**Potential 2015 Science Needs – North Atlantic LCC**

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| Cross-cutting Science Needs (aquatic, coastal, and/or terrestrial) | | |
| Science Need | Intended Users | Application to Conservation |
| Info. for Regional Species of Greatest Conservation Needs – priorities, data needs, and habitat associations | State fish and wildlife agencies, other conservation orgs. | Prioritization of individual species for management and monitoring; inform conservation actions for individual species and habitats for multiple species |
| Climate interactions with mercury contamination | State and federal agencies | Baseline information for mitigation of mercury risks to fish and wildlife species |
| Continued work on habitat modeling and decision support tools for coastal and freshwater fish and other aquatic species | Fish habitat partnerships, state fish and wildlife agencies, other conservation orgs. | Prioritization of protection and restoration of habitat for aquatic species |
| Extension of LCC work to Canada | Conservation agencies and organizations particularly in Canada and border region | Foundational data and decision support for various conservation actions |
| Landscape change detection | Many conservation organizations | Foundational data for multitude of planning efforts |
| Forecasts of offshore and onshore wind energy development | State and federal conservation agencies, NGOs | Assessing risk and impacts to birds, bat, and marine mammals as part of ocean planning. |
| Regional conservation designs | Conservation partnerships | Inform habitat protection, management, and restoration |
| Incorporating economic and social science information (including ecological services) into conservation planning | Gov’t- federal to local level, NGO’s | Prioritization and funding affected by societal considerations |
| Locate and assess vulnerability of important cultural resource sites | Gov’t- federal to local level, NGO’s | Prioritization of sites for protection, preservation or possible relocation |
| Trends analysis of wetland change at the East coast (regional) scale | Gov’t- federal to local level, NGO’s | Regional changes in the distribution and abundance of wetlands is unknown, could reveal ecological integrity declines or rare habitat declines |
| Include tidally influenced culverts to aquatic connectivity projects, cross-check w. state atlases of tidal restrictions | State fish and wildlife agencies, other conservation orgs | Addresses full suite of aquatic resilience and connectivity issues-including anadromous fishes |

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| Coastal and Marine | | |
| Science Need | Intended Users | Application to Conservation |
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| Conduct sensitivity analyses on dynamic SLR model | Local, state and federal natural resource, geomorphology, NGOs, academia | Improve understanding of model applicability, data collection or other areas to improve forecast capabilities? |
| Examine other shorebird species and their habitat use w. dynamic SLR model | Local, state and federal natural resource agencies, NGOs | Inform habitat protection, management, and restoration |
| Planning for marsh migration at the regional, state and local scale. | Local, state and federal conservation agencies, NGOs | Prioritization for protection/restoration/mitigation informed by likelihood of marsh migration and suitability of upland habitats and ownership |
| Rapid, site specific assessment of marsh accretion/erosion rates and suspended sediment concentrations | Local, state and federal conservation agencies, NGOs, academia | Prioritization for restoration/mitigation informed by marsh capital and site specific rates of change |
| Examine connectivity and interdependence of sites/metapopulations for migratory birds especially with respect to SLR | Local, state and federal conservation agencies, NGOs | Prioritization for acquisition/protection/restoration/mitigation of vulnerable, valuable sites |
| Providing information on benefits of nature-based approaches to increasing coastal community resilience. | Coastal states and communities | Informs coastal communities about the multiple benefits of maintaining coastal ecosystems and results in leveraging of protection and restoration efforts |
| Better understanding of distribution of marsh vegetation in relation to tidal regimes and sediment characteristics | Conservation agencies, academia, modelers, | Improved assessment and forecasting of marsh accretion rates according to abundance of specific vegetation type (e.g. short form vs tall form SPAL, *Spartina patens*, *Juncus*, *Distichilis*) |
| Habitat modeling for coastal fish and other aquatic species (ACFHP lead) | Watershed planning, natural resource management agencies, fisheries managers | Forecasting changes in aquatic and coastal systems, habitats and species persistence and distribution |
| Assess regional eelgrass distribution and function for increasing coastal resilience | Watershed planning, natural resource management agencies, academia, modelers | Assessing coastal resilience and carbon sequestration potential, species conservation planning (Brant, scallops, etc.) |
| Regional compilation of core coastal and estuarine and nearshore environmental datasets (e.g., salinity, temperature, circulation) | Fisheries managers, natural resource management agencies, academia, modelers | Extending landscape scale ecological integrity assessment and planning into nearshore zone, input into decision support tools for anadromous & coastal species |
| Methods for local mitigation of ocean acidification | Aquaculture industry, fisheries managers, natural resource management agencies, watershed planning | Improve site selection for oyster reefs for wave attenuation function and shellfish used to mitigate excessive nutrient loading |
| Rapid response for selected new marine invasive species | Coastal management agencies, marine infrastructure, aquaculture and fisheries industries | Informs guidance for the protection of ecosystem integrity; potential to preclude toxic eradication methods |
| High resolution data on human infrastructure in coastal environments | Watershed planning, natural resource management agencies, academia, modelers | Planning and assessment of nearshore geomorphology changes, predict storm induced damage assessment |
| Determine viability thresholds for these priority coastal species under different rates of sea level rise, information gaps and priority actions | State and federal resource management agencies | Prioritize monitoring, research and management for species that are most likely to cross viability thresholds in the near future |

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| Freshwater aquatic | | |
| Science Need | Intended Users | Application to Conservation |
| Regional stream temperature network: continued compilation of stream temperature data; improved stream temperature modeling using these data | State and federal conservation agencies, NGOs | Foundational data for state agencies; input into decision support tools for aquatic life (e.g., cold water fish) |
| Canada-U.S. cross border aquatic work - stream mapping and aquatic classification | Canadian conservation organizations and cross-border partnerships | Foundational data for regional conservation planning efforts |
| Improved regional products on the influence of groundwater on stream temperature | Stream temperature modelers, aquatic conservation agencies and organizations | Foundational data to improve stream temperature networks and focus conservation on resilient streams |
| Improved river and stream monitoring and habitat characterization for diadromous species; integration of the effects of barriers with non-barrier habitat effects on species | Fish habitat partnerships, state fish and wildlife agencies, other conservation orgs. | Information needed for the development of prioritization tools for aquatic habitat |
| Ecological (environmental) flows assessment - quantity, quality, and timing of water flows necessary to sustain aquatic resources | State agencies and other partners | Informs agency standards and guidance for the protection of aquatic life |
| Standardization of aquatic sampling and monitoring - e.g., for water quality, temperature, and hydrological flow | State, federal, and other organizations that collect aquatic samples | Improved and more consistent aquatic monitoring data that can be used in targeting protection and restoration activities |
| Integration of consistent water quality information into aquatic conservation design | State and federal conservation agencies, NGOs | Protection and restoration of streams, rivers, lakes and ponds |
| Landscape level planning for species of high conservation concern. Aquatic species recently identified by states (RCN RFP) include: hellbender, brook floater, and green floater | State and federal agencies, NGOs, other partners | Target habitat protection, habitat restoration and species management for high priority species |

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| Terrestrial and freshwater wetlands | | |
| Science Need | Intended Users | Application to Conservation |
| Completion of PARCA (Priority Amphibian and Reptile Conservation Areas) - additional funding requested | State and federal agencies, NGOs, other partners involved in conservation of herptiles | Increase long-term survival of reptiles and amphibians by taking conservation action in important areas for these species |
| Regional wildlife-road crossings – mapping amphibian, reptile and mammal crossing areas and prioritizing areas for mitigation (state exs. Include Vermont Critical Paths, Mass. Linking Landscapes, Connecting Habitats across NJ) | State, federal, and local conservation and transportation organizations | Targeted mitigation to decrease wildlife traffic mortality and automobile collisions |
| Landscape-level info. & planning for species of high conservation concern, e.g.: Monarch butterfly; Blanding’s turtle; endangered species habitat modeling | State and federal agencies, NGOs, other partners | Target habitat protection, management, and restoration and species management for high priority species |
| Improved roads data for forest roads (types not well-represented in available products) | Many conservation organizations | Foundational for state and regional conservation planning activities |
| Mapping and prioritization of wetland restoration opportunities | Governmental and nongovernmental agencies engaged in wetland restoration |  |
| Regional mercury contamination impacts on natural resources exacerbated by climate change | Natural resource managers, endangered species biologists | Planning for and mitigating impacts to fish and wildlife |
| Effects of climate change, including changed precipitation patterns, on wetlands and hydrological regimes | Modelers, planners, aquatic conservation agencies and organizations | Foundational data for long-term conservation planning efforts involving wetlands |
| Regional mapping of grassland habitat, habitat change, and priorities for grassland birds; full life cycle planning | State and federal agencies, NGOs, other partners involved in bird conservation (including agricultural community) | Prioritize and encourage management activities to sustain grassland birds |
| Bird species habitat modeling (ACJV top priority) | State and federal agencies, NGOs, other partners involved in bird conservation | Foundational data for regional bird conservation planning |
| Invasive plant species mapping and predicted future distribution (existing national system is EDDMaps) | Federal and state land managers | Prioritizing invasive species control and planning for future invasions |
| Consistent floodplain assessment across Northeast | Federal, state and local planners | Prioritizing floodplain conservation |
| Regional LiDAR for forest structure and condition | State and federal agencies, NGOs, other partners | Foundational data for regional forest, and forest dependent wildlife, conservation and management |
| Compilation of areas actively managed for shrubland / young forest / early successional species | State and federal agencies, NGOs, other partners involved in conservation of species dependent upon young forest habitat; utilities and other partners that manage these habitats | Foundational data for regional conservation planning |