

Issue Brief

Economic Benefits of Water Quality



August 2014

The Rhode Island Division of Planning announces the development of an update to the State Guide Plan. State Guide Plan Element 731, *Water Quality 2035*, Water Quality Management Plan, is being developed by the Land Use Unit of the Division, the Department of Environment (DEM) Office of Water Resources, and the RI Coastal Resources Management Council (CRMC). It is being guided by an advisory committee of stakeholders. Last approved in 1995 as the Nonpoint Source Management Plan for water quality, the new Guide Plan will contain a vision for water quality protection, a narrative of current trends, challenges and opportunities, and an analysis of strategic options. Included will be updated goals and policies to promote a comprehensive water quality management program for the State. The Update will address the current water quality management systems in RI including those established by federal statutes; the DEM Non-point Source Pollution and the CRMC Coastal Nonpoint Source Management Programs. The update will also consolidate 2 other existing State Guide Plan Elements which address water quality management into the Update. The following Elements will be included and will be rescinded upon adoption of the Update:

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- ◆ (1992) Comprehensive Conservation and Management Plan for Narragansett Bay, Element 715
- ◆ (2004) Rivers Policies and Classification Plan, Element 162

Overall water quality in RI is viewed as very good. The quality of our water both fresh and salt, is a precious resource that we need to protect. RI has nationally ranked high quality public drinking water and salt water beaches. Rhode Island's tourism industry in general, is dependent on maintaining high quality fresh and salt waters. According to the US Secretary of the Interior Sally Jewell, all tourism in RI is expected to generate **\$2.4 billion** in consumer spending and **24,000 direct jobs**. Tourism though, is not the only reason why we should strive to maintain our water quality. There are key public health, economic, educational, research-based, and quality of life advantages to fresh and saltwater resources. The quality of water in Rhode Island is an important factor for drinking water use and several other key economic sectors such as industry, fishing and recreation. It is important that we continue to stress the importance of local investment in coastal restoration as \$22 is leveraged for each dollar of Federal money from Coastal Program Economic activity in the State could be drastically impacted if we do not maintain the quality of our fresh and salt water resources. For example, the direct and indirect economic activity generated from over **three million beach visitors** each year is important to preserve. If beach closure rates increase due to a degraded water quality, not only does the State stand to lose key revenue but related industries such as hospitality, restaurant, transportation, etc. can be drastically affected. Preserving the quality of our water should remain a high priority for the State as it is one of our most precious natural as well as economic resources as it contributes significantly to our quality of life in Rhode Island. Recent studies from Maine and Minnesota have found that property values can decline by thousands of dollars when a significant decline in adjacent water quality occurs.



Drinking Water

State Guide Plan, Element 721, *RI Water 2030* was adopted in 2012. It addresses planning for all drinking water used in Rhode Island, including private wells. Of importance to this State Guide Plan effort is that *RI Water 2030* already stresses the need to plan and manage the available drinking water, to reduce the overall demand for drinking water and increase the protection of drinking water sources. Much of the water we consume requires some type of treatment before use. The extent of treatment depends on the condition of the source water. Both community and private sources of drinking water are susceptible to a myriad of chemical contaminants, biological pollutants and nuisance water problems that may vary depending on site conditions and other factors. Degraded source water costs more to treat to public health standards. Protection and prevention help avoid added treatment costs.

Industrial and Other Water Uses

Although manufacturing in RI has declined over the past several decades, there is still a significant manufacturing base in the State. As the first factories in RI were typically situated along rivers, many of the current manufacturing facilities rely heavily on water for their operations. From the birth of the industrial revolution in America along the Blackstone River, water has played a major role in the industrial economy. The first mills in the early 1800's relied on river water flow for power, but today's industrial water need is different. According to the 2008 *RI Bays, Rivers, and Watersheds Systems-Level Plan*, approximately **14,500 jobs and \$636 million in direct wages** come from industries that rely on an adequate supply of quality fresh water. The manufacturing firms who require intensive water use make up about 28% of the State's manufacturing wage base. Some major water users such as Amgen have gone further to ensure adequate water quality for their needs. As part of their \$1.1 billion manufacturing site in West Greenwich, a water purification system that recycles about 70% of the water used on a daily basis was installed. Without the system, the drain on drinking water supplies would be more dramatic, as the plant can use up to 800,000 gallons per day.

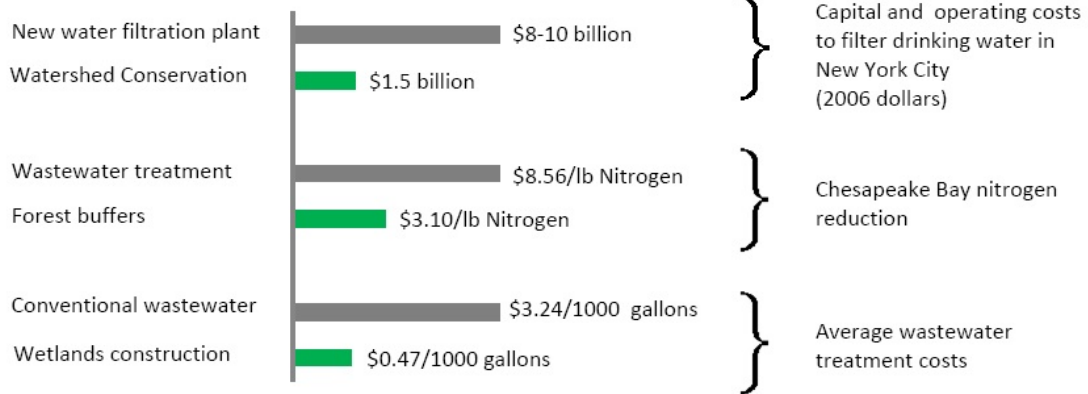
Aside from manufacturing, other major water users such as hospitals and agricultural lands depend on an adequate, clean supply of water. Although it will be difficult to quantify the hospital/healthcare related jobs directly affected by access to adequate clean water, we do know that the healthcare/social service sector is the largest employment sector in the State. It is critical that the State maintain a high quality of available water in order to effectively suit the manufacturing, healthcare and agricultural industries, in addition to the growing sectors of biotechnology, marine biology and other sciences.

Wastewater

The priority of wastewater being treated at public wastewater treatment facility plants is to protect public health and the environment. By doing so, this opens many doors for the quality of life in the State, including economic opportunities including hundreds of jobs. By taking the necessary steps to ensure that wastewater is properly treated before it enters our water bodies, we avoid significant costs in the future. About 75% of the State population is served by 19 centralized wastewater treatment facility systems. The 19 major wastewater treatment facilities purify some 100 million gallons of human and industrial sewage every day. Ensuring high quality water in our watersheds and Bay, results in steady tourism and recreation activity as well as robust goods and services like those found in the seafood and marine industries.



The largest wastewater treatment operator in the State, the Narragansett Bay Commission, has an annual budget of over \$60 million, of which about \$20 million is paid out in salary and wages to employees and then another \$7 million for contract services. The hundreds of miles of sewer lines and other parts of the treatment systems add up to a sizable investment in clean water by the State and Cities and Towns. Year after year, the need for clean water projects far exceeds the available funding. The funding identified on the State’s Project Priority list is \$1.8 billion. Annually the State averages less than less than \$10 million in federal funding but uses this to leverage **\$90 million** total in expenditures for wastewater improvements. In the 2014 the RI General Assembly approved for the November general election a \$75 million bond referendum known as “*The Clean Water and Healthy Communities Bond*”. Voters need to approve this bond which will provide infrastructure upgrades needed to protect water quality from polluted runoff due to flooding and to help enhance water quality for drinking and recreation, as well as, to combat fish kills. A total of \$20 million of the Bond is set aside for upgrades to wastewater treatment plants and infrastructure. As the chart from EPA below shows, protection and prevention is cheaper in the long run than restoration and remediation.



Recreation / Tourism

Tourism is Rhode Island’s second largest sector in terms of economic activity. About **\$7 Billion** (direct and indirect) is generated annually from tourism in the State. Direct activity is generated through money that goes directly from a tourist into the local economy. Indirect activity is generally seen as money that is re-spent in the local economy. There are approximately **80,000 jobs** in Rhode Island’s tourism industry. With this high level of activity and employment, one can appreciate the significance of water quality in the “Ocean State”. Recreational and commercial activities in both salt and fresh waters play significant roles in our State’s economic well-being. Although RI experiences significant economic activity from tourism, the State only spends about 10 percent of what the average state spends on tourism, according to Mark Brodeur, RI Director of Tourism. A significant amount of tourism dollars are spent in our coastal communities. These communities rely on a high quality of water in order to continue tourist activity. Water quality and recreation/tourism expenditures is not only important in coastal communities, as it relates to the health of lakes and rivers. New Hampshire studied how a perceived change in perception in water quality would affect recreational activities in and around lakes. It was estimated that \$51 million would be lost in sales, while \$18 million would be lost in income along with about 800 jobs if water quality in lakes were to decline.



State Properties

Approximately **one million people** visit the **7 State beaches** in southern RI and close to **100,000 people** visit **State campgrounds** annually. When we add the number of visitors to the State Beaches north of South County, along with the Town and private beaches, the **total number of visitors is well over 3 million**. Beach closures are directly related to water quality issues. After major rainfall events for example, stormwater runoff can lead to excesses levels of contaminants at beaches which lead to beach closures. Sometimes beach closures can last for multiple days. The importance of good water quality is key to keeping the beaches open. Over the past 10 years, Warwick has seen a significant decrease in beach closures due to sewer line upgrades and new connections. Over 10 years, Warwick saw an addition of 8,325 new sewer connections and saw more open beach days leading to more economic activity in the City.

Seasonal Marine Beach Closure Events and Seasonal Rainfall (in.)



Boating

According to the economic modeling of the 2012 Northeast Recreational Boater Survey, Rhode Island saw a **\$227.2 million** increase in the State’s total economic output due to direct and indirect spending by boaters. Spending by Rhode Island Boaters accounted for about 80% of that number, while out of state boaters accounted for the other 20%. This level of activity is a major contributor to the State’s overall economy. The top categories for that spending included:

- ◆ Equipment, maintenance, repairs and upkeep (\$55 million)
- ◆ Docking, mooring and storage (\$21.7 million)
- ◆ Boat loan payments (\$11.5 million)
- ◆ Boat Insurance (7.6 Million)

With this major spending comes a significant number of year-round jobs. The job categories related to boating in Rhode Island include leisure and hospitality, boat repair and other boat services, trade, transportation, utilities and financial activities among others. The total estimated **year round number of jobs** related to the marine recreational industry in Rhode Island is **2,008** as of 2012 according to the 2012 Northeast Recreational Boater Survey.



Recreational Fishing and Hunting

In 2010, RI began issuing saltwater fishing licenses. A total of **38,224** Rhode Island **Saltwater Recreational Fishing Licenses** were issued during the 2011 calendar year resulting in **\$249,746 in total license fee revenues**. The portion of that total retained by RII and the local vendors to cover their administrative was \$56,852, resulting in a net deposit of \$173,002 into the license account.

When it comes to State revenue for freshwater fishing licenses, the numbers are even more significant. Over **40,000 freshwater licenses** are issued on an annual basis. RI Residents pay \$18 for a license while out-of-state people pay \$35. In 2005 DEM conducted an online recreational fishing survey and found that the typical recreational salt water angler fished for Striped Bass and Bluefish and that the most commonly visited sites for salt water fishing were in Narragansett, Newport and Jamestown. RI also has over 80 charter and party boat businesses which provide tourism services and jobs.

According to a recent American Sport fishing report, residents and tourists in RI spend about **\$38 million** in total on freshwater fishing, while generating about **\$5.6 million in federal, state and local tax revenues**. A 2011 survey conducted by U.S. Fish and Wildlife and the U.S. Census Bureau estimated that total expenditures on recreational fresh and salt water anglers for that year exceeded \$130 million.

In addition to fishing, the hunting of waterfowl in RI generates over **\$18 million** in spending as of 2011. Ducks Unlimited for example, has helped the State conserve 482 acres of land. The State has collected more than **1.2 million dollars in revenue** from the sale of waterfowl stamps. Revenue collected helped to fund the successful restoration of the 128-acre Galilee Salt Marsh. The Program has also provided funds to purchase property in the South Shore Management Area in South Kingstown to provide goose hunting and a buffer from development. Funds have also been provided for the purchase of property adjacent to the Seapowet Marsh in Tiverton for waterfowl hunting.



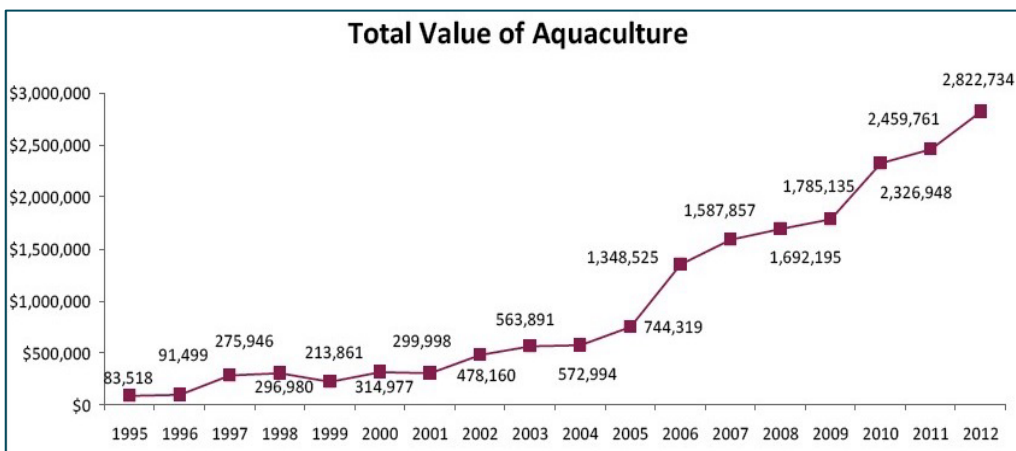
Saltwater Fish & Seafood

According to current economic estimates, the commercial fish and seafood contributions to the RI economy vary widely. The newly developed National Marine Fisheries Service (NMFS) econometric model estimates the contributions of Rhode Island landings to the State’s economy for all sectors in 2010 equated to total sales of **\$150.4 million; total income of \$106.4 million; and total employment of 4,968**. Using the same NMFS Econometric Models results in an estimate or total 2010 value of **sales or fish in Rhode Island of \$200.9 million**. This includes sales associated with fish landed in Rhode Island and by RI home-ported vessels, and transactions for primary dealers/processors, secondary wholesales/distributers, restaurants, and grocers. The above estimates do not include sales associated with fish imports totaling an additional \$562.3 million. Degraded water quality can harm fish and their habitat. Untreated and contaminated water can shut down shell-fishing areas and it could lead to less than ideal water conditions for spawning fish and other aquatic wildlife. Although the majority of income from large scale fishing operations comes from off-shore/deep sea fishing, many of the fish and aquatic species start in the Narragansett Bay Estuary or our coastal salt ponds. Without water suitable for the reproduction of marine species, the ripple effect to other species can be devastating.



Aquaculture

The aquaculture industry has shown positive growth in RI’s Bay and Salt Ponds. The growth in value for shellfish for consumption was a significant 14.8 percent while the growth in total acreage was 6.5 percent. Seven new farms were permitted and their first harvests will be noted in 2013 and 2014. The growth of the aquaculture industry in Rhode Island reflects awareness of the health benefits of eating seafood and the consumer trend of purchasing local products. **The total value of aquaculture in RI in 2012 was \$2,822,734**. The combined value of aquaculture products for consumption and restoration in the same year was \$3,012,607. Our cold, shallow waters support rich phytoplankton blooms that raise plump sweet rich shellfish that are sought after by fine restaurants across the USA. Poor water quality can negatively affect the safety of shellfishing products through aquaculture by limiting or even shutting down shellfish harvesting areas.



For more information:



Water Quality Management Vision Statement:

RI’s water resources will provide: safe drinking water, abundant productive habitat for fish and aquatic dependent wildlife, bountiful recreation opportunities such as swimming and boating, and rewarding economic activities such as industry, agriculture, shellfishing, fishing and tourism.