Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY04 – (October 1, 2003 to Sept. 30, 2004)

Project Title: Survival of the St. Lawrence estuary common eiders (SDJV # 30)

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Project Description – Despite intensive management of nesting habitat in several colonies of the St. Lawrence River estuary (SLE), the population of Common eiders has not increased. Recurrent epizootics of avian cholera and suspected high harvest levels are the most obvious limiting factors but their importance on the population dynamics is currently unknown.

In 2004, we continued our banding program of adult females nesting on the SLE islands by capturing them with dip nets. Blood samples and swabs were also collected on a sub-sample of birds caught in different colonies to assess the presence of avian cholera. We captured pre-fledged juveniles and females in August by driving them along the south shore of the river using nets and a catch pen. Finally, we conducted bi-weekly surveys of broods to determine habitat use and survival. We want to compare their actual distribution with the distribution observed in the seventies and relate any changes to differences in habitat conditions and human disturbance.

Objectives – In 2003, we initiated a long-term banding program of the SLE common eiders to 1) assess survival rates of adult females and juveniles, and 2) to determine the relative contribution of hunting and natural mortality including disease (avian cholera). Ultimately, we want to test the hypothesis that hunting mortality is additive to natural mortality. Under the hypothesis of additive mortality, survival should vary over years and be a function of annual hunting mortality. In 2004, we added another objective that aimed at understanding the epizootiology of avian cholera.

The last objective of our program is to update our knowledge about the distribution of broods along the estuary of St-Lawrence River. We specifically want to identify factors including human disturbance and bio-physical characteristics of the shores that influence

the number of birds along the River. This information will help to fulfill one objective of the recently published Quebec management plan for Common Eider that calls for more protection of the best brood-rearing sites. Finally, we want to monitor seasonal changes in juvenile numbers to get a first appraisal of brood survival.

Preliminary results – In 2004, we captured 836 nesting females on 13 islands of the St-Lawrence estuary (Fig. 1). This included 62 recaptures of birds banded last year (n=417). Recaptures will greatly improve our survival estimate of adult females because the number of recoveries was very low during the first year (n= 7 with 1 recovery from Québec, 1 from the Maritimes and 5 from Maine and Massachusetts). It will be only after the third banding season in 2005 that we will be able to start analysing the data. We double marked 222 females with stainless steel and standard aluminium bands to estimate wear/loss of aluminium bands. To our knowledge, this has not been done for any sea ducks that are probably more susceptible to band wear/loss than other waterfowl species, which could bias any estimates of survival rate. Our colleagues from the St-Hyacinthe veterinary school collected blood samples, cloacal and oral swabs from 101 birds that we caught (Fig. 2). Although no outbreak was observed in 2004, *Pasteurella multocida* was detected in few birds found dead and in 9 live birds from 4 colonies. Serotyping of the bacteria is underway. Additional blood samples and feathers were collected from these birds to carry out genetic analyses. This project is financed by a CWS special grant and is aimed at comparing genetic variability among colonies within the SLE and between regions (Quebec, Maine and Labrador).

Figure 1. Capture of female Common eiders nesting in shelters on Île Blanche in the St. Lawrence estuary in May 2004.

Figure 2. Blood sample taken from a nesting female Common eider on Île Blanche in the St. Lawrence estuary in May 2004.

Seventeen surveys were conducted along a 200-km stretch of the south shore stopping at 60 stations to count broods and concentrations of moulting birds. The number and size of broods/crèches was much lower this year than in 2003. Harsh weather conditions at peak of hatching may be responsible for this reduction. However,

the number of moulting birds was also lower and we have no explanation for this. We surveyed 5,541 quadrats along 409 transects randomly located within the stations to evaluate habitat characteristics (% cover of mussel beds, algae, rocks, sand, gravel, etc.). These data will be put in relation with the number of birds surveyed at each station as part of a M.Sc. thesis that will be submitted next August. The lower number of birds made our late summer banding operations more difficult. Nevertheless, we tested our new material and captured 46 pre-fledged juveniles and 6 adult females (Fig. 3).

Project status - The banding project will be continued next year and we should be able to capture 1000 nesting females. We hope to get funding to pursue this effort for at least three more years. In 2005, we will again collect blood samples from nesting females to assess the presence of *Pasteurella*. The originality of this work will be the possibility to monitor the condition of the same birds in successive years. With the material now available (nets, poles, wire, etc.) and the experience gained this year, we should be able to capture a larger number of pre-fledged and moulting birds.

Figure 3. Capture of Common eider juveniles in the St. Lawrence estuary in August 2004.

Project Funding Sources (US$)

SDJV	Other US federal	US non-federal	Canadian federal	Canadian non-federal	Source
28,500					
			7,700		CWS
				2,800	Duvetnor

Total Expenditures by Category (US$)

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding	8,000	8,000			16,000
Surveys	16,000	4,000			20,000
Research	3,000				3,000
Communication					
Coordination					