



Great Lakes Offshore Bird Monitoring

Bill Mueller –
Conservation Chair,
Wisconsin Society for
Ornithology



USFWS Coordinated Bird Monitoring Grant 2010

**What do we know about
waterfowl and waterbird
concentrations, movements,
and timing in the deep,
offshore waters
of the Great Lakes?**

- **A Great Lakes Offshore Research Advisory Group was formed during the winter of 2009-2010, to discuss these questions, and to thereby prepare for offshore wind development.**

Offshore Research Advisory Group

- **28 members, from USFWS, Wisconsin DNR and WIDNR Dept. of Energy, UW-Milwaukee, USGS, Michigan Natural Features Inventory, Central Michigan University, Eastern Michigan University, US Army Corps of Engineers, The Nature Conservancy, EPA, Michigan Technological University, Wisconsin Society for Ornithology, (and other groups)**

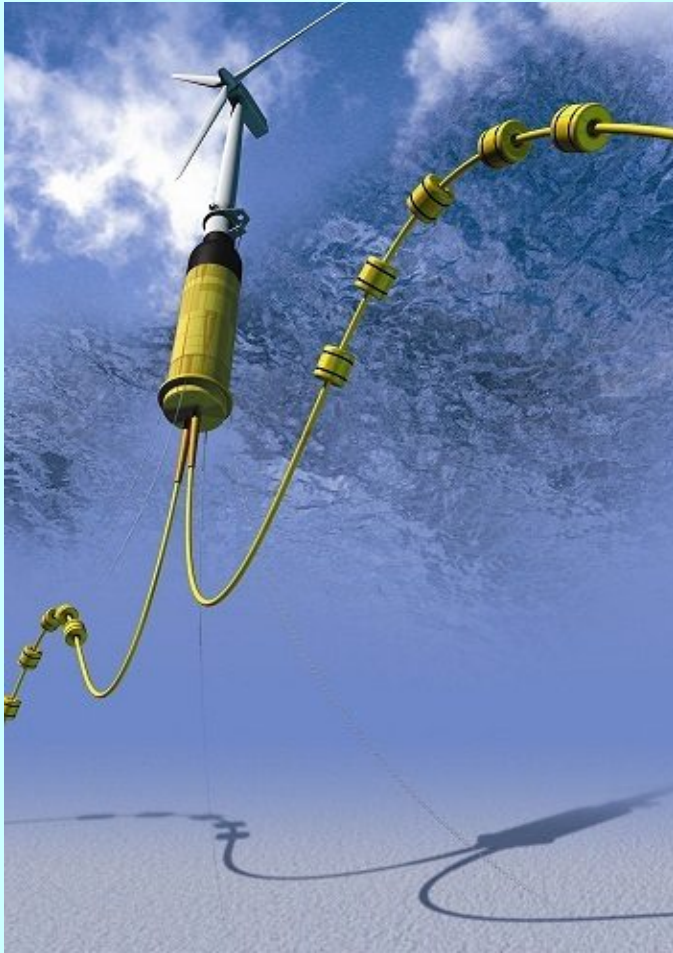
The inevitability of offshore wind development in the Great Lakes



Several new wind turbine designs are currently in use off the continental shelf, in waters >200 meters deep, offshore from the coasts of southwestern Norway and southern Italy.

These turbines are designed to be used in water depths of up to 800 meters.





The floating structures weigh 5,300 tons and measure 165 m tall. A full 65 m of the turbine height floats above the sea surface.

To prepare for offshore wind development, we need to learn more about spatial and temporal distribution of waterfowl and waterbirds in Great Lakes open waters.



Co-Principal Investigators

- Bill Mueller, WI Society for Ornithology and The Milwaukee BIOME Project
- Noel Cutright, WI Society for Ornithology and Riveredge Bird Club
- Joelle Gehring, Michigan Natural Features Inventory
- Nancy Seefelt, Central Michigan University

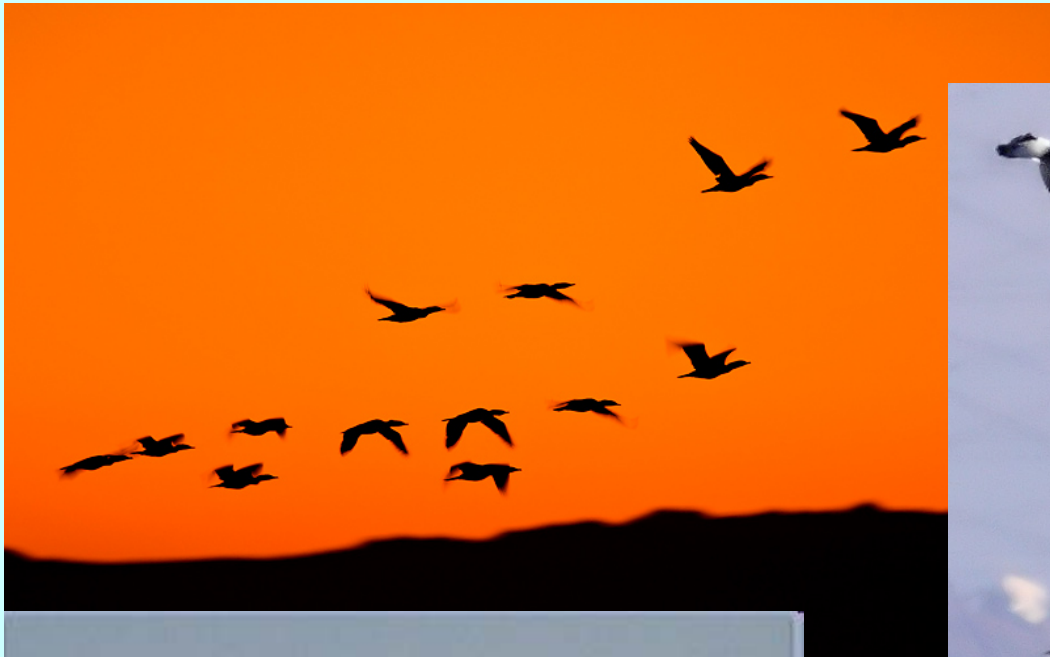
- We applied for and were awarded a **USFWS Coordinated Bird Monitoring Grant** for 2010.

**What numbers of diving ducks
are in deep, offshore waters
of the Great Lakes?**

Where are their concentrations?

When are they present?







Study area: the western offshore waters of Lake Michigan, from northern Door County, in WI, to Evanston, IL

(Surveying an area 4-10 miles offshore)

Our observations will take place this fall over 17 days in October and November, utilizing a twin-engine Wisconsin DNR aircraft and pilot, flying out of Oshkosh, WI.

A protocol with 2 observers on each flight will be used, drawing from a rotating group of skilled observers, each of whom has volunteered to assist this project.

**Census technique:
transect searches using parallel bands of known width.**

Methodology

- **Surveys will be conducted along transects oriented east–west and spaced 5 km apart throughout the surveyed region. Transects will be divided lengthwise into 2.5-km segments for recording purposes. A fixed-wing aircraft flying at 148 km h⁻¹ ground speed will follow the mapped transects in alternating directions. Surveys will be flown at a 100 m aircraft altitude level.**

- **Twin-engine aircraft (for safety)**
 - **Line-transect methodology**
- **Subdivision of survey bands to allow calculations of detection probabilities**
- **Transects 5 km apart to avoid double-counting and allow adequate coverage**
 - **Use of a clinometer to measure declination from the horizon**

- **The time of each bird sighting will be recorded.**
- **No observations recorded in extremely rough water conditions (e.g., more than small waves with whitecaps)**
- **All birds will be recorded to the best level of identification possible (species or group).**
- **Sampling units are single birds or groups of birds.**

Objective

- **Draw a more complete picture of offshore spatial and temporal distribution of waterfowl and waterbirds in western Lake Michigan's open waters**

