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Patuxent Wildlife Research Center

Delineating Breeding Populations and Tracking Night-time Movements of Long-tailed Ducks Wintering in Nantucket Sound

- ***The Challenge:*** The coastal areas of Nantucket Island provide optimum wintering habitat for several hundred thousand seaducks of several species. The number of long-tailed ducks that use the Sound each winter approximates 20% of the continental population of this species. This area has also been proposed for a major wind turbine construction site. Satellite telemetry conducted in collaboration with Massachusetts Audubon Society has been used to determine the winter movements, migrational pathways, and breeding locations of the ducks. DNA analyses conducted by Boston University staff will assess genetic differentiation in breeding populations of long-tailed ducks. Delineating winter and breeding populations, and understanding the ducks' migrational movements, are important in assessing the ecological impacts of potential changes in the habitat quality of Nantucket Sound. One major data gap is the nighttime distribution of ducks in Nantucket Sound and the relationship of this distribution to the Cape Wind project area, Horseshoe Shoals.

- ***The Science:*** Working with Massachusetts Audubon staff, we surgically implanted transmitters in each of 32 ducks during a three-year period. A USGS veterinarian performed the surgeries. Satellite tracking data obtained when the ducks were released and are processed from a NOAA satellite through Argos, Inc. Locations of ducks in the Sound were overlaid on maps with proposed wind turbine locations to determine if potential problem areas existed. DNA sampling of long-tailed ducks will enable researchers to develop a more accurate delineation of possible breeding populations that winter in Nantucket Sound.

- ***The Future:*** Movements of the ducks were mapped and resultant wintering locations and migration routes were posted for public access via the Internet. Results could be utilized in to form natural resource policy and management decisions, including efforts to reduce winter mortality and aid in mitigation if the wind farm is constructed. DNA profiles compiled for each duck, will add to a more extensive genetic database. The data accumulated from this project will aid managers in understanding impacts on this circumpolar species in regard from wind turbine construction on the ducks' wintering habitats.

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