

PROJECT TITLE: Forecasting changes in aquatic systems and resilience of aquatic populations in the North Atlantic Landscape Conservation Cooperative: Decision-support tools for conservation

SCOPE OF WORK:

Overall, the Service is seeking a set of tools for managers to evaluate how to manage streams for fish in the face of a changing climate. The goal is to develop a user-friendly decision support system (DSS) that will enable managers to make the most informed decisions about conservation actions regarding stream fish. Some products will be tools such as maps of stream fish habitat and models for eastern brook trout that conservation managers will use to evaluate the effects of different management actions on fish in stream networks as small as a 30-foot long and river basins as large as hundreds of miles. These maps and models will identify which conservation actions are going to be the most effective. Managers will be able to use the DSS and associated products to incorporate information from climate change models into existing conservation models to develop comprehensive landscape-scale conservation plans. Table 1 outlines the tasks, time table and estimated costs to accomplish these goals.

The objective of Phase 1, which is being funded via this cooperative agreement, is to develop a web-based decision support system for evaluating effects of alternate management strategies on local population persistence of brook trout under different climate change scenarios. This DSS will include a hierarchical Bayesian model that accounts for multiple scales and sources of uncertainty in climate change predictions; it will include models to predict stream flow and temperature based on air temperature and precipitation; and it will incorporate climate change forecasts into population persistence models.

Table 1. Timeline of tasks for *Forecasting changes in aquatic systems and resilience of aquatic populations in the North Atlantic Landscape Conservation Cooperative: Decision-support tools for conservation.*

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