

Revised Work Plan and Budget:

Accelerating the Incorporation of Climate Change Knowledge into Adaptation Planning for National Park Service Assets in the Great Lakes Region

A proposal submitted to the NOAA Climate Program Office, Funding Opportunity Number: NOAA-OAR-CPO-2013-2003599. CFDA # 11.431

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Personnel Changes: In the original proposal funding for the Principal Investigator and Co-Investigators was leveraged on their participation in the Great Lakes Integrated Assessments and Sciences Center. The primary personnel funds were to provide part-time support (~ 60%) for a Research Computer Specialist, who was to be hired or reassigned from existing personnel. In this Revised Work Plan and Budget, there are the following changes:

- 1) The budget is divided in two approximately equal parts related to the two funding sources, The National Park Service and NOAA's Climate Program Office.
- 2) Richard B. Rood will take direct supervisory responsibility and will take approximately 0.5 months support, split evenly between the two funding sources.
- 3) Rather than hiring part of a Research Computer Specialist, the funding will be used to support Masters Students in the University of Michigan's new Applied Climate Program. Rood is lead of the Applied Climate Program. There is funding for two students for approximate half time for the full year. The support for the students is divided equally between the two funding sources.
- 4) Co-Investigators Lemos and Briley will maintain their participation, which will, as in the original submission, be leveraged on their participation in the Great Lakes Integrated Assessments and Sciences Center.
- 5) Project travel is for the same trips, but split evenly between the two funding sources.
- 6) New labor rates, benefit rates and overhead rates are used.

Tasks: In the original submission, the work was cast into four types:

- 1) Sustained Assessment: Lake Level and Ice Cover
- 2) Reuse to Accelerate the Use of Climate Knowledge
- 3) Structured Models for Knowledge Use
- 4) Evaluation

These four types of work remain. With regard to linking the types of work to the split budget from the two funding sources, the National Park Service Funding is linked to items 2 and 3 and NOAA Climate Program Office funding is linked to items 1 and 4. Hence:

Work Types for National Park Service Funding

- 1) Reuse to Accelerate the Use of Climate Knowledge
- 2) Structured Models for Knowledge Use

Work Types for NOAA Climate Program Office Funding

- 1) Sustained Assessment: Lake Level and Ice Cover
- 2) Evaluation

With regard to *changes* to the tasks in the original proposal, the highlights are as follows.

- 1) There has been substantial new research on the internal variability of weather and climate in the continental U.S. This new research will be incorporated into revisions of the localization of climate information performed for Isle Royale, and which will stand at the basis for re-use in Apostle Island projects.
- 2) We have, under the broader program on Applied Climate (see below), initiated work on the sustained assessment of lake levels. We anticipate this work to be directly relevant to Isle Royale and Apostle Islands.
- 3) With the release of the National Climate Assessment we will investigate it's usability in the planning and management activities for both Apostle Islands and Isle Royale.
 - a. How does the National Climate Assessment inform the localization of climate information?
 - b. What are criteria and questions for evaluation of usability of the National Climate Assessment?
- 4) With the release of final report from the Isle Royale planning project and an internal evaluation by Dr. Lemos, we will describe the workflow and pose testable modifications to improve the process.
- 5) Coordination with other efforts as identified by both sponsors and team members.

We plan to initiate, first, a project with Apostle Island to work on the problem of scaling and extending our experience and resources from one park to another. This will be followed by the initiation of the re-use of information for different management priorities with a park. These projects will be co-developed with the staff at the parks and the Climate Change Response Program principals.

University of Michigan's Applied Climate Program: The Department of Atmospheric, Oceanic and Space Sciences has started 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 proposal, *Accelerating the Incorporation of Climate Change Knowledge into Adaptation Planning for National Park Service Assets in the Great Lakes Region*, are completely consistent with the Applied Climate Program. The students working on this proposal 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, we have already initiated work on sustained assessment of lake levels. We have also enhanced the capabilities of GLISAclimate.org, including the accumulation of additional knowledge resources that will contribute to this proposal.