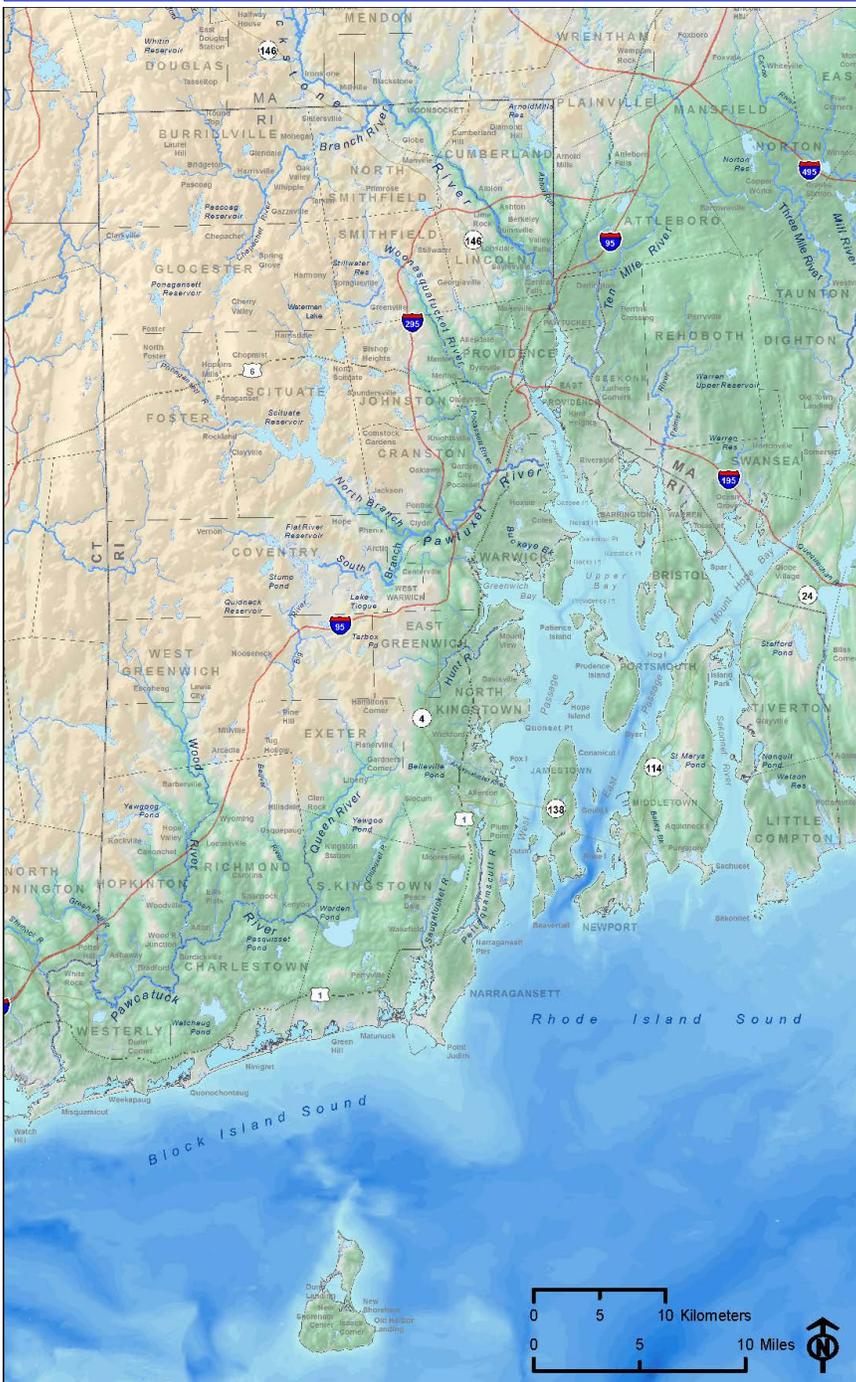




Rhode Island Bays, Rivers, & Watersheds Coordination Team



**FY 2015
Annual
Work
Plan**

**September
2014**

Rhode Island Bays, Rivers, & Watersheds Coordination Team

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Introduction

Most people focus on policy but they don't really focus in on the implementation of policy. Nothing is going to happen unless you implement properly and fine tune and modify and adjust and change.

- Tom Vilsack

U.S. Secretary of Agriculture

In 2004, the Rhode Island General Assembly created the Rhode Island Bays, Rivers, and Watersheds Coordination Team (BRWCT). The BRWCT is a seven state agency commission¹ whose statutory mission is to articulate and pursue attainment of the **“overall goals and priorities for the management, preservation, and restoration of Rhode Island’s bays, rivers, and watersheds, and the promotion of sustainable economic development of the water cluster.”**² The “overall goals and priorities” for water management and sustainable utilization have been confirmed in the [RI Bays, Rivers, and Watersheds Systems-Level Plan](#) (SLP), issued by the BRWCT in 2008 (and which the BRWCT is committed to updating in 2015; see below). Overall, the BRWCT **conjoins the distinct missions and programs of Rhode Island’s water agencies into a coherent, responsive, and high-performing system of water resources governance.**

The BRWCT issues an annual work plan that details how it will pursue collaboratively the implementation of SLP in each state fiscal year via multi-stakeholder partnerships (such as the [Rhode Island Environmental Monitoring Collaborative](#) and [Watershed Counts](#)), and targeted investments of staff time and funds in fresh and marine water resources planning, management, monitoring, science, sustainability and development.

The BRWCT Chair is responsible for facilitating development of the SLP, annual work plans, and administering BRWCT meetings, funded projects, standing committees, targeted policy analyses, and other functions.³ The BRWCT also provides policy analyses and advisory support for the RI Climate Commission, the Narragansett Bay Estuary Program, the Coastal Institute’s Watershed Counts program, the Northeast Regional Ocean Council, the Northeast Sea Grant Consortium, RI Sea Grant, and other organizations and initiatives.

The first part of the FY 2015 Annual Work Plan describes the projects and needs that the BRWCT (along with key partners) will pursue in relation to five SLP Implementation priority areas that have been the basis for BRWCT annual work planning since FY 2013:

- **Manage Stormwater:** Stormwater is a leading cause of water quality impairment and flooding in Narragansett Bay and Rhode Island’s rivers and streams
- **Sustain baseline water monitoring programs and databases:** Cuts in state and federal funding have jeopardized long-standing streamflow and water quality monitoring

efforts critical to drinking water supply management, flood response and recovery, and water quality restoration

- **Sustain and advance Rhode Island’s maritime ports and economic sectors:** Tourism, outdoor recreation, fishing and aquaculture, maritime transportation, and the US Navy: all major sectors of Rhode Island’s economy that offer promise for the future.
- **Foster climate resiliency:** Climate change presents substantial risks to aquatic resources and their human uses
- **Conduct science for estuarine and ocean management:** Hypoxia, the episodic depletion of dissolved oxygen in natural waters, is a serious form of water quality degradation in Narragansett Bay.

These areas have come to the fore for the BRWCT for numerous reasons: the central importance of stormwater management to eliminating water quality impairments in Narragansett Bay and Rhode Island’s rivers, streams, and lakes; major, long-term cuts in state agency operating funds and federal funds for environmental monitoring; the growing imperative to advance scientific understanding of the causes of hypoxia and other water quality impairments in Narragansett Bay and RI fresh waters in order to eliminate them cost-effectively, growing concerns regarding climate change and sea-level rise impacts upon all of Rhode Island’s water resources; and renewed interest in the economic development potential of Rhode Island maritime ports and transportation systems.

Additional information on the mandates and functions of the BRWCT can be found in the SLP and previous annual work plans, all available on the [BRWCT website](#). The second part of this work plan discusses key BRWCT partnerships, advisory committees, and administrative functions.

Part I: FY 2015 Projects

Manage Stormwater

Significantly enhance stormwater control and management state-wide (SLP Policy 13.8)

Projects:

- Assess the feasibility of Stormwater Management Districts in the Towns of Bristol and West Warwick
- Assess the feasibility of an Upper Narragansett Bay Regional Stormwater Management District

For Narragansett Bay and Rhode Island's rivers and streams, stormwater remains a leading cause of water quality degradation, waterbody use restrictions, and flooding. The capture, conveyance, treatment, and disposal or re-use of stormwater is major endeavor for municipalities, and state agencies such as the RI Department of Transportation. For stormwater management to continue to advance, the SLP calls for **expanded partnering between the State and Rhode Island cities and towns regarding technical guidance and finance**, particularly with regard to finding better ways to fairly and adequately finance local and statewide stormwater management. Accordingly, since 2011 the BRWCT has focused on providing municipal Stormwater Management District (SMD) feasibility assessments for Rhode Island cities and towns, including **West Warwick, and Middletown**. The BRWCT will maintain this focus on SMD assessments in FY 2015, working with **Bristol, West Warwick, Providence, Pawtucket, East Providence, Central Falls, Warwick, and Cranston**.

Town of Bristol Stormwater Management District Feasibility Assessment

Project 15-1

FY 15 Budget: \$40,000

Completion: mid-2015

Bristol regularly experiences significant flooding of public and private property, even during moderate rainfall events. Bristol is located on a peninsula in the East Bay. **The underlying geology of the town exacerbates surface flooding and overloading of the Bristol's drainage systems**. Bristol is almost built out, with the densest neighborhoods in the historic downtown. Most of the town's undeveloped land is located in the southeast and east of Metacom Avenue, where large farms are still to be found.

At present, Bristol's stormwater management program is funded primarily by the town General Fund via its Department of Public Works and bond proceeds. Working with a Town Drainage

Committee, formed in response to town-wide drainage and flooding problems, Bristol continues to spend down the 2006 voter-approved \$3 million municipal bond for drainage improvement projects, addressing flooding and other drainage problems in the Tanyard Brook and Silver Creek watersheds.

Recently, Bristol completed a major stormwater mitigation/source remediation project for Bristol Town Beach. In addition, using sewer enterprise funds, Bristol's drainage system has been mapped as part of efforts to address the significant problems posed by inflow and infiltration into the sewer system. Thus, Bristol has successfully leveraged town general revenue funds to include federal funds, road and drainage bond revenues, grants, and private funds to pursue high priority stormwater management projects. However, as is the case with most RI cities and towns, Bristol needs to continue to expand its stormwater management program and infrastructure rehabilitation efforts. **Drainage improvements are urgently needed to address flooding and water quality, and to proactively repair or replace aging and deteriorating drainage structures.** Ultimately, a more stable revenue stream is needed to operate and maintain the town's drainage system, and to comply with its Phase II Stormwater Permit requirements.

In 2012, DEM and the BRWCT helped Bristol complete a Phase I Stormwater Management District (SMD) Feasibility Assessment for Bristol, RI. This initial assessment gathered data about Bristol's stormwater program including program costs, stormwater quality and flooding concerns, current and future capital improvement projects, and other future expenses (e.g., new Phase II and TMDL requirements). This study also analyzed aerial photography to create an updated impervious cover Geographic Information System (GIS) data layer for the town. Total square feet of impervious cover per parcel and an Equivalent Residential Unit (ERU) value were calculated.

Bristol must work toward fulfilling water quality restoration requirements established by the state for its impaired waters, address flooding and stormwater infrastructure replacement needs, and implement stormwater infrastructure retrofits for water quality treatment. Maintaining and enhancing Bristol's stormwater infrastructure, treatment systems, and management and education efforts will require additional financing. Thus, the goals of the next phase of this SMD Feasibility Assessment are to:

- Facilitate local and regional stakeholder understanding and support for enhanced stormwater management
- Assess Bristol's current and future stormwater management service needs, upgrades and replacement needs for infrastructure, and the costs of enhanced services, infrastructure remediation, other capital expenditures, and, finally, financing options such as a new enterprise fund dedicated to stormwater.

Town of West Warwick Stormwater Management District Feasibility Assessment

Project 15-2

FY 15 Budget: \$40,000

Completion: mid-2015

The Town of West Warwick is coping with repeated flooding of public and private property due to inadequate sized and obsolete stormwater infrastructure. In early 2013, DEM completed an impervious cover analysis for West Warwick and the BRWCT provided a small grant to the Town to conduct a Phase I SMD feasibility assessment, which was completed in early 2014. **The Phase I Report estimates that West Warwick should address immediately \$10-40 million in stormwater infrastructure repairs and upgrades.**

The Phase I Report is the basis for the BRWCT, DEM, and others to continue to work with West Warwick on SMD Feasibility Assessment. The next steps in the assessment will consist of a technical analysis focusing on four elements: 1) utility rate setting, 2) specification of priority capital improvements, 3) operational costs, 4) billing and administration. As the Feasibility Assessment proceeds, West Warwick envisions an SMD adoption process that will include final planning design and adoption and a five-year implementation plan that will identify the most urgently need infrastructure rehabilitation imperatives.

The Phase II Assessment will build upon an initial infrastructure needs survey of 27 sites conducted in Phase I. The 27 sites will be further characterized in terms of watershed characteristics (soils groups, impervious cover, and topography), existing infrastructure, and the site's receiving waters. **Then the ten most critical sites will be selected, including the best structural and non-structural "best management practices" (BMPs) for these locations, with the top five and bottom five locations ranked based upon expected benefits and costs.** Criteria for selecting the ten most critical infrastructure rehabilitation sites will include: opportunities for pollution control, flood control, anticipated costs, soil infiltrative capacity, land available on-site and in contiguous areas, and the degree to which rehabilitation of a site will contribute to the Town's stormwater management goals.

The five top sites will be further characterized in a Phase III Assessment and reprioritize the remaining 22 sites (from the original Phase I set of 27 sites) will be re-assessed, with a similar process of identifying and ranking sites (along with their solutions) performed to select the next set of five locations for rehabilitation. Finally, Phase III will produce 3-D visualizations for the five most important sites to demonstrate to elected officials, residents, and businesses the flood control benefits that could be achieved.

Upper Narragansett Bay Regional Stormwater Management Initiative

Project 14-6

FY 15 Budget: \$150,000

Completion: Fall 2015

Six municipalities of upper **Narragansett Bay, Providence, Pawtucket, Central Falls, East Providence, Warwick, and Cranston** will continue their feasibility assessment for a regional stormwater management district in partnership with DEM, the Narragansett Bay Commission (NBC), and the BRWCT. Phase I was conducted in 2013-2014 and broadly characterized stormwater issues, costs, and other drivers in each of these municipalities (as well as North Providence). The Phase I Report, issued in June 2014, provides an up-to-date review of the organizational, programmatic and legal characteristics of a regional stormwater management authority.

The Phase II Assessment will continue to survey municipal stormwater management needs, review organizational, finance and legal issues, and to engage in stakeholder education and outreach. Phase II will enable the participating municipalities to establish milestones and a road map for collaboratively implementation of a stormwater management district. Key outcomes of the Phase II Assessment will include:

- Established rate structure, billing system, and credits program,
- Preliminary revenue requirements to meet stormwater management objectives,
- Public outreach plan, and
- Plan for governance structure and jurisdiction.

This last category of governance, which includes plans for resource sharing, capital and operations and maintenance responsibilities, asset ownership and governing bodies, will be essential to address in order to successfully establish a stormwater management district. The Phase II Assessment will go deeper than the Phase I Assessment into these issues, providing the participating municipalities, the NBC, and other stakeholders the opportunity to work through these complex policy issues together in order to develop an appropriate solution for the challenges of stormwater control and management in upper Narragansett Bay. At the very least, each participating municipality and their state partners will receive a wealth of information regarding the needs, assets, and appropriate goals for stormwater management in each of their communities and for the upper Bay region as a whole.

Climate Change Resiliency

Adapt current and design future waterfront infrastructure to accommodate sea-level rise.
(SLP Policy 1.3)

Projects:

- CRMC Shoreline Change Special Area Management Plan
- Climate Change Vulnerability Assessment of Rhode Island Wastewater Treatment Facilities

Arguably the most tangible impacts of climate change for Rhode Island involve the state's fresh and marine waters and shorelines, such sea-level rise, intensified coastal storms, water temperature increases, alterations to aquatic ecological structure and function, and altered precipitation cycles. Shoreline erosion and inundation are already compromising the integrity of major portions of the Rhode Island shorelines. Recent storms such as Hurricanes Irene (August 2011) and Sandy (October 2012) battered Rhode Island's coast, eroding the shoreline and storm surge inundating low-lying coastal areas. Hurricane Sandy produced washover fans that buried primary roads in Westerly, and left parking lots and businesses buried under as much as 8 feet of sand.

Climate change and sea level rise will in the coming decades transform the Rhode Island coast, threatening the safety of coastal residents and degrading or destroying coastal homes, waterfronts, natural resources, transportation and utility systems. State and municipal land-use and shoreline management policies and regulations must evolve as we advance our collective understanding of the risks to Rhode Island coastal communities posed by shoreline erosion, inundation, and storm flooding. The CRMC Shoreline Special Area Management Plan (SAMP) is intended to facilitate such an evolution in how we manage, sustain, and preserve the Rhode Island shoreline.

Climate Change is also poses significant challenges to the state's freshwater, terrestrial, and socioeconomic resources and assets. Therefore, in 2014 Governor Chafee and the RI General Assembly worked to establish a new executive council responsible for coordinating the RI executive branch and its partners in addressing climate change mitigation and adaptation.⁴ Core findings of the RI Executive Climate Change Council (Created in February 2014 by Governor Chafee via Executive Order 14-01) in its [June 2014 Report](#) include:

- Impacts from climate change are already being felt in Rhode Island. They require action now
- The range of climate change impacts is extremely broad and not limited to the Rhode Island coast
- Cities and towns are on the front line, and need our help

- Climate change is not just an environmental issue. It affects all aspects of society, including the economy.
- State government should lead by example and provide ongoing, comprehensive guidance and assistance to municipalities
- Rhode Island needs to prioritize, accelerate and coordinate adaptation locally statewide, and regionally

In July 2014, the General Assembly passed and Governor Chafee signed [the Resilient Rhode Island Act](#), codifying Executive Order 14-01. The Act directs the **RI Executive Climate Change Coordinating Council (RIEC4)** to set greenhouse gas reduction goals and milestones; establish and administer a stakeholder advisory board and a science and technical advisory; and elevate consideration of climate change impacts into the powers and duties of all state agencies. The RIEC4 will emphasize application of the principles of **climate change resilience**. Specific duties of the Council include:

- Coordinate climate change efforts across state agencies including the coordination and integration vulnerability assessments
- Elevate understanding of the effects of climate change that Rhode Islanders can expect in the coming decades, including sea level rise, coastal and shoreline change, severe weather events, critical infrastructure vulnerability, and ecosystem, economic, and health impacts
- Identify state, federal, and local strategies to prepare for these effects, working with municipalities, including the business community, academic institutions and the public
- Leverage federal, state, and private funding opportunities for emission reduction and climate change preparedness and adaptation work

The RIEC4 has identified the BRWCT as a partner for the conduct and application of climate change vulnerability assessments and the collaborative development of scientific and technical guidance for state and local agencies. The BRWCT will help to fund and provide staff support in FY 2015 to two vulnerability assessment and planning initiatives.

Climate Change Vulnerability Assessment for RI Wastewater Treatment Systems

Project 13-3

FY 15 Budget: \$59,000

Completion: Fall 2015

Flooding, sea-level rise, erosion, and inundation threaten Rhode Island wastewater infrastructure. The design and construction of these infrastructures generally assumed four-inch average monthly rainfalls (for all months of the year). However, variability of rainfall amounts across the year has increased along with increases in intense precipitation events. On a multi-

decadal scale, overall precipitation events and the frequency and severity of major storm events will continue to increase. In FY 2015, Rhode Island will conduct comprehensive climate change vulnerability assessment of wastewater treatment facilities (WWTF) statewide (with the RI Division of Planning Office of Housing and Community Development contributing an additional \$100,000). **The assessment will survey and study nineteen major wastewater treatment facilities, including combined sewer overflow abatement facilities run by the Narragansett Bay Commission and the City of Newport, as well as major pump stations throughout the state.**

CRMC Shoreline Change Special Area Management Plan

Project 13-4

FY 15 Budget: \$75,000 (total funding commitment: \$190,000)

Completion: 2016

Launched in April 2013 with completion expected in 2016, the CRMC Shoreline Change Special Area Management Plan (SAMP) is helping Rhode Island coastal communities increase resiliency and preparedness for intensified storms, shoreline erosion and inundation due to sea-level rise and climate change. The Shoreline Change SAMP will inform state and local planning discussions with better knowledge regarding sea-level rise and coastal inundation, shoreline erosion, and storm hazards. It is also engaging stakeholders regarding traditional perceptions and expectations for shoreline protection and management. In 2012, the BRWCT committed \$150,000 over three years to the CRMC Shoreline Change SAMP. For FY 2015, the BRWCT has committed an additional \$40,000. For more information, please go to the [Beach SAMP website](#).

Estuarine Science & Management

Identify and implement pollution abatement actions necessary to restore water quality in impaired waters. (SLP Policy 13.6)

Evaluate ambient and watershed-scale water quality conditions to track consequences of wastewater treatment facility upgrades for biological nutrient removal. (SLP Strategy 13.4.5)

Projects:

- Upper Narragansett Bay Water Quality Stakeholders Process
- Coastal Hypoxia Research Program

Upper Narragansett Bay Water Quality Stakeholders Process

Project 14-5

FY 15 Budget: \$59,000 (total funding commitment: \$150,000)

Expected Completion: Year 1 Assessment: June 2015; Piloting and evaluation: mid-2017

A major water quality management goal for Rhode Island is the reduction and eventual elimination of severe eutrophication and hypoxia in upper Narragansett Bay and the Seekonk River.⁵ While nutrient loading is a major driver for eutrophication (that in turn leads to DO losses), other estuarine functions and human uses influence DO concentrations in estuaries, including freshwater inputs, water column stratification, wind strength and patterns, water temperature, tidal mixing cycles, plankton dynamics, and storm events. In terms of human uses, many sources introduce nutrients into upper Narragansett Bay, including municipal wastewater treatment facilities (WWTFs), stormwater discharges and atmospheric deposition of nitrogen oxides, and on-site wastewater treatment systems.

In recent decades, Rhode Island has focused on the remediation of WWTF nutrient discharges, estimated to contribute 60-70% of total nutrient loadings to upper Narragansett Bay. In 2005, DEM issued a *Plan for Managing Nutrient Loadings to Rhode Island Waters*, stipulating a 50% reduction in nitrogen loadings from RI WWTFs discharging directly or indirectly into Narragansett Bay. As of 2014, considerable progress has been made, with attainment of the 50% reduction goal expected by 2016. State, federal, and local water quality programs have also worked to reduce nutrient discharges from other sources such as stormwater.

Nevertheless, additional efforts may be needed to alleviate eutrophication, low DO concentrations, and other water quality impairments in upper and mid-Narragansett Bay. **Rhode Island needs to assess holistically the full spectrum of causes and symptoms of eutrophication in order to identify and evaluate the need for additional treatment and management strategies for improving water quality in upper Narragansett Bay.** Enhanced

nutrient removal at WWTFs would require significant new treatment technology and infrastructure, and could significantly increase WWTF energy and chemical costs. Therefore, this project will examine closely the feasibility, cost, and efficacy of alternative nutrient removal systems that utilize watershed scale and green infrastructure approaches.

The BRWCT will fund and lead a facilitated stakeholder process to identify and evaluate alternative nutrient removal strategies for managing water quality in upper Narragansett Bay. This process will engage experts in water quality modeling, aquaculture, fisheries, wetlands, estuarine hydrodynamics and science, and wastewater engineering to assess the most promising opportunities for nutrients and water quality management, including shellfish aquaculture, constructed wetlands, alterations in local-scale circulation, and fertilizer management. A project steering committee will undertake in FY 2015 a year-long assessment of alternative water quality improvement strategies. Project years 2 and 3 will build upon the most promising strategies via specification of potential pilot studies and data collection needs for in-depth strategy evaluation. The BRWCT has committed in principle additional funding in FY 2016 and 2017 totaling \$90,000.

RI Coastal Hypoxia Research Program

Project 12-4b

FY 15 Budget: \$19,000 (total funding commitment: \$100,000)

Expected Completion: late 2015

An important scientific question for managing Narragansett Bay is how its water quality and ecology respond to ongoing reductions in WWTF and other nutrient source discharges. In 2011, the BRWCT agreed to fund a multi-year research project entitled “The Coastal Hypoxia Research Program: Observations and Modeling of Narragansett Bay Hypoxia and Its Response to Nutrient Management,” led by researchers at the URI Graduate School of Oceanography with primary funding from the National Ocean and Atmospheric Administration (NOAA). **This project is advancing understanding of the nutrient loading and bay circulatory processes that govern the occurrence and extent of hypoxia in Narragansett Bay.**⁶ The BRWCT committed \$100,000 over four years to support this research project and FY 2015 represents the third year of this commitment. Specifically, the BRWCT is providing funding for hydrodynamic model development being undertaken by Dr. Dave Ullman of the URI Graduate School of Oceanography.

Freshwater Resources Management

Integrate management of land use and water use, and promote water use efficiency and conservation.
(SLP Policy 12.1)

Maintain the state's streamflow gage network, and expand as needed to fill critical data gaps as resources allow. (SLP Strategy 10.1.3)

Projects:

- Monitor river and stream flows, large river water quality, and groundwater levels
- Water Resources Board Water Supply Database Development

RI Water Supply & Consumption Database

Project 14-7

FY 15 Budget: \$80,000

Expected Completion: mid-2015

The RI Water Resources Board (WRB) compiles and analyzes water supply and consumption data generated by the implementation of [Water Supply System Management Plans](#) (WSSMP) developed by major RI drinking water suppliers (which are reviewed and approved by the WRB). Historically, water supplier-generated water consumption data has varied considerably in terms of reporting periods and types of data provided, presenting significant challenges for data analysis and the local and statewide water supply management decisions that rely upon this data. Currently, the WRB collects and compiles monthly WSSMP data in spreadsheet format. **This data needs to be transferred and incorporated into a single, statewide database to increase access and promote analysis and information utilization by multiple end users.**

Therefore, the WRB is developing a statewide database of water supply data that will provide accurate supply and consumption information to planners, state water managers, government officials and the public. This database will enable evaluation of trends in water use, water availability assessments, and tracking and evaluating water conservation and demand management initiatives.

RI Rivers Council: Fostering Stormwater Management

Project 15-3

FY 15 Budget: \$20,000

Completion: mid-2015

Stormwater is essentially a local issue. Hence, successfully addressing stormwater is a major concern for the [Rhode Island River Council](#) (RIRC) and the [nine designated Watershed Councils of Rhode Island](#). **These Councils function as small, volunteer-driven organizations that excel in their collective knowledge of individual rivers, watersheds, and communities.** Such local knowledge and capacities create opportunities for individual Councils to identify small-scale stormwater management projects entailing BMPs, water quality assessments, and public education, ideally a mix of such initiatives, that they could launch, facilitate, and implement.

However, most of the Councils lack the expertise and resources to undertake small-scale stormwater projects. The RIRC, utilizing \$40,000 of BRWCT funding over two years, will work with select watershed councils to identify and implement small-scale projects that alleviate or address stormwater. **The goal of this two-year project is that all RIRC watershed councils will undertake a concrete initiative in stormwater management, ranging from source remediation to education to leveraging smaller projects into much larger ones that could provide major benefits to river water quality and hence river users.**

Freshwater Quality and Flow Monitoring: US Geological Survey Joint Funding Agreement

Project 15-4

FY 15 Budget: \$282,000

Completion: June 2015

Since state FY 2008, the BRWCT has provided major funding for core ambient water monitoring programs implemented collaboratively by the US Geological Survey, DEM, and WRB. The BRWCT will continue to do so in FY 2015. **Water flow, quality, and supply data are used by state and local authorities to manage water quality, conduct drought and flood response and planning, restore aquatic habitats, and manage drinking water supplies.** The RI Stream Gage Network generates real-time flow data readily available on line [here](#). Stream gage and groundwater networks support the WRB's monthly monitoring of water conditions, drought management and water availability programs.

Large river water quality monitoring provides an important basis for statewide water quality assessments and reporting. (See: DEM Office of Water Resources [Integrated Water Quality Monitoring and Assessment Reporting](#))

For additional information on the history of BRWCT support for US Geological Survey Joint Funding Agreements, please see the 2013 BRWCT Annual Report and the Annual Reports of the RI Environmental Monitoring Collaborative.

Water-Reliant Economic Development

Develop a long-term plan for the development and maintenance of RI's marine transportation system.
(SLP Policy 7.1)

Project:

- Enhance maritime port infrastructure and intermodal connections: State Freight Planning

Rhode Island Freight Plan: Maritime Ports

Project 14-8

FY 15 Budget: \$60,000

Completion: end of 2015

Rhode Island ports ensure the efficient movement of goods and materials in the Rhode Island economy. Rhode Island's mid-point location between Boston and New York City creates an economic advantage for freight movement and logistics in the northeast US. The federal act *Moving Ahead for Progress in the 21st Century* (MAP-21) strongly encourages each state to develop a comprehensive multi-modal State Freight Plan that outlines immediate and long-range priorities for freight transportation investments, particularly freight exports. Under MAP-21, the federal funding share has been increased to 95% for projects on the Interstate Highway System and 90% for any other project. **But this new funding formula requires certification that a proposed project is identified in a State Freight Plan.**

Therefore, the RI Statewide Planning Office and RI Department of Transportation will advance coordinated and rational freight movement in Rhode Island through the development of a State Freight Plan. The BRWCT Chair will participate on the Freight Planning Advisory Committee.

Part II: BRWCT Partnerships, Advisory Committees, & Strategic Planning

RI Environmental Monitoring Collaborative

Systems-based approaches to aquatic resources management and economic development require substantial investments in science, baseline monitoring, and strategic planning. Such knowledge development can be difficult to justify within annual public budget cycles that tend to focus on knowledge creation for major regulatory decisions (sewage plant permitting) or issues with substantial public visibility (saltwater beach closures). Recognizing the imperative of long-term, baseline monitoring, the General Assembly passed the Comprehensive Watershed and Marine Monitoring Act of 2004. This Act calls for development of an:

Integrated mechanism by which individual monitoring efforts can be coordinated and managed as a system in which the functionality of Narragansett Bay and its watersheds is measured and individual planning and management efforts are adjusted to the needs of this marine environment.

Thus, the [Rhode Island Environmental Monitoring Collaborative](#) (RIEMC) consists of member organizations responsible for organizing, coordinating, and maintaining RI's watershed and marine monitoring systems. Currently, URI Coastal Institute Assistant Director Dr. Nicole Rohr serves as RIEMC Chair with Thomas Uva of the Narragansett Bay Commission and Sue Kiernan of RI DEM's Office of Water Resources serving as Vice-Chairs.

The RIEMC has reviewed and identified Rhode Island's aquatic monitoring priorities and developed costs estimates for fulfilling baseline monitoring needs. (For additional details, please visit to the [RIEMC webpage](#).) This information can be found in the RIEMC Annual Reports. Working with the RIEMC, the BRWCT has allocated hundreds of thousands of dollars to meeting some of the state's most critical environmental monitoring needs. Nevertheless, there are growing shortfalls in funding for baseline aquatic environmental monitoring in Rhode Island. **The RIEMC 2013 Summary Report⁷ estimates a shortfall in annual funding of about \$2 million across 21 environmental monitoring priorities established by the RIEMC.**

The RIEMC will continue to review and refine water monitoring priorities for Rhode Island, particularly in relation to an updated statewide Water Quality Monitoring Strategy. The RIEMC will also work with the URI Coastal Institute, **Watershed Counts** and other stakeholders to formulate and establish consensus on environmental indicators to assess the environmental health of Narragansett Bay and its watershed, and communicate key findings and concerns to the general public.

Integrated Stormwater & Wastewater Planning for Upper Narragansett Bay

Rhode Island, EPA and federal and municipal partners continue to work to establish consensus on which projects (or combination of projects) for stormwater, water quality and water supply should be prioritized for financing and implementation. Such prioritization schemes must reflect long-term timeframes for fulfillment of federal and state water quality standards established for Rhode Island waters.

Today, the advancement of stormwater and wastewater treatment for upper Narragansett Bay is at a critical juncture. The Narragansett Bay Commission (NBC) in the spring of 2014 initiated a design review of Phase III of the NBC CSO Abatement program (slated for completion in early 2015). Rhode Island continues to work with cities and towns to expand application of the new 2010 RI Stormwater Design and Installation Standards to the redevelopment of properties within Rhode Island's Urban Services Corridor (See [Land Use 2025](#)). And RI is beginning to assess comprehensively the capacity of existing urban stormwater and sewerage infrastructure to handle intensified precipitation and sea-level rise expected to occur due to climate change via efforts such as the CRMC Shoreline Change SAMP and vulnerability assessments for drinking water (DOH) and wastewater infrastructure (DEM/BRWCT).

Treating wastewater and stormwater is expensive, technologically demanding, and energy intensive. Due to age and historical neglect, sewerage and stormwater infrastructure throughout upper Narragansett Bay needs replacement and frequently extensive renovation, as well as investments in climate resiliency. However, available state and federal funding remains far below what is required, and **NBC's debt burden has climbed to about \$800 million**, via primarily the implementation of Phase I and II of the CSO Abatement Program. There is already a lengthy "priority project list" (PPL) for wastewater and stormwater treatment projects deemed by DEM as eligible for financing via the RI Clean Water Finance Agency (RICWFA). **DEM's 2014 PPL totals \$1.8 billion in estimated costs statewide.** In contrast, in March 2014 the RICWFA sold \$55.9 million in AAA-rated bonds for "clean water projects", sufficient to generate \$90 million in total financing capacity for projects to be undertaken by Cranston, Warwick, Woonsocket, and NBC. Federal funding for wastewater and stormwater treatment flows to states and municipalities via State Revolving Fund (SRF) capitalizations. The Obama Administration has repeatedly proposed reductions in state SRF capitalization and for FY 2015 has called for a reduction of \$431 million to the Clean Water SRF, a 30% cut. To date, Congress has not accepted the proposed SRF cuts.

Upper bay municipal budgets remain severely constrained, with Central Falls having recently emerged from state receivership and the City of Providence narrowly avoiding bankruptcy in 2011. There is little appetite among municipal leaders and urban residents and businesses to

shoulder increased municipal investments in wastewater and stormwater treatment, whether funded by property tax revenues, utility fees, or other financing mechanisms.

Finally, investments by NBC to upgrade its wastewater treatment facilities for enhanced nitrogen removal and to complete Phases I and II of its CSO Abatement Project, have led to increases in its annual residential sewer fees **from about \$160 in 2002 to about \$540 in 2014, a 330% increase.** (Annual residential fees could increase up to \$650 by 2017.) Much of the rate growth is due to NBC's debt service costs from the CSO Abatement Project. Additionally, Providence and Pawtucket have proposed that NBC take over rehabilitation and maintenance of their "lateral sewers" which are in poor condition. Of course, doing so would place substantial new costs upon the NBC commercial and residential ratepayer base.

In sum, Rhode Island needs to comprehensively address these water quality and treatment financing issues via integrated wastewater and stormwater management. The EPA Office of Water in 2011 called for development of [Integrated Planning Frameworks](#) to help municipalities to **"identify efficiencies in implementing sometimes overlapping and competing requirements that arise from separate wastewater and stormwater programs, including how best to make capital investments and meet operation and maintenance requirements."** IPFs also have the potential to identify and promote consensus around green infrastructure strategies to improve water quality and "support other quality of life attributes that enhance the vitality of communities."

NBC has called for development an IPF for the upper bay, and is generating useful information via its re-evaluation of the CSO Abatement Phase III program. This re-evaluation should be viewed and utilized in relation to the Upper Narragansett Bay Regional Stormwater Management Initiative and the Upper Narragansett Bay Water Quality Stakeholders Process. Together, these three projects are comprehensively assessing the feasibility and costs of alternative wastewater (nutrient) and stormwater control strategies and needs, with the BRWCT promoting "cross-fertilization" of information and data between them. Together, these projects (and the work of the EC4 on climate change adaptation) would serve as building blocks for integrated wastewater and stormwater management planning for upper Narragansett Bay.

Such a planning initiative would be based upon EPA guidance regarding what should be considered community-scale affordability (drilling down to insights regarding affordability levels for key rate payer groups such as low-income neighborhoods, local businesses, and municipalities) for advanced levels of wastewater and stormwater treatment. It would solicit input from RI legislative, executive, and municipal leaders, clean water advocates; and it would review and draw lessons from actual IPF development in other cities and regions.

The goal of such an initiative would be to collaboratively prioritize projects and policies across stormwater, wastewater and possibly water supply management. A future planning framework

and prioritization scheme would seek to maximize simultaneously the environmental, social, and economic benefits generated by long-term public and private investments in wastewater and stormwater management. Key medium-term objectives would include project affordability for key rate payer groups (residential and commercial), increased stakeholder understanding, feedback, and consensus regarding some of the state's most critical water quality management and investment decisions. **In FY 2015, the BRWCT will work with member agencies, other stakeholders, and the next RI Governor to build support for an integrated planning initiative.**

The Narragansett Bay Estuary Program

The BRWCT is a member of the [Narragansett Bay Estuary Program](#) (NBEP) Management Committee. Four BRWCT agencies, DEM, CRMC, Division of Planning, and the Narragansett Bay Commission also serve on the NBEP Management Committee. Therefore, it is important to ensure continued coordination and mutual role definition between the two interagency commissions so that their overlapping mandates and functions are synergistic, not duplicative.

The BRWCT will provide in-kind match to the NBEP for its FY 2014 Work Plan (which goes from July 1, 2014 to June 30, 2015), consisting of FY 2015 SLP Implementation project funding and staff time from the BRWCT Chair totaling \$130,000.

The BRWCT is responsible for convening and administering a Science Advisory Committee to provide science-based advice and guidance to the BRWCT regarding:

- SLP Implementation
- Development and utilization of integrated environmental and economic monitoring systems to track key trends in aquatic resources and their sustainable use, as well as the outcomes of SLP implementation
- The status and efficacy public and non-profit investments in scientific research relevant Rhode Island's aquatic resources and water-reliant economy.⁸

Dialogue and collaborative learning among agency managers and scientists are essential for watershed management, ecosystem-based management, integrated coastal zone management, adaptive management, and other contemporary models for environmental management and sustainable development. **The BRWCT and the NBEP will collaborate in the support and utilization of a new Narragansett Bay Science Advisory Committee whose mission will be to provide scientific and technical guidance regarding management of Narragansett Bay and its watersheds.** This committee will work to improve how scientific and technical information and insights are utilized in Bay and Watershed management efforts by state, federal, and local

government, how scientists and research funding entities design studies of relevance to management goals and key uncertainties. Other priorities will include the design of monitoring and applied research programs, the assessment and communication of scientific information for managers and the public. In FY 2015, the Committee will place particular emphasis upon advising the NBEP on development of the next iteration of the Narragansett Bay Status and Trends Report. The SAC may also be asked to provide guidance and input for the BRWCT projects discussed in this work plan.

The BRWCT recognizes that it may have science advisory needs that extend beyond estuarine water quality and living resources management for Narragansett Bay. For example, the BRWCT is responsible for working to improve the linkages between science, technology development, and Rhode Island's "water-reliant economy" in order to advance coastal and ocean science and technology for marine economic development. If such science advisory needs become pressing, The BRWCT Chair would work to initiate additional science advisory functions as necessary.

Update the Rhode Island Bays, Rivers, & Watersheds Systems-Level Plan

In July 2008, BRWCT issued its first iteration of the SLP for the five-year period of FY 2009-FY 2013 (July 2008 to June 2013), consisting of eighteen goals spread across eight policy domains. The SLP includes specific strategies for attaining its goals and assigns responsibility for implementation among the BRWCT agencies, other state agencies, and federal-state partnership programs.

The current SLP requires review and revision. **The BRWCT has held off updating the SLP partly because of ongoing efforts to complete other strategic planning efforts relevant to water management.** Recent and ongoing planning efforts that will provide important bases for an updated SLP include:

- The State Guide Plan (SGP) Element Water 2030, a consolidation and update of several previous SGP Elements concerning drinking water supply management (completed July 2012)

The Challenge of Interagency Strategic Planning

State agencies cannot simply select which of their statutory responsibilities to pursue. And they must consider a "triple bottom line" of environment, economy, and social equity in every decision they take. Rhode Island water agencies continually respond to new mandates from the General Assembly and evolving mandates from their federal agency partners and funding sources.

The widely held assumption is that state agencies pursue all essential water resources management mandates. But trying to do so may result in little progress across all mandates. On the other hand, if state agencies focus narrowly upon a subset of water mandates, they risk neglecting critical issues, lack of attention to which may undermine progress toward the goals they do prioritize.

Static or diminishing budgets, complex statutory missions and regulatory programs, and emergent risks such as climate change multiply the difficulty of agency capacity allocation, management, and decision making.

- Update of the Narragansett Bay Comprehensive Conservation and Management Plan (completed December 2012)
- The RI Water Resources Board Strategic Plan (completed March 2012)
- A new State Guide Plan Element for watershed management and water quality led by DEM and Statewide Planning (expected completion: late 2014)
- Rhode Map RI: Economic development, housing and transportation State Guide Plan elements led by Statewide Planning (expected completion: late 2014)
- The update to the 2005 RI Wildlife Action Plan led by RI Department of Environmental Management's Division of Fish and Wildlife (expected completion: late 2015)

The BRWCT will continue to assess how the SLP should be utilized in conjunction with the State Guide Plan (SGP) and other interagency planning processes that address water management and sustainable development in Rhode Island. However, the BRWCT and the RI Division of Planning have agreed that the SLP will not be incorporated into the SGP. Instead, there is consensus that **the SLP should draw from, distill, and synthesize long-term goals, policies, and strategies for water resources management and sustainable development contained in the SGP, as well as other plans such as CRMC Special Area Management Plans.** The SLP will continue to utilize a five-year timeframe and detail interagency strategic imperatives at shorter time-scales than SGP Elements. The BRWCT will finalize specific requirements and functions for the SLP in early 2015 and expects to launch an SLP update process in mid-2015.

FY 2015 BRWCT Work Plan Summary

Statutory Mandate	Actions	Timeframe
<p><i>I. Implement the SLP</i></p> <p><i>RIGL § 46-31-6</i></p>	<p>Develop and issue the BRWCT Annual Work Plan.</p> <p>Administer BRWCT-funded projects. (See project descriptions in the previous section)</p> <p><u>Outputs:</u></p> <ul style="list-style-type: none"> • Annual solicitation and review of projects that advance SLP Implementation • Timely funding and completion of BRWCT-funded projects • Submit draft FY 2016 Work Plan to the Office of the Governor • Issue BRWCT 2014 Annual Report 	<p>Ongoing</p> <p>Ongoing</p> <p>March-June 2015</p> <p>Early 2015</p> <p>March 2015</p>
<p><i>II. Update the SLP</i></p> <p><i>RIGL § 46-31-6</i></p>	<p>Begin the update of the RI Bays, Rivers, and Watersheds Systems-Level Plan.</p> <p><u>Outputs:</u></p> <ul style="list-style-type: none"> • Statement of intent and scope for an updated Bays, Rivers, and Watersheds Systems-Level Plan 	<p>June 2015 to June 2016</p> <p>April 2015</p>

Statutory Mandate	Actions	Timeframe
<p>III. Convene BRWCT & support BRWCT advisory bodies</p> <p>RIGL § 46-31-4, § 46-31-9, § 46-23.2-1, § 46-12.7-13, § 46-12.11</p>	<p>Organize and chair 4-5 BRWCT meetings annually</p> <p>Support the RI Environmental Monitoring Collaborative and Narragansett Bay Science Advisory Committee (in partnership with the Narragansett Bay Estuary Program)</p> <p>Review and update statewide priorities for environmental monitoring as established by members of the RI Environmental Monitoring Collaborative</p> <p>Support Watershed Counts in the development and application of environmental indicators and related public communications</p> <p>Support the next iteration of the Narragansett Bay Status & Trends Report from the Narragansett Bay Estuary Program</p> <p>Outputs:</p> <ul style="list-style-type: none"> • Meetings, minutes, reports and work plans from BRWCT and advisory committees 	<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>

Statutory Mandate	Actions	Timeframe
<p><i>IV. Facilitate & coordinate government, & university-based programs</i></p> <p><i>RIGL § 46-31-6(g)</i> <i>§ 46-31-8(a)</i></p>	<p>Chair serves on the NBEP Management Committee</p> <p>Chair serves on the RI Sea Grant Senior Advisory Council</p> <p>Chair serves on the RI Planning Council Technical Committee</p> <p>Chair serves on the Northeast Association of Coastal Ocean Observing Systems</p>	<p>Ongoing</p>

BRWCT FY 2015 Budget

Office of the Chair		Budget
	Personnel	\$ 242,703
Operations		
	Office Space & Supplies	\$ -
	Supplies, Software, Equipment	\$ 500
	Travel	\$ 750
	SLP Update	\$ 2,500
	<i>Total Operations</i>	\$ 3,750
Advisory Committees		
	RI Environmental Monitoring Collaborative	\$ 15,000
	Integrated Stormwater and Wastewater Management Planning	\$ 5,000
	Narragansett Bay Science Advisory Committee	\$ 500
	<i>Total Advisory Committees</i>	\$ 20,500
	Total Office of Chair	\$ 266,953

Projects

Stormwater Management		
(15-1) Bristol Stormwater Management District Assessment		\$ 40,000
(15-2) West Warwick Stormwater Management District Assessment		\$ 40,000
(14-6) Upper NB Regional Stormwater Management Initiative		\$ 150,000
Climate Change Adaptation		
(13-3) Climate Change Vulnerability Assessment for RI Wastewater Treatment Facilities		\$ 59,000
(13-4) Shoreline Change SAMP		\$ 75,000
Estuarine & Ocean Science & Management		
(14-5) Upper Narragansett Bay Water Quality Stakeholder Process		\$ 60,000
(12-4b) RI Coastal Hypoxia Research Program		\$ 19,000
Freshwater Resources Management		
(14-7) WRB Water Supply & Consumption Database		\$ 80,000
(15-3) RI Rivers Council: Fostering Stormwater Management		\$ 20,000
(15-4) Freshwater Quality and Flow Monitoring		\$ 282,000
Water-Reliant Economic Development		
(14-8) RI Freight Plan: Maritime Ports		\$ 65,000
	Total Projects	\$ 890,000
	Grand Total	\$ 1,156,953

End Notes

¹ The statutory members of the BRWCT are:

- [Coastal Resources Management Council](#)
- [Department of Environmental Management](#)
- [Department of Administration's Division of Planning](#)
- [Commerce RI](#)
- [Narragansett Bay Commission](#)
- [Rivers Council](#)
- [Water Resources Board](#)

² RIGL 46-31-5(b). RIGL 46-31 defines “bays” to include state marine waters out to three miles from the RI shoreline.

³ For the statutory responsibilities of the BRWCT Chair, please see: RIGL 46-31-7.

⁴ The following sections describing the RI Executive Climate Change Coordinating Council are adapted from information and text found on its [website](#).

⁵ Eutrophication may be defined as the “increase in the rate of supply of organic matter to an ecosystem” Nixon, S.W. 1995. [Coastal Marine Eutrophication: A definition, Social Causes, and Future Concerns](#). *Ophelia*, Vol. 41: 199-219. Cloen, J.E. 2001. [Our Evolving Conceptual Model of the Coastal Eutrophication Problem](#). *Marine Ecology Progress Series*, Vol. 10: 223-253.

⁶ Hypoxia is the episodic depletion of dissolved oxygen concentrations to levels that “profoundly affect the health of an ecosystem and cause physiological stress, and even death, to associated aquatic organisms.”

⁷ The 2012 Summary Report was issued in August 2013. The RIEMC will issue its 2013 summary report in September 2014.

⁸ RIGL 46-31-9.