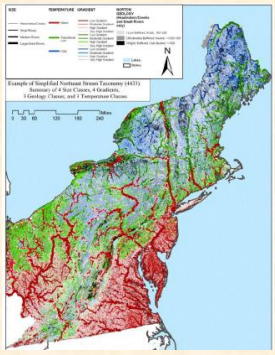
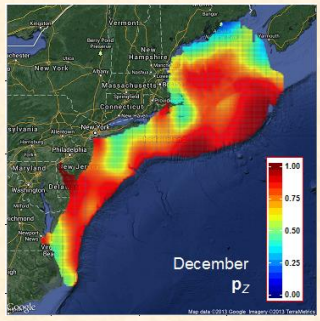
April 22 2015

Status of North Atlantic LCC Science Projects

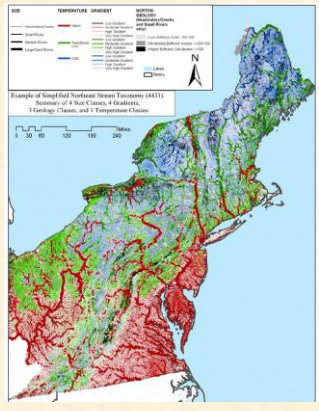




North Atlantic Landscape Conservation Cooperative

Foundational Mapping: Northeast Aquatic Classification

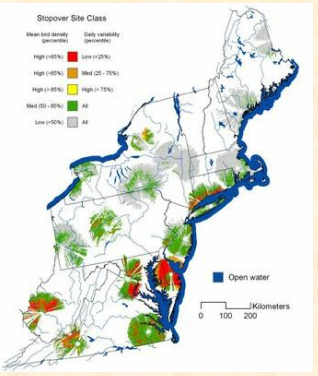
North Atlantic LCC Role	NEAFWA Project; support TNC revisions to streams (tidal component) and lakes
Products	Classification of Northeast streams and lakes
Available Now	Stream classification including new tidal component + guide; initial lake classification
Available 3-6 months	Enhanced lake classification including lake depth and temperature
Intended Users	Agencies and NGOs working on state or regional conservation planning



North Atlantic Landscape Conservation Cooperative

Foundational Mapping: Important Migratory Landbird Stopover Sites

North Atlantic LCC Role	Co-sponsoring with USFWS, MD, USGS, U. of DE (lead), VCU, TNC, NASA
Products	Improved models of important fall migration stopover sites, based on weather radar and field surveys
Available Now	6 years of analyzed radar data; initial field survey results, preliminary report
Longer Term	Complete report and maps
Intended Users	Bird conservation managers at regional, state, and local levels



North Atlantic Landscape Conservation Cooperative

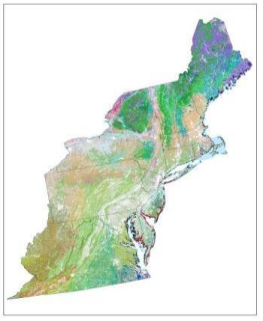
Foundational Mapping: Compilation of Regional Vernal Pool Data

North Atlantic LCC Role	Sponsoring project by Vermont Center for Ecostudies and UVM (initiated Jan. 2014)
Products	Regional GIS dataset of locations of potential or documented vernal pools; methods for remote sensing location of pools
Available Now	Unified database structure, Remote sensing demonstrations by webinar
Longer Term	Complete report and dataset on NALCC Conservation Planning Atlas (Dec. 2015)
Intended Users	Organizations for amphibian, reptile, and vernal pool conservation

North Atlantic Landscape Conservation Cooperative

Foundational Mapping: Northeast Terrestrial Habitat Map

North Atlantic LCC Role	Support revising NEAFWA-sponsored project by TNC and UMass
Products	Classified terrestrial habitat map
Available Now	Virginia revisions (2012) March 2014: UMass enhancements to reflect roads, streams, 2006 development, and revised coastal NWI
Available 3-6 months	Expansion to Canadian portion of LCC (2015)
Intended Users	Many organizations involved in conservation planning & design; Canadian and trans-boundary partners
Connections to other projects/products	Foundational dataset for *Designing Sustainable Landscapes*



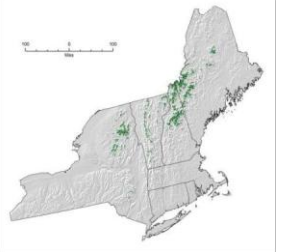
Foundational Mapping: Coastal and Marine Ecological Classification

North Atlantic LCC Role	Sponsoring project by TNC, Mass. DFG, and URI; coordination with NROC
Products	Report, crosswalk and maps testing the classification at 3 spatial scales
Available Now	Peer-reviewed final report; spreadsheet with crosswalks; CMECS maps with habitats classified at the regional subregional, and local scales
Intended Users	NROC, MARCO, state & federal agencies that are mapping, environmental managers

North Atlantic Landscape Conservation Cooperative

Vulnerability Assessments: Habitat Vulnerability to Climate Change

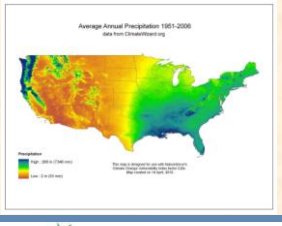
North Atlantic LCC Role	Completing NEAFWA-sponsored project by Manomet/NWF
Products	3 reports: terrestrial/wetland; cold water; and coastal habitats
Available Now	Reports completed; northeast climate database (neclimateus.org) developed in collaboration with NOAA and other partners
Intended Users	State and regional level managers
Connections to other projects/products	State Wildlife Action Plans, regional adaptation plans



North Atlantic Landscape Conservation Cooperative

Vulnerability Assessments: Species Vulnerability to Climate Change

North Atlantic LCC Role	Supporting assessment by NatureServe using Climate Change Vulnerability Index (CCVI)
Products	Report on vulnerability of 64 high regional concern, representative, and foundational species
Available Now	Draft report (in peer review)
Available 3-6 months	Final report
Intended Users	Environmental managers, scientists



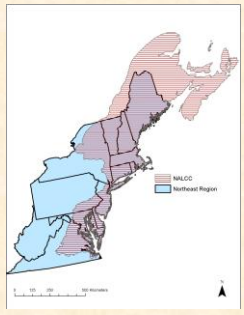
North Atlantic Landscape Conservation Cooperative

Conservation Design: Piping Plovers and Sea-level Rise

North Atlantic LCC Role	Sponsoring project by Virginia Tech with USGS
Products	Assessment of impact to Piping Plover from SLR and recommendations for habitat conservation & management
Available Now	Published model linking coastal processes, beach response and beach habitat, second report includes hindcast-based prediction nesting suitability impacted by SLR and beach management actions
Longer Term	Expand model to wider geography through Hurricane Sandy Project; predict impacts from wider range of SLR and other management actions
Intended Users	Beach managers, shorebird community
Connections to other projects/products	Hurricane Sandy beach resiliency project including iPlover

Conservation Design: *Designing Sustainable Landscapes*

North Atlantic LCC Role	Sponsoring project led by UMass Amherst
Products	Extensive spatial datasets, current and future species capability and ecological integrity, decision support tool for landscape design
Available Now	Many spatial datasets for entire Northeast, regional models for 15 species, pilot design in CT River watershed
Available 3-6 months	• Additional regional spatial data • Regional models for addt'l species
Longer Term	Work will enhance coastal components and use of tools by partners; pilot regional design is proposed
Intended Users	State natural resource and planning agencies



North Atlantic Landscape Conservation Cooperative

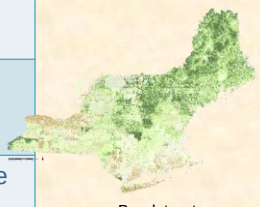
Conservation Design: Aquatic and Coastal Decision Support Tool

North Atlantic LCC Role	Sponsoring project with Atlantic Coastal Fish Habitat Partnership, led by Downstream Strategies
Products	Aquatic and coastal species models and decision support tools
Available Now	Pilot models for brook trout in the Chesapeake Bay watershed and for winter flounder (Narragansett Bay)
Available 3-6 months	Decision support tools for restoration and conservation available on-line for brook trout (Chesapeake Bay), winter flounder (Long Island Sound), and river herring (coastal rivers)
Intended Users	Watershed planning, natural resource management agencies, fisheries managers
Connections to other projects/products	Forecasting changes in aquatic systems and resilience of brook trout

North Atlantic Landscape Conservation Cooperative

Conservation Design: Forecasting Streams and Brook Trout

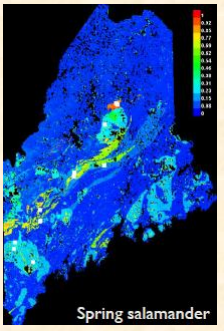
North Atlantic LCC Role	Sponsoring project led by USGS
Products	Aquatic data and brook trout, forecasts and decision support tools
Available Now	• Prototype web tool for stream conditions and climate change • Stream temperature and occupancy model for New York to Maine • Incorporated into CT River pilot
Available 3-6 months	• Projections of future stream flow and temperature • Regional brook trout forecasts
Longer Term	Incorporate into conservation design; integrate with other brook trout tools
Intended Users	Eastern Brook Trout JV partners and other aquatic managers; states



Brook trout probability of occupancy

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

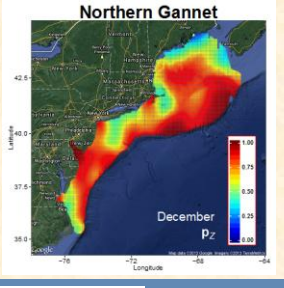
North Atlantic LCC Role	Sponsoring project led by U. of Maine and others
Products	Species models for 60+ priority herps; report with priority areas identified
Available Now	• Climate niche models for 61 species • Pilot PARCAs for Maine
Available 3-6 months	• Projected loss of climate envelope for species • Climate change vulnerability reviews
Longer Term	Full PARCA report and recommendations (2016)
Intended users	Northeast PARC, natural resource agencies and organizations



North Atlantic Landscape Conservation Cooperative

Conservation Design: Marine Bird Mapping and Risk Assessment

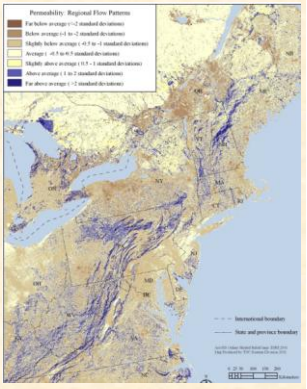
North Atlantic LCC Role	Sponsoring a project by NC State University, NOAA, BRI, CSI/CUNY
Products	Mapping of seasonal seabird abundance of 24 species to inform marine planning
Available Now	Final report; marine bird occurrence maps by species and season (pdf format)
Available 3-6 months	GIS ready data, metadata
Intended Users	Regional ocean planning for wind energy, aquaculture, marine infrastructure



North Atlantic Landscape Conservation Cooperative

Conservation Design: Permeable Landscapes for Wildlife

North Atlantic LCC Role	Sponsoring project by TNC
Products	Report and dataset on relative permeability (connectivity) of landscape for wildlife, accounting for climate change
Available now	Draft final report and data (in peer review)
Available 3-6 months	Final report and data
Intended users	Incorporate into regional, state, and LCC planning efforts for large-scale wildlife connectivity
Connections to other projects/products	*Designing Sustainable Landscapes*, species climate change vulnerability assessments



Foundational Mapping: Coastal Update to National Wetlands Inventory

North Atlantic LCC Role	Sponsoring update to NWI for coastal areas
Products	Updated wetland mapping in 162 coastal areas in 7 states
Available Now	Project is complete (Sept. 2013); data incorporated into Northeast Terrestrial Habitat map by UMass; Results fully integrated into the National Wetlands Inventory online
Intended users	Planners, wetland and coastal managers

North Atlantic Landscape Conservation Cooperative

Demonstration Project:
Integrating Science into Policy: Local Adaptation for Marsh Migration

North Atlantic LCC Role	Supporting demonstration project by Maine Inland Fisheries and Wildlife
Products	Identification of the most resilient marshes in Maine; incorporation of results in *Beginning with Habitat*
Available Now	Final report, decision support tool
Available 3-6 months	Facilitating local actions to assist marsh migration
Intended Users	Local & state planning, conservation groups
Connections to other projects/products	Decision support tools for SLR impacts, Hurricane Sandy Marsh Projects, TNC's salt marsh advancement zones

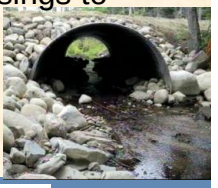
North Atlantic Landscape Conservation Cooperative

Conservation Design:
Increasing Aquatic Connectivity and Flood Resiliency (LCC + Hurricane Sandy)

North Atlantic LCC Role	Sponsoring/coordinating 2 related projects led by UMass Amherst, USFWS, State F&W agencies, TNC, USGS, USFS, Trout Unlimited
Products	Comprehensive, road-stream crossings dbf; survey protocols and standards; prioritized survey scheme; flood resilience models; prioritization to improve fish passage and reduce flood risks
Available Now	Survey prioritization scheme, survey protocols for first field season (not tidal)
Longer Term	Complete datasets and reports (2016); coordinate with Great Lakes
Intended Users	Natural resource management agencies, transportation and emergency communities

Increasing Resiliency & Improving Standards for Culverts & Road Stream Crossings to Future Floods While Restoring Aquatic Connectivity

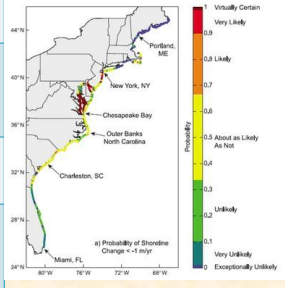
- Coordination of regional team; consistent online database, regional protocols for assessing culvert condition and suitability for passage, passage assessment criteria
  - UMass, TNC
- Prioritization of road stream crossings for surveys, targeted surveys
  - TNC, UMass, FWS, Wildlife Management Institute, States
- Pilot project on vulnerability of road-stream crossings to future floods
  - UMass, NE Climate Science Center
- Training for states, towns
  - Trout Unlimited, FWS



North Atlantic Landscape Conservation Cooperative

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

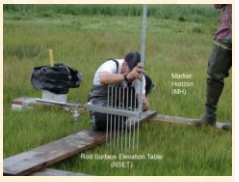
North Atlantic LCC Role	Facilitated model development through Structured Decision Making; application to conservation design through *Designing Sustainable Landscapes*
Products	Final report, geospatial data on SLR inundation and dynamic response with uncertainty
Available Now	Geospatial data on SLR inundation and dynamic response
Available 3-6 months	Initial regional decision model; incorporated into *Designing Sustainable Landscapes* (ecological integrity and species habitat)
Intended Users	Planning, natural resource management agencies, coastal zone agencies and communities



North Atlantic Landscape Conservation Cooperative

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

North Atlantic LCC Role	Coordinating overall project among P.I.s, LCC and CSC partners, and FWS, USGS, SHARP (UDel, UConn, UMaine, ME DIFW, SUNY), USC, UCF, UMass
Products	Regional maps and decision support models for tidal marsh restoration and management for habitats and species; evaluation of different marsh restoration approaches for increasing resiliency under different conditions
Available 3-6 months	Consistent monitoring metrics; initial assessments of tidal marsh integrity
Longer Term	Complete models and results delivered to partners (2016); initial post restoration results
Intended Users	Natural resource management and planning agencies, species managers, NGO's



North Atlantic Landscape Conservation Cooperative

Increasing Resiliency of Tidal Marsh Habitats Habitats and Species in the Face of Storms & SLR

- Develop/refine models for understanding future impacts of sea level rise and storms on tidal marshes and marsh species
  - Geological/physical response (USGS)
  - Marsh community response (USGS, USC, LSU)
  - Wildlife response (SHARP)
- Decision support models and incorporation into decision model framework
  - UMass, USGS, TNC
- High/low marsh mapping
  - SHARP (U Maine)
- Monitoring and assessment of effectiveness of restoration for marsh resiliency
  - USFWS, NPS, SHARP (U Maine, U Conn, U Del, SUNY)
- Delivery of results to partners
  - NROC, MARCO

North Atlantic Landscape Conservation Cooperative

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

North Atlantic LCC Role	Coordinating overall project among P.I.s, LCC, CSC partners, USGS, FWS, Virginia Tech, Rutgers, TCI, Conserve Wildlife NJ, NROC, and MARCO
Products	Regional decision support models for coastal beach management and restoration for beach habitats and species (e.g., Piping Plover) in the face of storms and SLR; evaluation of the effectiveness of beach restoration and management
Available Now	iPlover survey results; Pre-hurricane survey results of inlets and beaches
Available 3-6 months	Initial post-hurricane beach nesting bird results
Intended Users	Beach managers, shorebird community

Increasing Resiliency of Beach Habitats and Species in the Face of Storms & Sea Level Rise

- Expand SLR response/plover model to Region
  - USGS, Virginia Tech
- Collect beach-nesting bird location and habitat data on NWRS and NPs
  - USFWS, NPS, USGS (iPlover)
- Inventory of beach and inlet modifications before and after H.S.
  - Terwilliger Consulting
- Assess effects of beach stabilization projects in NY& NJ on beach habitats and species
  - Virginia Tech, Rutgers, Conserve Wildlife NJ
- Deliver results to partners
  - Rutgers, NROC, MARCO

North Atlantic Landscape Conservation Cooperative