

Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY07 – (October 1, 2006 to Sept. 30, 2007)

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

Principal Investigators:

- Jean-François Giroux, Département des sciences biologiques, Université du Québec à Montréal, P.O. Box 8888, Station Centre-ville, Montréal, QC H3C 3P8 giroux.jean-francois@uqam.ca
- Jean-Pierre L. Savard, Wildlife Research Division, Wildlife and Landscape Science Directorate, Environment Canada jean-pierre.savard@ec.gc.ca
- Gilles Gauthier, Département de biologie and Centre d'études nordiques, Université Laval gilles.gauthier@bio.ulaval.ca
- Stéphane Lair, Département de pathologie et microbiologie, Faculté de médecine vétérinaire, Université de Montréal. stephane.lair@umontreal.ca
- André Dallaire, Département de pathologie et microbiologie, Faculté de médecine vétérinaire, Université de Montréal. andre.dallaire.2@umontreal.ca

Partners:

- Jean Bédard, Société Duvetnor Ltée.
- Marc Lapointe, Société Protectrice des Eiders de l'Estuaire (SPEE)

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 2007, we continued our banding program of adult females nesting on the SLE islands by capturing them with dip nets. Oral swabs were collected on a sub-sample of birds caught in different colonies 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 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 was first to determine the variation in the prevalence of *Pasteurella* in live birds among colonies and years. Secondly, we wanted to assess how bacteria are carried over years by repeated sampling of the same birds. Finally, we proposed 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 2007, we captured 1,226 nesting females on 13 islands of the St. Lawrence estuary. These included 186 recaptures of birds that we banded in previous years and 4 that had been banded during the molting period in Maine (B. Allen & D. McAuley). Repeated captures of birds banded in Maine and satellite tracking both confirm that a portion of the St. Lawrence estuary nesting birds migrate to Maine for molting. Recaptures will greatly improve our survival estimate of adult females because the cumulative number of recoveries remains low. We double marked 200 females with stainless steel and standard aluminium bands to estimate wear/loss of aluminium bands. This has never 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. This brings our total of banded birds to 3918.



PI Jean-François Giroux banding a Common Eider male on Brandy Pot island in the St. Lawrence estuary in May 2007. Less than 10 adult males have been banded in southern Quebec since the beginning of the project (Photo: F. St-Pierre).

Oral swabs were taken on 80 nesting females and *Pasteurella multocida* was detected in 10% of the birds. This is comparable to the 8.7% observed in 2004 but much lower than the 32.9% and 30.5% established in 2006 and 2005, respectively. Serotyping of the bacteria sampled in Quebec birds is underway at the National Wildlife Health Center in Wisconsin. Thirteen birds were sampled for a second time in the estuary.

Project status - The banding project will be continued next year and we aim at capturing 1000 additional nesting females. We would like to complement this banding program by capturing molting males. The analysis of the returns and recaptures are just starting and we will generate the first survival estimates in the coming months. These results will be presented at the next Sea Duck Symposium that will be held in November 2008 in Quebec City. Ultimately, we want to incorporate these survival data into a population dynamics model for the SLE Common eiders. In 2008, 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. Results of this work will be quite timely in view of recent Avian Cholera outbreaks in arctic Common Eider colonies and the possible increase in outbreak frequencies with changing climates.

Project Funding Sources (US\$)

SDJV	Other US federal	US non-federal	Canadian federal	Canadian non-federal	Source
15,000					
			<i>2,000</i>		CWS
				<i>5,000</i> <i>2,000</i>	FMV, Univ. Montreal
				<i>1,000</i>	SPEE
				<i>2,000</i>	UQAM
				<i>5,000</i>	Duvelnor

In-kind contributions in italics

Total Expenditures by Category (US\$)

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

