

## 2013 Watershed Counts Script

### Introduction (Judith Swift)

Thanks to all of you for joining us today for our third annual Watershed Counts report. I'm Judith Swift, Director of the URI Coastal Institute, which supports Watershed Counts in its role as Chair of the Rhode Island Environmental Monitoring Collaborative. I'm standing in for Director Janet Coit of the RI Dept of Environmental Management who is working on legislative matters in another part of the Statehouse. With me to give you a summary of the 2013 report are several speakers who represent just a few of the 60 diverse agencies and organizations that are working together on Watershed Counts. Many of our other partners are here in the audience. We are also pleased to see so many other champions and leaders who support Rhode Island's environment: Ames Colt, Chair of the Bays, Rivers and Watersheds Coordination Team, XXX

Like so many Rhode Islanders, Watershed Counts recognizes the importance of protecting our environment as central to the state's economy. This past November, our citizens once again showed their strong support for clean water, green space and Narragansett Bay restoration by overwhelmingly approving two ballot questions that provide \$40 million for land and water clean up and protection. These investments not only provide clean waters for swimming and fishing as well as critical clean drinking water, but also support Rhode Island's \$5.2 billion tourism industry, and provide us with more than 41,000 jobs.

Tracking the impact of these and other investments in environmental improvement is the job of Watershed Counts.

To guide you through the process of tracking environmental indicators, I am pleased to introduce one of the coordinators of watershed counts, **Dr. Q Kellogg, Associate Director of The Coastal Institute at URI.**

We are so pleased to be bringing you the third annual Watershed Counts report. I'd like to give you a little background about Watershed Counts and tell you how we make our assessments and what they mean. We are a collaborative initiative, with contributions from 60 organizations and agencies, and coordinated by the URI Coastal Institute and the Narragansett Bay Estuary Program. We focus on the Narragansett Bay regions, which encompasses not only most of Rhode Island, but includes the portion of Massachusetts that drains to Narragansett Bay. Our aim is to provide unbiased, scientifically sound, data-driven information on the Narragansett Bay Region's environment. We are the environment's independent auditors, if you will.

We bring together scientists, policymakers, and advocates to examine the data, agree on what the data are telling us and how to communicate that. Together we assess status and trends, that is, how is the resource doing and is it doing better or worse than in the past, and we assess our management of that resource. So you'll hear an assessment of very positive, positive, mixed, negative or very negative for status and trends, and the same range is applied to management. In the report these are represented by color-coded arrows. If we have set specific goals for ourselves, such as reducing a pollutant load by 50%, we can report on our progress with achieving that goal. However, the environment is a dynamic system, so we all recognize that things will never be perfect, but we are here to help our community keep an eye on how we're doing as we strive for excellence.

This year we are reporting through brief highlights on six aspects of environmental health, represented by the posters you see around you. These are land use, marine water quality, fresh water quality and demand, beach closures and climate change. And while climate change is not discussed specifically for each indicator, it impacts every aspect of the Narragansett Bay region's environmental health. For more in-depth information look to your handout or go to [watershedcounts.org](http://watershedcounts.org).

Now on to our report:

### **Rupert Friday of the RI Land Trust Council will report on LAND USE**

The Watershed Counts assessment of status and trends for land use is **negative**.

We look at land use because how we develop our land and our transportation systems has a huge impact on environmental conditions – affecting:

- marine and fresh water quality,
- river flow, and
- beach closures.

Undeveloped land filters pollutants from stormwater and reduces flood runoff.

Undeveloped floodplains also reduce the risk of flood damage to other areas of the watershed.

Development creates impervious surfaces

– pavement on roads, parking lots, and roofs.

These areas collect pollutants like pet waste, fertilizers, and oil from our cars and

keep rainwater from soaking into the ground.

When it rains these pollutants get washed into stormdrains and nearby waterways.

So stormwater runoff is a significant source of pollution to fresh and marine waters.

Impervious surfaces also disrupt the natural water cycle, affecting groundwater recharge and river flows.

Remember the floods of March 2010?

Over 6,200 people who lived in the flood plain were displaced.

At least 222 companies were closed.

And the floods caused extensive damage to public infrastructure -- roads and sewage treatment plants.

Watershed Counts looked at Rhode Island's land use from 1972 to 2010,

We tracked changes in developed land, agriculture, and forest.

We looked at three key metrics:

- Developed land within 300 feet of water bodies -
- Developed land within the 100 year flood plain and
- Developed land within 500 year flood plain.

Since 1972, Even with minimal population growth, land converted from forest and agriculture for development increased by 65,000 acres and now makes up almost 1/4 of the state's land area.

Developed land within 300 of water bodies increased over 65%, from about 9,000 acres in 1972 to almost 15,000 acres in 2010.

And Development in the 100 year flood zone

increased by 1/3, from 6000 acres in 1972 to almost 8000 acres in 2010.

While our assessment of land use trend is negative, land management efforts in Rhode Island are significant and Watershed Counts assessment of management for land use is positive.

- There is strong public support to protect land for water quality, farms, wildlife habitat and recreation.

- We have invested in land protection to preserve sensitive habitat lands.

- Land use regulations are in place to limit development in sensitive buffer areas and flood plains.

Stewardship of protected land is a challenge, but it is receiving increasing attention.

And we are taking action to ensure that the lands we have protected stay permanently protected.

**I now turn it over to Tom Uva of the Narragansett Bay Commission to give the 2013 report on Marine Water Quality.**

We all want a healthy Narragansett Bay that supports thriving populations of fish, crabs, lobsters and other animals. The marine environment is complicated – and fully understanding the health of Narragansett Bay requires monitoring and interpreting a wide range of water quality parameters. This year we report on one -- dissolved oxygen, or DO, in the bay.

We all know how critical oxygen is to the survival of life on earth and the same is true for life underwater. But sometimes conditions develop when there is not enough oxygen in the water. We saw this in August 2003 when millions of fish died in Greenwich Bay due to the lack of oxygen. How can that happen? Well, scientists know that low oxygen is more likely to occur under certain conditions and that many things affect the oxygen levels in Narragansett Bay. These include rainfall, river flow, temperature, wind speed and direction, bay circulation patterns, tides and nutrient discharges. The factor that we can most effectively manage is the nutrients entering the Bay from the watershed.

Watershed Counts has graded the *status and trends assessment* for Marine Water Quality as **mixed**.

Narragansett Bay is 148.6 square miles, 140 of which are located in Rhode Island. Based on the 2012 RI DEM and MA DEP assessments, 76.7 square miles (52%) are meeting the dissolved oxygen goals, while 42.1 square miles in RI and 6.2 square miles in MA are currently designated as impaired for dissolved oxygen. This is 32% of the bay. The remaining 16% the Bay is classified as unassessed. The Bay areas of DO impairment vary from year to year, but some areas are improving with conditions approaching oxygen goals.

Watershed Counts' Marine Water Quality *management assessment* is also **mixed**. We are making steady progress toward the RI goal of 50% nitrogen reduction for wastewater treatment facilities discharging to the upper Bay, but progress is slow to control stormwater pollution from the 4,836 square kilometers of Narragansett Bay watershed. Wastewater treatment facilities in the upper Bay are spending approximately \$275 million on improvements to reduce nutrient discharges and nutrient loadings

are already decreasing significantly. But challenges lie ahead to address stormwater pollution - and the associated costs will be expensive. Implementation of stormwater regulations and the adoption of low-impact development approaches will address water quality impacts from developed areas.

As projects are completed at wastewater facilities, we will shortly achieve the state's goal of 50% nitrogen reduction and with continued focus on stormwater management, bay water quality will continue to improve. It is essential to continue ongoing monitoring programs to track the effects these management priorities have on marine water quality.

**The quality of our lakes, ponds and rivers directly impacts the quality of Narragansett Bay. Linda Green, from URI Watershed Watch, will provide the Watershed Counts fresh water quality report:**

Saturday April 13 was opening day for freshwater fishing in Rhode Island. About 20,000 anglers celebrated the start of the season, reminding us how important clean water is to our way of life and to our economy.

There are almost 2,800 miles of rivers and 44,000 acres of lakes in the Narragansett Bay region. In addition to providing fishing -- these fresh waters provide habitat for fish and for wildlife, wonderful opportunities recreational boating and swimming, scenic vistas for contemplation, and importantly, drinking water for almost two million people.

Watershed Counts analysis of river, stream and lake water quality is based on the Rhode Island, Massachusetts and Connecticut 2010 state water quality assessments.

Watershed Counts 2013 overall water quality assessment is **negative**. Although two-thirds of river miles have been assessed aquatic life and recreation, water quality is acceptable in only 20 percent of the river miles in the Narragansett Bay region. . Is it safe to eat the fish? We don't know. In the watershed as a whole, two-thirds of the river miles haven't been assessed for fish consumption. Astonishingly, in the Rhode Island portion -- less than 5 percent of the river miles have been assessed for fish consumption.

Thanks in great part to our volunteer monitoring programs there has been much more assessment of lakes and ponds, 80% for aquatic life and 75% for recreational uses. But yet again just 15% for fish consumption. However, water quality is acceptable only 20% of acres in the watershed as a whole, and 30% in RI.

Invasive aquatic plants are an increasing problem in many lakes throughout the Narragansett Bay watershed. 88 waterbodies in



Rhode Island and 189 waterbodies in the Massachusetts portion of the watershed have at least 1 invasive. For most lakes it is not a matter of “if”, but of “when” invasives will arrive. In addition, blue-green algae blooms are an emerging concern with 24 waterbodies in Rhode Island and 7 waterbodies in Massachusetts with confirmed blooms in the past 3 years. We expect these numbers to increase with more monitoring.

The Watershed Counts Management assessment for fresh water quality is **mixed**. As we reported for marine water quality, investments in wastewater treatment upgrades, particularly at RI treatment plants, have resulted in improvements to water. Treatment upgrades are slower in MA. Storm water runoff is a major source of pollution to all the freshwaters. Both RI and MA have programs in place to address storm water pollution, but storm water discharges continue to pollute large segments of the watershed.

For lakes and ponds, protecting and, where needed, restoring the water quality conditions in lakes will require greater collaboration by state resource managers, local communities, lake associations, dam owners, property owners and lake users. Current lake water quality management challenges include controlling runoff, dealing with infestations of aquatic invasives, nutrients, documenting mercury in fish tissue and the emerging issue of toxins in blue-green algae blooms..

Fully understanding the current condition and changes in water quality requires additional investment in water quality monitoring.

**Just as important as freshwater quality is our demand on freshwater resources. Kathy Crawley of the RI Water Resources Board will review the 2013 Watershed Counts assessment of Fresh Water Flow.**

## Introduction

How do we know whether our use of the state's freshwater resources are sustainable in the long term? This question is integral to the RI Water Resources Board's Strategic Plan and the newly adopted State Guide Plan Element, Water 2030. The vision is:

*To **ensure safe, reliable, ample water supplies** to meet the state's short and long range needs **while preserving the physical, biological, and chemical integrity of the water resources of the state.***

How do we get there? How do we work together to combine the knowledge we have about the environment, our freshwater resources and our uses of those resources to ensure healthy rivers and streams, and safe, reliable drinking water to support Rhode Island residents and businesses now and in the future?

## Watershed Counts Findings

This year Watershed Counts used freshwater demand as one of the metrics. The findings. Overall we are doing a good job managing supplies. But we have challenges that need to be addressed across the state in the long term and now especially in areas that rely on groundwater. A closer look by region helps to understand the challenges.

The Northern Region serves 80% of the state's population. The good news in is that that supplies meet demands. Storage in reservoirs mitigates the impacts of higher summer use and droughts. There are still needs for long term planning, redundancy in the system, and investment in infrastructure. A current Water Resources Board project for example would provide Pawtucket Water to East Providence and Bristol County as a redundant source to the Scituate.

The Southern Region relies on groundwater and supports tourism, agriculture, recreational, residential and business uses. During summer months there is less water available naturally and demand increases. During prolonged dry periods this is more pronounced. The negative assessment for this region points to the need for short and long term solutions to support people and the environment. Some are already underway. North Kingstown has led several efforts to manage supply and demand in this region. Statewide, the Water Resources Board has proposed a pilot program in the Chipuxet River Basin. It seeks reduce summer demand, provide incentives to agriculture and for water efficient appliances and explore long term options for increasing supplies through modeling, aquifer recharge and new sources.

The Aquidneck and Island Regions are unique in the range of issues they face to protect and maintain very limited fresh water supplies. Like the other regions, a mix of short and long term initiatives is needed. For example, recently, the state partnered with Block Island to purchase 4.5 acres for the development of a future supply. In addition, Jamestown and Block Island have taken leadership roles in effective water management; Prudence Island is also addressing water use.

**Next Amie Parris from the Dept of Health will summarize the 2013 report on Beach Closures, a metric that is central to the quality of life in Rhode Island.**

Rhode Islanders cherish their personal relationship with the shore, and beach visitors from near and far journey to the Ocean State to experience our beautiful coastal waters. Travelers to our beaches also result in an increase in jobs, tourism dollars, and reinforces our identity as a historical destination. As such, it is imperative that we emphasize the importance of beach monitoring and reducing the number of times, each summer, that we close a beach.

Beach closures reduce our quality of life, bring negative attention to water quality, and decrease tourism. In Rhode Island, closures are closely linked to rainfall causing storm water runoff, discharge of raw sewage from combined sewer overflows, failing septic systems, outdated cesspools, waterfowl, and domestic animals.

However, despite these impairments, Watershed Counts has assessed the status and trends of beach closures to be **very positive**. During the 2012 bathing season 29 beach closure events occurred, as compared to 37 in 2011 and 45 in 2010. Specifically, communities including Bristol, Barrington, Warren, and the City of Warwick have shown drastic reductions in beach closures as a result of continued remediation efforts.

The management assessment of beach closures is also **positive**. Since 2009, the correlation between precipitation and beach closures has declined, reflecting improved stormwater and wastewater management. During the 2012 beach season beach facilities moved forward with remediation efforts, including treatment system improvements, green infrastructure, storm water connections, and sewer connections.

Continued investment in monitoring allows us to find and eliminate sources of contamination. Reducing contamination in turn reduces the potential for water-borne illness and reduced illness helps to keep our public safe. A significant concern for continued tracking of beach closures is the potential of a 100% decrease in federal funds as proposed by the Environmental Protection Agency for 2013. The Health Department has funds available to support 2013 monitoring and notification however, next summer and the years preceding our funding sources are currently unknown.

**Finally, Janet Freedman from the Coastal Resources Management Council will summarize CLIMATE CHANGE.**

The reality of Climate Change affects all the Watershed Counts indicators.

We all know that Climate change is already happening in the Narragansett Bay region and that it will intensify in the years to come. Some current observed impacts include increases in air and water temperatures, rising sea level, and increasing rainfall and storm intensity, resulting in more inland flooding and coastal erosion. Based on information from buoys and other monitoring sites throughout the Bay, significant increases in Bay water temperature have been observed over the past decades, with a change in the annual Bay surface temperature of almost 3°F since 1960.

Winter bay temperatures have increased by about 4°F, which is causing major ecosystem shifts, affecting the Bay's fish populations.

Sea level has risen nearly 10 inches at the Newport tide gauge since 1930, and is projected to be over three feet by 2100.

Super Storm Sandy last October made it clear that coastal storms and their storm surges are now impacting more properties with rising sea levels allowing flooding to reach farther inland. The terms shoreline erosion, sea level rise and coastal flooding are on the minds of citizens and decision makers alike.

Watershed counts status and trends assessment is **very negative**. Climate Change is here. We are dealing with the impacts and will

continue to face increased temperatures, storminess, and sea level rise in the years to come.

The Watershed Counts management assessment it **mixed**. RI is taking a number of actions to adapt and respond to Climate Change.

Increased monitoring and continued coordination and public dialog is needed.

Moving forward, we need to continue to support scientific studies and management efforts like CRMC's shoreline change SAMP and the Department of Health's plan looking at the health impacts of climate change. Decision makers can support policies that encourage proactive planning for Climate Change impacts .

**I turn it over to Meg Kerr with the Narragansett Bay Estuary Program for some brief concluding remarks**

**MEG KERR**

Everyone here recognizes that our economy is closely linked to the quality of our land and water resources.

And it is heartening to hear the progress we are making.

But significant challenges remain.

Look at marine water quality -- We have had great success -- Rhode Island set a clear goal of cutting in half the nitrogen discharges from wastewater treatment facilities discharging to the upper Bay. As Tom Uva reported, we are making excellent progress towards that goal.

But water quality continues to be impacted by stormwater pollution. Managing stormwater is a difficult and expensive challenge but there

are things we can – and are – doing. How we develop land has implications for stormwater and flooding – and Watershed Counts encourages continued support for policies that promote smart growth -- compact development that protects floodplains and aquatic buffers.

Similarly, long term planning and investments in our drinking water supplies are critical.

We have the on-going challenge of Climate change. Climate change is a sad reality. As we move forward, Watershed Counts will continue to report on the impacts of Climate Change on the Bay and will track management and adaptation efforts including efforts to reduce emissions and promote sustainable energy.

One of our biggest challenges is continuing to collect the essential scientific monitoring data that we need to understand how our environment is changing in response to management efforts and changing climate. Not only do we need to maintain our current monitoring programs -- like the state's critical stream gage network that is essential to understanding the state's hydrology so we can manage the state's drinking water supplies -- and our important beach monitoring program essential to keeping our beaches clean and safe-- but we also need new monitoring to fill information gaps. For example, we heard from Linda Green that Rhode Island has very little data to tell us whether the fish in our rivers are safe to eat.

A thorough review of monitoring needs and a list of critical priorities will be released soon by the RI Monitoring Collaborative in collaboration with the RI Bays Rivers and Watersheds Coordination Team.

We look forward to continuing to work together as we celebrate the progress we are making and address the challenges ahead.

On behalf of Watershed Counts, we would like to thank the many agencies and individuals who have contributed to today's report.

Thank you for your time. We now open the floor to questions.