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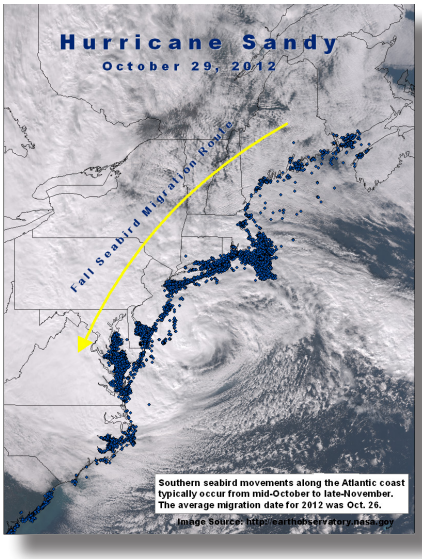
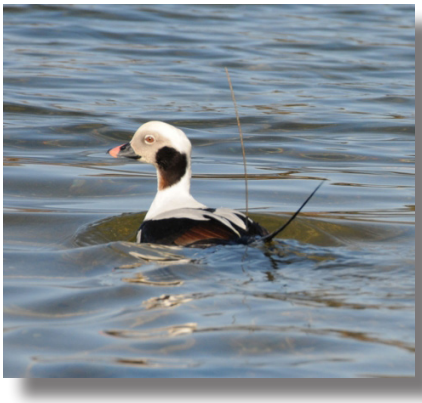
Patuxent Wildlife Research Center

Assessing Extreme Meterological Events on Seabird Migration





The Challenge: Seabirds, living on the interface between air and water, are among the most weather-dependent of birds. Seabirds caught up in the spiraling winds of a hurricane often will find their way to the calm eye of the storm and will travel within it, even if it moves over land. When the storm dissipates, they may be hundreds of miles inland. Audubon magazine noted that Hurricane Sandy brought a scattering of true seabirds far inland.

The Science: Over the last four years, two species of seaducks (long-tailed duck (*Clangula hyemalis*) and surf scoter (*Melanitta perspicillata*)) and two species of seabird (red-throated loon (*Gavia stellata*) and northern gannet (*Morus bassanus*)) have been tracked using satellite transmitters to assess utilization of proposed wind energy areas along the Atlantic coast. This project evaluates the influence of meteorological parameters (temperature, humidity, pressure, wind speed and direction) caused by hurricane Sandy on different migration characteristics (flight speed, direction, timing of arrival and departure, daily distance, stopover location) in the 30 implanted seabirds that are presently transmitting and migrating south to the mid-Atlantic to winter.

The Future: Satellite tracking allows the collection of detailed information on complete migration routes, travel time, stopovers, and wintering sites. Once these data have been combined with ambient temperature, wind, or latitude, they can be used to build models for forecasting migratory characteristics, such as flight speed or flight altitudes. This information will be crucial for assessing potential influence of extreme weather events on migratory seabirds that primarily use coastal corridors that are vulnerable to cumulative impacts of alternative energy plans and climate change impacts including sea level rise and extreme storms.

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