ID # (assigned by CSG): 12-S-19-NC

Please provide the following information, adding space as necessary:

State: North Carolina

Assign Program Category (applicant): Environment (Use list at end of application)

Program Name: NC Wetland Assessment Method

Administering Agency:
State agencies: NC Dept. of Transportation/ Natural Environment Section, NC Dept. of Environment and Natural Resources/ Division of Water Quality, NC Wildlife Resource Commission, N.C. Division of Coastal Management, NC Ecosystem Enhancement Program, N.C. Natural Heritage Program
Consultants: Atkins North America, Inc., Axiom Environmental

Contact (Name and Title): LeiLani Paugh, Natural Environment Section, Group Leader
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1. How long has this program operated (month and year)? Note: the program must be between 9 months and 5 years old as of April 5, 2012 to be eligible for this year's award.

   The NC Wetland Assessment Method was completed October 2010 with the issuance of the user manual and two years of training for both the public and private sectors.

2. Describe the program:
   • Why was it created?

   The North Carolina Wetland Assessment Method (NC WAM) is the culmination of an effort of an interagency team of federal and state agency staff chaired by the NCDOT and NCDWQ. The goal of the team was to develop an accurate, consistent, rapid, observational, and scientifically based field method to determine the level of function of a wetland relative to reference condition (where appropriate) for each of 16 North Carolina general wetland types.
• Why is it a new and creative approach or method?
Previously, wetland evaluations, including potential impact sites and mitigation sites, were evaluated on a per acre basis. There was no consistent or accepted method to determine the functions of a wetland system, its quality or level of performance of those functions, or the extent of its degradation. Also, each agency was able to incorporate its own mission while also committing to the development of a common language and assessment.

• What are the specific activities and operations of the program in chronological order?
The team identified 16 general wetland types: 1) Salt/Brackish Marsh, 2) Estuarine Woody Wetland, 3) Tidal Freshwater Marsh, 4) Riverine Swamp Forest, 5) Seep, 6) Hardwood Flat, 7) Non-Riverine Swamp Forest, 8) Pocosin, 9) Pine Savanna, 10) Pine Flat, 11) Basin Wetland, 12) Bog, 13) Non-Tidal Freshwater Marsh, 14) Floodplain Pool, 15) Headwater Forest, and 16) Bottomland Hardwood Forest. A dichotomous key is used for identifying wetland types. Functional ratings are developed for each assessment area wetland type in comparison to a reference wetland. Three major functions are recognized with ten sub-functions as follows: hydrology (surface storage and retention and sub-surface storage and retention), water quality (pathogen change, particulate change, soluble change, physical change, and pollution change), and habitat (physical structure, landscape patch structure, and vegetation composition). Sub-functions and functions are evaluated using 22 field metrics listed on a field assessment form. These metrics have been designed and tested to be appropriate to North Carolina wetland types. Data from completed field assessment forms are entered into a computer program to generate High, Medium, and Low ratings for each sub-function, function, and the assessment area. The sub-function ratings are reported both with and without consideration of overall wetland function of the opportunity that the wetland has to perform specific functions. The computer program was developed based on an iterative Boolean logic process and then field tested across the state at more than 200 sites of various levels of wetland quality. The user manual provides conceptual background and instruction essential to implementing NCWAM. Each of the 22 metrics is described with examples to calibrate the user. A comprehensive Glossary of Terms as well as other detailed appendices is also included. An additional resource developed to familiarize users with the NC WAM methodology is the GIS-based NC WAM “Tool Box.” The Tool Box is a collection of previously evaluated reference and non-reference sites and will be available via an internet website.

• Is it effective?  Provide tangible results and examples
Twelve training classes have been provided by the team to potential users from both the private and public sectors. The multi-day office and field based training is required along with general wetland experience to properly use NC WAM. NC WAM was created to be used for project planning, alternatives analysis, compliance and enforcement, mitigation planning, and tracking functional replacement. NCDOT has used the method on several roadway projects to compare impact and mitigation sites. The USACE is requesting all new wetland evaluations are classified according to the NCWAM since its public notice issuance. An interagency implementation team is currently developing guidelines to assist users in application of the functional assessment component.

3. Did this program originate in your state? Yes. If YES, please indicate the innovator's name

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4. Are you aware of similar programs in other states? Yes
   If YES, which ones and how does this program differ?
   Multiple states have functional assessment methods, most prominently Florida, Ohio, and Oregon. The other state methods are not rapid, requiring extensive field work and manpower. Most do not distinguish a suite of functions according to individual wetland types. Many were not developed or accepted by multiple resource and regulatory agencies.

5. What limitations or obstacles might other states expect to encounter when attempting to adopt this program?
   NCWAM is highly adaptable to other states in the Southeast with similar physiographic regions and wetland types. In other areas, development of specific wetland types and the interrelationships of functions for each type would be the main limiting factor.
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Use these as guidelines to determine the appropriate Program Category for your state’s submission and list that program category on page one of this application. Choose only one.

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This application is also available at www.csg.org.