ATKINSON, ODU

DHS Coastal Resilience Center

Research Project:

Annual Project Performance Report

Covers reporting period January 1, 2016 – June 30, 2016

1. **Project Title:** A Tool to Measure Community Stress to Support Disaster Resilience Planning

2. **Principal Investigator / Institution:** Larry Atkinson, Slover Professor and Eminent Scholar, Department of Ocean Earth & Atmospheric Sciences, College of Sciences

3. **Other Research Participants/Partners:**

   Old Dominion University Co-PIs:
   - Joshua Behr, Research Associate Professor, Virginia Modeling, Analysis, and Simulation Center (VMASC)
   - Michelle Covi, Assistant Professor of Practice, Department of Ocean Earth & Atmospheric Sciences, College of Sciences and Virginia Sea Grant Extension
   - Jose Padilla, Research Assistant Professor, Virginia Modeling, Analysis, and Simulation Center (VMASC)
   - Wie Yusuf, Associate Professor, School of Public Service, Strome College of Business

4. **Short Project Description:**

   This project will support at least two Coastal Resilience Center projects, building on project team's expertise in stakeholder engagement, leveraging information already collected from initial case studies, and utilizing existing connections to stakeholders and possible end users in Hampton Roads. Two projects that will be supported are: (1) Organizing a panel for the Maritime Risk Symposium that addresses "Integrating Maritime and Costal Resilience;" and (2) supporting stakeholder engagement and end user translation efforts of '*The Incorporation of Rainfall into Hazard Estimates for Improved Coastal Resiliency' project. The project team will remain engaged with the CRC and can assist with communications efforts and help provide linkages between research or education projects and Hampton Roads Resilience Initiatives.*

5. **Abstract:**

The original project involved development of a Hazards Stress Test Tool (HSTT) that supports coordinated actions in all risk management and mitigation phases involving collaboration between federal, state, local, tribal, and private sector partners. From our meetings with use case stakeholders, we found that the HSTT project, as originally proposed, did not meet end user needs and would not gain traction within

the end user community as a decision support tool. We concluded that the project direction should be adjusted to produce a decision support framework that supports not only planning, but the integration of planning within a broader decision making context including implementation and funding. This revised project will support at least two Coastal Resilience Center projects, building on project team's expertise in stakeholder engagement, leveraging information already collected from initial case studies, and utilizing existing connections to stakeholders and possible end users in Hampton Roads. Two project that will be supported are: (1) Organizing a panel highlighting Hampton Roads resilience projects, including the Intergovernmental Pilot Project, for the Maritime Risk Symposium that addresses "Integrating Maritime and Coastal Resilience;" and (2) supporting stakeholder engagement and end user translation efforts of '*The Incorporation of Rainfall into Hazard Estimates for Improved Coastal Resiliency' project.*

6. End users:

ODU has a long and successful track record of working closely with stakeholders in the co-design of research and the co-creation of practice-relevant knowledge. This "tried-and-true" approach will be used in the current project to engage stakeholders and potential end users.

Potential end users include:

- Hampton Roads Sea Level Rise Preparedness and Resilience Intergovernmental Planning Pilot Project which includes a range of federal agencies involved in a whole-of-community and whole-of-government approach to resilience.
- Hampton Roads Sea Level Rise/Flooding and Adaptation Forum organized by Michelle Covi, Larry Atkinson and the Hampton Roads Planning District Commission (HRPDC) provides quarterly stakeholder forums that engage government and private sector actors from planning, emergency management, public works, etc. Don Resio will be presenting his modeling work in the July 29, 2016 Adaptation Forum to this audience of end users.
- City of Norfolk, City of Portsmouth, Gloucester County are local governments that will be engaged
- Norfolk Emergency Preparedness and Response, City of Norfolk (linked to Rockefeller Foundation; Christine Morris): The project team will conduct interviews with planners to guide the development of the HSTT; data provision for validation and scenarios; participation in companion modeling.
- The project team also has connections to other organizations such as the US Coast Guard, Port of Virginia, City of Norfolk Department of Emergency Management, etc. These end users have been invited to participate in the Maritime Risk Symposium in November 2016.

7. Explanation of Changes:

Our project was revised in March 2016. The revised project would support at least two Coastal Resilience Center projects, building on project team's expertise in stakeholder engagement, leveraging information already collected from initial case

studies, and utilizing existing connections to stakeholders and possible end users in Hampton Roads. Two project that were supported are: (1) Organizing a panel for the Maritime Risk Symposium that addresses "Integrating Maritime and Coastal Resilience;" and (2) supporting stakeholder engagement and end user translation efforts of '*The Incorporation of Rainfall into Hazard Estimates for Improved Coastal Resiliency' project.*

8. Unanticipated Problems:

The original project involved development of a Hazards Stress Test Tool (HSTT) that supports coordinated actions in all risk management and mitigation phases. However, our meetings with use case stakeholders identified that the project, as originally proposed, did not meet end user needs and would not gain traction within the end user community as a decision support tool. Following discussion with CRC program staff and the DHS Program Manager, we revised the project in March 2016. The revised project would support at least two Coastal Resilience Center projects, building on project team's expertise in stakeholder engagement, leveraging information already collected from initial case studies, and utilizing existing connections to stakeholders and possible end users in Hampton Roads. Two projects that were supported are: (1) Organizing a panel for the Maritime Risk Symposium that addresses "Integrating Maritime and Coastal Resilience;" and (2) supporting stakeholder engagement and end user translation efforts of '*The Incorporation of Rainfall into Hazard Estimates for Improved Coastal Resiliency' project.*

9. Project Outcomes:

Project outcomes:

(a) Connections to end users
Introduced port, maritime and emergency management stakeholders and end users into CRC activities via the Maritime Risk Symposium.
Invited Don Resio to present at the July 29, 2016 Hampton Roads Adaptation Forum with anticipated 80 end user attendees.

(b) Support of 2 Coastal Resilience Center projects.
Organized a panel for the Maritime Risk Symposium that addresses "Integrating Maritime and Costal Resilience" for November 2016.
Supported stakeholder engagement and end user translation efforts of '*The Incorporation of Rainfall into Hazard Estimates for Improved Coastal Resiliency' project through connecting Don Resio to the Hampton Roads Adaptation Forum.*

(c) Participate in Coastal Resilience Center activities and engage with CRC and projects.

10. Research Activity and Milestone Progress:

Research Activities and Milestones: Progress to Date
(expand cell size / add rows as needed)

Reporting Period 1/1/2016 – 6/30/2016			
~~Research Activity~~	Proposed Completion Date	% Complete	Explanation of why activity / milestone was not reached, and when completion is expected
Meeting with potential use case stakeholders	March 2016	100%	Met with stakeholders from an urban area (City of Norfolk for long-term visioning/planning process); rural area (Gloucester County for disaster planning and emergency management); and regional organization (Hampton Roads All Hazards Advisory Committee and Hampton Roads Planning District Commission).
Finalize the identification of three use cases for HSTT	March 2016	100%	Identified regional, urban, and rural use cases for HSTT development.
Develop instruments for obtaining end user requirements and HSTT specification	March 2016	100%	Developed interview questions and user requirement survey to determine possible use of HSTT, tool input and output requirements, and systems requirements of end users.
Participation in CRC annual meeting	March 2016	100%	
Identify theme and potential maritime stakeholders as possible participants for the Maritime Risk Symposium panel	June 2016	100%	

Organize and submit Maritime Risk Symposium panel	June 2016	100%	
Agree (with rainfall project PI Don Resio) on stakeholder and end user engagement activities	May 2016	50%	Scheduled Don Resio to present his research and engage with stakeholders and end users on July 29, 2016 at the Hampton Roads Adaptation Forum.
Research Milestone			Next key milestone is in future project period

11. Transition Activity and Milestone Progress:

No transition activity associated with this project. This project serves as a testbed for other CRC projects and results will be reported through other projects.

12. Interactions with education projects:

None

13. Publications:

None

14. **CRC Performance Metrics:**

Table for Documenting CRC Research Project Product Delivery

Product Name	Product Type	Approx. Delivery Date	Recipient or Anticipated End Users
N/A			

Table for Documenting External Funding and Leveraged Support

External Funding			
Title	PI	Total Amount	Source
N/A			

Leveraged Support	
Description	Estimated Annual Value
N/A	