NARRAGANSETT BAY WATERSHED ECONOMY

The ebb and flow of natural capital

Recreational Boating Overview

Recreational boating draws many in-state and out-of-state visitors to the Narragansett Bay watershed (NBW). The allure of recreational boating in the NBW exists for both freshwater and saltwater. At these locations, tourists and residents can fish, swim, clam, or sightsee, among other activities. The popularity of boating in the NBW is due to the high-quality waters, magnificent shoreline, and bountiful freshwaters of the area (Figure 1). This activity takes place from marinas, yacht clubs, and public boat ramps, as well as docks and moorings at private residences. Additionally, the most popular activity for recreational boaters is fishing.

In total, in the NBW, 56,000 registered boaters took over 97,000 trips on the water. These recreational boaters spent over $201 million (in 2016 dollars) on boating-related expenditures. In addition, expenditures supported over $150 million in labor income and more than 2,700 year-round jobs.[1]

Figure 1: Recreational Boaters in East Greenwich, RI

Credit: Sean McMahon

History

Within the NBW, there is a total of more than 560 miles of shoreline. In addition, there are more than 2,600 ponds, lakes, and reservoirs, and over 5,400 rivers and streams.[2] Throughout history, these areas have been ideal locations for recreational boaters.

Beginning in the latter half of the 19th century, there was a rise of interest in leisure activities, which included boating for pleasure. The waters in the NBW became destination hotspots for recreational boaters, particularly the wealthy. Newport was an especially popular location for boaters and was thought of as a "sailing playground" for the rich and famous. Many of America's most influential businessmen built summer "cottages" in Newport, Rhode Island (RI) including the Vanderbilt family. With this influx of wealth, Newport Harbor became a major yachting destination and, in 1883, the New York Yacht Club held its first annual regatta in Newport. The "City-by-the-Sea" became more popular after 1930, when the most coveted sailing race in the world, America's Cup, was brought to Newport. America's Cup remained in Newport until 1983. Despite losing the Cup races, recreational boating remains a popular activity in the NBW.[3]

Today, recreational boating remains a very popular activity that many natives and visitors alike participate in. However, instead of being an activity for only the wealthy, more people are able to partake in recreational boating. In 2014, 36% of the U.S. adult population, over 87 million, participated in recreational boating at least once during the year.[4] Recreational boating is especially popular in the North Atlantic region;[1] in 2013, there was one boat for every 38 persons[5] and, in 2012, boaters from New York to Maine spent $2 billion on trips, boat visits, and other recreational boating activities.[6]

Data Sources and Limitations

Estimates of participation rates and expenditures are provided for the economic impact of recreational boating within the NBW. These data are derived from national, regional, and local surveys and studies, including the Northeast Recreational Boater Survey, National Marine Manufacturers Association, and Planning Decisions, Inc. Unfortunately, there exists no available and complete list of numbers of marinas, slips, and moorings within the watershed.

The Northeast Recreational Boater Survey included volumes on RI and Massachusetts (MA). The survey measured boating trips, visits of registered boaters, and expenditures within the two states for 2012. The National Marine Manufacturers Association (NMMA) provided information on boat registrations and boater characteristics within MA and RI in 2013. A more detailed view on the recreational boating sector was generated by Planning Decisions, Inc. in 2014 for the RI Marine Trades Association. In this report, analysts looked at the cluster of enterprises that comprise the

[1] Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island.

marine trades industry associated with boating in RI. It included expenditures, jobs and wages supported, and revenue generated via recreational boaters.

To estimate the recreational boating activity within the NBW using published data at the state level, state figures were adjusted by the share of the state's population in the watershed in 2010. This equates to 88.8% of the state population in RI and 15% in MA (for maps of the area and population of the NBW, please reference the "Geography" section). This approach assumes that registrations and participation rates for recreational boating are the same in both watershed and non-watershed areas. For example, the NMMA estimate of over 39,000 boat registrations in the state translates into around more than 35,000 boat registrations in the RI portion of the watershed.

For additional information on the methodology used in this report, please reference the "Methodology" section.

Current Status and Trends

The popularity of recreational boating in the Northeast holds true throughout the entire NBW (Figure 2). Boater density is particularly high within the Narragansett Bay, demonstrating the intensity of recreational boating within the NBW.[7] RI and MA suggest that use-density is particularly high within the Narragansett Bay for fishing (Figure 3). Relaxing, wildlife viewing, and swimming are also activities recreational boaters partake in.

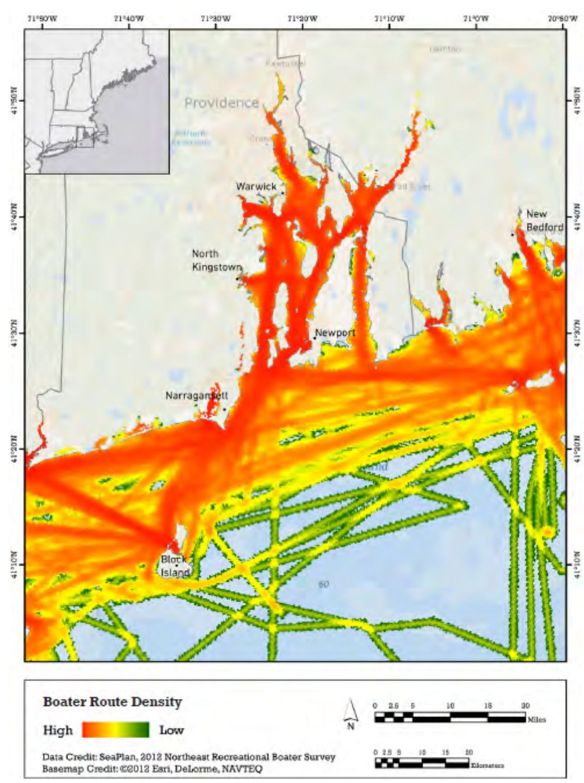

Figure 2: Recreational Boater Route Density in RI and MA (2012)

Source: Starbuck & Lipsky, 2013

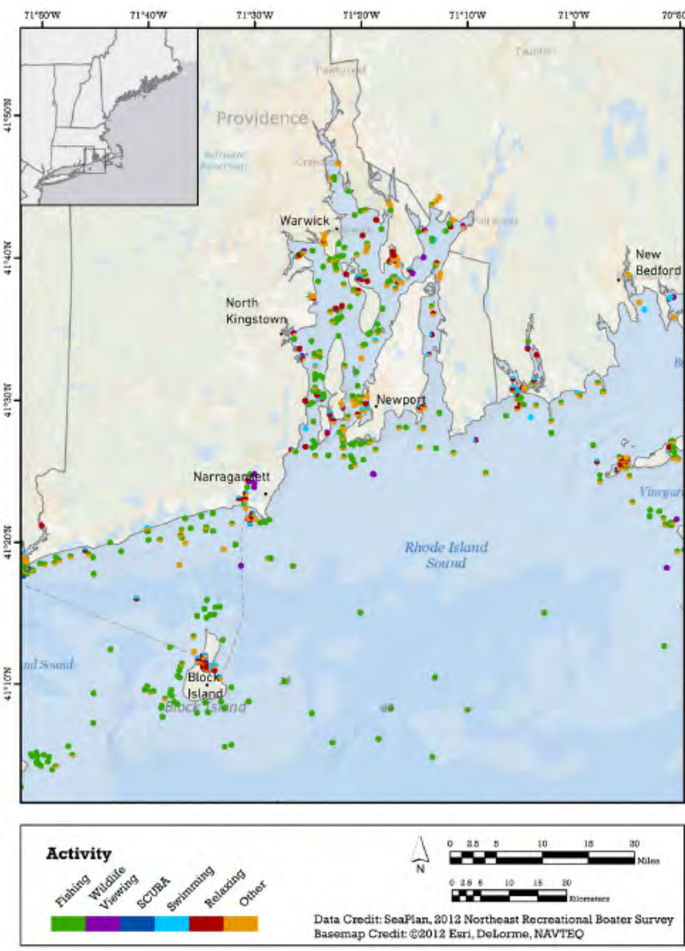

Figure 3: Recreational Boater Activity Points in RI and MA (2012)
Source: Starbuck & Lipsky, 2013

The number of registrations for recreational boaters in the NBW further illustrates the demand for recreational boating in the watershed (Table 1). In 2013, there were close to 56,000 boat registrations in NBW, with 63% in RI and 37% in MA. During 2012, there were over 97,000 trips taken in the NBW by these registered boaters (Table 1). In addition, close to 62,000 boat visits occurred, where recreational boaters spent time visiting their boats but not taking them out on the water. [8]

Table 1: Estimated Recreational Boating Registrations, Trips, and Boat Visits in the NBW

	Number of Registrations[1]	Number of Trips[2] (1000s)	Number of Boat Visits[2] (1000s)
RI	35,167	57.7	40
MA	20,650	39.4	21.9
Watershed	55,817	97.1	61.9

[1] Data is from 2013 (NMMA) [2] Data is from 2012 (Starbuck & Lipsky)
Sources: Starbuck & Lipsky, 2013; NMMA, 2014

In terms of the demographics of recreational boaters, the activity is primarily taken up by those in the middle class.[9] This means that boating can be enjoyed by a large population, making it a recreational activity with the opportunity for growth.

Expenditures of boaters indicate that recreational boating contributes critically to the watershed economy (Figure 4), including making big purchases such as motorboats or sailboats, or smaller purchases, like paying for repairs, gas, and boating equipment. Boaters may also travel far enough to areas where lodging and food become necessary. Recreational boaters in the two states spent more than $650 million (in 2016 dollars), with $510 million of the expenditures occurring in MA and $140 million occurring in RI (Table 2). [10] It is important to note that these expenditure figures include both short- and long-term expenditure. Short term expenditures (such as gas) are those that are repeated consistently over time whereas long-term expenditures (such as the purchase of a new boat) occur less often. When looking at expenditures per capita, recreational boaters in RI spent $134 per person, which is the highest in the region by nearly 30%. Per capita spending in MA was also above the regional average at $79.

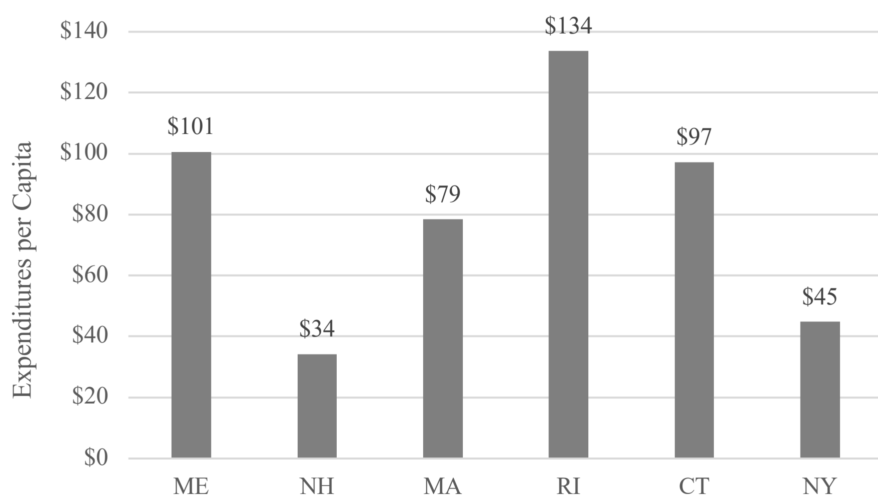

Figure 4: Annual Average Boater Expenditures per Capita in Northeast Region (2012) (in 2016 dollars)

Source: Starbuck & Lipsky, 2013

It is also possible to identify the home port of the boaters, and RI again stands out with nearly 20% of expenditures in the state coming from nonresident boaters (Figure 5). This is well above the regional average of 6% and the MA average of 4%, highlighting the importance of recreational boating as part of the tourism industry in RI.[11]

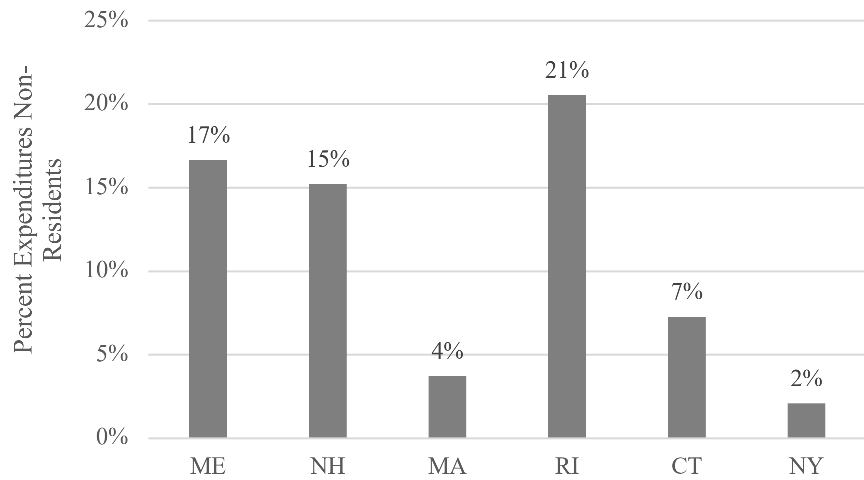

Figure 5: Percentage Share of Non-Resident Boater Expenditures in Northeast Region (2012)

Source: Starbuck & Lipsky, 2013

A significant number of year-round jobs are also supported by the spending of recreational boaters within the NBW. Using previously stated assumptions, in 2012 in the NBW, recreational boaters spent over $201 million (in 2016 dollars) that supported over $150 million in labor income and more than 2,700 year-round jobs (Table 2).[12]

Table 2: Expenditures and Impacts of Recreational Boaters in the NBW (2012) (in 2016 dollars)

	Expenditures ($1000s)	Total Impact ($1000s)	Year-Round Jobs Supported	Labor Income Supported ($1000s)
RI	$124,662	$216,793	1,783	$92,131
MA	$76,643	$135,276	975	$58,633
Watershed	$201,305	$352,069	2,758	$150,764

Source: Starbuck & Lipsky, 2013

As a complement to the national and regional surveys, a more detailed view on the recreational boating sector was generated at the state level for RI. Analysts looked at manufacturers, service providers, professional services, construction, and transportation enterprises associated with boating. Based on previously stated assumptions, in the NBW in 2012, these associated enterprises, in addition to sole proprietors and out-of-state boaters, spent over $1 billion in the state. These expenditures supported over 6,300 jobs with a payroll of more than $291 million.[13]

Overall, recreational boating is an activity that brings considerable economic value to the NBW. In 2012, 56,000 registered boaters took over 97,000 trips in the NBW. Recreational boating not only brings value to those participating in the activity, but it also spurs significant economic activity for businesses in the area that serve and support recreational boaters. Over $201 million (in 2016 dollars) in expenditures by these boaters supported more than 2,700 year-round jobs and $150 million in wage income. The continual growth related to recreational boating is a good sign for the future economy of the NBW.

Future Threats and Opportunities

Sea level | Estuarine fishing communities | Freshwater fishing communities | Water clarity | Shellfishing | Water quality for recreation |

Recreational boating in the NBW is sensitive to changes in fresh, salt, and estuarine waters. Because recreational boaters engage in the activity for a variety of reasons, such as fishing, swimming, shellfishing, and sightseeing, impacts on all of these activities may also impact recreational boating. The effects of climate change will affect multiple aspects of these activities, from fish habitats to the recreational status/safety of waterbodies in the state. For example, sea level rise will potentially impact marinas and ports that currently support recreational fishing boats. Within the next century, average sea level is expected to rise to current high tide levels. This sea level rise will place increasing stress on the marina industry, requiring existing marinas to adapt to these changes through measures such as installing floating docks.[14]

Additionally, aside from impacts on infrastructure, the water itself will be affected by climate change. Water clarity, which provides aesthetic benefits and may determine what areas boaters choose to visit, is under threat from increased water temperatures and growing populations in the NBW, which leads to increased stormwater, wastewater, and nutrient runoff. Not only can these decrease the clarity of the water, but can also increase algal bloom occurrences, fecal bacteria levels, and other problematic indicators that determine water quality.[15] [16] Currently, 85% of estuarine waters, 80% of lakes and ponds, and 40% of freshwater streams and rivers studied are considered acceptable for recreational use, which includes boating. This percentage is under threat from increased fecal pathogens from wastewater runoff from increased human development, as well as increases in stormwater and nutrient runoff, as discussed above.[17]

Furthermore, estuarine fish populations are also under threat from climate change. The prevalence of cool-cold water species, such as winter flounder and American lobster, is decreasing due to increasing water temperatures. Meanwhile, warmer water species populations, such as summer flounder and butterfish, are increasing. This shift in species provides a threat to fishing for current species in the area, but an opportunity to harvest new species in the future.[18] The same shift is seen in freshwater fish communities, where species like brook trout are declining due to warming waters and the impacts of human development.[19]

Overall, the future of recreational boating in the NBW will be impacted by a number of anthropogenic and climate change related issues that affect water clarity and quality. There will also be an impact on fish species, such may drive recreational boaters to visit or abstain from visiting certain areas.

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[1] Sources: NMMA, 2014; NMMA, 2015; Starbuck & Lipsky, 2013.
[2] Sources: MA OEEA, n.d.; Watershed Counts, 2013.
[3] Source: 12 Meter Charters, n.d.
[4] Source: NMMA, 2015.
[5] Source: NMMA, 2014.
[6] Source: Starbuck & Lipsky, 2013.
[7] Source: Starbuck & Lipsky, 2013.
[8] Sources: NMMA, 2014; Starbuck & Lipsky, 2013.
[9] Source: NMMA, 2015.
[10] Source: Starbuck & Lipsky, 2013.
[11] Source: Starbuck & Lipsky, 2013.
[12] Source: Starbuck & Lipsky, 2013.
[13] Source: Planning Decisions, Inc., 2014.
[14] Source: Rohit, 2016.
[15] Source: NBEP "Water Clarity,", 2017.
[16] Source: NBEP "Water Quality for Aquatic Life," 2017.
[17] Source: NBEP "Water Quality for Recreation," 2017.
[18] Source: NBEP "Estuarine Fish Communities," 2017.
[19] Source: NBEP "Freshwater Fish Communities," 2017.

Appendix

Table A1: Recreational Boating Registrations, Trips, and Boat Visits in MA & RI

	Number of Registrations[1]	Number of Trips[2] (1000s)	Number of Boat Visits[2] (1000s)
RI	39,602	65	45
MA	137,668	262.6	146
Total	177,270	327.6	191

[1] Data is from 2013 (NMMA) [2] Data is from 2012 (Starbuck & Lipsky)
Sources: Starbuck & Lipsky, 2013; NMMA, 2014

Table A2: Annual Boat Expenditures in the Northeast (in 2012 dollars)

	Expenditures ($millions)	Population	Per Capita
ME	$125.10	1.3	$96
NH	$42.70	1.3	$33
MA	$488.30	6.5	$75
RI	$134.30	1.05	$128
CT	$334.10	3.59	$93
NY	$840.40	19.6	$43
Total	$1,964.90	33.34	$59

Source: Starbuck & Lipsky, 2013

Table A3: Percentage Share of Non-Resident Boater Expenditures in Northeast Region (2012)

	ME	NH	MA	RI	CT	NY
Total	125.1	42.7	488.3	134.3	334.1	840.5
Own State	104.3	36.2	470.1	106.7	309.8	822.95
Share Own	83%	85%	96%	79%	93%	98%
Share Other	17%	15%	4%	21%	7%	2%

Source: Starbuck & Lipsky, 2013

Table A4: Expenditures and Impacts of Recreational Boaters in MA & RI (2012) (in 2016 dollars)

	Expenditures ($1000s)	Labor Income Supported ($1000s)	Per Capita Spending	Year-Round Jobs Supported	Total Impact ($1000s)
RI	$140,385.3	$103,751.7	$134	2,008	$244,137.0
MA	$510,953.9	$390,887.9	$79	6,498	$901,841.8
Total	$651,339.2	$494,639.6		8,506	$1,145,978.8

Source: Starbuck & Lipsky, 2013

Table A5: Economic Impacts of Marine Trades in RI (in 2012 dollars)

	Spending	Jobs	Wages	Tax & Fee Revenue
Direct	1,538,703,870	7,100	327,717,000	-
Total	2,582,182,348	14,700	598,487,000	117,940,000

Source: Planning Decisions, Inc., 2014

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