Mapping airspace use to inform conservation decisions along the Great Lakes

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In addition to holding 21% of the world’s fresh surface water, the Great Lakes are home to vast wildlife resources.
Millions of birds migrate through the Great Lakes basin each year.

Bats also migrate shorter distances through the basin.
US Wind Energy Capacity
59,000+ turbines
96,000+ MW
How can we avoid and minimize negative impacts?

Where are conservation opportunities?
Studying Migration

• Challenge: most migrants move nocturnally

• Solution: radar can track migrants
www.fws.gov/radar
Magnitude of Migration

Chicago, IL

Thousands of Targets per Hour

- Horizontal Counts
- Vertical Counts

Direction of Flight

Day          Night          Dawn
Altitude of Flight

Hourly Target Density by Altitude Band
Fall 2017, Cleveland, OH

Altitude

Hour (0=midnight)
Avian Radar Project

• Transitioning from a site-specific focus to providing region-wide information

• Creating a Decision Support Tool (DST) to inform conservation decisions
  • Radar data
  • Bat acoustic data
  • Partner data
Radar Data (birds & bats)
Bat Data

Bat acoustic recording locations, 2010 – 2018
Bat Model
Avian Radar Project

- Developing partnerships with decision makers to inform DST
  - Intra- and inter-agency partners
  - State and local governments
  - Tribes
  - NGOs
- Incorporate partner data and current decision tools
FWS Coastal Program

Western Lake Erie/Lake St. Clair Focus Area

Figure 7. Western Lake Erie/Lake St. Clair focus area.
Next Steps

Iterative process for development and revision

DST version 1.0 available to partners in late 2019

DST Version 2.0 available to public late 2020
Questions