



**National Park Service
U.S. Department of the Interior**

NOTICE OF INTENT TO AWARD

This Funding Announcement is not a request for applications. This announcement is to provide public notice of the National Park Service's intention to fund the following project activities without full and open competition.

ABSTRACT	
Funding Announcement	P14AS00129
Project Title	Accelerating the Incorporation of Climate Change Knowledge into Adaptation Planning for National Park Service Assets in the Great Lakes Region
Recipient	University of Michigan
Principle Investigator / Program Manager	Richard Rood
Total Anticipated Award Amount	Approximately \$150,000.00 for 5 years
Cost Share	none
New Award or Continuation?	New Award
Anticipated Length of Agreement	From Date of award until 6/30/2019
Anticipated Period of Performance	From Date of award until 6/30/2019
Award Instrument	Cooperative Agreement
Statutory Authority	16 USC 1(g)
CFDA # and Title	15.944 Natural Resource Stewardship
Single Source Justification Criteria Cited	(4) Unique Qualifications
NPS Point of Contact	June Zastrow 303-987-6718 june_zastrow@nps.gov

OVERVIEW

Cooperative Agreement Number P14AC00898 is entered into by and between the Department of the Interior, National Park Service, (NPS), and the University of Michigan for the purpose of developing a transparent, structured path between climate change knowledge and frameworks used in strategic management and decision making.

Climate observations for the Great Lakes show the region has warmed and is projected to continue to warm in the coming decades. The warming is not uniform, however, and understanding the ways in which the climate of the Great Lakes will change in the future is dauntingly complex and uncertain. For example, measures of lake level and ice cover are complex combinations of temperature, precipitation, cloudiness, wind speed, stream flow, and lake circulation. Basic model projections of climate change do not adequately represent this complexity or consider the influence of the lake itself on local climate. Therefore, usable climate change information in this region needs to be made locally relevant, and placed in the context of a specific application or decision for park managers and other decision makers. This project will utilize a prototype problem-solving environment, GLISAclimate.org, to develop a formal interface within which the NPS scenario planning process can more efficiently use current climate change projections to develop a range of plausible climate and ecological futures that inform decision making.

The NPS Climate Change Response Program (CCRP) began exploring the use of a participatory scenario planning approach in 2007 and now uses this process as a long-range planning tool for incorporating the uncertainties associated with climate change into a variety of park management processes and planning documents. Each new climate change scenario planning effort requires the gathering of scientific information in a form that is accessible to park managers and usable within the structure of the scenario planning process. In the past, this information has required considerable effort and time to develop. In January 2013, the NPS conducted a scenario planning workshop with Isle Royale NP (ISRO) in collaboration with the recipients from the University of Michigan and the Great Lakes Integrated Sciences & Assessments (GLISA). Following this work, the recipients applied for and successfully received partial funding from a NOAA fund source to develop a process to more efficiently and effectively gather and apply climate change information to the NPS scenario planning process. This Cooperative Agreement represents the substantial involvement by the NPS, including a potential 50% funding match, to enable the recipient to accomplish the proposed work. Through the development of this work, park managers and the public will more easily access the necessary scientific information required to implement climate change scenario planning and adaptation approaches.

Richard Rood is a Professor in the Department of Atmospheric, Oceanic and Space Sciences. He also organizes the University of Michigan Applied Climate Program, a new degree program leading to a Masters of Engineering in Applied Climate. The purpose of the program will be to train students in the profession of using climate data and climate knowledge in planning and management. The goals of this project are completely consistent with the Applied Climate Program. The students working on this project will be working in a larger cohort of students working on similar problems. There will be the opportunity to share and reuse resources. Relevant to this proposal, the Recipients have already initiated work on sustained assessment of

lake levels. The Recipients have also enhanced the capabilities of GLISAclimate.org, including the accumulation of additional knowledge resources that will contribute to this proposal.

Re-use to Accelerate the Use of Climate Knowledge

The project will extend the information developed for the 2013 ISRO project to Apostle Islands NL (APIS), which shares climate and weather vulnerabilities with ISRO. The University of Michigan will reuse the resources and processes completed during the ISRO project to engage park staff and provide climate information that balances management expectations, usability, and resources with scientific salience, credibility and legitimacy. The goal is to streamline the process of developing the necessary climate science, at a management-relevant scale, to allow NPS professionals to re-use basic climate scenarios toward a variety of management issues. The recipients will use the GLISAclimate.org database to determine overlap of climate drivers between ISRO and APIS with the goal to enable and support the provision of tailored climate information and the generation of climate scenarios to meet NPS goals. The ISRO scenario work focused on specific management decisions around changing vegetation patterns and impacts to large mammals. Following the identification of APIS management needs, recipients will pursue a set of applications that will inform decisions related to these needs. The work will be transferable and will result in a resource foundation that can be extended to national parks and other public and private entities in the Upper Great Lakes Region.

Structured Models for Knowledge Use

GLISAclimate.org develops structured approaches to problem solving and templates to assist in the gathering and management of information. This is also a priority of the National Climate Predictions and Projection (NCPP) Platform of which the Cooperator is the Project Scientist and Lead. Therefore, this effort also leverages off of NCPP and its team. The premise for pursuing structured approaches and templates is that there are common elements of problem solving, which follows from both the experience of the recipients and the literature on the successful use of climate information in policy and planning.

This project will develop an interface between the GLISA's approach of structured provision of climate information and the NPS scenario planning process. The NPS approach is participatory, and therefore, addresses the fundamental need for iterative co-development of solution paths. Therefore, this work will synthesize two structured approaches for decision-making. This provides an excellent and perhaps unique opportunity to reuse information and expertise across a wide range of applications. If successful, it can also be extended to applications outside of the NPS.

The NPS and Recipients will conduct a climate change scenario planning workshop to implement and test the interface developed in this project. The workshop will use a case study at APIS and engage park staff and partners from this unit. The NPS work with APIS staff and the Recipients to organize, host, and facilitate the workshop. A report following the workshop will include a summary of the scenarios developed, the approach that was used, participant evaluations, and an analysis of the effectiveness of the interface in the scenario planning process, including lessons learned and a path forward.

Evaluation

The recipients will follow a mixture of qualitative and quantitative approaches to assess the success of this work. The GLISAclimate.org website has the ability to track activities to measure the length of interactions, content accesses, and general use. Evaluation will also include semi-structured interviews with NPS staff to assess their perceptions of their decision-making context, the provided climate change information, and experience with using virtual resources and having virtual collaborations.

Anticipated Outcomes

- Sustained assessment of knowledge of changes in weather and climate tailored for Lake Superior
- Documented portfolio of climate-sensitive management priorities for Isle Royale NP (ISRO) and Apostle Islands NL (APIS)
- Templates and online tools to support the usability of climate change knowledge in park management
- Strategies to address barriers of sustainability and usability of online tools

RECIPIENT INVOLVEMENT

Project Management

1. Meet with the NPS CCRP within the first two month after the agreement is initiated to develop more detailed timeline, shared outcomes, and roles.
2. Conduct periodic updates with CCRP on progress
3. Complete project summary within 6 months of project completion

Scientific Assessment / Provision of Climate Knowledge

1. Collect primary references on lake levels and ice cover
2. Synthesize relevant science for decision-making
3. Identify key research gaps at the interface of climate science, hydrology, lake levels, and ice cover

Management Interface

1. In collaboration with the CCRP and APIS staff, identify high priority issues and decision needs for climate change adaptation, which can be informed by climate science.
2. Develop template to assist in the localization of information from climate projections to Great Lakes applications
3. Develop recommendations for how to streamline and accelerate acquisition of climate change science as input into the NPS scenario planning process.
4. Inform and participate in a climate change scenario planning workshop at APIS.
5. Work with NPS to develop a workshop report which will include a summary of the scenarios developed, the approach that was used, participant evaluations, and an analysis of the effectiveness of the interface in the scenario planning process, including lessons learned and a path forward.

Products and Schedule

1. Specific deliverables and schedule will be developed in collaboration with the NPS during the project initiation meeting.

NATIONAL PARK SERVICE INVOLVEMENT

Substantial involvement on the part the National Park Service is anticipated for the successful completion of the objectives to be funded by this award. In particular, the National Park Service will be responsible for the following:

Project Management

1. Meet with the Recipients to initiate project, develop more detailed timeline, roles, and park-relevant products within two months of project initiation.
2. Conduct periodic updates with Recipients on progress
3. Provide timely review of project summary and interim products

Management Interface

1. Provide liaison and coordination between park staff and the Recipients.
2. Collaborate with park staff and the Recipients to identify high priority decisions around climate change adaptation and how decisions can be informed by climate science information.
3. Collaborate to develop recommendations for how to access current information and streamline climate change science input into the NPS scenario planning process.
4. Plan and facilitate a climate change scenario planning workshop at APIS that utilizes and tests the products and approaches developed through this work. This includes coordination with APIS staff to identify a location, participant list, and other logistics; manage communications with participants; and develop focal questions.
5. Work with Recipients to develop a workshop report which will include a summary of the scenarios developed, the approach that was used, participant evaluations, and an analysis of the effectiveness of the interface in the scenario planning process, including lessons learned and a path forward.

Products

1. Specific deliverables and schedule will be developed in collaboration with the NPS during the project initiation meeting.

SINGLE-SOURCE JUSTIFICATION

DEPARTMENT OF THE INTERIOR SINGLE SOURCE POLICY REQUIREMENTS
Department of the Interior Policy (505 DM 2) requires a written justification which explains why competition is not practicable for each single-source award. The justification must address one or more of the following criteria as well as discussion of the program legislative history, unique capabilities of the proposed recipient, and cost-sharing contribution offered by

the proposed recipient, as applicable.

In order for an assistance award to be made without competition, the award must satisfy one or more of the following criteria:

- (1) Unsolicited Proposal – The proposed award is the result of an unsolicited assistance application which represents a unique or innovative idea, method, or approach which is not the subject of a current or planned contract or assistance award, but which is deemed advantageous to the program objectives;
- (2) Continuation – The activity to be funded is necessary to the satisfactory completion of, or is a continuation of an activity presently being funded, and for which competition would have a significant adverse effect on the continuity or completion of the activity;
- (3) Legislative intent – The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient of purpose;
- (4) Unique Qualifications – The applicant is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, voluntary support capacity, cost-sharing ability if applicable, technical expertise, or other such unique qualifications;
- (5) Emergencies – Program/award where there is insufficient time available (due to a compelling and unusual urgency, or substantial danger to health or safety) for adequate competitive procedures to be followed.

The National Park Service did not solicit full and open competition for this award based the following criteria:

(4) UNIQUE QUALIFICATIONS

SINGLE SOURCE JUSTIFICATION DESCRIPTION:

The applicant is uniquely qualified to perform the activities in this project due to technical expertise and location. Richard Rood is a Professor in the Department of Atmospheric, Oceanic and Space Sciences at the University of Michigan (UM). Dr. Rood organizes the UM Applied Climate Program, a new degree program leading to a Masters of Engineering in Applied Climate. He also manages the NOAA-funded Great Lakes Integrated Sciences & Assessments (GLISA). Through these organizations, Dr. Rood specializes in climate change problem solving in the Great Lakes region. A primary focus of his research is to accelerate the use of knowledge from the science-based investigation of the Earth's climate in planning and policy. Rood's professional degree is in Meteorology from Florida State University. He recently served on the National Academy of Sciences Committee on A National Strategy for Advancing Climate Modeling. Richard Rood is a Fellow of American Meteorological Society and a winner of the

World Meteorological Organization's Norbert Gerbier Award. A complete CV can be found at <http://aoss.engin.umich.edu/people/rbrood> .

Dr. Rood manages the online GLISAclimate.org database. This database offers a unique combination of attributes unavailable in other universities. The unique attributes of this database include: (1) it contains resources from previous structured problem solving exercises addressing climate adaptation and planning; (2) it contains annotated information about those resources; (3) it contains expert defined tags for sorting on those resources; and (4) it has application design vocabulary for the taxonomy or structuring of those resources. Dr. Rood's management of the online GLISAclimate.org database provides an excellent interface in which to develop a more streamlined approach to inform the NPS scenario planning process. Dr. Rood's has experience in the NPS participatory scenario planning approach. Dr. Rood's location in the Great Lakes area, and his vast expertise in Great Lakes climate change issues, allows him to address the additional complexity of this area and produce information that is understandable and useful for NPS staff and partners.

STATUTORY AUTHORITY

16 U.S.C. §1g authorizes the NPS to enter into cooperative agreements that involve the transfer of NPS appropriated funds to state, local and tribal governments, other public entities, educational institutions, and private nonprofit organizations for the public purpose of carrying out National Park Service programs.