

## Patuxent Wildlife Research Center

# Vulnerability Assessment of Available Habitat for Wintering Black Ducks within the Refuge System in the Chesapeake Bay



**The Challenge:** Executive order 13508 Chesapeake Bay Strategy requires a three-year average wintering black duck populations in the Chesapeake Bay watershed of 100,000 birds by 2025. Recent mid-winter aerial surveys estimate the 2007-2009 rolling three-year average at 37,158 black ducks in the Chesapeake Bay. By 2017, National Wildlife Refuges will increase by 10 percent the availability of food resources to support energetic carrying capacity for wintering black ducks on refuge lands located within the Chesapeake watershed. The increase of food resources on refuges will be accomplished through active wetland restoration and management, habitat protection, invasive species control and potential expansion of refuges.



**The Science:** USGS scientists are building an energetics model using captive black ducks at Patuxent Wildlife Research Center to determine the amount of good quality (benefits outweigh costs) habitat available at present within the refuges in the Bay. Once the model is complete it will be compiled with the most comprehensive sea-level rise models (Don Cahoon and Glenn Guntenspergen) and land-use change models (Peter Claggett) to evaluate how the availability of good quality habitat for wintering black ducks changes in the face of these long-term stressors.



**The Future:** USGS scientists will be helping with the science portion of the adaptive management framework for the Blackwater National Wildlife Refuge. By 2020, FWS and partners will assess the effects of human disturbance, food resources and wetland structure on black duck daily movements and residency on wetlands. FWS will also characterize the relationship between black duck winter condition and seasonal survival of wintering black ducks and subsequent breeding success in the Chesapeake Bay watershed by 2020. Partners will develop an adaptive management framework to guide habitat decisions related to restoration and enhancement at the local (i.e., National Wildlife Refuge) scale by 2013.