



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



March 11, 2019

Sarah Barnum
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

RE: Information Request – Nordic Aquafarms, Belfast

Dear Sarah:

Per your request received March 3, 2019, 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 inland fisheries habitat concerns within the vicinity of the *Nordic Aquafarms Project* in Belfast. For purposes of this review we are assuming tree clearing will be part of your project. Note that as project details are lacking, and due to the general nature and scale of the map that was provided, our comments are non-specific and should be considered preliminary.

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 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. Otherwise, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

Significant Wildlife Habitat

Tidal Waterfowl and Wading Bird Habitats

This search area includes Tidal Waterfowl and Wading Bird Habitat (TWWH), a Significant Wildlife Habitat under Maine's Natural Resources Protection Act. TWWHs provide important feeding and/or breeding habitat for diverse waterfowl and wading bird species. Birds utilize intertidal mudflats, eelgrass,

and mussel beds to forage for aquatic invertebrates, a primary food source, and maintaining natural tidal flow is essential to maintaining healthy intertidal areas and food sources to support waterfowl and wading bird species. We recommend you contact MDIFW Region B wildlife staff (207-287-5369) to discuss methods to limit impacts to these wildlife resources.

Significant Vernal Pools

At this time, MDIFW Significant Wildlife Habitat maps indicate no known presence of Significant Vernal Pools in the project search area; however, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before to the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

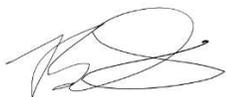
Fisheries Habitat

We recommend that a 100-foot undisturbed vegetated buffer be maintained along the reservoir. Buffers should be measured from the mean high water line at the edge of lake or the edge of any associated wetlands. Maintaining and enhancing buffers along water bodies 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 as well as providing habitat for many terrestrial species. 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 fisheries habitat. In addition, we recommend that any necessary in-water work occur between July 15 and October 1.

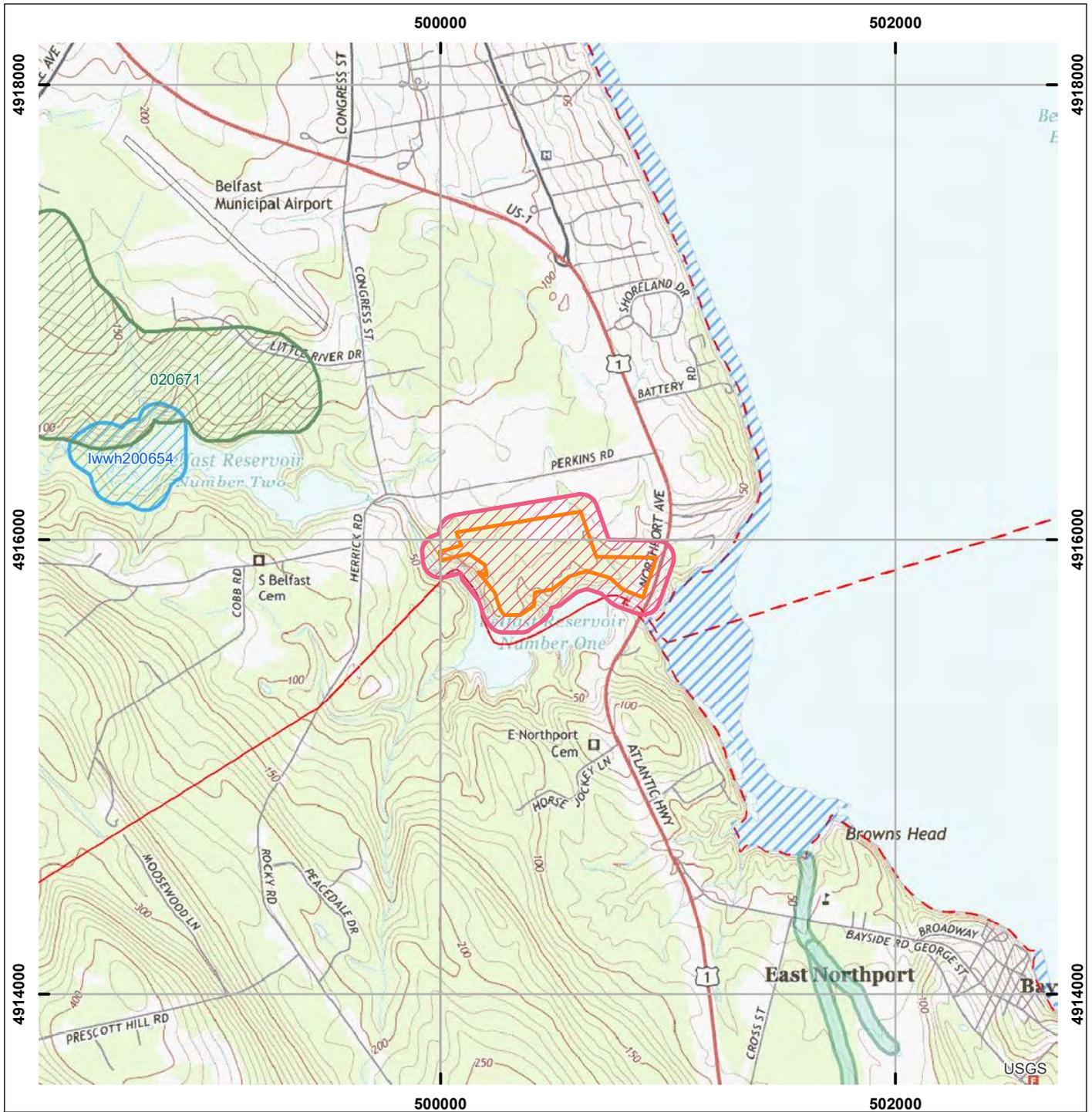
This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional 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,



Becca Settele
Wildlife Biologist

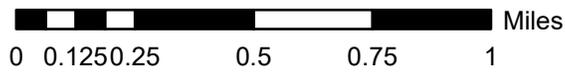


Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Belfast, Nordic Aquafarms (Version 1)



Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 3/6/2019

- ProjectPolys
- ProjectSearchAreas
- Deer Winter Area
- Inland Waterfowl/Wading Bird
- Tidal Waterfowl/Wading Bird
- Special Concern-occupied habitats(100ft buffer)



Beginning with HABITAT
 An Approach to Conserving Maine's Natural Space for Plants, Animals, and People

Primary Map 1
Water Resources & Riparian Habitats
Belfast

This map is non-regulatory and is intended for planning purposes only.



LEGEND

This map depicts riparian areas associated with major surface water features and important public water resources. This map does not depict all streams or wetlands known to occur on the landscape and should not be used as a substitute for on the ground surveys. This map should be used as a planning reference only and is intended to illustrate the natural hydrologic connections between surface water features. Protecting riparian habitats protects water quality, maintains habitat connections, and safeguards important economic resources including recreational and commercial fisheries.

- Selected Town or Area
- Organized Township Boundary
- Unorganized Township
- Developed-impervious surfaces including buildings and roads
- Drainage divides - These are the smallest hydrologic units mapped in Maine. They contain watershed boundaries for most ponds and rivers in Maine.
- NWI Wetlands - National Wetlands Inventory (NWI) uses aerial photographs to approximate wetland locations. NWI data is not a comprehensive mapping of wetland resources and typically under-represents the presence of wetlands on the landscape. The presence of wetlands needs to be determined in the field prior to conducting activities that could result in wetland disturbance.
- Riparian Habitat - depicted using common regulatory zones including a 200-foot buffer along Great Falls (over 10 acres) river, coastline, and wetlands 210 acres and a 75-foot-wide strip around streams. Riparian areas depicted on this map may already be affected by existing land uses.
- Shadblow Growing Areas - The Maine Department of Marine Resources maps growing areas for economically important shellfish resources. This map depicts softshell and hard clam resources in order to illustrate the relation of these resources to streams and shoreline areas vital to their conservation.
- Brook Trout Habitat - Streams and ponds, buffered to 100 feet where wild Brook Trout populations have been documented, or managed to enhance local fisheries.
- Public Water Supply Wells
- Source protection areas - Buffers that represent source water protection areas for wells and surface water intakes that serve the public water supply. Their size is proportional to population served and/or by the type of water supply system. These buffers range from 300 to 2,500 feet in radius.
- Aquifers - flow of at least 10 gallons per minute



Relationship of Ground Water and Surface Water

Precipitation is the source of all water. Surface water and ground water are related. Drinking water can come from either source. Groundwater can have an effect on the surface water. The relationship between ground water and surface water is part of the hydrologic cycle. Precipitation that falls from the atmosphere as rain or snow reaches the land surface and recharges rivers, lakes, wetlands, and other surface bodies of water directly through overland runoff. Surface water also seeps into the ground through infiltration and eventually recharges the ground water, or through evaporation, returns to the atmosphere. Water evaporates from leaves and stems of plants through transpiration.

Shoreland Zoning

Maine's Mandatory Shoreland Zoning Act is intended to protect water quality, conserve wildlife habitat, and preserve the natural beauty of Maine's shoreline areas. Successful implementation requires local awareness of and appreciation for surface water resources and effective enforcement of setback and buffer requirements.

At a minimum, Maine's shoreland zones include all land within:

- 250 feet of the high-water line of any pond over 10 acres, any river that drains at least 25 square miles, and all tidal waters and saltwater marshes;
- 250 feet of a freshwater wetland over 10 acres (except "forested" wetlands); and
- 75 feet of a stream that is either an outlet stream of a ground pond, or located below the confluence of two perennial streams as depicted on a USGS topographic map.

Shoreland zoning encourages towns to provide greater protection to their local water resources by applying shoreland zone protections to additional resource types such as smaller streams and wetlands, and rare terrestrial features. For specific guidance regarding Maine's Mandatory Shoreland Zoning Act contact the Dept. of Environmental Protection Shoreland Zoning Unit: 207-624-2601 (Augusta), 207-624-2600 (Portland), 207-624-1416 (Bangor) www.maine.gov/demv/water/shorelandzoningpage.htm

Data Sources

DATA SOURCE BYMAPS.DOT

- COASTLINE: US Coast Guard
- MAINE COUNTY BOUNDARIES: Maine Department of Information Systems
- MAINE TOWN BOUNDARIES: Maine Department of Information Systems
- UNORGANIZED TOWNSHIP BOUNDARIES: Maine Department of Information Systems
- DEVELOPED-IMPERVIOUS SURFACES: Maine Department of Information Systems
- WETLANDS: National Wetlands Inventory (NWI) data from the U.S. Fish and Wildlife Service
- RIPIARIAN HABITAT: Maine Department of Marine Resources
- SHADBLOW GROWING AREAS: Maine Department of Marine Resources
- BROOK TROUT HABITAT: Maine Department of Marine Resources
- SOURCE PROTECTION AREAS: Maine Department of Marine Resources
- AQUIFERS: Maine Department of Marine Resources

DATA SOURCE CONTACT INFORMATION

- MAINE COUNTY BOUNDARIES: Maine Department of Information Systems, 207-624-2600
- MAINE TOWN BOUNDARIES: Maine Department of Information Systems, 207-624-2600
- UNORGANIZED TOWNSHIP BOUNDARIES: Maine Department of Information Systems, 207-624-2600
- DEVELOPED-IMPERVIOUS SURFACES: Maine Department of Information Systems, 207-624-2600
- WETLANDS: National Wetlands Inventory (NWI) data from the U.S. Fish and Wildlife Service, 202-954-6200
- RIPIARIAN HABITAT: Maine Department of Marine Resources, 207-624-2600
- SHADBLOW GROWING AREAS: Maine Department of Marine Resources, 207-624-2600
- BROOK TROUT HABITAT: Maine Department of Marine Resources, 207-624-2600
- SOURCE PROTECTION AREAS: Maine Department of Marine Resources, 207-624-2600
- AQUIFERS: Maine Department of Marine Resources, 207-624-2600

Beginning with HABITAT
 An Approach to Conserving Maine's Natural Space for Plants, Animals, and People
 www.beginningwithhabitat.org

Primary Map 2
High Value Plant & Animal Habitats
Belfast

This map is non-regulatory and is intended for planning purposes only.



LEGEND

Beginning with Habitat (BwH) is a voluntary tool intended to assist landowners, resource managers, planners, and municipalities in identifying and making informed decisions about areas of potential natural resource concern. This data includes the best available information provided through local resource inventories as of the map date, and is intended for information purposes only. It should not be interpreted as a comprehensive analysis of plant and animal occurrences or other local resources, but rather as an initial screen to flag areas where agency consultation may be appropriate. Habitat data sets are updated continuously as more accurate and current data becomes available. However, as many areas have not been completely surveyed, features may be present that are not yet mapped, and the boundaries of some depicted features may need to be revised. Local knowledge is critical in providing accurate data. If errors are noted in the current depiction of resources, please contact our office. Some habitat features depicted on this map are regulated by the State of Maine through the Maine Endangered Species Act (Essential Habitats and threatened and endangered species occurrences) and Natural Resources Protection Act (significant Wildlife Habitats). We recommend consultation with MEOW Regional Biologists or MMAP Ecologists if activities are proposed within resource areas depicted on this map. Consultation early in the planning process usually helps to resolve regulatory concerns and minimize agency review time. For MEOW and MMAP contact information, visit <http://www.beginningwithhabitat.org/contact/index.html>.

- Organized Township Boundary
- Unorganized Township
- Selected Town or Area of Interest
- Developed Impervious surfaces such as buildings and roads

Rare, Threatened, or Endangered Wildlife

- Known rare, threatened, or endangered species occurrence and/or the associated habitats based on species sightings.

Consult with an MEOW regional ecologist to determine the relative importance and conservation needs of the location and supporting habitat. The names of some species have been marked with a "Rare Animal" designation on the map for further protection. For more information regarding tracked species, visit our website: <http://www.maine.gov/wildlife/endangered/index.html> for species specific fact sheets.

The Federal Endangered Species Act requires actions authorized, funded, or carried out by federal agencies to review the U.S. Fish and Wildlife Service. If your project occurs near an occurrence of the Atlantic Salmon, Roseate Tern, Piping Plover, Canada Lynx, New England Cottontail, Fishy's Cottontail, or Smokedivided Pupfish contact the Maine Field Office, USFWS, 1165 Main St., Old Town, ME 04468.

Rare or Exemplary Plants and Natural Communities

- Rare Plant Locations
 - Known rare, threatened, or endangered plant occurrences are based on field observations. The names of some species have been marked with a "Rare Plant" designation on the map for further protection. Consult with a Maine Natural Areas Program (MNAP) Ecologist to determine conservation needs of particular species, or for more information regarding rare plants the complete list of tracked species and fact sheets for those species can be found at: <http://www.maine.gov/wildlife/endangered/index.html>
 - Rare or Exemplary Natural Community Locations
- The MMAP has classified and distinguished 98 different natural community types that collectively cover the state's landscape. These include such habitats as Ecotone forests, coastal bogs, alpine summits, and many others. Each type is assigned a rarity rank of 1 (rare) through 5 (common). Mapped rare natural communities or ecosystems, or essentially examples of common natural communities or ecosystems, are based on field surveys and aerial photo interpretation. Consult with an MMAP Ecologist to determine conservation needs of particular communities or ecosystems.

Essential Wildlife Habitats

- Roseate Tern Nesting Area or Piping Plover/Least Tern Nesting, Feeding, & Brood-Rearing Area
- Maine's Department of Inland Fisheries & Wildlife (MEFW, www.state.maine.gov) maps areas essential for providing habitat essential to the conservation of endangered or threatened species as directed by the Maine Endangered Species Act (12 M.R.S.A. Chapter 825, Sections 1, Sections 1205 and 1206) and regulations (MEOW Rules, Chapter 8.05). Identification of Essential Habitat areas is based on species observations and confirmed habitat use. If a project occurs partly or wholly within an Essential Habitat, it must be evaluated by MEOW before state and/or municipal permits can be approved or project activities can take place.
- Candidate Deer Wintering Area
- Forested areas possibly used by deer for shelter during periods of deep snow and cold temperatures. Assessing the current value of a deer wintering area requires onsite investigation and verification by IFW staff. Locations depicted should be considered as approximate only.
- Inland Waterfowl / Wading Bird
- Freshwater breeding, migration/stopover, and wintering habitats for inland waterfowl or breeding, feeding, foraging, migration, or roosting habitats for inland wading birds.
- Seabird Nesting Island
- An island, ledge, or portion thereof in tidal waters with documented, nesting seabirds or suitable nesting habitat for endangered seabirds.
- Shorebird Areas
- Coastal staging areas that provide feeding habitat like tidal mud flats or roosting habitat like grassy or sandy spits for migrating shorebirds.
- Tidal Waterfowl / Wading Bird
- Freshwater, migration/stopover, or wintering areas for coastal waterfowl or breeding, feeding, foraging, migration, or roosting areas for coastal wading birds. Tidal Waterfowl/Wading Bird habitats include aquatic beds, edgelines, emergent wetlands, mudflats, seaweed communities, and reefs.
- Significant Vernal Pools
- A pool depression used for breeding by amphibians and other invertebrate species and that portion of the catchment basin within 250 ft of the spring or tall high water mark. A vernal pool must have the following characteristics: natural origin, nonperennial hydroperiod, lack permanent flowing water or outlet, and lack of predatory fish.

Maine's Natural Resources Protection Act
 Maine's Natural Resources Protection Act (NRP Act) is administered by the Maine Department of Environmental Protection (MEP). <http://www.maine.gov/dep/conservation/> provides information on the NRP Act and is intended to prevent further degradation and loss of natural resources in the state, including the above Significant Wildlife Habitats that have been mapped by MEOW. MEOP has regulatory authority over most Significant Wildlife Habitat types. The regional MEOP office should be consulted when considering a project in these areas.

Atlantic Salmon Spawning/Rearing Habitat

- Atlantic Salmon Rearing Habitat
 - Atlantic Salmon Spawning Habitat
 - Atlantic Salmon Limited Spawning Habitat
- Mapped by Atlantic Salmon Commission (ASC) and US Fish & Wildlife Service (USFWS) from field surveys on selected Penobscot and Kennebec River tributaries and the Kennebec, Duckholm, East Machias, Machias, Pleasant, Narraguagus, and Westcott Rivers.

Data Sources

DATA SOURCE: BROWN/CMAA (19)N
 Township boundaries from
 Maine Office of GIS (MapInfo) (2015)
 ROAD
 Maine Office of GIS, Maine Department of Transportation (MapInfo) (2015)
 HYDROLOGY
 U.S. Geological Survey National Hydrography Dataset (NHD) Maine (2012)
 DEVELOPMENT
 Maine Office of GIS, Maine Department of Inland Fisheries and Wildlife, and multiple other agencies:
 ESSENTIAL WILDLIFE HABITATS
 Maine Office of GIS, Maine Department of Inland Fisheries and Wildlife, DWR, ETSC, Epsilon, Epsilon, Epsilon
 MAINE NATURAL COMMUNITIES & PLANTS
 Maine Natural Areas Program (MNAP) (2015)
 ATLANTIC SALMON HABITAT
 Maine Office of GIS, Maine Salmon Commission, U.S. Fish & Wildlife Service (Aerial) (2015)

DATA SOURCE: CONTRACT BY CMAA (19)N
 Maine Office of GIS: <http://www.maine.gov/geospatial/>
 Maine Natural Areas Program: <http://www.maine.gov/naturalareas/>
 Maine Department of Inland Fisheries & Wildlife: <http://www.maine.gov/ifw/>
 Maine Atlantic Salmon Commission: <http://www.maine.gov/salmon/>
 Maine Department of Transportation: <http://www.maine.gov/dot/>

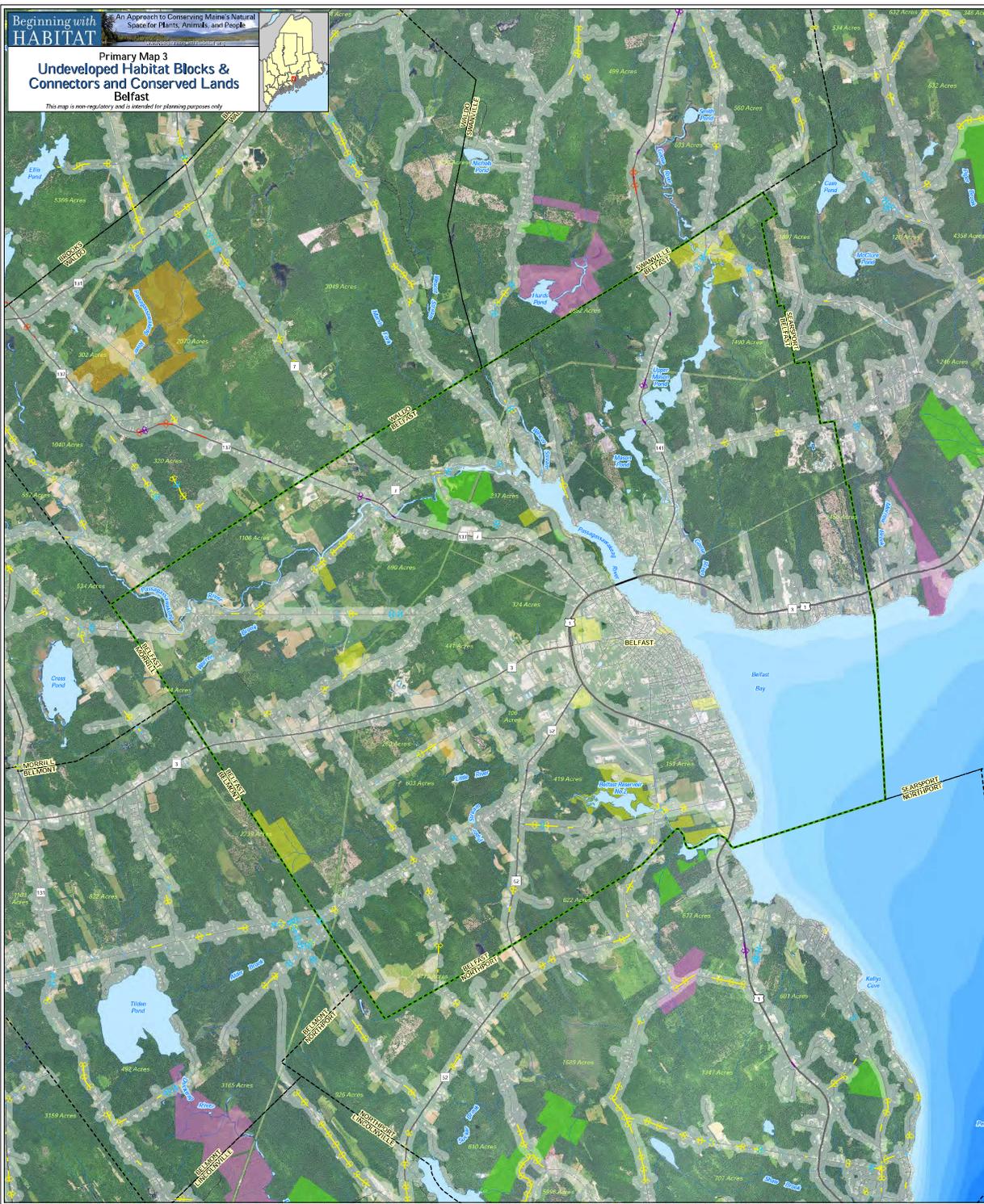
TERMINAL DATA REQUEST
 To request digital data in a form or organization, please visit our website:
http://www.beginningwithhabitat.org/mma_request.html



Beginning with HABITAT An Approach to Conserving Maine's Natural Space for Plants, Animals, and People

**Primary Map 3
Undeveloped Habitat Blocks & Connectors
Belfast**

This map is non-regulatory and is intended for planning purposes only.



LEGEND

This map highlights undeveloped natural areas likely to provide core habitat blocks and habitat connectors that facilitate species movements between blocks. Undeveloped habitat blocks provide relatively undisturbed habitat conditions required by many of Maine's species. Habitat connectors provide necessary opportunities for wildlife to travel between preferred habitat types in search for food, water, and mates. Roads and development fragment habitat blocks and can be barriers to moving wildlife. By maintaining a network of interconnected blocks, towns, and land trusts can protect a wide variety of Maine's species—both rare and common—to help ensure rich species diversity long into the future. Maintaining a network of these large rural open spaces also protect future opportunities for forestry, agriculture, and outdoor recreation.

- Organized Township Boundary
- Unorganized Township
- Selected Town or Area of Interest

Habitat Blocks

- 250-500 foot buffer around improved roads and developed areas based on development intensity.
- Undeveloped Habitat Block: Remaining land outside of Development Buffers. Blocks greater than 100 acres are labeled with their estimated acreage.

Approximate Road Crossing Habitat Connections

Represented habitat connections identified through computer modeling highlight locations where quality habitat is likely to occur on both sides of a given road between undeveloped habitat blocks greater than 100 acres and between higher wildlife corridors. These representations are approximate and have not been field verified.

Undeveloped Block Connections

Likely road crossing areas linking undeveloped habitat blocks greater than 100 acres. The threat of habitat fragmentation and animal mortality corresponds to traffic volume.

- Yellow lines represent habitat road crossings with daily traffic volumes less than 2000 vehicles per day.
- Red lines represent habitat road crossings with daily traffic volumes greater than 2000 vehicles per day.

Riparian Connectors

Likely crossing locations for wetland dependent species moving between waterways and wetlands divided by roads.

- Blue lines represent riparian road crossings with daily traffic volumes less than 2000 vehicles per day.
- Purple lines represent riparian road crossings with daily traffic volumes greater than 2000 vehicles per day.

Highway Bridge Connections

Highway bridges along I-95 and I-295 that span riparian habitat connecting adjacent but separated habitat blocks. These are locations where species are likely to take advantage of infrastructure to move between habitat blocks.

Conserved Lands

The State of Maine's conserved lands database includes lands in federal, state, and non-profit ownership. It does not include many privately owned conservation lands, especially those protected by local land trusts, or town owned conservation lands. For the most accurate and current information about land ownership, consult with the local assessor and/or other local land management agencies. If public access potential to any of the properties identified here is uncertain, landowners should be contacted to determine if permission is necessary.

Ownership Type (transparent layers)

- Federal
- National parks, forests, and wildlife refuges. (Includes Canadian conserved lands.)
- State
- Wildlife Management Areas and other properties managed by the Department of Inland Fisheries and Wildlife, state parks, and parcels managed by the Bureau of Parks & Lands.
- Municipal
- Town parks, water district properties, community forests, etc.
- Private Conservation

Properties owned and managed by private (usually non-profit) organizations such as The Nature Conservancy, Maine Coast Heritage Trust, Trust for Public Land, and local land trusts.

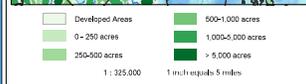
- Foreclosure

Voluntary legal agreements that allow landowners to realize economic benefit by permanently restricting the amount and type of future development and other uses on all or part of their property as they continue to own and use it.

Aerial Imagery

Aerial imagery is often the best tool available to visualize existing patterns of development and resulting changes in the natural landscape. By depicting undeveloped habitat blocks, habitat connectors and conserved lands with aerial photos, the map user can more easily identify opportunities to expand the size and ecological effectiveness of local conservation efforts.

Regional Undeveloped Blocks



Data Sources

- DATA SOURCE INFORMATION**
- TOWNSHIP BOUNDARIES**
Maine Office of GIS, mainecis (2013)
- ROADS**
Maine Office of GIS, Maine Department of Transportation, mainedot (2015)
- HYDROLOGY**
U.S. Geological Survey, NWI, Maine (2012)
- UNDEVELOPED HABITAT BLOCKS, DEVELOPMENT BUFFER, CONNECTORS**
Maine Department of Inland Fisheries and Wildlife (2015)
- CONSERVED LANDS**
Maine Department of Agriculture, Conservation, and Forestry, Land Use Planning Commission, Maine Department of Inland Fisheries and Wildlife, Conserved Lands (2015)
- AERIAL IMAGERY**
U.S. Department of Agriculture, NAIP 2013, state-wide 1-meter color orthorectified
- DATA SOURCE CONTACT INFORMATION**
Maine Office of GIS - <http://www.maine.gov/mo/gis/>
Maine Dept. of Agriculture, Conservation and Forestry - <http://www.maine.gov/acf/>
Maine Dept. of Inland Fisheries & Wildlife - <http://www.maine.gov/ifw/>
Maine Department of Transportation - <http://www.maine.gov/dot/>
Maine Department of Environmental Protection - <http://www.maine.gov/dep/>