

SECTION 7

Wildlife and Fisheries

Section 7. Wildlife and Fisheries

7.1 Project Area Description

The proposed Silver Maple Wind Energy Project is a five wind turbine generator (WTG) expansion of the existing Pisgah Mountain Wind Project, which was previously permitted under the Small Wind Energy Certificate Program. The project is located approximately 2 miles south of Route 9, south and west of Route 180, within the Town of Clifton, Penobscot County, Maine, and 20 miles inland from coastal bays and 35 miles from the open ocean (see Section 1, Project Description).

The new WTGs are proposed to be constructed at locations ranging from 635-755 ft above sea level and will be accessed by short sections of new roads as well as existing roads that will be upgraded. WTGs 1, 2, and 3 are proposed along the northwest-southeast trending slope of Pisgah Mountain's eastern summit and WTGs 4 and 5 are proposed along the northwest-southeast trending slope of Pisgah Mountain's southern summit. The project area is dominated by a hardwood forest that has been recently logged and there are no fish-bearing streams in the project area.

7.2 Agency Consultation

Agency consultation letters were sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) and the Maine Natural Areas Program (MNAP) to solicit information regarding natural resources in the project area. Responses were received from MNAP on June 5, 2019, and from MDIFW on June 8, 2019 (copies attached). U.S. Fish and Wildlife Service (USFWS) information was also obtained by querying the Information for Planning and Consultation (IPaC) web tool.

7.2.1 Maine Natural Areas Program

MNAP searched its database of known occurrences of rare and exemplary botanical features, including habitat for rare, threatened, or endangered plant species and unique or exemplary natural communities, but none were recorded for the project area.

7.2.2 Maine Department of Inland Fisheries and Wildlife

MDIFW searched its records for known locations of Endangered, Threatened, and Special Concern species, designated Essential and Significant Wildlife Habitats, and fisheries habitat concerns within the vicinity of the proposed project. MDIFW noted that it has not mapped any Essential Habitats that would be directly affected by the project. In addition to searching its databases, MDIFW offered preliminary guidance regarding project operation related to bats and songbirds. MDIFW also noted the presence of a deer wintering area northeast of the proposed project. Impacts to Significant Vernal Pools are not expected by MDIFW. Finally, MDIFW made recommendations regarding vegetated buffers associated with streams.

7.2.3 U.S. Fish and Wildlife Service

The USFWS IPaC web tool indicated that the project is within the range of the threatened northern long-eared bat and within mapped critical habitat for the endangered Atlantic salmon. Although

the project is within mapped critical habitat for Atlantic salmon, there are no fish-bearing streams in the project area. Critical habitat has not been mapped for northern long-eared bats.

7.3 Natural Resource Characterization and Impact Assessment

Natural resource investigations were undertaken in the project area, and an area extending 250 ft from proposed construction areas, during July and August 2018 and included wetland, stream, and vernal pool delineation and characterizing fish and wildlife habitats. In addition to field investigations, state and federal databases were queried to identify known protected natural resources and threatened and endangered species and plants in the project area (see Section 7.2). Impacts to natural resources were then identified based on proposed plans for development (see Section 1, Project Description).

7.3.1 Wetlands, Vernal Pools, and Waterbodies

Streams: Two narrow, intermittent streams and associated wetlands were identified in and adjacent to the project area (see Natural Resources Map). Neither stream harbors fish populations, but both provide limited habitat for other aquatic life. The first stream runs northwesterly to southeasterly along the existing access road westerly of proposed wind turbine generators (WTGs) 1, 2, and 3. There is one existing road crossing of this stream associated with the Pisgah Mountain Wind Project. Based on anticipated construction, there should not be any additional improvements needed for the Silver Maple Wind Energy Project. The second stream is located northerly of proposed WTG 4 and is currently crossed by an existing logging road that will be upgraded as part of the proposed access road construction. Impacts to aquatic life associated with the proposed stream crossings are not expected to be significant. These streams merge to the east of the proposed project and flow into a large forested wetland that, in turn, flows into Springy Pond.

Wetlands: The only regulated wetlands identified in and adjacent to the project area were associated with the intermittent streams described above. These wetlands are adjacent to the stream channels, and are briefly inundated during heavy rains, and would be considered wetlands of special significance under Maine’s Natural Resources Protection Act (NRPA). Based on the proposed construction, however, impacts to these resources are not anticipated.

Vernal Pools: Although field investigations for vernal pools were completed outside the recognized amphibian breeding season, potential vernal pools were investigated but none were identified. MDIFW also indicated that impacts to vernal pools were not expected.

7.3.2 Wildlife Habitat:

The proposed project area is approximately 20 miles inland from coastal bays and 35 miles from the open ocean and outside of the coastal plain as defined by MDIFW as including EPA’s Downeast

Coast ecoregion (see EPA Ecoregions Map)¹. The coastal plain has been identified as an area of concern for migrating songbirds by MDIFW. The project area is, instead, situated in the Eastern Maine-Southern New Brunswick Plains ecoregion and consists of a low ridge in an area of rolling terrain away from the true coastal plain (i.e., the Downeast Coast ecoregion). The project area is also approximately 10 miles east of the Penobscot River, suggesting that the site is not associated with features (i.e., major river corridors or coastlines) that funnel migrating birds.

Forested habitats in the project area are typical for the matrix forest in the region and do not contain any unique or defining features that would attract wildlife species of conservation concern. In general, then, the forest in the project area is expected to be populated with the common wildlife species of the region. The project area is not within the range of, or does not contain habitat for, northern bog lemming, Canada lynx, great blue heron, Bicknell's thrush, roaring brook mayfly, spring salamander, bald eagles, or golden eagles, species of conservation concern to MDIFW regarding wind power projects.

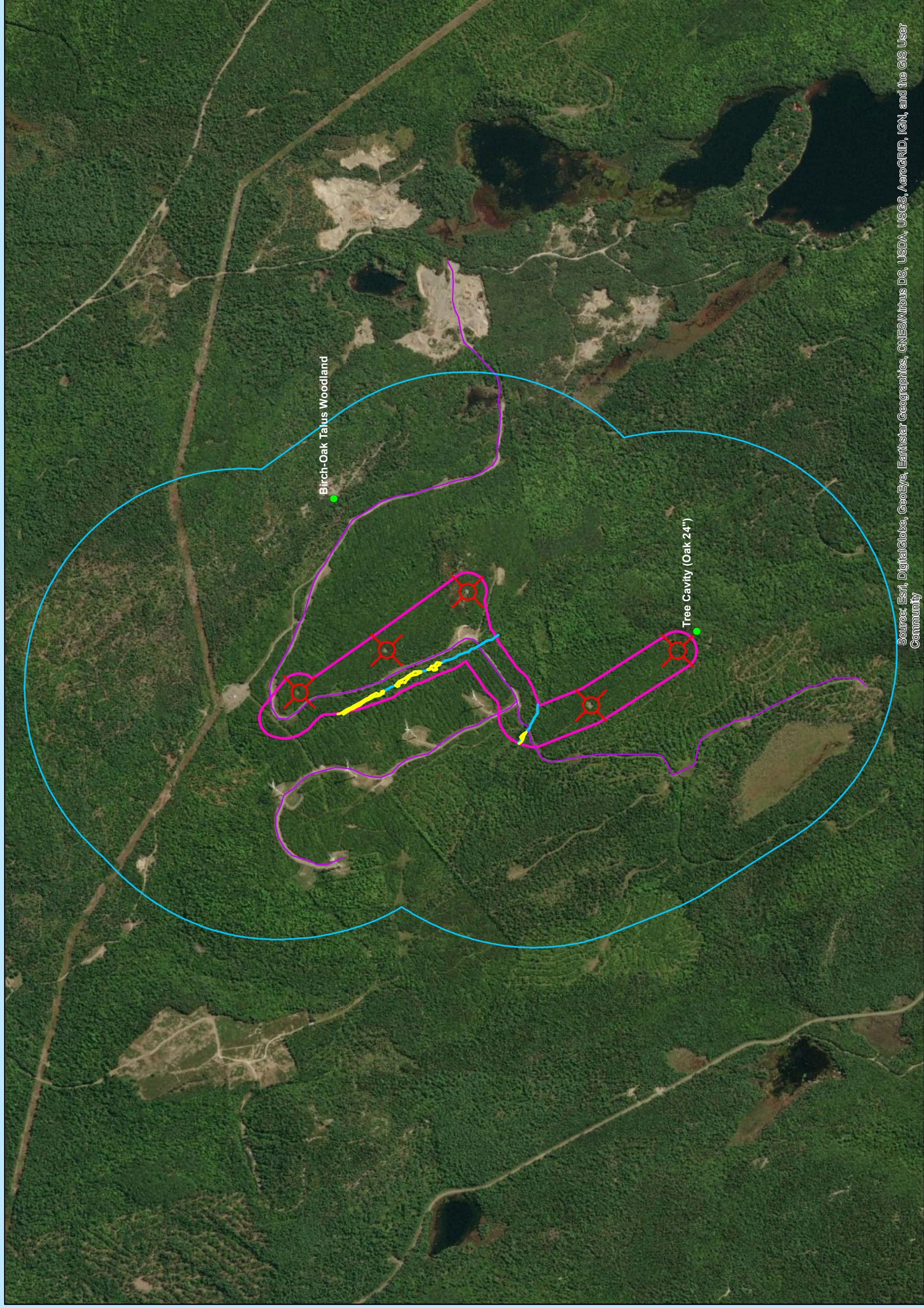
There are no MDIFW-mapped Significant Wildlife Habitats within or adjacent to the project area, although there are deer wintering areas and Inland Waterfowl and Wading Bird Habitats mapped within the local region. At the federal level, the U.S. Fish and Wildlife Service indicates that the project area is within the range of the threatened northern long-eared bat, although critical habitat has not been mapped for this species. The project area is within mapped habitat for the endangered Atlantic salmon, but there are no fish-bearing streams in proximity to proposed construction areas.

Recent evidence suggests that bats might be attracted to rocky outcrops and talus slopes as roosting habitats. Such features were investigated beginning with reviewing existing maps and examining high resolution aerial photographs of the project area for all lands within one-half-mile of the project site. One talus slope was identified easterly of the project site and existing access road (see Natural Resources Map). This *Birch-Oak Talus Woodland* (an S3 natural community) consists of a stable rock debris slope that may provide suitable habitat for bats. During the field investigations, one potential bat maternity roost tree was also identified on the project site and consists of a 24-inch diameter oak tree with a cavity located slightly southeast of proposed WTG 5. No visual evidence of bats using this tree, however, was observed during field investigations.

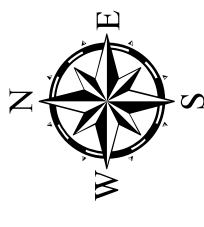
For information on our Blue Heron Survey, please refer to Exhibit 7.1

¹ MDIFW. 2018. Maine Wind Power Preconstruction Recommendations and Turbine Curtailment Recommendations to Avoid/Minimize Bat Mortality. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine, dated March 5, 2018.

Natural Resources Map



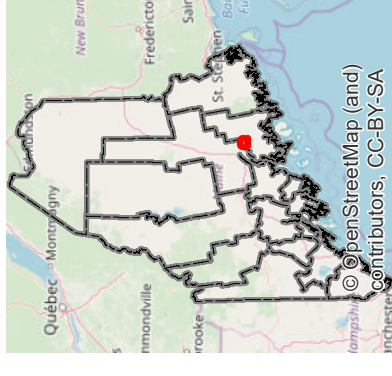
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- Turbine 0.5 mile Buffer
- CES_Wetland_Boundary
- CES_Wetland_Area
- CES_Streams
- Outcrop/Talus Slope Areas
- Existing Roads
- Turbine 250 Ft Buffer
- Turbines

MAINE



Project Title: Silver Maple
Project Description: Wind Energy Project
Address: Clifton, Maine

Project No.: 11657
 By: NAI
 Date: 7/19/2018
 Updated: 6/6/2019
 By: [Ireland]

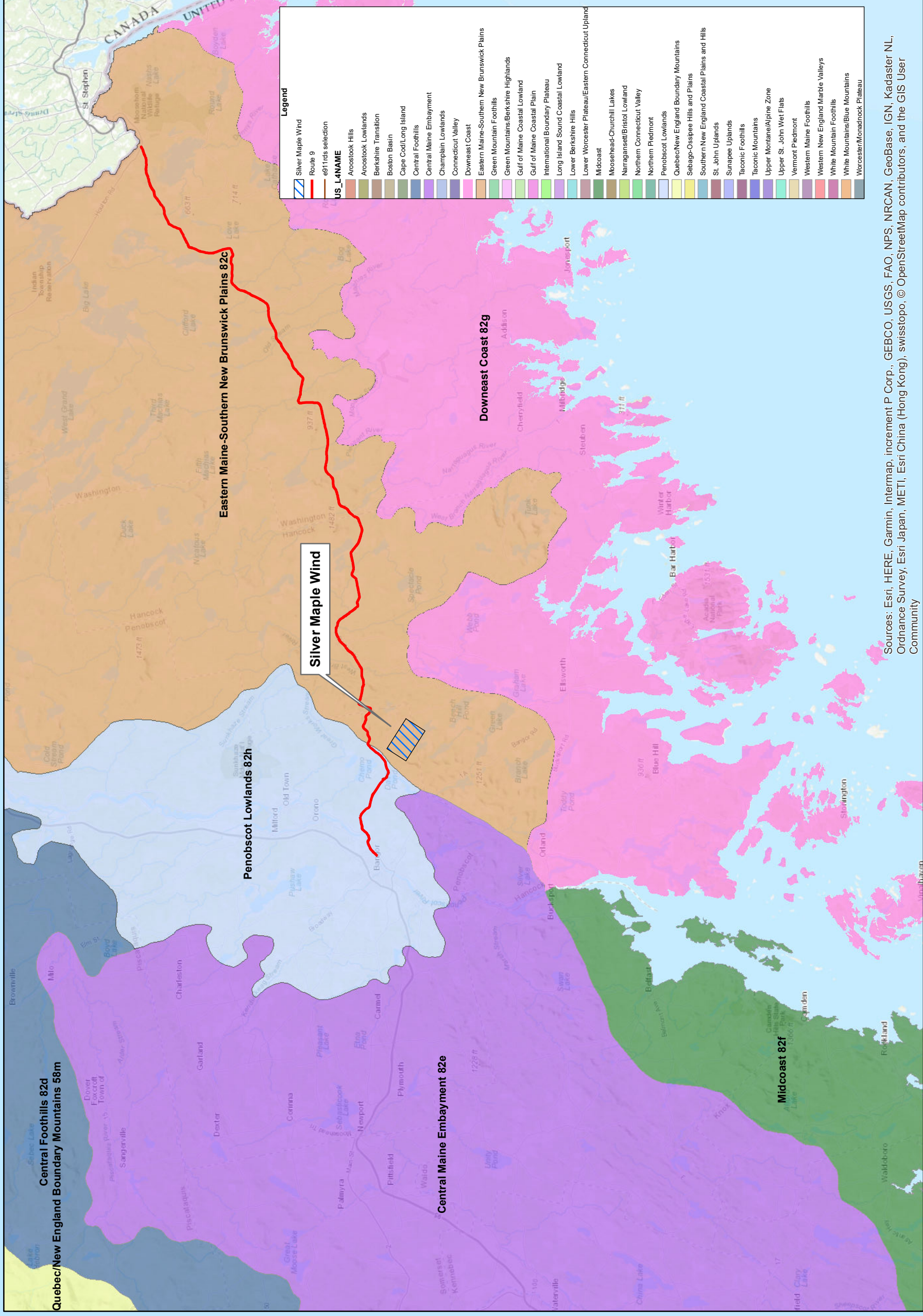
MAP NOTES:

1. AERIAL PHOTO BASE MAP FROM IMAGERY IS 1-M 2013 NAIP IMAGERY BY USDA, FSA, TOPOGRAPHIC QUAD FROM ESRI, 2015.
2. WETLANDS SHOWN HEREON WERE DELINEATED IN JULY 2018. WETLANDS WERE FIELD DELINEATED IN ACCORDANCE WITH U.S. ARMY CORPS OF ENGINEERS STANDARDS BY CES, INC.
3. FEATURES DEPICTED ON THIS PLAN WERE LOCATED USING A MAPPING GRADE SUB-METER CAPABLE GPS/GNSS RECEIVER.
4. MAP IS PROJECTED USING UTM ZONE 19 COORDINATES, AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).
5. NORTH ARROW IS ORIENTED TO GRID NORTH IN ALL MAP EXTENTS DEPICTED HEREIN.



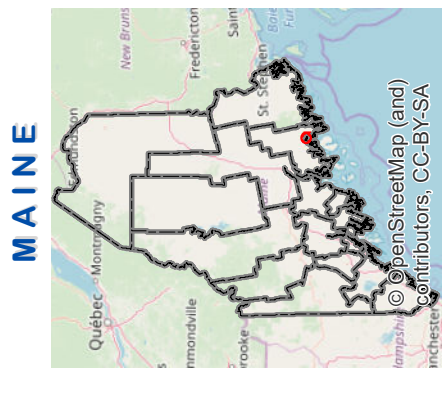
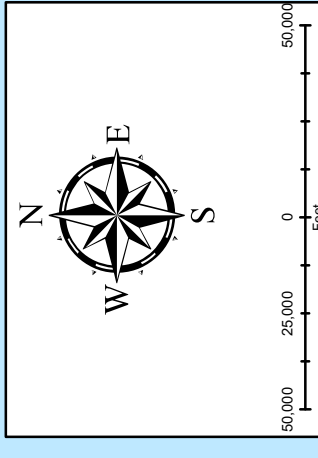
K:\D_P11657-SWEB_Development\03_SilverMaple Wind Farm-T18B107-GIS_Data\KXD\All Maps\SilverMaple NR Map.mxd

Silver Maple EPA Ecoregions Map



Legend

- Silver Maple Wind
- Route 9
- 6911ds selection
- US_LANAME
- Aroostook Hills
- Aroostook Lowlands
- Berkshire Transition
- Boston Basin
- Cape Cod/Long Island
- Central Foothills
- Central Maine Embayment
- Champlain Lowlands
- Connecticut Valley
- Downeast Coast
- Eastern Maine-Southern New Brunswick Plains
- Green Mountain Foothills
- Green Mountains/Berkshire Highlands
- Gulf of Maine Coastal Lowland
- Gulf of Maine Coastal Plain
- International Boundary Plateau
- Long Island Sound Coastal Lowland
- Lower Berkshire Hills
- Lower Worcester Plateau/Eastern Connecticut Upland
- Midcoast
- Moosehead-Churchill Lakes
- Narragansett/Bristol Lowland
- Northern Connecticut Valley
- Northern Piedmont
- Penobscot Lowlands
- Quebec/New England Boundary Mountains
- Seaboard-Osagee Hills and Plains
- Southern New England Coastal Plains and Hills
- St. John Uplands
- Sunapee Uplands
- Taconic Foothills
- Taconic Mountains
- Upper Montane/Alpine Zone
- Upper St. John Wet Flats
- Vermont Piedmont
- Western Maine Foothills
- Western New England Marble Valleys
- White Mountain Foothills
- White Mountains/Blue Mountains
- Worcester/Monadnock Plateau



Project Title: Silver Maple Wind Farm
Project Description: Ecoregions Map
Address: Route Clifton, Maine

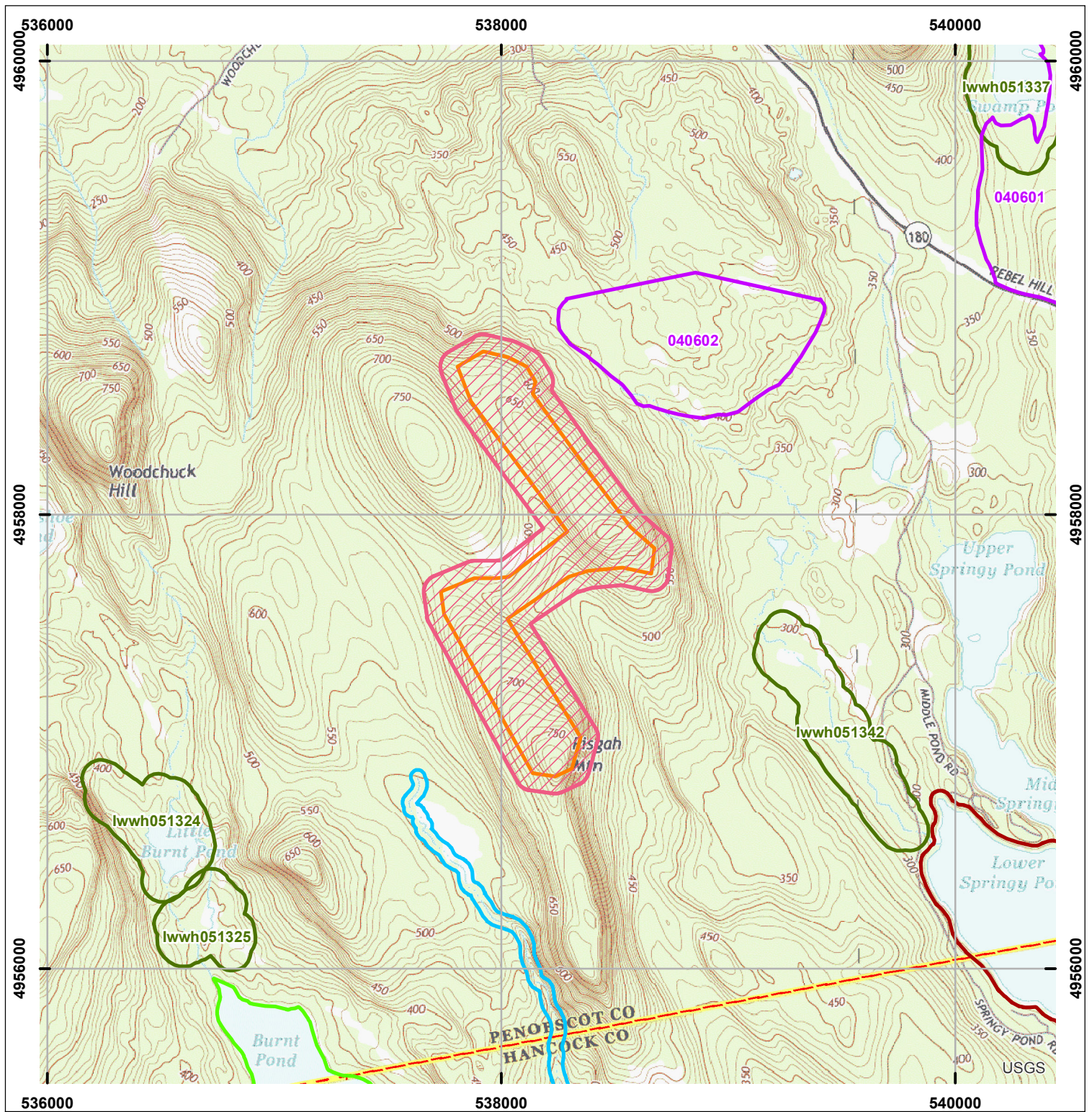
Project No.: 11657.006
 By: NAI
 Date: 6/28/19
 Updated: 6/28/2019
 By: [ireland]

MAP NOTES:

1. AERIAL PHOTO BASE MAP FROM IMAGERY IS 1-M 2013 NAIP IMAGERY BY USDA, FSA, TOPOGRAPHIC QUAD FROM ESRI, 2015.
2. MAP IS PROJECTED USING UTM ZONE 19 COORDINATES, AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).
3. NORTH ARROW IS ORIENTED TO GRID NORTH IN ALL MAP EXTENTS DEPICTED HEREIN.



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

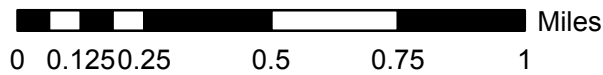


Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Clifton, Silver Maple Wind (Version 2)



Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 6/6/2019

ProjectPoints	Deer Winter Area	Roseate Tern
ProjectLines	LUPC p-fw	Piping Plover/Least Tern
ProjectPolys	Cooperative DWAs	Aquatic ETSc (2.5 mi review)
ProjectSearchAreas	Seabird Nesting Islands	Rare Mussels (5 mi review)
	Shorebird Areas	Maine Heritage Fish Waters
	Inland Waterfowl/Wading Bird	Arctic Charr Habitat
	2008 lwwh (Shoreland Zoning)	Redfin Pickerel/Swamp Darter Habitats (buffer100ft)
	Tidal Waterfowl/Wading Bird	Special Concern-occupied habitats(100ft buffer)
	Significant Vernal Pools	Wild Lake Trout Habitats
	Environmental Review Polygons	





STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



June 8, 2019

Tim Brochu
CES, Inc.
P.O. Box 639
Brewer, ME 04412

RE: Information Request - Silver Maple Wind, Clifton

Dear Tim:

Per your request, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and fisheries habitat concerns within the vicinity of the *Silver Maple Wind Project* in Clifton. Note that our comments are non-specific and should be considered preliminary. Also note that the guidance and recommendations in this letter and corresponding attachments should not be considered our Agency's complete list of resource concerns. Therefore, we strongly encourage you to continue to correspond with our Agency to discuss site-specific recommendations and additional concerns as your project continues to develop.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bats

Of the eight species of bats that occur in Maine, the three *Myotis* species are protected under Maine's Endangered Species Act (MESA) and are afforded special protection under 12 M.R.S §12801 - §12810. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat.

While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during migration and/or the breeding season. We also recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (Wende Mahaney, 207-902-1569) for further guidance, as the northern long-eared bat is also listed as a Threatened Species under the Federal Endangered Species Act.

Recommendations for wind energy facility operational practices to avoid or minimize significant detrimental impacts to Endangered, Threatened, and Special Concern bat species in Maine have been well studied and documented most recently in MDIFW's March 5, 2018 Maine Wind Power

Preconstruction Recommendations and Turbine Curtailment Recommendations to Avoid/Minimize Bat Mortality (Wind Power Guidance, attached to the corresponding email). As noted in the Wind Power Guidance, MDIFW recommends siting projects away from key bat habitats and seasonal operational curtailment measures that will be protective and provide the best opportunity for reestablishment of Maine's imperiled bats. It is MDIFW's position that the only adequate protection for bats at wind power facilities at this time is seasonal curtailment of turbines under appropriate conditions, though continuing research may lead to other avoidance measures in the future.

MDIFW's curtailment recommendations are based on project-specific and site-specific considerations; recent recommendations for other similar facilities; seasonality; proximity to specific habitats important to bats; and ambient temperatures. In the two most recent projects reviewed, MDIFW recommended that turbines operate only at cut-in wind speeds exceeding 6.0 meters per second each night (from at least ½ hour before sunset to at least ½ hour after sunrise) during the period April 15 –September 30, whenever the ambient air temperature is at or above 32 degrees Fahrenheit, measured at both ground level and nacelle hub height. Additionally, based on higher bat mortality during July – September demonstrated through post-construction project monitoring in Maine and research elsewhere, MDIFW recommended increased curtailment wind speeds during this period.

One facility agreed to increase its curtailment wind speed to 6.9 m/s from July 15-September 15, while the second agreed to 6.5 m/s during the same timeframe. The former facility was issued an Incidental Take Permit pursuant to MESA in consideration of these more protective measures. For all facilities, cut-in speeds are determined based on mean wind speeds measured at nacelle hub heights of a turbine over a 10-minute interval. MDIFW advises that turbines be feathered during curtailment and allowed to turn at no more than one revolution per minute to minimize risks of bat mortality.

Avian Resources in Maine's Coastal Plain

Although it is recognized that a catastrophic, population-level mortality event has not yet been reported, MDIFW's concerns for potential songbird impacts from wind energy development in the Downeast coastal plain remain. The best available science on bird migration patterns across Maine, data from recent radar studies, information on predominant weather conditions that cause lower migration flight heights, and knowledge of migratory stopovers/staging areas used by bird guilds have helped determine regions of greater risk to migratory birds (MDIFW unpublished data). These factors, as well as post-construction wind project fatality monitoring data, have demonstrated that Maine's coastal plain is principal among them, and thus an area of significant concern to the Department. The concentration of migratory birds in the coastal plain is greater than in other areas of Maine and the seasonal and daily movement patterns are unique for represented guilds, creating a very complex dynamic. Our concerns for songbird migration and wind power development in this region of Maine, as well as other resource concerns and recommendations, are more clearly captured in MDIFW's March 5, 2018 Avian Resources in Maine's Coastal Plain (attached to the corresponding email.)

MDIFW has explored turbine curtailment as an effective means in avoiding or minimizing mortality of migrating songbirds; however, neither a definitive means for identifying and timing curtailment practices for songbirds nor its quantifiable value have been validated by research. Turbine curtailment is widely used and accepted as a means to avoid or minimize bat fatality, but for it to be accepted as an

operational practice for avoiding or minimizing songbird mortality, it needs to be defensibly proven as viable.

Recognizing that research is ongoing but as of yet unproven, recent conversations with a wind power developer in this region resulted in conservation efforts to provide mitigation of impacts to songbirds. These conservation measures were recently adopted into the Maine Department of Environmental Protection permit issued for this project. As such, MDIFW is willing to work closely with the applicant to explore adequate and appropriate mitigation of anticipated and potential impacts to songbirds from the Silver Maple Wind Project.

Significant Wildlife Habitat

Deer Wintering Areas

The project search area appears to intersect or is immediately adjacent to a Deer Winter Area (DWA). DWAs contain habitat cover components that provide conditions where deer find protection from deep snow and cold wind, which is important for overwinter survival. MDIFW recommends that development projects be designed to avoid losses or impacts to the continued availability of coniferous winter shelter. Any removal of vegetation should be conducted in such a way that improves the quality and vigor of the coniferous species providing this winter shelter.

Significant Vernal Pools

Based on the information provided in your letter, we do not anticipate impacts to Significant Vernal Pools as a result of your project. Should the project layout be revised in the future, please consult our Agency for the need for further surveys.

Fisheries Habitat

We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams that support coldwater fisheries is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fish and

Letter to Tim Brochu
Comments RE: Clifton, Silver Maple Wind
June 8, 2019

fisheries habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

A handwritten signature in blue ink, appearing to read 'John Perry', with a stylized flourish at the end.

John Perry
Environmental Review Coordinator



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY

177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

June 5, 2019

Michael Thompson
CES
465 South Main Street
Brewer, ME 04412

Via email: mthompson@cesincusa.com

Re: Rare and exemplary botanical features in proximity to: #11657.006, Silver Maple Wind Project, Clifton, Maine

Dear Mr. Thompson:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received June 5, 2019 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Clifton, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

Letter to CES
Comments RE: Silver Maple Wind, Clifton
June 5, 2019
Page 2 of 2

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kristen Puryear".

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

Rare and Exemplary Botanical Features within 4 miles of Project: #11657.006, Silver Maple Wind, Clifton, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Awne'd Flatsedge						
	SC	S2	G5	1897-09-16	6	Non-tidal rivershore (non-forested, seasonally wet)
Low-elevation Bald						
	<null>	S3	GNR	1997-08-28	6	Rocky summits and outcrops (non-forested, upland)
Northern Hardwoods Forest						
	<null>	S5	G3G5	1997-07-17	1	Hardwood to mixed forest (forest, upland)
Orono Sedge						
	T	S3	G3	1916-07-18	6	Old field/roadside (non-forested, wetland or upland)
Sandy Lake-bottom						
	<null>	S5	GNR	1999-07-13	5	Open water (non-forested, wetland)
Showy Lady's-slipper						
	SC	S3	G4G5	ND	23	Forested wetland, Open wetland, not coastal nor rivershore (non-forested, wetland)
Smooth Sandwort						
	SC	S3	G4	1997-08-28	5	Rocky summits and outcrops (non-forested, upland)
White Cedar Woodland						
	<null>	S2	GNR	2017-08-09	7	Conifer forest (forest, upland), Dry barrens (partly forested, upland)

STATE RARITY RANKS

- S1** Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2** Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3** Rare in Maine (20-100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.
- SU** Under consideration for assigning rarity status; more information needed on threats or distribution.
- SNR** Not yet ranked.
- SNA** Rank not applicable.
- S#?** Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

- G1** Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
- G2** Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3** Globally rare (20-100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.
- GNR** Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered and Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- E** ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
- T** THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

- SC** SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE** Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
<http://www.maine.gov/dacf/mnap>

IPaC Information for Planning and Consultation U.S. Fish & Wildlife Service

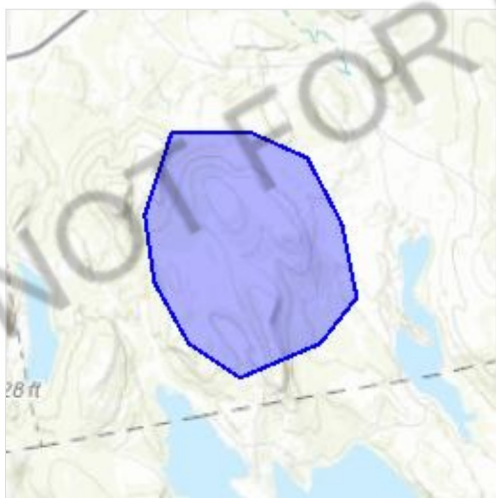
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Penobscot County, Maine



Local office

Maine Ecological Services Field Office

☎ (207) 469-7300

📠 (207) 902-1588

MAILING ADDRESS

P. O. Box A
East Orland, ME 04431

PHYSICAL ADDRESS
306 Hatchery Road
East Orland, ME 04431

<http://www.fws.gov/mainefieldoffice/index.html>

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
 2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Fishes

NAME	STATUS
Atlantic Salmon <i>Salmo salar</i> There is final critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/2097	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Atlantic Salmon <i>Salmo salar</i> https://ecos.fws.gov/ecp/species/2097#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Dec 1 to Aug 31

Cape May Warbler *Setophaga tigrina*

Breeds Jun 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The

number of surveys is expressed as a range, for example, 33 to 64 surveys.

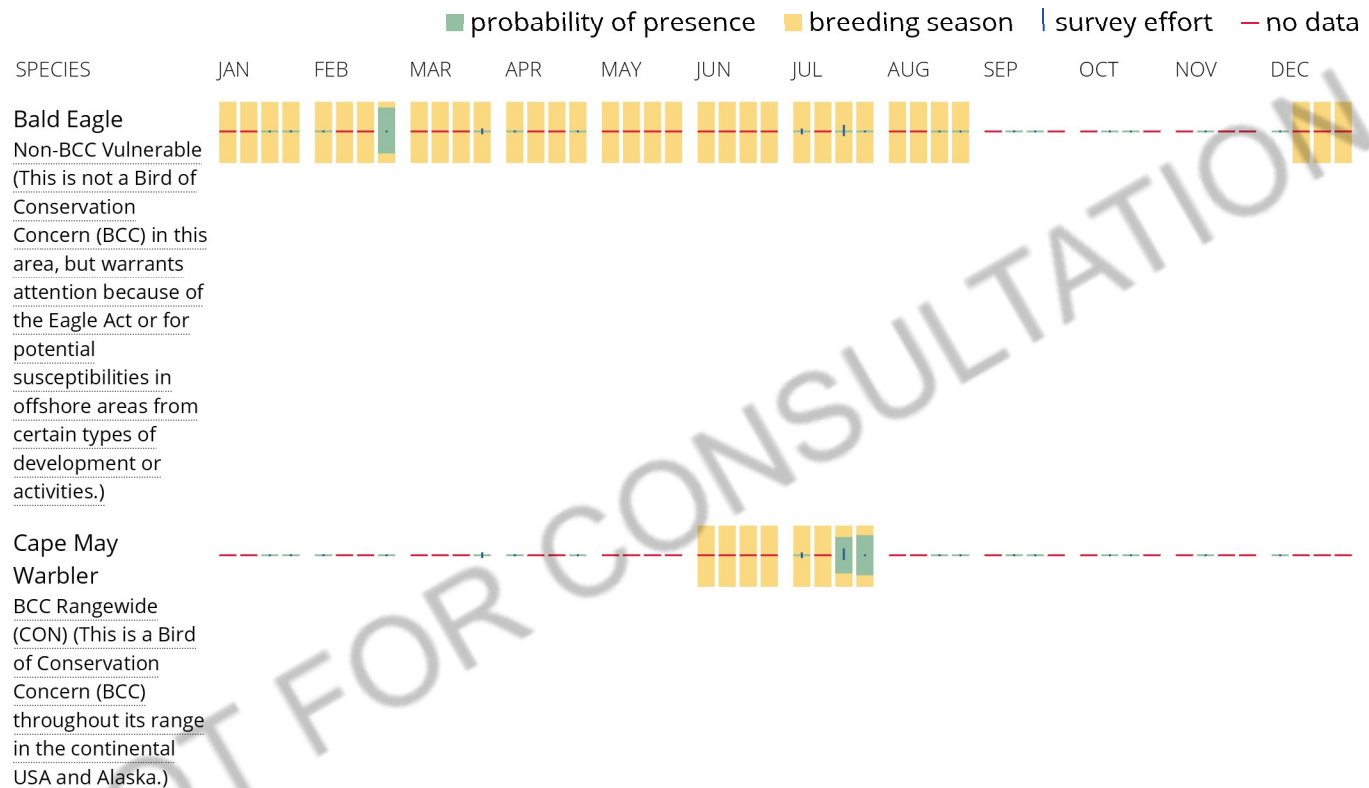
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge](#)

[Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data](#)

[Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1E](#)

[PEM1F](#)

[PEM1Eb](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PFO4/1Eb](#)

[PFO4E](#)

[PFO1E](#)

[PFO1Eb](#)

FRESHWATER POND

[PUBH](#)

[PUBFx](#)

RIVERINE

[R4SBC](#)

[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

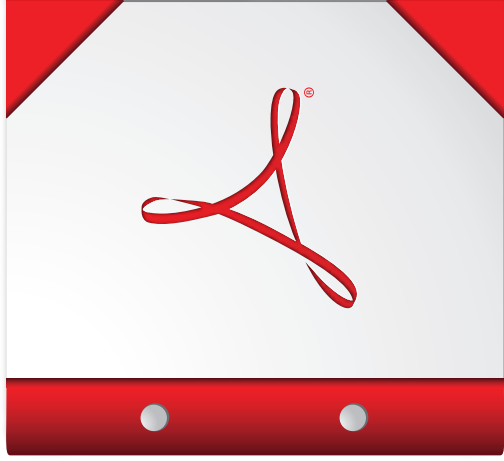
Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

SECTION 7.1

Blue Heron Survey

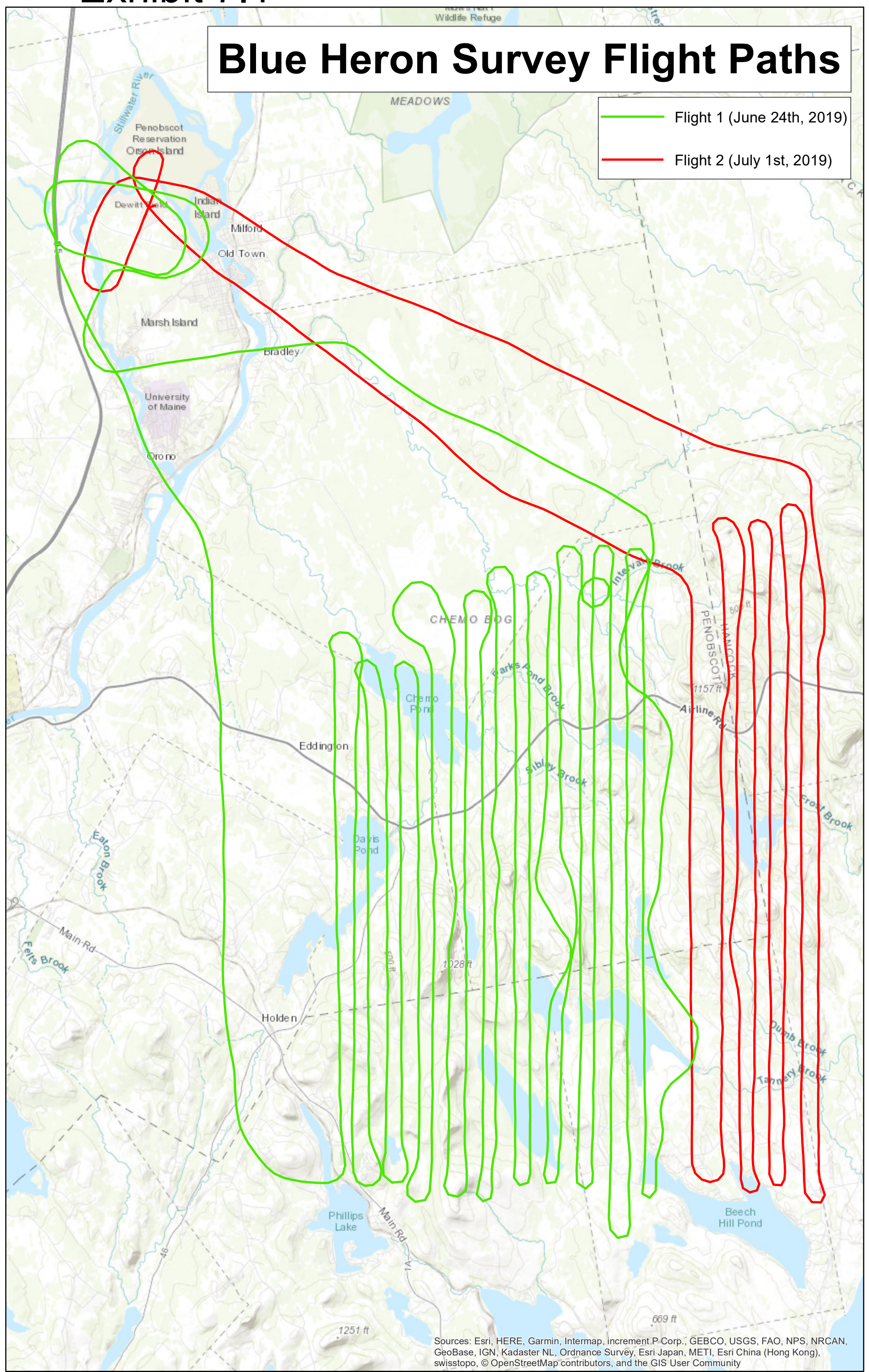


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Blue Heron Survey Flight Paths

- Flight 1 (June 24th, 2019)
- Flight 2 (July 1st, 2019)



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community