

Factors influencing population decline of marine birds on Nova Scotia's Eastern Shore Islands

Final Report NSHCF – 2015 Season

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Project Goal:

To determine the possible cause(s) of the decline in breeding marine birds in the Eastern Shore Islands Wildlife Management Area (ESI WMA), and to suggest possible means to improve populations and female survival.

Project Objectives:

1. Erect nest shelters for eiders on islands in the ESI WMA where eiders used to nest in abundance but have declined, to determine if this attracts birds back to these sites;
2. Collect voles on Country Island and at sites nearby on the mainland and assess for stable isotopes, to determine marine signatures and thus the influence of marine items (Leach's Storm Petrel eggs) on island-nesting vole diets.
3. Collect blood and egg samples of breeding marine birds in the ESI WMA (Leach's Storm-petrel, Common Eider, Double-crested Cormorant, Great Black-backed Gull, Herring Gull, Black Guillemot, Common Tern, Arctic Tern) and examine for stable isotopes, trace elements, and fatty acids, as indices of diet that will provide insights into overlap and competition or predation of species, as well as contamination; and,
4. In collaboration with NS DNR personnel, identify management considerations for these species at these sites.

Planned project outcomes:

Overall, the 2015 field season was largely disappointing, largely attributable to the terribly poor weather along the east coast, all the way from Hudson Strait (Nunavut) south along Labrador, Newfoundland, and then Nova Scotia. We tried on 4 occasions to get out to the ESI WMA at an appropriate time (i.e., so as to minimize disturbance to nesting birds), and on 3 of those occasions the weather was too rough to get out by zodiac. On the 4th occasion, we got to the launch site, waited out rain, put the zodiacs in the water, and about 30 min later the rain started again and the fog dropped almost to water level (below), requiring us to GPS our way back to the launch site. That was the last occasion we had to get out for some of the planned work.



Figure 1. Between heavy rain, fog descended on our 4th attempt to access ESI WMA in 2015

We did plan to return to the site in August to deploy nest shelters, but after conversations in the summer with Glen Parsons (NS DNR), there were concerns raised over the effectiveness, or possibly the harm caused by these shelters. Thus, we held off on deploying those, and have developed a research plan (2016 application) to try novel shelters that should circumvent the issues raised with the barrels.

Specifics on objectives:

1. We did not deploy shelters as planned after discussions with NS DNR staff, and are undertaking a new research project on shelters in 2016.
2. Voles have been collected on Country Island and on the mainland, and are to be dissected for tissue analysis in January.
3. No blood and egg samples were collected at the ESI WMA due to very poor weather conditions for accessing breeding sites safely, and presumably the risk of causing large scale abandonment during a late, poor-condition season.
4. We remain in regular contact with NS DNR staff regarding how our research may inform management decisions for the ESI WMA. We published 1 paper this year on transport of contaminants by birds nesting in the area to nesting islands in the ESI WMA, and a second paper on levels of trace elements in eggs of common eiders from this region. We have a manuscript to be submitted in Dec 2015 highlighting the alarmingly low survival of female eiders from Nova Scotia, which has prompted input for legislative changes to allowable harvest on this species.

Additional Work Completed:

1. We continue to work up the data on the satellite tracking of common eiders from the ESI WMA (below), and were able to acquire and pool data from birds tracked in the winter from the USA. This will provide key insights into both overall management, as well as the movement of Wellfleet Virus into Nova Scotia eiders.

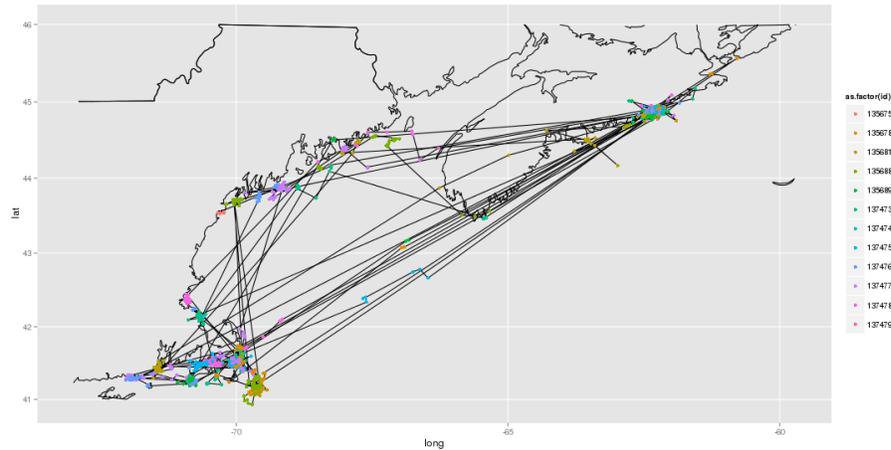


Figure 2. Movements of satellite-tracked Common Eiders from the ESI WMA

2. Data from tracking of Leach’s Storm-petrel from the Bird Islands in the ESI WMA has been pooled with data from other colonies to look at overall movement patterns of storm-petrels along eastern Canada.
3. We presented a poster on some of our general tracking work “Annual movements of Nova Scotia’s common eiders and American black ducks tracked by satellite telemetry” at the Nova Scotia Federation of Anglers and Hunters Annual General Meeting in March of 2015.



Figure 3. Poster from 2015 NSFAH Annual General Meeting in March 2015.

Achievements and Lessons Learned:

Frankly, the weather during the 2015 field season left us with a feeling of minimal achievement, somehow confirming that environmental conditions (“Mother Nature”) has the ultimate say on our best laid plans! Nonetheless, we did make some significant strides this year, notably in getting 2 papers published on the relationship between nesting birds and contaminants along the Eastern Shore, and developing a new strategy for 2016 and testing the potential to recover declining eiders in this region.

Another major, positive result over the past year has been the collaboration with tracking data and the insights we are gaining in bird movement, both with Leach’s Storm-petrels, and especially for declining Common Eiders.

Next Steps:

Working with Glen Parsons at NS DNR, we will place a new type of nest shelter out on selected islands in 2016, ones that should provide shelter for nesting birds but which lack the environmental problems (heat, moisture, “trap”) of the barrels. A PhD student will also be here to carry out the sampling we planned in 2015 for blood, trace elements, isotopes and fatty acids in birds along the Eastern Shore, to look at nutrition and health of the marine bird community in that area. These, along with the final analyses and write up of the tracking data plus Molly Simon’s analyses of habitat change and nesting success of eiders at the ESI WMA, will provide powerful information for wildlife managers in deciding how to improve habitats in this area for declining birds.



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