
****HARVEST AND NON-HARVEST MORTALITY RELATIONSHIPS FOR LESSER SCAUP BREEDING IN SOUTHWESTERN MONTANA**

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Since the mid-to-late 1990s, lesser scaup (*Aythya affinis*) populations have remained more than 20% below the population goal set forth in the North American Waterfowl Management Plan. Accordingly, considerable attention has been directed towards understanding what factors may be limiting their population, including the role of harvest. Red Rock Lakes National Wildlife Refuge (RRL) in southwestern Montana is the site of a long-term study of lesser scaup ecology and demography. Preliminary harvest estimates indicate that this population is harvested at rates similar to the continental population with juveniles experiencing an annual average harvest rate of 9.1% (95% CI = 7.7 - 10.7%) and adults an average annual harvest rate of 3.6% (95% CI = 2.2 - 6.1%). Since 2005, ~1,300 female have been banded on the study site and an additional ~1,000 females have been nasal-marked. In addition, ~1,400 resightings have been collected for nasal-marked hens on the study site and ~340 dead recoveries from our study population have been reported from Canada to Mexico. With results obtained from multistrata models that utilize these multiple encounter types, I will present (1) estimates of harvest and natural mortality rates for female lesser scaup banded

and nasal-marked at RRL from 2005-2016; (2) how non-harvest mortality varies in relation to harvest mortality over the same period; (3) an assessment of how these rates respond to changes in hunting regulations. These results will be used to help inform lesser scaup harvest demography, a key structural uncertainty in current harvest models identified in the draft Scaup Conservation Action Plan.