

**Modification 001
of
Task Agreement P13AC00875
Against
Cooperative Agreement
P09AC00212
between
The United States Department of the Interior
National Park Service
and
University of Rhode Island**

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Project Title: Modification to Acquisition Coordination, Compilation, Data Management and Change Analysis of LiDAR and Other Geospatial Data Collected Pre- and Post-Hurricane Sandy

CFDA: 15.945, Cooperative Research and Training Programs – Resources of the National Park System (CESU)

GENERAL: The purpose of this modification is to:

- a) Amend Article III-Statement of Work by adding Attachment A of this Modification
- b) Add funds in FY2014 in accordance with the proposal in Attachment A of this Modification.
- c) Add deliverables including data and reports in accordance with Attachment A of this Modification and Article IX of this agreement.
- d) Add Attachment A of this Modification to Article XIII-Attachments

MODIFICATIONS:

ARTICLE III – STATEMENT OF WORK

- A. The University of Rhode Island agrees to implement the attached study proposal/work plan (ATTACHMENT A of this Modification).
- B. The NPS agrees to the tasks presented in ATTACHMENT B.

ARTICLE VI – AWARD AND PAYMENT

- A. The NPS has approved this project and the following documents have been submitted by the University of Rhode Island prior to award:
1. SF-424, Request for Federal Financial Assistance
 2. SF-424A, Budget Information, Non-construction Programs
 3. SF-424B, Assurances, Non-construction Programs
- Budget Information from the SF-424A is summarized later in this Article.
- B. Financial Assistance: NPS will provide additional funding to the University of Rhode Island in an amount not to exceed **\$565,722** for the work described in Attachment A of this Modification and in accordance with the approved budget. Any award beyond the current fiscal year is subject to availability of funds.

Appropriation Data: The chargeable appropriation for this Task Agreement is:

FY13-Under Task Agreement P13AC00668

FY 2013 --\$775,500

FY14-Under Task Agreement P13AC00668 Modification 001

FY2014--\$565,722

FY14 Appropriation Data:

--\$38,000 WBS: PX.P0201776A.00.1/ CC: PPNEFIIS00/ FA: PAN00AN61.XZ0000/

Fund: 13XP010261

--\$120,000 WBS: PX.P0201780A.00.1/ CC: PPNEFIIS00/ FA: PAN00AN61.XZ0000/

Fund: 13XP010261

--\$407,722 WBS: PX.P0201795A.00.1/ CC: PPNEFIIS00/ FA: PAN00AN61.XZ0000/

Fund: 13XP010261

ARTICLE IX – REPORTS AND/OR DELIVERABLES:

E. Specific Deliverables

A list of project deliverables and due dates for this Agreement include:

Part 1. Park Visitors' Perceptions of FIIS, GATE, and ASIS Post-Hurricane Sandy

- September 2014: Confer with Sunshine Menezes and park staff to finalize research priorities and workplan

- October – December 2014: Identify and test community values mapping software; develop protocols; apply for IRB approval and NPS-OMB Programmatic Review for NPS-sponsored public surveys, focus groups, and field experiments
- January – April 2015: Finalize protocol; communicate with park staff
- May – August 2015: Interview and survey park visitors at FIIS, GATE, and ASIS
- August 2015: Data summary and progress report due
- September – December 2015: Data analysis
- January – April 2016: Data analysis (cont.)
- May – June 2016: Outreach with park staff
- June 2016: Draft final park report due
- July 30, 2016: Final reports due.

Part 2. Science Communication and Interpretive Products: Participatory Mapping and Science Communication Outreach about Coastal Storms

- September 2014: Complete one backgrounder as prototype example
- October – December 2014: Complete four backgrounders
- January – April 2015: Undergraduates complete ten infographics and materials for social media campaign
- May – August 2015: Complete three podcasts
- September – December 2015: Develop interactive map in collaboration with NPS NCBN staff
- January – April 2016: Complete three lesson plans with curricular materials for park interpretative staff
- May – July 2016: Finalize interactive map for NPS website; present communication recommendations to NPS staff

Part 3. Development of a Scientific Communication Workshop for NPS staff to identify strategies for improved communication pre-, during, and post-coastal storms such as Hurricane Sandy

- June-August 2014: Develop and distribute online survey instrument
- September-October 2014: Analyze survey responses
- November-December 2014: Conduct follow-up interviews with NPS staff based on survey responses
- January 2015: write draft report of suggested communication strategies
- February/March 2015: share draft report with NPS staff for review
- March-May 2015: Organize and facilitate workshop for NPS staff to discuss draft report and applications of suggested strategies for each park
- May 2015: Revise report
- June 2015: Submit final report to NPS staff

Part 4. Enhanced geospatial data support to Hurricane Sandy post-storm submerged resource mapping, post-storm inundation mapping, and FIIS barrier island breach data management

- August - December 2014: Evaluate project management utilities for submerged data. Contact cooperators to obtain backlog of FIIS breach data; archive and distribute. Interview GIS Specialists at affected Parks on post-storm data collection

- January – April 2015: Obtain test submerged data; develop protocols for QA/QC. Continue to receive FIIS breach data and develop geospatial database structure. Evaluate technologies for post-storm inundation data collection
- May – August 2015: QA/QC protocol development using preliminary submerged data. Continue to receive FIIS breach data and develop geospatial database structure. Develop protocols for post-storm inundation data collection
- September – Dec 2015: QA/QC protocol development using preliminary submerged data. Continue to receive/distribute FIIS breach data and refine geospatial database structure. Develop protocols for post-storm inundation data collection
- January – April 2016: Finalize and document QA/QC GIS tool development. Continue to receive/distribute FIIS breach data and refine geospatial database structure. Finalize post-storm inundation protocols into SOP and roll out to Parks
- May - July 2016: Commence running finalized submerged data through QA/QC. Continue to receive FIIS breach data and finalize geospatial database structure. Follow-up with Parks on SOP and make adjustments

August

Part 5. Project Management for Hurricane Sandy Funded projects

- August 2014 – October 2015 - project tracking, development and submission of project reports to the NPS, maintenance of project timelines and schedules, and assisting with the QA/QC of products being submitted to the NPS
- November 2015 – July 2016 - project tracking, development and submission of project reports to the NPS, maintenance of project timelines and schedules, and assisting with the QA/QC of products being submitted to the NPS
- Assist NPS with peer review process

ARTICLE XIII – ATTACHMENTS

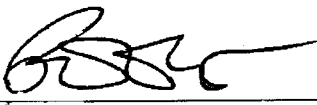
The following documents are attached and made part of this Task Agreement:

- A. The University of Rhode Island study proposal and budget, titled “Modification to Acquisition Coordination, Compilation, Data Management and Change Analysis of LiDAR and Other Geospatial Data Collected Pre- and Post-Hurricane Sandy”
- B. The NPS agrees to the tasks presented in ATTACHMENT B

ARTICLE XIV – SIGNATURES

IN WITNESS WHEREOF, the parties hereto have executed this Cooperative Agreement on the date(s) set forth below:

FOR THE UNIVERSITY OF RHODE ISLAND:

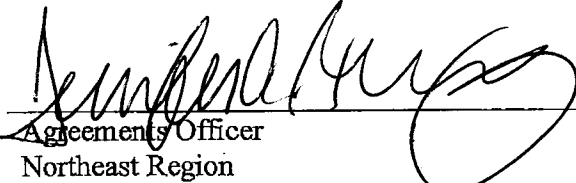


Brian A. Nath, J.D.
Associate Director
Intellectual Property (Legal)

7/8/14

Date

FOR THE NATIONAL PARK SERVICE



Agreements Officer
Northeast Region

07/09/2014

Date

ATTACHMENT A: University of Rhode Island Study Proposal

PROPOSAL TITLE: Modification to Acquisition Coordination, Compilation, Data Management and Change Analysis of LiDAR and Other Geospatial Data Collected Pre- and Post-Hurricane Sandy

(This proposal is a modification to Task Agreement P13AC00875 of Cooperative Agreement P09AC00212 Acquisition Coordination, Compilation, Data Management and Change Analysis of LiDAR and Other Geospatial Data Collected Pre- and Post-Hurricane Sandy)

Project period: August 1, 2014 to July 31, 2016

PRINCIPAL INVESTIGATORS: Peter August, Charles LaBash, Greg Bonyng, Roland Duhaime, Aimee Mandeville, Caroline Gottschalk Druschke, Kristen Hychka

SENIOR PERSONNEL: Sunshine Menezes, Mary Jane James-Pirri

SCOPE OF WORK

Part 1. To conduct original research at FIIS, GATE, and ASIS parks into park visitors' and nearby residents' perceptions of the special places in each park, their understandings of the impact of Hurricane Sandy on each park, and their observations about changes in each park post-storm.

Part 2. To develop science communication products and educational materials associated with this project for park staff, visitors, and nearby residents.

Part 3. Development of a Scientific Communication Workshop for NPS staff to identify strategies for improved communication pre-, during, and post-coastal storms such as Hurricane Sandy.

Part 4. Enhanced geospatial data support to Hurricane Sandy post-storm submerged resource mapping, post-storm inundation mapping, and FIIS barrier island breach data management

Part 5. Assistance with projects tracking and development of progress reports submitted to the NPS. Tracking timelines and assurance that Hurricane Sandy projects are following scheduled activities and that data and reports are QA'd and peer reviewed.

BACKGROUND

Part 1. Park Visitors' and Nearby Residents' Perceptions of FIIS, GATE, and ASIS Post-Hurricane Sandy

The National Park Service is committed to human dimensions research, which, as it describes, “utilizes social science to understand how people value natural resources, how they want resources to be managed, and how they affect or are affected by resource management decisions” (NPS “Human Dimensions”). Because NPS manages resources in trust for the public, the public’s values must be reflected in NPS decisions about biological resource management. Human dimensions research can provide insight to do just that by “enabl[ing] NPS to better understand how human values, attitudes, interests, and priorities shape stakeholder and manager perceptions of: resource condition, recreation and other experiences, and management actions” (NPS “Human Dimensions”). And while this understanding of visitors’ and nearby residents’ values, attitudes, interests, and priorities is essential to management, it is also central to the effective communication between park staff, visitors, and nearby residents. If NPS interpretive staff’s maxim is to know thy audience, human dimensions research is poised to help inform that understanding, allowing interpretive staff to communicate more effectively by meeting visitors and nearby residents where they are in their own terms.

This project takes a human dimensions approach to the social-ecological systems of FIIS, GATE, and ASIS parks post-Hurricane Sandy, investigating park visitors’ and nearby residents’ perceptions of the special places in each park; their understandings of the impact of Hurricane Sandy and the dynamics of climate variability, hurricanes, storms surges, and coastal erosion on each park; and their observations about changes in each park post-storm. The hope is that this research will inform both management and communication related to these three parks by assessing the knowledge of park visitors and nearby residents and considering how to incorporate their scientific knowledge, local knowledge, and values into both communication materials and management decisions.

This research will build from work conducted by staff from the Metcalf Institute for Environmental and Marine Reporting and the URI Graduate School of Oceanography in spring and summer 2014, which will involve interviews with interpretive staff at FIIS, GATE, and ASIS parks about the internal and external communication aspects of storm preparedness and response. Our research team will work to synthesize the communication concerns of interpretive staff collected in that research with the points of value and confusion emerging from our interviews with park visitors and nearby residents. We will build from existing research on special places (Schroeder 2004) and emerging methodology in community values mapping (Brown and Raymond 2007, Brown and Reed 2009) to solicit visitors’ and nearby residents’ opinions about the special places in each park, their understandings of the impact of Hurricane Sandy on each park, and their observations about changes in each park post-storm.

Past research has explored human dimensions of management decisions at NPS parks, including deer management at FIIS (Leong and Decker 2007, Leong 2009), as well as the human dimensions of shoreline change (Paterson et al 2014). But while there is an established history of human dimensions research in the parks, little if any original research in the NPS system has attended to

the rhetorical dimensions of visitors' and nearby residents' perceptions of place, change, and engagement with management. Nor has this theoretical research been tied so explicitly to the production of educational and outreach materials.

Here we bring a rhetorical and geospatial approach to studying park visitors' and nearby residents' perceptions of the special places in each park, their understandings of the impact of Hurricane Sandy on each park, and their observations about changes in each park post-storm. We build from research in the discursive aspects of natural resources management (Arnold et al. 2012, Druschke 2013, Senda-Cook 2013), community values mapping (Brown and Raymond 2007), and public participation GIS (Brown and Reed 2009) to investigate visitors' and nearby residents' perceptions of the parks and to consider what knowledge park visitors and nearby residents can contribute to management and prioritization decisions in the wake of Hurricane Sandy. We then connect this research to both static and interactive communication materials.

Part 2. Science Communication and Interpretive Products: Participatory Mapping and Science

Communication Outreach about Coastal Storms

One the goals of the National Park Service is to clearly and effectively communicate the results of its research efforts to both park staff and the public in ways beyond the typical scientific paper report. As part of this collaboration, the co-PIs will work with NPS NCBN staff, a graduate research assistant, and undergraduate students in a science writing course to develop a number of science communication related products aimed at park staff, visitors, and nearby residents, including recommendations for communicating with park visitors based on original research, an interactive online map, infographics, lesson plans, podcasts, backgrounders, and social media content. These materials will highlight the research conducted on this project; will explain NPS research, stewardship, planning, and decision-making and their relevance to the general public; and will work to involve park visitors and nearby residents in that research and decision-making.

Part 3. Development of a Scientific Communication Workshop for NPS staff to identify strategies for improved communication pre-, during, and post-coastal storms such as Hurricane Sandy. A clear lesson of Hurricane Sandy was the need for a clear and streamlined approach toward managing internal NPS scientific communication (e.g., among park staff within a given park, between park staff across regional parks, and between staff at specific parks and national NPS incident response team) and external communication (e.g., between park staff and news media, between park staff and researchers, between park staff and park visitors). To more fully assess the specific communication challenges related to the protection of and/or research related to natural resources in the parks, Metcalf Institute staff will develop and disseminate a detailed survey for FIIS, GATE, and ASIS staff. Metcalf Institute staff will analyze the survey data to identify specific concerns, successes, and areas of confusion. This information will inform the development of a communication strategy document to be drafted by Metcalf staff, with the objective of identifying strategies for communicating park-specific concerns and/or priorities before, during, and after a major storm event.

Part 4. Enhanced geospatial data support to Hurricane Sandy post-storm submerged resource mapping, post-storm inundation mapping, and FIIS barrier island breach data management

Submerged resources data collection using sidescan sonar is being carried out by four cooperators at four Parks -- CACO (Provincetown Center for Coastal Studies), FIIS (URI), GATE (Rutgers), and ASIS (U of Delaware). Large volumes of sidescan raster data will be collected by each cooperator each using a different set of sensors, platforms, workflows and techniques. In addition, data will be processed and interpreted using differing software packages, algorithms, and procedures. It will be important to work directly with the cooperators to verify and validate that data and end products collected at each Park are compatible, comparable, and usable by the Parks and to adopt a system to track geospatial products (preliminary and final) as they are delivered. Documenting the pre and post condition of Park natural and cultural resources and infrastructure is of paramount importance in being able to determine impacts and assess damage following major storm events. Park GIS Specialist, Mark Christiano, at Gateway National Recreation Area has stressed the importance of developing SOP's to collect the evidence of impact (e.g., high water marks, debris piles, wrack lines, habitat destruction) immediately after a storm during the brief window of time that visible signs exist and before cleanup and weathering occur. Parks need to make the most efficient use of Resource Advisors (READs), temporary professional staff that are dispatched to assist in storm mitigation, and provide them with a clear set of guidelines to collect critical post-storm data. Properly documenting evidence of storm effects will go a long way towards managing natural resources and infrastructure for future events. Scientific analysis of the Hurricane Sandy breach in the barrier island system of Fire Island National Seashore is generating a wealth of geospatial data. Currently there is no centralized system for collecting, storing, documenting, archiving, or distributing these data.

Part 5. Project Management for Hurricane Sandy Funded projects

The Northeast Region of the National Park Service received Hurricane Sandy funding for multiple natural resource and mapping projects. The majority of this funding has been allocated to Universities and institutions under the NPS North Atlantic CESU. Each of these projects is required to follow strict reporting and product development and deliverable schedules. The projects are research-based and require components of data collection, analysis and reporting. The University of Rhode Island research associate will assist NPS project leads and cooperators in meeting deadlines for product development and submission. This entails acting as a liaison between the two to organize necessary meetings, assure deliverables and reports are submitted on time to the NPS, and assure that NPS comments and conducts peer review of all draft products.

APPROACH

Part 1. Park Visitors' and Nearby Residents' Perceptions of FIIS, GATE, and ASIS Post-Hurricane Sandy

We will take a qualitative approach to investigating park visitors' and nearby residents' perceptions of the special places in each park; their understandings of the impact of Hurricane Sandy and the dynamics of climate variability, hurricanes, storms surges, and coastal erosion on each park; and their observations about changes in each park post-storm. Building from emerging methodology in community values mapping (Brown and Raymond 2007, Brown and Reed 2009), we will create a mapping interface for visitors and nearby residents to record their perceptions of special places in each park and the impact of the storm on these special places, as well their observations of change in the parks. This mapping interface will be distributed online. In addition, following Leong 2009, we plan to conduct in-depth semi-structured interviews with known stakeholders and influential

community residents (n=20 for each park), as well as short interviews with visitors and nearby residents (n=50 for each park).

Rather than pursue a random sample that might proportionately represent the views of the larger population of visitors and residents, we will use a combination of heterogeneity and nonproportional quota sampling (Lindlof and Taylor 2011) to encourage the inclusion of a broad spectrum of views and opinions and ensure that even small groups (defined by characteristics like age, education level, income, etc.) are well-represented in the sample. This method is most effective for recruiting a group of participants that will inform us about the possible range of opinions about the impact of Hurricane Sandy on the parks. All interviews will be audio-recorded and professionally transcribed. Transcripts will be imported into NVivo 10 software for coding and analysis of relevant themes.

This research will be covered under NPS Programmatic Review for NPS-Sponsored Public Surveys, which, with approval, allows for surveying of park visitors, potential park visitors, and residents of communities near parks in one or more of seven defined topic areas. Research in this study fits under Topic Area 1: Respondents' Characteristics and Knowledge; Topic Area 4: Preferences/Motives/Attitudes; and Topic Area 6: Evaluations/Opinions of Services, Facilities, and Management (NPS "Guidelines"). The co-PIs will build from NPS's Pool of Known Questions, specifically questions related to knowledge, visitation history, place attachment, opinions on park management, and trust in the NPS (NPS "Pool").

Responsible Personnel

Caroline Gottschalk Druschke

Kristen Hychka

Part 2. Science Communication and Interpretive Products: Participatory Mapping and Science Communication Outreach About Coastal Storms

PIs Druschke, Hychka and a graduate research assistant, along with undergraduate students enrolled in a science writing course at the University of Rhode Island under the direction of PI Druschke, will work with NPS NCBN staff to develop a number of science communication related products aimed at park staff and visitors, including recommendations for communicating with park visitors based on original research, an interactive online map, infographics, lesson plans, podcasts, backgrounders, and social media content. PIs Druschke, Hychka and graduate research assistant will take part in field work and interviews of park visitors and scientists working on NCBN inventory and monitoring projects to develop products for park interpretive staff, park managers, superintendents, and the public that will educate and discuss the need for and outcomes of ecological research and management in the parks. PIs Druschke, Hychka and a graduate research assistant will work with park staff to create and facilitate spatially based communication mechanisms that allow visitors to contribute to park management decision-making and prioritization.

Responsible Personnel

Caroline Gottschalk Druschke

Kristen Hychka

Graduate Research Assistant

Part 3. Development of a Scientific Communication Workshop for NPS staff to identify strategies for improved communication pre-, during, and post-coastal storms such as Hurricane Sandy. Metcalf Institute executive director, Sunshine Menezes, and communication director, Karen Southern, will develop a survey instrument to be shared with FIIS, GATE, and ASIS staff via the online tool, SurveyMonkey.com. Metcalf staff will analyze survey responses and identify specific issues that need clarification or additional information. This additional information will be gathered through follow-up phone or email interviews with park staff, as needed. Metcalf staff will use the survey data and interview responses to draft a report summarizing recommended communication strategies related to the protection of and/or research related to the parks' natural resources before, during, and after major coastal storms. This draft report will be shared with all relevant park staff in early 2015, to provide time for NPS staff to review and comment upon the report. Metcalf staff will organize and facilitate a workshop for NPS staff in late winter 2015, to solicit feedback and ideas from NPS staff regarding the application of the draft communication strategies to their individual parks. A final report, integrating feedback and ideas from the workshop, will be submitted to NPS staff in May 2015.

Responsible Personnel
Sunshine Menezes
Karen Southern
Graduate Student Hourly

Part 4. Enhanced geospatial data support to Hurricane Sandy post-storm submerged resource mapping, post-storm inundation mapping, and FIIS barrier island breach data management. GIS Professionals with the URI Environmental Data Center will work directly with Cooperators at Provincetown Center for Coastal Studies, URI, Rutgers, and University of Delaware to obtain preliminary data products as a step toward ensuring that final geospatial data deliverables emerging from the post-Hurricane Sandy Submerged Resources Mapping effort meet requirements for areal coverage, spatial resolution, completeness, sampling intensity, and complete metadata documentation. The primary objective is to develop a set of SOP's for evaluating all geospatial data deliverables, and where possible develop GIS-based and/or database tools for automating the QA/QC process. Identification and implementation of an applicable project management utility will also be necessary to track status of geospatial data deliverables. We will work with NPS Data Managers to develop a system to store the large volume of final digital data products resulting from the Submerged Mapping effort.

Documenting evidence of storm impacts (e.g., mapping locations of inland storm surge extents) requires specially trained field personnel with the ability to detect and interpret clues along with the technical capability to operate hand held GPS enabled mapping units and acquire ground photos with proper perspective. The Storm Data geospatial team at URI will draw upon the knowledge and experience gained with post-storm data collection along the Rhode Island coastline immediately following Hurricane Sandy in addition to consulting with Park Resource Managers and GIS Specialists at GATE, FIIS, and ASIS. The team will package these steps into a SOP document that can be deployed to NPS Resource Managers and READ personnel during future storm response events.

Geospatial data originating from FIIS barrier island breach investigations will be collected, archived, and distributed as necessary from cooperators according to protocols that have been

developed at the Northeast Regional Field Technical Support Center for GIS at the URI Environmental Data Center since 1996.

Responsible Personnel

Roland Duhaime

Part 5. Project Management for Hurricane Sandy Funded projects

A research associate will assist with project management of all Hurricane Sandy funded projects associated with the NPS North Atlantic Coast CESU. This will entail assisting NPS CESU cooperators with project tracking, development and submission of project reports to the NPS, maintenance of project timelines and schedules, and assisting with the QA/QC of products being submitted to the NPS. All Hurricane Sandy funded products, reports and data will go through a peer review process and the research associate will assist the NPS with the peer review process.

Responsible Personnel

Mary Jane James-Pirri

LITERATURE CITED:

- Arnold, J.S., M. Koro-Ljungberg, and W. Bartels. 2012. Power and Conflict in Adaptive Management: Analyzing the Discourse of Riparian Management on Public Lands. *Ecology and Society*, 17:19.
- August, P., Bradley, M.; LaBash, C.; Bonyne, G.; Tefft, E.; and Murdukhayeva A. 2013. Superstorm Sandy, Environmental Disasters, and Scientific Data Collection: Planning to Make the Most of Bad Situation. Paper presented Annual Symposium, US Association for Landscape Ecology, Austin, TX
- Brown, G. and C. Raymond. 2007. The Relationship Between Place Attachment and Landscape Values: Toward Mapping Place Attachment. *Applied Geography*, 27:89–111.
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- Druschke, C.G. and S. Secchi. 2014. The impact of gender on agricultural conservation knowledge and attitudes in an Iowa watershed. *Journal of Soil and Water Conservation*, 69:95-106.
- National Park Service. Guidelines and Submission Form.
<http://www.nature.nps.gov/socialscience/docs/Expedited_Guidelines.pdf>.
- National Park Service. Human Dimensions Frequently Asked Questions.
<http://www.nature.nps.gov/biology/human_dimensions/HD_FAQ.cfm>.
- National Park Service. Pool of Known Questions.
<<http://www.nature.nps.gov/socialscience/docs/PoolOfKnownQuestions.pdf>>.

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- Leong, K.M. 2009. The Tragedy of Becoming Common: Landscape Change and Perceptions of Wildlife. *Society & Natural Resources: An International Journal*, 23:111-127.
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TIMETABLE AND DELIVERABLES

Part 1. Park Visitors' Perceptions of FIIS, GATE, and ASIS Post-Hurricane Sandy

- September 2014: Confer with Sunshine Menezes and park staff to finalize research priorities
- October – December 2014: Identify and test community values mapping software; develop protocols; apply for IRB approval and NPS-OMB Programmatic Review for NPS-sponsored public surveys, focus groups, and field experiments
- January – April 2015: Finalize protocol; communicate with park staff
- May – August 2015: Interview and survey park visitors at FIIS, GATE, and ASIS
- August 2015: Data summary and progress report due
- September – December 2015: Data analysis
- January – April 2016: Data analysis (cont.)
- May – June 2016: Outreach with park staff
- June 2016: Draft final park report due
- July 2016: Final reports due

Part 2. Science Communication and Interpretive Products: Participatory Mapping and Science Communication Outreach About Coastal Storms

- September 2014: Complete one backgrounder
- October – December 2014: Complete four backgrounders
- January – April 2015: Undergraduates complete ten infographics and materials for social media campaign
- May – August 2015: Complete three podcasts
- September – December 2015: Work on interactive map
- January – April 2016: Complete three lesson plans with curricular materials
- May – July 2016: Finalize interactive map for NPS website; present communication recommendations to NPS staff

Part 3. Development of a Scientific Communication Workshop for NPS staff to identify strategies for improved communication pre-, during, and post-coastal storms such as Hurricane Sandy

- June-August 2014: Develop and distribute online survey instrument
- September-October 2014: Analyze survey responses
- November-December 2014: Conduct follow-up interviews with NPS staff based on survey responses
- January 2015: write draft report of suggested communication strategies
- February/March 2015: share draft report with NPS staff for review
- March-May 2015: Organize and facilitate workshop for NPS staff to discuss draft report and applications of suggested strategies for each park
- May 2015: Revise report
- June 2015: Submit final report to NPS staff

Part 4. Enhanced geospatial data support to Hurricane Sandy post-storm submerged resource mapping, post-storm inundation mapping, and FIIS barrier island breach data management

- August - December 2014: Evaluate project management utilities for submerged data. Contact cooperators to obtain backlog of FIIS breach data; archive and distribute. Interview GIS Specialists at affected Parks on post-storm data collection
- January – April 2015: Obtain test submerged data; develop protocols for QA/QC. Continue to receive FIIS breach data and develop geospatial database structure. Evaluate technologies for post-storm inundation data collection
- May – August 2015: QA/QC protocol development using preliminary submerged data. Continue to receive FIIS breach data and develop geospatial database structure. Develop protocols for post-storm inundation data collection
- September – Dec 2015: QA/QC protocol development using preliminary submerged data. Continue to receive/distribute FIIS breach data and refine geospatial database structure. Develop protocols for post-storm inundation data collection
- January – April 2016: Finalize and document QA/QC GIS tool development. Continue to receive/distribute FIIS breach data and refine geospatial database structure. Finalize post-storm inundation protocols into SOP and roll out to Parks
- May - July 2016: Commence running finalized submerged data through QA/QC. Continue to receive FIIS breach data and finalize geospatial database structure. Follow-up with Parks on SOP and make adjustments

Part 5. Project Management for Hurricane Sandy Funded projects

- August 2014 – October 2015 - project tracking, development and submission of project reports to the NPS, maintenance of project timelines and schedules, and assisting with the QA/QC of products being submitted to the NPS
- November 2015 – July 2016 - project tracking, development and submission of project reports to the NPS, maintenance of project timelines and schedules, and assisting with the QA/QC of products being submitted to the NPS
- Assist NPS with peer review process

BUDGET AND BUDGET EXPLANATION

Project Duration: 2 years		Person Months	Total Request
A. Personnel			
PI Caroline Druschke, Assistant Professor Summer Salary	4.0	31,577	
PI Kristen Hychka, Research Associate IV (Grade 13, Step 1)	12.0	60,636	
Sunshine Menezes, Marine Res. Assoc. IV	0.8	4,586	
Roland Duhaime, Research Associate IV	11.0	70,601	
Mary Jane James-Pirri, Marine Res. Assoc. IV	6.9	40,664	
Grad Assistant (Druschke) Lvl III Academic Yr.	4.8	35,547	
Grad Assistant (Druschke) Lvl III Summer	3.2	13,552	
Grad hourly (Menezes)	0.1	320	
TOTAL PERSONNEL COSTS			257,483
B. Fringe			
Fringe for Hychka Res Assoc IV @ 37%		22,219	
Fringe for Menezes Marine Res. Assoc. IV @ 58%		2,682	
Mary Jane James-Pirri Marine Res. Assoc. IV @ 61%		24,960	
Fringe for Duhaime Res Assoc IV @ 57%		40,291	
Fringe for GRA (Druschke) academic year		4,866	
Fringe for GRA (Druschke) Summer FICA		1,037	
FICA for Grad hourly (Menezes)		24	
TOTAL FRINGE BENEFITS			96,079
C. Travel			
Druschke, Hychka, graduate assistant		44,499	
Menezes, support staff, graduate assistant		3,100	
Duhaime		4,000	
TOTAL TRAVEL			51,599
D. SUPPLIES			
Computer hardware, software, recorders, field supplies		22,600	
Workshop printed materials		400	
Geospatial data storage, computer hardware		9,405	
TOTAL SUPPLIES			32,405
E. OTHER COSTS			
Transcription services		5,000	
EDC Computing Costs		17,789	
Tuition, In-State		24,805	
TOTAL OTHER COSTS			47,594
TOTAL DIRECT COSTS			485,160

TOTAL MODIFIED DIRECT COSTS	460,355
FACILITIES AND ADMINISTRATIVE COSTS 17.5% MTDC	80,562
TOTAL REQUESTED FROM AGENCY	<u>\$ 565,722</u>

Budget Notes

Personnel consist of salaries and benefits for Caroline Druschke (summer), Kristin Hychka , Sunshine Menezes, Karen Southern, Mary Jane James-Pirri, Roland Duhaime, graduate student assistant, and hourly wages for a graduate student.

Fringe benefits are based on URI employee union negotiated rates covering the benefit package and tax contributions, graduate student FICA.

Travel consists of URI travel to the four parks for meetings, workshops, technical conferences, and documenting/reporting on scientific field data collection. Expenses include transportation, vehicle mileage, registration, gas, parking fees, meals per diem, and hotel room/internet costs.

Supplies support computer hardware, software, high volume redundant data storage units to support high volume submerged and FIIS barrier island breach geospatial data, field notebook computers, printing, print materials

EDC computing costs are based on 12 person months at 0.46 FTE seats

Tuition is for a graduate student, in-state rate

Indirect Costs are computed at the CESU rate of 17.5%.

ATTACHMENT B

The National Park Service agrees to:

- Assign the Northeast Coastal and Barrier Network (NCBN) Program Manager as the Science Technical Advisor on this project. The Project Manager and the NCBN Data Manager will collaborate with the University of Rhode Island investigator, research associates, graduate students and under graduate interns on the project priorities, design, data management, data interpretation, and production of final deliverables including data formats.
- Provide the cooperator with all relevant GIS and Submerged mapping data sets that may be important to the study.
- Work with URI to identify specific workflows and the development priority of these workflows.
- Provide guidance and expertise on NPS data management procedures and protocols, and work closely with the URI EDC lab to meet NPS data and web standards.
- NCBN staff will meet regularly with the URI staff to provide assistance and expertise with all components of this project.
- Review and provide feedback on documents, material and reports prior to URI's final submission.