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

Project Title: No. 3: Demographic studies of sea ducks wintering the Strait of Georgia, British Columbia.

Principal Investigator(s) ***(name, affiliation, mailing and email address):***
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Partner(s) (*anyone else providing some kind of support)*:
Barry Smith, Canadian Wildlife Service, Pacific and Yukon Region
Michael Rodway, Contractor
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Project Description (*issue being addressed, location, general methodology)*:
Several Pacific sea duck populations appear to be declining. Without basic information on the age/sex structure of populations and knowledge of survival, recruitment, and dispersal rates it is impossible to identify demographic causes of population changes. We are developing new methods to collect and analyze demographic data for several species, including Black Scoters, Surf Scoter, Barrow's Goldeneye, Common Goldeneye, and Harlequin Ducks in the Strait of Georgia, British Columbia. These data will be useful in demographic models and for monitoring purposes.

Objectives *(should identify how the project addresses SDJV priorities*):
(1) Develop an identification key, available to researchers both on the Sea Duck Joint Venture website and in a field guide, which will assist researchers in the identification of sea duck age and sex classes, for all 15 North American species, using plumage and bill characteristics.

(2) Establish a protocol for conducting mid-winter surveys for selected sea duck species and evaluate/publish relevant information on sea duck densities, the sex/age structure of populations, and habitat association patterns for populations wintering in the Strait of Georgia.
(3) Estimate other demographic attributes (e.g., survival and dispersal) and use these data in population models.

Preliminary Results:
A manuscript, which evaluated the utility of age ratios as an index of recruitment by Surf Scoters, was published (Condor 106:252-262). The findings of that manuscript were used to develop a survey protocol, which would evaluate the sex/age structure and recruitment rates of several sea duck species concurrently, including: Black Scoters, Surf Scoters, Barrow's Goldeneye, Common Goldeneye, and Harlequin Ducks. During February 2004, a pilot survey was conducted, which indicated multiple species mid-winter counts are feasible. However, funding is required to conduct surveys with sufficient power to infer age/sex proportions for monitoring and demographic modeling purposes. Preliminary analyses also have been made on survival rates and movement patterns of radio-marked Surf Scoters and color-banded Harlequin Ducks.

Project Status ***(e.g., did you accomplish objectives, encounter any obstacles, do you have plans for the future?)***
If funding is secured, we hope to expand the pilot study to include a larger area, thus increasing sample size and our ability to confidently estimate sex/age ratios, determine sex, age, and species-specific densities and habitat associations, and establish baseline abundances. We also believe the plumage identification key would be of use to many researchers and hope to proceed in the coming year.

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): NOTE: this project is unfunded.**

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)
			$7,500		Canadian Wildlife Service
				$8,000	Simon Fraser University

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				$8,100	$8,100
Research				$5,400	$5,400
Communication					
Coordination				$2,000	$2,000