

ATKINSON, ODU
DHS Coastal Resilience Center
Research Project:
Annual Project Performance Report

Covers reporting period July 1, 2016 – June 30, 2017

1. Project Title:

Stakeholder/End User Engagement Support of Two CRC Projects (Formerly 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
- Wie Yusuf, Associate Professor, School of Public Service, Strome College of Business

4. Short Project Description (“elevator speech”):

This project supported two Coastal Resilience Center projects, building on the project team’s expertise in stakeholder engagement, and leveraging connections to stakeholders and possible end-users in Hampton Roads. We organized a panel for the Maritime Risk Symposium that addresses “Integrating Maritime and Coastal Resilience;” and supported stakeholder engagement efforts of *‘The Incorporation of Rainfall into Hazard Estimates for Improved Coastal Resiliency’* project. *The ODU project team also represented the Coastal Resilience Center in a collaborative research project with faculty and students from Norfolk State University (NSU, a minority serving institution) as part of the DHS Summer Research Team Program. The NSU-ODU research team studied socio-ecological resilience using the case study of communities in Portsmouth, Virginia.*

5. Abstract:

This project supported two Coastal Resilience Center projects, building on the ODU team’s expertise in stakeholder engagement and utilizing existing connections to stakeholders and potential end-users in Hampton Roads. First, we co-organized a panel (with the U.S. Coast Guard) highlighting Hampton Roads resilience projects, including the Intergovernmental Pilot Project, for the Maritime Risk Symposium that addressed “Integrating Maritime and

Coastal Resilience.” This panel included Jim Redick (Director of Emergency Management, City of Norfolk), ADM Ann Phillips (U.S. Navy, ret.), Kit Chope (Vice President for Sustainability, Port of Virginia), and Commander, U.S. Coast Guard Sector Hampton Roads. Second, we hosted a *Hampton Roads Adaptation Forum on the topic of Sea Level Rise and Flooding Science*, in support of stakeholder engagement efforts of ‘*The Incorporation of Rainfall into Hazard Estimates for Improved Coastal Resiliency*’ project (PI: Don Resio). For both projects, we connected our CRC partners with stakeholders and potential end-users, including managers and planners from local governments (e.g., in emergency management, coastal planning), regional organizations (e.g., Hampton Roads Planning District Commission, Hampton Roads Sanitation District), state agencies (e.g., Virginia Department of Emergency Management, Port of Virginia), federal and DoD agencies (e.g., Coast Guard, Navy, NOAA, National Weather Service), and non-profits (e.g., Chesapeake Bay Foundation, Wetlands Watch). We also conducted regular and periodic engagement events. The ODU team also represented the CRC in a collaborative project with faculty and students from Norfolk State University (NSU, a minority serving institution) as part of the DHS Summer Research Team Program. The NSU-ODU research team studied socio-ecological resilience using the case study of communities in Portsmouth, Virginia.

6. End users:

Through the Maritime Risk Symposium, the following end-users directly participated as panelists:

- Jim Redick, Director of Emergency Management, City of Norfolk, VA.
- ADM Ann Phillips, U.S. Navy (Ret.)
- Kit Chope, Vice President, Sustainability, The Port of Virginia
- Commander, U.S. Coast Guard Sector Hampton Roads

We co-organized the panel with Operations Research Analyst, U.S. Coast Guard.

During the panel, the end-users highlighted challenges faced by the Hampton Roads region in terms of coastal and maritime issues. They also discussed some of the Hampton Roads resilience projects they have been involved in, including the Intergovernmental Pilot Project, and the partnerships they have participated in to build coastal and maritime resilience. By connecting stakeholders in maritime and port sectors with stakeholders in emergency management and resilience, the project supported efforts to address risk and improve coastal resilience in an integrated way. By bringing these issues to a wider audience through the Maritime Risk Symposium, the project increased the visibility of such issues and their connectivity to other related risk and resilience concerns.

The July 2016 Hampton Roads Adaptation Forum on the topic of Sea Level Rise and Flooding Science included participation by the following end-users as presenters:

- NOAA National Ocean Service (NOS) Center for Operational Oceanographic Products and Services (CO-OPS)
- NOAA National Ocean Service (NOS) Center for Operational Oceanographic Products and Services (CO-OPS)
- Senior Hydrologist, National Weather Service, Wakefield Office

- *Coastal Hazards Specialist, NOAA Office for Coastal Management*

Over 80 stakeholders and end-users attended the Hampton Roads Adaptation Forum to hear from Don Resio and ask questions about Don Resio on 'Risk of Extreme Events.' End-users included:

Michael	Anaya	City of Chesapeake Planning Department	
Josh	Balisteri	Ecology and Environment	
		USGS	
Don	Berchoff	True Weather Solutions	
Charles	Bodnar	City of Virginia Beach, DPW-Engineering	
Justin	Burris	City of Norfolk	
Shanda	Davenport	City of Virginia Beach	
Stephen	DeVilbiss	DEQ	
Gina	DiCicco	Virginia Department of Conservation and Recreation	
Robin	Dunbar	Elizabeth River Project	
Christy	Everett	Chesapeake Bay Foundation	
		USACE, Norfolk District	
Gregory	Haugan	Northumberland Assoc for Progressive Stewardship	
Gayle	Hicks	City of Hampton	
John	Horne	James City County	
Shereen	Hughes	Wetlands Watch	
Kim	Hummel	Isle of Wight County	
Caleb	Hurst	Clark Nexsen	
		NOAA Coastal Storms Program	
Whitney	Katchmark	HRPDC	
		MARACOOS	
Scott	Kudlas	DEQ	
Ronald	Lovell	Hampton Roads REALTORS® Association	
Tavorise	Marks	VDEM	
Robert	Martz	Hampton Roads Sanitation District	
Elizabeth	Mayo	Verizon Wireless	
Ben	McFarlane	HRPDC	
Tom	McNeilen	McNeilen and Associates	
		US Navy	
Mohammad	Shar	City of Newport News	
David	She	ASCE	
Mark	Slauter	VDEM	
Brian	Swets	City of Portsmouth	
Dave	Pryor	Clark Nexsen	

Brian	Batten	Dewberry	
Jenny	Reitz	HRSD	
		NOAA/ Chesapeake Bay	

(Note: This is not an exhaustive list)

The involvement of end-users in this project facilitated flood modeling that incorporates different risks and that are more strongly connected to the needs of end users.

More information about the Hampton Roads Adaptation Forum is available here: <https://sites.wp.odu.edu/HRAadaptationForum/the-latest-in-sea-level-rise-and-flooding-science/>

In November 2017, the ODU team hosted Dr. Rachel Davidson (Univ. of Delaware) to present a lecture as part of the Center for Coastal and Physical Oceanography (CCPO)/ODU Resilience Collaborative (ODU-RC) Seminar Series. Her seminar title was ‘An Integrated Scenario Ensemble-based Hurricane Evacuation Modeling Framework.’

In March 2017, the ODU team hosted Dr. Billy Sweet (NOAA National Ocean Service). Dr. Sweet gave a lecture titled ‘**Trends, Patterns and Scenario-based Projections of Relative Sea Level and Tidal Flood Frequencies along the US East Coast**’ as part of the **CCPO/ODU-RC Seminar Series**.

End-users attending the seminars by Dr. Davidson and Dr. Sweet included regional planners from the Hampton Roads Planning District Commission, City of Virginia Beach, and City of Portsmouth. The seminars were open to the public and also available via WebEx.

Recordings of the lectures are available here:

http://vs.odu.edu/kvs/interface/?cid=201530_CCPOSeminarSeriesVS_96096

Following the seminar by Dr. Sweet, we hosted a 3-hour Roundtable Discussion for end-users to have a technical discussion with Dr. Sweet and the ODU research team about the needs of regional stakeholders with respect to nuisance and recurrent flooding and similar topics of interest. Representatives from the Hampton Roads Planning District Commission, National Weather Service, and local cities participated in the Roundtable Discussion.

For the NSU-ODU research project, we connected with end-users from the City of Portsmouth (Meg Pittinger, Environmental Manager and Brian Swets, Planning Administrator) to ensure that our research is relevant to the needs of the city and the communities served.

7. Unanticipated Problems:

There were no unanticipated problems during Year 2.

8. Project Impact:

By connecting end-users in the development of flood modeling, we can better ensure that the models incorporate different risks and are more strongly connected to the needs of end-users. Since end-users can provide input into development, such as by specifying how they would

use modeling information or what risks they want incorporated into the models, they are more invested in using the models since they will be better tailored to their needs. By having end-users involved in the conversation about integrating maritime and coastal risks in efforts to build resilience, we are raising the profile and relevance of the topic beyond the academic realm into world of practice.

9. Research Activity and Milestone Progress:

Research Activities and Milestones: Progress to Date

Reporting Period 7/1/2016 – 6/30/2017			
Research Activity	Proposed Completion Date	% Complete	Explanation of why activity / milestone was not reached, and when completion is expected
Identify theme and potential maritime stakeholders as possible participants for the Maritime Risk Symposium panel	August 2016	100%	
Organize and submit Maritime Risk Symposium panel	August 2016	100%	
Participate in Maritime Risk Symposium	November 2016	100%	
Coordinate with Don Resio on stakeholder engagement needs	July 2016	100%	
Plan and host stakeholder engagement event for PI Don Resio as part of Hampton Roads Sea Level Rise/Flooding Adaptation Forum on ‘Sea Level Rise and Flooding Science’	July 2016	100%	
Orientation meeting with NSU faculty and student researchers for DHS SRT	April 2017	100%	
Identify research experience opportunities for student researchers	May 2017	100%	
Identify ODU graduate students to participate in multi-institutional, NSU-ODU research team	May 2017	100%	
Conduct research in communities in Portsmouth, VA	July 2017	30%	Research is underway, expected to be completed by July 28, 2017.
Present research findings to ODU and NSU community, and end-users	July 2017	0%	Research presentation is scheduled for July 28, 2017.

Research Milestone			
Panel on 'Integrating Maritime and Coastal Resilience' at the Maritime Risk Symposium	November 2016	100%	
Participate in Maritime Risk Symposium	November 2016	100%	
Stakeholder engagement event for PI Don Resio with 80+ stakeholders	July 2016	100%	
Create multi-institutional, NSU-ODU research team	May 2017	100%	
Complete research in communities in Portsmouth, VA	July 2017	30%	Research is underway, expected to be completed by July 28, 2017.
Present research findings to ODU and NSU community, and end-users	July 2017	0%	Research presentation is scheduled for July 28, 2017.
Annual report to CRC	June 2017	100%	

10. Transition Activity and Milestone Progress:

No transition activity were planned or undertaken.

Research Activities and Milestones: Progress to Date

(expand cell size / add rows as needed)

Reporting Period 7/1/2016 – 6/30/2017			
Transition Activity	Proposed Completion Date	% Complete	Explanation of why activity / milestone was not reached, and when completion is expected
Transition Milestone			

11. Interactions with education projects:

Dr. Wie Yusuf gave ReTALK lecture at Johnson C. Smith University on ‘Lessons Learned the Hard Way and Tales of Engagement’ in October 2016.

Dr. Joshua Behr visited Dr. Rachel Davidson’s lab at the University of Delaware in February 2017.

Drs. Wie Yusuf, Joshua Behr, Michelle Covi and Larry Atkinson are working with a Summer Research Team (SRT) from Norfolk State University, a minority-serving institution on the research project ‘A Systems Approach: Developing Cross-Site Multiple Drivers to Understand Climate Change, Sea-level Rise and Coastal Flooding for an African American Community in Portsmouth, VA.’

12. Publications:

None.

13. Tables:

Table 1: Documenting CRC Research Project Product Delivery

Table 2: Documenting External Funding and Leveraged Support

Table 1: Documenting CRC Research Project Product Delivery

<u>Product Name</u>	<u>Product Type</u>	<u>Approx. Delivery Date</u>	<u>Recipient or Anticipated End Users</u>
None	-	-	-
-	-	-	-
-	-	-	-

Table 2: Documenting External Funding and Leveraged Support

<u>External Funding</u>			
<u>Title</u>	<u>PI</u>	<u>Total Amount</u>	<u>Source</u>
Assessing Current and Future Risk Posed to Structural Assets at Norfolk International Terminal South Stemming from Sea Level Rise and Severe Storm Inundation	Behr	\$68,000	Commonwealth of Virginia (Port of Virginia)
Assessment of Tourism Industry Resilience	Yusuf & Covi	\$30,000	Commonwealth Center for Recurrent Flooding Resiliency
Hampton Roads Adaptation Forum	Covi	\$15,000	NOAA
Virginia Sea Grant Climate Adaptation and Resilience Program	Covi	\$113, 228	Virginia Sea Grant
<u>Leveraged Support</u>			
<u>Description</u>			<u>Estimated Annual Value</u>

Office and meeting space, telecommunication services	\$3,000
Guest speakers and engagement events (CCPO/ODU-RC Speaker Series, Roundtable discussions)	\$3,500
Hampton Roads Adaptation Forum corporate support	\$3,000
Outreach support through Virginia Sea Grant Climate Adaptation and Resilience Program	\$5,000
Student hours	\$1,000

14. Metrics:

<u>Metric</u>	<u>Year 1</u> (1/1/16 – 6/30/16)	<u>Year 2</u> (7/1/16 – 6/30/17)
HS-related internships (number)	0	0
Undergraduates provided tuition/fee support (number)	0	0
Undergraduate students provided stipends (number)	0	0
Graduate students provided tuition/fee support (number)	0	0
Graduate students provided stipends (number)	0	2
Undergraduates who received HS-related degrees (number)	0	0
Graduate students who received HS-related degrees (number)	0	0
Graduates who obtained HS-related employment (number)	0	0
SUMREX program students hosted (number)	0	0
Lectures/presentations/seminars at Center partners (number)	0	1
DHS MSI Summer Research Teams hosted (number)	0	2
Journal articles submitted (number)	0	0
Journal articles published (number)	0	0
Conference presentations made (number)	0	0
Other presentations, interviews, etc. (number)	0	0
Patent applications filed (number)	0	0
Patents awarded (number)	0	0
Trademarks/copyrights filed (number)	0	0
Requests for assistance/advice from DHS agencies (number)	0	1
Requests for assistance/advice from other agencies or governments (number)		5
Total milestones for reporting period (number)	0	
Accomplished fully (number)	0	
Accomplished partially (number)		
Not accomplished (number)		

Photos:



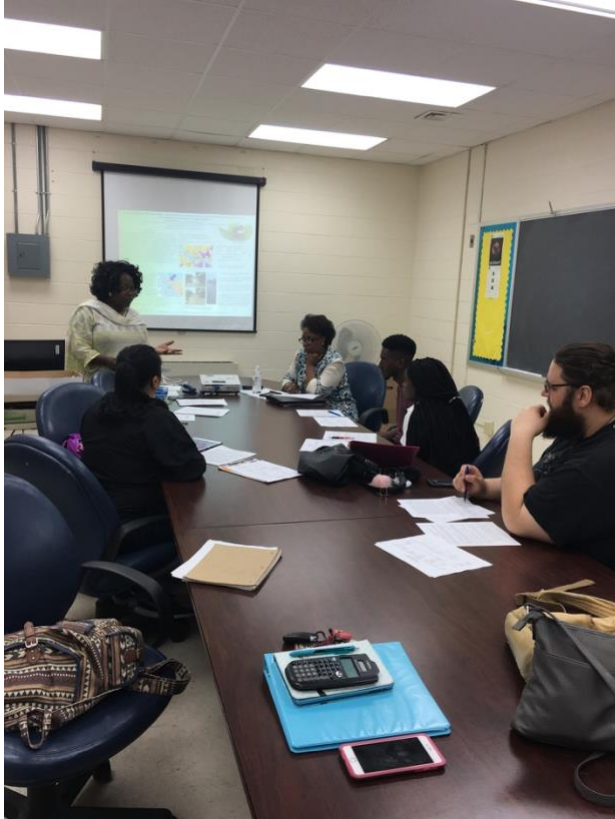
Engineers and planners from the City of Chesapeake and City of Virginia Beach participating in roundtable discussion on nuisance flooding with Dr. Billy Sweet from NOAA.



Panel on 'Resilience in a Complex Coastal System' at the Maritime Risk Symposium.



Dr. Wie Yusuf with Johnston C. Smith University students following her ReTALK lecture on 'Lessons Learned the Hard Way and Tales of Engagement'



Norfolk State University undergraduate students Raisa Barrera, Bryan Clayborne and Mikel Johnson, along with ODU graduate student Isaiah Amos meeting with NSU faculty members Dr. Camellia Okpodu and Dr. Bernadette Holmes to kick-off the SRT project ‘A Systems Approach: Developing Cross-Site Multiple Drivers to Understand Climate Change, Sea-level Rise and Coastal Flooding for an African American Community in Portsmouth, VA.’



Norfolk State University student Mikel Johnson learning more about modeling and simulation during a tour of the Virginia Modeling, Analysis and Simulation Center (VMASC) on June 8, 2017 as part of the SRT experience hosted by ODU (on behalf of the CRC).



Norfolk State University student Bryan Clayborne trying out simulation developed by Virginia Modeling, Analysis and Simulation Center (VMASC) researchers on tour of VMASC on June 8, 2017 as part of the SRT experience hosted by ODU (on behalf of the CRC).