

SEA DUCK JOINT VENTURE NEWS - SPRING 2018

Hi there, and welcome to the second newsletter from the Sea Duck Joint Venture! We're excited to share news about our program with folks already familiar with the SDJV, and also with folks just learning about it. We've included several stories written by our partners to give you a taste of the work we're supporting, from surveys to research to tools for conservation. We also encourage you to check out our website at <u>https://seaduckjv.org</u>, which serves as a one-stop shopping site for sea duck information.

For those of you not familiar with the SDJV, here's a nutshell version of what we're about. The SDJV was started back in 1999 because there was growing evidence that many sea duck populations were not doing very well. Sea ducks are a group of waterfowl for which relatively little is known, in large part because they live at low densities in arctic and subarctic environments, or winter offshore where they're difficult to study. The SDJV was designed to promote research and monitoring to help find causes of population declines and learn more about this fascinating group of birds. It's a partnership encompassing the U.S. and Canada.

Our science program has evolved over the years and is currently focused on providing information needed by conservation managers to make good decisions about sea duck management and habitat protection. We're also focused on a few species that are of highest concern, particularly all three scoter species, long-tailed ducks, and common eider. Based on available information, numbers of these species are well below historic levels. Because they live in marine areas most of the year, they reflect the health of coastal areas.



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SEA DUCK JOINT VENTURE - A RETROSPECTIVE

Tim Bowman, SDJV Coordinator, U.S.

When the Sea Duck Joint Venture (SDJV) was initiated in 1999, four sea duck species had recently been listed as Threatened in the U.S. and Canada. For most other species, population size and trends were unknown, breeding areas were poorly delineated, and general life histories were largely still a mystery. Although the level of hunting (sport and subsistence) at that time was considered low for most species, there was concern that it may be unsustainable for some species and regions. With 15 sea duck species and at least 20 independent populations, the task of learning enough about sea ducks to ward off additional listings and to develop scientifically sound management plans was daunting.

The mission of the SDJV is to promote the conservation of all North American sea ducks through partnerships by providing greater knowledge and understanding for effective management.

From the beginning, there was high interest in sea ducks in both the U.S. and Canada, and strong collaborative JV partnerships developed quickly. Initially, the SDJV supported a broad array of monitoring and research projects, both management-oriented and academic, on any of the sea duck species. The emphasis soon shifted to applied research and monitoring that would provide information must provide hy management and

most needed by managers and conservationists, with a focus on a few species of greatest conservation concern (scoters, eiders, long-tailed ducks). With seed money and coordination from a small JV staff (funded by FWS and CWS), partner organizations are successfully achieving the JV mission.

For example, it was unclear whether some sea duck species should be managed as a continental population or as independent regional populations. Significant resources went to addressing questions about population delineation. In other words, where do birds from a particular wintering area breed, molt, stage, and what migration routes and habitats do they use throughout the year? Satellite telemetry was the tool of choice to fill this population information gap, as traditional means (e.g., banding) were not practical for sea ducks due to the remote and inaccessible breeding and wintering areas they inhabit. The SDJV facilitated coordinated large scale satellite telemetry studies, producing an incredible amount of information about sea ducks. For most species, we now have a good idea of their range and how/where they migrate throughout the year. Several species are now confirmed to have distinct east/west populations in North America, and the





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importance of Greenland, Russia, and other Asian countries to North America breeding sea ducks is now recognized as a key factor in conservation planning.

Another area of emphasis has been population monitoring through aerial surveys. Because sea ducks are poorly monitored by most existing waterfowl surveys, the SDJV has invested in both reconnaissance surveys to document distribution on breeding and/ or wintering areas where such information didn't exist, and in development of survey techniques to help determine species-specific abundance and population trends.



Helicopter on waterfowl survey in eastern Canada. Christine Lepage

While there is still much to learn about some species of sea ducks, we can now begin to answer many of the pressing questions about sea duck population status and conservation by applying the science that the SDJV has supported. In fact, results from studies have already been applied to protect sea duck populations of concern and their habitats. Some examples include:

- 1. setting buffer distances for offshore wind development along the U.S. Atlantic coast;
- 2. cooperatively managing harvest of common eiders in Greenland, where North American eiders winter, to successfully prevent overharvest;
- 3. initial modeling to determine sustainability of harvest for several key species; and subsequent regulation adjustments to assure over the long-term that we retain sport harvest and sea duck hunting traditions in Atlantic and Pacific flyways; and
- 4. developing a Sea Duck Key Habitat Sites Atlas for all of North America to more effectively target sea duck conservation.



Home – Sea Duck Joint Venture

Sea ducks are a large group of waterfowl that, relative to other waterfowl, we know little about. The Sea Duck Joint Venture (SDJV) was formed to learn more about sea ducks, make information available to stakeholders, and onsure sustainable populations over the long term. Mission

The SDJV promotes the conservation of all North American sea ducks through partnerships by providing greater knowledge and understanding for effective management

Our web site, <u>seaduckjv.org</u>, is a great place to learn more about sea duck conservation, biology, and research projects. There, you can find species status summaries, range maps, photo galleries, a sea duck bibliography, and more. Check it out! Planned future areas of work for the SDJV include:improvement in scientific monitoring of population abundance, distribution, and trends, plus harvest estimation;

• additional research to reduce uncertainty in life history traits that will help identify factors most limiting population growth for species of concern; and

• completion of the Sea Duck Key Habitat Sites Atlas that identifies the most important habitats for North American sea ducks.

The SDJV is just hitting its stride. This partnership has greatly elevated the profile and priority for sea ducks in the U.S. and Canada and played a unique and critical role in meeting the goals of the North American Waterfowl Management Plan. Finally, by disseminating new information from past and ongoing JV-supported research we are helping to meet the needs of managers and regulators by providing the best science for harvest management, habitat conservation, and more efficient permitting or mitigation of development projects.



FROM THE FIELD

AN UNEXPECTED TROPHY

Josh Stiller, New York Department of Environmental Conservation

This past fall, Jason Martin and his friends were enjoying a successful duck hunt on Balsam Lake in Kirkfield, Ontario, when a handsome drake common merganser decided to grace their decoy spread. With a well-timed swing of his gun, Jason sent the bird crashing to the water. As he and his hunting partners approached the bird, they were shocked when they noticed a band on the bird's leg. They had harvested many mergansers over the years, but never expected they would shoot one with a band! If the encounter wasn't rare enough, upon closer inspection they noticed a wire protruding from the birds back. This was no ordinary banded bird, it had a transmitter in it!

The common merganser recovered by Jason and his friends was marked in 2011 as part of my graduate research project when I attended the State University of New York College of Environmental Science and Forestry. Common mergansers are often overlooked by both hunters and researchers because they fall into the unfortunate category of a "non-prized" game bird. Outside of their feeding habits and impacts on fish stocks, relatively few studies focus on the life history of common mergansers; especially when compared to the amount of literature on other waterfowl species.

For my research, a team of volunteers, technicians, biologists, and veterinarians,



Jason Martin was surprised to find an antenna sticking out of the common merganser he had shot in Ontario. Jason Martin

helped capture and mark 12 male common mergansers with implanted satellite transmitters prior to the breeding season and molt migration

on the Upper West Branch of the Delaware River in southeastern, New York. Birds were captured using mist nets on the narrow sections of the river.

Unlike mist netting sea ducks on the open water, we had the distinct advantage of trees and vegetation on the banks to funnel their flight path towards our nets and to provide a perfect backdrop to camouflage the nets. The goal of my research was to document the chronology and route of adult male molt migration and, of course, to measure the impacts of common mergansers on stocked trout.

The bird Jason harvested was captured on March 30th, 2011 on a narrow stretch of the Upper Delaware River. After release the bird traveled over 2,000 miles to molt in the Queen Maud Gulf Bird Sanctuary in Nunavut, Canada! The following fall it traveled through the same area where it was eventually harvested 5 years later. Congratulations to Jason on one of the rarest trophy birds a hunter could encounter!

ACKNOWLEDGMENTS

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Common Merganser in recovery kennel after surgical implantation of a satellite transmitter. Josh Stiller





LAKE MICHIGAN - FINDING LONG-TAILED DUCKS IN THE DARK

Luke Fara, Graduate Research Assistant, Southern Illinois University, and Biological Science Technician at USGS – Upper Midwest Environmental Sciences Center

Finding concentrations of long-tailed ducks at night is tough! While we were able to locate concentrations of long-tailed ducks during the day on Lake Michigan based on aerial surveys, hunters, and fishermen, where they went at night was a mystery. In the fall of 2016, we used two remote sensing techniques to help us locate and capture these elegant birds at night.

First, we contacted Brian Lubinski, USFWS pilot, about using a thermal infrared camera mounted in a Partenavia twin- engine aircraft. The camera's infrared sensor detects temperature differences, and test flights indicated that birds could be detected from the surrounding water. We then flew at night and documented concentrations of birds. Capture crews in boats were texted with locations of flocks; they were then able to visually identify birds as our target species, long-tailed ducks.

We increased our capture efficiency of long-tailed ducks by using the thermal camera. When searching



Thermal image collected at night. Notice birds in flight (left) compared to swimming birds that leave trails (right); trails result from thermal mixing at the surface.

only by boat, our average capture was 0.83 long-tailed ducks per night, but 2.10 when assisted by thermal imagery. The camera also recorded a GPS location for each image and allowed us to stitch images together and create a georeferenced photomosaic of each flight and observation. This, in turn, gives us insights into what habitats (e.g., depth, water temperature, etc.) the birds are utilizing at night.

Secondly, we implanted five adult males with satellite transmitters that transmitted at noon and midnight, giving us detailed information on day and night-time locations. We referred to these as "Judas" birds, as in theory they would betray the locations of other long-tailed ducks. We documented that Judas birds moved 6-12 miles between day and night-time locations, which substantiates what we have observed from boats. These nightly flights occur throughout the Lake Michigan basin, as evidenced by marked birds that have dispersed from the capture location. Judas birds also showed us that long-tailed ducks can fly the roughly 50-60 miles across Lake Michigan in just a few hours.



A happy volunteer capture crew with a radio-marked female and "Judas" male long-tailed duck. Luke Fara

Thermal imagery and Judas birds have provided valuable information on the locations and habitats that long-tailed ducks utilize on Lake Michigan, particularly at night. Thermal imagery has been useful for increasing capture efficiency, and Judas birds have provided insight into daily movement patterns. Using these techniques, our goal is to radio-mark 20 adult female long-tailed ducks and gather information on breeding locations, migration routes, and winter site fidelity.

Funding and other support for this study was provided by USGS, USFWS via the Sea Duck Joint Venture, Delta Waterfowl, Izaak Walton League of America (Bill Cook Chapter and Wisconsin Division), and Wisconsin Waterfowl Association.



USING GENETICS TO DETERMINE THE BREEDING AREAS OF COMMON EIDERS HARVESTED IN THE ATLANTIC FLYWAY

Sarah Sonsthagen, U.S. Geological Survey, and Chris Dwyer, U.S. Fish & Wildlife Service

Have you ever wondered where the sea ducks you see each winter come from? Many waterfowl enthusiasts and hunters relish in finding or harvesting a duck with a metal leg band, as it is a rare event, like finding a message in a bottle. On each band is a unique number that is linked to a database at the U.S. Geological Survey (USGS) Bird Banding Laboratory with the bird's age and sex, where the



Male common eiders flying along the Maine coast. Photo: Tim Bowman.

bird was originally caught and banded and if it was ever captured again and where. However, not all sea ducks are banded. How then can biologists determine where wintering sea ducks came from if they aren't banded? The answer lies in their genetics.

Each year, common eiders migrate from breeding areas along the northern coastlines to ice-free waters farther south. Wintering flocks are often composed of birds from several different breeding areas. Along the Atlantic coast, there are differences in population trends among the main eider breeding areas; numbers of breeding birds in northern Canada are increasing, those in central Canada are stable, whereas numbers of birds in the Gulf of Maine are declining. Declines in the Gulf of Maine raised concerns among biologists and hunters. In 2016, management agencies changed harvest regulations in an attempt to reduce hunting pressure on eiders that breed in the Gulf of Maine.

Differences in population trends and changes in harvest regulations raised two questions, "Where are birds from different breeding areas harvested, and in what proportion?" and "Have changes in hunting regulations affected harvest rates differently among populations?

The U.S. Fish and Wildlife Service and USGS partnered to answer these questions using genetics. The tendency of female common eiders to breed in the area where they hatched is so strong that each breeding population has a unique genetic fingerprint. By generating genetic profiles of breeding areas along the Atlantic coast, we could answer the questions raised regarding the harvest composition of common eiders.



Common eider wings (male left, female right) harvested in Canada that have been included in the harvest composition assessment. USGS photo.

In the U.S. and Canada, hunters can participate in a program where they send a wing from each duck they harvest to U.S. and Canadian agencies, called the Parts Collection Survey, or the Waterfowl Wing Bee (<u>https://www.youtube.com/</u><u>watch?v=SuS8N50mu8E</u>). Biologists record the age, sex, species, date harvested, and location for each wing received, providing information on the general harvest patterns across Canada and the U.S. Wings were then sent to the USGS and scientists collected genetic fingerprints of each harvested bird to determine the birds' breeding area and ultimately provide estimates of harvest for common eider populations along the Atlantic coast.

USGS scientists have determined the genetic fingerprints from more than 500 wings of common eiders submitted to the U.S. and Canadian Harvest Surveys in 2013-2016. These genetic profiles revealed that each breeding area, regardless of population size, is represented in relatively equal proportions in the harvest. The next step is to find out whether changes in hunting regulations started in 2017 have altered the harvest composition of the American common eider.



SDJV IS CREATING A SEA DUCK KEY HABITAT SITES ATLAS



Mixed sea duck flock in coastal Alaska. Tim Bowman

Studies supported by the North American Sea Duck Joint Venture partnership have helped improve our understanding of important sea duck habitats across the continent. The Sea Duck Joint Venture is now spearheading an effort to synthesize information from surveys, satellite telemetry studies, and expert knowledge to identify areas of special importance to sea ducks throughout North America. Called the *Sea Duck Key Habitat Sites Atlas*, its purpose is to make information on seasonal distribution and abundance of sea ducks readily available to decision-makers and stakeholders such as the coastal Habitat Joint Ventures under NAWMP. Other potential users may include conservation organizations, natural resource agencies, industry, and marine and land use planners. The atlas will be available online later in 2018 and will include interactive maps.

The criteria we're using restrict key site designation to areas that are vital to sea ducks at a scale that is meaningful and practical in terms of habitat conservation and protection. It will complement other bird habitat designations such as Important Bird Areas, Marine Protected Areas, and NAWMP's Areas of Continental Significance to Waterfowl. The atlas can be used to:

- 1. provide justification for protecting areas of importance to sea ducks;
- 2. improve decision making for resource development in key areas;
- 3. direct research investigating biotic and abiotic features that characterize sea duck habitats; and
- 4. predict how habitat conditions may change and potentially impact populations. This is an important first step for ensuring that adequate quantity and quality of sea duck habitat remains intact.

Check http://seaduckjv.org/science-resources/ for updates on these efforts.



INTERNATIONAL SEA DUCK CONFERENCE

Another successful Sea Duck Conference! The 6th International Sea Duck Conference was held 6-9 February, 2017 in San Francisco, with 150 attendees from 8 countries, >60 presentations and posters, and workshops. You can access abstracts from the conference at <u>http://seaduckjv.org/science-resources/</u> <u>abstracts-from-previous-sea-duck-conferences/</u>. The 7th International Sea Duck Conference is tentatively planned for 2020 in Halifax, Nova Scotia.

SEA DUCK BIBLIOGRAPHY UPDATED

A Sea Duck Bibliography was recently updated to include papers published through October 2016. The database includes papers from peer-viewed

journals and from other notable sources including Canadian Wildlife Service Technical reports and Birds of North America species accounts. It's on the SDJV web site at: <u>http://seaduckjv.org/science-resources/sea-duck-bibliography/</u>.

SDJV'S U.S. COORDINATOR TO RETIRE!

After 18 years as the U.S. Coordinator for the Sea Duck Joint Venture, Tim Bowman will celebrate his retirement from the USFWS, effective March 31, 2018. Tim is looking forward to spending more time fishing, hunting, rafting, exploring the world, and visiting family and friends. He intends to stay involved with the SDJV and other conservation efforts as a volunteer. USFWS expects to name an interim Sea Duck Joint Venture Coordinator in the coming days.



White-winged Scoter and Long-tailed Ducks. Tim Bowman



