

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

Project Title: PR145: Wing tissue collection for sea ducks in North America

Principal Investigators: Sarah Sonsthagen (USGS Alaska Science Center, Molecular Genetics Lab), Tim Bowman (wing collections: Pacific, Central, and Mississippi flyways - U.S.), Chris Dwyer (wing collections: Atlantic flyway - U.S.), Scott Gilliland (wing collections: Canada)

Partners:

Project Description (*issue being addressed, location, general methodology*):

The SDJV has made significant investment in filling gaps in our knowledge of in delineation of North American populations of sea ducks, both in the Pacific Flyway, central arctic Canada, and through the Atlantic and Great Lakes Sea Duck Migration Study. Obtaining adequate and representative samples via satellite telemetry for some species has been difficult. For example, White-winged Scoters and Long-tailed Ducks have proven difficult to capture and mark on Atlantic wintering areas. Through the Atlantic and Great Lakes Sea Duck Migration Study and previous studies, researchers have been successful in catching Long-tailed Ducks at the primary wintering areas around Cape Cod & Nantucket, Chesapeake Bay and in Lake Ontario. However, Long-tailed Ducks have a very wide distribution in the Northwest Atlantic and Great Lakes, wintering from South Carolina north to Baffin Island and Greenland. For this project, we are archiving tissues collected from wings from harvested sea ducks sent in by hunters to the Species Composition Surveys in Canada and the USA, and possibly tissue samples from birds taken in Greenland. Stable isotopic and/or genetic analyses of these samples may provide an alternative to satellite telemetry for assessing population delineation for these species. Isotopic analyses of wing feather samples from hatch-year birds can reveal where they were hatched and raised, and for adults, where they underwent wing molt. Samples have been obtained from all four flyways in the U.S. and Canada (Atlantic, Mississippi, Central, and Pacific).

Objective: Create a tissue archive for sea ducks that may be used for population delineation

Preliminary Results:

For the 2014-2015 and 2015-2016 hunting seasons, more than 2419 feather samples were obtained from the four U.S. flyway wing bees (see table below). Those samples were processed by USFWS and USGS staff in Alaska. Feather samples were subdivided into samples for genetics (feather rachis) and stable isotopes (remaining feather sample). All data for those samples are currently being entered into a database and data checked for accuracy. Samples from Canada have been shipped to USGS Alaska Science Center and are currently being processed. Feather collections were done at no cost to SDJV, other than purchase of sampling materials and supplies, and costs for a USFWS technician to process samples and enter data were minimal.

Preliminary Summary of wing feathers collected for the SDJV in U.S. in 2014-2015 and 2015-2016 hunting seasons (Note: COEI samples not tallied yet for Atlantic flyway for 2015-2016 season)

Species	Atlantic Flyway									Alaska									AK Total									Central Flyway									CF Total
	Adult			Immature			I Total	U	UU Total	Adult			Immature			I Total	U	UU Total	Adult			Immature			I Total	U	UU Total										
	F	M	A Total	F	M	U				F	M	A Total	F	M	U				F	M	A Total	F	M	U				F	M	A Total	F	M	U				
BAGO	0	0	0	0	0	1	0	1	0	0	2	14	16	7	7	0	14	30	0	0	0	0	0	0	0	0											
BLSC	29	44	73	0	0	0	44	44	117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1												
BUFF	58	63	121	0	41	46	0	87	208	0	0	0	2	0	0	2	2	26	35	61	26	22	0	48	109												
COEI	43	87	130	23	17	16	0	33	186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
COGO	29	53	82	0	41	16	0	16	139	1	1	2	3	1	0	4	6	6	14	20	15	10	0	25	45												
COMI	23	22	45	0	37	26	0	26	108	0	0	0	1	4	0	5	5	5	0	5	3	1	0	4	9												
HARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
HOME	32	31	63	0	0	0	59	59	122	0	0	0	0	0	0	0	0	9	13	22	0	0	47	47	69												
OLDS	20	62	82	0	0	0	29	29	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
RBME	4	3	7	0	0	0	12	12	19	0	1	1	1	1	0	2	3	4	4	8	0	0	2	2	10												
SUSC	18	68	86	0	0	0	34	34	120	1	4	5	0	0	0	0	5	0	0	0	0	0	1	1	1												
WWSC	3	40	43	0	1	1	14	16	59	2	2	4	0	0	2	2	6	0	0	0	0	0	1	1	1												
Grand Tot	259	473	732	23	137	106	192	357	1112	6	22	28	14	13	2	29	57	50	66	116	44	33	52	129	245												

Species	Mississippi Flyway									MF Total	Pacific Flyway									PF Total	Grand Total
	Adult			Immature			I Total	U	UU Total		Adult			Immature			I Total	U	UU Total		
	F	M	A Total	F	M	U				F	M	A Total	F	M	U	F				M	A Total
BAGO	0	0	0	0	0	0	0	0	0	0	13	14	27	23	15	0	38	0	0	65	96
BLSC	0	0	0	0	0	10	10	0	0	10	0	0	0	0	0	0	0	0	0	128	
BUFF	7	22	29	22	9	0	31	0	0	60	32	33	65	15	16	0	31	0	0	96	475
COEI	0	5	5	0	0	0	0	0	0	5	0	0	0	0	0	1	1	0	0	1	192
COGO	24	25	49	30	24	0	54	0	0	103	28	32	60	30	30	0	60	0	0	120	413
COMI	10	6	16	8	3	5	16	1	1	33	19	28	47	20	18	12	50	0	0	97	252
HARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	3	3
HOME	10	20	30	0	0	40	40	0	0	70	9	8	17	0	0	55	55	1	1	73	334
OLDS	5	33	38	0	0	16	16	0	0	54	0	1	1	0	0	1	1	0	0	2	167
RBME	16	31	47	0	0	45	45	0	0	92	2	1	3	0	0	2	2	0	0	5	129
SUSC	0	1	1	0	0	19	19	0	0	20	10	25	35	0	0	30	30	0	0	65	211
WWSC	0	2	2	0	0	19	19	0	0	21	2	3	5	0	0	5	5	0	0	10	97
Grand Tot	72	145	217	60	36	154	250	1	1	468	115	145	260	88	79	109	276	1	1	537	2419

Project Status: Project is on track, but as proposed, additional samples will be needed from many species to achieve sample sizes for age and sex classes. We propose to repeat the process at wing bees in 2017, but we would require no additional samples from some commonly-harvested species for which we have adequate samples.