

## Patuxent Wildlife Research Center

# Avian Influenza Surveillance in Waterfowl in the Atlantic Flyway



Mallard (*Anarhynchos platys*), one of the target species in this study.



Major North American flyways.  
Credit: NWF



The Chesapeake Bay is not only a haven for migrating waterfowl, but the Delmarva Peninsula is home to some of the largest poultry farms in the United States. Credit: Landsat, NASA

**The Challenge:** In December of 2014, a novel strain of highly pathogenic avian influenza (HPAI) caused an outbreak in poultry on the West coast of the United States. From there, the virus progressed steadily eastward, causing \$3.3 billion in economic losses in addition to 50 million chickens or turkeys dying or being depopulated. While the primary mode of spread appears to be via the poultry system, wild birds have been detected with H5N8 asymptomatic infection, indicating the potential for virus spread via wild populations. The species involved and the extent of contribution of virus spread, however, are not known. As of June 2015, the new strains of HPAI have been detected in 3 of the 4 migratory flyways, with no positives yet in the Atlantic flyway; however little sampling has been conducted since the onset of the current HPAI situation.

**The Science:** Partners on this work include the United States Fish and Wildlife Service, Maryland Department of Natural Resources, and the University of Georgia Southeast Cooperative Wildlife Disease Study. Waterfowl of several target species were sampled throughout the Atlantic flyway, primarily in Maine and Maryland. Samples were taken to test for current infection as well as for viral antibodies indicating past infections. We are interested not only in the highly pathogenic viruses (those that kill poultry), but all avian influenza viruses (including low-pathogenic, LPAI) in order to determine prevalence between species, season, flyway, sex, and age, as well as allow us to track movement and development of viruses as they move throughout North America

**The Future:** This work will help develop a baseline for the movement and spread of avian influenza viruses in common migratory waterfowl in the United States and Canada. Concurrent efforts in California and Alaska will allow for an overarching synthesis examining AI in 2/4 of the flyways in the United States. Future studies may focus on sampling in the Mississippi and Central flyways. Understanding the prevalence rates, transmission between birds, and movement of these viruses throughout the United States is imperative for mitigating the effects of the disease.