

# **Temporal and spatial changes in survival, harvest distribution, and breeding site fidelity of mallard populations in the Atlantic and Mississippi Flyways**

**Principal Investigator:** Dave Otis  
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## **Goals and Objectives:**

1. Work with state and federal cooperators in the Atlantic Flyway to design a post-season waterfowl banding program for estimation of annual survival rate, winter site fidelity, and distribution of harvest of mallards that winter in the Carolinas.
  2. Use existing band recovery data from key breeding reference areas to investigate hypotheses about relative survival, harvest distribution, and breeding site fidelity of mallards that migrate through either the Atlantic or Mississippi Flyway.
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## **Progress:**

A draft protocol for a post-season banding program has been developed and presented to cooperators in the Atlantic Flyway.

I used categorical data analysis and bootstrap techniques to compare the distribution of harvest of breeding populations of most importance to the Mississippi and Atlantic Flyways between a 10-year period of restrictive regulations (1985-94) and a subsequent 5-year period of liberal regulations (1995-99). Increases were detected in the proportion of harvest of the mid-continent population in both the northern and southern regions of the Mississippi Flyway, relative to harvest proportions in Canada and the northern Central Flyway. The relative proportion of the harvest of the eastern Canada population increased in the northern Atlantic Flyway, and no change was detected in harvest distribution of birds breeding in the Great Lakes region. Redistribution of harvest between study periods coincides with a general decrease in hunting effort and harvest in Canadian provinces. Despite a relative decrease in the proportion of hunting effort in the northern region of the Atlantic Flyway during 1995-99, the relative proportion of harvest increased in this region. A manuscript of this work has been accepted for publication.

## **Conclusions and Recommendations:**

Results of these analyses are being used in by Atlantic Flyway biologists in discussions about the consequences of current waterfowl harvest management strategies for wintering waterfowl populations in southern Atlantic states. A post-season banding program for mallards and pintails continues to be developed, and some initial banding has been initiated.