

**Sea Duck Joint Venture**  
**Annual Project Summary**  
**FY 2015 – (October 1, 2014 to Sept 30, 2015)**

**Project Title: SDJV Project #144:** Pilot Study: Migration patterns, habitat use, and harvest characteristics of long-tailed ducks wintering on Lake Michigan.

**Principal Investigator(s):**

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**Partners:** USFWS, SDJV; Long Point Waterfowl; Environment Canada; USGS, PWRC; Wisconsin Waterfowl Association

**Project Description:**

This pilot study was conducted to demonstrate the efficacy of capturing long-tailed ducks (LTDUs; *Clangula hyemalis*) in offshore waters of Lake Michigan in support of an anticipated study to determine temporal and spatial patterns of migration, breeding ground affiliations, and site fidelity of LTDUs wintering on Lake Michigan. Long-tailed ducks marked on the Atlantic Coast and eastern Great Lakes regions have shown very little use of western Great Lakes, however there is a sizable LTDU population that winters on Lake Michigan. In advance of initiating a full study, we assessed the feasibility of capturing LTDUs on Lake Michigan. Our field effort focused in the offshore waters near Two Rivers, WI. Efficacy of using over-water mist nets in deep water (> 20 m) and night-lighting techniques were evaluated.

**Objective:**

The primary objective of this study was to evaluate capture techniques and assess feasibility of capturing LTDUs wintering on Lake Michigan.

**Preliminary Results:**

In March and April of 2015, we captured 15 LTDUs and one white-winged scoter (WWSC) on Lake Michigan. Fourteen LTDUs (6 ASY [After Second Year] females and 8 ASY males) were captured via night-lighting and one female LTDU and one female WWSC were captured using the deep-water mist netting technique. All of our capture work occurred in offshore waters near Two Rivers, WI (Figure 1). The area has served as a traditional over-wintering area for LTDUs, based on previous waterbird aerial surveys and anecdotal accounts of area waterfowl hunters. During our capture attempts in March, there were a few thousand LTDUs present in our study area, often two to three groups of  $\geq 1000$  LTDUs were observed feeding each day. The number of LTDUs dwindled during April capture work to only a few hundred.

Night-lighting operations were conducted on eight nights during 17-26 March 2015, including two nights of scouting and one night plagued with motor problems. During the five successful nights, we averaged 2.8 LTDUs per night. Capture attempts were made on flocks 7-15 km offshore at water depths of 25-70 m. Poor weather conditions with

increasing wind and wave height, coupled with freezing spray, forced the crew off the water in two instances while capturing birds. During two other nights, the wind decreased and surface conditions became calm, which reduced our ability to get close enough to LTDUs for capture. In essence, we only had one full night of capture.

Deep-water mist netting was limited to three days (14-16 April 2015) when weather and surface conditions were suitable. Our primary goal was to work through logistics and gain experience with setting up the mist net in > 20 m of water near foraging LTDUs. Capture attempts were made on flocks 2-5 km offshore at water depths of 20-35 m. During the first two days, we were successful in setting the mist net (Figure 2). We captured a SY [Second Year] female LTDU on the first day (Figure 3) and on the second occasion we captured an AHY [After Hatching Year] female white-winged scoter. We were unable to complete a third set, as members of our crew became seasick. We were encouraged with the effectiveness and capture success of sea ducks via the mist-netting technique, recognizing that numbers of LTDUs had markedly declined by mid-April and our opportunity for capture was limited. We feel confident in using both methods of capture, and expect that capture rates should increase as we become more efficient in the application of both methods.

**Project Status:**

Our objective of evaluating capture techniques and assessing the feasibility of capturing LTDUs wintering on Lake Michigan was accomplished. We were successful in capturing LTDUs with both methods. Initially locating birds during night-lighting efforts and learning the intricacies of effectively and efficiently setting a mist net took time. However, both proved to be effective methods. Weather will play a significant role in determining future work, as we were forced to abbreviate ongoing capture efforts (both methods) despite the availability of detailed weather/conditions forecasts.

The long-term goal of this project is to determine temporal and spatial patterns of migration, breeding ground affiliations, and fidelity to wintering areas of long-tailed ducks wintering on Lake Michigan. Specific objectives include radio-marking a sample of female LTDUs with PTTs to ensure that an effective sample of  $\geq 12$  survive and provide location data for at least one full year, characterize movements and habitat use of radio-marked LTDUs, and evaluating food habits and harvest characteristics of LTDUs wintering on Lake Michigan. We plan to capture and radio-mark 20 adult female LTDUs during November 2015 through April 2016.

For future reports and results for this project, please also see the web page for the Atlantic and Great Lakes Sea Duck Migration Study, posted on the SDJV web site at <http://seaduckjv.org/science-resources/atlantic-and-great-lakes-sea-duck-migration-study/>.

**Project Funding Sources (US\$).**

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)
\$14,580	\$15,500	\$3,000			USGS, WI Waterfowl Association members (in kind field assistance)

**Total Expenditures by Category (SDJV plus all partner contributions; US\$).** Complete only if project was funded by SDJV in FY15; total dollar amounts should match those in previous table.

<b>ACTIVITY</b>	<b>BREEDING</b>	<b>MOLTING</b>	<b>MIGRATION</b>	<b>WINTERING</b>	<b>TOTAL</b>
<b>Banding</b>					
<b>Surveys</b>					
<b>Research</b>				\$33,080	\$33,080

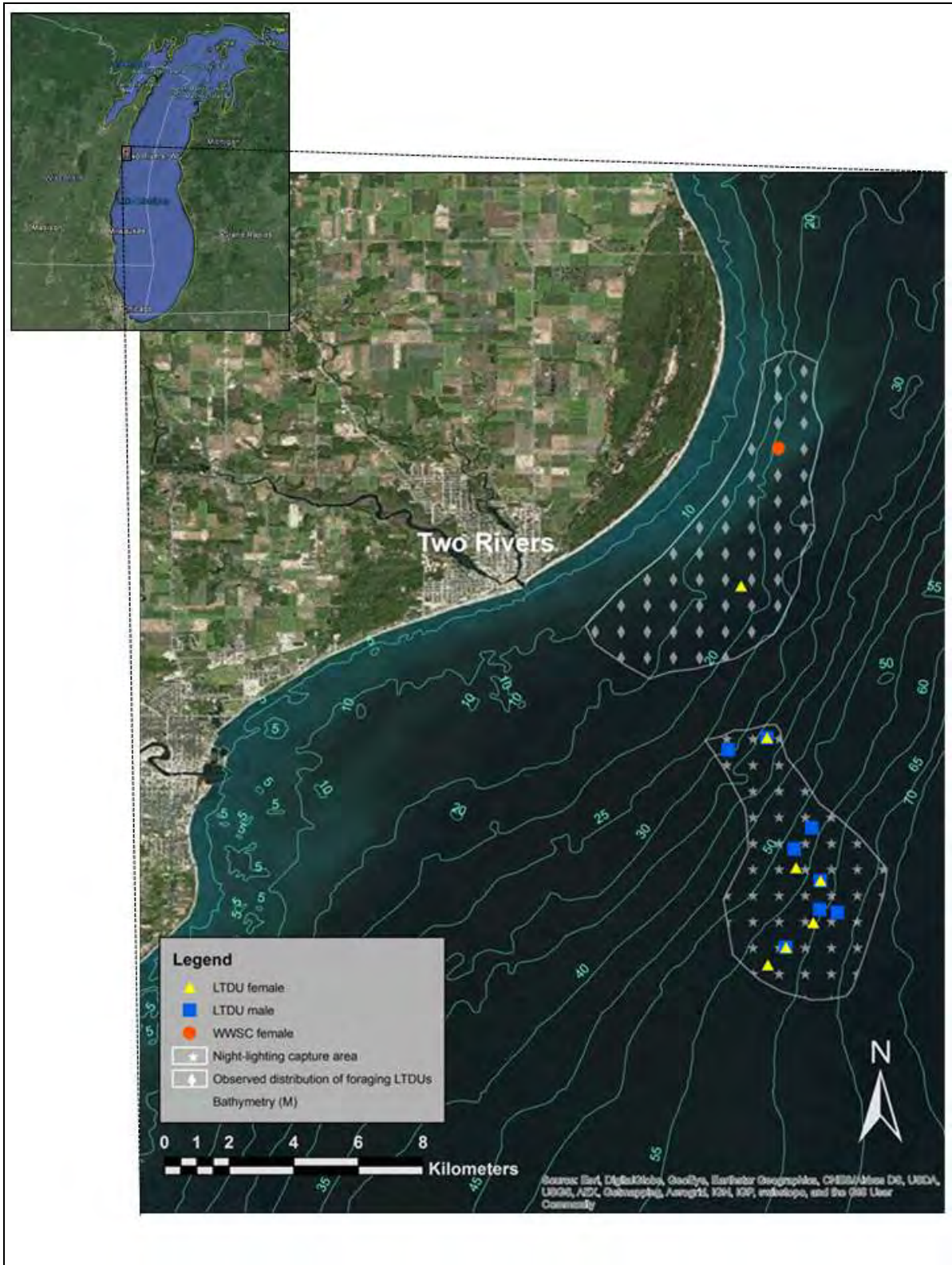


Figure 1. Capture locations during pilot study near Two Rivers, WI, and anticipated areas for future night-lighting and mist netting activities based on observations during the pilot study.



Figure 2. Mist-net overwater set for sea ducks on Lake Michigan, April 2015. Photo credit: Kathleen Carlyle.



Figure 3. Female long-tailed duck entangled in overwater mist net in Lake Michigan, April 2015. Photo credit: Kathleen Carlyle.