at -10.6% annually since 1998; for USFWS Region 5, significant declines estimated at -9.0% annually since 1998
- **Seaside Sparrow:** Maine is out of species' normal breeding range; for USFWS Region 5, no evidence of population change, 95% CI overlapped zero
- Extent of saltmarsh modifications among 318 survey points:
 - 13.5% of survey points had ditching within 100 m of survey point
 - No evidence of Open Water Marsh Management within 100 m of any survey point
 - 58.2% of survey points were upstream from a tidal restriction; third most of any state

IV. Demographic Results:

- Nest monitoring of focal species
 - **Clapper Rail:** none monitored, outside species range
 - **Willet:** 21 nests monitored, 0.64 nests/ha, daily nest survival probability=0.93
 - **Nelson's Sparrow:** 67 nests monitored, 1.21 nests/ha, daily nest survival probability=0.92, seasonal fecundity=0.71 fledged broods/female annually
 - **Saltmarsh Sparrow:** 237 nests monitored, 3.53 nests/ha, daily nest survival probability=0.94, seasonal fecundity=0.45 fledged broods/female annually
 - **Seaside Sparrow:** none monitored, outside species range
- Population viability analysis
 - **Saltmarsh Sparrow:**
 - Mean growth rates for 4 sites: 0.006 to -0.22 in 2018, declining to -0.13 to -0.39 by 2063
 - Median time to extinction for each of the 4 sites is >50 years
 - **Nelson's Sparrow:** Median time to extinction = 30 years (95% CI = 15 years, >50 years)
 - **Seaside Sparrow:** not estimated; outside normal breeding range

V. Regional Conservation Implications

- On average, tidal-marsh specialists have declined across New England and USFWS Region 5 as a whole over the last two decades.
- For Saltmarsh Sparrows, these declines are most severe on marshes with tidal restrictions, although the trend remains across all specialists even when excluding Saltmarsh Sparrow.
- Within Connecticut (the only state where historical nesting data were available), nest density is also declining for Saltmarsh Sparrows, Seaside Sparrows, and Clapper Rail, with Saltmarsh Sparrows showing the strongest decline. The declines can be explained by increases in rates of nest flooding since 2002.



- Seasonal reproductive success (incorporating nest success and re-nesting rates) for Seaside Sparrows declined from south to north within USFWS Region 5, and Nelson's Sparrow reproductive success was highest at the farthest upriver marshes.
- Saltmarsh Sparrow seasonal reproductive success was highly variable across the range and is driven more strongly by local rather than regional patterns. Nests across the range were equally likely to be flooded, but predation rates increased to the south.

VI. For Additional Information, Contact:

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- Or visit our website at: **www.tidalmarshbirds.org**

Photo by Tom Hodgman