

Study examining birds' habitat on Lake Michigan in full flight

January 31 2013, by Paul A. Smith

When viewed from shore in late fall and winter, Lake Michigan often appears barren and unwelcoming. Hardly a place anyone or anything would choose to spend the coldest months of the year, right? But many bird species do exactly that.

"It's eye-opening once you get the right vantage point," said Bill Mueller of Milwaukee.

On any winter day, thousands of [birds](#) can be found dotting the water's surface miles from shore.

Thousands? On Nov. 2, 2010, Mueller documented 25,555 long-tailed ducks in Lake Michigan.

And on Jan. 20, 2011, 9,311 red-breasted mergansers were tallied.

The data comes from the Lake Michigan Offshore Waterfowl and Waterbird Survey, a project initiated in 2009 by Mueller and Noel Cutright, both of the Western Great Lakes Bird and Bat Observatory in Belgium.

The work is designed to increase the understanding of key offshore Lake Michigan bird habitats, many of which have been lightly studied.

The project is doing more than document birds - it hopes to guide decisions on energy development.

"[Wind turbines](#) will likely be placed in Lake Michigan," said Cutright, who founded the Great Lakes Bird and Bat Observatory after a career as an ecologist with WE Energies. "If they are, we want to be able to help recommend sites that will be least detrimental for wildlife."

The two men helped form a Great Lakes Offshore Research Advisory Group in 2009 to research the issues around possible offshore wind development.

The group had 28 members, including representatives of the U.S. Fish and Wildlife Service, Wisconsin Department of Natural Resources, UW-Milwaukee and the Wisconsin Society for Ornithology.

While books have been written about and generations of research data are available on [bird migrations](#) on the Mississippi River and elsewhere in Wisconsin, relatively little is known about bird concentrations, movements and timing on the [open waters](#) of the Great Lakes.

Moreover, as the Lake Michigan ecosystem changes due to the influx of invasive species, birds might be shifting their habits.

How do you study birds on Lake Michigan? From a bird's-eye view.

The project employs a time-honored technique of waterfowl censuses - a fixed wing aircraft, a skilled pilot and a team of keen-eyed, well-trained bird counters. The plane is a twin-engine, high-wing aircraft kept in Oshkosh and flown by DNR pilots. Two bird counters are seated behind the pilot, each viewing and tallying birds on opposite sides.

The plane flies about 110 yards above the water and at about 100 mph. The survey blocks are rectangles about 20 miles long and cover the area from 1 to 10 miles offshore.

The study area stretches from the waters off northern Illinois to Door County.

Mueller recruited a team of counters to assist with the work, including Seth Cutright of West Bend, Tom Schultz of Green Lake, Joel Trick of Green Bay and Andrew Limmer of Milwaukee.

Funding for the project has come from the U.S. [Fish and Wildlife Service](#) and from the Great Lakes Restoration Initiative.

The work is focused from November to May. The project is now completing its third year of counts.

Limmer, a recent graduate of UWM, devised a special survey of waterfowl hunters last fall and used the work as part of an academic project.

Other than the researchers, waterfowl hunters are the only other group to venture offshore in search of ducks in fall and winter.

On a typical day, the aircraft flies two 20-mile survey blocks.

As birds are counted, GPS coordinates are entered.

What has the work shown?

The most commonly observed species is the long-tailed duck (formerly known as old squaw). Over the most recent survey year, the researchers recorded 32,714 longtails, followed by 20,538 red-breasted mergansers, 6,946 common goldeneyes, 1,447 buffleheads and 1,036 canvabacks.

Long-tailed ducks are sometimes called the "deep-diving champions" of North America. The birds feed on organisms found on the lake's bottom

and have been documented diving over 200 feet.

Unique to ducks, the longtail flaps its wings to propel itself as it dives, Mueller said.

The birds breed in the far north and migrate to the Great Lakes in winter. In recent decades the longtails' favored food in Lake Michigan, a zooplankton called Diporeia, has largely vanished.

Long-tailed ducks now feed on the zebra and quagga mussels that carpet the lake's bottom. The long-term impacts of the diet shift are unknown. Overall, long-tailed ducks have declined 50 percent in the last 30 years. The species is listed as "vulnerable."

Such changes in bird numbers highlight the importance of the project.

Mueller said the [Great Lakes](#) Commission would like to see such work done on all the lakes. The Lake Michigan project will continue for at least two more years.

Mueller said wind power facilities are not likely to be developed in the next few years in Lake Michigan. In addition to gaining regulatory clearance, the jack-up barges needed to install offshore turbines are too large to sail through the St. Lawrence Seaway and will need to be built in Lake Michigan. None is available in the region at this time.

Data collected is being entered into GIS programs to formulate maps of the most heavily used areas.

Though wind turbines can kill birds, Mueller said they are more deadly to bats. The primary goal of the project is to prevent placing wind turbines in key foraging sites that would disturb and displace the wildlife.

"We wanted to do this on the front end and make sure, if wind power is coming like many believe, that it is done right," Mueller said. "With each survey, the picture is getting clearer of the most important areas for the birds."

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