

**Sea Duck Joint Venture  
Annual Project Summary  
FY 2016 – (October 1, 2015 to Sept 30, 2016)**

**Project Title: PR148: MEASURING PENTOSIDINE IN SKIN BIOPSY SAMPLES TO RELIABLY AGE SCOTERS (USFWS Agreement F16AC00145)**

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**Project Description:** A priority for the SDJV is to determine survival rates for surf scoters wintering in specific areas on the Pacific and Atlantic coasts, with emphasis on adult birds. To date, estimates of SUSC survival and longevity have primarily been based on hunter harvest returns of banded scoters. Currently, data available to evaluate surf scoter annual survival and longevity is extremely limited and consists of recovery and recaptures of banded birds through relatively small-scale capture efforts. The initiation of larger and longer-term capture and banding efforts of surf scoters would provide insightful, information but has its limitations due to the costs and effort required to perform sea duck banding projects and the dependency on hunters reporting banded birds. Alternative or parallel studies are needed to enhance evaluation of surf scoter survivorship. For this particular priority, we would address information gaps on scoter survival rates and longevity through the establishment of a scoter age growth curve.

Several captive bird facilities in the US contain known-aged surf scoter and white-winged scoters and from a wide range of ages spanning from hatch year through 12 yrs in surf scoters and hatch year through 17 yrs in white-winged scoters. Skin biopsies would be collected from known-aged captive individuals, to create a surf scoter and white-winged scoter quantitative age index curve. An accurate scoter index curve would allow the subsequent collections and aging of unknown-aged scoters, either through live-capture and sampling efforts or the use of parts collections, such as hunter shot birds or wings from the Annual Wing Bee.

**Objectives:**

- 1) Utilize captive rearing facilities to collect skin biopsy samples from known-aged captive surf scoter and white-winged scoter.

- 2) Measure pentosidine concentrations in scoter skin samples from known-aged individuals through laboratory analysis.
- 3) Compare the quantitative age index curve between surf scoters and white-winged scoters to determine if results are comparable among scoter species.
- 4) Establish a quantitative scoter age index tool for wildlife managers and researchers to utilize in evaluating surf scoter and white-winged scoter survival rates, longevity, and harvest assessments through the subsequent sampling of live, deceased (carcasses), or wings (USFWS Wing Bee/hunter harvest) of unknown-aged scoters.

**Preliminary Results:** To date, we have collected skin samples from a total of 21 individual known-aged white-winged scoters. Samples were collected from 4 carcasses at the Livingston Ripley Waterfowl Conservancy (CT) and from 10 live captive scoters and 7 carcasses at Dry Creek Waterfowl (WA). Scoter ages ranged from HY to 17+ years (Table 1).

**Table 1.** List of skin samples collected known-aged captive white-winged scoters.

species	age_months	age_years	condition	sampling_location
WWSC	26	2.2	alive	Dry Creek
WWSC	38	3.2	alive	Dry Creek
WWSC	50	4.2	alive	Dry Creek
WWSC	50	4.2	alive	Dry Creek
WWSC	50	4.2	alive	Dry Creek
WWSC	170	14.2	alive	Dry Creek
WWSC	170	14.2	alive	Dry Creek
WWSC	194	16.2	alive	Dry Creek
WWSC	194	16.2	alive	Dry Creek
WWSC	218	18.2	alive	Dry Creek
WWSC	4	0.3	deceased	Livingston Ripley
WWSC	4	0.3	deceased	Livingston Ripley
WWSC	8	0.7	deceased	Livingston Ripley
WWSC	208	17.3	deceased	Livingston Ripley
WWSC	35	2.9	deceased	Dry Creek
WWSC	36	3.0	deceased	Dry Creek
WWSC	58	4.8	deceased	Dry Creek
WWSC	80	6.7	deceased	Dry Creek
WWSC	110	9.2	deceased	Dry Creek
WWSC	135	11.3	deceased	Dry Creek
WWSC	140	11.7	deceased	Dry Creek

**Project Status:** Sampling at Dry Creek and Livingston Ripley were intentionally delayed until spring/summer 2016, due to unforeseen delays with the laboratory at West Virginia University. The laboratory moved buildings in spring 2016, and was not functional until August 2016. Once the laboratory was ready to receive samples in September 2016, we shipped the 24 white-winged

scoters to the West Virginia University laboratory. The samples are currently being prepped for pentosidine analysis. We expect results from all samples in winter 2017.

Sampling at USGS Patuxent Wildlife Research Center and the Toledo Zoo have yet to be performed, due to delays among their respective institutional animal care reviews. Their internal study plans have been accepted and animal care approvals are scheduled for October 2016. Once approvals have been formalized, sampling at the facilities will occur shortly after (Fall 2016) and samples immediately shipped to the laboratory for analysis in winter 2017. Our goal is to have all results and submit a report to the SDJV by spring 2017.