

**North Atlantic LCC Technical Committee Recommendations for
2014 Science Project Funding**

2014 Science Needs Process

In 2014, the North Atlantic LCC conducted a focused science needs process in light of a reduced science project budget relative to prior years and a compressed review period. The process emphasized consideration of continued funding of existing projects, while considering the possibility of new, critical science needs.

- May 16** – teleconference with North Atlantic LCC Technical Committee to initiate review
- June 2** – webinar by Kevin McGarigal (UMass Amherst): update and potential next steps for Designing Sustainable Landscapes project
- June 12** – webinar by Ben Letcher (USGS): update and potential next steps for Aquatic Forecasting and Brook Trout project
- Weeks of June 9 and June 16** – one teleconference for each of the three sub-teams of the Technical Committee (aquatic; coastal and marine; terrestrial and freshwater wetlands), plus follow-up conversations with various members
- June 20** –full Technical Committee teleconference to finalize recommendations

Summary of North Atlantic LCC Summary Recommendations

Based on deliberations of the Technical Committee, sub-teams and consultations with other partners, the Technical Committee and North Atlantic LCC staff recommend that the 2014 science budget be dedicated to additional phases of two science projects that are due to be completed this year. These are the Designing Sustainable Landscapes project (led by Kevin McGarigal, UMass Amherst) and the Aquatic Forecasting and Brook Trout project (led by Ben Letcher, USGS).

The proposed tasks and approximate budget allocations (with some details yet to be negotiated) are as follows:

Project and Task	NALCC Budget
Designing Sustainable Landscapes	
1) Phase 1, user feedback and tool development for Decision Support	\$160,000
2) Habitat management and restoration module (over two years)	\$70,000
Total	\$230,000
Aquatic Forecasting and Brook Trout	
1) Coordinate with other regional brook trout and temperature efforts	[leveraged work]
2) Expand existing tools to additional portions of LCC region	\$20,000
3) Integrate models with management and policy	\$90,000
4) Expand species models beyond brook trout	[leveraged work]
Total	\$110,000

The proposed tasks and budgets represent significant modifications from the original proposals received from the investigators, based on discussions and recommendations of the Technical Committee. Both projects reflect substantial leveraging from other funding sources, such as work sponsored by the Northeast Climate Science Center.

Participants / contributors for the 2014 review process

Canadian Wildlife Service – Karel Allard
Connecticut DEEP – Christopher Bellucci
Delaware Division of Fish and Wildlife – Kevin Kalasz
Ducks Unlimited – John Coluccy
Eastern Brook Trout Joint Venture – Steve Perry
Maine Dept. of Conservation – Andy Cutko
Maine Dept. of Inland Fisheries and Wildlife – Philip deMaynadier
Mass. DEP – Gerry Szal
National Park Service – Amanda Babson, Giselle Mora-Bourgeois, Marian Norris, Diane Pavek
NatureServe – Lesley Sneddon
North Atlantic LCC Staff – Andrew Milliken, Scott Schwenk
Penn. Fish and Boat Commission – Diana Day
The Nature Conservancy – Arlene Olivero, Adam Whelchel
New York Department of Environmental Conservation – Dawn McReynolds
NOAA – John Catena, Ellen Mecray, Darlene Finch
U.S. EPA – Ralph Abele, Anne Kuhn
U.S. FWS – Rick Bennett, Meredith Bartron, Randy Dettmers, Julie Devers, Mitch Hartley, Jeff Horan, Tom LaPointe, Mike Millard, David Perkins, Jed Wright
USGS – Evan Grant, Rachel Muir, Peter Murdoch
Wildlife Conservation Society – Michale Glennon

What we heard about the North Atlantic LCC supported project: *Designing Sustainable Landscapes* (led by Kevin McGarigal, USGS)

Bottom-line: the consensus of those who provided feedback on this project was that the North Atlantic LCC should support a next phase of the project. After several years of development, important regional products are becoming available and their use is being tested by conservation managers (e.g., in the Connecticut River Watershed Pilot). Reviewers provided recommendations on which aspects of future work were of highest priority and need.

Synthesis of recommendations, concerns, and feedback on the project:

1) Reviewers collectively identified the task of making the products of the projects accessible and useful to conservation managers as being a high priority. Therefore, there was general support for the proposed option 1, development of a Decision-Support Tool, but there also were concerns about the work. Salient issues and discussion are as follows:

- a) There was broad agreement that adoption of the tools will be limited if they require ongoing, substantial participation by UMass staff for the indefinite future, including reliance on UMass for model runs.

- b) It is strongly recommended that before embarking on an expensive and time-consuming effort to develop new custom software, UMass should thoroughly consider and review existing analytical tools that could incorporate their products.
- c) Conservation practitioners should be involved in the development of any decision support tool (whether adopting an existing platform or, if necessary, a new product). UMass should focus on the types of users who will use the tools, and design the tools with their needs in mind.
- d) Effort to implement a decision support tool should recognize that not all users are seeking a “full-blown” conservation design. Specifically, many users currently may focus on how to allocate protection, management, or restoration strategies among land units that will not end up being part of the “core-buffer-connect” (highest tier) design. They need tools to help them prioritize where and how to work among such units. This could include understanding and tracking how their actions can contribute to overall species or ecosystem objectives (which are unlikely to be achievable just through the core-corridor part of the design).
- e) The models and results of the project are complicated, and will require careful communications and translation materials so that they can be understood and are not misapplied.

2) Development of the habitat management and restoration module is recommended. A clear need exists for users to be able to designate areas for habitat management and restoration and understand the conservation implications of their actions.

3) Regarding the third option for a future phase of the project, the development of a timber harvest module, this work is of less immediate priority than the first two options. The North Atlantic LCC partnership is not yet at the stage of meaningfully engaging the forestry community in conservation design. Such engagement would entail substantial effort and considerable challenges. Until the partnership has made further progress in this area, a silvicultural module should be deferred.

What we heard about the North Atlantic LCC supported project: *Forecasting changes in aquatic systems and resilience of aquatic populations in the North Atlantic LCC: Decision-support tools for conservation* (led by Ben Letcher, USGS)

Bottom-line: the consensus of those who provided feedback on this project was that the North Atlantic LCC should support a next phase of the project. In the words of one reviewer, the project has reached a “critical mass” of valuable products of regional value. Reviewers provided various recommendations on revising and clarifying Ben Letcher’s proposed next steps.

Synthesis of recommendations, concerns, and feedback on the project:

1) As the scope of this project expands, continued and enhanced coordination with other researchers involved with similar work, and managers who are potential users, is critical. Reviewers expressed substantial support, and Ben Letcher has offered to help lead, a USGS effort to bring together regional researchers and managers interested in stream temperature, stream flow, and brook trout to discuss topics such as database development and integration;

guidance for using models and assessments, and coordinated investigations. Rachel Muir of USGS is organizing the allocation of approximately \$60,000 for this effort in 2014. At a minimum, partners involved are expected to include USGS researchers (including Ben Letcher and Tyler Wagner of Penn State and USGS), the Appalachian and North Atlantic LCCs, the Eastern Brook Trout Joint Venture, NFHAP, the NALCC aquatic habitat project led by Downstream Strategies, and the NorEaST stream temperature project sponsored by the Northeast Climate Science Center.

2) Currently completed products should be expanded geographically, preferably to the full North Atlantic LCC geography plus the headwaters of the watersheds that drain to the North Atlantic (i.e., Chesapeake, Delaware, Hudson, and other Atlantic watersheds). It is expected that much of the work below for New England and New York will be completed under the current project. These products should be incorporated into the Decision Support System under development.

- Stream temperature modeling (1st to 3rd order streams): complete first iteration of modeling for eastern New York and remaining areas of Maine; investigate expansion to North Atlantic watersheds south of New York. Any expansion should involve investigating currently available products, e.g., Pennsylvania stream temperature modeling, to avoid duplication of high quality existing work.
- Stream flow modeling (1st to 3rd order streams): investigate expansion south of New York in coordination with any related efforts.
- Brook trout occupancy, based on precipitation and air temperature (including future climate change): incorporate Vermont data as available to complete current range; as part of broader coordination effort explore value of expanding south of New York. Any brook trout modeling effort should consider including environmental variables that other researchers have identified as being important in determining habitat suitability for this species (e.g., presence of alien salmonids, barriers to passage, presence of mine discharge, etc.).
- Brook trout occupancy, based on stream flow and stream temperature (including future climate change): expand to Maine and New York as flow and temperature modeling are completed; explore expansion per the previous bullet.

3) The project should proceed with the proposed task to integrate models with management and policy. Working directly with Connecticut and Massachusetts water agencies to inform their stream temperature criteria is supported; staff from these agencies conveyed their endorsement for this work directly to North Atlantic LCC staff. This work should be regarded as a “pilot” to be expanded to the broader region, and therefore steps that can foster wider adoption (such as compiling lessons learned, making presentations at regional venues) should be an integral part of the work.

4) While the need for integrated databases for temperature, fish occurrence, etc. is apparent, unilateral or immediate development of a new database to house regional data is not supported at this time. Any database development should involve careful consideration of existing databases, geographic scope, partner needs, and long-term viability. Initial consideration, consultation, and assessment should be part of the USGS-led coordination effort referred to previously. Existing databases to be considered in an assessment include the NorEaST database for stream temperature data and Eastern Brook Trout Joint Venture and National Fish Habitat Partnership

databases for fish data. The North Atlantic LCC would consider a role in regional database support if a coordinated review and assessment made such a recommendation.

5) The proposed task to develop multispecies models is supported primarily as a project leveraged with additional (non-LCC) funds, with conditions. The value of this work is that it could help verify the value of using brook trout as a surrogate for cold water conditions as well as identifying sensitivities of other species that could be missed by focusing on only one species. However, usefulness and importance of this effort to managers should be confirmed before proceeding. Also, such work should be coordinated with the North Atlantic LCC and other projects such as the Downstream Strategies project supported by the NALCC. A pilot effort that is tied to the management integration effort (topic 3) could be one way to test the approaches.

2014 Budget Recommendation

In 2014, the North Atlantic LCC is significantly constrained in its financial ability to support two important projects that are concluding this year, the aquatic forecasting project and *Designing Sustainable Landscapes* (much less in initiating new science projects). The recommendation of the Technical Committee is to provide partial one year funding for each project, with a potential for funding next year depending on next year's budget and satisfactory progress in the coming year.

For *Designing Sustainable Landscapes*, this consists of \$230,000 to begin the development of stand-alone decision support tools (\$160,000) and implementation of the habitat management and restoration module (\$70,000).

For the aquatic forecasting project, this consists of \$110,000 of North Atlantic LCC funding directed to the five topics described previously, leveraged by USGS funding that can contribute to topics 1 and 4 and two other projects (Northeast Climate Science Center and USGS Hurricane Sandy funding) that can contribute to topic 5.

Additional Science Needs and Discussions

While various additional science needs of partners were discussed, no major substitutes for funding the two existing projects were proposed. A summary of discussions among the coastal and marine sub-team is as follows:

Eight members of the Coastal and Marine Technical Team met via webinar/conference call on June 12.

- They reviewed the status of all completed and ongoing LCC coastal projects and needs and discussed potential next steps. The group did not recommend any additional LCC funding for completed LCC coastal projects or outstanding needs this year given limited funding and large amount of ongoing Hurricane Sandy funded work.
- The focus of the group discussions was on coordinating the many Hurricane Sandy restoration and science projects including the LCC projects on beach and marsh resiliency, in particular the importance of evaluating and learning from the many restoration projects.

- It was noted that the Designing Sustainable Landscapes project being reviewed by the full technical team was receiving some support through Hurricane Sandy for incorporating the ecological integrity and species habitat capability of marshes and beaches that could be leveraged through additional LCC support