

**PILOT STUDY: ESTABLISHING A MIGRANT RAPTOR RESEARCH STATION  
AT THE NAVAL AND TELECOMMUNICATIONS AREA MASTER STATION  
ATLANTIC DETACHMENT CUTLER, CUTLER MAINE.**



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*Biodiversity Research Institute (BRI) is a 501(c)(3) non-profit organization located in Portland, Maine. Founded in 1998, BRI's mission is to assess emerging threats to wildlife and ecosystems through collaborative research, and to use scientific findings to advance environmental awareness and inform decision makers.*

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**FRONT COVER PHOTO:** *Cutler Raptor Research Station, Cutler Maine.* Photo credit: K. Regan, BRI

## INTRODUCTION

The Naval Computer Telecommunications and Area Master Station Atlantic Detachment, Cutler (Installation hereafter), located in Cutler, Maine is an important communication facility owned and operated by the U.S. Navy. The facility contains two antenna arrays, the north array and the south array. Each array consists of a helix house (tuning tower) and 13 supporting grounded towers ranging from 244 – 305 m (800 – 1000 ft.), each with extensive guy wires for anchoring. In addition, each array has an elevated sky mast that holds various transmission equipment components (i.e., diamond panels and insulators) and connects the helix house and supporting towers.

Many aspects of raptor migration are poorly understood, particularly in the offshore environment. Along the Atlantic coast, Buteo hawks, Bald and Golden Eagles, and the large Accipiter hawks (i.e., Cooper's Hawks, Northern Goshawks) generally follow inland ridgelines and coastlines during migration, while Sharp-shinned Hawks, and the three eastern falcon species (Peregrine Falcon, Merlin, and American Kestrel) and Northern Harriers are more likely to cross large expanses of open water or use offshore routes during migration. Peregrine Falcons (peregrines hereafter) are commonly observed far offshore. Individuals are commonly observed near offshore near oil platforms, and offshore islands, including Maine islands such as Monhegan (DeSorbo et al. 2012, 2015, 2018). Direct observations of the less conspicuous Merlin are far less common in offshore habitats compared to peregrines; however, this species is likely the most abundant diurnal raptor in the offshore environment (DeSorbo et al. 2012, 2018).

Over the last decade, there has been an increased interest in placing large scale wind power facilities in both state and federal waters along the Pacific and Atlantic coastlines of North America. Past experiences at large-scale offshore wind energy facilities in Europe have demonstrated the importance of collecting pre-construction data on wildlife movements to inform wind turbine siting decisions. Very few efforts have been made to characterize raptor migration through the Gulf of Maine; however, several studies have documented that fall raptor migration through the Gulf of Maine may be extensive, even up to ten miles offshore (DeSorbo et al. 2012).

Raptor migration monitoring stations enable researchers to initiate studies on migratory raptors that can address existing scientific data gaps and inform management decision-making. While fall raptor counts exist along the Maine coast in areas such as Acadia National Park, few stations have ever been established in Maine that allow researchers handling access to live raptor migrants, which enables a wide variety of research studies requiring banding, sampling or instrumentation with tracking devices. Fall raptor surveys conducted by the U.S. Navy and Tetra tech at the Cutler Installation have previously established that migrant raptors (particularly peregrines and Merlins) commonly pass through the region during fall migration. Past surveys also established typical flight paths of migrant raptors. In 2018, we performed a pilot effort to establish a raptor migration research station on the Naval Computer Telecommunications and Area Master Station Atlantic Detachment, in Cutler, Maine, in order to facilitate future studies evaluating the movements of migrant raptors relative to the communication facility, the Gulf of Maine, and offshore wind energy facilities along the Atlantic Flyway.

## OBJECTIVES

The objectives of this study are to:

1. Establish a migratory raptor research station at the Naval Computer Telecommunications and Area Master Station Atlantic Detachment, Cutler and evaluate its feasibility for use in long-term research studies.
2. Learn about the local, regional, and continental scale movement patterns of migrant raptors through banding and satellite telemetry.

## METHODS

We established and operated a migrant raptor research station (comprised of mist nets, dho gaza nets and bow nets) at the Installation between 9 – 14 October, 2018<sup>1</sup>. This period of time is seasonally late compared to the ideal window for raptor migration in Maine; however, it chosen for this pilot effort for logistical reasons. The location of this station was selected after thorough exploration of site alternatives elsewhere on Installation property (i.e., southwest corner, Sprague Neck), and was determined to be optimal based upon site characteristics (i.e., line of sight, for adequate detection of incoming fall migrants by researchers, visibility to incoming migrants, openness of habitat) and location relative to known raptor migration flight paths as indicated by past fall migration surveys (D. Hengstenberg, Tetra tech, Portland, Maine). The station was oriented on the southwest corner of the Installation (44.6276080, -67.5282133). This placement allows for clear line of sight for raptors migrating along the coast (Figure 1, Figure 2), and is within the typical flight path of passing migrants. The station was approximately 1,100 m (0.69 mi) from the perimeter road.



**Figure 1.** Generalized flight paths of falcons (red arrow) and Northern Harriers (black arrow) as observed from the trapping station on October 9 – 15, 2018. Yellow star indicates station location.

<sup>1</sup> 10/9 = set up; station operational for one hour. 10/11 = no operations due to rain. 10/13 = operations ceased at noon due to rain; last day of trapping. 10/15 = no operations; station dismantled. 10/10, 10/12, 10/14 = fully operational (ca. 9 hrs/d).



**Figure 2.** View from trapping station facing east.

## **RESULTS AND DISCUSSION**

Our pilot effort established that it is highly feasible from a logistical standpoint to establish a raptor migration station at the Installation. To our knowledge, this migration station is likely the furthest north along the Atlantic coast and Atlantic migration flyway. This location is strategic in that it allows researchers to learn, through tracking studies, about bird movements relative to a vast number of areas (other installations, existing/proposed wind energy facilities) along the entire U.S. Atlantic coast.

*Trapping success:* We trapped three migrant raptors during our limited field effort: one female Merlin (after second year age class; Figure 3), one male Peregrine Falcon (hatching year age class; Figure 4) and one female Northern Harrier (hatching year age class; Figure 5). All three individuals were captured on 10 October, 2018. Two additional adult Peregrine Falcons were observed flying directly over the station during our operations.

*Sampling:* All individuals were banded and sampled feathers. Blood was collected from the Peregrine Falcon and the Northern Harrier. These tissues will be analyzed for mercury (Hg) and will contribute towards a Nationwide Raptor Mercury Study being led by BRI. This data will be shared with NAFAC.

*Transmitter fitting:* We fitted the Merlin with a 5 g solar satellite transmitter (see cover photo) manufactured by GeoTrak, Inc. (Apex, North Carolina).

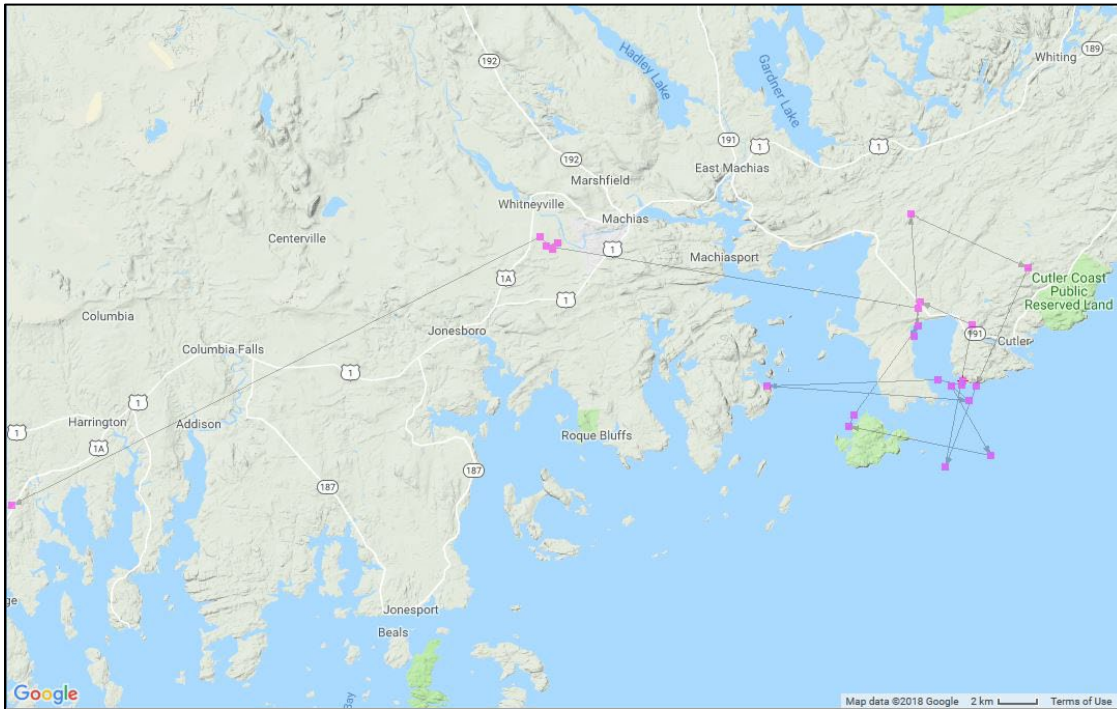


**Figure 3.** After second year female Merlin captured at the Installation.

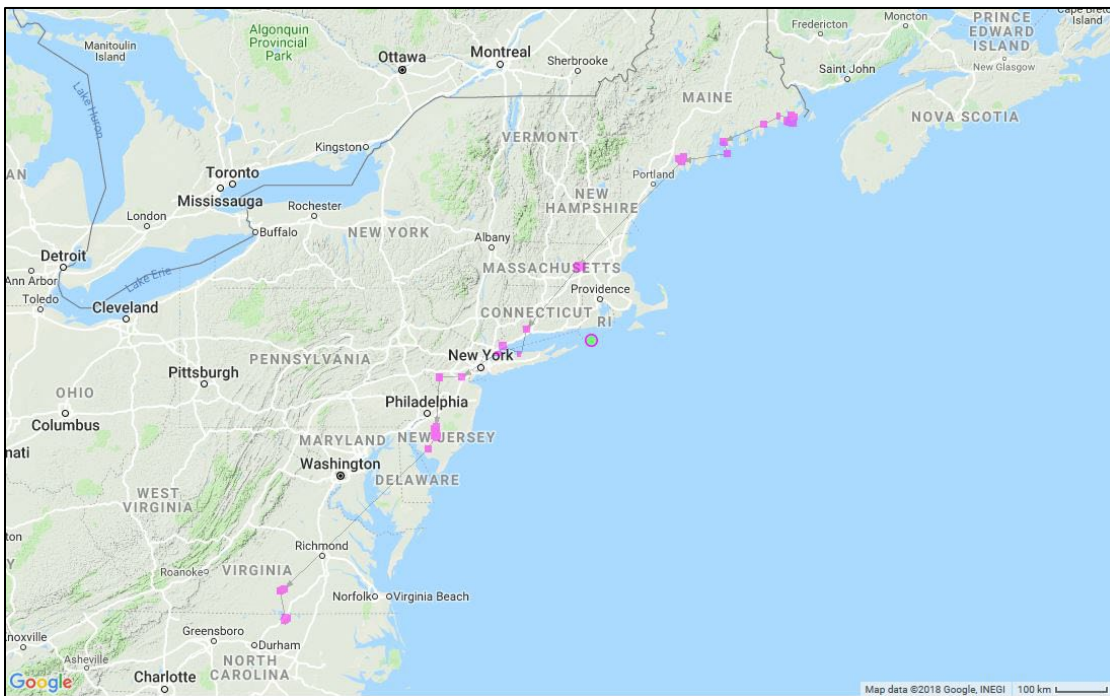


**Figure 4** (left) Hatching year Peregrine Falcon. **Figure 5** (right) Hatching year Northern Harrier.

*Movement Tracking (using satellite telemetry):* The female Merlin fitted with a satellite transmitter spent approximately 10 days in the Downeast area of Maine (Figure 6) before continuing to migrate south. By November 6, 2018, the bird had migrated as far south as North Carolina (Figure 6).



**Figure 6.** Movements of a transmitter-fitted Merlin from October 10 to October 19, 2018.



**Figure 7.** Movements of a transmitter-fitted Merlin from October 10 to November 4, 2018.



## Summary

Our pilot field effort was successful in determining that it is highly feasible to establish a migrant raptor research station at the Installation. The geographical location of the Installation along the typical flight path of migrating raptors is optimal for learning about wildlife approaching and potentially using the Installation. This raptor research station would also be optimal for learning about raptor movements relative to other military installations, existing/proposed wind energy facilities and other industrial facilities along the entire Atlantic coast. This station is probably the furthest north along the U.S. Atlantic coast, and potentially the furthest north along the Atlantic migration flyway. Our relative trapping success despite a very limited field effort after the peak migration period suggests that future efforts spanning the peak migration period would be successful in enabling access to a substantial number of fall raptor migrants for local and continental scale movement studies as well as numerous other investigations. We recommend a future pilot effort to explore the feasibility of establishing a spring raptor research station at the Installation.

## Acknowledgements

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## LITERATURE CITED

- DeSorbo, C. R., K. G. Wright, and R. Gray. 2012. Bird migration stopover sites: ecology of nocturnal and diurnal raptors at Monhegan Island. Report BRI 2012-09 submitted to the Maine Outdoor Heritage Fund, Pittston, Maine, and the Davis Conservation Foundation, Yarmouth, Maine. Biodiversity Research Institute, Gorham, Maine. 43 pp. <<http://www.briloon.org/raptors/monhegan>>
- DeSorbo, C. R., R. B. Gray, J. Tash, C. E. Gray, K. A. Williams, and D. Riordan. 2015. Chapter 25: Offshore migration of Peregrine Falcons (*Falco peregrinus*) along the Atlantic Flyway. In Wildlife Densities and Habitat Use Across Temporal and Spatial Scales on the Mid-Atlantic Outer Continental Shelf: Final Report to the Department of Energy EERE Wind. K. A. Williams, E. E. Connelly, S. M. Johnson, and I. J. Stenhouse, editors. Award Number: DE-EE0005362. Report BRI 2015-11, Biodiversity Research Institute, Portland, Maine. 28 pp. <<http://www.briloon.org/mabs/reports>>
- DeSorbo, C. R., C. Persico, and L. Gilpatrick. 2018. Studying migrant raptors using the Atlantic Flyway. Block Island Raptor Research Station, Block Island, RI: 2017 season. BRI Report # 2018-12 submitted to The Nature Conservancy, Block Island, Rhode Island, and The Bailey Wildlife Foundation, Cambridge, Massachusetts. Biodiversity Research Institute, Portland, Maine. 35 pp. <<http://www.briloon.org/raptors/blockisland>>