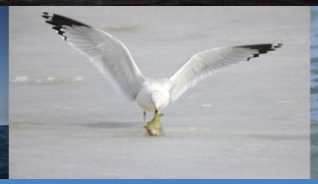
Offshore turbines and waterbirds – can they coexist in the Great Lakes?

Lake Michigan Offshore Wind Energy Report



Prepared by the Illinois Department of Natural Resources

June 2012


Gr. Scaup, L. Scaup and Redheads 10/26/12 off Oconto, WI
Photo by Paul Smith Milwaukee Journal Sentinel

Mortality and Avoidance – Two Separate Issues

- **Two types of local impacts to birds have been demonstrated at existing wind facilities:**
- ***direct mortality*** **from collisions with turbines**
- ***avoidance of an area*****; habitat disruption, reduced nesting/breeding density, habitat abandonment, loss of refugia, habitat unsuitability, and behavioral effects (Stewart et al. 2004, 2007).**

(Excerpted from National Wind Coordinating Committee Fact Sheet, Spring 2010)

Wisconsin Bird Conservation Initiative Waterbird Data

- Oct. 2010 – May 2011 aerial survey high counts
- Long-tailed Duck – 25,600, on 11/2/10
- Red-breasted Merganser – 9300 on 1/20/11
- C. Goldeneye – 6700 on 2/11/11
- Canvasback – 1100 on 11/2/10

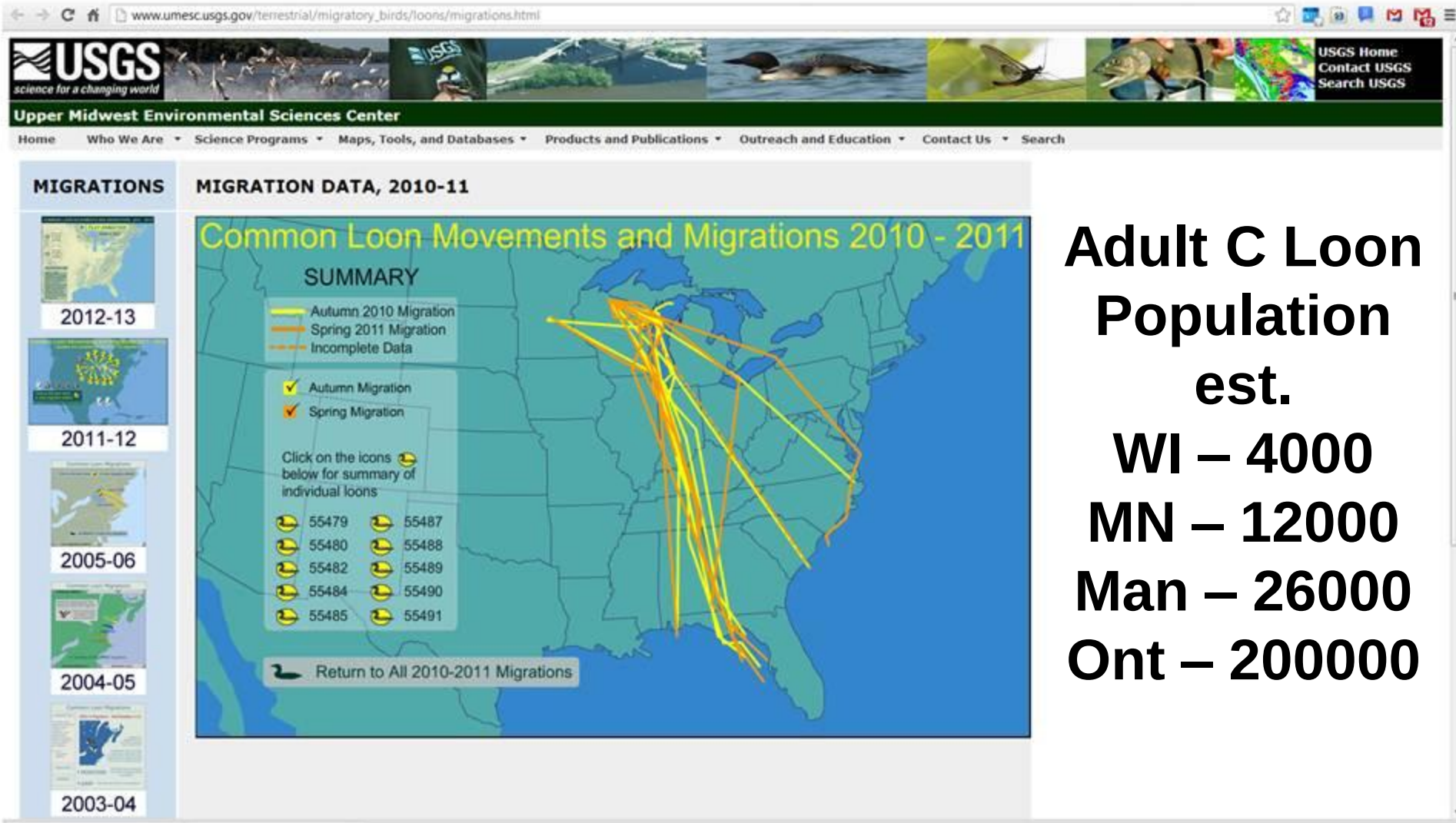
Other waterbird species seen included Tundra Swan, Mallard, Gr. Scaup, Bufflehead, White-winged Scoter, C. Loon and Horned Grebe

What We Don't Know

- **How many waterbirds (diving ducks, loons and grebes) winter in the Great Lakes?**
- **What are their preferred feeding and resting areas?**
- **Will they fly, feed or rest around turbines, or will they avoid them?**

A US Fish & Wildlife Service Project

MONITORING AND MAPPING AVIAN RESOURCES IN THE NEARSHORE AND OPEN WATERS OF LAKES ERIE, HURON AND MICHIGAN AS AN EVALUATION TOOL FOR POTENTIAL OFFSHORE WIND DEVELOPMENT AND CONSERVATION PLANNING



Adult C Loon Population est.

WI – 4000

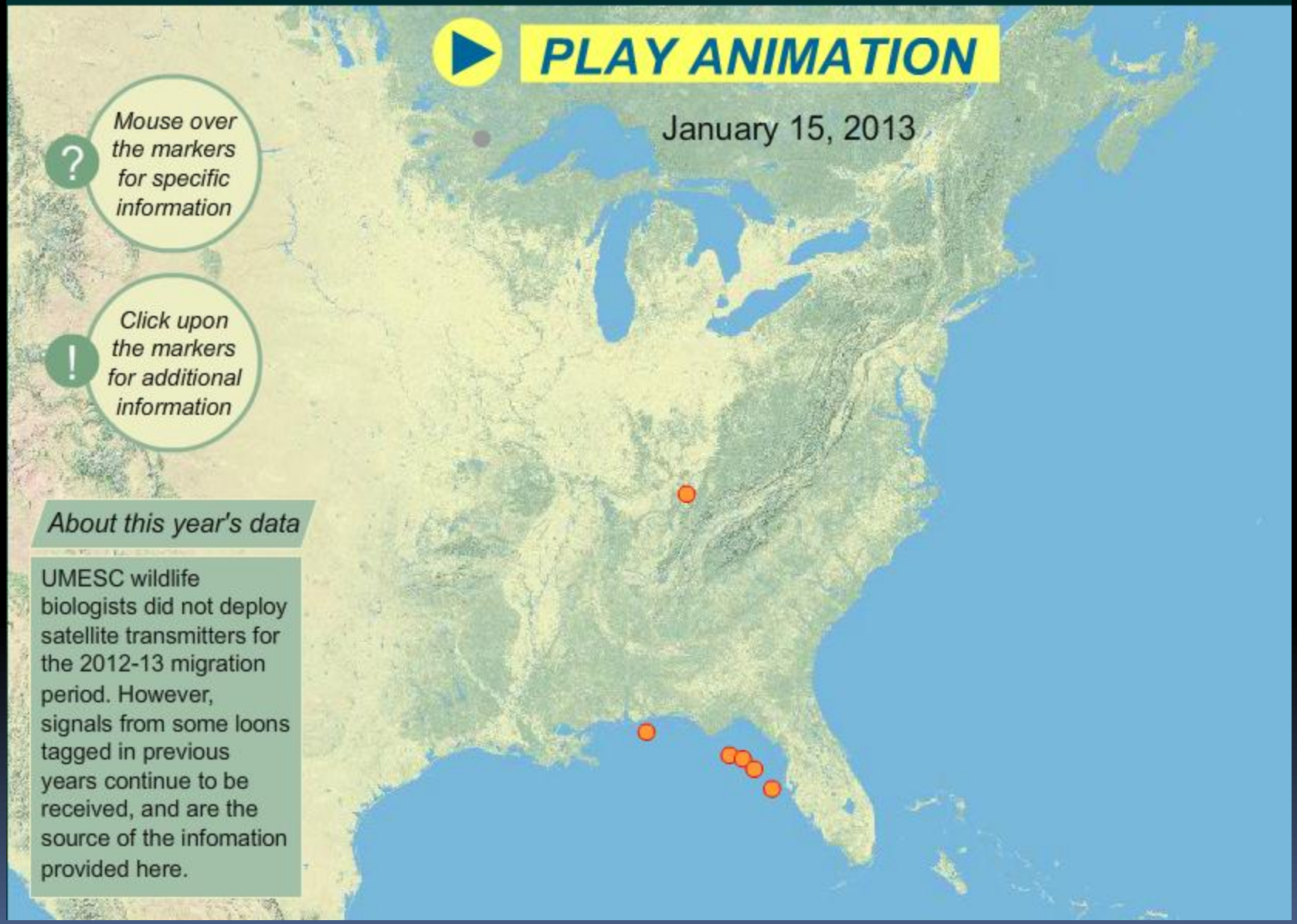
MN – 12000

Man – 26000

Ont – 200000

Red-throated Loons, Arctic breeders, known to winter in some numbers in Lake Michigan

COMMON LOON MOVEMENTS AND MIGRATIONS, 2012 - 2013



Stopping Direct Mortality

- STOP/FEATHER TURBINES DURING FOG, POOR WEATHER (USE BEST AVAILABLE TECHNOLOGY RADAR SYSTEMS)
- USE BLINKING WHITE LIGHTS – ELIMINATE 'ALWAYS ON' TOWER LIGHTING
- TOWER AND BLADE COLOR CAN ATTRACT INSECTS, WHICH IN TURN LURE BIRDS (AND BATS)
- RETROFIT AS NEW RESEARCH SHOWS REDUCED MORTALITY WITH A SPECIFIC CHANGE IN DESIGN OR OPERATION

- RECOGNIZE AVOIDANCE AS A GENUINE THREAT TO BIRD SPECIES SURVIVAL. WHEN SPECIES AVOID PRIME FEEDING /RESTING LOCATIONS, THE RESULT IS REDUCED FITNESS, POOR BREEDING SUCCESS, EVEN DEATH.