Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 04 – (October 1, 2003 to Sept 30, 2004)

Project Title: No. 9: Viruses in long-tailed ducks (*Clangula hyemalis*) molting in the Beaufort Sea

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Partners: USGS, BP Exploration (AK) Inc. on behalf of Prudhoe Bay Unit owners.

Project Description: Breeding populations of long-tailed ducks (*Clangula hyemalis*) have declined in Alaska since the 1970s. The identification of causes of mortality is critical to an understanding of the population declines, but little information is available regarding infectious diseases that may affect this species. During the summer of 2000, a die-off occurred in long-tailed ducks molting in the Beaufort Sea and laboratory evaluation of tissues from carcasses collected at the mortality site resulted in the isolation of an adenovirus. Antibodies to the virus were found in a high percentage of long-tailed ducks trapped near the mortality site, but few ducks at a reference area. We are collecting serum samples and cloacal swabs from long-tailed ducks in the Beaufort Sea to follow year-to year changes in the status of the virus in the population.

Objectives: The objectives of this study are to: (1) Determine the prevalence of the adenovirus in molting long-tailed ducks based on virus isolation from cloacal swabs and serum antibodies to the virus; (2) Identify any cases of mortality associated with the virus; (3) Determine the pathogenicity of the virus; and (3) Develop a polymerase chain reaction (PCR) test for the virus.

Preliminary Results: Seroprevalence of the virus in 2001 at the two Beaufort Sea study sites was 20% at Flaxman, where mortality occurred in 2000, and 0% at Bodfish, the reference area. Virus was isolated from cloacal swabs of 6% of long-tailed ducks from Flaxman (n = 67) and 0% at Bodfish (n = 39). In 2000, when the mortality event occurred at Flaxman, live virus was present in about 50% of the long-tailed ducks from that location, compared with 6% at Bodfish. Seroprevalence in 2000 was 86% at Flaxman and 10% at Bodfish. In an experimental study, mallards that were infected with the virus developed mild intestinal lesions.

Project Status: In 2002, cloacal swabs and/or blood samples were collected from 215 (146 males, 69 females) molting long-tailed ducks at the two study sites and in 2003,

cloacal swabs and/or blood were collected from 24 (14 males, 10 females) long-tailed ducks at the Flaxman study area. In 2004, paired serum and cloacal swabs were collected from 48 (28 females and 20 males) long-tailed ducks at the Flaxman study area. Testing of field samples will continue in 2004 and 2005.

Project Funding Sources (US$) (complete only if funded by a SDJV partner e.g., USFWS, CWS, DU, USGS, or Flyway rep; this is used to document how SDJV appropriated funds are matched):

SDJV (USFWS) Contribution	Other U.S. federal contributions	U.S. non-federal contributions	Canadian federal contributions	Canadian non-federal contributions	Source of funding (agency or organization)
	$30,000[1]				USGS

Total Expenditures by Category (US$) (complete only if project is funded by a SDJV partner e.g., USFWS, CWS, DU, USGS, or Flyway rep; dollar amounts should include all partner contributions):

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding					
Surveys					
Research		$30,000			$30,000
Communication					
Coordination					

[1]Includes $10,000 of in-kind contributions.