# Science Products from the North Atlantic LCC

The North Atlantic Landscape Conservation Cooperative (LCC) works with partners in the Northeast region to develop information, tools, and resources to complement existing information, and support local and regional conservation decisions in the face of major threats, land-use changes, and climate uncertainty.



Shorebird technician Rob Finer collects data with the iPlover smartphone app at Monomoy National Fish and Wildlife Refuge; Participants explore climate data in a workshop on the North Atlantic LCC Conservation Planning Atlas hosted by Highstead Foundation; Scott Jackson of the North Atlantic Aquatic Connectivity Collaborative leads training on assessing road-stream crossings.

**North Atlantic LCC Science Products -** This table provides an overview of the *Foundational Information, Assessment, and Decision Support Tool* science products supported by the North Atlantic LCC. Additional products are available on the North Atlantic LCC Conservation Planning Atlas (please see page 4 to learn more).

| ***Foundational Information*** *- Basis for assessing the condition of and threats to priority resources* | | |
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| **PRODUCT TYPE** | **EXAMPLES with links** | **DESCRIPTION** |
| **Maps/Spatial datasets** (More than 150 regional spatial datasets now available) | Climate: Mean Maximum Summer Temperature 2010-2080 | A collection of datasets that represent the average of the maximum air temperature for June, July, and August for the years 2010 through 2080. |
| | Northeast Terrestrial Habitat Classification and Maps | Data based on NatureServe's Ecological Systems Classification with additional information from state wildlife classifications, and three hierarchal classes: ecological systems, macrogroups, and formation. |
| | Northeast Aquatic Habitat Classification and Map | USGS National Hydrography Dataset Plus centerlines were classified to represent their biophysical setting in terms of size, temperature, gradient, and geology. |
| | Northwest Atlantic Marine Ecoregional Assessment: Ecological Marine Units | Units represent all three-way combinations of seabed forms, sediment grain size, and depth based on ecological thresholds shown by organism relationships. |

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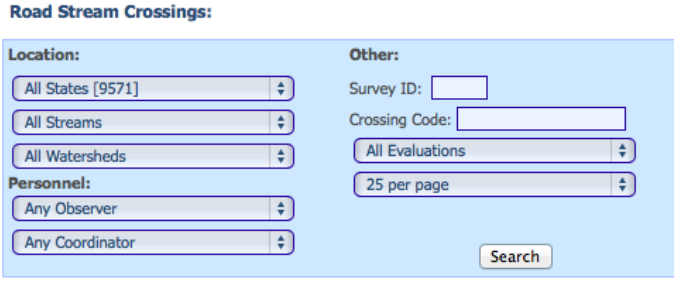
| **Databases** | Vernal Pool Mapping and Conservation | A secure database of vernal pool locations across the Northeast to inform conservation measures and future surveying efforts. |
| | North Atlantic Aquatic Connectivity Collaborative (NAACC) | A web-based clearinghouse for road-stream crossing assessments in the Northeast developed to support a network of partners collaborating to evaluate and upgrade crossing infrastructure across the region. |
| The NAACC's online database provides a repository for standardized road-stream crossing data from across the region, which can help guide efforts to improve aquatic connectivity for species like wood turtle. |  |  |
| ***Assessments*** *- Condition, vulnerability, and major threats to priority resources* | | |
| **Reports** | Vulnerabilities of Northeastern Fish & Wildlife Habitat to Climate Change | A combination of three assessments of the vulnerability of terrestrial, aquatic, and coastal habitats to climate change impacts, including sea-level rise. |
| | Climate Change Vulnerability Index for Northeast species | A regional synthesis of information on species-specific sensitivity factors associated with climate and projected exposure to future changes for 64 species. |
| **Model-based Assessments** | Index of Ecological Integrity | A regional assessment of the relative integrity (including intactness and short-term resiliency) of ecological systems (habitat classes). |
| | Landscape Capability Models of Representative Species | A set of habitat and climate suitability models for 30 representative species across the region representing the needs of a larger set of priority species using similar habitats. |
| | Marine Bird Mapping and Risk Assessment | An analysis of historic and current survey data to identify important marine bird habitat and inform marine spatial planning, including siting offshore energy development. |
| **Publications** | "Interactive effects of climate change with nutrients, mercury, and freshwater acidification on key taxa in the North Atlantic LCC region." Pinkney et al. 2015 | A study examining how climate change could affect the release, dispersal, and impacts of toxic chemicals and excess nutrients in the environment, with case studies focusing on mercury, freshwater acidification, eutrophication, freshwater mussels, and amphibians. |

***Decision Support Tools*** **-** *Including conservation designs that use foundational information and assessments to help partners prioritize and decide how much of what conservation actions are needed where to sustain specific resources*

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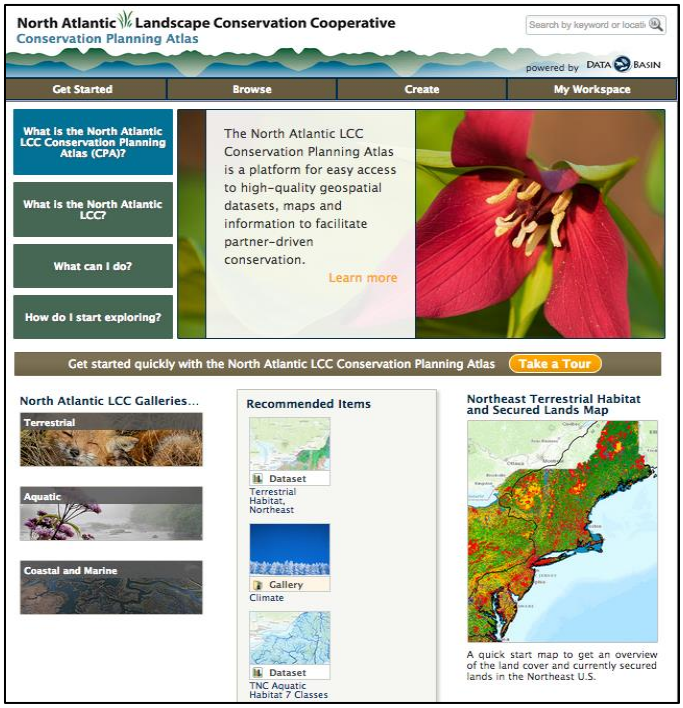
| **Conservation designs, blueprints, and plans** | Connecticut River Watershed Landscape Conservation Design | A collaborative effort using input from diverse partners to develop models and maps that identify key areas in the watershed that can support resilient ecosystems and species as part of an interconnected network of core areas. |
| | Regional Conservation Opportunity Areas | A collaborative effort with State Fish and Wildlife Agencies and other partners to identify Northeast Regional Conservation Opportunity Areas for the conservation of Regional Species of Greatest Conservation Need and their habitats. |
| **Decision-support tools/Models** | Interactive Catchment Explorer | An interactive map interface for exploring datasets related to species, habitats and environmental variable habitat at watershed and catchment multiple scales. |
| | Prioritized HUC 12 Watersheds for Road-Stream Crossing Surveys | An interactive map and Arc GIS query tool that helps prioritizes where to focus survey and restoration efforts for upgrading road-stream crossings (culverts and bridges). |
| **Publications** | "A Bayesian network approach to predicting nest presence of the federally threatened piping plover (*Charadrius melodus*) using barrier island features." Gieder et al. 2014 | A modeling framework that addresses the challenge of predicting ecological impacts of sea-level rise by linking species to physical habitat features that will be impacted and helps guide beach management decisions. |

The Connecticut River Watershed LCD identifies a network of lands and waters that can help sustain important habitats and species into the future. Among the products of this effort are Landscape Capability layers for 15 representative species, including black bear.


*To learn more about North Atlantic LCC Science Products please visit: http://www.northatlanticlcc.org*

# Accessing North Atlantic LCC Science Products

### The North Atlantic LCC Conservation Planning Atlas

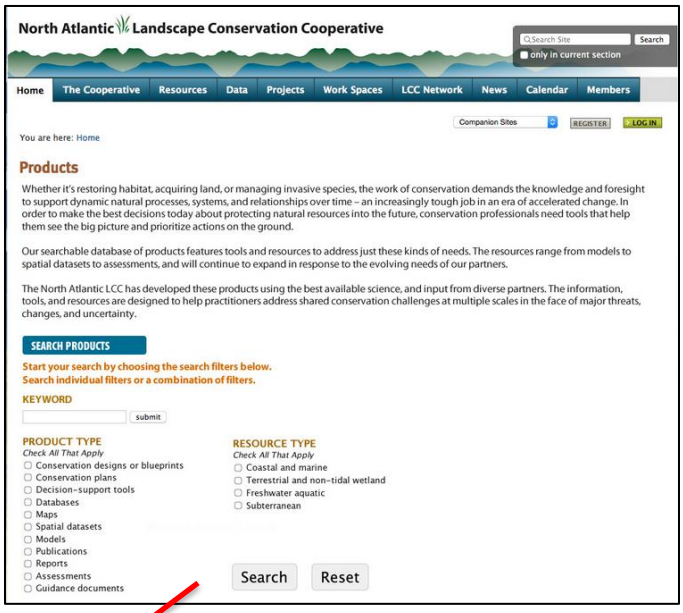



This online portal provides a clearinghouse for regionally consistent conservation tools and datasets supported by the North Atlantic LCC and partners. The CPA allows users to explore and visually compare datasets, view metadata, create and share maps, and download data from the North Atlantic LCC region, as well as other relevant efforts and geographies. At least 14 other LCCs in the LCC Network are also using this platform to share and aggregate resources for regional conservation.

You only need to provide an email address to create a free account, which allows you to download and import data, and save maps.

**Learn more:** http://nalcc.databasin.org/

### The North Atlantic LCC Products Page (*coming soon*)




Whether it's restoring habitat, acquiring land, or managing invasive species, the work of conservation demands the knowledge and foresight to support dynamic natural processes, systems, and relationships over time – an increasingly tough job in an era of accelerated change. In order to make the best decisions today about protecting natural resources into the future, conservation professionals need tools that help them see the big picture and prioritize actions on the ground.

Our searchable database of products features tools and resources to address just these kinds of needs. The resources range from models to spatial datasets to assessments, and will continue to expand in response to the evolving needs of our partners.

The North Atlantic LCC has developed these products using the best available science, and input from diverse partners. The information, tools, and resources are designed to help practitioners address shared conservation challenges at multiple scales in the face of major threats, changes, and uncertainty.

This searchable database allows users to browse all North Atlantic LCC products by category, key word, search filters, or a combination of all three.

By selecting a product from the search results, users will be able to view a brief overview of how the product can be applied, a technical description, contact information for the project's principal investigators and North Atlantic LCC staff, and links to both the product and to related resources.

The search results can also be exported into a spreadsheet.

**Learn more:** http://northatlanticlcc.org/products