

OPALUCH, URI
DHS Coastal Resilience Center
Research Project:
Annual Project Performance Report

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

- 1. Project Title.** Overcoming Barriers to Motivate Community Action to Enhance Resilience
- 2. Principal Investigator.** James Opaluch, Environmental and Natural Resource Economics, University of Rhode Island
- 3. Other Research Participants/Partners.** Austin Becker, Marine Affairs, Univ. of Rhode Island, Dawn Kotowicz, Donald Robadue, and Pamela Rubinoff, Coastal Resources Center, Univ. of Rhode Island

4. Short Project Description.

To date there is little quantitative information on the ability of communities to adapt to the threat of coastal hazards (e.g., Corps of Engineers, 2012). This project will help increase community resilience by providing a better understanding of the barriers that communities face in adapting to coastal storm hazards, and by designing and testing interventions that can have the potential to overcome these barriers. We will combine individual interviews, group decision processes and policy simulation exercises to identify key barriers and to design interventions to overcome those barriers.

5. Abstract.

This research will help improve the resilience of communities that face risks from coastal storm hazards. We adopt insights from social science models of behavior change to develop programs to improve the adoption rates of actions that can reduce potential damages from major coastal storms. A principal finding of the literature on behavior change is that simply providing information is not generally sufficient to bring about changes in behavior (Scott 2002, Stern 2000). Rather, increasing the adoption rate of behaviors to mitigate storm effects is challenging (Kesete et al. 2014; Carson et al., 2013). Various theories of behavior change recognize that carefully planned and well-designed interventions can help to expedite change (e.g., Velicer et al. 1998; Moser and Ekstrom, 2014; Lindell and Perry, 2012).

This project focuses on improving the adoption rate of community-based and other collective actions, such as mitigating actions by groups of interacting stakeholders. We adopt a framework based on the insights from social science models of behavior change to identify barriers to adoption of mitigation actions by communities, and to develop

measures that are designed specifically to overcome these barriers.

This research project is based on the hypothesis that there are multiple reasons for inadequate behavioral response to coastal storm hazards, and that the reasons vary across the types of decisions, the prior experience with hazards, and characteristics of community decision-makers. As a consequence, building resilience requires a systematic research program to understand the resistance of the community to adopting new behaviors, to identify barriers to adoption of hazard mitigating strategies, and to design effective policy interventions to overcome barriers for different groups of individuals, businesses and communities.

We adopt the DHS “Whole Community Approach” (e.g., Department of Homeland Security, 2014) to identify the barriers faced in adopting damage mitigation measures, and to design and test interventions to overcome these barriers. Interventions to increase adoption rates may include information tools to deepen the understanding of causes and consequences; improved information on specific feasible protective actions; economic incentives for the adoption of protective actions; new and/or changes in existing policies; and other interventions designed to specifically overcome the barriers that we identify in working with communities. The model is implemented with targeted stakeholder groups to improve our understanding of how to overcome obstacles at the community level, and thereby help to build community resilience.

The focus of our behavioral research is also responsive to President Obama’s September 15, 2015 Executive Order “Using Behavioral Science Insights to Better Serve the American People” (White House, 2015), which directs agencies to “develop strategies for applying behavioral science insights to programs and, where possible, rigorously test and evaluate the impact of these insights”. The Executive Order goes on encourage agencies to conduct behavioral research to “... review elements of their policies and programs that are designed to encourage or make it easier for Americans to take specific actions ...”

6. End users:

This project adopts the core guiding principles of the DHS “Whole Community Approach”, and we will work cooperatively with as many community groups as feasible to ensure we understand the needs of the community, and that we engage and empower all community members. To do so, this project leverages ongoing efforts by co-PI Pamela Rubinoff and colleagues at the URI Coastal Resources Center/RI Sea Grant program to help communities prepare for sea level rise and coastal storm hazards. We also leverage workshops conducted by co-PI Dr. Austin Becker on Rhode Island port vulnerability. This project adds value to those ongoing efforts by applying social-science based models of behavior change, identifying barriers to change and designing interventions to overcome those barriers. Table 1 below contains a partial list of community groups that have participated in those efforts to build a more resilient coastal community. We anticipate continuing to work to meet the needs of these and other community groups.

Project personnel have participated in, facilitated and/or observed a total of 29 group decision processes with industry representatives and federal, state and local agencies. The dates, titles and purpose of these events are briefly summarized in Appendix A. These activities include both direct project-related efforts, and leveraged efforts of ongoing activities of co-PIs that the project capitalized upon. The meetings were used to assist private and public officials in planning for coastal storm hazards, and for the coordination of related actions. Simultaneously, we used the events to improve our understanding of the barriers to adaptation faced by members the private sector and government agencies, as well as the potential for various actions to overcome those barriers.

We will continue interact with other local officials as part of these ongoing efforts in order to obtain community perspectives on potential actions to make their community more resilient to coastal storm damages. Individuals at the municipal level with whom we are working include Pamela T. Nolan, Town Manager for Narragansett, City of Warwick Mayor Scott Avedisian, Warwick City Council Chair Donna Travis, Charlestown Town Council Member Virginia Lee, and Executive Director Daniel Beardsley of the Rhode Island League of Cities and Towns.

We have also tentatively identified the following end users who will be involved in the project:

- Tim Smail, Federal Alliance for Safe Homes (FLASH)
- FEMA HQ - ICPD - Individual & Community Preparedness.
- Michelle Burnett and Jessica Stimson, RI Emergency Management Agency
- NOAA Office of Coastal Management
- Elizabeth Stone. Office of the Director, RI Department of Environmental Management
- Board of Directors of the Rhode Island Flood Mitigation Association
- National Institute of Science and Technology
- U.S. Department of Health and Human Services

Phase I of the project focusses on a Rhode Island-specific application, but later phases of the research will extend the methods, results and outputs obtained in Rhode Island to other geographic contexts. In Phase I, we have budgeted for one regional trip to discuss the applicability of Rhode Island-specific results and outputs to another geographic location, to be determined. We currently anticipate meeting in Boston or New York/New Jersey area. As the research progresses, we will work in collaboration with DHS and regional contacts to identify the most appropriate location. We will also leverage a pilot study by co-PI Dr. Austin Becker on port resilience in the North Atlantic as a broader context within which to test insights obtained from our work in Rhode Island.

Table 1. End Users Participants in Group Decision Processes

Shoreline Change SAMP	Port Vulnerability Assessment
Private Sector Associations, Educational Institutions and Nonprofits:	
RI Realtors Association RI Builders Association Westerly Economic Development Committee RI Independent Insurers Association Save-the-Bay Homeowners Associations of Block Island and North Kingstown Salt Pond Coalition (Nonprofit Advocacy Group for RI Salt Ponds) RI Nursery and Landscape Association American Society of Civil Engineers Univ. of Albany	Quonset Development Corp ProvPort (Port Authority) Private firms on the waterfront FM Global (Global Provider of Commercial and Industrial Property Insurance) Save-the-Bay CommerceRI (State of RI Business Promotion Agency) RI Marine Trades Association, Newport Maritime Association. Private Marinas. RI Sea Grant/Coastal Resources Center
Federal/State/Local Government Agencies	
RI Department of Environmental Management RI Coastal Resources Management Council RI Division of Statewide Planning RI Flood Mitigation Association RI Emergency Management Agency. South County Communities (Town Representatives) RI Green Infrastructure Project: (Participating Towns: Warwick, No. Kingstown, Newport, & Aquidneck Island) US Army Corps of Engineers	RI Coastal Resources Management Council RI Division of Planning Providence Department of Planning RI Emergency Management Agency US Marine Administration (MARAD) US Coast Guard US Army Corps of Engineers

7. End user requirements or problems the project addresses.

As indicated above, coastal communities face large and increasing risks associated with coastal storm hazards. There are numerous protective actions that can be undertaken to substantially reduce potential storm damages (FEMA, 2011; FEMA 2104; Coastal Resources Center, 2014), but decision makers frequently do not invest in these measures (Kesete et al., 2014; Carson et al, 2013). Decisions to carry out mitigation actions are complicated, and can depend on a variety of factors involving individuals or policies (e.g., Ge et al, 2014; Carson et al, 2013; Peacock, 2003). This contributes to the so-called “adaptation deficit” (e.g., Burton, 2009), whereby threatened communities often fail to take an appropriate level of actions to adapt to climate change threats, including sea level rise and coastal storm hazards.

This project will carry out a systematic research program to identify actions to mitigate risks from major coastal storms, identify barriers that are faced by communities in taking these actions, and design interventions to overcome these barriers. The information generated will improve our understanding of how to build community resilience. Consistent with the spirit of the DHS “Whole Community” approach, we will disseminate project-related information as widely as possible, and do not anticipate that any single end user will “own” the information we obtain. Information will be delivered in the form of reports, publications and less formal information sheets.

We will also transmit information to representatives of the private sector, and to federal, state, local government officials as part of ongoing planning activities in which we routinely participate as part of leveraged activities. Examples of these activities for September 2015 June 2016 are reported in the Appendix A. Additional ongoing and future activities include planning events led by Co-PI Austin Becker for US Atlantic ports, and efforts by co-PI Pamela Rubinoff for Rhode Island state agencies and coastal communities.

As indicated elsewhere, we are working with end users and other community groups on a continuing basis throughout the project to ensure our project outputs meet their needs. See the preceding section for more details.

8. Explanation of Changes:

We have adapted the schedule of our planned activities, so we focus more heavily than anticipated on facilitating, observing and participating in group decision process, and have pushed the one-on-one semi-structured interviews back to year 2. This is in part because we had identified more opportunities to participate in group decision processes than we previously anticipated, and we didn’t want to miss those opportunities (See the Appendix for a list of group decision processes in which we participated, as of July 1). Also, in retrospect, we decided that we would use the group decision processes as an opportunity to obtain insights, formulate hypotheses and develop preliminary conclusions, and follow up on these in the one-on-one semi-structured interviews.

9. Unanticipated Problems:

None

10. Project Outcomes:

As indicated above, we are working closely with federal, state and local partners to increase the resilience of communities to coastal storm hazards. To do so, the project leverages ongoing efforts by project PIs Rubinoff and Becker, and adds value to those efforts by applying formal social science-based frameworks of behavior change, identifying barriers to adoption of protective actions and interventions that may help overcome those barriers. This work with stakeholder groups is in the spirit of the DHS “Whole Community Approach” to understand the needs of the community, and that we engage and empower all community members. (Department of Homeland Security, 2015), and the September 2015 Executive Order “Using Behavioral Science Insights to Better Serve the American People” (White House, 2015) which directs agencies to conduct behavioral research to “... review elements of their policies and programs that are designed to encourage or make it easier for Americans to take specific actions ...”

To date, we have facilitated, observed and/or participated in a total of 29 stakeholder meetings. From these meetings, we have developed a preliminary list of opportunities for making communities more resilient to coastal storms, barriers to adoption of protective actions to capitalize on these opportunities and interventions that can potentially help overcome those barriers.

Other outputs of the project to date include (1) an annotated bibliography of roughly 100 publications and reports directly germane to the project (Task 1), (2) 13 presentations at professional conferences, (3) two papers submitted to peer reviewed publications, (4) 2 presentations to date in webinars for FEMA Region 1 and one face-to-face meeting in Washington for FEMA.

The next step in this research will be to carry out a series of semi-structured interviews with stakeholders, working one-on-one or within small groups. This effort will follow up the observations and hypotheses generated during the group decision processes, and to validate and refine the preliminary list of opportunities, barriers and potential interventions. Simultaneously, we will be developing and refining preliminary Policy Simulation tools to be applied later in the project.

These Policy Simulation tools will be made available to facilitate planning by federal, state and local agencies. Many of these tools are being created by leveraged activities by project PIs, and used in ongoing planning activities. For example, Dr. Austin Becker is taking the lead to create visualizations of storm impacts, and we anticipate these visualizations will be integrated with “Storm Tools”, a set of planning tools being created

as part of the Rhode Island Shoreline Change Special Area Management Plan (see <http://www.beachsamp.org/stormtools/>). This is an effort led by the State of Rhode Island Coastal Resources Management Council, to help individuals, businesses and communities prepare for sea level rise and coastal storms. Other tools created for Policy Simulation activities will similarly be shared and used, as appropriate, for various planning activities. Project co-PI are actively involved in planning activities, and we anticipate that these tools will see wide use by end users.

11. Research Activity and Milestone Progress:

Research Activities and Milestones: Progress to Date

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
Task 1. Literature Review		100%	We have identified, reviewed and created an annotated bibliography of roughly 100 publications and reports. However, we will continue to update the literature review throughout the project as we identify additional literature.
Task 2. Group Decision Processes		100%	We have facilitated, observed and participated in a total of 29 group decision processes listed in the Appendix. However, in order to obtain additional insights and to maintain two-way communications with stakeholders, we will continue to participate in this activity as opportunities arise through the project.
Task 3. Individual Semi-Structured Interviews	2/28/17	0%	As discussed elsewhere, we have moved the timing of this task to Year 2, and instead focusses more than anticipated on Task 2 Group Decision Processes (see Section 8 above for the rationale). Carrying out and analyzing semi-structured interviews activity will be a primary focus of year 2. We anticipate completing interviews by Dec 31,

			2016, and completing the coding interviews by Feb 28, 2017.
Task 4. Initial Draft Policy Simulation Tools	12/31/16	25%	This Task is on schedule to be completed by Dec 31, 2016, as proposed in the work plan.
Research Milestone			
Plan for Coordination with Davidson Research Team	3/1/2016	100%	We participate in periodic conference calls with the Davidson team
Updated Literature Review	3/1/2016	100%	As indicated above, we have written an annotated bibliography of a substantial literature. However, this activity will continue throughout the project as addition literature is identified.
Facilitate, Observe and Participate in Group Decision Processes		100%	This activity was moved forward to Year 1, as discussed elsewhere. We have facilitated, observed and participated in a total of 29 group decision processes, listed in the Appendix. However, in order to obtain additional insights and to maintain two-way communications with stakeholders, we will continue to participate in this activity as opportunities arise through the project.
Preliminary list of barriers and interventions	12/31/2016	33%	This activity is on schedule to be completed by Dec 31 2016, as initially planned. The initial list from Group Decision Processes will be validated and refined in the semi-structured interviews of Year 2.
Complete One-on-One Interviews	12/31/2016	0%	The timing of this activity was switched with group decision process, and consequently pushed back to 2016-7 as explained elsewhere in this progress report
Content Analysis of Interviews	2/28/2017	0%	See item above.

12. Transition Activity and Milestone Progress:

Transition Activities and Milestones: Progress to Date

Reporting Period 1/1/2016 – 6/30/2016			
Transition Activity	Proposed Completion Date	% Complete	Explanation of why activity / milestone was not reached, and when completion is expected
Facilitated, Observed and/or Participated in 29 Group Decision Events		100%	We have completed a total of 29 group decision processes as of June 30, which is more than we anticipated. However, this activity will continue throughout the project, as it allows us to obtain additional insights and to maintain critical two-way communications with stakeholder groups.
Obtain input and feedback from an end-user workshop to support design of scenarios and products.	September 30, 2016	25%	Team changed strategy to engage end-users in different venues, rather than a single workshop, as individual have proven more effective. A meeting with USCG had been scheduled for June 12 th , but unfortunately USCG had to postpone that meeting due to an unanticipated commitment. A meeting with RI Emergency Mgmt team will take place within next 6 weeks. A workshop at annual “Rhody Ready” event of local, state and regional emergency managers will include a presentations and discussions to gain input and feedback.
Transition Milestone			
Group decision processes	Dec 2017	100%	See attached list of events in the Appendix. We intend to continue this activity throughout the project to obtain additional insights and to maintain two-way communications with Stakeholder
Presented project goals and preliminary results in 3 FEMA meetings	June 2016	100%	These meetings were organized by CRC and DHS personnel, and were held in DHS headquarters in Washington DC and at the Univ of Rhode Island. Although we

			received considerable interest and positive feedback, no specific outcomes were achieved at this early stage of our research.
Presented for FEMA Region I Advisory Council	June 2016	100%	Project goals, objectives and preliminary results were presented for a conference call of regional DHS personnel. This conference call led to additional invitations to present our project at a future meetings of regional DHS officials.
Obtain input and feedback from the End-user workshop to support design of scenarios and products.	September 30, 2016	25%	See details above
Stakeholder Newsletter		100%	We anticipate continuing to release newsletters periodically throughout the project in order to keep stakeholders apprised of our research progress and results. Originally we planned to release monthly newsletters, but we felt this frequency reduced the effectiveness of this communication tool. Instead we believe that release of more substantive, but less frequent Newsletters will be more effective in gaining attention of Stakeholders

13. Interactions with education projects:

Below we summarize interactions with other Center Activities to date:

- The URI research team held a meeting with Center PI Gavin Smith in Rhode Island on January 6th, 2016 to discuss our project’s tasks, and to facilitate potential collaborations across the Center.
- The URI research team initiated planning for summer interns. Lack of adequate funds proved to be a challenge to funding summer interns. We are coordinating with the URI Summer Undergraduate Research Opportunity program, funded by National Science Foundation, to help fund one or more summer interns to collaborate on URI research projects for 2017.
- Project co-PI Dr. Austin Becker was invited to present for the education program “Expanding Coastal Resilience Education” at University of North Carolina. Date to be determined.
- Project co-PI Pamela Rubinoff presented for a class at the University of North Carolina education program “Expanding Coastal Resilience Education”

- Project PI James Opaluch coordinated with CRC Team led by Dr. Rachel Davidson to facilitate collaborations among the two project. We are now participating in periodic conference calls. The first joint call was held on Wednesday February 24th.
- URI-hosted conference on Monday, June 13, 2016 on coastal storm modeling attended by Dr. Rich Luettich. Following the conference, the URI research team met with Dr. Luettich to discuss issues of mutual interest, and to facilitate collaborations, including collaborations with educational programs.

14. Publications:

Touzinsky, K, Rosati, J., Fox-Lent, C., Becker, A., Luscher, A., 2016. “Advancing Coastal Systems Resilience Research: Improving Quantification Tools through Community Feedback” under review at *Shore and Beach*. Expected publication date 2017.

Zhang, H., Ng, A., Becker, A. 2016, “Institutional Barriers in Adaptation to Climate Change at Ports, Regions, and Supply Chains.” under review at *North American Symposium on Climate Adaptation..* Expected publication date 2017.

15. CRC Performance Metrics:

CRC Performance Metrics			
Metric	Research	Education	Center
Courses/certificates developed, taught, and/or modified		See Table	
Enrollments in Center-supported courses/certificates			
HS-related internships (number)			
Undergraduates provided tuition/fee support (number)			
Undergraduate students provided stipends (number)			
Graduate students provided tuition/fee support (number)			
Graduate students provided stipends (number)			
Undergraduates who received HS-related degrees			
Graduate students who received HS-related degrees			
Certificates awarded (number)			
Graduates who obtained HS-related employment			
SUMREX program students hosted (number)			
Lectures/presentations/seminars at Center partners	2		
DHS MSI Summer Research Teams hosted (number)			
Journal articles submitted (number)	2		
Journal articles published (number)			
Conference presentations made (number)	13		
Other presentations, interviews, etc. (number)	5		
Patent applications filed (number)			
Patents awarded (number)			
Trademarks/copyrights filed (number)			
Requests for assistance/advice from DHS agencies	2		
Requests for assistance/advice from other Federal agencies or state/local governments (number)	5		
Total milestones for reporting period (number)	6		
Accomplished fully (number)	4		
Accomplished partially (number)			
Not accomplished (number)			
Product/s delivered to end-user/s (description and	See Table		
External funding received	See Table		
Leveraged support			
Articles on Center-related work published on website			
Coverage in media, blogs (number)			
Social media followers (number)			
Posts to social media accounts (number)			
Events hosted (number)			
Website hits (number)			

Table for Documenting CRC Research Project Product Delivery

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

Table for Documenting External Funding and Leveraged Support

External Funding			
Title	PI	Total Amount	Source
Measuring Climate Risk to Inform Resilience: Pilot Study for North Atlantic Medium and High-Use Seaports	Dr. Austin Becker	\$280,000	US Army Corps of Engineers
Climate Change Community Resilience ¹	co-PI Pamela Rubinoff	\$47,625	RI Sea Grant
Leveraged Support			
Description			Estimated Annual Value
Returned Indirect Cost ²			\$4,174
Project Management and Coordination			\$1,500

References

Burton I., 2009. “Climate Change and the Adaptation Deficit”. *Earthscan Reader on Adaptation to Climate Change*, eds. Schipper ELF, Burton I (Earthscan, Sterling, VA), pp 89–95.

Carson, J., K. McCullough, and D. Pooser. 2013. “Deciding Whether to Invest in Mitigation Measures: Evidence from Florida”. *The Journal of Risk and Insurance*. 80(2): 309-327.

¹ Our DHS project leverages ongoing efforts by co-PI Pamela Rubinoff and colleagues at the URI Coastal Resource Center to increase resilience of coastal communities in the face of climate change. Many of the group decision processes listed in the Appendix are organized by, or otherwise associated with this Sea Grant funded project. We add value to that effort by applying formal a social science based framework of behavior change, identifying barriers to adaptation and interventions to overcome those barriers.

² The University of Rhode Island’s Coastal Institute (CI) has generously agreed to return 66% of their share of indirect cost return back to the project. The CI obtains 17% of the indirect cost, so roughly 11.3% of indirect cost is being returned to the project.

- Coastal Resources Center, 2014. "Catalog of Adaptation Techniques for Coastal and Waterfront Businesses: Options to Help Deal with the Impacts of Storms & Sea Level Rise" Available online at: http://www.beachsamp.org/wp-content/uploads/2015/05/adaptation_catalogue.pdf.
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Appendix A. Summary of Group Decision Events

Rhode Island Legislative Commission on Economic Impacts of Sea Level Rise and Coastal Flooding. (September 24, 2015) Legislative Hearings on economic threats of sea level rise and coastal flooding.

Rhode Island Legislative Commission on Economic Impacts of Sea Level Rise and Coastal Flooding. (Oct 15, 2015) Legislative Hearings on economic threats of sea level rise and coastal flooding.

Municipal Adaptation Work Session, New Shoreham. (Oct 22, 2015). Purpose: Assist communities to understand exposure to coastal storm hazards, plan for action to reduce risk and implement plans. Increase awareness of tools, planning requirements and adaptation strategies.

Municipal Adaptation Work Session, Westerly. (Oct 29, 2015) Purpose: Assist communities to understand exposure to coastal storm hazards, plan for action to reduce risk and implement plans. Purpose: Assist communities to understand exposure to coastal storm hazards, plan for action to reduce risk and implement plans. Increase awareness of tools, planning requirements and adaptation strategies.

Municipal Adaptation Work Session, Charlestown. (Oct 29,2015) Purpose: Assist communities to understand exposure to coastal storm hazards, plan for action to reduce risk and implement plans. Purpose: Assist communities to understand exposure to coastal storm hazards, plan for action to reduce risk and implement plans. Increase awareness of tools, planning requirements and adaptation strategies.

Municipal Adaptation Work Session, North Kingstown. (Nov 11, 2015) Purpose: Assist communities to understand exposure to coastal storm hazards, plan for action to reduce risk and implement plans. Purpose: Assist communities to understand exposure to coastal storm hazards, plan for action to reduce risk and implement plans. Increase awareness of tools, planning requirements and adaptation strategies.

Rhode Island Legislative Commission on Economic Impacts of Sea Level Rise and Coastal Flooding (Nov 19, 2015) Legislative Hearings on economic threats of sea level rise and coastal flooding.

Rhode Island Legislative Commission on Economic Impacts of Sea Level Rise and Coastal Flooding. (December 17, 2015) Legislative Hearings on economic threats of sea level rise and coastal flooding.

Town of South Kingstown, Municipal Adaptation Work Session. (January 20, 2016) Purpose: Assist communities to understand exposure to coastal storm hazards, plan for action to reduce risk and implement plans. Increase awareness of tools, planning requirements and adaptation strategies.

Rhode Island Legislative Commission on Economic Impacts of Sea Level Rise and Coastal Flooding. (January 21, 2016) Legislative Hearings on economic threats of sea level rise and coastal flooding.

#ResilientPVD Community Workshop. A team of experts from around the country come to Providence for three days of charrettes, workshops, and community meetings to

explore how Providence's infrastructure, buildings, and neighborhoods can prepare for the impacts climate change. (February 1- 3, 2016)

Beach SAMP meeting, Meeting of State and Town leaders to discuss adaptation to sea level rise and coastal flooding threats. (February 4, 2016)

Meeting of Community Leaders to discuss historic and potential future impacts of coastal flooding, and actions to mitigate impacts. (February 16, 2016)

Conference call with Davidson et al to coordinate efforts of the two Research Groups (February 24, 2016)

Rhode Island Legislative Commission on Economic Impacts of Sea Level Rise and Coastal Flooding. Legislative Hearings on economic threats of sea level rise and coastal flooding. (February 25 2016)

Preparedness Conference (CCRI) - Series of presentations, trainings, and exhibits. <http://www.riema.ri.gov/resources/government/prepare/preparednessconference/index.php> (March 1, 2016)

BeachSAMP meeting. Meeting of State and Town leaders to discuss adaptation to sea level rise and coastal flooding threats. (April 6, 2016)

ANNUAL RIFMA CONFERENCE - "Incentivizing Actionable Resilience to Flooding" - Floodplain management and hazard mitigation professionals explore tools and techniques to improve resiliency in the present and future. (April 7, 2016)

Keeping History Above Water Conference, Newport, RI. One of the first national conversations to focus on the increasing and varied risks posed by sea level rise to historic coastal communities and their built environments. This is a conference on what can be done to protect historic buildings, landscapes and neighborhoods from the increasing threat of coastal inundation. (April 10-13, 2016)

RI Silver Jackets (RIEMA, Cranston) - Meeting of Interagency coalition to reduce flood risk. State-led teams, implementation of USACE National Flood Risk Program (April 14, 2016)

DC DHS Presentation and discussion with DHS HQ and others on how to link with their efforts. (April 14, 2016)

RI Coastal Erosion Control Workshop (April 21, 2016)
http://www.crmc.ri.gov/news/pdf/2016_0421_Workshop_Flyer.pdf

Meeting with and presentation by Chris Landsea, NOAA's Joint Hurricane Testbed Director/Science and Operations Officer at the National Hurricane Center. Discussion of all three URI projects funded by DHS, and lecture "Inside the Eye: Improving Hurricane Forecasts". (May 3, 2016)

BEACHSAMP Stakeholder Meeting with presentation from Michael Oppenheimer, speaking about climate change and the IPCC. (May 3, 2016)

BeachSAMP Modeling meeting, 4, May 2016, 2-4 pm & 6-8 PM

Report to FEMA Regional Advisory Council May 19th

New England Climate Adaptation, Preparedness, and Resilience seminar - Organized by DHS Infrastructure Protection, EPA, FEMA, NOAA, NH Department of Safety. First in a series of New England seminars. (May 24 – 25, 2016)

Estuarine and Coastal Modeling Conference (ECM14) at URI - Rick Luettich (UNC lead) will be a keynote, Meeting with Rick Luettich with our team and other key users, including Coast Guard, and other DHS leaders. (June 12-15, 2016)