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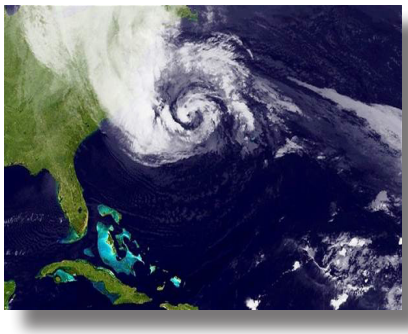
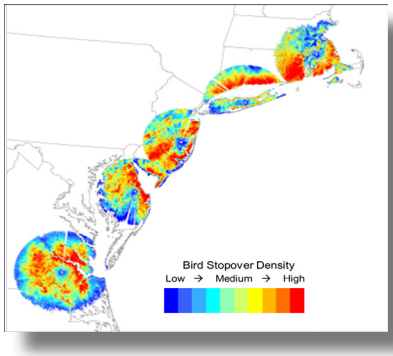
Patuxent Wildlife Research Center

Response of Migrating Birds to Hurricane Sandy



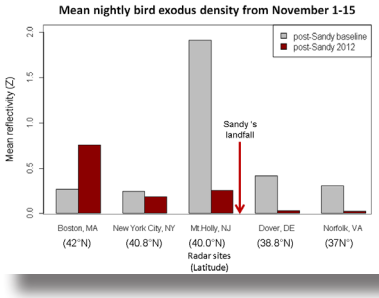
Hurricane Sandy, 27 Oct 2012

The Challenge: Each autumn, millions of landbirds migrate from breeding areas in the U.S. and Canada to more southerly wintering areas. Because these migrations occur during hurricane season, the impacts of hurricanes on migrating birds and their en route resting and foraging sites (i.e., stopover sites) are a real concern. Hurricane Sandy occurred quite late in the landbird migration season. By the time the storm came ashore in late October 2012, most birds that migrate to tropical wintering areas (i.e., neotropical migrants) had already passed through the Mid-Atlantic region. However, the storm likely impacted temperate migrants that winter in Mid-Atlantic coastal habitats or were en route to wintering areas in the southern U.S. This project uses data collected by weather surveillance radars (model WSR-88D) to investigate the response of migrating birds to Sandy.



Mean densities of nocturnal migrants emerging from daytime stopover sites, Fall 2008-13.

The Science: Data collected during Fall 2008–2013 by radars along the Atlantic Coast were used to quantify and map the spatial distribution of landbird migrants through the season. The radars detect birds as they depart stopover sites to embark on nocturnal migratory flight. The aerial density of birds, as measured by radar reflectivity, was georeferenced to the approximate locations on the ground from which birds emerged. Preliminary comparisons of bird distributions during Nov 1–15 in 2012 (immediately post-Sandy) with their typical distribution during this time period indicate that bird densities were lower within and near areas affected by Sandy and higher in Rhode Island and around Boston, suggesting that birds may have waited out the storm before reaching affected areas or moved farther inland.



The Future: Analyses are underway to compare densities and movements of migrants aloft before and after Sandy with typical years, and to identify the time periods during fall when coastal habitats receive the highest relative use by migrating landbirds. Results will be used to test an individual-based model that predicts the optimal response of migrants facing the storm. Collectively, the analyses will increase our understanding of landbird response to hurricanes and provide insights to strategies to conserve important stopover sites in the region.

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