PROGRESS REPORT (January through March, 2012)
ACCOMPLISHMENTS AND FUTURE OBJECTIVES OF NEAFWA REGIONAL VULNERABILITY ASSESSMENT PROJECT

Objectives of the project. The overarching goal of the project is to provide vulnerability and adaptation information that will help the northeastern states to plan their conservation of fish and wildlife under a changing climate. It has five specific objectives:

1. To quantify the vulnerabilities to climate change of fish and wildlife and their habitats across the region and thereby identify those habitats and species that are likely to be more or less vulnerable, and how these vulnerabilities vary spatially.

2. To project how these habitats and species will change their status and distributions under climate change.

3. To identify potential adaptation options (including the mitigation of non-climate stressors) that can be used to safeguard vulnerable habitats and species.

4. To identify monitoring strategies that will help track the onset of climate change and the success, or otherwise, of adaptation actions.

5. To work with states to increase their institutional knowledge and capabilities to respond to climate change through educational and planning workshops and other events.

Accomplishments (1) – Terrestrial Habitat Vulnerability Assessment.

Major accomplishments were achieved during this reporting period:

Runs of Vulnerability Model. The predictive vulnerability model has now been run on 13 major habitat types:

- Alpine tundra
- Acadian-Appalachian Montane Spruce-Fir Forest
- Northern Hardwood Forests
- Oak-Hickory forests
- Pine Barrens
- Atlantic White Cedar swamps
- Southern high elevation Spruce-Fir forests
- Boreal-Laurentian Bog
- Boreal-Laurentian-Acadian Acidic Basin Fen
- Laurentian-Acadian Wet Meadow Shrub-Swamp
- Laurentian-Acadian Freshwater Marsh

- North Central Interior and Appalachian Acidic-Peatland
- Central and Southern Appalachian Spruce-Fir Forest

Together, these habitats comprise about 60-65% of the 184,000 miles^2 of northeastern land surface that provides fish and wildlife habitat (excluding urban and agricultural croplands).

The results of the model runs have been submitted to the forest and wetlands habitat workgroups for review and comment. Comments have been received back on 9 habitats submitted for review. The next steps in the completion of these habitat accounts will be to:

- Incorporate the reviewers' comments into the accounts
- Submit the completed accounts to the entire NEAFWA expert panel for additional comments
- Incorporate these comments and finalize the accounts.

GIS Mapping. The TNC and NEAFWA habitat map and data base for the Northeast Region is an important new tool in evaluating impacts of stressors and conservation design. We are using it in this project to map the distributions and coverages of the habitats whose vulnerabilities are being evaluated. Maps and tables from this process have been developed by our GIS expert, Bill VanDoren of Greenfield , MA. These have been incorporated into the model runs for the habitats that have been evaluated.

Cold Water Fish Habitats. It was the original intent of this project to apply the NEAFWA habitat model to evaluating the vulnerabilities of cold water fish habitats to climate change. However, the NALCC is currently funding more detailed scientific research (e.g., at the Conte Laboratory under Dr. B. Letcher) that will, we believe, take us most of the way toward this goal. In recognition of this, we (Manomet, the NALCC, and John O'Leary – the Technical Lead on the NEAFWA project) have decided that the NEAFWA/NALCC project's role should be to develop a "white paper" that reviews the past work that has focused on cold water habitat vulnerabilities in the Northeast, and that charts the evolution of our ideas about this over the past 15 years. This is intended to provide a platform from which to identify what additional work needs to be carried out in the future. This should be completed by Fall of this year,

Accomplishments (2) – Coastal Habitat Vulnerability Assessment. Now that substantial progress has been made on terrestrial habitat vulnerability assessment, we are turning our attention to coastal habitat types (which are not amenable to investigation using the NEAFWA Habitat Vulnerability Assessment Model). Also, the North Atlantic Landscape Conservation Collaborative (NALCC) has provided funding to allow us to move forward on this aspect of the overall project. The science component of this will address two main objectives:

1. To develop a database that contains descriptive information on all of the coastal studies and projects that have been and are being carried out in the Northeast

Region. This will provide an essential catalogue that can be used to identify knowledge gaps and uncertainties and where future work should take place. Austin Kane of National Wildlife Federation is heading up this effort, with guidance from Galbraith of Manomet. We intend that the database will be complete and made available on the web by summer of this year.

2. A review paper will be written that takes the information in the database described above, together with other data that are available (e.g., sea level rise data from NOAA) and combines them into a "white paper" that describes the state of our knowledge about the vulnerabilities and potential impacts of climate change on coastal resources in the region, and that identifies data gaps, uncertainties, and next steps. Galbraith of Manomet is taking the lead on this project. This also will be complete and available by this summer.

To begin this process, we convened a small group of state personnel who are interested in, and who have been active in evaluating impacts to coastal resources. The members of this group are:

Bill Hyatt (CT DEP)
Karen Bennett (DE DNRC)
Rob Hossler (DE DNRC)
Zoe Johnson (MD DNR)
John O'Leary (MA DFW)
Austen Kane (NWF)
Christopher Hilke (NWF)
Andrew Milliken (USFWS).

The purpose of forming this group was so that Manomet could elicit opinions from state practitioners about what they thought was actually needed in evaluating the vulnerabilities of coastal habitats. In other words, what results and tools would they like to see emerging from this new phase of the work.

Accomplishments (3) – Securing Additional Funding for Project

Using the existing NEAFWA grant as leverage, we have been successful in attracting additional funding to help expand the scope and depth of the project. These additional funds include:

- The North Atlantic LCC has contributed additional funding to this project. The additional sum (about $180,000) will be applied to two components: to continue the habitat vulnerability work and capacity building that is taking place ($75k); and to begin to involve NatureServe and its species model to do supporting modeling for species ($100k). The exact outlines of this second component is still being finalized, however, it will support and extend the work that is already taking place on habitat vulnerability assessment.

- NWF has agreed to supply an additional $25,000 to support work that we will be doing with the State of Vermont to assess the vulnerabilities of fish and wildlife habitats in the state.
- The DeCoizart Foundation has supplied $50,000 to fund additional vulnerability assessment work in the State of New York. We are currently in discussion with the state to determine how these funds could be best applied, given the species vulnerability work that has already been completed there.
- The USFWS National Wildlife Refuge at Parker River, MA, has provided $20,000 to take the first steps in applying vulnerability assessment methods developed in the NEAFWA project at this coastal reserve to identifying potential adaptation options.

Accomplishments (4) –Wider Use of the NEAFWA Model, and Providing Support on State Vulnerability Assessments

Given their history of assessing regional and state vulnerabilities to the changing climate, and the work ongoing with the NEAFWA regional project, Manomet and NWF have been invited to provide support on 6 state vulnerability assessment projects: Maryland, Vermont, New Hampshire, Maine, New Jersey, and New York. The NEAFWA habitat model is being used in all of these, except Vermont and New Hampshire. We are working with the project leaders in all of these states to ensure that the results of the NEAFWA project are included in the state assessments.

Also, the NEAFWA Habitat Vulnerability Assessment Model has been an important component of various training courses in vulnerability assessment. Organized by a consortium of parties, including NCTC, NWF, Manomet and others, these 3-day courses seek to train state and federal and NGO practitioners in the science of habitat and species vulnerability assessment. Thus far, six such training courses have taken place at NCTC in West Virginia, Anchorage (Alaska), St. Petersburg (Florida), Eaton (Washington), Ft. Collins (Colorado), and Phoenix (Arizona). The NEAFWA model has been used at these courses to teach students about habitat vulnerability assessment. This has resulted in the use of the model spreading geographically and has been successfully used to evaluate habitat vulnerabilities by the National Park Service in the South Dakota Badlands NP.

Accomplishments (5) – Scoring SGCN Vulnerabilities

As described above in “Accomplishments (3)”, the North Atlantic LCC has offered to put additional funding into the project. One of the tasks that they want to support is species (SGCN) vulnerability scoring. Given that we now have additional funding for this task, we can now carry it out with greater rigor and scope than was originally intended. NatureServe is now under contract with the NALCC to apply their species vulnerability model to approximately 60 SGCNs. Manomet will work with NatureServe to accomplish this task. Our responsibilities will include:

- Working with NatureServe and the LCC to select the species to be modeled

- Helping to run the model on the selected species
- Reviewing the results of the model runs
- Peer reviewing any product that is produced by NatureServe for the NEAFWA/LCC collaboration.

Work on this task has recently begun.

Future Plans and Timelines. Over the next three months our main goals will be to:

1. Finalize the vulnerability results for the 13 habitats that have already been addressed.

2. Continue the work on evaluating the vulnerabilities of coastal habitats

3. Continue the work on evaluating the vulnerabilities of cold water fish habitats..

4. Initiate work on vulnerability assessment and subsequent suite of adaptation strategies for Parker River National Wildlife Refuge as a case study for other NWRs and coastal WMAs across the northeast.

5. Work with NatureServe and the LCC to move forward work on the SGCN vulnerability task.