Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY06 – (October 1, 2005 to Sept. 30, 2006)

Project Title: The effect of hunting and avian cholera on the St. Lawrence Estuary common eiders (SDJV # 30)

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- Jean Bédard, Société Duvetnor Ltée.
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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 relative importance on the population dynamics is currently unknown. In 2006, we continued our banding program of adult females nesting on the SLE islands by capturing them with dip nets. We extended the banding operation to Anticosti Island, a known moulting site for Common Eiders, and used submerged gill nets to capture the birds. Oral and cloacal swabs were collected on a sub-sample of birds caught in different colonies and at Anticosti Island to assess the prevalence of *Pasteurella multocida*, the bacteria responsible for avian cholera.

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) 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. In 2004, we added another objective that aimed at understanding the epizootiology of avian cholera. The specific objectives of this project is first to determine the variation in the prevalence of *Pasteurella* in live birds among colonies and years. Secondly, we want to assess how bacteria are carried over years by repeated sampling of the same birds. Finally, we propose to compare the serotypes of the bacteria sampled in live birds in different colonies and years as well as with those found in dead birds during recent outbreaks.

Preliminary results – In 2006, we captured 984 nesting females on 12 islands of the St-Lawrence estuary. This included 146 recaptures of birds that we banded in previous years and 4 that had been banded during moult in Maine (B. Allen & D. McAuley). Recaptures will greatly improve our survival estimate of adult females because the cumulative number of recoveries remains low with 54 birds, mostly from Maine (52%), Quebec (22%), and Massachusetts (17%).

We double marked 98 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. We have begun to notice some wear on the older aluminium bands. At Anticosti, we captured 54 moulting males and 2 females that were all identified as *S. m. dresseri* (Fig. 1). This brings our total of banded birds to 2882.

Figure 1. Moulting Common eiders captured with gill nets at Anticosti Island in August 2006. Photo: Christine Lepage, CWS.

Cloacal and oral swabs were taken on 210 nesting females and *Pasteurella multocida* was detected in 32.9%, which is comparable to the 30.5% established in 2005 and much higher than the 8.7% in 2004. At Anticosti, 89.6% of the 48 birds sampled for the bacteria were tested positive. This is an amazing high level and needs to be confirmed. Serotyping of the bacteria will be initiated in the coming months. Seventeen birds were sampled for a second time in the estuary. Ten were negative in both years and three remained positive. Three others became positive and two positive birds in 2005 became negative in 2006. To our knowledge, this type of information has never been gathered and will greatly help to understand the epidemiology of avian cholera. More data are needed, however, to understand these variations.

Project status - The banding project will be continued next year and we aim at capturing 1000 nesting females. We hope to get funding to pursue this effort for at least two more years and to recruit a Ph.D. student to carry the analyses based on recaptures and recoveries. In 2007, we propose to collect additional samples from nesting females to assess the presence of *Pasteurella*. The originality of this work is the possibility to monitor the condition of the same birds in successive years. This will help to understand how the bacteria are carried over the years. Our results on eiders could also be applied to other wildfowl species.

Project Funding Sources (US$)

SDJV	Other US federal	US non-federal	Canadian federal	Canadian non-federal	Source
15,000					
			4,500		CWS
				10,000 6,000	FMV, Univ. Montreal
				750	SPEE
				3,000	UQAM
				4,250	Duvetnor

In-kind contributions in italics

Total Expenditures by Category (US$)

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding	15,000	6,500			
Surveys					
Research	17,000	5,000			
Communication					
Coordination					