

Avian and Bat Studies

An overview of studies conducted at the UMaine Deepwater Offshore Wind Test Site at Monhegan Island

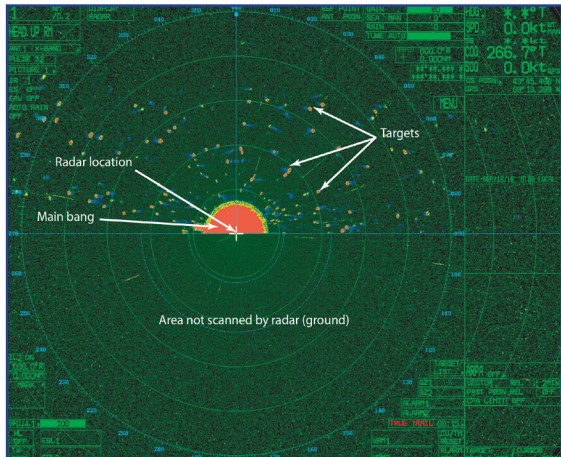


This radar trailer was deployed on Monhegan Island by New Jersey Audubon in 2010.

The UMaine Deepwater Offshore Wind Test Site at Monhegan Island was established by Maine statute and assigned to the University of Maine to support research, development, and demonstration of ocean energy technology, including offshore wind and wave energy devices. The test site is located in Maine state waters, nearly 3 miles southwest of Monhegan Island and 12 miles from the mainland.

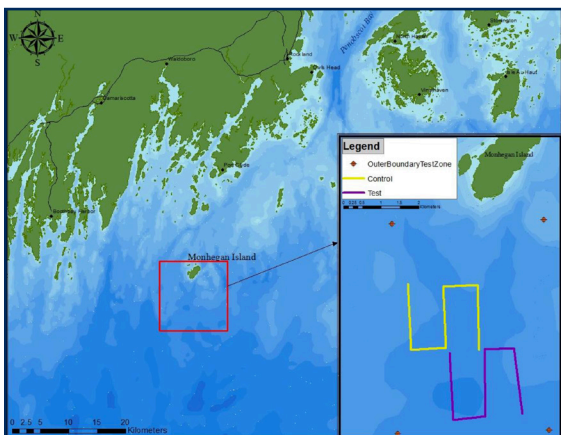
5+ Years of Baseline Ecological Data Established

The University of Maine, the State of Maine, and U.S. Department of Energy have funded multiple studies/surveys to characterize the baseline physical and ecological environment of the test site.



New Jersey Audubon conducted a radar survey on Monhegan Island for one year beginning in 2010 to assess movement patterns of aerial vertebrates in the vicinity of Monhegan Island with a range up to 6,000 feet.

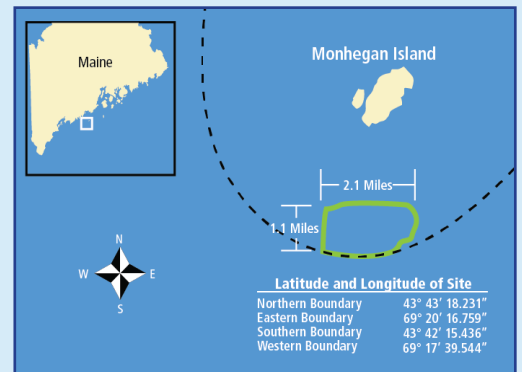
The University of Maine closely monitored bird and bat activity at the test site from 2010 to 2014. Studies completed to date include partnering with the New Jersey Audubon Society to use radar to track birds and bats, vessel-based visual surveys conducted by Lubird Environmental, acoustic bat surveys conducted by Stantec, and a passive acoustic survey for songbirds at Lobster Cove, Monhegan Island, conducted by the University of Maine.



Lubird Kennedy Environmental Services conducted 41 boat-based surveys from 2011-2014 to determine bird species presence and relative abundance at the test site.

Studies Conducted

1. Radar Study
2. Boat Survey
3. Acoustic Bat Survey
4. Passive Acoustic Avian Monitoring
5. Avian & Bat Monitoring at 1:8 Scale Turbine in Castine, Maine



The UMaine Deepwater Offshore Wind Test Site is located nearly 3 miles southwest of the island.

More information is provided on page 2 of this document.

For more information, visit UMaine.edu/offshorewindtestsite or contact: Josh Plourde at (207) 581-2117 or jp@maine.edu.



Completed Avian and Bat Studies Related To UMaine Deepwater Offshore Wind Test Site at Monhegan Island

Radar Study - Conducted by New Jersey Audubon

Objective: Assess movement patterns of aerial vertebrates in the vicinity of Monhegan Island

Dates: July 2010-July 2011

Effort: 361 days, 8,664 hours

Monitoring area:

- Southern Monhegan Island, Lobster Cove
- Vertical: 1 nautical mile (~1,900 m, ~6,000 ft)
- Horizontal: 1.5 nautical mile (~2,800 m, ~9,000 ft)

Number of nocturnal targets and movement rates in comparison to other areas:

- Similar to Block Island, Rhode Island
- Similar to coastal New Jersey
- Less than half of those recorded in Cape May, New Jersey
- Lower than mid-Atlantic Appalachian Mountain region
- Lower than several terrestrial studies in the northeast and northwest U.S.

Boat Survey - Conducted by Lubird Kennedy Environmental Services

Objective: Determine bird species presence and relative abundance at the UMaine Deepwater Offshore Wind Test Site at Monhegan Island

Dates:

- Fall: Sept-Nov 2011
- Winter: Dec. 2013-May 2014
- Spring: April-June 2013
- Summer: June-August 2012

Effort: 41 surveys

Monitoring area:

- Test site quadrat and control quadrat
- 4.2 square miles (11 km²) area covered
- All birds recorded within 1,600 ft (500 m)

Most common species:

- Fall: Cormorant, herring gull, greater shearwater, and northern gannet
- Winter: Herring gull, unidentified alcid, common eider, and razorbill

- Spring: Herring gull, northern gannets, laughing gull, great black-backed gull
- Summer: Wilson's storm-petrels, greater shearwaters, herring gull, and great black-backed gull

Acoustic Bat Survey - Conducted by Stantec Consulting Services

Objective: Determine the bat species groups present on Monhegan Island

Dates:

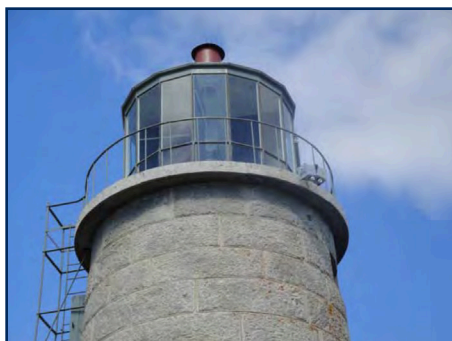
- August 2011 - January 2012
- July - November 2010
- September - December 2009

Effort: 315 nights

Monitoring area: Monhegan Island lighthouse

Most common species group:

- Eastern red bat/tri-colored bat: likely red bat
- Myotis: likely little brown bat



Photograph of the acoustic bat detection system installed on the Monhegan Island lighthouse.

Passive Acoustic Avian Monitoring - Conducted by University of Maine

Objective: Record flight vocalizations made primarily by late fall nocturnal landbird migrants

Dates: October 2011

Effort: 540 hours (15 hours per night x 36 nights)

Monitoring area:

- Southern Monhegan Island, Lobster Cove
- Single microphone/recording assembly ~82 ft (25 m) above sea level

Most common species groups:

- Sparrows
- Warblers

Castine 1/8 Scale Test Turbine Avian and Bat Monitoring - Conducted by University of Maine

In addition to monitoring activity at Monhegan and the test site, wildlife monitoring was conducted on a 1/8th scale floating test turbine deployed for 14 months beginning in summer of 2013, off Dice Head in Castine, Maine. This monitoring provided data on how birds and bats respond to a floating wind turbine.

Objectives:

- Record bird interactions with University of Maine's VoltturnUS 1:8 floating offshore wind turbine with webcams
- Record changes in bat activity with acoustic monitoring

Dates:

- Webcam: June 2013 - November 2014
- Acoustic bat detectors: Dice Head Lighthouse, May-October 2013 and July-December 2014; Turbine, July-December 2014

Effort:

- Webcam: Images recorded every 15-30 seconds for the duration of deployment
- Acoustic bat detectors: Dice Head Lighthouse, 305 nights; Turbine, 154 nights

Monitoring area:

- Webcam: Air/water space of approximately 4 platform diameters in front and behind the turbine including the turbine and platform
- Acoustic bat detectors: Dice Head Lighthouse and VoltturnUS turbine

Results:

- No observed bird collisions
- Double-crested cormorant perched on turbine support structure
- No birds perched on the turbine after the addition of anti-perching equipment
- Bat assemblages did not change appreciably before and after turbine deployment
- The number of bat calls per night were lower at the turbine than at Dice Head Lighthouse