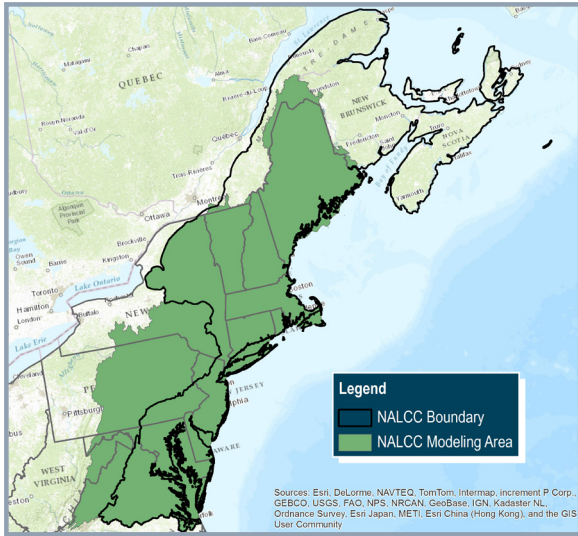


DECISION SUPPORT TOOL TO ASSESS AQUATIC HABITATS AND THREATS IN NORTH ATLANTIC WATERSHEDS AND ESTUARIES



Project overview

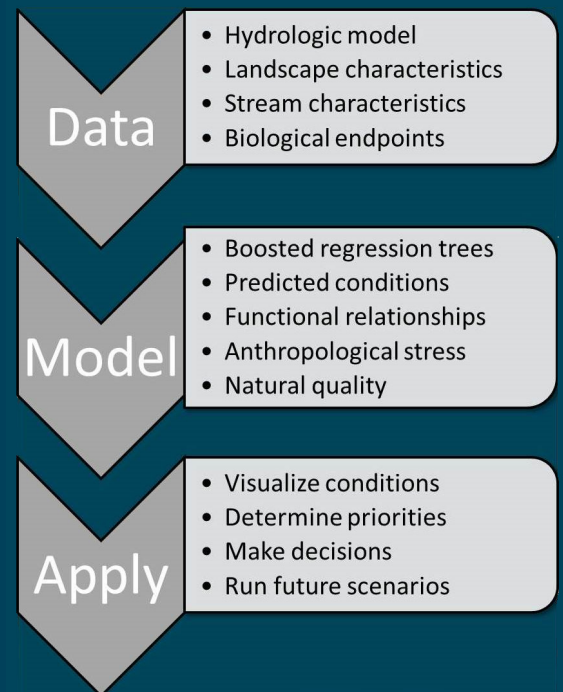
- Timeframe: February 2013 – January 2015
- Participatory stakeholder driven process to ensure project outputs are relevant, credible, and accessible.
- Performing assessments and creating tools that allow users to better characterize current and future aquatic conditions, target restoration and conservation efforts, set strategic priorities, and monitor and evaluate management efforts.
- Working with stakeholders and experts to assess aquatic habitat conditions for the North Atlantic LCC region.
- Assessment models will be developed for inland, coastal, and estuarine aquatic resources.
- Outputs and results will be incorporated into an interactive spatial decision support tool.
- The diagram below overviews the project process and lists important factors that we will consider.

Project details

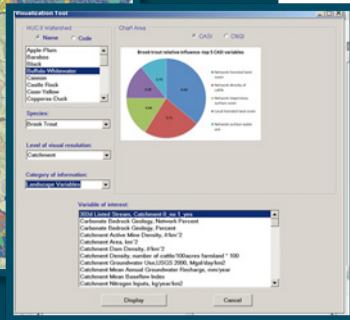
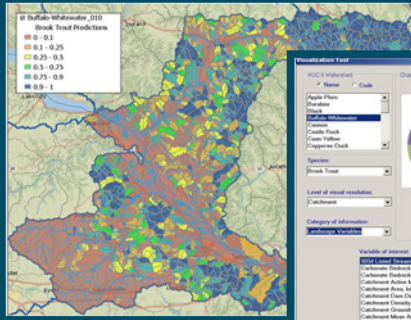
Healthy waterways and vigorous populations of fish provide clean water, vibrant economies, and myriad recreational opportunities to millions of people in the Northeastern U.S. To more sustainably manage these resources across large geographic areas, there is a pressing need to characterize the status, habitat, and threats to fish and other aquatic species. This project will provide conservation practitioners, scientists, and policy makers with innovative tools to characterize current and future aquatic conditions, target and prescribe restoration and conservation actions, set strategic priorities, monitor and evaluate management efforts, and advocate for science-based sustainable management plans.

This project will create and implement a flexible and dynamic aquatic assessment process with the North Atlantic Landscape Conservation Cooperative (LCC) and its partners, including the Atlantic Coastal Fish Habitat Partnership. Downstream Strategies will lead this effort and will collaborate with experts at West Virginia University and Critigen, a leading IT and GIS consulting firm. We will assemble data and analyze conditions to understand distribution, habitat, and threats to inland, estuarine, and coastal aquatic species across the North Atlantic region. We will engage stakeholders during all stages of the project to ensure that the results are useful to managers of aquatic resources and habitats.

The central focus of this project will revolve around a flexible modeling process that has been widely adopted by aquatic and fisheries experts across the country. Based on multiple models of individual species or species groups, we will create species distribution maps along with identifying and quantifying threats and stressors to these species. We will then create a multi-criteria decision support tool that integrates the components of each model to provide an interactive and user-friendly mapping program for resource managers to visualize, rank, and manipulate inputs to prioritize areas for conservation action.



Using the tool



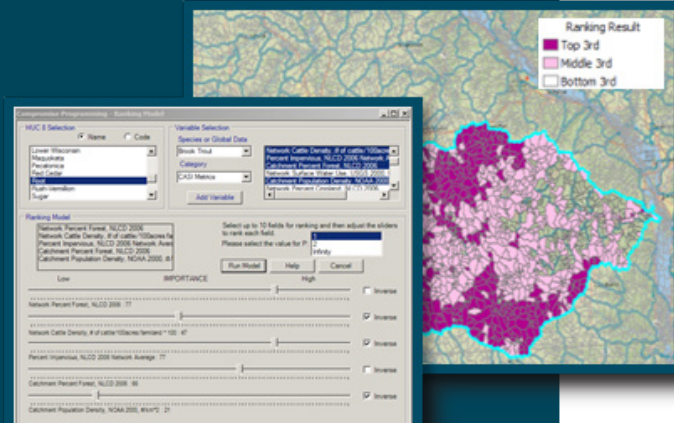
GIS Decision Support Tool

Visualize results

To visualize results, select by HUC-8 and examine the output layers to gain an understanding of the modeling results and all datasets that were used to build the habitat model.

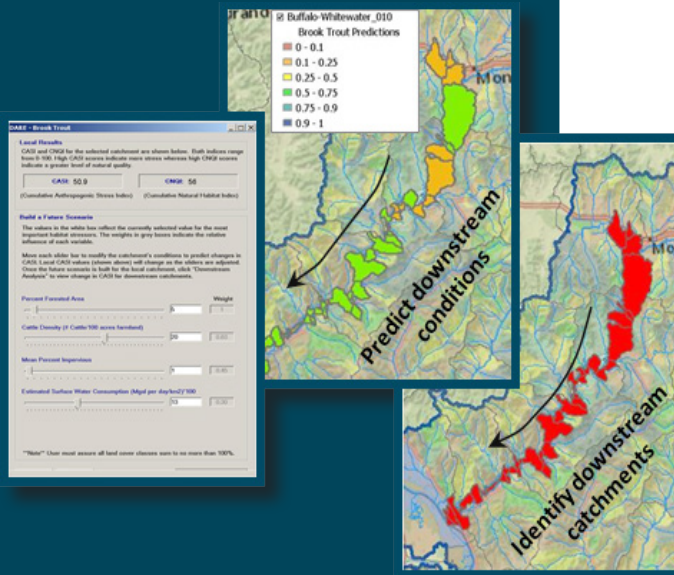
Make decisions

Use the compromise programming model to weigh various criteria important to a restoration or protection management decision. This example shows the ideal catchments to be areas with a high protection status. Use the slider tools to rank catchments based on high quality of natural conditions and minimal stress level. A layer is created that displays a catchment-by-catchment comparison of these criteria. Use this tool to rank catchments using a suite of criteria, which range from socioeconomic variables to landscape characteristics.



Model the future

Use the futuring tool to understand a management strategy designed to improve habitat quality and its local and downstream effects. First, select a catchment to analyze current conditions. Then use the slider bars to modify the existing anthropogenic condition to understand its effect on current stress. For example, increase forest cover percent to decrease the stress locally. Then select the downstream analysis to understand how that landscape change is predicted to affect water quality in downstream catchments.



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