

# Request For Contractor Applications

## **Job Title**

Project Coordinator

For the Project Entitled:

**“Detecting Climate Change In Wetlands in the Adirondack Park”**

## **Contract ID Number:**

S2012-01

## **Request:**

The Adirondack Park Agency (APA) seeks a contract individual to coordinate an EPA-funded project that will design and initiate a network of long-term wetland monitoring sites for analysis of wetland responses to climate change. The project will identify wetlands in the Adirondack Park at risk from climate change; develop protocols and criteria for detecting and monitoring climate change effects; develop training modules for citizen science volunteers; and develop a web-based geographic information systems (GIS) database to analyze, interpret, and disseminate information on wetland and watershed conditions.

## **Term of Contract:**

The term of the contract is one year from the selection of a qualified candidate for contractual services.

The contract is for \$42,000. No benefits shall be provided by the Adirondack Park Agency or the State of New York. The contractor will be responsible for payment of all state and federal taxes. The State of New York will provide a 1099 form to the contractor at the end of each calendar year. The contractor must provide their own transportation during the term of the contract. A mileage allowance is available based on federal reimbursement rates.

## **Background:**

Adirondack wetlands are at risk from predicted long-term changes to the quantity, seasonality, and type of precipitation associated with climate change. These changes could have substantial effects on wetland hydrology, structure, and function. The project seeks to define a set of clear objectives and strategies that will adequately and effectively monitor changes in wetland structure and function, particularly as these relate to ongoing climate change.

## **Project Objectives:**

The project will provide the first comprehensive program in the Adirondacks consistent with national climate change detection networks. Final products will include a protocol for wetland monitoring that will collect baseline data relating conditions in wetlands and

the wetland/upland interface to changes in climate (future data collections will document change); a network of volunteers for monitoring wetlands; training modules that may be transferred into other volunteer training programs; a GIS framework for analysis and dissemination of the collected data to the public; and proposed guidelines to address APA project review and permit conditions to incorporate climate change impacts on wetlands.

Specific project objectives are:

- 1) identification of wetlands at risk from climate change;
- 2) development of protocols and criteria for detecting and monitoring climate change effects;
- 3) development of data collection training modules for citizen science volunteers; and
- 4) development of a web-based GIS database framework to analyze, interpret, and disseminate information on wetland and watershed condition.

### **Duties**

The Project Coordinator is expected to oversee operation of the project and report to the Project Director. Specific duties include but are not limited to:

- 1) oversee, coordinate and facilitate all partner activities and responsibilities related to the project;
- 2) coordinate and facilitate peer review group meetings and activities;
- 3) provide weekly updates to the APA Natural Resource Supervisor and partners; through the use of various communication tools;
- 4) provide formal quarterly project reports to EPA;
- 5) communicate and coordinate with the partners to keep project components on track and timely;
- 5) fiscal oversight to ensure grant compliance and to secure project information from the partners for inclusion in the final draft report; and
- 6) produce a draft final report for review by the EPA/APA.

## **Skills/Tools**

1. GIS and GPS – Candidate must be familiar with ESRI software products (ArcGIS 10x, ArcPad, Spatial Analyst extension, heads-up and heads-down/tablet digitizing) and understand the concepts and methods of collecting and differentially correcting GPS data and incorporating it into a GIS. Candidate must have demonstrated ability in managing various types of spatial data. Information capture, management and dissemination using GIS and other software tools is a critical component of this position.
2. Monitoring - Candidate should have training and/or experience in either the development and implementation of an environmental monitoring program, in sampling design and applied statistics, in the management and quality control of large datasets, or preferably in some combination of the above.
3. Photointerpretation – Candidate should be familiar with digital and hardcopy airphoto imagery, the use of stereoscopes and zoom transfer scopes and familiar with the use of photogrammetry or image analysis software for the purpose of orienting, stereo viewing and interpreting digital imagery.
4. Field Orientation – Candidate should be adept at field orientation with map and compass and able to conduct long, demanding days in the field in isolated situations.
5. Communication/Coordination – Candidate must have excellent oral communication skills and project a professional, respectful demeanor. It is critical that the candidate have a high degree of professionalism in all forms of communication including personal, electronic, memos and reports will be responsible for daily memos and weekly and quarterly written reports. His/her writing must be clear and concise. Candidate will be expected to coordinate project partners, lay volunteers, and an expert review group in a collegial way for this highly collaborative project.
6. Wetland identification – Candidate should know common wetland plants of the Northeast, how to use technical and popular botanical guides, understand wetland hydrology, and recognize impaired hydrological conditions.
7. Team and Project Management – Candidate must have experience managing and coordinating field personnel in a collaborative and team environment.
8. Organization – Candidate must be highly organized and able to aid others in organizing daily tasks to keep the project on track and timely.

## **Experience:**

1. Team Management – Candidate must have a minimum of three years supervisory experience in a collaborative and team environment and have experience in the successful implementation of complex projects.
2. Education – A Master of Science degree is preferred; a Bachelor of Science degree is required. The candidate's degree should be in one of the following fields or

equivalent: Ecology, Botany, Zoology, or other biological sciences, or Environmental Engineering.

3. Work – Candidate must have a minimum of three years experience working in a field related to land use management and natural resource analysis and protection. Candidate must demonstrate familiarity with GIS/GPS/Image Analysis software.
4. Communications – Candidate must demonstrate experience with formal and informal educational activities.

**How to Apply:**

Applicants must provide a letter of intent with a proposed work plan based on the attached grant submission, a resume, and three references. At least one reference should be from a recent supervisor and list similar projects where project management and implementation have been engaged in a contractual manner. Supporting documentation such as, but not limited to, work programs, curriculum vita, written or graphical reports, and GIS projects should be provided with the other application materials.

**Four (4) copies of your application must be received by 4:30 pm on 02/01/12 addressed to Elaine Caldwell, Administrative Services.**

These materials should be sent to:

Elaine M. Caldwell  
Administrative Officer  
NYS Adirondack Park Agency  
PO Box 99  
Ray Brook, New York 12977

**The exterior of the envelope must clearly state that this is a sealed contract item and it must be labeled with Contract ID Number S2012-01.**

	<b>U.S. ENVIRONMENTAL PROTECTION AGENCY</b>  <b>Grant Agreement</b>	<b>ASSISTANCE ID NO.</b>			<b>DATE OF AWARD</b> 09/29/2011	
		<b>PRG</b>	<b>DOC ID</b>	<b>AMEND#</b>		
		<b>CD - 97208000 - 0</b>			<b>MAILING DATE</b> 10/06/2011	
		<b>TYPE OF ACTION</b> New			<b>ACH#</b> 20130	
<b>PAYMENT METHOD:</b> Advance						
<b>RECIPIENT TYPE:</b> State		<b>Send Payment Request to:</b> Las Vegas Finance Center				
<b>RECIPIENT:</b>		<b>PAYEE:</b>				
New York State Adirondack Park Agency P.O. Box 99, Route 86 Ray Brook, NY 12977 EIN: 14-6013200		New York State Adirondack Park Agency P.O. Box 99, NYS Route 86 Ray Brook, NY 12977				
<b>PROJECT MANAGER</b>		<b>EPA PROJECT OFFICER</b>		<b>EPA GRANT SPECIALIST</b>		
Daniel M. Spada P.O. Box 99, Route 86 Ray Brook, NY 12977 E-Mail: dmspada@gw.dec.state.ny.us Phone: 518-891-4050		Kathleen Drake 290 Broadway, DEPP/WMB New York, NY 10007-1866 E-Mail: Drake.Kathleen@epa.gov Phone: 212-637-3817		Michele Junker Grants and Contracts Mgt Branch, OPM/GCMB E-Mail: Junker.Michele@epamail.epa.gov Phone: 212-637-3418		
<b>PROJECT TITLE AND DESCRIPTION</b> Detecting Climate Change in Wetlands in the Adirondack Park  The recipient will design and initiate a network of long-term wetland monitoring sites for analysis of wetland responses to climate change. It will identify wetlands in the Adirondack Park at risk from climate change; develop protocols and criteria for detecting and monitoring climate change effects; develop training modules for citizen science volunteers; and develop a web-based geographic information systems (GIS) database to analyze, interpret, and disseminate information on wetland and watershed conditions.						
<b>BUDGET PERIOD</b> 01/01/2012 - 12/31/2015		<b>PROJECT PERIOD</b> 01/01/2012 - 12/31/2015		<b>TOTAL BUDGET PERIOD COST</b> \$308,816.00		
				<b>TOTAL PROJECT PERIOD COST</b> \$308,816.00		
<b>NOTICE OF AWARD</b>						
Based on your application dated 07/21/2011, including all modifications and amendments, the United States acting by and through the US Environmental Protection Agency (EPA), hereby awards \$227,005. EPA agrees to cost-share 73.51% of all approved budget period costs incurred, up to and not exceeding total federal funding of \$227,005. Such award may be terminated by EPA without further cause if the recipient fails to provide timely affirmation of the award by signing under the Affirmation of Award section and returning all pages of this agreement to the Grants Management Office listed below within 21 days after receipt, or any extension of time, as may be granted by EPA. This agreement is subject to applicable EPA statutory provisions. The applicable regulatory provisions are 40 CFR Chapter 1, Subchapter B, and all terms and conditions of this agreement and any attachments.						
<b>ISSUING OFFICE (GRANTS MANAGEMENT OFFICE)</b>			<b>AWARD APPROVAL OFFICE</b>			
<b>ORGANIZATION / ADDRESS</b>			<b>ORGANIZATION / ADDRESS</b>			
Grants and Contracts Management Branch 290 Broadway, 27th Floor New York, NY 10007-1866			U.S. EPA, Region 2 Division of Environmental Planning and Protection 290 Broadway New York, NY 10007-1866			
<b>THE UNITED STATES OF AMERICA BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY</b>						
<b>SIGNATURE OF AWARD OFFICIAL</b>		<b>TYPED NAME AND TITLE</b>		<b>DATE</b>		
Digital signature applied by EPA Award Official		Donna J. Vizian, Assistant Regional Administrator for Policy and Management		09/29/2011		
<b>AFFIRMATION OF AWARD</b>						
<b>BY AND ON BEHALF OF THE DESIGNATED RECIPIENT ORGANIZATION</b>						
<b>SIGNATURE</b>		<b>TYPED NAME AND TITLE</b>		<b>DATE</b>		
		Terry Martino, Executive Director				



**1.a. Project Title: Building a Monitoring Framework for Detecting Wetlands Response to Climate Change in the Adirondack Park**

**b. Core Elements** – a. Monitoring and Assessment

**c. Actions** – From the appendix: Program Development and Refinement Activities

Core Element: Monitoring and Assessment: Set 1 – a, b, c, d; Set 2 – b, c

**d. Applicant** – New York State Adirondack Park Agency

**e. Key Personnel and Contact Information** –

Daniel M. Spada, Regional Supervisor Natural Resources (dmspada@gw.dec.state.ny.us)

Terry Martino, Executive Director (tmartino@gw.dec.state.ny.us)

Elaine M. Caldwell, Administrative Officer (emcaldwe@gw.dec.state.ny.us)

New York State Adirondack Park Agency, 1133 NYS Route 86, P.O. Box 99, Ray Brook, New York 12977 Tel: 518.891.4050 Fax: 518.891.3938

**f. Geographic Location** – Adirondack Park, NY in HUC Regions/Subregions 0201, 0202, 0415

**g. Total project cost:** \$308,816 Federal Contribution: \$227,005

**h. Abstract / Project Summary** – The great expanse of wetlands in the Adirondack Park (~384,000ha) provide a range of crucial ecosystem services such as provision of clean water to large urban centers. At present, the Adirondack Park Agency's (APA) wetland regulatory program does not yet consider the likely effects of climate change on wetland structure and function. The main objective of this proposal is to design and initiate a monitoring system to establish a network of long-term wetland monitoring sites that will enable analysis of wetland responses to climate change. Our main tasks will be to: 1) identify wetlands at risk from climate change; 2) develop protocols and criteria for detecting and monitoring climate change effects; 3) develop data collection training modules for citizen science volunteers; and 4) develop a web-based GIS database to analyze, interpret, and disseminate information on wetland and watershed condition. This project will provide the first comprehensive program in the Adirondacks

consistent with national climate change detection networks. Final products will include a protocol for wetland monitoring that will collect baseline data relating conditions in wetlands and the wetland/upland interface to changes in climate (future data collections will document change); a network of volunteers for monitoring wetlands; training modules that may be transferred into other volunteer training programs; a GIS for analysis and dissemination of the collected data to the public; and guidelines for revising APA project review and permit conditions that incorporate climate change impacts on wetlands. We seek funding for the first phase of this project.

## **2. PROJECT DESCRIPTION**

### **a. National Priority Area: Wetland Program Development and Project Need**

This project will undertake the following actions in support of wetland program development:

#### **Set 1. Goals**

- a) *Identify program decisions and long-term environmental outcome(s) that will benefit from a wetlands monitoring and assessment program.* The APA has a strict wetland regulatory program but no assessment mechanism for adapting this program based on wetland response to stressors. We will develop a monitoring and outreach effort to enable adaptive management in the APA's regulatory activities. An understanding of the magnitude and direction of change in wetlands will help refine APA management approaches by wetland type, sensitivity to stressors, local conditions, and regional context.
- b) *Define wetlands monitoring objectives and strategies.* A key component of this project is to adequately and effectively define a set of clear objectives and strategies that will allow us to most effectively monitor changes in wetland structure and function, particularly as these relate to our ongoing climate change. Predicted long-term changes to the quantity, seasonality, and type of precipitation could have substantial effects on wetland hydrology, structure, and function. We will convene an expert review group and a workshop to define monitoring objectives and strategies.

c) *Develop monitoring design, or an approach and rationale for site selection that best serves monitoring objectives.* Wetlands will be selected by type, size, watershed location, plant community type and elevation. Wetland systems for which existing long-term data is available (e.g., NADP, ALTEMP, ALSC) will be given preference. These primary criteria will be selected using a GIS-based analysis. To represent local climatic conditions, we will use very high resolution (4km) climate maps of 30-year normals and trends (1980-2009) for temperature and precipitation, derived from high-quality gridded historical climate (GHC) products, including PRISM. These data will be used to stratify our wetland monitoring sites into categories based on the type and magnitude of recent trends in temperature and precipitation, which will allow us to assess wetland sensitivity to climate after controlling for the influence of covarying factors (e.g., wetland type, size, elevation) and non-random spatial variability. Once a clear set of monitoring objectives are set, we will identify wetlands at risk from climate change and build a statistically robust protocol for locating permanent study plots in a sample of wetlands, the adjacent and wetland/upland interface.

d) *Select a core set of easily identifiable indicators to represent changes in wetland condition or a suite of functions due to climate change* – Indicators may include changes in vegetation and faunal communities, changes in water quality and quantity, changes in hydroperiod, and metrics linked to nutrient and biomass transfer across the wetland/terrestrial interface, for example amphibian and aquatic invertebrates populations. The project team will review indicators used by other monitoring programs (e.g., EPA National Wetland Condition Assessment) and select a set that is scientifically defensible, attainable by volunteers, rapid and cost-effective.

## **Set 2. Strategy Development**

b) *Monitor wetland resources by the development of the monitoring tools and specific wetland studies as specified in strategy* – A key component of this project is to build the expert review group and volunteer base and train participants for effective data collection.

c) *Establish reference condition* – This project will fund the development and ramp-up phase of a citizen-science wetland monitoring program. The first complete sample will be analyzed with a regression-modeling approach to understand the gradient from impaired to unimpaired and determine an appropriate quantitative reference to detect further change based on future sampling. Establishing reference conditions is central to this proposal since it forms the basis of the long term monitoring goals.

All of the actions described above are outside the scope of the APA's existing regulatory framework and current requirements. This project represents the first phase for incorporating this monitoring strategy as a feedback system informing the APA regulatory system.

#### **b. Outputs, Outcomes, and Results**

**i. Outputs** – We expect the following measurable outputs to result from the project activities described above. These outputs will be tracked through strict adherence to project schedules for tasks and deliverables by the Project Coordinator. Many of the metrics developed in the APA's previous EPA funded grant WDP(GP) (ID No. WL-97267806) will be adapted for this project.

1. A protocol completed within the study period for monitoring wetlands. The protocol will enable statistical and spatial analysis of wetland responses to climate change.
2. Wetland, water quality and wetland/upland interface indicators of climate change.
3. A protocol for establishing permanent plots and collecting baseline data relating conditions across a range of different wetlands and the wetland/upland interface to changes in climate. These data will offer important information regarding the relationship between climate and wetlands, spatial and temporal variability of indicators, and form the baseline for long-term monitoring. Data quality will be evaluated with repeat samples to a subset of plots by wetland specialists.
4. High resolution wetland maps and watershed delineations of selected "at risk" wetlands. The wetland maps will be used to detect changes in wetland metrics such as extent, structure, and

patchiness. Improved watershed maps will facilitate our ability to model temporal hydrologic dynamics as they relate to influxes and outflows to our targeted wetland.

5. Identification of a network of volunteers capable of and dedicated to monitoring wetlands in the next phase of the study and for longer term monitoring, and a system of quality control based on expert field validation of data collected by volunteers.

6. Data collection training modules appropriate as program templates for transfer to other volunteer training programs.

7. A web-based GIS database containing data for analysis and dissemination to the public.

**ii. Outcomes** – This project will lead to enhanced wetland and water quality protection through

a) the development of a scientifically rigorous protocol for modifying the existing APA wetland protection program for the benefit of wetland viability and quality, and b) the identification of collaborator and volunteer networks to continue monitoring activities. Other outcomes include an enhanced understanding of wetland, water quality, and climate change issues by Adirondack teachers, students and the public, and enhanced wetland/upland forest interface protection.

**iii. Link to EPA Strategic Plan** - The Outcomes and Outputs of this project will help the APA achieve the goal of a net increase in wetlands because they will:

- Identify especially vulnerable wetlands;
- Add information to the regional and national climate change database;
- Enable updating of the APA wetland protection program by providing: 1) more detailed information on wetland condition and function, 2) insight into climate change effects, and 3) the ability to monitor wetlands and water quality over the long-term;
- Enable the APA to conduct regulatory activities in an adaptive management context;
- Engage volunteers in a citizen science program to enhance their awareness of water quality and climate change issues, engendering a personal stake in wetland protection, and establish an additional protective stewardship corps for watersheds;

- Lay the foundation for an action plan to address wetland loss and degradation and inform the APA on land use and development alternatives.

**iv. Tracking Outputs and Outcomes** - The APA has fully documented and reported on our progress towards achieving expected results (outcomes and outputs). APA staff participated in the EPA-organized conference to identify performance standards and reporting needs (ASWM Conference, Shepherdstown, WV, 2007) for the Wetland Demonstration Program (Grant Pilot). The reporting techniques developed from this process provide a high degree of accountability and we will adopt them, somewhat modified, for this project.

**c. Description of Project** - Data collected through previous EPA-funded grants indicates that approximately 15% of the Adirondack Park is comprised of wetlands (Spada et al. 2004). The current state of accelerated climate change, however, blankets these extensive wetlands with a pervasive stressor that we expect to have unprecedented effects on wetland structure and function, particularly in the Adirondacks (Jenkins 2010). We expect the effects on a wetland to vary depending on a variety of factors related to conditions of the watershed, the immediately adjacent land, and the structure and hydrodynamics of the wetland. This project will serve to support, build upon and continue development of the existing APA wetland protection program by: 1) identify wetlands at risk from climate change; 2) develop protocols and criteria for detecting and monitoring climate change effects; 3) develop data collection training modules for citizen science volunteers; and 4) develop a web-based GIS database to analyze, interpret, and disseminate information on wetland and watershed condition.

We will focus on both landscape factors (e.g. elevation, basin structure, location in basin) and available wetland characters (e.g. wetland type) to create a subset of wetlands most likely to be impacted by climate change. We will randomly select from this subset to generate our sample frame for monitoring. We will then research existing monitoring protocols and criteria and again work with regional experts to develop a suite of indicators appropriate for the range of Adirondack wetlands selected as part of this study. These indicators would need to be

quantitative, repeatable, and consisting of metrics that either can be measured by trained citizen scientists (such as shrub height or graminoid density) or measured from samples collected by these volunteers (such as cation exchange capacity from soil samples). Other metrics that can be sampled remotely, such as wetland type, extent, and characteristics of the contributing catchment, will be quantified by APA staff using high resolution 3-D GIS mapping technology. This GIS-based approach also allows the incorporation of existing stressors, such as acidic deposition models and invasive species maps, into wetland climate sensitivity analyses.

In the first phase of this project, we will establish a network of 15 wetland monitoring sites across the Adirondack Park and collect data for one year. Monitoring activities will involve regular measurement of weather conditions (using Hobo stations) and biophysical indicators of change, including ice duration, flowering times, and migratory arrivals (using professional and citizen scientists). In subsequent phases of this project, a subset of wetland sites will be selected for the more intensive sampling and monitoring of hydrology (lysimeters), groundwater and surface water chemistry (wells and surface collections), and biotic integrity of aquatic communities (surveys). Data will be collected at different time intervals, including daily weather, monthly water table, twice-yearly water chemistry, and yearly ice duration and flowering times.

On-site daily weather data can be 'scaled up' to monthly and yearly intervals for analysis with indicators, as well as to provide a measure of ground-truthing for the GHC-derived 4km climate maps. In conjunction with data collection during this one year period, we will emphasize the QA/QC of field methods, protocols and data management systems for implementation in following phases that will also serve to build public awareness of the project, which we hope will bring citizen-scientists to our effort and, in turn, allow further growth of the network and its broader impacts.

A central component of this project is to identify a corps of interested and active citizen scientists who can be deployed to conduct the majority of the wetland sampling in future phases. These may include high school and college students and teachers, landowners, landowner associations,

NGO's, citizen-scientists in the Adirondack Biodiversity Project, and other interested individuals. Citizen science has shown great success in recent monitoring and data collection efforts (Conrad and Hilchey 2010) and we expect it to greatly increase the exposure of this project and the support from the general public. The APA and its partners will develop training materials and then reach out to schools and other citizen groups for participation in an 'adopt-a-wetland' style program. Project staff will report out on project progress and eventual findings by attending and participating in appropriate regional, state, and national professional meetings, and by providing project data to other researchers in this field.

**d. Project Tasks and f. Milestone Schedule** - This milestone schedule includes the work plan elements contemplated under this grant proposal beginning in the Fall of 2011 and extending through 2014 in the order in which they will be undertaken.

Project Activities	Tasks and Responsible Partners
Expert Review	1. Organize an Expert Review Group to advise on the development of project protocols and criteria, identify additional information needs, and ensure general adherence to accepted scientific standards. (All)
Criteria and Protocol Development	2. Conduct a literature search to help develop a monitoring protocol with measurable criteria suitable for detecting changes to wetlands and the adjacent wetland-upland interface (All)
Criteria and Protocol Development	3. Develop wetland selection criteria to identify wetlands types or localities most at risk from climate change effects such as charismatic mega-wetlands, isolated wetlands (including vernal pools), peatlands, and high-elevation wetlands. (All)
Study Site Selection	4. Select 50 wetlands of concern from classes identified in Task 3 above. Choose sufficient wetlands within each class to allow detection of change indicators as determined by <i>a priori</i> power analyses. (All)

Criteria and Protocol Development	5. Develop criteria to be measured that will be indicative of wetland and water quality effects from climate change. (All)
Criteria and Protocol Development	6. Develop a wetland monitoring protocol that includes installing permanent plots. (All)
Data Collection	7. Map wetland boundaries and vegetative community using stereo imagery and heads-up digitization software. (APA)
Criteria and Protocol Development	8. Develop a protocol for identifying, classifying and mapping upland covertypes using digital heads-up remote sensing and heads-up digitizing techniques. (APA)
Data Collection	9. Collect, identify and classify upland forests in selected watersheds using protocol from Task 8. (CAB, APA)
Data Collection	10. Access wetland boundaries and labels from previous EPA- APA grants (see attachment). (APA)
Data Collection	11. Access watershed boundaries to define our study sites from previous EPA- APA grants (Primack, 2000). (APA)
Data Organization	12. Expand existing web-based relational database/GIS to store, array and analyze data. (AEC, APA, NYNHP)
Partner and Volunteer Development	13. Identify suitable participants to “Adopt-a-Wetland” for long-term monitoring. (NFI)
Partner and Volunteer Development	14. Develop and begin a program to provide training to volunteers on data collection and interpretation. (NFI, NHP and CAB)

Data Collection	15. Start the field data collection program utilizing professional staff. (All)
Data Collection	16. Access historical and current weather station data from the Adirondacks and other regional climatologic data. Overlay on the change criteria in Task 4 above. (All)
Reporting and Outreach	17. Present results to public groups, researchers and policymakers through professional (SWS, Adirondack Research Consortium, ASWM) and public venues. (All)
Reporting and Outreach	18. Integrate digital data layers and metadata in web-based database; distribute to stakeholders. (AEC)
Reporting and Outreach	19. Prepare appropriate reports describing initial phase activity for public dissemination. (All)

**e. Partnership Information - SUNY ESF's Adirondack Ecological Center (AEC)**, 6312 State Route 28N, Newcomb, NY 12852, Tel. 518-582-4551. AEC personnel contributing to this project include Stacy McNulty ([smcnulty@esf.edu](mailto:smcnulty@esf.edu), x103), Colin Beier, Ph.D. ([cbeier@esf.edu](mailto:cbeier@esf.edu), x106) and Steve Signell ([ssignell@esf.edu](mailto:ssignell@esf.edu), x109). AEC ecologists maintain the Adirondack Long-Term Ecological Monitoring Program (ALTEMP), that includes long-term datasets on wetland and upland ecosystems and will contribute data and sampling protocols to this project (see <http://www.esf.edu/aec/research/ALTEMP.htm>). AEC ecologists also have several projects involving analysis of high-resolution climate trends in the US Northeast. AEC staff developed and maintain a relational database and web-mapping portal for land use planning ([aprgis.org](http://aprgis.org)).

**SUNY ESF's Northern Forest Institute (NFI)** 6312 State Route 28N, Newcomb, NY 12852, Paul B. Hai, e-mail [pbhai@esf.edu](mailto:pbhai@esf.edu), Tel. 518-582-4551, x 104. The Northern Forest Institute for Conservation Education and Leadership Training (NFI) educates and trains policy makers, business leaders and educators to guide future decisions about the 25 million acres of forested land across the northeastern US. NFI also serves the general public, particularly college and

secondary school students. The project is a cooperative effort with the Open Space Institute, NYS Department of Environmental Conservation, APA and others.

Paul Smith's College Center for Adirondack Biodiversity (CAB), Route 86 and 30, Paul Smith's, NY, 12970, David A. Patrick Ph.D.; e-mail [dpatrick@paulsmiths.edu](mailto:dpatrick@paulsmiths.edu), Tel. 518 327 6174. CAB conducts research focusing on populations of biodiversity and change in Adirondack watersheds, with particular expertise in amphibian ecology, spatially-explicit population modeling, and understanding the implications of ecological scale. CAB is also undertaking a regional vernal pool monitoring program. CAB will provide a large pool of potential volunteers currently associated with the Adirondack Biodiversity Project.

The New York Natural Heritage Program (NYNHP) 625 Broadway, Albany NY 12233-4757. NYNHP has a staff of 25 ecologists, zoologists, botanists, and database experts skilled in inventory, monitoring, GIS mapping and modeling, and database management. They are participating in EPA's National Wetland Condition Assessment and other projects related to the influence of climate change and will bring this expertise to the project.

**g. Detailed Budget Narrative**

	<i>Federal Funding Requested</i>	<i>Applicant Cost Share</i>	<i>Total Cost per Task</i>
1. Organize expert review group.	\$12,000	\$4,300	\$16,300
2. Conduct literature search.	\$3,000	\$4,300	\$7,300
3. Develop wetland selection criteria.	\$16,000	\$4,300	\$20,300
4. Select wetlands of concern.	\$14,000	\$4,300	\$18,300
5. Develop wetland and water quality effects criteria.	\$8,002	\$4,300	\$12,397
6. Develop a wetland monitoring protocol.	\$14,000	\$4,300	\$18,300
7. Collect current wetland information.	\$2,000	\$4,300	\$6,300

8. Upland covertype mapping protocol.	\$10,000	\$4,300	\$14,300
9. Collect, identify and classify upland forest information.	\$18,000	\$4,301	\$22,301
10. Access wetland boundaries and labels.	\$2,000	\$4,301	\$6,301
11. Access subcatchment watershed boundaries.	\$2,000	\$4,301	\$6,301
12. Create a GIS to store, array and analyze these data.	\$32,000	\$4,301	\$36,301
13. Identify volunteers for "Adopt-a-Wetland" approach.	\$12,000	\$4,301	\$16,301
14. Design volunteer training program.	\$12,000	\$4,301	\$16,301
15. Start field data collection program.	\$50,000	\$4,401	\$54,301
16. Access historic and current weather station data.	\$2,003	\$4,301	\$6,301
17. Professional and public outreach.	\$4,000	\$4,301	\$8,301
18. Create web-based database,	\$12,000	\$4,301	\$16,301
19. Prepare appropriate report materials.	\$2,000	\$4,301	\$6,301
Totals	\$227,005	\$81, 811	\$308,816

"Personnel" includes staff time for partners, a GIS specialist, and an NFI outreach specialist.

"Travel" includes participation at several national conferences by the partners. "Equipment" includes various hardware and software items to store, analyze and disseminate the collected data and other project products. "Supplies" includes various data collection devices, software with maintenance, and field gear to stock "monitoring kits" for the volunteers. "Contractual" items include a full time project coordinator and for lab analyses. "Other" items include fuel reimbursement to the project coordinator and partners, and funding for that portion of graduate student tuition. "Indirect" charges include personnel, fringe and indirect expenses for which the partners are seeking reimbursement. All the partners will provide some cost-share (see Table 2.) through un-reimbursed personnel, fringe and in-kind expenses. No partners are federal entities.

**i. Programmatic Capability/Technical Experience/Qualifications** - The APA has been awarded 13 EPA-funded grants since 1993. All projects been successfully administered on budget and on time. (See attachment.) Several staff from prior EPA grants will be involved with this project. The partners are highly qualified and competent scientists.

**j. Transfer of Results** - Project methods, results and products will be shared via:

1. Distribution of Summary Report on project findings and integrated digital data layers to all stakeholders, including governmental, non-governmental, and academic institutions working with wetland ecology and conservation in the Park.
2. Inclusion of data in an open-access database being developed by AEC in coordination with stakeholders, providing a relational database that will spatially and temporally link data.
3. Submission of methods, results and conclusions for peer-reviewed publication.
4. Transfer of knowledge to the broader community in the Park via training local citizen-scientists in wetland monitoring and conservation.
5. Publication on the APA website.
6. Presentations at appropriate regional, state and national professional meetings.
7. Expert Review Group networking opportunities.
8. Coordination and possible participation with USGS on the National Climate Effects Network.
9. Submission of environmental data to the STORET database.
10. Integration of findings and training into ongoing educational programs for professional, academic and public audiences by the Northern Forest Institute.

### **3. Past Performance**

**i.** The APA has a 18 year history of securing, administering and successfully completing 12 EPA-funded projects (see attachment). One additional award is scheduled for completion in Fall 2009. The APA has received two EPA grant awards and has worked on and delivered final reports for two EPA grant awards in the last five years (Diggory et al. 2008, Rooks et al. 2008).

Each of those projects built on prior projects, and this proposal makes use of data, hardware and methods from all previous EPA grants.

ii. All quarterly, annual or final report submittals have been on time and are up to date.

iii. The APA has fully documented and reported on our progress towards achieving expected results (outcomes and outputs). APA staff participated in the EPA-organized conference to identify performance standards and reporting needs (ASWM Conference, Shepherdstown, WV, 2007) for the Wetland Demonstration Program (Grant Pilot). The reporting techniques developed from this process provide a high degree of accountability and we will adopt them, somewhat modified, for this project.

**4. Quality Assurance / Quality Control** - All environmental data will be subjected to rigorous QA/QC methods developed under other EPA funded grants. Project partners will submit a QAPP to EPA for review. In addition, we commit to meeting STORET standards and submitting monitoring data to STORET.

**5. Invasive Species Control** - The APA, its partners and volunteers will be provided Hazard Analysis Critical Control Point (HACCP) training developed by the U.S. Fish and Wildlife Service for aquatic environments. In addition, the APA will develop and implement a terrestrial analog to this plan. All field staff including volunteers will be trained so as to be familiar with the known invasive species found in the Adirondack region. Part of their on-site tasks will be to report on existence and extent of invasive species and to attempt to eradicate them if appropriate. Accepted Best Management Practices will be used in all cases.

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