

**Sea Duck Joint Venture  
Annual Project Summary  
FY2021 (October 1, 2020 – September 30, 2021)**

Summaries should not exceed 2-3 pages, if possible; photos or illustrations are encouraged. Project summaries will be posted on the SDJV website ([seaduckjv.org](http://seaduckjv.org)). Please submit the completed report in MS Word format to [kate\\_martin@fws.gov](mailto:kate_martin@fws.gov).

**Project Title** (*including SDJV Project #*): Estimating sea duck productivity in eastern North America using a photographic survey

**Principal Investigators** (*name, affiliation, email address*):

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**Partners** (*anyone else providing support*):

Joshua Homyack, Maryland Department of Natural Resources  
Jessica Carloni, New Hampshire Fish and Game Department  
Joshua Stiller, New York Department of Environmental Conservation  
Jennifer Kilburn, Rhode Island Department of Environmental Management  
Ben Lewis, Virginia Department of Wildlife Resources

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

Sea duck demography is difficult to study because their breeding and non-breeding range is challenging to access and/or work in. Recent population modeling (Koneff et al. 2017) has identified specific demographic parameters that are most sensitive to harvest, hence improving management and providing a sustainable recreational opportunity. Increased knowledge about annual productivity (i.e., juvenile:adult ratios) is thought to greatly improve estimates of harvest potential. Most biologists can identify and correctly assign sea ducks to an age class and sex based on plumage characteristics when a bird is in hand. However, capturing a representative number of birds to make this assessment is costly and difficult. A promising and cost effective alternative is using photos of sea ducks from winter to assign birds to the correct age and sex cohorts, by species. Age ratios (juveniles:adults) obtained from photos, can then be used to inform population models, identify factors that influence breeding success, and examine spatial distribution of age and sex classes.

We propose to collect, analyze, then use ground-based photographs of sea ducks to classify age and sex cohort in eastern North America for black scoter (*Melanitta americana*), surf scoter (*M. perspicillata*), white-winged scoter (*M. deglandi*), and long-tailed duck (*Clangula hyemalis*). Our goal is to produce annual productivity estimates for all four species at the eastern North America

scale, focused on critical geographies of the Atlantic coast and the Great Lakes. We have conducted this survey in the Atlantic Flyway, along the Atlantic coast, the previous two years (winters of 2018/19 and 2019/20) but the survey has been limited with respect to availability of field staff time, access to high-quality camera equipment, and data processing time. Nonetheless, we have amassed enough photos and data points to summarize pilot data which has been presented in a report (see results of pilot; additional data upon request). We propose to expand the spatial extent of the survey, and data collection within the current extent, through the addition of personnel resources. The addition of a dedicated project coordinator (MS student) will add capabilities to organize photo collection among a larger group of participants within current partner states and the addition of new states and provinces, particularly the Great Lakes area. We propose a two-year project that will be able to continue the time-series, expand spatial coverage, and analyze results of the entire time-series of sea duck productivity in eastern North America.

**Project Objectives:**

- 1) Identify additional collaborators from states and provinces to expand our work scope to additional areas including the Great Lakes region.
- 2) Provide suitable equipment for active participants.
- 3) Improve data management.
- 4) Analyze annual survey results and determine factors that may influence annual productivity for our focal species.

**Preliminary Results** (*include maps, photos, figures/tables as appropriate*):

Table 1. Equipment purchased to enhance quality of photos for “Estimating sea duck productivity in eastern North America using a photographic survey”

Item	Type
Camera	Sony A6100
Lens	Sony FE 200-600mm F5.6-6.3 G OSS Super Telephoto Zoom Lens
Lens cover	LensCoat Lens Cover for Sony FE 200-600mm
Lens case	JJC Camera Lens Pouch Case
Case	Pelican 1450 Case

**Project Status** (*e.g., did you accomplish objectives, encounter any obstacles, what are your future plans*):

This project was began on 6/1/21 so we are in the early phases.

To date the following has been accomplished:

- Purchased camera and accessory equipment (Table 1) for Primary Institution (n =1) and project collaborators (n = 6).
- Attended (virtually) Atlantic Flyway meeting and gave update.

- Graduate student (Jacob Hewitt) began coursework fall 2021 semester. Jacob will be the primary point of contact for collaborators during his tenure at SUNY Brockport
- Distributed cameras to project partners in New Hampshire and Rhode Island on 9/28/21. Virginia and North Carolina representatives will get their equipment on 10/6/21. The remaining two states (Maine and Maryland) will receive their camera equipment through the mail.
- All partners are aware and “on-board” for the upcoming photo acquisition season.
- Began discussion on how to expand the spatial coverage of photos to parts of the Great Lakes states.

The following will be accomplished by March 2022:

- All partners will have completed the Fall 2021 camera survey.
- Photos will be uploaded to a shared web imaging website.
- Jacob Hewitt will begin to process those photos and re-distribute to partners for aging and sexing of sea ducks.

**Project Funding Sources (US\$).** Complete only if funded by SDJV in FY21. This is used to document: 1) how SDJV-appropriated funds are matched, and 2) how much partner resources are going into sea duck work. You may include approximate dollar value of in-kind contributions in costs. Add rows as needed for additional partners.

SDJV (USFWS) Contribution	Other U.S. federal contributions	U.S. non-federal contributions	Canadian federal contributions	Canadian non-federal contributions	Source of funding (name of agency or organization)
\$74,749					

**Total Expenditures by Category (SDJV plus all partner contributions; US\$).** Complete only if project was funded by SDJV in FY21; total dollar amounts should match those in previous table.

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
<b>Banding</b> (include only if this was a major element of study)					
<b>Surveys</b> (include only if this was a major element of study)					
<b>Research</b>				<b>33,670.85</b>	<b>33,670.85</b>