Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 03 – (October 1, 2002 to Sept 30, 2003)

Project Title: Breeding Ecology of White-winged Scoters on the Yukon Flats National Wildlife Refuge, Alaska (RWO #117)

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Partners: USFWS, Yukon Flats National Wildlife Refuge; USFWS, SDJV; Department of Biology and Wildlife and Institute of Arctic Biology, University of Alaska Fairbanks; USGS, Cooperative Fish and Wildlife Research Unit

Project Description: Breeding bird surveys indicate a long-term decline in the numbers of White-winged Scoters breeding in Alaska. The highest density breeding areas occur in Northwest Canada and Northeast Alaska, with the largest breeding population in Alaska found on the Yukon Flats National Wildlife Refuge. Little is known about the reproductive life history and breeding habitat of White-winged Scoters on their primary breeding grounds. We are using VHF transmitters to mark females and locate nests of scoters at the Bear Camp Lake Complex, Yukon Flats NWR. We are using surveys and auxillary markers to study brood rearing ecology of White-winged Scoters throughout the Yukon Flats NWR.

Objectives: We will estimate nest survival and brood survival of White-winged Scoters in their principle breeding range. Nest survival will be studied at the Bear Camp Lake Complex. We will evaluate brood survival over a broader geographic range within the Yukon Flats NWR because approaches for estimating this parameter allow more extensive sampling than the approaches for studying nest survival. In addition, we will characterize the habitats selected by breeding females. This study will provide critical management information on the population dynamics and habitat requirements of White-winged Scoter in their primary breeding range.

Preliminary Results: During the spring 2003, we captured and marked 25 paired females and a total of 57 scoters via mist nets. We discovered relationships between nesting birds and morphological characteristics such as bill coloration and body weight. Radio marked females were tracked extensively to discover nesting attempts and monitor survival from early June to mid-August. We located the nests of five radio marked females, and two additional radio marked hens were found dead in nesting habitat. While nest searching for unmarked females, we located 12 additional scoter nests in the study area. Five of these nests had either hatched or been destroyed in summer of 2002, but were still useful for measuring habitat variables. All

active scoter nest were monitored at three to seven day intervals until fate was determined. Three nests hatched, and the females and ducklings were marked at each nest. Each brood was given a unique color code on their cheek patches. To boost sample size for duckling survival we captured an additional seven broods once they arrived on the lake. We marked a total of 58 ducklings and six additional brood females. Broods were resighted every three days until 14 days old, then once a week until at least 30 days of age. Brood survival and possibly nest survival was low in 2003 resulting in an 85% decline from the 2002 brood counts at Bear Camp Lake. Number of scoter ducklings was also low in 3 additional lakes that we surveyed on the Yukon Flats. With a larger sample of nests in 2003 (n=17) versus 2002 (n=6) we observed diverse range of nest habitat use from willow thickets to aspen forests. To describe the unusual patterns we saw in nest habitat selection we measured a sample of eight habitat variables at all nest (n=20) as well as a sample of four random plots 5 meters from each nest.

Project Status: Like our pilot field season in 2002, our research efforts were successful in 2003. We successfully captured and marked the target sample size of females prior to nesting and we nearly obtained the proposed sample size of nests. Some females that were not marked prior to nesting were captured and marked along with the ducklings at hatch. Capture and marking hens with broods that were on the lake system was more difficult than we expected for several reasons. First, fewer broods were available for capture. In addition, we were challenged to design net systems that allowed us to simultaneously capture females and broods. This winter, we will continue to develop net designs to capture females and their broods.