

North Atlantic  Landscape Conservation Cooperative



## **Science Project Update and Summary**

**Handout 13**

**North Atlantic LCC**

**Steering Committee Meeting**

**April 16, 2014**

## North Atlantic LCC: 2010-2014 Projects at-a-Glance

For full details on these projects, visit  
<http://www.northatlanticlcc.org/projects>

### Application of the Coastal and Marine Ecological Classification Standards (CMECS) to the Northeast

End Date: December 31, 2013

Project Leader: Mark Anderson

Organization: The Nature Conservancy

### Climate Change Vulnerability Index for Northeast Species

End Date: June 30, 2013

Project Leader: Lesley Sneddon

Organization: NatureServe

### Coastal Update to the National Wetlands Inventory

End Date: September 30, 2013

Project Leader: Scott Klopfer

Lead Organization: Conservation Management Institute at Virginia Tech

### Decision Support to Increase Resiliency of Beach Habitats and Species

End Date: November 2016

Project Managers: Andrew Milliken and Anne Hecht (multiple project leaders)

Lead Organization: North Atlantic LCC

### Decision Support to Increase Resiliency of Tidal Wetland Habitats and Species

End Date: November 2016

Project Leader: Andrew Milliken

Lead Organization: North Atlantic LCC

### Demonstration Project: Marsh Migration

End Date: December 31, 2013

Project Leader: Bob Stratton

Lead Organization: Maine Dept. of Inland Fisheries and Wildlife

### Demonstration Project: Climate Adaptation in Appalachian Forests

End Date: September 30, 2014

Project Leader: John Kostyack

Lead Organization: National Wildlife Federation

### Demonstration Project: White Mountains to Moosehead Lake Initiative

End Date: December 31, 2013

Project Leader: Jad Daley

Lead Organization: Trust for Public Land

### Designing Sustainable Landscapes, Phase I & 2

End Date: June 1, 2012 and June 30, 2014

Project Leader: Kevin McGarigal

Lead Organization: University of Massachusetts-Amherst

### Extending the Northeast Terrestrial Habitat Map to Atlantic Canada

End Date: February 28, 2015

Project Leader: Mark Anderson

Lead Organization: The Nature Conservancy

### Forecasting Changes in Aquatic Systems and Resilience of Brook Trout

End Date: December 31, 2013

Project Leader: Ben Letcher

Lead Organization: U.S. Geological Survey

### Identifying Important Migratory Landbird Stopover Sites in the Northeast

End Date: June 15, 2015

Project Leader: Jeffrey Buler

Lead Organization: University of Delaware

### Marine Bird Mapping and Assessment

End Date: June 30, 2014

Project Leader: Beth Gardner

Lead Organization: North Carolina State University

### Permeable Landscapes for Wildlife in the Northeast

End Date: January 31, 2015

Project Leader: Mark Anderson

Lead Organization: The Nature Conservancy

### Piping Plovers and Sea-level Rise

End Date: August 30, 2014

Project Leader: Sarah Karpanty

Lead Organization: Virginia Tech

### Priority Amphibian and Reptile Conservation Areas (PARCAs)

End Date: December 31, 2014

Project Leader: Priya Nanjappa

Lead Organization: Association of Fish and Wildlife Agencies

### Refine Northeast Aquatic Habitat Classification

End Date: June 30, 2014

Project Leader: Mark Anderson

Lead Organization: The Nature Conservancy

### Restoring Aquatic Connectivity and Increasing Flood Resilience

End Date: November 2016

Project Leaders: Scott Jackson and others

Project Manager: Phil Herzig, U.S. Fish and Wildlife Service

Lead Organization: University of Massachusetts-Amherst

### Terrestrial Wildlife Habitat Models

End Date: September 30, 2011

Project Leader: Therese Donovan

Lead Organization: University of Vermont

### Vernal Pool Mapping and Conservation

End Date: December 1, 2014

Project Leader: Steven Faccio

Lead Organization: Vermont Center for Ecostudies

### Virginia Piedmont and Coastal Plain updates to Northeast habitat map

End Date: June 23, 2012

Project Leader: Mark Anderson

Lead Organization: The Nature Conservancy

### Vulnerabilities to Climate Change of Northeast Fish and Wildlife Habitats, Phase II

End Date: October 31, 2012

Project Leader: Hector Galbraith

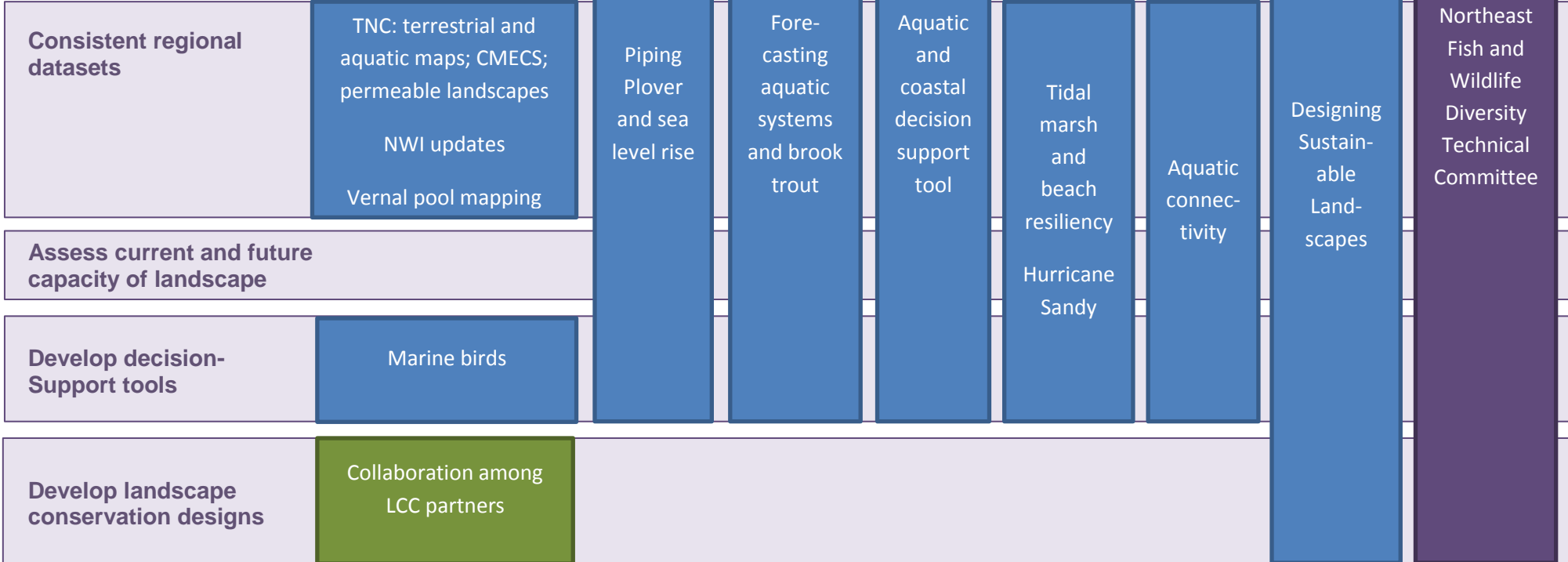
Lead Organization: Manomet Center for Conservation Sciences

# Northeast Conservation Framework (Ecological Planning, Conservation Design) and North Atlantic LCC Science Projects

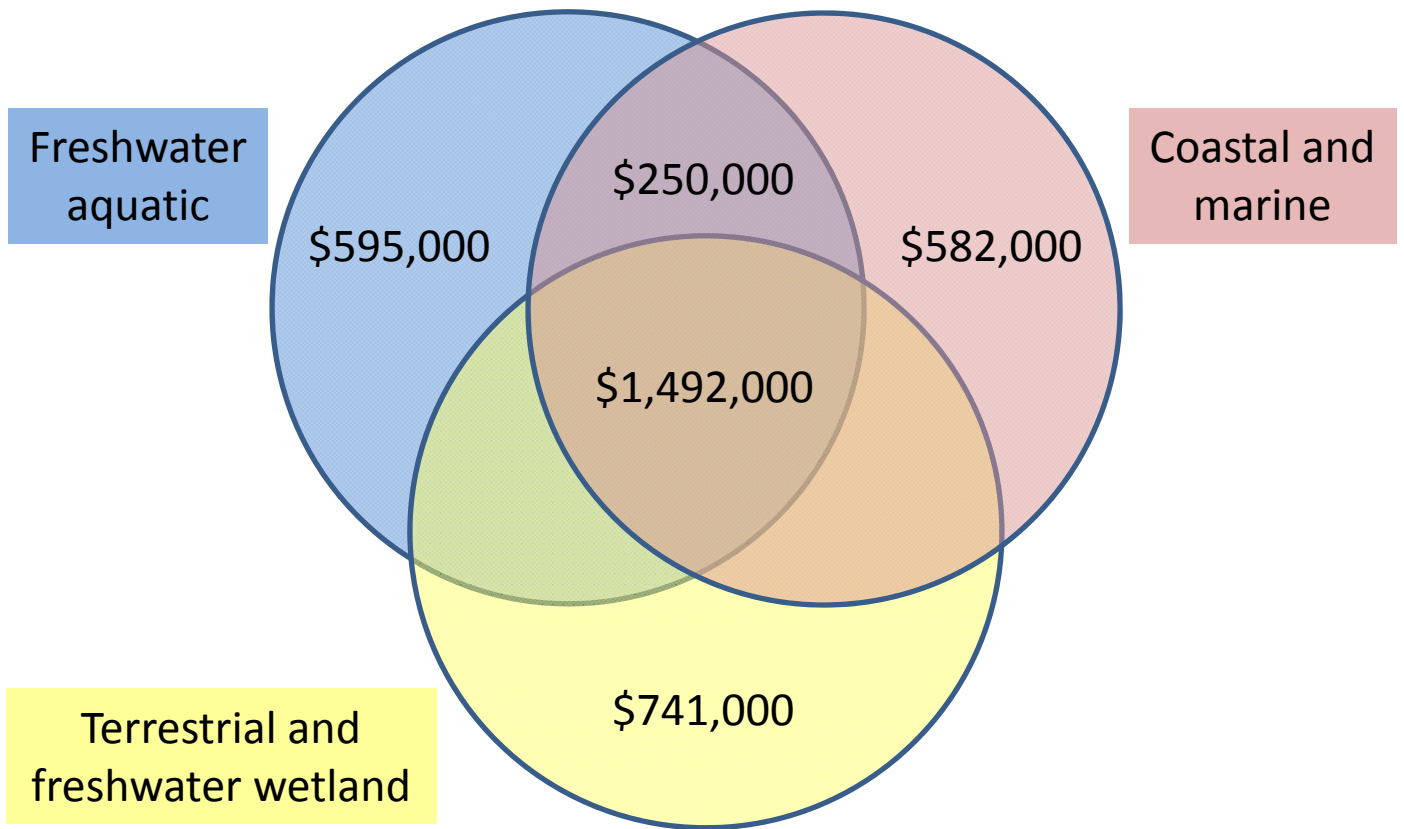
## Ecological Planning



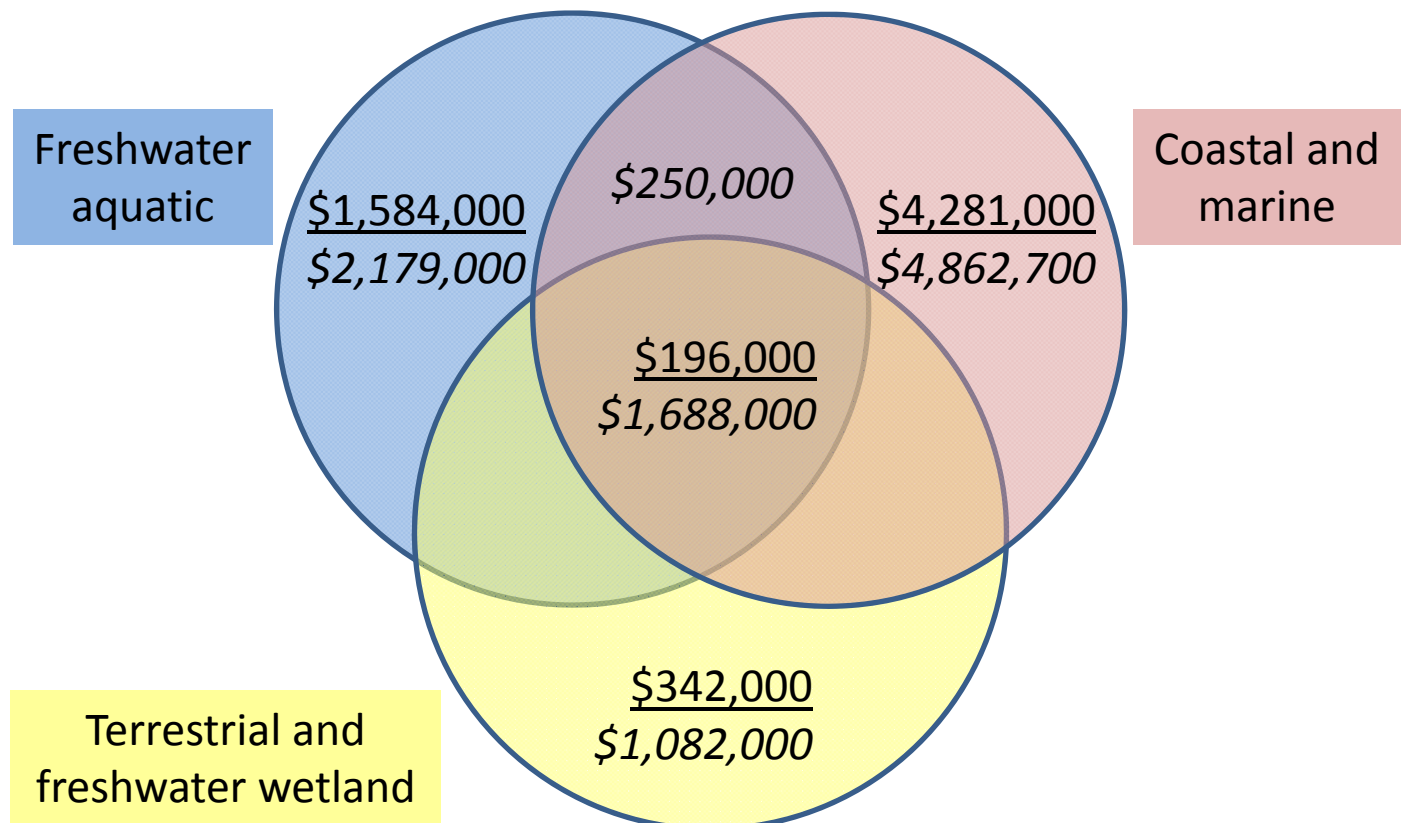
## Conservation Design and Science Translation



## North Atlantic LCC Science Project Investments, 2010-2014

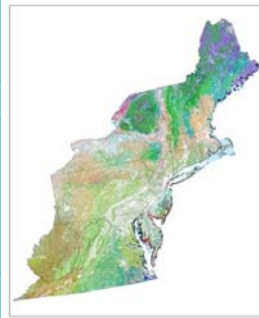


## Additional Leveraging and *Total* of LCC Science Investments, 2010-2014 (includes DOI Hurricane Sandy funds)



## Foundational Mapping: Northeast Terrestrial Habitat Map

<b>North Atlantic LCC Role</b>	Support revising NEAFWA-sponsored project by TNC and UMass
<b>Products</b>	Classified terrestrial habitat map
<b>Available Now</b>	Virginia revisions (2012) March 2014: UMass enhancements to reflect roads, streams, 2006 development, and revised coastal NWI
<b>Available within 3-6 months</b>	
<b>Longer Term</b>	Expansion to Canadian portion of LCC (2015)

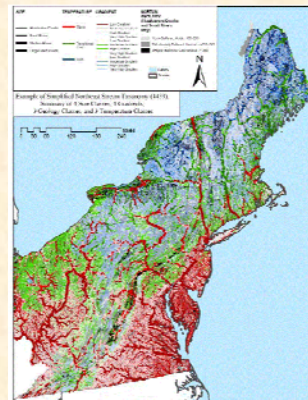


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## Foundational Mapping: Northeast Aquatic Classification

<b>North Atlantic LCC Role</b>	NEAFWA Project; support TNC revisions to streams (tidal component) and lakes
<b>Products</b>	Classification of Northeast streams and lakes
<b>Available Now</b>	Stream classification including new tidal component + guide
<b>Available within 3-6 months</b>	Enhanced lake classification including lake depth
<b>Longer Term</b>	



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## Foundational Mapping: Coastal Update to National Wetlands Inventory

<b>North Atlantic LCC Role</b>	Sponsoring update to NWI for coastal areas
<b>Products</b>	Updated wetland mapping in 162 coastal areas in 7 states
<b>Available Now</b>	Project is complete (Sept. 2013); incorporated into Northeast Terrestrial Habitat map by UMass
<b>Available within 3-6 months</b>	Results fully integrated into the National Wetlands Inventory
<b>Longer Term</b>	



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## Foundational Mapping: Coastal and Marine Ecological Classification

<b>North Atlantic LCC Role</b>	Sponsoring project by TNC, Mass. DFG, and U. of RI
<b>Products</b>	Report and maps testing the classification at 3 spatial scales
<b>Available Now</b>	Draft final maps and report
<b>Available within 3-6 months</b>	Peer-reviewed final report
<b>Longer Term</b>	Future phases could include full mapping of North Atlantic with NROC and MARCO

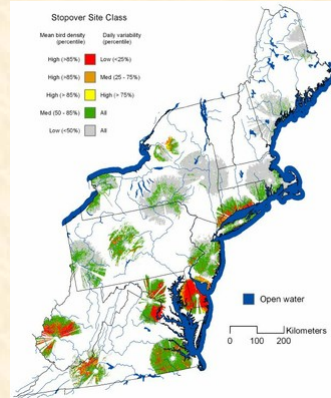


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## Foundational Mapping: Important Migratory Landbird Stopover Sites

<b>North Atlantic LCC Role</b>	Co-sponsoring with USFWS, MD, USGS, U. of DE, VCU, TNC, NASA
<b>Products</b>	Improved models of important fall migration stopover sites
<b>Available Now</b>	
<b>Available within 3-6 months</b>	
<b>Longer Term</b>	Complete report and maps (June 2015)



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## Foundational Mapping: Compilation of Regional Vernal Pool Data

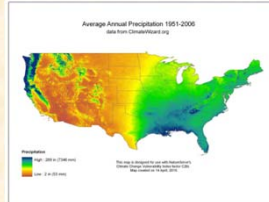
<b>North Atlantic LCC Role</b>	Sponsoring project by Vermont Center for Ecostudies and UVM (initiated Jan. 2014)
<b>Products</b>	Regional GIS dataset of locations of potential or documented vernal pools
<b>Available Now</b>	
<b>Available within 3-6 months</b>	Unified database structure
<b>Longer Term</b>	Complete report and dataset on DataBasin; remote sensing demonstration (2015)



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## Vulnerability Assessments: Species Vulnerability to Climate Change

<b>North Atlantic LCC Role</b>	Supporting assessment by NatureServe using Climate Change Vulnerability Index (CCVI)
<b>Products</b>	Report on vulnerability of 64 high regional concern, representative, and foundational species
<b>Available Now</b>	Draft report
<b>Available within 3-6 months</b>	Final report
<b>Longer Term</b>	



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## Vulnerability Assessments: Habitat Vulnerability to Climate Change

<b>North Atlantic LCC Role</b>	Completing NEAFWA-sponsored project by Manomet/NWF
<b>Products</b>	3 reports: terrestrial/wetland; cold water; and coastal habitats
<b>Available Now</b>	Reports completed; northeast climate database (neclimateus.org)
<b>Available within 3-6 months</b>	
<b>Longer Term</b>	



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## Conservation Design: *Designing Sustainable Landscapes*

<b>North Atlantic LCC Role</b>	Sponsoring project led by UMass Amherst
<b>Products</b>	Extensive spatial datasets, current and future species capability and ecological integrity, decision support tool for landscape design (June 2014)
<b>Available Now</b>	Many spatial datasets for entire Northeast, including initial species
<b>Available within 3-6 months</b>	<ul style="list-style-type: none"> <li>• Additional regional spatial data</li> <li>• Regional models for 30 rep. species</li> <li>• Pilot design effort in CT River watershed</li> </ul>
<b>Longer Term</b>	Potential future phase could extend and enhance conservation design work including coastal component

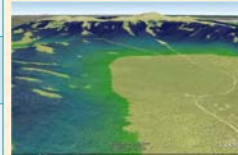


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## Conservation Design: Terrestrial Wildlife Habitat Models

<b>North Atlantic LCC Role</b>	Sponsored project by University of Vermont
<b>Products</b>	Habitat capability models for four representative wildlife species
<b>Available Now</b>	Project completed in 2011; models have been incorporated into Designing Sustainable Landscapes project
<b>Available within 3-6 months</b>	
<b>Longer Term</b>	Through, Designing Sustainable Landscapes, spatial datasets are being developed for current and project future conditions for entire Northeast



Blackpoll Warbler habitat map



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## Conservation Design: Aquatic Connectivity and Flood Resilience

<b>North Atlantic LCC Role</b>	Sponsoring 2 related projects (one funded through Hurricane Sandy) led by UMass Amherst, USFWS, TNC, USGS, USFS, Trout Unlimited, DOT/FHA (initiated January 2014)
<b>Products</b>	Comprehensive road-streams crossings database; recommended field survey protocols; prioritization to improve fish passage and reduce flood risks
<b>Available Now</b>	
<b>Available within 3-6 months</b>	Initial survey protocols for first field season
<b>Longer Term</b>	Complete datasets and reports (2016)



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## Conservation Design: Aquatic and Coastal Decision Support Tool

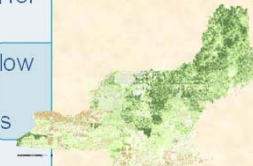
<b>North Atlantic LCC Role</b>	Sponsoring project with Atlantic Coastal Fish Habitat Partnership, led by Downstream Strategies
<b>Products</b>	Aquatic and coastal species models and decision support tools
<b>Available Now</b>	
<b>Available within 3-6 months</b>	Pilot models for winter flounder and for brook trout in the Chesapeake Bay watershed
<b>Longer Term</b>	Multi-species decision support tools for restoration and conservation (2015)



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## Conservation Design: Forecasting Streams and Brook Trout

<b>North Atlantic LCC Role</b>	Sponsoring project led by USGS
<b>Products</b>	Aquatic data and brook trout, forecasts and decision support tools
<b>Available Now</b>	<ul style="list-style-type: none"> <li>• Prototype web tool for stream conditions and climate change</li> <li>• Brook trout occupancy model for New York to Maine</li> </ul>
<b>Available within 3-6 months</b>	<ul style="list-style-type: none"> <li>• Projections of future stream flow and temperature</li> <li>• Regional brook trout forecasts</li> </ul>
<b>Longer Term</b>	Incorporate into conservation design; integrate with other brook trout tools

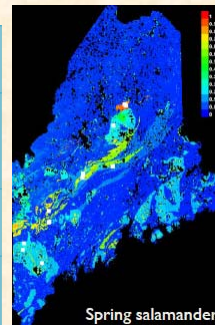


Brook trout probability of occupancy

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## Conservation Design: Priority Amphibian and Reptile Conservation Areas (PARCAs)

<b>North Atlantic LCC Role</b>	Sponsoring project led by State of Maine, U. of Maine, and Clemson
<b>Products</b>	Species models for 60+ priority herp. species; report with priority areas identified
<b>Available Now</b>	Climate niche models for 61 species
<b>Available within 3-6 months</b>	<ul style="list-style-type: none"> <li>• Projected loss of climate envelope for species</li> <li>• C.C. Vulnerability reviews</li> <li>• Pilot PARCAs for Maine</li> </ul>
<b>Longer Term</b>	Full PARCA report and recommendations (Dec. 2014)





Spring salamander



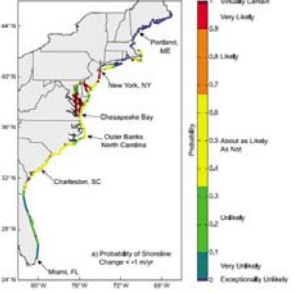
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## Conservation Design: Piping Plovers and Sea-level Rise

<b>North Atlantic LCC Role</b>	Sponsoring project by Virginia Tech	
<b>Products</b>	Assessment of threats to Piping Plover from SLR and recommendations for habitat conservation	
<b>Available Now</b>	Published model linking coastal processes and beach habitat	
<b>Available within 3-6 months</b>	Final report and tools including project impacts of sea level rise and management	
<b>Longer Term</b>	Potential to expand work more widely across North Atlantic	



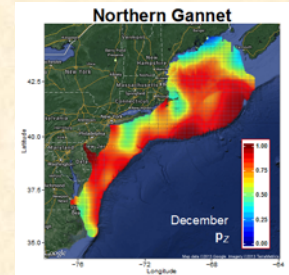
## Conservation Design: Decision Support Tools for Sea-level Rise Impacts

<b>North Atlantic LCC Role</b>	NE Climate Science Center project to USGS; LCC facilitated model development through structured decision making	
<b>Products</b>	Geospatial data on SLR, decision support models	
<b>Available Now</b>		
<b>Available within 3-6 months</b>	Initial regional decision model	
<b>Longer Term</b>	Reports, tools, and recommendations; next steps through Hurricane Sandy projects	



## Conservation Design: Marine Bird Mapping and Risk Assessment

<b>North Atlantic LCC Role</b>	Sponsoring a project by NC State U., NOAA, BRI, CSI/CUNY
<b>Products</b>	Mapping of seasonal seabird abundance to inform marine planning
<b>Available Now</b>	Initial set of marine bird species maps
<b>Available within 3-6 months</b>	Final report and maps (June 2014)
<b>Longer Term</b>	



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## Conservation Design: Increasing Resiliency of Beach Habitats and Species in the Face of Storms & Sea Level Rise

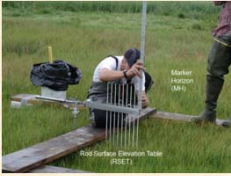

<b>North Atlantic LCC Role</b>	Coordinating overall project among P.I.s, LCC and CSC partners and with P.I.s USGS, FWS, Virginia Tech, Rutgers, TCI
<b>Products</b>	Regional decision support models for coastal beach management and restoration for beach habitats and species in the face of storms and SLR; evaluation of the effectiveness of beach restoration and management
<b>Available Now</b>	
<b>Available within 3-6 months</b>	Pre-hurricane survey results of inlets and beaches
<b>Longer Term</b>	Complete models and results delivered to partners (2016)



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## Conservation Design: Increasing Resiliency of Tidal Marsh Habitats and Species in the Face of Storms & Sea Level Rise

<b>North Atlantic LCC Role</b>	Coordinating overall project among P.I.s, LCC and CSC partners and P.I.s FWS, USGS, SHARP, UMass	 
<b>Products</b>	Regional decision support models for tidal marsh restoration and management for marsh habitats and species in the face of storms and SLR; evaluation of the effectiveness of different marsh restoration approaches for increasing resiliency	
<b>Available Now</b>		
<b>Available within 3-6 months</b>	Consistent monitoring metrics; initial assessments of tidal marsh integrity	
<b>Longer Term</b>	Complete models and results delivered to partners (2016)	

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## Conservation Design: Permeable Landscapes for Wildlife

<b>North Atlantic LCC Role</b>	Sponsoring project by TNC	
<b>Products</b>	Report and dataset on relative permeability (connectivity) of landscape for wildlife, accounting for climate change	
<b>Available Now</b>		
<b>Available within 3-6 months</b>	Initial datasets and results	
<b>Longer Term</b>	Final report and data (January 2015)	

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