

SCOPE OF WORK

REVISIONS TO THE NORTHEASTERN AQUATIC HABITAT CLASSIFICATION

Project Director:

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Grant Term: April 1, 2013 – December 31, 2013

Project Budget: \$25,252

Grant Agreement With:

The Wildlife Management Institute on behalf of the North Atlantic Landscape Conservation Cooperative

- **Objective:** Improve the existing Northeast Aquatic Habitat classification by adding a tidal stream component and a mapped classification of lakes
- **Timeline and Cost:** This is a supplement to the Aquatic Habitat Guide project currently underway and due in September 2013, however the funding is from a different source and thus we are treating this as a separate project. Our intent is to complete the tidal stream component by September 2013 and the classification of lakes by December 2013. We estimate that it will take **\$25,000.00** to accomplish this.
- **Background:** In 2008, the Nature Conservancy and the Northeast Association of Fish and Wildlife Agencies (NEAFWA) completed the Northeastern Aquatic Habitat Classification (NAHCS) for 13 northeastern states (Olivero and Anderson, 2008). This classification and GIS dataset was designed to consistently represent the natural aquatic habitat types across this region in a manner deemed appropriate and useful for conservation. The classification is being used in a number of state and regional projects and is serving as a model for other classification-oriented stream classification efforts. To increase the utility of the classification, NEAFWA has currently funded TNC to develop a simple user-friendly “habitat guide” to provide for each type a description of the habitat, example photograph, statistics and distribution patterns, crosswalks to state classification schemes, and wildlife associations for northeast fish and mussels.
- In the process of using the classification system and developing the habitat guide, two limitations have been noted by the users: 1) the current system does not classify tidal systems and 2) it does not include a lake classification. Additionally some states are interested in a simple metric of stream confinement to separate highly confined streams from open marshy types.

- **Proposal for New Work:** To address the current limitations and update the product with tidal systems and lake types, we propose the following:
 - **Tidal:** Tidal streams and rivers of the northeast support a unique assemblage of aquatic biological communities and are utilized as nursery areas, refuges, and important food sources for a variety of coastal, marine, and diadromous species. We propose to collect and analyze available data such as available diadromous fish distributions, tidal and brackish wetland occurrences, and estuary chemistry information, to accurately map the landward extent of these tidal stream and river habitats. The reviewed and finalized types will be integrated into the GIS dataset and habitat guide by September 30, 2013.
 - **Lakes:** We have already compiled a lake dataset and some useful classification attributes (size, elevation, geology, shoreline sinuosity, network position), but we are missing information on lake depth. Depth is a critical variable related to lake stratification and the presence of permanent cold water habitats in a lake, and as of 2011 EPA has released a new data set of predicted lake depth for the region (Hollister et al. 2011). The new dataset estimates maximum depth from the slope of the surrounding topography for all lakes in the 1:100,000 National hydrography dataset (NHD+). The results have been well received. In March 2013 the data set will be completed for the country including a suite of other lake morphometry measurement such as surface area, volume, maximum length, maximum width, mean width, mean depth, max depth, shoreline length, and shoreline development.
 - We propose to obtain EPA's predicted lake depth and morphology dataset, and evaluate its usefulness for estimating lake stratification and depth, and to compile other newly available geospatial regional lake datasets, such the National Lake Assessment water chemistry data. We will reconvene the science steering committee to guide development of a regional lake classification and review final classification maps and descriptions. We expect the final lake classification and dataset will be ready by December 2013.

Timeline

- **April – May:** Attribute and test tidal classification and develop metrics of stream confinement
- **June-July:** Review and finalize tidal and confinement variables and integrate into GIS datasets and habitat guide. Obtain copies of lake classifications being used in the states,.
- **Aug- Sept:** Reconvene steering committee, Obtain geospatial sample locations on lake stratification for calibration and stratification models. Begin discussion of lake classification and variables. Review variables EPA depths.
- **Oct- Nov:** Produce first draft of lake types using core variables. Review thresholds with team
- **December:** Agree on final lake type, synthesize with map datasets and write ecological descriptions for the types.