RHODE ISLAND BAYS, RIVERS, & WATERSHEDS COORDINATION TEAM

Meeting of September 26, 2012

Conference Room A
2:00-4:00 pm
The Department of Environmental Management
235 Promenade Street
Providence, RI

FINAL Minutes

Coordination Team Members in Attendance: Sue Kiernan, Tom Uva, Jeff Willis, Kathy Crawley, Guy Lefebvre, Jared Rhodes, Mike Walker

Guests: Dr. Heather Leslie, Judith Colaluca of RI Save the Lakes

BRWCT Staff: Ames Colt

CT Administration:
Draft meeting minutes from July 25th approved with requested edits from Uva and Lefebvre.

Guest Speaker: Dr. Heather Leslie, Brown University
A New Ocean Health Index

Colt introduced Dr. Heather Leslie, Sharpe Assistant Professor of Environmental Studies and Biology in Brown University's Department of Ecology and Evolutionary Biology, and lead editor and author of the 2010 Island Press publication, "Ecosystem-based Management for the Oceans."

Dr. Leslie gave a brief presentation on a new Ocean Health Index that she has helped to develop as part of a national team of investigators. Colt noted how the Index ties environmental and socio-economic metrics to goals for environmental management and socio-economic development. Leslie and others are interested in applying the Index to regions of the U.S. ocean, and possibly estuaries such as Narragansett Bay. Thus Colt invited her to discuss the new Index with the RI BRWCT and its potential relevance to Rhode Island ocean and coastal management.

Summary of Dr. Leslie's Presentation

Globally, coasts and oceans are changing rapidly due to numerous forces and causes. The work of the RI BRWCT exemplifies Rhode Island's long history of recognizing the value of the coasts and ocean and serving as a national leader in coastal management and stewardship.

It is further recognized widely that continuing with "business as usual" approaches to ocean and coastal management, including water quality management, fisheries management, marine and

coastal recreation, etc., that tend to compartmentalize management regimes by "sector" fashion has not worked well and will become more infeasible in the future.

The Ocean Health Index (OHI) development project team is comprised of U.S. scientists as well as international participants. The team focused on ensuring that the concept of ocean ecosystem health could be applied usefully to tracking the state(s) of the ocean and adapting management efforts accordingly. Thus the team focused on linking ocean ecosystem health to measuring environmental quality and people's interactions uses of coastal and marine environments. The OHI is transparent, flexible and could be applied at multiple geographical scales.

The team looked at both developed and undeveloped regions of the global ocean. Developed ocean regions should be healthy too, even if not pristine. They sought to quantify the dimensions of ocean ecosystem health in ways that would be relevant for policy and management. That people are part of ocean systems was a fundamental assumption. The OHI is intended to help quantify and measure health, monitor management progress in, and inform future actions. It has been applied globally, but now there are case studies underway in Fiji, Brazil, and the U.S. It has not been applied to a single estuarine region such as Narragansett Bay; but there is interest in learning if the OHI could be useful at a state or regional scale and what it would take to do so.

Given that developed and undeveloped coastal ocean regions both possess the potential to be improved in terms of ocean ecosystem health, the team defined a "healthy ocean" as one that sustainably delivers a range of environmental and socio-economic benefits, or "ecosystem services," today and in the future. The principle of sustainability is also an important part of the OHI: It seeks to track not just current states, but key trends looking forward. \

The OHI utilizes a concise list of ten types of benefits, linked directly to public goals:

- Natural products (biopharmaceuticals)
- Food provision both wild and farmed fisheries
- Carbon storage potential
- Protection from storms and sea-level rise
- Tourism and recreation
- Coastal livelihoods and economies
- Sense (quality) of place
- Biological diversity
- Clean water

The research team quantified each of these benefits or services on a global scale, looking at the current status of each of these ten goals for all the coastal nations in the world. The "status" of each service produced by a particular global region is defined in the OHI utilizing a reference condition that isn't necessarily the pre-industrial revolution or pre-human state. The OHI global assessment incorporated information from the last five years for each of these services, as well as key pressures upon them due to coastal development and pollution.

Assessment of the state and trajectory of each service by region were summed up into a single index values ranging from zero to one hundred. Dr. Leslie showed three scores as examples. The team also computed a single index value for the global ocean: sixty. Globally, protection from storms and sea-level rise scored a seventy-three, which indicates that potential storm protection benefits from habitat protection and restoration have been reasonably well attained at a local and regional level. However, index values globally were much lower for tourism and recreation, and food production.

Walker asked how one should compare index values for different regions when for each region one is not necessarily measuring scores for each of the ten services or benefits. Leslie replied that it was the team's intent to utilize the same set of public goals for each ocean region and then account for the lack of data or relevance for particular services (goals) in determining a region's overall index score. She agreed that it would inappropriate to score a pristine ocean region zero for socio-economic services that it had never supported. Individual ocean regional index values were thus calculated using a weighted sum based on the relevant services or goals.

The OHI presents a portfolio of index values that can be tailored to a particular region. It can also be used to develop index values unique to a particular societal perspective, such as a conservationist or developmental perspective. Developing scores based upon a particular societal perspective may be a lot more relevant at the local or the state level where one could apply surveys to develop index values based upon what a particular community or state emphasized. Standard theoretical models for decision-making could be utilized to analyze survey data in order to produce unique weighting sets to represent a particular societal perspective. Further information on the OHI is provided in the recent eight page Science article the team published, as well as in the article's supplementary materials.

Dr. Leslie asked the RI BRWCT if there was interest in pursuing an application of the OHI to Narragansett Bay. She noted the similarity between the OHI's ten services and the public goals articulated in the RI BRWCT's Systems-Level Plan, and the relevance of the OHI to the imperative of the RI Environmental Monitoring Collaborative to develop environmental indicators for Narragansett Bay, its watersheds, and other RI waters and natural resources. The OHI could help the RI BRWCT address questions such as how healthy are Rhode Island's bays, rivers, and watersheds? Or, how could their "ecosystem health" be improved through an integrated management approach to the ten services identified in the OHI? For example, the OHI could assist in determining how a particular restoration activity or set of activities would clean water and all possibly enhance the other nine targeted services (benefits).

Lefebvre asked who would perform the weighting of particular service index scores in relation to each of the ten services identified in the OHI. Leslie explained that they are all considered of equal importance. However, in developing the preservationist societal perspective one could assign higher weights to say clean water and food provision. Lefebvre asked if such an individual perspective index score could be accomplished by a group of individuals. Leslie said it could be.

Walker asked if the OHI could be used to make predictions about the outcomes of particular management actions, or whether it is limited to assessing current states and trends. Leslie answered that it is not designed to make such predictions, although it is intended to function as a "forward-looking" tool. To function as a predictive tool, the OHI would need to be redesigned to utilize process-based models for tracking the dynamics of particular services given different management interventions.

Leslie noted that the OHI could however help to elucidate the results of particular management interventions: For example, the NBC combined sewerage overflow abatement project should lead to an increase in the Bay's overall index value, not only for water quality, but for other services such as tourism that are linked to water quality.

Colt said that the OHI index values would reflect both a mechanistic understanding of how, for example, shoreline hardening to control erosion produces losses in other important values such as erosion in beaches adjacent to the hardened shoreline, as well as how such losses (and gains from protected infrastructure due to hardening) are valued by individuals and communities.

He also noted the importance of best professional judgment in establishing or projecting index values. Presumably, if you are trying to make some predictions about future trends in index values, you would combine empirical information with expert opinion about future conditions.

Leslie added that the OHI could inform efforts to make trade-offs between different services or benefits. Should we be devoting primarily resources primarily to clean water (pollution control) or aquatic habitat restoration?

Willis asked how many years of data would be needed to credibly apply the OHI. Leslie answered that it depends on the goal. There are data on particular services that go back for decades. Other services are not well understood over time. For example, one reason why the research project produced low index values for tourism and recreation for many global ocean regions is because the data is scarce or of poor quality.

Colt pointed out that the consideration by the OHI of both environmental and socio-economic values aligns well with the mission of the RI BRWCT. He also pointed out the model's emphasis upon service valuation reference points do not necessarily refer to pristine, undeveloped conditions and circumstances. In an urbanized bay and watershed such as Narragansett Bay, this is an important flexibility in the model. He also found valuable the OHI model's ability to consider how particular management actions contribute to multiple goals.

Kiernan mentioned the systems dynamic modeling effort for nutrients management in Narragansett Bay being led by EPA Office of Research and Development. It also seeks to link dynamically changes in socio-economic values, treatment and management costs, and human uses such as tourism. They are seeking to complete the systems dynamic model in the next couple of months. Kiernan stated that this modeling effort is different from the OHI model but it may be producing and/or identifying data that would be of use for applying the OHI to Narragansett Bay.

Colt stated that he asked Dr. Leslie to present on the OHI to the RI BRWCT to encourage it to brainstorm about where the RI BRWCT should go in the coming years with regard to monitoring and indicator development. Watershed Counts has been active for several years and the RI BRWCT should support and enhance the indicators that are emerging from this initiative. Nevertheless, he encouraged the RI BRWCT to keep thinking about how to best pull different indicators together into a single index model in order to help connect monitoring outputs with performance measurement, program evaluation, and long-term planning for adaption to important environmental and economic trends. He also noted the OHI's potential relevance to southern New England regional ocean planning through the Northeast Regional Ocean Council and the Northeast Regional Planning Body.

Colt thanked Dr. Leslie for her presentation and encouraged the RI BRWCT to take a look at the Science article describing in detail the OHI.

Project Updates:

<u>The CRMC Shoreline SAMP</u>

Colt reviewed changes to the project scope and work plan made by CRMC since the RI BRWCT's last meeting in late July; these changes were summarized in a memo circulated to the RI BRWCT (appended to the minutes). Subsequent to the July meeting, CRMC requested that the RI BRWCT conditionally commit to three years of funding for the RI Shoreline SAMP at $50,000 annually. Colt noted that such a multi-year funding arrangement was made by the RI BRWCT on behalf of the URI Coastal Hypoxia Research Program. He has asked CRMC and URI

to provide the RI BRWCT a copy of the final proposal when available from URI to conduct and complete the Shoreline SAM planning process.

He is working with CRMC and URI to develop a cooperative agreement to fund the project at URI. RI BRWCT funding would be split between geological research and community outreach.

Willis reviewed the first year Shoreline SAMP tasks that the RI BRWCT would be funding (See appended memo.)

Colt asked if the planning boundary for this SAMP is the designated coastal zone for RI (two-hundred feet from mean high water plus designated coastal features). Willis stated that the landward boundary may exceed occasionally the two hundred foot boundary due to the nature and dynamics of shoreline erosion.

Walker asked how the new SAMP would address shoreline regions that are already covered by an existing SAMP. Willis answered that the CRMC would have to decide on a case by case basis which SAMP applied according to the issue at hand and the region or site or concern. Walker replied that overlapping SAMP's could add another layer of permit or policy review, making it more difficult for permit applicants, cities and towns, and other stakeholders to understand CRMC's requirements. As the Shoreline SAMP is developed, Walker recommended that CRMC and the URI keep in mind the importance of ensuring transparent and predictable regulatory processes that grow out of the SAMP work.

Walker also expressed concern about the relatively small amount of money being made available to the RI BRWCT for the initial round of stakeholder outreach and initial shoreline erosion assessment.

Colt pointed out that CRMC has just issued a draft update of its sea-level rise (SLR) policy. Willis noted that the RI Coastal Resources Management Plan's Section 145, CRMC's SLR Policy, has been revised to reflect better the state of SLR science. He added that CRMC would possibly be amending its Salt Ponds SAMP to reflect the updated SLR policy.

Colt requested a motion to approve changes to the project funding agreement between RI BRWCT, CRMC, and URI in accordance with the memo dated 9/21/12 to the RI BRWCT. Namely, agree to changes in the first year work plan, and to an additional $50,000 of funding annually for two years after this first year, conditional upon available funding and adequate progress toward project goals.

Uva so moved; Walker seconded. RI BRWCT approved unanimously with Willis abstaining.

<u>Conservation Law Foundation (CLF) Stormwater Utility District Feasibility Study</u>
Colt and CLF Executive Director are continuing to finalize the requisite grant agreement and hope to have it completed in October and soon thereafter provide CLF the funding for the Study to be provided by the RI BRWCT.

<u>The Middletown Stormwater Utility District Partnership Project</u>
An RFP was issued by the RI Division of Purchases on September 17th with a pre-bid meeting scheduled for September 28. Scott, Colt and DPW Director of Middletown are on the proposal review team. They have attracted the interest of a number of consulting firms.

EDC Large Marine Events Benefits Assessment Project

The Grant Agreement has been completed and submitted to the Department of Administration. RI DEM Director Coit has noted that City of Newport stakeholders are very interested in reviewing some of the results of this project the socio-economic benefits generated for the city by last July's America's Cup World Series Regatta.

USGS Contracts

Kiernan reviewed the state's contractual obligations with USGS for FY 2013 to continue baseline monitoring programs for stream flow, large river water quality monitoring, and groundwater monitoring

The USGS regional offices are going through organizational and personnel changes. The new director of the USGS RI/Mass office is Keith Robinson. There were previously four USGS offices in New England, but two have been closed. The New England regional offices report separately to a national USGS office in West Virginia, so there is a lack of strong regional coordination between them. Kiernan is confident that USGS understands the need for better communication with RI, and the importance of working as a full partner with the state. They have tended to be more active in Massachusetts relative to RI because that is where their office is located.

Director Robinson has stated that he would like to address that relative lack of emphasis upon RI's needs. He also expressed a desire to Kiernan to equalize over the time the prices USGS charged to each New England state, which would translate into some cost increases for RI in the next FY.

Previously there was federal funding was available in the past to reduce RI's contractual costs, but it no longer appears to be available. USGS has not sought service cost increases for the past couple of years. The total cost of the commitment last FY by RI was about $205,000. USGS has indicated that it will need to increase its charges to a maximum of $226,000, about a 10% increase; although Kiernan stated it was likely this maximum amount would not be needed because of possible duplication of effort with regard to two stream gages located along the MA and CT borders.

Crawley noted that WRB had received from USGS a three-year projected increase in stream gage contracting costs.

Kiernan also noted that she did not think RI could acquire comparable monitoring support at a lower cost from the private sector, particularly with regard to stream gages.

There are thirteen gauges in the current USGS/DEM agreement utilizing BRWCT funds, which is the same amount commited in FY 2012. There are also six additional river water quality monitoring stations that USGS operates on the Blackstone and the Pawtuxet Rivers. Crawley noted that USGS handles all of the data analysis, archiving, and reporting as well as operation of the stream gage system.

Colt stated that it was important to continue RI BRWCT's support for the stream gage network to maintain a well-operated monitoring network that functions consistently and credibly across states and regions. The most important question to address is whether RI BRWCT funds should continue to be utilized to support the network and other USGS-led monitoring work.

Kiernan, Crawley and USGS also agreed to maintain the two separate agreements for stream gages through June 30, 2013; and they would work to merge the two agreements into one to be

administered by DEM. (USGS has a separate agreement with the Providence Water Supply Board.) The goal is to for DEM to be funded and made responsible for administering RI's stream gage network; and to simplify the administration of stream gage funding. Kiernan has been talking with DEM Office of Management Services about the agency's request for restoration of previous Office of Water Resources operations funding are inserted into DEM's FY 2014 budget proposal.

The state agencies have very limited opportunities to make such budget requests in FY 2014, but Kiernan and Crawley will take some action to bring this need to the attention of the Governor and the General Assembly, reporting back to the RI BRWCT.

Uva asked Crawley if DOA could make a similar request for stream gage funding in the Water Resources Board's FY 2014 budget. Crawley answered that the point of doing this is developing a unified budget under a single state agency. Kiernan added that she and Crawley would pull together a memo of funding priorities indicating how they have reached an agreement with USGS that is funded (assuming RI BRWCT support) and will run through next June 30th; and that for FY 2014 both agencies wish to create an opportunity to bring all the USGS contracts for water monitoring under a single contract with DEM. Crawley added that the plan is to clearly articulate the need and the cost of the state's stream gage network.

Kiernan noted that USGS did increase their contribution by a total of $4,571 in proportion with the federal/state cost share ratio, which is 60/40.

Colt noted that in FY 2013 the RI BRWCT will not have to expend revenue account funds to pay for its share of the USGS stream gage network contract costs. All funding would come from its FY 2013 OSPAR allocation for economic and environmental monitoring. If the RI BRWCT approved continuing coverage of the USGS contracts, there would be a remaining balance $23,000 in the OSPAR allocation for other needs.

Uva stated that the streamflow monitoring program is critical to the state for both environmental and economic reasons, so we should continue to fund this monitoring, but efforts must be made to restore the this funding to the agency budgets. Uva also stated that NBC routinely contracts flow monitoring services and many firms now provide these services. He recommended that the DEM and Water Resources Board evaluate other service firms to see if the program cost can be reduced.

Walker said that verification should proceed this winter and spring before decisions are made next spring talk about next round of USGS contract. He also called for a more in-depth review of alternative providers of the same monitoring data, especially as USGS may experience federal funding cuts in federal FY 2013 or FY 2014, leading to further cost increases to the state. He opined that to maximize the value of whatever state and federal funds are available for environmental monitoring, the agencies and their partners should identify any private sector entities that could perform the same monitoring services and what that they would charge. Kiernan said that via her ongoing work to update the state's water monitoring strategy and with assistance from the RIEMC, such cost comparisons could be accomplished.

Walker stated that if USGS provides stream gauge monitoring via a contractual agreement with RI, then the state should ensure that monitoring data remains fully accessible even if in the future USGS is no longer the provider of such information.

Colt requested the following, three-part motion:

The RI BRWCT requests that the RIEMC assess the possibility for other providers to in the future provide the monitoring services provided by USGS to the state. The RI BRWCT will continue to work with state agencies, Governor Chafee, and the General Assembly to restore funds for monitoring previously cut from state agency budgets, particularly DEM. The RI BRWCT approves FY 2013 funding from its OSPAR allocation at a maximum of $226,000 for fulfilling the agreement between USGS and DEM to continue the monitoring services provided by USGS to DEM and Rhode Island.

Uva so moved; Rhodes seconded. The motion was passed unanimously, with DEM's Kiernan abstaining.

Responses to the RI Environmental Monitoring Collaborative's 2010-2011 Summary Report

In addition to seeking more state support in FY 2014 for stream gage and other USGS-led monitoring, Colt reported that there is interest in the RI Senate with regard to providing more state support for environmental monitoring in general. Marie Ganim, Chief of the RI Senate Policy Office called him in late August upon reviewing the 2010-2011 Summary Report of the RI Environmental Monitoring Collaborative (RIEMC). She expressed concern regarding the funding shortfalls detailed in the Summary Report and asked him to meet to discuss how the agencies are coping with these funding shortfalls. Colt met with Ganim and other members of the RI Senate Policy Office on September 6 and it was agreed that the RI BRWCT should encourage state agencies and the Governor to insert requests for additional state support for the key monitoring needs identified in the RIEMC Summary Report.

As discussed previously, Kiernan has been working on a proposal to increase DEM support for USGS-led monitoring and Colt has spoken to the Department of Health regarding their Beach Monitoring Program. Colt also spoke to Kelly Mahoney on September 13 about the interest in increased state support for monitoring. She considers it very unlikely the agencies would be able to incorporate such increases in their budget submittals for FY 2014 to the Governor, given the guidance for FY 2014 budget requests from DOA. Nevertheless, she felt there was still a possibility still the Governor's budget eventually incorporating such requests.

Uva said that the RIEMC 2010-2011 Summary Report played an important role in attracting the RI Senate's interest regarding shortfalls in support for environmental monitoring. He encouraged the RI BRWCT to follow up actively with the General Assembly. He also stated that it was important for the RI BRWCT to address monitoring priorities laid out in the SLP as opposed to advocating for funding of other monitoring efforts.

RI BRWCT FY 2013 Work Plan

Colt distributed an excerpt from the draft work plan which showed how the projects funded by the RI BRWCT relate to key management priorities laid out in the BRW SLP. The work plan focuses on six such priorities: stormwater management, climate change, estuarine science and management, freshwater resources management, aquatic environmental monitoring, and water-reliant economic development. He reviewed how the draft FY13 Work Plan attempts to clarify the RI BRWCT's near-term priorities, administrative functions, and support for its standing committees. He noted the importance of improving distribution of the completed work plan so that more folks and organizations are informed of the work of the RI BRWCT.

Upon further discussion, the RI BRWCT agreed not to try to run in FY 2013 a proposal competition that would spend down its accumulated revenue account funds, but instead would focus on completing projects already funded and conduct such a competition in FY 2014. The RI BRWCT agreed to finalize its FY 2013 Work Plan at its next meeting in November.

Meeting adjourned at 4:15 PM

Addendum A:

Memo concerning changes to how RI BRWCT funding will be utilized in Year One of CRMC's Shoreline SAMP process

To: **RI BRWCT Members**

From: A. Colt, J. Willis

September 21, 2012

Re: Update on Agreement to provide $50,000 in Support of the RI Coastal Resources Management Council's Beach Special Area Management Plan for the Rhode Island Shoreline (Shoreline SAMP)

At our July 25, 2012, meeting, we reviewed a proposal dated July 19, 2012, from CRMC which requested $50,000 in funding from the RI BRWCT in FY 2013 that would be "earmarked for a cooperative agreement with URI and purposed for initial Shoreline SAMP stakeholder meeting and involvement coordination, as well as to begin the education and outreach effort and strategy needed to make the project successful." This memo updates efforts by CRMC to specify further the scope of work and budget required to accomplish these project objectives.

First, as identified in the proposal received, the total cost of developing a Shoreline SAMP is about $1 million and will take a minimum of three years. Thus, subsequent to the RI BRWCT's July meeting, the CRMC has asked that the RI BRWCT conditionally commit to providing a total of $150,000 to support the Shoreline SAMP, $50,000 annually. The RI BRWCT made a similar conditional commitment to the URI Grad. School of Oceanography Coastal Hypoxia Research Program in that it has conditionally committed $25,000 per year for the four-year life of the program, based upon the availability of RI BRWCT funds and annual review of progress by the RI BRWCT via progress reports.

However, RI BRWCT made that decision based upon review of the full proposal for CHRP that was submitted to NOAA. I have received an undated draft of a Shoreline SAMP proposal written by URI's Boothroyd, Oakley, and McCann and submitted to CRMC. I have requested that CRMC provide a complete final proposal for conducting a Shoreline SAMP for RI BRWCT review. I will leave it to the voting members of the RI BRWCT if you wish to make such a conditional multi-year agreement at the September 26, 2012, meeting prior to receiving the complete Shoreline SAMP proposal.

Second, I have received a draft scope of work from Jeff Willis for the portion of the SAMP the RI BRWCT agreed to support with initial funding of $50,000, and copy it below for your review. The most important thing to note is that CRMC is proposing to split the funding into two basic areas: A) Develop empirical data and modeling to "comprehensively illustrate" the erosion and inundation processes underway or

foreseeable along Rhode Island's South Shore; and B) "Develop a communications strategy that responds to the needs and issues of the stakeholders" The July 19 proposal from CRMC to the RI BRWCT discusses dedication of the entire $50,000 request to "stakeholder meetings and involvement coordination" and "to begin the education and outreach effort and strategy". Jeff has emphasized to me that the following is still a work in progress, particularly with regard to task description preceded by ?'s.

Phase I Purpose: *Engage the community, including government, the private sector, non-governmental organizations, and citizens in a public process to understand the data and collaboratively develop policies and practices to address the issues*

Phase I Period: 9/1/2012 to 12/31/13

Budget Requirement: $50,000

Phase I Tasks:

Objective A: Gather and apply cutting-edge science and data to comprehensively illustrate the South Shore erosion and inundation issues. The team will identify data gaps, conduct research to answer those gaps, and analyze and summarize the data to inform the policymaking process. The team will:

Task 1. Identify areas of critical concern along the Rhode Island shore, including Block Island: Areas of critical concern are those with existing state or private infrastructure and public access that are susceptible to frontal erosion based on historic rates of shoreline change (updated to include 2011 RIDEM digital orthophotographs). Critical areas are also those inundated by both sea level rise projected to 2050 (1.5 ft) and 2100 (5 ft) (Figure 1) and areas inundated by storm surge from a significant hurricane (3.1 m above MHHW).

Task 2. Establish the link between the shoreface and shoreline change: This task will involve high-resolution side-scan sonar mapping (coupled with surface sediment sampling and underwater-video imagery) of the shoreface, focusing on areas of critical concern. Mapping will cover the shoreface from the intertidal beach, including the depositional platform, depositional cobble gravel pavement and cross-shore swaths following the protocol used in previous surveys of estuarine and open ocean shoreface environments (Boothroyd and Oakley, 2006, 2009; Oakley et al., 2012).

Task 3. Develop and begin monitoring of areas of critical concern: Sites will be established, and protocol will be developed and tested to monitor the impact of storms on areas of critical concern. Possible techniques used will include:

(a) Establishing beach profiles in selected areas to complement existing beach profiles collected by the Department of Geosciences and Graduate School of Oceanography at the University of Rhode Island. Profiles would be obtained using the modified emery method (Emery, 1961), coupled with RTK-GPS.

(b) Exploring low-cost "On-demand" aerial photography (Griffith and Young, 2012) and continuing to monitor the sites.

(c) Collecting and analyzing data from additional shorelines (wet-dry lines) using RTK-GPS.

Objective B: Initiate the engagement of the community, including government, the private sector, non-governmental organizations, and citizens in a public process to understand the data and collaboratively develop policies and practices to address the issues. The team will begin to foster and engage a well-informed and well-represented constituency that understands the South Shore erosion and inundation issues and is involved in the creation of the Beach SAMP. With these funds, the team will begin to implement outreach activities that enable decision-makers and stakeholders to understand the erosion and inundation issues, comprehend the implication of project data, and provide input for practical policies and actions to address the problems:

Task 1. Identify and prioritize stakeholder and client issues. In order to ensure that state policies and practices address community-based needs:

(a) Organize at least three events (e.g. Block Island, Little Compton, and Charlestown) to present the existing conditions, explain the need for the SAMP, and identify the public's issues and concerns.

(b) Meet individually with key stakeholders to both identify issues of concern and opportunity, and determine their preferred mechanisms for involvement. Key stakeholders to be involved are likely to include federal and state government agencies, municipalities, local environmental organizations, historical societies, and chambers of commerce. These issues and level of understanding of the issue will serve as one of the foundations for the outreach strategy.

Task 2. Develop a communication strategy that responds to the needs and issues of the stakeholders. Establish vehicles for stakeholders to engage, based on their feedback.

a. Funding will contribute to organizing stakeholder meetings, library lecture series, site visits with stakeholders to key shore sites, and presentations at local civic events DELETE will take place to share existing research as well as encourage discussion of some of the priority issues. Communication / outreach products including a fact sheet and web page will be developed. The Rhode Island Sea Grant College Program will use its existing communication products, including 41 Degrees North Magazine, list serves and Project Note Cards to communicate information and events about this project.

Phase I Deliverables:

Phase 1 deliverables for this cooperative agreement:

(a) Document identifying areas of critical concern which are susceptible to frontal erosion and inundation for the Rhode Island south shore.

(b) Document summarizing the monitoring protocol for areas of critical concern test sites.
(c) Map product for shoreface showing areas of critical concern interest.
(d) Document summarizing stakeholder issues.
(e) Summary reports from three events and other stakeholder meetings.
(f) Communication products including but not limited to project web site and fact sheet

Finally, I am now in touch with Kate Manning Butler, a grant administrator at URI Coastal Resources Center regarding development of a specific budget that will accompany a final cooperative agreement between the RI BRWCT, DEM, CRMC, and URI that will be the vehicle for transferring the grant funds to URI for this project.