



RHODE ISLAND DEPARTMENT OF HEALTH BEACH PROGRAM

2010 Season Report



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Executive Summary

The Rhode Island Department of Health (HEALTH) is responsible for the licensing and regulation of bathing beach facilities in the State of Rhode Island. This includes both fresh and saltwater beaches. Funding for the beach Program is provided by the United States Environmental Protection Agency (USEPA). These funds support primary Beach Program activities which include: sanitary surveys, development and implementation of a risk-based monitoring plan, and bacteriological testing at marine beaches. Currently, the USEPA does not provide funds to monitor freshwater bathing beaches. Freshwater beach managers are responsible for sampling and following HEALTH approved regulations.

From May 31, 2010 through September 6, 2010, approximately 1,988 samples were collected by HEALTH from all 72 monitored saltwater bathing beaches. All samples were analyzed for Enterococci as required in the Federal Beaches Environmental Assessment and Coastal Health (BEACH) Act.

The 2010 bathing season saw a decrease in beach closures and closure days from the 2009 season. Whereas 89 beach closures events resulted in the 230 beach closure days recorded for 2009, 56 closure events resulted in the 150 beach closure days recorded for 2010. The total volume of rainfall was lower during the summer of 2010 (May 28 through September 6) than the summer of 2009. Total rainfall decreased from 17.24 inches in 2009 to 13.42 inches in 2010. Significant rainfall instances (> 0.50 inches in a 24-hour period) decreased in 2010, with 13 instances in 2009 and 11 instances in 2010.

1.0 PROGRAM STANDARDS

1.1. Mission

The mission of the Rhode Island Department of Health's (HEALTH) Beach Program is to protect the public from illness associated with swimming in contaminated bathing waters. The Beach Program achieves this goal by licensing recreational bathing beaches throughout the state under the authority of the General Laws of Rhode Island, included in **Appendix A**. We further this mission by assisting beach owners and managers with finding and eliminating sources of contamination.

1.2. History

HEALTH began monitoring beaches in the summer of 1995. Prior to 1995, the Rhode Island Department of Environmental Management (RIDEM) was responsible for monitoring beaches. All facilities monitored under this program are licensed as Recreational Facilities by HEALTH.

A "bathing beach" is defined by HEALTH as a natural area or tract of land that is used in connection with swimming and/or bathing in any waters of the state provided:

- a) It is open to the public by permit and/or payment of a fee; or
- b) It is maintained as a private club or association requiring membership fees or dues; or
- c) It is maintained with or without charge for the recreation of groups of ten (10) or more children.

Licensing requires facilities to have electrical service; refuse storage and disposal; sewage disposal facilities; adequate toilets, showers, or lavatories with hot and cold running water; a drinkable water supply; and the water adjacent to a bathing beach must meet bacteriological standards.

In 1999, development of a comprehensive beach-monitoring program began under a USEPA Environmental Monitoring for Public Access and Community Tracking (EMPACT) Grant titled Bacterial Water Quality Monitoring at Upper Narragansett Bay Bathing Beaches. This grant enabled HEALTH to establish a public notification system including a website, telephone hotline, and beach signage system. HEALTH also evaluated conditions in Upper Narragansett Bay, which has long been impacted by urban runoff, point source discharges, and combined sewer overflows (CSOs).

The EMPACT Program provided HEALTH with the resources to sample 23 stations in the Upper Narragansett Bay in wet and dry weather. The conclusion of this study determined that additional sampling was needed at the licensed Upper Bay beaches to adequately protect the public. Also, the areas north of Conimicut Point in Warwick and Nayatt Point in Barrington were deemed unsuitable for licensing.

In 2000, Congress enacted the Beaches Environmental Assessment and Coastal Health (BEACH) Act, an amendment to the Federal Water Pollution Control Act (a.k.a. The Clean Water Act). This act authorizes USEPA to distribute grants to eligible states, territories, and tribes to reduce the risk of disease and illness in the nation's bathing waters. State objectives under this program were published by the USEPA in June 2002. The National Beach Guidance and Required Performance Criteria for Grants document outlines several requirements of the BEACH Act which include: a

tiered categorization of beaches according to risk, identification and mitigation of pollution sources, a risk communication plan, and specific beach monitoring information¹.

Since 2000 the USEPA has provided HEALTH with over \$2 million in beach grants to manage Rhode Island's Beach Program. These grants have provided HEALTH the resources to vastly improve the Beach Program and to develop a broad base of knowledge regarding Rhode Island's monitored beaches.

1.3. Program Staff

The Beach Program consists of two full time employees, a Beach Program Coordinator and a Beach Program Assistant. The Beach Program is designated under the Office of Food Protection. As a result the Chief of the Office of Food Protection and Chief Environmental Health Food Specialist provide additional oversight and coordination.

Three interns are hired during the summer months to conduct sampling efforts. Two interns are designated as beach water samplers. The samplers collect samples daily at beaches determined by the Beach Program Coordinator and/or Beach Program Assistant. After samples have been collected and submitted to the laboratory the samplers come into the office to enter in their daily observations from the beaches. One intern is stationed in the laboratory and handles all necessary set-up/prep of sample containers and analysis equipment.

To aid in the 2010 Urban Beach Initiative, the Beach Program hired three additional interns. Two interns were assigned to the Sanitary Microbiological section of the laboratory, and one was designated to identify, evaluate, and collect water quality samples at the three prospective beaches. A copy of the Daily Bathing Beach Survey completed by the hired interns has been included in **Appendix B**.

1.4. Funding

During the 2010 beach season, EPA provided HEALTH with \$215,000 for the Beach Program. These funds support primary activities which include: sanitary surveys to identify risk and potential sources of fecal contamination at beaches; development and implementation of a risk-based monitoring plan; and bacteriological testing at saltwater beaches.

1.5. Standards

RIDEM and USEPA set Rhode Island's recreational use water quality standard, which states: saltwater bathing waters must not exceed a single sample standard of 104 Enterococci per 100 milliliters (mL) of water. Rapid testing methods are expected from EPA in October 2012. Quantitative Polymerase Chain Reaction (qPCR) testing will provide a six hour result assisting in timely notification and effective beach management.

1.6. Performance Criteria

EPA has developed nine performance criteria for the implementation of monitoring, assessment, and notification programs. To be eligible for a grant to implement a monitoring and notification program, the state, tribal, or local government's program must be consistent with these performance criteria. The performance criteria also applies to federal agency programs and

programs directly implemented by EPA. These performance criteria are based on and incorporate other requirements of the BEACH Act³. The nine performance criterion for the beach program are as follows:

Risk-Based Beach Evaluation and Classification Plan (Criterion 1)

Establishment of a risk-based beach evaluation and classification plan to evaluate and classify risk at Rhode Island's licensed facilities. Facilities have been identified by the Beach Program as coastal recreational waters and bathing beaches throughout the state. Beach evaluations, sanitary surveys and water quality evaluations were conducted to determine risk.

1. Tiered Monitoring Plan (Criterion 2)

To develop a tiered monitoring plan HEALTH identified the following factors: period and extent of use, frequency of monitoring needed, location of monitoring, methods to be used, and assessment procedures for short term increases in pathogen indicators. The Rhode Island Beach Program will be re-evaluating its tiered plan due to significant improvements over the past few years.

2. Monitoring Report Submission (Criterion 3)

HEALTH must submit all beach monitoring data to EPA. Currently, HEALTH submits information annually through EPA's Central Data Exchange (CDX). To collect and submit this information HEALTH employs a web-based data manager (Garrison Enterprises).

3. Methods and Assessment Procedures (Criterion 4)

HEALTH has established methods and assessment procedures to assess levels of pathogen indicators. Currently, HEALTH uses the IDEXX Enterolert™ method to enumerate Enterococci. Enterolert™ provides HEALTH a range of Enterococci from <10 to >24,192 MPN/100ml.

4. Public Notification and Risk Communication Plan (Criterion 5)

HEALTH's public notification plan includes: an official beach sign program, 24-hour telephone hotline, publicly accessible website, and daily media releases. The purpose of this plan is to quickly notify the public of potential risk associated with swimming in contaminated bathing waters. HEALTH will be implementing an interactive map viewer to provide data and notification information to the public.

5. Measures to Notify EPA and Local Governments/Beach Managers (Criterion 6)

Criterion to notify the EPA of all beach closures and openings through HEALTH's web-based management system has been established. Every time a beach is opened and/or closed a press release will be emailed to the EPA Region 1 contact. Furthermore, EPA will receive an end of season report containing all violations and closures.

Beach managers will be notified immediately by telephone once a decision to close the facility has been made. The beach manager/operator will inform facility staff and bathers and post closure notification signs. Beach managers and local governments will receive an emailed press release as part of the closure notice distribution.

6. Measures to Notify the Public (Criterion 7)

HEALTH utilizes several methods to notify the public of beach closures including: a 24-hour telephone hotline, daily updated website, closure sign system at all licensed beaches and a standard format press release.

7. Notification Report Data Submission Plan (Criterion 8)

The BEACH Program requires HEALTH to submit all beach notification data to EPA. Currently, HEALTH submits information annually through EPA's Central Data Exchange (CDX). To collect and submit this information HEALTH employs a web-based data manager (Garrison Enterprises).

8. Public Evaluation of Program (Criterion 9)

During the development of the Beach Program HEALTH conducted two public comment periods. First EPA, DEM and all licensed beach managers were given the opportunity to evaluate the sanitary survey procedures. Comments were used to better classify risk at licensed bathing beaches in Rhode Island. Second, the public was given an opportunity to comment on monitoring and public notification plans. Notices were sent out to all licensed beaches. An online notification was given for an informal public hearing to be held at HEALTH. Following the hearing, the public were given additional time to comment electronically or in writing.

During the 2008 beach season a marketing intern from the Bryant College of Business assisted HEALTH in a program evaluation. The evaluation assisted the Beach Program to more efficiently serve the needs of the public and provide a higher level of customer satisfaction and service to beach owners. Extensive research was used to track program performance in providing effective monitoring information and helpful support throughout the summer season.

2.0 FLAGSHIP BEACHES

USEPA defines flagship beaches as high-use beaches selected for targeted attention. Beaches were designated based on three criteria: a history of closures; extended periods of poor water quality; and service to a diverse socioeconomic user group. During the 2002 season, Goddard Park in Warwick, Warren Town Beach in Warren, and King Park Swim Area in Newport were designated as Rhode Island's Flagship Beaches. As a result of the closure of King Park Swim Area in 2004 by the City of Newport, Scarborough State Beach in Narragansett was designated as a flagship beach.

2.1 Governors Ten Priority Beaches

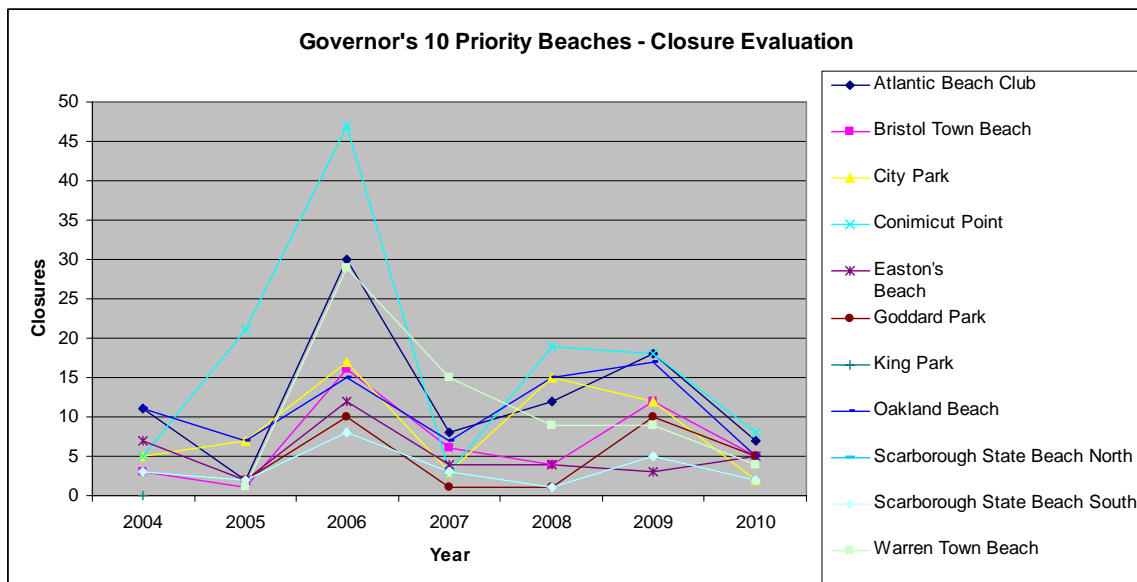
During the summer of 2003, the environmental health of Narragansett Bay was questioned. Rhode Island experienced the highest number of beach closures in recorded history and Greenwich Bay experienced the worst fish kill in the last fifty years. In response to these events, the former Governor, Donald Carcieri formed the Governor's Narragansett Bay and Watershed Planning Commission to coordinate and plan for the environmental and economic health of the Bay. Ten study panels were formed with experts from state and federal government, academia, non-governmental organizations, private firms, and the public.

In March of 2004, the Commission issued a report detailing recommendations to improve the health of Narragansett Bay. On July 22, 2004, Governor Donald Carcieri responded to the report, charging HEALTH, DEM and the Department of Transportation (DOT) with developing an improvement strategy and identifying ten priority beaches. In December 2004, HEALTH, DEM and DOT issued *Joint Improvement Strategy for 10 Priority Beaches*, a document outlining the steps to be taken to identify and eliminate sources of contamination.

In November 2010, a new Governor was elected for the State of Rhode Island. Subsequently, an evaluation of the Governor’s 10 Priority Beaches has been prepared.

From 2004 to 2010, the State of Rhode Island and many local municipalities have been pro-active at addressing the sources of contamination affecting their local beaches. The State initiated a project to solve much of Providence’s combined sewer overflow (CSO), commonly known as the State Tunnel Project. The \$359-million project to solve much of the state’s combined sewer overflow consisted of a tunnel drilled 300 feet through solid rock under downtown Providence. The project; completed in 2008 was the biggest, and longest-running, public works project in state history was. The CSO system is designed to capture all the water in a rainstorm of up to 1½ inches, the benefit should be a cleaner bay and cleaner beaches.

Chart A addresses beach closure days at the Governor’s 10 Priority Beaches from 2004-2010.



2.1.1 Greenwich Bay

Beaches located in the City of Warwick accounted for the largest percentage of closures by town over the last several years. From 2009 to 2010, closures in Warwick decreased from 58 to 20 closure days as rainfall decreased from 17.24 inches to 13.42 inches. The decrease in closure days may be attributed to the increased stormwater holding capacity of the State Tunnel Project. With decreased contaminated discharge, water quality in upper Narragansett Bay has improved.

In 2009 the City of Warwick continued their efforts with connecting homes in Greenwich Bay to municipal sewer systems. Approximately eight thousand connections have been made since the beginning of the project. These connections are also attributed to the decrease in beach closures.

2.1.2 Easton's and Atlantic Beach Club

In 2010 the City of Newport again granted money to a local Aquidneck Island volunteer organization, Clean Ocean Access (COA), to continue sampling Easton's Beach during the off-season when surfers utilize the beach area. This study is unique since HEALTH does not sample any of Rhode Island's beaches during the off-season (with the exception of short-term special studies). The City of Newport agreed to pay for sample analysis from January through December and COA agreed to provide all necessary manpower.

In the summer of 2009 Easton's Beach began using a seaweed harvester to remove excess seaweed from the waterline. Removal has resulted in reduced beach closures and improved the aesthetic value of the facility.

Atlantic Beach Club worked with the Coastal Resource Management Council (CRMC) and a local waste management company to remove seaweed as necessary during the beach season. This contract will continue throughout the 2011 beach season as well.

The City of Newport has also invested in an Ultra Violet (UV) Disinfection System to treat water that discharges onto the beach from the Easton Moat. This water has been the source for contamination from Enterococci bacteria leading to beach closures. The system construction was started in 2010 and is expected to be completed by the 2011 beach season.

3.0 2010 DATA SUMMARY

3.1 Sample Results

The number of samples collected by HEALTH has increased from 281 in 1995 to 1,988 in 2010. Beach Owners and Managers and non-profit groups under Beach Program guidance collected additional saltwater samples. The number of facilities tested has increased from 82 in 1997 to 116 in 2009, 70 of which are saltwater beaches.

3.2 Closures

During the 2010 beach season there were 45 recorded closure events totaling 70 closure days. This represents a 38.67% decrease in closure days from the 2009 bathing season (there were 80 closure events totaling 179 closure days). A summary of beach closures is included in the **Appendix C** – Closure Evaluation Spreadsheet. Detailed information regarding beach closures can be found in **Appendix D** - 2010 Coastal Beaches Action Summary. Total rainfall decreased from 2009 to 2010, from 17.24 inches to 13.42 inches. Also, significant rainfall events (greater than 0.5 inches) decreased from 13 in 2009 to 11 in 2010. The Beach Program tracks all meteorological data including tidal and lunar cycles at eleven major weather stations throughout the state. This information is included in **Appendix E** – 2010 Meteorological Data. This data was used to track precipitation, air/water temperatures and wind direction/speed.

Table 1 contains data regarding closure days for each beach and suspected sources of contamination.

Table 1. 2010 Saltwater Beach Closures

Beach Name	Days Closed	Problems
Atlantic Beach Club	7	Stormwater, Pump station, Newport CSO
Barrington Town Beach	2	Run-off, Providence CSO
Bristol Town Beach	5	Run-off, Wildlife, Providence CSO
Camp Fuller – YMCA Beach	3	Run-off, Wildlife
Camp Grosvenor	4	Run-off, Wildlife
Camp St. Dorothy	5	Run-off, Wildlife
City Park	2	Run-off, Boats, Wildlife
Conimicut Point	8	Providence CSO, Wildlife, Run-off
Easton’s Beach	5	Stormwater, Pump station, Newport CSO
Fort Adams	2	Run-off, Wildlife
Goddard Park	5	Run-off, Boats, Wildlife
Hazards Beach	2	Run-off, Wildlife
Oakland Beach	5	Run-off, Wildlife
Peabody’s Beach	3	Stormwater Run-off, Boats, Wildlife
Sandy Point Beach	1	Stormwater Run-off
Scarborough State Beach – North	2	Stormwater Run-off
Scarborough State Beach – South	2	Stormwater Run-off
Third Beach	3	Run-off, Boats
Warren Town Beach	4	Sewer Issues, Stormwater Run-off, Boats
Total:	70	

The following table and charts document the percentage of closures attributed to each town. Note: all saltwater closure days occurred within eleven of Rhode Island's coastal towns.

Table 2. Percentage of Saltwater Beach Closure Days By Town for the 2010 Bathing Season

Percentage of Total Saltwater Closure Days	City/Town	Number of Closure Days	Facilities Closed
28.6	Warwick	20	City Park Beach, Conimicut Point Beach, Goddard State Park Beach, Oakland Beach
18.6	Middletown	13	Atlantic Beach Club Beach, Peabody's Beach, Third Beach
14.3	Bristol	10	Bristol Town Beach, Camp St. Dorothy
12.9	Newport	9	Easton's Beach, Fort Adams, Hazards Beach
5.7	Narragansett	4	Scarborough State Beach North, Scarborough State Beach South
5.7	North Kingstown	4	Camp Grosvenor
5.7	Warren	4	Warren Town Beach
4.3	South Kingstown	3	Camp Fuller – YMCA Beach
2.9	Barrington	2	Barrington Town Beach
1.4	Portsmouth	1	Sandy Point Beach
100		70	

Chart A. Saltwater Beach Closure Days By Town for the 2010 Bathing Season

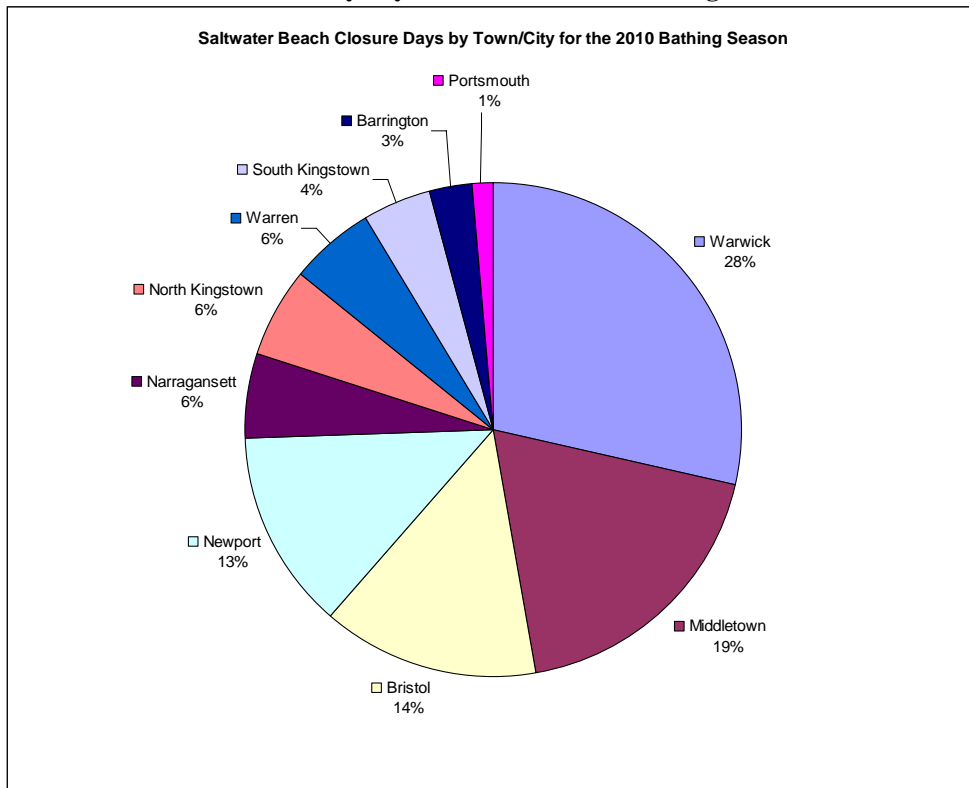
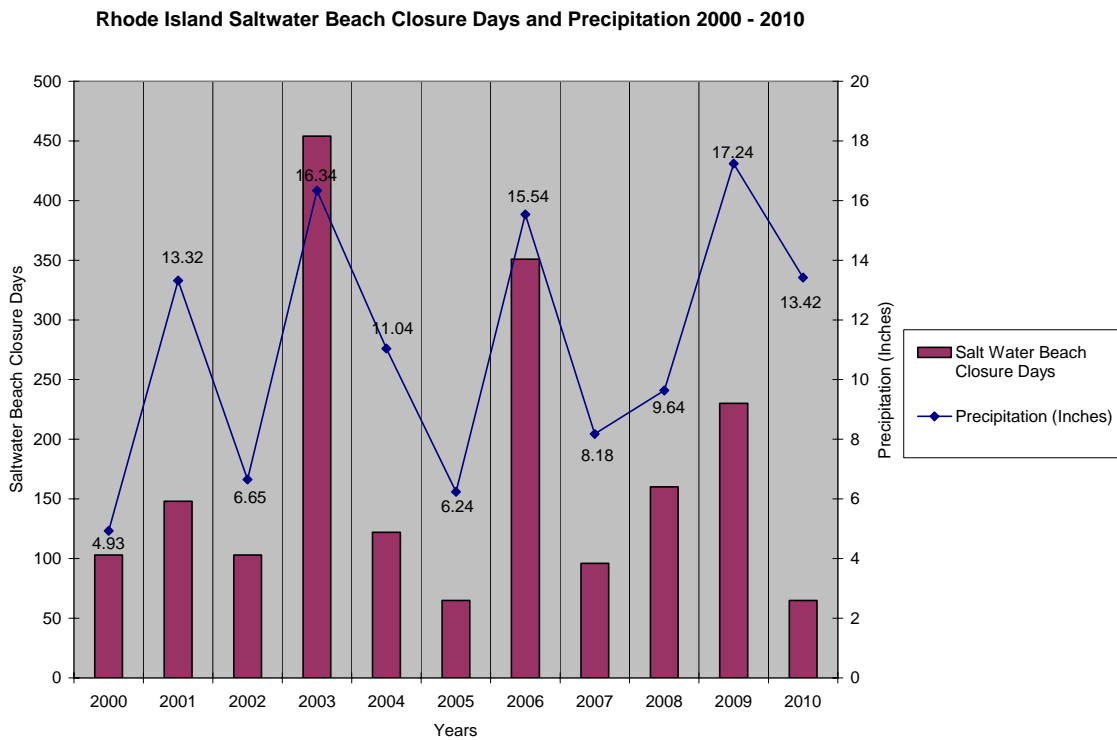


Chart B. Rhode Island Saltwater Beach Closure Days and Precipitation 2000-2010



3.3 Locational Data

In summer and fall of 2009 EPA requested that Rhode Island review and correct locational data points for all monitored beaches. Using a web-based application the program found discrepancies at numerous beaches and resolved them. Having accurate locational data provides the EPA and the Beach Program with more precise beach extents. This allows for improved monitoring and notification.

3.4 Geometric Mean

A single outlier can drastically skew the arithmetic mean of a beach data set. The geometric mean is used to reduce the impact of significant outliers when averaging a large data set. The geometric mean is calculated by multiplying all data points and taking the n th root of the product, where n is the number of data points. The Beach Program uses geometric means as another metric to measure beach health.

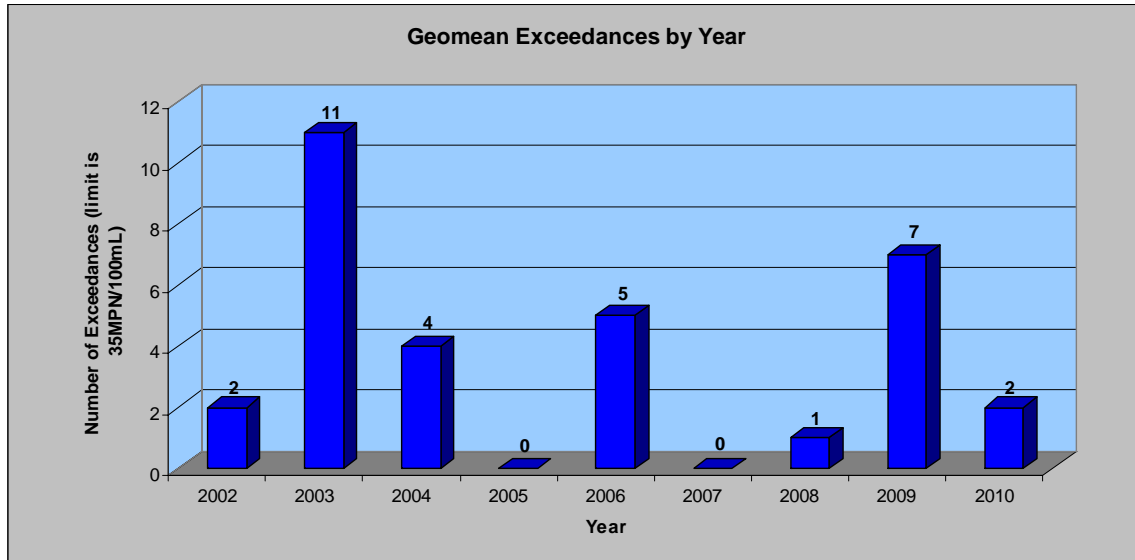
Table 3. Geometric Mean of Enterococci Bacteria in Rhode Island

Geomeans of Enterococci Bacteria in RI (Safe limit = 35cfu/100ml)									
Beach	2002	2003	2004	2005	2006	2007	2008	2009	2010
Alfies	17.32	10.00	13.55	13.26	10.00	10.00	10.00	12.65	13.20
Andrea Hotel	14.58	10.00	11.67	14.14	10.00	12.23	10.00	21.68	13.26
Atlantic Beach Casino	10.00	19.49	11.22	10.00	10.00	10.00	10.00	12.08	11.22
Atlantic Beach Club	27.02	87.89	48.40	33.69	76.94	29.23	32.44	55.53	30.60
Atlantic Beach Park	10.00	10.00	10.00	11.93	11.70	10.00	10.00	14.92	13.91
Atlantic Pizza & Grill	20.25	10.00	11.22	10.00	10.00	10.00	10.00	12.23	14.31
Ballards Inn	n/a	11.89	10.00	n/a	20.28	10.00	24.28	10.00	NA
Barrington Town Beach	13.06	59.03	16.45	16.53	26.82	17.01	17.67	23.21	13.71
Blue Shutters Beach	11.75	10.00	10.00	10.00	10.00	10.00	10.00	10.00	14.45
Bonnet Shores Beach	12.01	13.19	15.42	10.37	19.82	12.58	14.09	19.97	11.28
Briggs Beach	10.00	14.31	15.15	10.00	12.66	10.00	11.34	12.28	10.72
Bristol Town Beach	45.12	30.31	15.29	20.21	42.86	15.13	19.35	29.76	19.55
Camp Grosvenor	22.29	25.14	29.43	20.64	20.44	18.13	51.18	25.64	21.23
Camp St. Dorothy	44.40	18.70	20.11	16.98	30.94	14.02	11.08	40.15	20.25
C. Roger Wheeler Beach	16.77	12.00	14.98	10.85	15.38	13.77	10.00	12.14	12.16
Charlestown Breachway	13.01	12.46	10.00	10.00	10.00	10.00	10.00	14.12	10.91
Charlestown Town Beach	12.66	28.89	11.18	10.97	10.00	10.00	10.00	12.30	10.59
City Park Beach	17.81	70.25	17.90	28.02	28.04	22.31	20.43	15.53	15.55
Conimicut Point Beach	27.93	74.71	22.16	30.27	46.84	20.58	28.64	27.69	36.93
Dunes Club	17.69	14.67	11.50	10.35	10.56	10.69	14.78	15.64	14.98
Dunes Park	10.00	10.00	16.62	10.00	10.00	10.00	10.00	10.00	10.00
East Beach	10.72	26.04	10.63	10.00	10.00	10.00	10.00	10.00	11.64
East Matunuck Beach	10.00	10.00	11.16	10.00	10.00	10.80	11.22	10.00	10.00
Easton's Beach	19.57	30.61	50.29	20.08	n/a	26.97	34.18	27.18	33.21

Fogland Beach	15.52	11.93	14.85	10.71	16.68	10.59	11.53	16.35	15.31
Fort Adams State Park	19.62	22.65	18.44	14.00	20.45	12.56	13.03	18.39	14.89
Fred Benson Town Beach	n/a	10.00	10.00	10.00	34.79	10.00	10.00	10.00	10.00
Galilee Beach Club Assoc.	12.08	19.78	11.49	10.00	10.00	10.00	10.00	13.91	10.00
Goddard Park	15.85	33.18	14.96	20.18	19.87	16.69	17.28	36.91	28.90
Gooseberry Beach	29.01	16.92	13.00	10.34	13.61	10.44	10.59	13.91	10.00
Goosewing Beach	10.00	10.00	14.28	12.54	10.00	10.63	10.00	12.42	12.14
Green Hill Beach	--	--	--	--	--	--	--	--	10.00
Grinell's Beach	24.78	11.22	13.87	13.70	14.70	10.00	10.92	16.99	25.27
Hazard's Beach	12.46	13.59	19.33	10.99	12.56	14.75	16.30	16.58	42.08
Jim's Trailer Park	10.00	10.00	10.80	10.00	10.00	11.89	13.26	10.00	15.60
Mackerel Cove Beach	12.60	36.25	16.92	13.14	18.19	11.48	23.31	12.26	10.63
Matunuck Town Beach	10.91	11.22	10.71	11.22	21.29	10.00	19.02	14.37	12.70
Misquamicut Club	10.00	58.78	12.20	19.11	15.01	10.00	10.00	10.00	10.00
Misquamicut Fire District Beaches	12.08	10.00	11.13	10.00	10.00	10.00	10.55	11.82	11.61
Misquamicut State Beach	10.47	11.78	12.32	10.81	10.77	11.27	11.37	13.20	10.00
Narragansett Town Beach	11.45	12.78	10.48	10.18	14.28	10.49	11.21	15.62	10.65
North Kingstown Town Beach	15.23	28.78	21.05	13.15	16.18	23.69	12.95	24.64	13.59
Oakland Beach	17.07	41.46	24.75	27.42	26.78	20.52	20.79	21.12	22.18
Ocean House	11.89	10.00	10.00	11.22	10.00	n/a	10.00	13.01	10.00
Paddy's Beach	10.00	10.00	10.00	10.00	10.00	12.98	10.00	11.22	12.46
Peabody's Beach	n/a	43.45	24.71	11.97	23.17	10.80	18.61	28.61	18.93
Pleasant View Inn	n/a	10.00	10.00	10.00	10.00	10.00	10.00	17.69	13.20
Plum Beach Club	12.46	11.22	13.46	12.97	24.23	16.83	11.49	41.68	15.23
Roy Carpenter's Beach	20.98	11.89	11.22	10.00	11.79	31.56	10.00	10.72	10.00
Sachuest Beach	12.60	10.00	13.21	10.90	13.11	10.95	12.10	17.47	13.15
Salty Brine Beach	15.23	24.49	11.93	10.00	13.16	18.24	17.43	18.88	10.00
Sam's Beach	17.32	10.00	10.00	10.80	10.00	11.49	13.80	14.45	11.22
Sandy Point Beach	10.00	11.22	13.43	14.69	14.54	10.44	12.82	35.54	19.31
Sandy Shore Motel	10.00	10.00	13.55	10.00	10.00	10.00	10.00	19.22	10.00
Saunderstown Yacht Club	n/a	51.86	37.22	12.88	35.67	14.12	14.80	36.97	10.00
Scarborough State Beach North	14.36	16.54	23.00	15.33	18.17	22.87	15.69	17.99	15.89
Scarborough State Beach South	19.71	19.40	23.49	16.63	22.11	20.60	12.96	19.52	16.48
Seaside Beach Club	10.00	10.00	20.08	10.00	10.00	10.00	12.66	12.54	13.26
South Shore Beach	10.00	16.49	15.15	10.00	10.00	10.88	10.59	19.88	10.96
Spouting Rock Beach Assoc.	13.16	60.30	39.83	11.04	20.77	10.00	14.74	27.17	12.07
Surf Hotel	n/a	10.00	n/a	n/a	14.14	25.25	14.14	10.00	10.00
Third Beach	n/a	n/a	16.59	16.35	26.25	15.84	17.49	35.51	18.35
Warren Town Beach	23.38	68.30	11.59	24.08	40.85	25.12	17.27	21.96	20.81
Warren's Point Beach Club	10.00	19.89	10.91	10.55	10.00	11.22	14.90	11.70	12.60
Weekapaug Fire District Beaches	n/a	n/a	13.01	10.00	10.00	10.00	10.56	10.71	10.61
Westerly Town Beach New	10.00	10.00	10.00	10.00	12.60	10.00	14.70	16.35	13.46
Westerly Town Beach Old	10.00	22.15	12.65	10.00	10.00	10.00	12.25	15.00	10.72
Willow Dell Beach Club	n/a	10.00	15.13	10.00	16.04	10.72	12.53	11.22	10.00
Total Exceedances	2	11	4	0	5	0	1	7	2

The following chart depicts the number of beaches exceeding the 35 MPN/100mL standard per year.

Chart C. Geomean Exceedances by Year



4.0 2010 PROJECTS

4.1 *Urban Beach Initiative*

In 1999, EMPACT Program deemed areas north of Conimicut Point in Warwick and Nayatt Point in Barrington were unsuitable for licensing. The Urban Beach Initiative was launched in the summer of 2010. The primary goal was to identify and determine areas in the upper Narragansett Bay that are utilized for recreation and identify if such areas are safe for swimming. The project consisted of several steps. First was to locate areas in Warwick, Cranston, Barrington, and East Providence for beach-like areas. Next was to identify beach locations and sample the water for enterococci to evaluate the water quality conditions.

For approximately four weeks, areas in Warwick, Cranston, Barrington, and East Providence that were next to bodies of water were visited. After repeated visits and observations, three areas were chosen for consideration. Two of the areas were in Riverside (Sabin Point Park and Rosa Larisa Memorial Park) and the third was in Warwick (Gaspee Point). Water samples were collected at each of the locations along with daily beach surveys, sanitary surveys and personal interviews with beach goers.

4.1.1 *Sabin Point Park*

Sabin Point Park is located in a densely populated residential area at the end of Shore Road in Riverside Rhode Island. The park has a playground and basketball court. West of the park, there is a fishing pier and a boat dock. South of the park is a small sandy beach. The park is frequently used by pet owners and fishermen. Occasionally, little children play around the water supervised by parents. A resident of the area stated that the park was “like a family park where everyone knows everyone.”

The beach area has three visible storm water pipes; water appeared to flow from the pipes during high tide. Area around the pipes had sewage odor, the odor was especially strong after a storm or rain. There was a trail of black residue left on the sand from one of the pipes that made the water appear black. Swans and geese feast and bathe around the pipes with running water. After a rain or storm event, the water may appear cloudy or murky and the algae may wash up on shore.

Wave conditions are never strong or high, mostly slow and small waves to none. Most of the time the water appeared clean and clear. No swimmers have been spotted in the water but there had been children and adults that walked along the water. Visitors to the park feed swans and seagulls at the beach.

Trash or waste was often found on the sandy portion of the beach. There was broken glass, paper, cups, cans, wrappers, and etc. A resident walking with his dog claimed he pulled a syringe out of the sand. After interaction with many of the residents, the conclusion was that the area needed to be cleaned and restrooms should be installed.

4.1.2 Rosa Larisa Memorial Park

Rosa Larisa Memorial Park is located off of Bullocks Point Avenue in Riverside, Rhode Island. The park is located across the street from Crescent Park Carousel. Rosa Larisa is maintained by the city of East Providence. Every week the grass was cut and watered, the park was extremely clean. There are three wooden staircases that led to the beach area, in which one was handicap accessible. Sometimes the algae on the sand are picked up by a tractor truck and dumped into a large waste bin that was later removed from the area.

The beach was very popular amongst pet owners. Frequently residents walk along the beach with their dogs and occasionally the dogs run or swim in the water. During warm weather, there are residents that swim and boat in the water. During high tide the sandy area is submerged. Fishermen have been observed fishing from the staircases located onshore.

Water conditions range from very clean and clear to brown/black and cloudy. The water at the east end of the beach was often cloudy and at times smelled like sewage. The west end of the beach was clean and clear. After a storm, the water became very cloudy and murky. Cloud of black particles on the surface and in the water column made the water appeared black and cloudy. A resident claimed the blackness of the water was due to “decomposing seaweed.” The water at the center and east sample stations did have a slight sewage odor when the water was black.

4.1.3 Gaspee Point

Gaspee Point is located in a densely populated residential area located on Namquid Drive in Warwick, Rhode Island. The beach is located behind trees and residential homes. Since the beach is privately owned by Gaspee point, the area was often quiet and empty. Nearby, on Lane six off of Namquid Drive, a small beach parking for four cars is available. There is a fenced gate in the parking lot which leads to the beach.

The water at the east end of the beach often appears cloudy and murky compared to the west end of the beach. Swans frequently rest and bathe at the center point of the beach. A unknown pipe is located at the west end of the beach. Black water has been observed streaming from the pipe which may smell like sewage after a storm or rain event. Access to the west end of the beach is difficult at high tide.

Many pet owners utilize the beach area. Much of the time, the dogs are not leashed. No swimmers were spotted as of yet, but three women were spotted in the water at the west end of the beach with fish nets.

4.1.4 Urban Beach Initiative Data Analysis

Water samples were collected from each of the three areas to assess water quality and potential bathing beach conditions. Samples were collected in July and August of 2010. The analytical results of the Urban Beach Initiative are included in **Appendix F**. All locations reported concentrations of enterococci comparable to licensed bathing beaches throughout the state. Each location did report concentrations that exceeded the bathing beach standard as presented in the table below.

Location	Percent of Samples Exceeding Standard
Sabin Point	11 %
Rosa Larisa	8.8 %
Gaspee Point	14.5 %

The Urban Beach Initiative will continue into the 2011 beach season as we examine underwater conditions and hazards as described in Section 5.9.

4.2 Bristol Town Beach Improvements

There are four major projects currently in place at Colt State Park (Bristol Town Beach).

First, the completed project consists of six catch basins constructed between the beach and the surrounding park area. These bioswales have been placed along the edge where the *fragmides* meet the water. Rain from the parking lot and park area enters the bioswales before entering the beach. The rainwater is filtered mechanically in the catch basins, and then further filtered by the vegetation in the bioswales. The bioswales also significantly slow down the flow of rainwater to prevent surges of storm water that may carry bacteria and other contamination.

The second project concerns the 36" storm drainpipe that drains approximately 30 feet from the beach facility. This pipe has been "daylighted" – a large transect (about 400 yards) was cut open, exposing the water to the sun and outside environment. This open-air section will be a winding stream designed to slow the water flow down. Footbridges will allow for the public to enjoy the new stream while providing valuable access points to travel throughout the park. Around the stream, specialized plants have been chosen that will absorb the water through their root systems, creating a stream that releases cleaner water into Narragansett Bay.

Third, the Town of Bristol has taken a \$1,000,000 loan to remove the parking lot at Bristol Town Beach and replace it with an ecofriendly green parking lot with bioretention swales and specialized vegetation to further absorb and filter storm water.

Finally, the sewage treatment pipe closest to the beach is receiving a major renovation. Underground storage tanks have been added, which will store water during periods of high-volume rain. When the intense rain has finished, the water will be released at greatly reduced rates, allowing for proper filtration and cleansing of the water.

4.5 Governor's Bay Day 2010

In July 2010, the Beach Program participated in the Governor's Bay Day. The purpose of Bay Day is to promote public awareness of the state's beaches. The Beach Program managed a table at Goddard State Park to provide information on the Program and educate the public on what they can do to minimize beach closures. Educational materials included an interactive storm-water model that demonstrates how pollutants can be mobilized from urban, suburban, and rural areas into fresh and saltwater environments. Additional educational materials included beach health brochures, informational coloring pages for children, Bristol Town Beach improvements map, sample beach closure sign, a tablet computer displaying the Beach Program website and Program staff to assist patrons with questions.

4.6 URI Watershed Watch

In July of 2010, the Beach Program spoke about beach water quality and sampling efforts on the News Channel 10 URI Watershed Watch Report. A small segment on the news was dedicated to demonstrating how samples are collected at the beach and discussing beach water quality. Both the Beach Program Coordinator and Beach Program Assistant attended the recording of the segment at Oakland Beach in Warwick, RI.

4.7 Surfrider Foundation Blue Water Task Force Appreciation Night

On May 18, 2010, the Program staff attended the Rhode Island Chapter of the Surfrider Foundations's Blue Water Task Force Appreciation Night. The evening consisted of a review of the water quality data collected over the past ten years by the volunteer organization.

HEALTH spoke of beach water quality and sampling efforts conducted by the state. Both the Beach Program Coordinator and Beach Program Assistant attended the event.

4.8 HEALTH Beach Program Summer Season Kick-Off

On May 20, 2010, the Beach Program hosted the 1st Annual Summer Season Kick-Off. This was an opportunity for Beach Owners and Managers as well as volunteer groups to meet and ask questions, and discuss ideas for future projects. Presentations were be given by the Beach Program and EPA and DEM. Attendants included beach mangers, town representatives, and volunteers who monitor water quality at beaches.

Information was provided to all attendees including the 2009 RI Beach Program Season Report, informational brochures and a facilities packet for beach owners and managers. The Beach Program Summer Season Kick-Off meeting is a great way to address concerns and share knowledge across public and private sectors. The event has become annual and will occur in 2011.

4.9 City of Newport Ultra Violet Treatment System

The Beach program has worked with the City of Newport will begin construction on a \$5.8 million Ultra Violet Treatment system to reduce bacteria levels from storm water that discharges at the beach. This has been a multi-agency effort for over three years and is expected to be completed before the 2011 beach season.

4.10 Town of Warren Reconstruction of Sewer Infrastructure

The Beach Program has worked with The Town of Warren to address beach closures at the town beach. Subsequently, the Town of Warren is expected to spend approximately \$2 million to replace the entire sewer infrastructure along Water Street, directly adjacent to their beach. This project is also expected to be completed before the 2011 beach season.

5.0 FUTURE ACTIVITIES

5.1 Monitoring and Data Collection

Beach interns will conduct sampling at coastal beaches from Memorial Day through Labor Day. Approximately 2,000 samples will be collected, submitted, and analyzed for Enterococci bacteria during the summer season. Water quality samples are collected by HEALTH and beach managers and operators.

5.2 Public Notification

The Beach Program will distribute press releases to beach owners, local governments and Rhode Island media. The Beach Program website is available to the public with up to the minute advisories and closures. The Program will update the 24-hour telephone hotline on daily basis and produce Public Service Announcements to promote the Beach Program and Public Health.

5.3 Source Tracking

The Beach Program will work with sister agencies and local governments to find and eliminate sources of contamination at Rhode Island beaches. Program staff will coordinate meetings to drive change and lend support to others working for similar causes.

5.4 Data Submission

The Program Coordinator will prepare data for submission to EPA's Storet warehouse and WQX/CDX database. S/he will submit data files for the 2011 beach season to EPA Region 1.

5.5 Beach Season Breakfast Kick-Off

In May 2011, the Beach Program will hold its 2nd annual beach season breakfast kick-off meeting. This meeting will be open to all saltwater beach owners and managers as well as volunteer samplers, stakeholders, and municipalities. The kick-off will include an overview of the Program, upcoming seasonal projects and expectations of beach facilities. A question and answer period will follow.

5.6 Sanitary Surveys

The Beach Program will conduct sanitary surveys and full beach evaluations at all 73 licensed saltwater bathing beaches. Collected data will include locational data points, daily user populations, unidentified sources of contamination (including discharge pipes), bird populations, nearby farms etc. Data will be used for submission to EPA as part of a new federal grant requirement. Information will also be used to prepare a project report for EPA, other US States and Rhode Island State and local agencies.

5.7 Pre-emptive Closure Evaluations

Based on the successful protocols utilized at Easton's Beach and Scarborough State Beach, the Program will develop further closure evaluations for the remaining Governor's Priority Beaches. This will be accomplished by correcting all data, analyzing closure rates and rate of clean-up and documenting significant rain events.

5.8 Urban Beach Initiative

The Urban Beach Initiative was started in 2010. Program Staff investigated various unlicensed public access points to restore access/use to communities that have currently impaired beaches. Sabin Point Park and Rose Larissa Memorial Park located in Riverside, RI and Gaspee Point located in Warwick, RI were investigated as part of the initiation. This study included; water quality sampling, property surveys and stakeholder meetings.

In 2011, The Beach Program will continue with Urban Beach Initiative. Existing urban beaches will be added to the biweekly sampling beach runs. EPA will assist HEALTH by providing dive team specialists to survey underwater conditions. Program Staff will communicate the findings of the Urban Beach Initiative with local governments. Additional unlicensed public access points will be considered for further assessment. HEALTH will assist Save the Bay as they investigate similar locations in the upper bay. The Beach Program will work with Save the Bay to coordinate sampling efforts and analysis.

5.9 Education and Outreach

In 2011, the Program would like to begin an Education and Outreach Initiative that will utilize written media and interpersonal communication to increase awareness regarding healthy beach practices. The initiative's primary audience will include children and young adults. Potential activities include: Governor's Bay Day, Rhode State Lifeguard training, youth camp presentations and distribution of informational media.

5.10 Environmental Stewardship

The Beach Program will provide beach owners and managers information on environmentally friendly improvements at their facilities. Projects such as porous

pavement, rain gardens, buffer planting and pipe day lighting can be used to used to improve beach and water quality.

5.11 2011 Water Use Survey

The Beach Program will conduct a year round water use survey to investigate illnesses associated with swimming use.

The Beach Program will conduct a study with approximately 20 volunteers who are in the ocean regularly. Each volunteer will document their experience in the water regarding water conditions, weather conditions, and health effects. This data will help HEALTH to better understand state wide year round water use and associated health risks.

5.12 Re-Opening of King Park

The Beach Program is working with The City of Newport to re-open King Park Beach for the 2011 swimming season. The City of Newport has made improvements to the combined sewage overflow system located at Wellington Ave. Water quality testing will be conducted by the Beach Program and The City of Newport to ensure healthy swimming conditions. All results will be reported to the Beach Program.

5.13 Pet Waste Study

Molly Welsh, a University of Rhode Island (URI) Environmental Science and Management Major has contacted the Rhode Island Department of Health (HEALTH) Beach Program regarding conducting a study of contamination sources at Rhode Island (RI) Beaches. The Beach Program recommended a “Pet Waste” study/outreach program for the State of RI.

Ms. Welsh’s aim is to investigate the extent of pet waste contamination to coastal waters in Rhode Island; develop a database of the different rules concerning dogs on Rhode Island public, and private beaches; and to create an education and outreach effort using brochures and public service announcements to communicate how important it is for citizens to clean up after their animals. She received a grant for the work which will be used for laboratory analysis and the printing of educational brochures.

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Appendix A

Rules and Regulations for Licensing of Recreational Facilities

**RULES AND REGULATIONS FOR
LICENSING OF RECREATIONAL FACILITIES**

[R23-21-RF]

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF HEALTH

May 1980

AS AMENDED

June 1983

**January 2002 (re-filing in accordance with
the provisions of section 42-35-4.1 of the
Rhode Island General Laws, as amended)**

These amended rules and regulations are promulgated pursuant to the authority conferred under sections 23-1-5, 23-1-17 and 23-21-4 of the General Laws of Rhode Island of 1956, as amended, and are established for the purpose of defining the minimal standards for recreational facilities consistent with statutory provisions.

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PART A DEFINITIONS AND ADMINISTRATION

Section 1.0 DEFINITIONS

Wherever used in these rules and regulations the following terms shall be construed as follows:

- 1.1 "Adequate" shall mean that which is needed to accomplish the intended purpose in keeping with good public health practice.
- 1.2 "Amusement Place" shall mean any tract of land together with the structures located thereon, the principle use of which is to provide a "midway" of amusement, or animal or vehicle racing for public amusement or recreation.
- 1.3 "Bathing" shall mean swimming and the related activities connected thereto.
- 1.4 "Bathing Beach" shall mean any natural area or tract of land which is used in connection with swimming and/or bathing in any waters of the state provided:
 - (a) It is open to the public by permit and/or payment of a fee; or
 - (b) It is maintained as a private club or association requiring membership fee or dues; or
 - (c) It is maintained with or without charge for the recreation of groups of ten (10) or more children.
- 1.5 "Department" shall mean Rhode Island Department of Health.
- 1.6 "Director" shall mean the Director of the Rhode Island Department of Health or his duly authorized agents.
- 1.7 "Drainage Unit" shall mean a pit filled with crushed stone for soil absorption of potable water overflow at drinking facilities or watering stations.
- 1.8 "Family Camp" shall mean any place maintained to accommodate tents, mobile camping units, trailers, recreation vehicles, etc., in which separate sites are provided or made available for individuals, families or other groups of similar size. Service buildings may or may not be provided.
 - (a) "Primitive Family Camp" shall mean a place provided to accommodate camping with or without tents and/or shelters. Such places are usually NOT accessible to automobiles and/or recreation vehicles. A primitive family camp is a site at which basic needs for camp operation such as buildings, water supply systems, toilets, lavatories, showers and cooking facilities are NOT usually provided.
 - (b) "Caravan, Safari, Rally" shall mean an affiliated group of recreational vehicles assembled for a short term camping experience.
- 1.9 "Family Campsite" shall mean a portion of land in a camping area for the placement of a recreational vehicle and/or tent for the exclusive use of its occupants.
- 1.10 "Garbage" shall mean the putrescible animal and vegetable wastes that result from the handling, preparation and consumption of food.

- 1.11 "Hotel, Motel, Motor Court, Inn, Tourist Cabins" shall mean any building or group of buildings with six or more rooms, or accommodations for more than eight individuals, used for temporary occupancy for lodging or sleeping and further provided they are served by a private or non-community water supply or individual sewage disposal system.
- 1.12 "Mobile Home" shall mean a prefabricated, one-family dwelling unit, to which temporary wheels can be attached for transportation to a permanent location or foundation. Mobile homes are excluded from the provisions of these regulations.
- 1.13 "Operator" shall refer to any person who:
- (a) Alone or jointly or severally with others owns an establishment covered in these regulations; or
 - (b) Has care, charge or control of an establishment as agent or lessee of the owner or as an independent contractor.
- 1.14 "Person" will be held to mean any individual, firm, co-partnership, association or private or municipal corporation.
- 1.15 "Plastic Waste Insert" shall mean any liner which consists of a non-dissolvable material used as a convenience for the collection and disposal of refuse and human waste; e.g., liners for portable "Jonny" camp units, can liners, etc.
- 1.16 "Potable Water" shall mean water free from impurities present in amounts sufficient to cause disease or harmful physiological effects and conforming in its bacteriological, radiological and chemical quality to the requirement of the Rhode Island Department of Health Public Drinking Water Regulations.
- 1.17 "Primitive or Outpost Youth/Adult Camp" shall mean a camp or other site at which the basic needs such as places of abode, water supply systems and permanent toilet and cooking facilities are not usually provided.
- 1.18 "Recreation Facility" shall mean to include but not be limited to hotels, motels, motor courts or inns, tourist cabins establishments, camping areas, amusement places, bathing beaches, mobile recreational vehicle facilities and parks.
- 1.19 "Recreational Vehicle" shall mean a vehicle which may or may not be motor propelled, that is used primarily for recreation purposes on land. It includes motor homes, travel trailers, "pop-top" trailers, fold-out trailers, vans and other similar vehicles primarily designed for camping or overnight occupancy.
- (a) "Dependent Recreational Vehicle" shall mean a vehicle which has no permanent toilet, lavatory and shower facilities and is dependent upon a service building for toilet, lavatory and shower facilities.
 - (b) "Independent or Self-Contained Recreational Vehicle" shall mean a vehicle which can operate independent of connections to sewer, water and electric systems. It may contain a water-flushed toilet, lavatory, bath, shower and kitchen sink, all of which are connected to water storage and sewage holding tanks located within the vehicle.

- 1.20 "Refuse" shall mean all putrescible and non-putrescible solid wastes including garbage, rubbish, ashes and biological wastes.
- 1.21 "Rubbish" shall mean all non-putrescible solid wastes consisting of both combustible and non-combustible materials such as paper, tin cans, glass bottles, bedding, rags, crockery, metals, etc.
- 1.22 "Sanitary Station (Dump Station)" shall mean a facility used for receiving and disposing of wastes from various types of holding tanks.
- 1.23 "Sanitary Sewage" shall mean any human or animal excremental liquid or substance including the discharge of water closets, laundry tubs, washing machines, sinks, dishwashers and the contents of septic tanks, cesspools or privies. Waste water from dishwashing procedures, handwashing, bathing and shower facilities will be considered sewage.
- 1.24 "Service Building" shall mean a structure housing toilets, lavatories, showers and such other facilities as may be required.
- 1.25 "Shall or Must" shall be used to state mandatory requirements.
- 1.26 "Should or May" shall be used to state recommended or advisory procedures or equipment.
- 1.27 "Travel Trailer" shall mean a vehicular, portable structure built on a chassis with permanent wheels for the purpose of towing from place to place as a temporary residence for travel, recreation or vacation use.
- 1.28 "Watering Station" shall mean a centralized potable water supply outlet.
- 1.29 "Youth/Adult Camp" shall mean any camp, primitive or outpost camp, or residential camp which conducts a program for 10 or more campers.
 - (a) "Day Camp" - A camp operated for less than 24 hours in any one day not including day care centers as defined in section 23-28.1-5 of the General Laws. Day campers will be limited to two overnight programs per week.
 - (b) "Residential Camp" shall mean a camp which provides overnight facilities.

Section 2.0 ADMINISTRATION

- 2.1 ISSUANCE AND EXPIRATION OF LICENSE - No person shall maintain within this state any recreation facility or use as defined in Section 1.0 until such person shall have obtained a license therefore from the department in accordance with the requirements of section 2 of Chapter 23-21 of the General Laws of Rhode Island of 1956, as amended. Licenses are not transferable. All licenses must be prominently displayed at the licensed location.
- 2.2 LICENSE APPLICATION - The initial application for a license must be on forms provided. A detailed plan drawn to scale showing the entire site, location and layout of buildings, recreational vehicle sites, complete details of water supplies, pumps and service including well logs, sewage and refuse disposal units, bathing areas and all available unit sites must be approved by the Director prior to any construction and before any license can be issued. Plans and construction must comply with

all applicable existing laws and regulations. Additions or alterations subsequent to the submission of such will be made only with the approval of the Director.

- 2.3 **SUSPENSION OR REVOCATION OF LICENSE** - The Director may suspend or revoke any license for violation of the provisions of Chapter 23-21 of the Rhode Island General Laws or these regulations. The provisions of section 3 of Chapter 23-21 shall apply.
- 2.4 **VARIANCES** - In the event of special situations or unusual conditions, the Director may grant variances to these regulations. Requests for variances will be submitted in writing and detail to the licensing authority.
- 2.5 **RETROACTIVITY** - Recreational facilities licensed by the Department prior to 10 June 1980, the effective date of these rules and regulations, may be deemed acceptable with respect to said design and construction if they are capable of being maintained in a sanitary condition that protects the public health.
- 2.6 **PENALTY FOR VIOLATIONS** - Any person who violates the foregoing regulations shall be subject to the provisions of section 8 of Chapter 23-21 of the General Laws of Rhode Island of 1956, as amended, entitled Licensing of Recreational Facilities.
- 2.7 **SEVERABILITY** - If any provision of these regulations or the application thereof to any facility or circumstance shall be held invalid, such invalidity shall not affect the provisions or application of the regulations which can be given effect, and to this end the provisions of the regulations are declared to be severable.

PART B GENERAL REQUIREMENTS

Section 3.0 ANIMALS AND PETS

- (a) No owner or person in charge of a dog, cat or other pet animal shall permit it to run at large or to commit any nuisance within the limits of any recreational facility under these regulations. Any kennels, pens or other areas provided for such pets shall be maintained in a sanitary condition at all times.
- (b) The applicable provisions of Title 4, entitled Animal Health of the General Laws of Rhode Island of 1956, as amended, shall apply where applicable.
- (c) Horses and other farm animals must be stabled at least five hundred (500) feet away from living quarters, dining halls and kitchens in order to minimize odor and nuisance problems. Temporary shelters, corrals, tie rails or hitching posts shall not be located within two hundred (200) feet of any dining hall or other place where food is prepared, cooked or served. Stables must have cleanable floors properly drained and maintained. Drainage from stables and temporary quarters shall not contaminate any spring, stream, lake or other water drainage. All manure must be removed, stored or disposed of in a manner that prevents insect breeding.

Section 4.0 REPORTING OF COMMUNICABLE DISEASE

- 4.1 Cases of communicable disease designated as "reportable diseases" by the Director of Health shall be reported promptly to the Rhode Island Department of Health in accordance with the "Regulations

Pertaining to Reporting of Communicable Disease" of the Rhode Island Department of Health.

- (a) When infectious diseases present a potential hazard or occur in epidemic form in campers, these shall be reported to the Rhode Island Department of Health, even if not designated as "reportable diseases".

Section 5.0 CURTAILMENT OF UTILITIES OR SERVICES

- 5.1 No person shall cause the water, or sewage disposal, service facility or equipment which is required to be made available under these minimum standards to be shut off or removed except for such temporary period as may be necessary during actual repairs or alterations or during temporary emergencies when curtailment of service is approved by the Director.

Section 6.0 ELECTRICAL DISTRIBUTION SYSTEM

- 6.1 Electrical wiring system provided shall consist of approved fixtures, equipment and appurtenances installed and maintained in accordance with the State Building Code.

Section 7.0 FOOD SERVICE

- 7.1 All food operations will comply with the requirements of Chapters 23-1, 21-27 and 21-31 of the General Laws of 1956, as amended, and the regulations adopted thereunder.

Section 8.0 LAUNDRY FACILITIES

- (a) If laundry facilities are provided in a recreational facility, there must be a separate room or building set aside for the use of washing machines and this use confined to the inhabitants of that recreational facility;
- (b) All laundry rooms will have floors that are impervious to water, easily cleaned and sloped to floor drains connected to the sewerage disposal system. The floors will be maintained in a sanitary condition at all times. Walls and partitions in laundries will be constructed of easily cleanable and impervious material;
- (c) Laundries will have 40 foot candles of lighting and be properly ventilated.

Section 9.0 PEST CONTROL

- (a) Grounds, buildings, parking areas, and structures must be maintained reasonably free of insect and rodent infestation and harborages;
- (b) Extermination methods and other measures to control pests must conform with requirements of the Department of Environmental Management where applicable or as approved by the Director.

Section 10.0 REFUSE STORAGE AND DISPOSAL

- (a) The operator shall provide an adequate storage area and maintain, in a clean and sanitary condition, as many receptacles for the storage of garbage and rubbish as are necessary to contain the accumulation between collections. Garbage and rubbish should be disposed of at

least twice weekly;

- (b) Garbage must be stored in fly-tight, water-tight, rodent-proof receptacles of metal or other durable material and properly covered;
- (c) The storage, collection and disposal of refuse must be so conducted as to create no health hazards, rodent harborage, insect breeding areas, accident or fire hazards or air pollution;
- (d) When garbage and rubbish is to be disposed of on the grounds, disposal must be approved by the Director of Environmental Management and shall be in accordance with Chapter 46, Title 23.

Section 11.0 SEPTIC TANK CLEANERS

11.1 Any establishment under these regulations that has apparatus for the removal of septage or sanitary sewage must comply with the provisions of Chapter 23-49, Rhode Island General Laws of 1956, as amended.

Section 12.0 SEWAGE DISPOSAL FACILITIES

- (a) Sewage must be disposed of in accordance with rules and regulations adopted under the authority of section 42-17.1-2(L), (M) and (R) of the Public Laws of 1978, Chapter 131, section 6;
- (b) Primitive or outpost camps will utilize methods approved by the Director.

Section 13.0 SWIMMING POOLS AND BATHING BEACHES

- (a) Where a swimming pool is provided, it will be constructed and operated in accordance with Chapter 23-22 of the General Laws of 1956, as amended, and all state regulations applicable;
- (b) Bathing beach water must meet bacteriological and safety standards as determined by the department, or the Department of Environmental Management.

Section 14.0 TOILETS, LAVATORIES AND SHOWERS

- (a) Each recreational facility will provide the number of toilets, showers or lavatories or fraction thereof as cited in Tables HIV of the appendix, and such facilities will be maintained clean, sanitary, well-lighted and in good repair;
- (b) Handwashing facilities will be adjacent to toilet facilities and urinals;
- (c) Potable hot and cold running water will be provided at all showers and lavatories unless a variance has been granted;
- (d) Approved hand cleaner and approved hand drying facilities will be provided at all lavatories unless a variance has been granted;
- (e) Proper ventilation will be provided;
- (f) 40 foot candles of light will be provided unless otherwise exempted;

- (g) Duckboards will not be used in showers.

Section 15.0 WATER SUPPLY

- (a) The operator of all recreational facilities will supply potable water, under pressure, adequate for the needs of such facility. The water supply must be obtained from a source approved in writing by the Department and so distributed as to be readily available. If there is more than one well serving the recreational facility, each well must be visually, readily identifiable by name, number, color or some other means on or about the well;
- (b) The operator shall install and maintain all pipes and pumps delivering potable water in accordance with the State Building Code;
- (c) There must be no physical connection between any pipe carrying water from a potable water source and any pipe carrying water from any other source without written approval of the Director;
- (d) Drinking fountains shall be of a design meeting the following general criteria based on the National Plumbing Code, 1955 revision and installed in accordance with the State Building Code:
 - (1) The fountain shall be constructed of an impervious material and have an easily cleanable bowl and other surfaces;
 - (2) The jet of water must be at an angle preventing water from falling back into the orifice;
 - (3) The end of the nozzle must be protected by guards preventing the person using the fountain from contacting the nozzle;
 - (4) The nozzle must discharge above the edge of the bowl so an air gap is provided to prevent a possible cross-connection;
 - (5) Proper drainage must be provided to carry off water promptly.

PART C SPECIAL REQUIREMENTS

SUBSECTION I

Section 16.0 YOUTH/ADULT CAMPS

- 16.1 Toilets, Urinals and Privies - (1) Non-water carried sewage disposal systems such as pit privies, latrines and urinals may not be less than 100 feet from a kitchen or food service area; (2) Residential camps shall provide handwashing and shower facilities and will meet the minimum requirements as cited in Table II; (3) Sleeping areas shall not be more than 200 feet from a toilet or urinal nor less than 50 feet from any non-water carried toilets and/or urinals.
- 16.2 Handwashing and Showers, Etc. - (1) Handwashing and shower facilities shall be supplied with sufficient warm and cold running water; (2) Showers or bathtubs, when provided, must be in the living quarters or in a centrally located structure; (3) Handwashing facilities, shower stalls, bathtub areas and dressing compartments must be maintained in a clean and sanitary condition; (4) Day camps are not required to provide shower facilities; however, they must meet the requirements cited

in Table III; (5) Primitive or outpost camps are exempt from handwashing and shower facility requirements, as shown in Tables II and III.

- 16.3 Primitive (Outpost) Requirements - Basic standards of sanitation relative to waste and sewage disposal, water supply, lavatory, bathing facilities and food sanitation apply to all primitive camping including but not limited to the following: (1) Counselors must be trained in the basic principles of food protection and sanitation and a list of trained personnel certified by the director of camping for the particular organization shall be available; (2) Each individual shall have available approved clean, fresh water for lavatory needs; (3) Warm water and adequate facilities shall be available for handwashing; (4) Adequate facilities shall be provided for approved methods of sanitizing eating and drinking utensils; (5) slit trenches or "cat hole" disposal of human excreta or other recognized methods of sewage disposal must be provided.

SUBSECTION II

Section 17.0 FAMILY CAMPS

- 17.1 Waste Disposal - (1) One recreational vehicle sanitary station (dump station) with a foot-operated seal cover, or equivalent, providing sanitary closure of the sewer pipe inlet when not in use shall be provided for each 150 family campsites; (2) When potable water is supplied to an individual campsite, an approved means of sewage collection and/or disposal must be provided.
- 17.2 Potable Water Supply - A potable watering station must be provided for supplying recreational vehicle storage tanks. All necessary procedures must be taken to assure the safety of the water supply. A watering station must be at least fifty (50) feet away from a sanitary station. A sign at least two (2) feet by two (2) feet must be posted at each potable water station stating, in proportional lettering, "POTABLE WATER. NOT TO BE USED FOR FLUSHING WASTE TANKS".
- 17.3 Service Building - A central service building containing all necessary toilet and other required plumbing facilities must be provided for all recreational vehicle parking areas, except those reserved exclusively for independent recreational vehicles. Service buildings shall be located convenient to the parking spaces, but in no case more than five hundred (500) feet away. (See Table IV for required plumbing facilities.)
- 17.4 Primitive Camps - Basic standards of sanitation relative to waste and sewage disposal apply. Campers are responsible for using safe water for drinking and culinary purposes.
- 17.5 A Camping Caravan - Safari - Rally may be accommodated in an area maintained and licensed as a recreational facility provided adequate facilities are present to accommodate the types of recreational vehicles or tents involved. A camping caravan - safari - rally may be held on land not maintained as a recreational facility if prior approval is obtained from the Department of Health. Approved, adequate facilities must be readily available for good personal hygienic and public health protection. Approvals are limited to a three (3) day period.

APPENDIX

PLUMBING FIXTURE REQUIREMENTS

Table I

Motels, Hotels, Cabins, Amusement Places, Bathing Beaches

Facility	Toilets	Urinals	Handwashing Facilities	Bathtubs or Showers
Motels, Hotels, Cabins, etc	1*	-	1*	1*
Amusement Places and Bathing Beaches	1/500 Male 1/500 Female	1/500 Male	1/500 Male 1/500 Female	-

*Per dwelling unit

Table II

Youth - Residential Camps

Number Served	Boys		Girls	Boys or Girls	
	Toilets	Urinals	Toilets	Handwashing Facilities	Bathtubs or Showers
1-10	1	-	1	1	1
11-18	1	1	2	2	2
19-33	2	1	2	3	2
34-48	2	2	3	3	3
49-63	3	2	4	4	4
64-79	3	3	5	4	5
80-95	4	3	6	5	6

Table III

Youth - Day Camps

Facilities	Boys	Girls
Toilets*	1/60	1/35
Urinals*	1/60	-
Handwashing*	1/33	1/33

*Per number of individuals served

Table IV

Family Camps

Number of Sites	Toilets		Urinals	Handwashing Facilities		Showers		Other (a)
	Men	Women	Men	Men	Women	Men	Women	
1-30	2	2	1	2	2	1	1	1
31-45	2	2	1	3	3	1	1	1
46-60	2	3	2	3	3	2	2	1
61-80	3	4	2	4	4	2	2	1
81-100	3	4	2	4	4	3	3	1
100+ (b)								

- (a) A flushing toilet (without seat) shall be provided, at each service building, for disposal of liquid wastes unless a sanitary station is conveniently accessible.
- (b) For recreational vehicle areas having more than 100 sites there shall be provided 1 additional toilet and lavatory, for each sex, for each additional 30 sites; 1 additional shower, for each sex, for each additional 40 sites; and 1 additional men's urinal for each additional 100 sites.

Appendix B

Daily Bathing Beach Survey Form

Bathing Beach Survey

Name of Beach: _____ Date: _____ Time: _____ Water Temp: _____

Weather Conditions:

Sunny & Clear _____ Cloudy & Overcast _____ Rainy _____ Foggy _____ Windy _____

Tidal Conditions:

Slow _____ Moderate _____ High _____ High Tide _____ Low Tide _____

Activity on Beach:

Approx.# of People _____ Adults _____ Children _____

Swimming _____ Sunbathing _____ Fishing _____ Boating _____ Walking _____ Other _____

Conditions of the Beach:

Overall Appearance _____ Debris on Beach _____ Debris in Water _____

Vegetation in Water: 1 2 3 4 5
<25% 25% 50% 75% 100% Cover in 1 meter quadrat

Vegetation on Shore: 1 2 3 4 5
<25% 25% 50% 75% 100% Cover in 1 meter quadrat

Width of Wrack on shore (in meters) _____

Visible sewage or sewage odor _____

Conditions of Water:

Clear _____ Cloudy & Murky _____ Oily Film _____

Sources of Pollution:

Waterfowl Approx.#-Seagulls _____ Ducks _____ Geese _____ Swans _____

Approx. # of Boats _____

Wind and Weather Conditions:

Additional Comments:

Appendix C

Rhode Island Beach Program Closure Evaluation Spreadsheet

Rhode Island Department of Health Beach Monitoring Program

Closure Evaluation Spreadsheet

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of Monitored Freshwater Beaches	51	51	49	51	47	50	53	49	50	50	42
Number of Monitored Saltwater Beaches	31	31	70	72	71	69	69	69	74	68	72
Total Number of Monitored Beaches	82	82	119	123	118	119	122	118	124	118	114
Sample Count* (RIDOH - EPA Funded Sampling Only)	515	976	1,779	2,567	2,701	3,211	2,769	1,718	1,655	1,770	1,988
Rainfall Total (Memorial Day - labor Day)	4.93	13.32	6.65	16.34	11.04	6.24	15.54	8.18	9.64	17.24	13.42
Significant Rain Events (>0.5" in 24-hr)	4	7	6	12	9	4	7	6	6	13	11
Closure Events	13	26	27	67	41	30	91	43	52	89	56
Closure Days	103	148	103	459	122	65	351	96	164	230	150

* Sample count estimates do not include approximately 1,000 samples submitted by Beach Operators on an annual basis, which are reviewed by RIDOH.

For up to the minute information, visit us online at www.health.ri.gov or via our hotline at 401-222-2751.

Appendix D

2010 Coastal Beach Action Summary

2010 Coastal Beaches Action Summary

Beach Name	Town/City	Action Type	Action Start Date	Action End Date	Action Duration
Atlantic Beach Club	Middletown	closure	6/15/2010	6/16/2010	1
Atlantic Beach Club	Middletown	closure	7/15/2010	7/16/2010	1
Atlantic Beach Club	Middletown	closure	7/27/2010	7/28/2010	1
Atlantic Beach Club	Middletown	closure	8/18/2010	8/19/2010	1
Atlantic Beach Club	Middletown	closure	8/24/2010	8/26/2010	2
Atlantic Beach Club	Middletown	closure	9/3/2010	9/4/2010	1
Barrington Town Beach	Barrington	closure	7/15/2010	7/15/2010	1
Barrington Town Beach	Barrington	closure	8/4/2010	8/5/2010	1
Bristol Town Beach	Bristol	closure	6/8/2010	6/10/2010	2
Bristol Town Beach	Bristol	closure	6/24/2010	6/25/2010	1
Bristol Town Beach	Bristol	closure	8/17/2010	8/19/2010	2
Camp Fuller - YMCA Beach	South Kingstown	closure	8/18/2010	8/21/2010	3
Camp Grosvenor	North Kingstown	closure	7/1/2010	7/3/2010	2
Camp Grosvenor	North Kingstown	closure	7/7/2010	7/9/2010	2
Camp St. Dorothy	Bristol	closure	7/15/2010	7/20/2010	5
City Park Beach	Warwick	closure	8/24/2010	8/26/2010	2
Conimicut Point Beach	Warwick	closure	6/4/2010	6/8/2010	4
Conimicut Point Beach	Warwick	closure	7/15/2010	7/17/2010	2
Conimicut Point Beach	Warwick	closure	8/5/2010	8/6/2010	1
Conimicut Point Beach	Warwick	closure	8/17/2010	8/18/2010	1
Easton's Beach	Newport	closure	6/5/2010	6/5/2010	1
Easton's Beach	Newport	closure	6/6/2010	6/7/2010	1
Easton's Beach	Newport	closure	8/24/2010	8/26/2010	2
Easton's Beach	Newport	closure	9/3/2010	9/4/2010	1
Fort Adams State Park	Newport	closure	8/24/2010	8/26/2010	2
Goddard Memorial State Park	Warwick	closure	6/15/2010	6/16/2010	1
Goddard Memorial State Park	Warwick	closure	8/12/2010	8/13/2010	1
Goddard Memorial State Park	Warwick	closure	8/17/2010	8/18/2010	1
Goddard Memorial State Park	Warwick	closure	8/24/2010	8/26/2010	2
Hazards Beach	Newport	closure	7/16/2010	7/18/2010	2
Oakland Beach	Warwick	closure	6/18/2010	6/22/2010	4
Oakland Beach	Warwick	closure	7/30/2010	7/31/2010	1
Peabody's Beach	Middletown	closure	6/15/2010	6/16/2010	1
Peabody's Beach	Middletown	closure	8/24/2010	8/26/2010	2
Sandy Point Beach	Portsmouth	closure	7/16/2010	7/17/2010	1
Scarborough State Beach North	Narragansett	closure	8/24/2010	8/25/2010	1
Scarborough State Beach North	Narragansett	closure	9/3/2010	9/4/2010	1
Scarborough State Beach South	Narragansett	closure	8/24/2010	8/25/2010	1
Scarborough State Beach South	Narragansett	closure	9/3/2010	9/4/2010	1
Third Beach	Middletown	closure	6/15/2010	6/16/2010	1
Third Beach	Middletown	closure	8/24/2010	8/26/2010	2
Warren Town Beach	Warren	closure	6/15/2010	6/16/2010	1
Warren Town Beach	Warren	closure	6/24/2010	6/25/2010	1
Warren Town Beach	Warren	closure	7/22/2010	7/23/2010	1
Warren Town Beach	Warren	closure	8/4/2010	8/5/2010	1

Total **70**

Appendix E

2010 Meteorological Data

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
5/28/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	8.0	1.0	2.4	2.5	1.4	5.8	2.2	5.1	0.6	0.5	4.6
	Wind Direction	SW	SSE	SE	SW	SSE	SSW	S	SSW	SW	W	WSW
	Mean Air Temp (F)	66.0	62.7	62.0	61.1	65.3	61.5	61.7	59.5	65.7	63.8	65.1
	Mean Water Temp (F)	72.0	67.5	63.0	67.0	68.0	62.0	65.0	60.5	72.0	72.0	72.0
	Tide - AM low	2:25	2:22	2:33	2:22	2:24	3:38	2:21	2:21	n/a	n/a	n/a
	Tide - PM low	1:55	1:52	2:03	1:52	1:54	3:08	1:51	1:51	n/a	n/a	n/a
	Tide - AM high	8:56	8:56	8:32	8:43	8:52	9:24	8:30	8:30	n/a	n/a	n/a
	Tide - PM high	9:20	9:20	8:56	9:07	9:16	9:48	8:54	8:54	n/a	n/a	n/a
	Lunar cycle	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon
5/29/2010	Precipitation (in)	0.07	0.25	0.02	0.06	0.00	0.09	0.09	0.16	0.36	0.02	0.00
	Wind Speed (mph)	8.0	0.9	2.8	4.6	2.6	6.9	2.8	8.5	1.2	0.9	5.7
	Wind Direction	SSW	SSE	S	SW	SW	SSW	S	SSW	WSW	WSW	WSW
	Mean Air Temp (F)	65.0	62.5	62.5	60.8	66.9	62.7	62.1	58.7	65.7	63.6	66.1
	Mean Water Temp (F)	72.0	67.5	63.0	67.0	68.0	62.0	64.0	60.5	72.0	72.0	72.0
	Tide - AM low	3:04	3:01	3:12	3:01	3:03	4:17	3:00	3:00	n/a	n/a	n/a
	Tide - PM low	2:40	2:37	2:48	2:37	2:39	3:33	2:36	2:36	n/a	n/a	n/a
	Tide - AM high	9:43	9:43	9:19	9:30	9:39	10:11	9:17	9:17	n/a	n/a	n/a
	Tide - PM high	10:05	10:05	9:41	9:52	10:01	10:33	9:39	9:39	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
5/30/2010	Precipitation (in)	0.00	0.19	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	8.0	0.9	4.9	3.3	0.9	4.0	2.4	3.7	0.3	1.1	7.9
	Wind Direction	WNW	SSE	SW	SW	W	SSW	S	SSW	W	WSW	WSW
	Mean Air Temp (F)	72.0	71.1	70.8	70.0	72.1	70.6	70.0	66.8	71.0	69.4	70.4
	Mean Water Temp (F)	72.0	67.6	63.0	67.0	68.0	62.0	64.0	60.5	72.0	72.0	72.0
	Tide - AM low	3:42	3:39	3:50	3:39	3:41	4:55	3:38	3:38	n/a	n/a	n/a
	Tide - PM low	3:24	3:21	3:32	3:21	3:23	4:37	3:20	3:20	n/a	n/a	n/a
	Tide - AM high	10:24	10:29	10:05	10:16	10:25	10:57	10:03	10:03	n/a	n/a	n/a
	Tide - PM high	10:50	10:50	10:26	10:37	10:46	11:18	10:24	10:24	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
5/31/2010	Precipitation (in)	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	9.0	3.0	1.6	2.9	1.8	6.4	2.3	5.2	0.7	1.2	5.7
	Wind Direction	SSE	SSE	SW	SW	W	SSW	S	SSW	W	WSW	WSW
	Mean Air Temp (F)	69.0	68.6	67.3	67.1	69.1	66.3	67.6	64.9	69.9	67.2	70.3
	Mean Water Temp (F)	72.0	67.6	63.0	67.0	68.0	62.0	64.0	60.5	72.0	72.0	72.0
	Tide - AM low	4:19	4:16	4:27	4:16	4:18	5:32	4:15	4:15	n/a	n/a	n/a
	Tide - PM low	4:09	4:06	4:17	4:06	4:08	5:22	4:05	4:05	n/a	n/a	n/a
	Tide - AM high	11:15	11:15	10:51	11:02	11:11	11:43	10:49	10:49	n/a	n/a	n/a
	Tide - PM high	11:35	11:35	11:11	11:22	11:31	--	11:09	11:09	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
6/1/2010	Precipitation (in)	0.09	0.16	0.10	0.14	0.12	0.00	0.00	0.00	0.29	0.17	0.95
	Wind Speed (mph)	8.0	1.1	3.0	4.6	2.4	8.7	3.1	7.8	1.3	1.0	5.1
	Wind Direction	SSW	SSE	S	SW	W	S	SW	S	SW	WNW	SW
	Mean Air Temp (F)	74.0	66.8	67.4	65.9	73.4	67.8	67.4	62.4	71.1	70.1	70.3
	Mean Water Temp (F)	72.2	67.8	63.0	67.0	68.0	62.0	65.0	60.5	72.0	72.0	72.0
	Tide - AM low	4:57	4:54	5:05	4:54	4:48	6:10	4:53	5:07	n/a	n/a	n/a
	Tide - PM low	4:54	4:51	5:02	4:51	4:45	6:07	4:50	5:04	n/a	n/a	n/a
	Tide - AM high	-	-	11:38	11:49	11:52	12:03	11:49	11:40	n/a	n/a	n/a
	Tide - PM high	12:02	12:02	11:56	-	-	12:30	-	11:58	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
6/2/2010	Precipitation (in)	0.00	0.02	0.00	0.01	0.12	0.00	0.01	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	0.6	1.0	1.9	1.6	10.0	2.4	3.4	0.3	0.7	3.3
	Wind Direction	S	SSE	SSW	SW	WSW	S	SW	S	WSW	WNW	SW
	Mean Air Temp (F)	71.0	67.7	66.4	65.6	71.0	72.0	67.2	63.2	70.9	70.4	71.2
	Mean Water Temp (F)	72.2	67.8	63.0	67.0	68.0	62.0	65.0	60.5	72.0	72.0	72.0
	Tide - AM low	5:37	5:34	5:45	5:34	5:28	6:50	5:33	5:47	n/a	n/a	n/a
	Tide - PM low	5:43	5:40	5:51	5:40	5:34	6:56	5:39	5:53	n/a	n/a	n/a
	Tide - AM high	12:20	12:20	-	12:07	12:10	12:48	12:07	-	n/a	n/a	n/a
	Tide - PM high	12:48	12:48	12:24	12:35	12:38	1:16	12:35	12:26	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
6/3/2010	Precipitation (in)	0.02	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.03	0.14
	Wind Speed (mph)	8.0	1.2	1.7	3.1	2.7	6.7	3.4	7.1	1.3	1.4	5.1
	Wind Direction	S	S	S	SSW	ENE	SSE	W	S	SW	NE	NE
	Mean Air Temp (F)	71.0	64.1	64.0	62.9	72.9	64.5	63.2	60.4	70.9	68.1	71.0
	Mean Water Temp (F)	72.2	67.8	63.0	67.0	68.0	62.0	65.0	60.5	72.0	72.0	72.0
	Tide - AM low	6:20	6:17	6:28	6:17	6:11	7:33	6:16	6:30	n/a	n/a	n/a
	Tide - PM low	6:40	6:37	6:48	6:37	6:31	7:53	6:36	6:50	n/a	n/a	n/a
	Tide - AM high	1:03	1:03	12:39	12:50	12:53	1:31	12:50	12:41	n/a	n/a	n/a
	Tide - PM high	1:42	1:32	1:08	1:19	1:22	2:00	1:19	1:10	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
6/4/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
	Wind Speed (mph)	6.0	0.2	0.5	1.1	1.5	3.6	1.6	3.1	0.2	0.5	2.8
	Wind Direction	SE	SSE	SE	SSE	SE	SSE	S	SSE	NNW	SE	S
	Mean Air Temp (F)	73.0	70.0	72.4	66.1	72.7	67.0	68.5	64.3	72.5	71.9	71.8
	Mean Water Temp (F)	72.0	68.0	63.0	67.0	68.0	62.0	65.0	65.0	72.0	72.0	72.0
	Tide - AM low	7:09	7:06	7:17	7:06	7:00	8:22	7:05	7:19	n/a	n/a	n/a
	Tide - PM low	7:50	7:47	7:58	7:47	7:41	9:03	7:46	8:00	n/a	n/a	n/a
	Tide - AM high	1:46	1:46	1:22	1:33	1:36	2:14	1:33	1:24	n/a	n/a	n/a
	Tide - PM high	2:17	2:17	1:53	2:04	2:07	2:45	2:04	1:55	n/a	n/a	n/a
	Lunar cycle	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter
6/5/2010	Precipitation (in)	1.21	0.05	0.01	1.44	1.57	0.03	0.87	0.00	0.07	1.10	0.44
	Wind Speed (mph)	7.0	0.4	1.4	3.0	1.2	6.2	2.7	6.2	0.7	0.4	4.5
	Wind Direction	S	SSE	SSW	S	S	SSW	S	S	WSW	SSE	SW
	Mean Air Temp (F)	73.0	70.6	64.5	67.8	70.7	71.0	68.1	63.6	74.1	72.4	73.9
	Mean Water Temp (F)	72.0	68.0	63.0	67.0	68.0	62.0	65.0	65.0	72.0	72.0	72.0
	Tide - AM low	8:04	8:01	8:12	8:01	7:55	9:17	8:00	8:14	n/a	n/a	n/a
	Tide - PM low	9:10	9:07	9:18	9:07	9:01	10:23	9:06	9:20	n/a	n/a	n/a
	Tide - AM high	2:31	2:31	2:07	2:18	2:21	2:59	2:18	2:09	n/a	n/a	n/a
	Tide - PM high	3:02	3:02	2:38	2:49	2:52	3:30	2:49	2:40	n/a	n/a	n/a
	Lunar cycle	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent
6/6/2010	Precipitation (in)	0.01	0.33	--	0.00	0.12	0.16	0.02	0.00	0.00	0.02	0.01
	Wind Speed (mph)	11.0	2.1	--	4.8	2.5	9.3	3.5	7.2	1.7	2.2	7.4
	Wind Direction	SW	S	--	WSW	SW	SW	SW	SSW	WSW	S	W
	Mean Air Temp (F)	72.0	65.5	--	68.6	74.4	70.7	69.9	65.0	75.1	72.5	74.0
	Mean Water Temp (F)	72.0	68.0	61.0	67.0	68.0	62.0	65.0	65.0	72.0	72.0	72.0
	Tide - AM low	9:00	8:57	9:08	8:57	8:51	10:13	8:56	9:10	n/a	n/a	n/a
	Tide - PM low	10:13	10:10	10:21	10:10	10:04	11:26	10:09	10:23	n/a	n/a	n/a
	Tide - AM high	3:20	3:20	2:56	3:07	3:10	3:48	3:07	2:58	n/a	n/a	n/a
	Tide - PM high	3:51	3:51	3:27	3:38	3:41	4:19	3:38	3:29	n/a	n/a	n/a
	Lunar cycle	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent
6/7/2010	Precipitation (in)	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	11.0	1.9	--	6.0	1.1	6.2	4.0	5.3	0.3	1.5	10.0
	Wind Direction	NW	WNW	--	NNW	W	NW	N	NW	S	N	NNW
	Mean Air Temp (F)	66.0	68.2	--	64.1	64.9	65.0	64.0	62.7	65.3	62.4	64.0
	Mean Water Temp (F)	72.0	68.0	61.0	67.0	68.0	62.0	65.0	65.0	72.0	70.0	71.0
	Tide - AM low	9:50	9:47	9:58	9:47	9:41	11:03	9:46	10:00	n/a	n/a	n/a
	Tide - PM low	11:03	11:00	11:11	11:00	10:54	-	10:59	11:13	n/a	n/a	n/a
	Tide - AM high	4:13	4:13	3:49	4:00	4:03	4:41	4:00	3:51	n/a	n/a	n/a
	Tide - PM high	4:42	4:42	4:18	4:29	4:32	5:10	4:29	4:20	n/a	n/a	n/a
	Lunar cycle	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent
6/8/2010	Precipitation (in)	0.01	0.00	--	0.12	0.00	0.12	0.00	0.00	0.04	0.01	0.00
	Wind Speed (mph)	8.0	1.1	--	3.2	0.0	5.1	2.6	3.2	0.1	0.8	7.5
	Wind Direction	NW	WNW	--	NW	NW	NNW	N	NNW	WSW	N	NW
	Mean Air Temp (F)	63.0	63.6	--	62.6	61.0	62.0	61.7	60.3	61.5	58.9	61.0
	Mean Water Temp (F)	72.0	68.0	61.0	67.0	68.0	62.0	65.0	65.0	71.0	70.0	70.0
	Tide - AM low	10:37	10:34	10:45	10:34	10:28	12:16	10:33	10:47	n/a	n/a	n/a
	Tide - PM low	11:49	11:46	11:57	11:46	11:40	11:50	11:45	11:59	n/a	n/a	n/a
	Tide - AM high	5:10	5:10	4:46	4:57	5:00	5:38	4:57	4:48	n/a	n/a	n/a
	Tide - PM high	5:34	5:34	5:10	5:21	5:24	6:02	5:21	5:12	n/a	n/a	n/a
	Lunar cycle	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent
6/9/2010	Precipitation (in)	0.27	0.21	--	0.14	0.12	0.00	0.00	0.12	0.09	0.19	0.43
	Wind Speed (mph)	6.0	0.0	--	1.6	0.2	0.3	1.5	2.0	0.1	0.2	3.3
	Wind Direction	S	SE	--	SE	SW	N	SSE	ESE	WSW	SSE	SW
	Mean Air Temp (F)	60.0	57.9	--	57.8	59.4	54.0	57.6	55.2	57.7	55.3	57.4
	Mean Water Temp (F)	72.0	68.0	61.0	65.0	68.0	62.0	64.0	64.0	70.0	69.0	69.0
	Tide - AM low	11:21	11:18	11:29	11:18	11:12	1:02	11:17	11:31	n/a	n/a	n/a
	Tide - PM low	-	-	-	-	-	12:34	-	-	n/a	n/a	n/a
	Tide - AM high	6:04	6:04	5:40	5:51	5:54	6:32	5:51	5:42	n/a	n/a	n/a
	Tide - PM high	6:24	6:24	6:00	6:11	6:14	6:52	6:11	6:02	n/a	n/a	n/a
	Lunar cycle	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent
6/10/2010	Precipitation (in)	0.20	0.07	0.35	0.21	0.51	0.27	0.31	0.12	0.25	0.52	0.23
	Wind Speed (mph)	6.0	0.3	0.4	2.8	0.0	1.2	2.5	4.4	0.3	0.4	5.4
	Wind Direction	E	ESE	ESE	NE	ESE	E	SE	ENE	NE	ESE	ENE
	Mean Air Temp (F)	62.0	58.2	59.1	58.3	62.5	59.3	53.9	56.1	58.0	58.4	57.4
	Mean Water Temp (F)	72.0	68.0	65.0	64.0	68.0	62.0	63.0	64.0	69.0	69.0	69.0
	Tide - AM low	12:36	12:33	12:44	12:33	12:27	1:49	12:32	12:46	n/a	n/a	n/a
	Tide - PM low	12:05	12:02	12:13	12:02	11:56	1:18	12:01	12:15	n/a	n/a	n/a
	Tide - AM high	6:55	6:55	6:31	6:42	6:45	7:23	6:42	6:33	n/a	n/a	n/a
	Tide - PM high	7:12	7:12	6:48	6:59	7:02	7:40	6:59	6:50	n/a	n/a	n/a
	Lunar cycle	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
6/11/2010	Precipitation (in)	T	0.00	0.01	0.02	0.00	0.01	0.01	0.00	0.11	0.00	0.00
	Wind Speed (mph)	6.0	0.4	0.5	1.5	1.6	0.7	0.9	4.3	0.5	0.4	4.7
	Wind Direction	NE	SE	S	S	SW	SW	SSW	SW	WNW	NNE	N
	Mean Air Temp (F)	61.0	59.9	59.8	58.6	64.3	59.2	59.1	57.5	60.4	69.0	60.7
	Mean Water Temp (F)	72.0	68.0	65.0	64.0	68.0	62.0	63.0	63.0	70.0	69.0	69.0
	Tide - AM low	1:23	1:20	1:31	1:20	1:14	2:36	1:19	1:33	n/a	n/a	n/a
	Tide - PM low	12:51	12:48	12:59	12:48	12:42	2:04	12:47	1:01	n/a	n/a	n/a
	Tide - AM high	7:43	7:43	7:19	7:30	7:33	8:11	7:30	7:21	n/a	n/a	n/a
	Tide - PM high	8:00	8:00	7:36	7:47	7:50	8:28	7:47	7:38	n/a	n/a	n/a
	Lunar cycle	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent	Wanning Crescent
6/12/2010	Precipitation (in)	0.37	0.15	0.35	0.03	0.24	0.27	0.13	0.08	0.14	0.05	0.52
	Wind Speed (mph)	6.0	0.3	1.8	2.7	0.9	1.3	2.9	2.2	0.3	0.5	3.6
	Wind Direction	S	S	WSW	SW	SW	SW	WSW	SSW	WSW	Sse	SW
	Mean Air Temp (F)	63.0	61.7	61.9	60.8	65.9	61.0	61.2	59.2	63.2	63.7	62.6
	Mean Water Temp (F)	72.0	68.0	65.0	64.0	68.0	62.0	63.0	63.0	70.0	69.0	70.0
	Tide - AM low	2:10	2:07	2:18	2:07	2:01	3:23	2:06	2:20	n/a	n/a	n/a
	Tide - PM low	1:39	1:36	1:47	1:36	1:30	2:52	1:35	1:49	n/a	n/a	n/a
	Tide - AM high	8:31	8:31	8:07	8:18	8:21	8:59	8:18	8:09	n/a	n/a	n/a
	Tide - PM high	8:47	8:47	8:23	8:34	8:37	9:15	8:34	8:25	n/a	n/a	n/a
	Lunar cycle	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon
6/13/2010	Precipitation (in)	0.39	0.68	0.83	1.64	0.24	0.52	0.72	1.10	0.70	0.92	0.34
	Wind Speed (mph)	7.0	0.8	1.4	4.1	0.3	1.0	1.1	1.0	0.8	0.8	7.1
	Wind Direction	NE	NNE	N	NNE	NNE	NNE	SE	S	NE	N	NNE
	Mean Air Temp (F)	66.0	64.4	64.5	63.8	67.2	65.0	63.4	61.2	63.1	63.4	63.1
	Mean Water Temp (F)	72.0	68.0	65.0	65.0	68.0	62.0	63.0	63.0	70.0	69.0	70.0
	Tide - AM low	2:57	2:54	3:05	2:54	2:48	4:10	2:53	3:07	n/a	n/a	n/a
	Tide - PM low	2:29	2:26	2:37	2:26	2:20	3:42	2:25	2:39	n/a	n/a	n/a
	Tide - AM high	9:20	9:20	8:56	9:07	9:10	9:48	9:07	8:58	n/a	n/a	n/a
	Tide - PM high	9:37	9:37	9:13	9:24	9:27	10:05	9:24	9:15	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
6/14/2010	Precipitation (in)	T	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
	Wind Speed (mph)	6.0	0.5	2.0	3.3	0.0	1.1	1.2	1.2	0.2	0.3	5.3
	Wind Direction	NE	NE	NW	NNW	S	SW	NW	S	NNE	N	NNW
	Mean Air Temp (F)	67.0	64.3	65.4	64.0	69.0	65.2	64.2	61.9	68.0	66.5	67.0
	Mean Water Temp (F)	72.0	68.0	65.0	65.0	68.0	62.0	63.0	63.0	70.0	69.0	70.0
	Tide - AM low	3:43	3:40	3:51	3:40	3:34	4:56	3:39	3:53	n/a	n/a	n/a
	Tide - PM low	3:20	3:17	3:28	3:17	3:11	4:33	3:16	3:30	n/a	n/a	n/a
	Tide - AM high	10:10	10:10	9:46	9:57	10:00	10:38	9:57	9:48	n/a	n/a	n/a
	Tide - PM high	10:28	10:28	10:04	10:15	10:18	10:56	10:15	10:06	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
6/15/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	8.0	0.5	1.5	4.0	0.3	1.2	1.6	1.6	0.7	0.8	6.2
	Wind Direction	SSW	SE	NNW	NNE	S	S	WNW	S	NNW	ENE	N
	Mean Air Temp (F)	68.0	66.2	65.8	64.8	71.0	65.4	65.4	62.8	68.9	66.0	68.8
	Mean Water Temp (F)	72.0	68.0	66.0	65.0	68.0	63.0	63.0	62.0	71.0	69.0	70.0
	Tide - AM low	4:26	4:23	4:34	4:23	4:17	5:39	4:22	4:36	n/a	n/a	n/a
	Tide - PM low	4:12	4:09	4:20	4:09	4:03	5:25	4:08	4:22	n/a	n/a	n/a
	Tide - AM high	11:03	11:03	10:39	10:50	10:53	11:31	10:50	10:41	n/a	n/a	n/a
	Tide - PM high	11:21	11:21	10:57	11:08	11:11	11:49	11:08	10:59	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
6/16/2010	Precipitation (in)	0.36	0.02	0.04	0.00	0.08	0.02	0.04	0.00	0.02	0.32	0.00
	Wind Speed (mph)	7.0	0.8	1.3	2.7	0.5	1.3	2.7	2.7	0.8	1.2	3.6
	Wind Direction	SSW	SSE	SSW	S	SW	SSW	SSW	S	WSW	S	SW
	Mean Air Temp (F)	65.0	65.1	65.3	64.3	67.3	64.2	64.7	63.0	65.5	63.3	64.8
	Mean Water Temp (F)	72.0	68.0	66.0	65.0	69.0	63.0	64.0	61.0	71.0	69.0	70.0
	Tide - AM low	5:10	5:07	5:18	5:07	5:01	6:23	5:06	5:20	n/a	n/a	n/a
	Tide - PM low	5:07	5:04	5:15	5:04	4:58	6:20	5:03	5:17	n/a	n/a	n/a
	Tide - AM high	11:57	11:57	11:33	11:44	11:47	-	11:44	11:35	n/a	n/a	n/a
	Tide - PM high	-	-	11:51	-	-	12:25	-	11:53	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
6/17/2010	Precipitation (in)	0.01	0.03	0.03	0.01	0.04	0.03	0.03	0.04	0.09	0.02	0.00
	Wind Speed (mph)	9.0	1.2	5.2	4.6	1.6	3.3	2.5	2.5	0.5	1.8	8.1
	Wind Direction	WNW	WNW	NW	NNW	W	WNW	NNW	NNW	SW	NNE	NW
	Mean Air Temp (F)	70.0	68.5	69.0	68.2	71.5	69.4	67.5	64.9	69.1	68.6	69.1
	Mean Water Temp (F)	72.0	68.0	66.0	65.0	69.0	63.0	64.0	63.0	72.0	69.0	70.0
	Tide - AM low	5:56	5:53	6:04	5:53	5:47	7:09	5:52	6:06	n/a	n/a	n/a
	Tide - PM low	6:07	6:04	6:15	6:04	5:58	7:20	6:03	6:17	n/a	n/a	n/a
	Tide - AM high	12:15	12:15	-	12:02	12:05	12:43	12:02	-	n/a	n/a	n/a
	Tide - PM high	12:52	12:52	12:28	12:39	12:42	1:20	12:39	12:30	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
6/18/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
	Wind Speed (mph)	6.0	0.2	1.3	1.9	1.1	1.0	1.6	1.5	0.3	0.2	4.6
	Wind Direction	WSW	S	W	WSW	SW	SW	WNW	WNW	W	NE	NW
	Mean Air Temp (F)	72.0	69.9	71.1	70.0	74.0	69.1	71.2	65.1	74.4	70.7	72.9
	Mean Water Temp (F)	73.0	69.0	66.0	66.0	69.0	63.0	64.0	64.0	73.0	70.0	70.0
	Tide - AM low	6:47	6:44	6:55	6:44	6:38	8:00	6:43	6:57	n/a	n/a	n/a
	Tide - PM low	7:21	7:18	7:29	7:18	7:12	8:34	7:17	7:31	n/a	n/a	n/a
	Tide - AM high	1:10	1:10	12:46	12:57	1:00	1:38	12:57	12:48	n/a	n/a	n/a
	Tide - PM high	1:48	1:48	1:24	1:35	1:38	2:16	1:35	1:26	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
6/19/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	9.0	1.1	1.9	2.9	2.5	2.1	3.3	3.0	1.3	1.9	6.0
	Wind Direction	SSW	SSE	SW	SSW	SW	SSW	SW	S	WSW	S	WNW
	Mean Air Temp (F)	71.0	68.2	68.6	67.8	71.5	65.5	69.4	64.1	74.0	68.4	73.4
	Mean Water Temp (F)	73.0	69.0	71.0	66.0	69.0	63.0	65.0	64.0	73.0	70.0	71.0
	Tide - AM low	7:45	7:42	7:53	7:42	7:36	8:58	7:41	7:55	n/a	n/a	n/a
	Tide - PM low	8:57	8:54	9:05	8:54	8:48	10:10	8:53	9:07	n/a	n/a	n/a
	Tide - AM high	2:07	2:07	1:43	1:54	1:57	2:35	1:54	1:45	n/a	n/a	n/a
	Tide - PM high	2:45	2:45	2:21	2:32	2:35	3:13	2:32	2:23	n/a	n/a	n/a
	Lunar cycle	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter
6/20/2010	Precipitation (in)	T	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.11
	Wind Speed (mph)	8.0	0.7	2.6	4.2	2.6	1.6	2.8	2.4	0.7	1.6	6.0
	Wind Direction	SSW	SSE	WSW	SSW	WSW	SW	SW	SW	WSW	S	SW
	Mean Air Temp (F)	77.0	70.0	68.9	68.8	75.3	68.5	70.9	64.6	75.1	74.3	74.2
	Mean Water Temp (F)	74.0	70.0	71.0	66.0	70.0	63.0	65.0	65.0	73.0	70.0	71.0
	Tide - AM low	8:48	8:45	8:56	8:45	8:39	10:01	8:44	8:58	n/a	n/a	n/a
	Tide - PM low	10:16	10:13	10:24	10:13	10:07	11:29	10:12	10:26	n/a	n/a	n/a
	Tide - AM high	3:05	3:05	2:41	2:52	2:55	3:33	2:52	2:43	n/a	n/a	n/a
	Tide - PM high	3:44	3:44	3:20	3:31	3:34	4:12	3:31	3:22	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
6/21/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
	Wind Speed (mph)	7.0	0.3	2.2	1.9	0.8	5.6	1.4	1.2	0.1	0.4	4.9
	Wind Direction	NW	S	WNW	NW	S	W	NNW	NW	n/a	n/a	NNW
	Mean Air Temp (F)	78.0	76.8	76.7	74.9	83.4	76.2	77.0	70.7	78.0	71.7	77.4
	Mean Water Temp (F)	74.0	71.0	71.0	67.0	70.0	67.0	66.0	65.0	74.0	70.0	72.0
	Tide - AM low	9:45	9:42	9:53	9:42	9:36	10:58	9:41	9:55	n/a	n/a	n/a
	Tide - PM low	11:15	11:12	11:23	11:12	11:06	-	11:11	11:25	n/a	n/a	n/a
	Tide - AM high	4:06	4:06	3:42	3:53	3:56	4:34	3:53	3:44	n/a	n/a	n/a
	Tide - PM high	4:45	4:45	4:21	4:32	4:35	5:13	4:32	4:23	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
6/22/2010	Precipitation (in)	0.06	0.05	0.05	0.04	0.04	0.05	0.03	0.04	0.01	--	0.00
	Wind Speed (mph)	7.0	0.2	0.3	2.1	0.6	4.1	1.4	1.2	0.2	--	3.4
	Wind Direction	ESE	NE	ENE	NE	SE	ESE	SSE	S	NW	--	NE
	Mean Air Temp (F)	76.0	73.2	70.8	71.0	73.6	70.9	71.8	68.2	73.6	--	73.5
	Mean Water Temp (F)	74.0	71.0	71.0	67.0	71.0	67.0	66.0	66.0	74.0	70.0	72.0
	Tide - AM low	10:34	10:31	10:42	10:31	10:25	12:28	10:30	10:44	n/a	n/a	n/a
	Tide - PM low	-	-	-	-	11:57	11:47	-	-	n/a	n/a	n/a
	Tide - AM high	5:09	5:09	4:45	4:56	4:59	5:37	4:56	4:47	n/a	n/a	n/a
	Tide - PM high	5:45	5:45	5:21	5:32	5:35	6:13	5:32	5:23	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
6/23/2010	Precipitation (in)	0.53	0.22	0.30	0.23	0.20	0.33	0.15	0.20	0.33	--	0.24
	Wind Speed (mph)	8.0	0.6	3.7	3.2	1.0	7.0	2.6	2.3	0.4	--	6.7
	Wind Direction	SW	WSW	WNW	W	SW	SW	NW	NW	WSW	--	WNW
	Mean Air Temp (F)	77.0	76.4	75.4	75.4	78.8	74.3	74.6	71.4	76.0	--	74.9
	Mean Water Temp (F)	74.0	71.0	71.0	68.0	72.0	67.0	66.0	66.0	74.0	70.0	72.0
	Tide - AM low	12:06	12:03	12:14	12:03	11:11	1:19	12:02	12:16	n/a	n/a	n/a
	Tide - PM low	11:20	11:17	11:28	11:17	-	12:33	11:16	11:30	n/a	n/a	n/a
	Tide - AM high	6:09	6:09	5:45	5:56	5:59	6:37	5:56	5:47	n/a	n/a	n/a
	Tide - PM high	6:40	6:40	6:16	6:27	6:30	7:08	6:27	6:18	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
6/24/2010	Precipitation (in)	0.00	0.00	0.03	0.01	0.00	0.02	0.00	0.00	0.00	--	0.00
	Wind Speed (mph)	10.0	0.4	2.5	3.9	1.5	5.4	2.5	2.0	1.1	--	6.7
	Wind Direction	SW	SW	W	SW	SW	WSW	W	SW	WSW	--	W
	Mean Air Temp (F)	79.0	77.2	76.5	75.7	79.4	75.7	77.4	75.2	78.6	--	77.8
	Mean Water Temp (F)	75.0	72.0	68.0	70.0	72.0	68.0	68.0	67.0	74.0	70.0	73.0
	Tide - AM low	12:52	12:49	1:00	12:49	12:43	2:05	12:48	1:02	n/a	n/a	n/a
	Tide - PM low	12:04	12:01	12:12	12:01	11:55	1:17	12:00	12:14	n/a	n/a	n/a
	Tide - AM high	7:03	7:03	6:39	6:50	6:53	7:31	6:50	6:41	n/a	n/a	n/a
	Tide - PM high	7:31	7:31	7:07	7:18	7:21	7:59	7:18	7:09	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
6/25/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	--	0.00
	Wind Speed (mph)	7.0	0.6	2.1	3.4	1.6	5.5	0.7	0.2	0.4	--	5.4
	Wind Direction	W	SSE	WNW	NNW	SSW	SW	SW	SW	W	--	NW
	Mean Air Temp (F)	74.0	73.5	73.2	71.3	75.3	73.6	64.6	70.0	74.4	--	74.5
	Mean Water Temp (F)	75.0	72.0	70.0	70.0	73.0	69.0	69.0	67.0	75.0	73.0	73.0
	Tide - AM low	1:33	1:30	1:41	1:30	1:24	2:46	1:29	1:43	n/a	n/a	n/a
	Tide - PM low	12:48	12:45	12:56	12:45	12:39	2:01	12:44	12:58	n/a	n/a	n/a
	Tide - AM high	7:52	7:52	7:28	7:39	7:42	8:20	7:39	7:30	n/a	n/a	n/a
	Tide - PM high	8:18	8:18	7:54	8:05	8:08	8:46	8:05	7:56	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
6/26/2010	Precipitation (in)	T	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.01	--	0.00
	Wind Speed (mph)	6.0	0.1	1.5	2.0	1.1	1.1	1.9	1.5	0.4	--	5.0
	Wind Direction	WSW	SSE	W	SSW	SW	W	SW	SW	WSW	--	WNW
	Mean Air Temp (F)	76.0	73.3	67.5	72.3	76.4	74.6	66.7	68.1	74.3	--	74.0
	Mean Water Temp (F)	75.0	72.0	70.0	71.0	73.0	69.0	69.0	68.0	75.0	73.0	73.0
	Tide - AM low	2:10	2:07	2:18	2:07	2:01	3:23	2:06	2:20	n/a	n/a	n/a
	Tide - PM low	1:34	1:31	1:42	1:31	1:25	2:47	1:30	1:44	n/a	n/a	n/a
	Tide - AM high	8:39	8:38	8:14	8:25	8:28	9:06	8:25	8:16	n/a	n/a	n/a
	Tide - PM high	9:01	9:01	8:37	8:48	8:51	9:29	8:48	8:39	n/a	n/a	n/a
	Lunar cycle	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon
6/27/2010	Precipitation (in)	T	0.00	0.17	0.04	0.94	0.10	0.00	0.12	0.00	--	0.00
	Wind Speed (mph)	6.0	0.3	0.7	1.7	3.0	3.8	1.7	1.5	4.0	--	2.4
	Wind Direction	S	SSE	SSW	S	S	SSW	WSW	WSW	WSW	--	SSW
	Mean Air Temp (F)	77.0	73.7	70.4	72.1	81.5	72.4	68.9	67.7	77.0	--	76.5
	Mean Water Temp (F)	75.0	72.0	70.0	71.0	73.0	70.0	70.0	68.0	75.0	73.0	73.0
	Tide - AM low	2:45	2:42	2:53	2:42	2:36	3:58	2:41	2:55	n/a	n/a	n/a
	Tide - PM low	2:20	2:17	2:28	2:17	2:11	3:33	2:16	2:30	n/a	n/a	n/a
	Tide - AM high	9:21	9:21	8:57	9:08	9:11	9:49	9:08	8:59	n/a	n/a	n/a
	Tide - PM high	9:43	9:43	9:19	9:30	9:33	10:11	9:30	9:21	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
6/28/2010	Precipitation (in)	0.66	0.30	0.20	0.14	0.00	0.62	0.35	0.12	0.61	--	0.24
	Wind Speed (mph)	10.0	0.8	8.7	1.9	2.4	6.2	2.9	3.0	1.1	--	6.5
	Wind Direction	SSW	SSE	SW	SSW	WSW	SW	SSW	SSW	WSW	--	WSW
	Mean Air Temp (F)	84.0	75.8	71.2	75.0	81.2	76.5	76.5	76.7	80.2	--	80.2
	Mean Water Temp (F)	77.0	72.0	70.0	73.0	75.0	72.0	71.0	70.0	75.0	74.0	75.0
	Tide - AM low	3:19	3:16	3:27	3:16	3:10	4:32	3:15	3:29	n/a	n/a	n/a
	Tide - PM low	3:06	3:03	3:14	3:03	2:57	4:19	3:02	3:16	n/a	n/a	n/a
	Tide - AM high	10:04	10:04	9:40	9:51	9:54	10:32	9:51	9:42	n/a	n/a	n/a
	Tide - PM high	10:24	10:24	10:00	10:11	10:14	10:52	10:11	10:02	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
6/29/2010	Precipitation (in)	0.00	--	0.00	0.05	0.00	0.62	0.00	0.00	0.00	--	0.00
	Wind Speed (mph)	9.0	0.4	3.1	2.4	0.4	--	1.7	0.0	0.3	--	7.1
	Wind Direction	WNW	WSW	NW	WSW	SSW	WSW	WNW	S	WSW	--	NW
	Mean Air Temp (F)	79.0	77.6	75.0	76.0	79.5	63.2	77.1	65.3	79.0	--	77.6
	Mean Water Temp (F)	77.0	72.0	70.0	73.0	75.0	75.0	71.0	75.0	75.0	75.0	73.0
	Tide - AM low	3:53	3:50	4:01	3:50	3:44	5:06	3:49	4:03	n/a	n/a	n/a
	Tide - PM low	3:50	3:47	3:58	3:47	3:41	5:03	3:46	4:00	n/a	n/a	n/a
	Tide - AM high	10:47	10:47	10:23	10:34	10:37	11:15	10:34	10:25	n/a	n/a	n/a
	Tide - PM high	11:05	11:05	10:41	10:52	10:55	11:33	10:52	10:43	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
6/30/2010	Precipitation (in)	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00
	Wind Speed (mph)	8.00	1.1	4.9	5.5	1.5	9.36	3.7	0.0	0.4	--	8.2
	Wind Direction	WNW	W	WNW	WNW	SW	W	NNW	S	WSW	--	NW
	Mean Air Temp (F)	69	70.3	67.8	67.4	78.3	68.4	68.4	64	68.8	--	68.7
	Mean Water Temp (F)	78	72	70	73	75	75	71	75	75	76	75
	Tide - AM low	4:28	4:35	4:36	4:25	4:19	5:41	4:24	4:38	n/a	n/a	n/a
	Tide - PM low	4:34	4:31	4:42	4:31	4:25	5:47	4:30	4:44	n/a	n/a	n/a
	Tide - AM high	11:28	11:28	11:04	11:15	11:18	11:56	11:15	11:06	n/a	n/a	n/a
	Tide - PM high	11:44	11:44	11:20	11:31	11:34	-	11:31	11:22	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
7/1/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	10.00	1.7	7.1	9.0	0.9	6.0	3.7	0.0	0.3	0.4	9.0
	Wind Direction	WNW	W	WNW	WNW	W	NW	NNW	S	SW	WNW	NW
	Mean Air Temp (F)	67.0	67.5	65.0	66.5	67.0	61.0	65.6	64.0	66.1	64.1	64.6
	Mean Water Temp (F)	78.0	72.0	70.0	73.0	75.0	75.0	71.0	75.0	75.0	77.0	75.0
	Tide - AM low	5:03	5:00	5:11	5:00	4:54	6:16	5:13	5:13	n/a	n/a	n/a
	Tide - PM low	5:17	5:14	5:25	5:14	5:08	6:30	5:27	5:27	n/a	n/a	n/a
	Tide - AM high	-	--	11:45	11:56	11:59	12:12	11:47	11:47	n/a	n/a	n/a
	Tide - PM high	12:09	12:09	11:58	--	--	12:37	11:56	11:56	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
7/2/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	9.0	1.1	2.9	3.9	0.8	7.2	2.5	0.0	0.4	0.9	6.0
	Wind Direction	wnw	NE	WNW	NNW	SW	NW	N	S	NE	N	NW
	Mean Air Temp (F)	70.0	67.9	66.1	65.7	67.9	66.5	65.9	65.8	67.7	65.1	64.7
	Mean Water Temp (F)	78.0	72.0	70.0	73.0	75.0	75.0	71.0	75.0	74.0	77.0	75.0
	Tide - AM low	5:41	5:38	5:49	5:38	5:32	6:54	5:51	5:51	n/a	n/a	n/a
	Tide - PM low	6:04	6:01	6:12	6:01	5:55	7:17	6:14	6:14	n/a	n/a	n/a
	Tide - AM high	12:22	12:22	--	12:09	12:12	12:50	12:00	12:00	n/a	n/a	n/a
	Tide - PM high	12:49	12:49	12:25	12:36	12:39	1:17	12:27	12:27	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
7/3/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	5.0	0.5	2.1	4.0	1.0	4.3	1.9	0.0	0.3	0.7	4.4
	Wind Direction	WSW	NE	W	SW	W	SW	W	S	WSW	E	W
	Mean Air Temp (F)	71.0	69.6	69.1	68.4	71.4	69.3	69.8	69.2	72.9	67.8	71.9
	Mean Water Temp (F)	78.0	72.0	70.0	73.0	71.0	75.0	71.0	75.0	74.0	78.0	75.0
	Tide - AM low	6:21	6:18	6:29	6:18	6:12	7:34	6:31	6:31	n/a	n/a	n/a
	Tide - PM low	6:58	6:55	7:06	6:55	6:49	8:11	7:08	7:08	n/a	n/a	n/a
	Tide - AM high	1:02	1:02	12:38	12:49	12:52	1:30	12:40	12:40	n/a	n/a	n/a
	Tide - PM high	1:29	1:29	1:05	1:16	1:19	1:57	1:07	1:07	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
7/4/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	0.2	3.1	2.7	0.1	4.0	1.5	0.0	0.1	0.5	6.4
	Wind Direction	W	WSW	WNW	WSW	WSW	W	NW	S	WSW	NNW	NW
	Mean Air Temp (F)	80.0	78.1	76.9	75.2	78.1	75.9	77.8	75.2	79.2	75.6	76.9
	Mean Water Temp (F)	78.0	75.0	70.0	74.0	71.0	75.0	71.0	75.0	74.0	77.0	75.0
	Tide - AM low	7:06	7:03	7:14	7:03	6:57	8:19	7:16	7:16	n/a	n/a	n/a
	Tide - PM low	8:05	8:02	8:13	8:02	7:56	9:18	8:15	8:15	n/a	n/a	n/a
	Tide - AM high	1:44	1:44	1:20	1:31	1:34	2:12	1:22	1:22	n/a	n/a	n/a
	Tide - PM high	2:11	2:11	1:47	1:58	2:01	2:39	1:49	1:49	n/a	n/a	n/a
	Lunar cycle	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter
7/5/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00
	Wind Speed (mph)	6.0	0.2	2.6	2.8	0.2	4.9	2.0	0.0	0.1	0.4	6.0
	Wind Direction	WNW	WSW	WNW	WSW	SW	W	WNW	S	N	N	NNW
	Mean Air Temp (F)	83.0	79.0	78.3	76.4	81.7	79.2	78.6	77.7	81.6	77.0	81.1
	Mean Water Temp (F)	78.0	75.0	70.0	74.0	71.0	69.0	71.0	75.0	74.0	77.0	75.0
	Tide - AM low	7:58	7:55	8:06	7:55	7:49	9:11	8:08	8:08	n/a	n/a	n/a
	Tide - PM low	9:20	9:17	9:28	9:17	9:11	10:33	9:30	9:30	n/a	n/a	n/a
	Tide - AM high	2:30	2:30	2:06	2:17	2:20	2:58	2:08	2:08	n/a	n/a	n/a
	Tide - PM high	2:58	2:58	2:34	2:45	2:48	3:26	2:36	2:36	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
7/6/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	0.6	0.3	2.9	1.6	0.5	4.0	1.8	0.0	0.0	0.7	5.9
	Wind Direction	NNW	NNE	WNW	NNW	N	N	ENE	S	NE	NNE	NNW
	Mean Air Temp (F)	84.0	83.9	83.6	79.3	85.3	82.3	83.9	82.7	87.4	83.0	86.9
	Mean Water Temp (F)	78.0	75.0	70.0	74.0	71.0	69.0	79.0	75.0	74.0	78.0	78.0
	Tide - AM low	8:55	8:52	9:03	8:52	8:46	10:08	9:05	9:05	n/a	n/a	n/a
	Tide - PM low	10:25	10:22	10:33	10:22	10:16	11:38	10:35	10:35	n/a	n/a	n/a
	Tide - AM high	3:23	3:23	2:59	3:10	3:13	3:51	3:01	3:01	n/a	n/a	n/a
	Tide - PM high	3:51	3:51	3:27	3:38	3:41	4:19	3:29	3:29	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
7/7/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00
	Wind Speed (mph)	6.0	0.1	0.3	4.0	1.1	5.5	2.1	0.0	0.2	0.4	3.6
	Wind Direction	SSE	SSE	SE	SE	SE	SSE	SSE	S	N	SSE	ENE
	Mean Air Temp (F)	84.0	80.9	78.1	80.0	81.8	80.5	79.9	79.9	86.1	80.3	83.8
	Mean Water Temp (F)	78.0	77.0	70.0	74.0	71.0	69.0	79.0	75.0	77.0	78.0	78.0
	Tide - AM low	9:51	9:48	9:59	9:48	9:42	12:36	10:01	10:01	n/a	n/a	n/a
	Tide - PM low	11:20	11:17	11:28	11:17	11:11	12:17	11:30	11:30	n/a	n/a	n/a
	Tide - AM high	4:23	4:23	3:59	4:10	4:13	6:00	4:01	4:01	n/a	n/a	n/a
	Tide - PM high	4:51	4:51	4:27	4:38	4:41	6:23	4:29	4:29	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
7/8/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	0.5	0	0.4	2.4	0.5	3.1	0.0	0.0	0.2	0.6	3.2
	Wind Direction	S	SE	E	ESE	ESE	ESE	SSE	S	WNW	SE	SE
	Mean Air Temp (F)	77.2	74.4	72.9	73.4	80.3	74.6	73.3	74	77	75.6	78.6
	Mean Water Temp (F)	78	77	75	74	80	69	79	57	77	78	78
	Tide - AM low	10:44	10:41	10:52	10:41	10:35	1:28	10:54	10:54	n/a	n/a	n/a
	Tide - PM low	--	--	--	--	--	1:10	--	--	n/a	n/a	n/a
	Tide - AM high	5:26	5:26	5:02	5:13	5:16	6:49	5:04	5:04	n/a	n/a	n/a
	Tide - PM high	5:51	5:51	5:27	5:38	5:41	7:08	5:29	5:29	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
7/9/2010	Precipitation (in)	0.36	0.00	0.87	0.01	0.59	0.00	0.00	0.00	0.05	0.00	0.04
	Wind Speed (mph)	8.0	0.1	0.5	2.5	1.4	5.3	2.5	0.0	0.4	1.3	3.1
	Wind Direction	S	SSE	SE	SSE	SSW	SSE	S	S	WNW	SSE	S
	Mean Air Temp (F)	79.0	77.4	75.6	76.4	78.6	77.1	76.4	76.9	79.4	78.1	76.9
	Mean Water Temp (F)	79.0	77.0	75.0	70.0	80.0	69.0	79.0	75.0	77.0	78.0	78.0
	Tide - AM low	12:11	12:08	12:19	12:08	12:02	2:19	12:21	12:21	n/a	n/a	n/a
	Tide - PM low	11:36	11:33	11:44	11:33	11:27	2:04	11:46	11:46	n/a	n/a	n/a
	Tide - AM high	6:25	6:25	6:01	6:12	6:15	7:35	6:03	6:03	n/a	n/a	n/a
	Tide - PM high	6:47	6:47	6:23	6:34	6:37	7:53	6:25	6:25	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
7/10/2010	Precipitation (in)	T	0.31	0.01	0.00	0.04	0.00	0.05	0.00	1.03	0.11	0.18
	Wind Speed (mph)	7.0	0.1	0.6	3.7	0.8	4.3	1.9	0.0	0.2	0.8	3.8
	Wind Direction	SSW	W	W	SW	SW	S	W	S	WNW	SSE	NW
	Mean Air Temp (F)	79.0	75.6	73.7	75.5	76.5	75.9	75.2	77.3	75.8	75.2	75.7
	Mean Water Temp (F)	79.0	78.0	75.0	70.0	80.0	69.0	79.0	75.0	77.0	78.0	78.0
	Tide - AM low	1:01	12:58	1:09	12:58	12:52	3:08	1:11	1:11	n/a	n/a	n/a
	Tide - PM low	12:29	12:26	12:37	12:26	12:20	2:58	12:39	12:39	n/a	n/a	n/a
	Tide - AM high	7:19	7:19	6:55	7:06	7:09	8:21	6:57	6:57	n/a	n/a	n/a
	Tide - PM high	7:40	7:40	7:16	7:27	7:30	8:39	7:18	7:18	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
7/11/2010	Precipitation (in)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	0.2	1.0	3.3	2.0	5.6	1.7	0.0	0.3	0.8	5.4
	Wind Direction	ENE	E	WNW	W	SSW	SW	SSE	S	NNW	N	NNE
	Mean Air Temp (F)	80.0	77.0	76.0	75.3	82.7	76.1	76.0	77.1	77.6	76.5	77.8
	Mean Water Temp (F)	79.0	78.0	75.0	70.0	79.0	69.0	79.0	71.0	77.0	78.0	78.0
	Tide - AM low	1:51	1:48	1:59	1:48	1:42	3:55	2:01	2:01	n/a	n/a	n/a
	Tide - PM low	1:23	1:20	1:31	1:20	1:14	3:50	1:33	1:33	n/a	n/a	n/a
	Tide - AM high	8:10	8:10	7:46	7:57	8:00	9:08	7:48	7:48	n/a	n/a	n/a
	Tide - PM high	8:30	8:30	8:06	8:17	8:20	9:28	8:08	8:08	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
7/12/2010	Precipitation (in)	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	9.0	0.3	0.9	3.9	1.7	5.3	2.8	0.0	0.7	1.7	3.5
	Wind Direction	S	SSE	S	SSW	SW	S	SSW	S	W	S	SSW
	Mean Air Temp (F)	79.0	76.7	76.1	75.7	78.7	75.8	76.4	77.3	79.2	76.4	79.6
	Mean Water Temp (F)	79.0	78.0	75.0	70.0	79.0	69.0	79.0	71.0	77.0	78.0	78.0
	Tide - AM low	2:38	2:35	2:46	2:35	2:29	4:42	2:48	2:48	n/a	n/a	n/a
	Tide - PM low	2:18	2:15	2:26	2:15	2:09	4:43	2:28	2:28	n/a	n/a	n/a
	Tide - AM high	9:00	9:20	8:36	8:47	8:50	9:58	8:38	8:38	n/a	n/a	n/a
	Tide - PM high	9:20	9:00	8:56	9:07	9:10	10:18	8:58	8:58	n/a	n/a	n/a
	Lunar cycle	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon
7/13/2010	Precipitation (in)	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	14.1	0.0	0.6	2.6	3.4	5.7	2.3	0.0	0.2	1.7	2.2
	Wind Direction	NNW	SSE	SE	SSE	SSE	SSE	S	S	W	S	SSE
	Mean Air Temp (F)	77.4	74.6	76.4	76.8	88.6	76.1	76.7	77.7	77.8	77.2	79.0
	Mean Water Temp (F)	79.0	78.0	75.0	70.0	79.0	69.0	79.0	71.0	77.0	78.0	78.0
	Tide - AM low	3:23	3:20	3:31	3:20	3:14	4:36	3:33	3:33	n/a	n/a	n/a
	Tide - PM low	3:12	3:09	3:20	3:09	3:03	4:25	3:22	3:22	n/a	n/a	n/a
	Tide - AM high	9:51	9:51	9:27	9:38	9:41	10:19	9:29	9:29	n/a	n/a	n/a
	Tide - PM high	10:11	10:11	9:47	9:58	10:01	10:39	9:49	9:49	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
7/14/2010	Precipitation (in)	1.10	--	0.86	1.04	--	0.51	0.29	0.04	0.96	0.22	0.62
	Wind Speed (mph)	6.0	0.3	0.7	3.5	--	--	0.9	0.0	0.4	0.5	4.5
	Wind Direction	SSW	SE	WSW	SW	--	S	SW	S	NNW	N	NNE
	Mean Air Temp (F)	76.0	73.8	73.7	73.9	--	75.4	74.2	74.8	74.0	74.5	74.5
	Mean Water Temp (F)	79.0	78.0	75.0	70.0	79.0	69.0	79.0	71.0	77.0	79.0	78.0
	Tide - AM low	4:05	4:02	4:13	4:02	3:56	5:18	4:15	4:15	n/a	n/a	n/a
	Tide - PM low	4:06	4:03	4:14	4:03	3:57	5:19	4:16	4:16	n/a	n/a	n/a
	Tide - AM high	10:43	10:43	10:19	10:30	10:33	11:11	10:21	10:21	n/a	n/a	n/a
	Tide - PM high	11:03	11:03	10:39	10:50	10:53	12:31	10:41	10:41	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
7/15/2010	Precipitation (in)	T	--	0.00	0.00	--	0.04	0.00	0.00	0.00	0.05	0.00
	Wind Speed (mph)	9.0	0.2	1.1	4.0	--	6.1	0.5	0.0	0.6	1.0	6.8
	Wind Direction	NE	NNE	N	NNE	--	NE	ESE	S	N	N	NNE
	Mean Air Temp (F)	75.0	72.3	71.9	71.7	--	73.7	71.7	72.5	71.4	71.4	72.2
	Mean Water Temp (F)	79.0	78.0	75.0	73.0	79.0	69.0	79.0	71.0	77.0	79.0	78.0
	Tide - AM low	4:47	4:44	4:55	4:44	4:38	6:00	4:57	4:57	n/a	n/a	n/a
	Tide - PM low	5:00	4:57	5:08	4:57	4:51	6:13	5:10	5:10	n/a	n/a	n/a
	Tide - AM high	11:37	11:37	11:13	11:24	11:27	--	11:15	11:15	n/a	n/a	n/a
	Tide - PM high	11:57	11:57	11:33	11:44	11:47	12:05	11:35	11:35	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
7/16/2010	Precipitation (in)	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	1.1	1.8	5.2	--	6.0	2.2	0.0	0.9	1.4	4.0
	Wind Direction	SW	SSE	WSW	SW	--	SW	SW	S	W	S	WSW
	Mean Air Temp (F)	79.0	74.2	74.5	74.0	--	75.4	73.8	74.3	77.6	75.1	77.2
	Mean Water Temp (F)	79.0	78.0	75.0	73.0	79.0	69.0	79.0	71.0	77.0	79.0	78.0
	Tide - AM low	5:29	5:26	5:37	5:26	5:20	6:42	5:39	5:39	n/a	n/a	n/a
	Tide - PM low	5:58	5:55	6:06	5:55	5:49	7:11	6:08	6:08	n/a	n/a	n/a
	Tide - AM high	--	--	--	--	--	12:25	--	--	n/a	n/a	n/a
	Tide - PM high	12:31	12:31	12:07	12:18	12:21	12:59	12:09	12:09	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
7/17/2010	Precipitation (in)	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.01
	Wind Speed (mph)	8.0	0.3	2.3	4.6	--	5.4	1.7	0.0	0.9	0.6	5.7
	Wind Direction	WSW	S	W	SW	--	SW	WSW	S	WSW	SSW	W
	Mean Air Temp (F)	84.0	78.8	78.6	76.6	--	78.9	78.4	77.7	82.3	79.8	80.7
	Mean Water Temp (F)	79.0	76.0	75.0	73.0	79.0	69.0	79.0	71.0	78.0	79.0	78.0
	Tide - AM low	6:14	6:11	6:22	6:11	6:05	8:53	6:24	6:24	n/a	n/a	n/a
	Tide - PM low	7:07	7:04	7:15	7:04	6:58	9:40	7:17	7:17	n/a	n/a	n/a
	Tide - AM high	12:51	12:51	12:27	12:38	12:41	1:50	12:29	12:29	n/a	n/a	n/a
	Tide - PM high	1:26	1:26	1:02	1:13	1:16	2:31	1:04	1:04	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
7/18/2010	Precipitation (in)	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	9.0	0.8	2.0	3.6	--	5.3	1.9	0.0	0.6	0.4	7.3
	Wind Direction	W	WSW	W	WSW	--	WSW	NW	S	WSW	WNW	WNW
	Mean Air Temp (F)	82.0	82.2	79.7	78.2	--	79.8	80.2	76.9	81.4	78.7	79.6
	Mean Water Temp (F)	79.0	76.0	75.0	73.0	79.0	70.0	79.0	71.0	78.0	79.0	78.0
	Tide - AM low	7:06	7:03	7:14	7:03	6:57	9:49	7:16	7:16	n/a	n/a	n/a
	Tide - PM low	8:44	8:41	8:52	8:41	8:35	10:43	8:54	8:54	n/a	n/a	n/a
	Tide - AM high	1:46	1:46	1:22	1:33	1:36	2:49	1:24	1:24	n/a	n/a	n/a
	Tide - PM high	2:23	2:23	1:59	2:10	2:13	3:22	2:01	2:01	n/a	n/a	n/a
	Lunar cycle	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter
7/19/2010	Precipitation (in)	0.79	0.23	0.11	0.52	--	0.30	0.41	0.79	0.38	0.78	0.20
	Wind Speed (mph)	6.0	0.2	0.3	2.5	--	3.4	1.8	0.0	0.4	0.6	3.2
	Wind Direction	SSW	SSE	WNW	SSW	--	SSE	S	S	WSW	S	SW
	Mean Air Temp (F)	76.0	74.7	72.2	72.7	--	72.8	74.2	72.8	74.6	71.6	74.3
	Mean Water Temp (F)	79.0	76.0	75.0	73.0	81.0	70.0	79.0	71.0	78.0	79.0	78.0
	Tide - AM low	8:06	8:03	8:14	8:03	7:57	10:46	8:16	8:16	n/a	n/a	n/a
	Tide - PM low	10:09	10:06	10:17	10:06	10:00	11:44	10:19	10:19	n/a	n/a	n/a
	Tide - AM high	2:43	2:43	2:19	2:30	2:33	3:54	2:21	2:21	n/a	n/a	n/a
	Tide - PM high	3:22	3:22	2:58	3:09	3:12	4:35	3:00	3:00	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
7/20/2010	Precipitation (in)	T	0.00	--	0.00	--	1.08	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	5.0	0.2	--	2.6	--	4.1	1.4	0.0	0.1	0.3	3.9
	Wind Direction	WNW	WNW	--	WNW	--	WSW	NNW	S	WSW	N	NNW
	Mean Air Temp (F)	79.0	77.5	--	75.8	--	77.6	76.8	77.0	77.2	75.0	75.6
	Mean Water Temp (F)	79.0	76.0	75.0	73.0	81.0	70.0	79.0	71.0	78.0	79.0	78.0
	Tide - AM low	9:13	9:10	9:21	9:10	9:04	11:44	9:23	9:23	n/a	n/a	n/a
	Tide - PM low	11:10	11:07	11:18	11:07	11:01	12:35	11:20	11:20	n/a	n/a	n/a
	Tide - AM high	3:43	3:43	3:19	3:30	3:33	5:02	3:21	3:21	n/a	n/a	n/a
	Tide - PM high	4:25	4:25	4:01	4:12	4:15	5:37	4:03	4:03	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
7/21/2010	Precipitation (in)	0.07	0.06	--	0.13	--	0.56	0.13	0.12	0.17	0.06	0.03
	Wind Speed (mph)	7.0	0.2	--	3.2	--	3.9	2.3	0.0	0.5	1.0	3.4
	Wind Direction	S	SSE	--	SSW	--	S	SSW	S	WSW	S	SW
	Mean Air Temp (F)	79.0	75.8	--	75.0	--	74.7	74.9	75.2	75.9	74.2	75.8
	Mean Water Temp (F)	79.0	76.0	70.0	73.0	81.0	70.0	79.0	71.0	78.0	79.0	78.0
	Tide - AM low	10:13	10:10	10:21	10:10	10:04	12:44	10:23	10:23	n/a	n/a	n/a
	Tide - PM low	--	11:58	--	11:58	--	12:43	11:57	11:57	n/a	n/a	n/a
	Tide - AM high	4:47	4:47	4:23	4:34	4:37	6:05	4:25	4:25	n/a	n/a	n/a
	Tide - PM high	5:28	6:25	5:04	5:15	5:18	6:32	5:06	5:06	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
7/22/2010	Precipitation (in)	0.00	0.03	--	0.04	--	0.56	0.05	0.00	0.00	0.02	0.00
	Wind Speed (mph)	10.0	1.6	--	6.6	--	4.8	3.3	0.0	0.3	0.9	9.7
	Wind Direction	WNW	W	--	W	--	WNW	NNW	S	WSW	NNW	NW
	Mean Air Temp (F)	78.0	78.2	--	74.7	--	76.1	75.2	76.6	75.6	73.8	75.3
	Mean Water Temp (F)	76.0	76.0	70.0	73.0	81.0	71.0	79.0	71.0	78.0	79.0	78.0
	Tide - AM low	12:01	11:01	12:09	11:01	10:55	1:41	12:11	12:11	n/a	n/a	n/a
	Tide - PM low	11:04	--	11:12	--	--	1:40	11:14	11:14	n/a	n/a	n/a
	Tide - AM high	5:50	5:50	5:26	5:37	5:40	6:59	5:28	5:28	n/a	n/a	n/a
	Tide - PM high	6:25	6:25	6:01	6:12	6:15	7:22	6:03	6:03	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland	
7/23/2010	Precipitation (in)	0.77	0.80	--	0.74	--	0.37	0.85	0.51	0.33	1.01	0.78	
	Wind Speed (mph)	5.0	0.2	--	2.2	--	2.7	1.5	0.0	0.2	0.5	2.5	
	Wind Direction	S	SSE	--	SSW	--	SSE	S	S	WSW	S	ESE	
	Mean Air Temp (F)	72.0	70.7	--	70.1	--	70.4	70.6	69.8	69.7	68.4	69.5	
	Mean Water Temp (F)	76.0	76.0	70.0	74.0	81.0	71.0	79.0	71.0	78.0	79.0	78.0	
	Tide - AM low	12:44	12:41	12:52	12:41	12:35	2:32	12:54	12:54	n/a	n/a	n/a	
	Tide - PM low	11:50	11:47	11:58	11:47	11:41	2:33	12:00	12:00	n/a	n/a	n/a	
	Tide - AM high	6:45	6:45	6:21	6:32	6:35	7:47	6:23	6:23	n/a	n/a	n/a	
	Tide - PM high	7:16	7:16	6:52	7:03	7:06	8:07	6:54	6:54	n/a	n/a	n/a	
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
	7/24/2010	Precipitation (in)	0.26	0.28	0.48	0.42	--	0.40	0.40	0.20	0.49	0.58	0.50
		Wind Speed (mph)	4.0	0.0	0.5	1.7	--	3.1	0.7	0.0	0.1	0.3	2.1
Wind Direction		SSE	NNE	NNW	SW	--	WSW	WSW	S	W	N	ENE	
Mean Air Temp (F)		80.0	77.3	79.3	76.6	--	79.0	77.4	77.7	76.8	78.1	76.6	
Mean Water Temp (F)		76.0	76.0	70.0	74.0	76.0	71.0	79.0	71.0	78.0	79.0	78.0	
Tide - AM low		1:19	1:16	1:27	1:16	1:10	3:17	1:29	1:29	n/a	n/a	n/a	
Tide - PM low		12:35	12:32	12:43	12:32	12:26	3:20	12:45	12:45	n/a	n/a	n/a	
Tide - AM high		7:34	7:34	7:10	7:21	7:24	8:31	7:12	7:12	n/a	n/a	n/a	
Tide - PM high		8:01	8:01	7:37	7:48	7:51	8:50	7:39	7:39	n/a	n/a	n/a	
Lunar cycle		Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
7/25/2010		Precipitation (in)	0.09	0.02	0.07	0.02	0.00	0.22	0.06	0.00	0.00	0.02	0.02
		Wind Speed (mph)	9.0	0.0	4.4	5.1	0.0	4.3	2.9	0.0	0.4	0.7	2.0
	Wind Direction	WNW	S	WNW	W	S	W	NNW	S	WSW	NNW	SSW	
	Mean Air Temp (F)	81.0	80.1	78.0	77.5	72.6	77.9	79.1	78.6	79.7	77.9	76.2	
	Mean Water Temp (F)	76.0	76.0	70.0	74.0	76.0	71.0	79.0	71.0	78.0	79.0	79.0	
	Tide - AM low	2:48	1:45	1:56	1:45	1:39	3:58	1:58	1:58	n/a	n/a	n/a	
	Tide - PM low	1:21	1:18	1:29	1:18	1:12	4:04	1:31	1:31	n/a	n/a	n/a	
	Tide - AM high	8:17	8:17	7:53	8:04	8:07	9:13	7:55	7:55	n/a	n/a	n/a	
	Tide - PM high	8:41	8:41	8:17	8:28	8:21	9:32	8:19	8:19	n/a	n/a	n/a	
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
	7/26/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
		Wind Speed (mph)	10.0	0.8	7.3	6.7	0.0	5.6	3.8	0.0	0.2	1.1	6.1
Wind Direction		WNW	NW	WNW	WNW	S	NW	N	S	SW	N	WSW	
Mean Air Temp (F)		74.0	75.3	73.7	73.8	78.2	74.1	73.8	74.7	73.4	70.8	72.5	
Mean Water Temp (F)		76.0	76.0	73.0	74.0	76.0	71.0	79.0	71.0	78.0	79.0	79.0	
Tide - AM low		2:18	2:15	2:26	2:15	2:09	4:35	2:28	2:28	n/a	n/a	n/a	
Tide - PM low		2:06	2:03	2:14	2:03	1:57	4:45	2:16	2:16	n/a	n/a	n/a	
Tide - AM high		8:58	8:58	8:34	8:45	8:48	9:56	8:36	8:36	n/a	n/a	n/a	
Tide - PM high		9:19	9:19	8:55	9:06	9:09	10:13	8:57	8:57	n/a	n/a	n/a	
Lunar cycle		Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon
7/27/2010		Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Wind Speed (mph)	8.0	0.5	4.2	3.9	0.0	5.3	2.0	0.0	0.2	0.4	3.1
	Wind Direction	W	W	WNW	W	S	W	NNW	S	SW	N	SW	
	Mean Air Temp (F)	76.0	76.8	75.3	73.6	70.3	75.3	75.5	77.1	76.7	69.2	74.3	
	Mean Water Temp (F)	73.0	76.0	73.0	74.0	76.0	71.0	79.0	71.0	78.0	79.0	79.0	
	Tide - AM low	2:49	2:46	2:57	2:46	2:40	5:11	2:59	2:28	n/a	n/a	n/a	
	Tide - PM low	2:49	2:46	2:57	2:46	2:40	5:25	2:59	2:16	n/a	n/a	n/a	
	Tide - AM high	9:37	9:37	9:13	9:24	9:27	10:40	9:15	8:36	n/a	n/a	n/a	
	Tide - PM high	9:56	9:56	9:32	9:43	9:46	10:55	9:34	8:57	n/a	n/a	n/a	
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
	7/28/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Wind Speed (mph)	11.0	0.7	2.9	6.0	1.3	7.6	3.3	0.0	1.7	2.4	7.8
Wind Direction		SW	SSE	WSW	SW	SW	SW	WSW	S	WSW	S	SSE	
Mean Air Temp (F)		76.0	75.5	75.1	74.2	78.2	75.1	75.8	77.5	77.5	73.6	76.8	
Mean Water Temp (F)		73.0	76.0	73.0	74.0	76.0	71.0	79.0	71.0	76.0	80.0	79.0	
Tide - AM low		3:22	3:19	3:30	3:19	3:13	5:47	2:28	2:28	n/a	n/a	n/a	
Tide - PM low		3:31	3:28	3:39	3:28	3:22	6:06	2:16	2:16	n/a	n/a	n/a	
Tide - AM high		10:15	10:15	9:51	10:02	10:05	11:23	8:36	8:36	n/a	n/a	n/a	
Tide - PM high		10:32	10:32	10:08	10:19	10:22	11:36	8:57	8:57	n/a	n/a	n/a	
Lunar cycle		Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
7/29/2010		Precipitation (in)	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.06
		Wind Speed (mph)	9.0	0.6	2.7	6.0	1.6	7.7	2.3	0.0	1.0	0.5	4.9
	Wind Direction	WSW	SW	W	SW	WSW	WSW	WNW	S	WSW	S	SSW	
	Mean Air Temp (F)	80.0	78.4	77.1	75.8	77.9	76.9	77.4	74.5	78.1	76.8	77.4	
	Mean Water Temp (F)	73.0	76.0	73.0	74.0	76.0	71.0	79.0	71.0	76.0	80.0	79.0	
	Tide - AM low	3:55	3:52	4:03	3:52	3:46	6:22	4:05	4:05	n/a	n/a	n/a	
	Tide - PM low	4:11	4:08	4:19	4:08	4:02	6:50	4:21	4:21	n/a	n/a	n/a	
	Tide - AM high	10:51	10:51	10:27	10:38	10:41	12:55	10:29	10:29	n/a	n/a	n/a	
	Tide - PM high	11:07	11:07	10:43	10:54	10:57	12:06	10:45	10:45	n/a	n/a	n/a	
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
7/30/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.01	0.00
	Wind Speed (mph)	7.0	0.1	1.7	4.0	0.9	--	1.4	0.0	0.1	0.3	4.3
	Wind Direction	NW	N	WNW	NW	S	--	NNW	S	SSE	N	WNW
	Mean Air Temp (F)	73.0	70.9	71.2	69.9	71.9	--	70.0	71.5	71.7	68.5	70.8
	Mean Water Temp (F)	73.0	76.0	73.0	73.0	76.0	71.0	79.0	71.0	76.0	80.0	79.0
	Tide - AM low	4:28	4:25	4:30	4:25	4:28	5:41	4:24	4:24	n/a	n/a	n/a
	Tide - PM low	4:48	4:46	4:57	4:46	4:49	6:02	4:45	4:45	n/a	n/a	n/a
	Tide - AM high	11:28	11:28	11:04	11:15	11:28	11:56	11:02	11:02	n/a	n/a	n/a
	Tide - PM high	11:44	11:44	11:20	11:31	11:44	--	11:18	11:18	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
7/31/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	0.4	1.4	2.8	0.9	--	2.0	0.0	0.3	0.7	5.8
	Wind Direction	NE	NE	NNW	NE	E	--	SE	S	NE	NNE	N
	Mean Air Temp (F)	70.0	68.8	68.8	67.6	68.8	--	67.4	71.1	68.6	66.8	68.3
	Mean Water Temp (F)	73.0	76.0	73.0	73.0	76.0	71.0	79.0	71.0	76.0	78.0	79.0
	Tide - AM low	5:02	4:59	5:10	4:59	5:01	6:15	4:58	4:58	n/a	n/a	n/a
	Tide - PM low	5:29	12:05	5:37	5:26	5:28	6:42	5:25	5:25	n/a	n/a	n/a
	Tide - AM high	12:05	5:26	11:41	11:52	12:01	12:12	11:39	11:39	n/a	n/a	n/a
	Tide - PM high	--	--	11:59	--	--	12:33	11:57	11:57	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
8/1/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	6.0	0.3	0.7	2.6	1.8	--	2.6	0.0	0.4	0.7	4.2
	Wind Direction	S	SSE	ESE	ESE	SSW	--	SSE	S	W	SSE	ESE
	Mean Air Temp (F)	68.0	68.3	69.2	67.3	70.1	--	67.2	66.5	68.2	65.5	68.2
	Mean Water Temp (F)	73.0	76.0	74.0	73.0	74.0	71.0	72.0	74.0	76.0	78.0	79.0
	Tide - AM low	5:37	5:34	5:45	5:34	5:28	8:21	5:47	5:47	n/a	n/a	n/a
	Tide - PM low	6:12	6:09	6:20	6:09	6:03	9:20	6:22	6:22	n/a	n/a	n/a
	Tide - AM high	12:23	12:23	12:21	12:10	12:13	1:42	12:01	12:01	n/a	n/a	n/a
	Tide - PM high	12:45	12:45	12:21	12:32	12:35	2:16	12:23	12:23	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
8/2/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	0.6	1.1	2.8	1.5	8.9	1.9	0.0	0.6	0.9	4.8
	Wind Direction	S	SSE	S	SSW	SSW	SSW	SSW	S	WSW	S	SE
	Mean Air Temp (F)	69.0	69.5	69.3	67.9	71.3	73.5	68.5	65.2	70.7	67.7	70.9
	Mean Water Temp (F)	73.0	76.0	74.0	73.0	74.0	71.0	72.0	74.0	76.0	78.0	79.0
	Tide - AM low	6:17	6:14	6:25	6:14	6:08	9:07	6:27	6:27	n/a	n/a	n/a
	Tide - PM low	7:06	7:03	7:14	7:03	6:57	10:14	7:16	7:16	n/a	n/a	n/a
	Tide - AM high	1:06	1:06	12:42	12:53	12:56	2:29	12:44	12:44	n/a	n/a	n/a
	Tide - PM high	1:28	1:28	1:04	1:15	1:18	3:04	1:06	1:06	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
8/3/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	11.0	0.9	2.9	7.4	5.0	10.1	3.4	0.0	1.9	2.2	9.1
	Wind Direction	SSW	SSE	WSW	SW	SSW	SW	WSW	S	WSW	S	S
	Mean Air Temp (F)	75.0	73.2	74.2	72.2	79.6	74.9	72.7	70.4	75.0	72.1	75.4
	Mean Water Temp (F)	73.0	76.0	74.0	73.0	74.0	71.0	72.0	74.0	76.0	75.0	79.0
	Tide - AM low	7:05	7:02	7:13	7:02	6:56	9:57	7:15	7:15	n/a	n/a	n/a
	Tide - PM low	8:22	8:19	8:30	8:19	8:13	11:09	8:32	8:32	n/a	n/a	n/a
	Tide - AM high	1:53	1:53	1:29	1:40	1:43	3:23	1:31	1:31	n/a	n/a	n/a
	Tide - PM high	2:17	2:17	1:53	2:04	2:07	3:58	1:55	1:55	n/a	n/a	n/a
	Lunar cycle	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter
8/4/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	11.0	0.5	2.7	8.7	6.3	9.0	3.5	0.0	2.0	2.6	9.3
	Wind Direction	SW	N	WSW	SW	S	SW	WSW	S	WSW	S	SSE
	Mean Air Temp (F)	81.0	76.2	75.9	74.7	81.4	76.9	75.7	73.6	79.2	77.4	80.6
	Mean Water Temp (F)	73.0	76.0	74.0	73.0	74.0	71.0	72.0	74.0	76.0	75.0	79.0
	Tide - AM low	8:05	8:02	8:13	8:02	7:56	10:51	8:15	8:15	n/a	n/a	n/a
	Tide - PM low	9:51	9:48	9:59	9:48	9:42	9:30	10:01	10:01	n/a	n/a	n/a
	Tide - AM high	2:48	2:48	2:24	2:35	2:38	4:24	2:26	2:26	n/a	n/a	n/a
	Tide - PM high	3:14	3:14	2:50	3:01	3:04	4:55	2:52	2:52	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
8/5/2010	Precipitation (in)	0.00	0.05	0.45	0.10	0.00	0.00	0.08	0.12	0.23	0.03	1.01
	Wind Speed (mph)	8.0	0.4	2.0	4.8	9.0	5.7	2.6	0.0	0.7	1.1	3.7
	Wind Direction	SSW	N	WSW	SW	SW	SW	SW	S	WSW	S	SSE
	Mean Air Temp (F)	79.0	76.5	76.6	75.7	80.0	77.6	76.6	74.6	78.9	77.7	78.5
	Mean Water Temp (F)	76.0	76.0	74.0	73.0	74.0	71.0	72.0	74.0	76.0	74.0	80.0
	Tide - AM low	9:11	9:08	9:19	9:08	9:02	12:04	9:21	9:21	n/a	n/a	n/a
	Tide - PM low	10:56	10:53	11:04	10:53	10:47	11:47	11:06	11:06	n/a	n/a	n/a
	Tide - AM high	3:49	3:49	3:25	3:36	3:39	5:25	3:27	3:27	n/a	n/a	n/a
	Tide - PM high	4:08	4:18	3:54	4:05	4:08	5:50	3:56	3:56	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
8/6/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.56	0.01	0.00	0.01	0.01	0.01
	Wind Speed (mph)	8.0	0.5	3.6	5.0	10.0	4.8	2.7	0.0	0.3	0.8	4.2
	Wind Direction	WNW	WNW	WNW	WNW	NW	NW	NNW	S	WSW	NNW	SW
	Mean Air Temp (F)	77.0	77.7	76.5	77.0	80.0	77.1	76.9	76.2	76.1	74.5	74.7
	Mean Water Temp (F)	76.0	76.0	74.0	73.0	74.0	69.0	72.0	74.0	76.0	74.0	80.0
	Tide - AM low	10:16	10:13	10:24	10:13	10:07	12:09	10:26	10:26	n/a	n/a	n/a
	Tide - PM low	11:49	11:46	11:57	11:46	11:40	11:29	11:59	11:59	n/a	n/a	n/a
	Tide - AM high	4:56	4:56	4:32	4:43	4:46	5:24	4:34	4:34	n/a	n/a	n/a
	Tide - PM high	5:24	5:24	5:00	5:11	5:14	5:52	5:02	5:02	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
8/7/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	6.0	0.6	1.1	6.0	10.0	4.2	2.0	0.0	0.6	0.6	2.6
	Wind Direction	SW	SSE	SW	SSW	SSW	SSW	SSW	S	WSW	S	SSE
	Mean Air Temp (F)	70.0	69.6	69.1	66.0	76.0	68.2	68.3	68.0	68.6	66.3	67.5
	Mean Water Temp (F)	76.0	76.0	74.0	73.0	75.0	69.0	72.0	74.0	75.0	73.0	80.0
	Tide - AM low	11:16	11:13	11:24	11:13	11:07	1:02	11:26	11:26	n/a	n/a	n/a
	Tide - PM low	--	--	--	--	--	12:29	--	--	n/a	n/a	n/a
	Tide - AM high	5:59	5:59	5:35	5:46	5:49	6:27	5:37	5:37	n/a	n/a	n/a
	Tide - PM high	6:26	6:24	6:02	6:13	6:16	6:54	6:04	6:04	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
8/8/2010	Precipitation (in)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	8.0	0.0	1.4	8.0	19.0	6.6	2.7	0.0	1.4	1.3	6.2
	Wind Direction	SSW	S	S	S	SSW	SSW	SSW	S	WSW	S	SE
	Mean Air Temp (F)	75.0	74.4	74.3	74.0	81.0	73.6	73.2	73.0	73.3	70.8	72.3
	Mean Water Temp (F)	76.0	76.0	75.0	74.0	75.0	69.0	72.0	74.0	75.0	73.0	80.0
	Tide - AM low	12:38	12:35	12:46	12:35	12:29	1:51	12:48	12:48	n/a	n/a	n/a
	Tide - PM low	12:14	12:11	12:22	12:11	12:05	1:27	12:24	12:24	n/a	n/a	n/a
	Tide - AM high	6:56	6:56	6:32	6:43	6:46	7:24	6:34	6:34	n/a	n/a	n/a
	Tide - PM high	7:21	7:21	6:57	7:08	7:11	7:49	6:59	6:59	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
8/9/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	9.0	0.1	2.3	6.0	1.5	6.8	2.6	0.0	1.2	1.2	4.6
	Wind Direction	SSW	SE	W	SSW	SW	SSW	SW	S	WSW	S	SSE
	Mean Air Temp (F)	82.0	76.2	76.2	76.0	80.5	76.2	76.3	74.1	80.2	78.0	79.5
	Mean Water Temp (F)	76.0	77.0	75.0	74.0	75.0	69.0	72.0	74.0	75.0	73.0	80.0
	Tide - AM low	125	122	133	122	116	238	135	135	n/a	n/a	n/a
	Tide - PM low	111	108	119	108	102	224	121	121	n/a	n/a	n/a
	Tide - AM high	749	749	632	736	739	817	727	727	n/a	n/a	n/a
	Tide - PM high	812	812	657	759	802	840	750	750	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
8/10/2010	Precipitation (in)	0.04	0.03	0.01	0.01	0.00	0.01	0.03	0.04	0.08	0.04	0.28
	Wind Speed (mph)	6.0	0.1	1.7	3.0	10.0	4.6	1.5	0.0	0.1	0.2	2.8
	Wind Direction	SSW	S	WSW	SW	S	SW	W	S	WSW	WNW	S
	Mean Air Temp (F)	79.0	77.0	77.3	76.0	82.0	76.8	77.4	75.4	79.5	77.8	77.8
	Mean Water Temp (F)	77.0	77.0	75.0	74.0	75.0	69.0	72.0	74.0	75.0	73.0	80.0
	Tide - AM low	2:10	2:07	2:18	2:07	2:01	3:23	2:20	2:20	n/a	n/a	n/a
	Tide - PM low	2:07	2:04	2:15	2:04	1:58	3:20	2:17	2:17	n/a	n/a	n/a
	Tide - AM high	8:40	8:40	8:16	8:27	8:30	9:08	8:18	8:18	n/a	n/a	n/a
	Tide - PM high	9:02	9:02	8:38	8:49	8:52	9:30	8:40	8:40	n/a	n/a	n/a
	Lunar cycle	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon	New Moon
8/11/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	0.4	1.9	5.0	13.0	5.2	1.2	0.0	0.8	0.7	5.1
	Wind Direction	NE	NNE	NW	NNE	NE	E	E	S	NE	NNE	NNE
	Mean Air Temp (F)	78.0	76.5	74.8	75.0	78.0	75.8	76.1	75.7	76.3	74.9	75.7
	Mean Water Temp (F)	77.0	77.0	75.0	74.0	75.0	69.0	72.0	74.0	75.0	73.0	80.0
	Tide - AM low	2:53	2:50	3:01	2:50	2:44	4:06	3:03	3:03	n/a	n/a	n/a
	Tide - PM low	3:02	2:59	3:10	2:59	2:53	4:15	3:12	3:12	n/a	n/a	n/a
	Tide - AM high	9:30	9:30	9:06	9:17	9:20	9:58	9:08	9:08	n/a	n/a	n/a
	Tide - PM high	9:52	9:52	9:28	9:39	9:42	10:20	9:30	9:30	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
8/12/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	Wind Speed (mph)	6.0	0.1	0.7	4.0	12.0	6.4	3.5	0.0	0.3	0.9	3.3
	Wind Direction	SE	SSE	ESE	ESE	SSE	E	SSE	S	WSW	SSE	E
	Mean Air Temp (F)	74.0	71.5	70.1	70.0	76.0	69.7	69.2	70.3	71.8	72.8	71.9
	Mean Water Temp (F)	77.0	77.0	75.0	74.0	75.0	69.0	72.0	74.0	75.0	72.0	80.0
	Tide - AM low	3:35	3:32	3:43	3:32	3:26	4:48	3:45	3:45	n/a	n/a	n/a
	Tide - PM low	3:55	3:52	4:03	3:52	3:46	5:08	4:05	4:05	n/a	n/a	n/a
	Tide - AM high	10:21	10:21	9:57	1:08	10:11	10:49	9:59	9:59	n/a	n/a	n/a
	Tide - PM high	10:43	10:43	10:19	10:30	10:33	11:11	10:21	10:21	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
8/13/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	0.6	0.7	6.0	10.0	6.1	1.2	0.0	0.7	0.7	2.3
	Wind Direction	ENE	NE	ESE	E	E	ESE	SE	S	NNW	E	NNE
	Mean Air Temp (F)	72.0	71.4	71.2	68.0	74.0	68.8	70.0	69.6	71.1	72.8	70.7
	Mean Water Temp (F)	77.0	77.0	75.0	74.0	74.0	69.0	72.0	74.0	75.0	72.0	80.0
	Tide - AM low	4:16	4:13	4:24	4:13	4:07	5:29	4:26	4:26	n/a	n/a	n/a
	Tide - PM low	4:47	4:44	4:55	4:44	4:38	6:00	4:57	4:57	n/a	n/a	n/a
	Tide - AM high	11:14	11:14	10:50	11:01	11:04	11:42	10:52	10:52	n/a	n/a	n/a
	Tide - PM high	11:35	11:35	11:11	11:22	11:25	--	11:13	11:13	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
8/14/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	5.0	0.2	0.5	2.0	7.0	3.6	1.3	0.0	0.4	0.8	3.3
	Wind Direction	SSW	S	ESE	SSE	SSE	SE	S	S	NW	S	E
	Mean Air Temp (F)	68.0	68.0	70.6	67.0	73.0	65.3	67.1	66.4	67.7	70.5	67.9
	Mean Water Temp (F)	77.0	77.0	71.0	74.0	74.0	69.0	72.0	74.0	75.0	72.0	80.0
	Tide - AM low	4:57	4:54	5:05	4:54	4:48	6:10	5:07	5:07	n/a	n/a	n/a
	Tide - PM low	5:40	5:37	5:48	5:37	5:31	6:53	5:50	5:50	n/a	n/a	n/a
	Tide - AM high	--	--	11:43	11:54	11:57	12:03	11:45	11:45	n/a	n/a	n/a
	Tide - PM high	12:07	12:07	--	--	--	12:35	--	--	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
8/15/2010	Precipitation (in)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	7.0	0.1	0.7	5.0	15.0	5.7	3.6	0.0	0.4	1.0	5.9
	Wind Direction	SSE	SSE	SE	SSE	S	SSE	SSE	S	W	S	E
	Mean Air Temp (F)	68.0	69.3	66.3	65.0	75.0	66.8	67.9	66.8	68.0	65.5	68.8
	Mean Water Temp (F)	74.0	77.0	71.0	73.0	74.0	69.0	72.0	74.0	75.0	72.0	79.0
	Tide - AM low	5:41	5:38	5:49	5:38	5:32	6:54	5:51	5:51	n/a	n/a	n/a
	Tide - PM low	6:42	6:39	6:50	6:39	6:33	7:55	6:52	6:52	n/a	n/a	n/a
	Tide - AM high	12:28	12:28	12:04	12:15	12:18	12:56	12:06	12:06	n/a	n/a	n/a
	Tide - PM high	1:02	1:02	12:38	12:49	12:52	1:30	12:40	12:40	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
8/16/2010	Precipitation (in)	0.08	0.06	--	0.13	0.24	0.08	0.13	0.12	0.08	0.10	0.26
	Wind Speed (mph)	10.0	0.1	--	9.0	1.9	8.6	3.4	0.0	1.0	1.9	6.7
	Wind Direction	SSW	SSE	--	S	SW	S	S	S	WSW	S	ESE
	Mean Air Temp (F)	75.0	73.0	--	72.0	73.1	72.9	72.3	71.3	73.1	72.5	73.1
	Mean Water Temp (F)	74.0	77.0	71.0	73.0	74.0	69.0	68.0	68.0	75.0	72.0	79.0
	Tide - AM low	6:28	6:25	6:36	6:25	6:19	7:41	6:38	6:38	n/a	n/a	n/a
	Tide - PM low	8:22	8:19	8:30	8:19	8:13	9:35	8:32	8:32	n/a	n/a	n/a
	Tide - AM high	1:23	1:23	12:59	1:10	1:13	1:51	1:01	1:01	n/a	n/a	n/a
	Tide - PM high	1:59	1:59	1:35	1:46	1:49	2:27	1:37	1:37	n/a	n/a	n/a
	Lunar cycle	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent	Waxing Crescent
8/17/2010	Precipitation (in)	0.00	0.08	--	0.10	0.00	0.44	0.12	0.24	0.00	0.01	0.26
	Wind Speed (mph)	7.0	0.0	--	6.0	10.0	4.9	1.6	0.0	0.7	0.5	3.0
	Wind Direction	SW	S	--	SSW	SSW	SSW	SW	S	WSW	S	SE
	Mean Air Temp (F)	81.0	76.6	--	78.0	80.0	76.5	76.8	74.6	80.4	79.6	77.9
	Mean Water Temp (F)	74.0	74.0	71.0	73.0	74.0	69.0	68.0	68.0	75.0	72.0	79.0
	Tide - AM low	7:27	7:24	7:35	7:24	7:18	8:40	7:37	7:37	n/a	n/a	n/a
	Tide - PM low	9:57	9:54	10:05	9:54	9:48	11:10	10:07	10:07	n/a	n/a	n/a
	Tide - AM high	2:21	2:21	1:57	2:08	2:11	2:49	1:59	1:59	n/a	n/a	n/a
	Tide - PM high	3:00	3:00	2:36	2:47	2:50	3:28	2:38	2:38	n/a	n/a	n/a
	Lunar cycle	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter	First Quarter
8/18/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	4.0	0.0	0.0	2.0	5.0	1.6	0.6	0.0	0.1	0.1	0.9
	Wind Direction	SSW	S	WNW	SE	S	E	SSE	S	NW	S	ESE
	Mean Air Temp (F)	75.0	74.6	70.7	72.0	78.0	72.4	73.5	72.2	73.8	70.7	71.9
	Mean Water Temp (F)	74.0	74.0	71.0	73.0	74.0	69.0	68.0	68.0	75.0	72.0	79.0
	Tide - AM low	8:43	8:40	8:51	8:40	8:34	9:56	8:53	8:53	n/a	n/a	n/a
	Tide - PM low	10:59	10:56	11:07	10:56	10:50	--	11:09	11:09	n/a	n/a	n/a
	Tide - AM high	3:22	3:22	2:58	3:09	3:12	3:50	3:00	3:00	n/a	n/a	n/a
	Tide - PM high	4:04	4:04	3:40	3:51	3:54	4:32	3:42	3:42	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
8/19/2010	Precipitation (in)	T	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wind Speed (mph)	5.0	0.0	0.9	2.0	11.0	--	1.5	0.0	0.3	0.5	2.7
	Wind Direction	S	S	W	S	SSW	SW	SW	S	W	S	SW
	Mean Air Temp (F)	74.0	73.7	71.3	70.0	76.0	73.1	72.6	71.9	74.8	72.4	70.4
	Mean Water Temp (F)	74.0	74.0	71.0	73.0	72.0	69.0	68.0	68.0	72.0	72.0	79.0
	Tide - AM low	10:05	10:02	10:13	10:02	9:56	12:12	10:15	10:15	n/a	n/a	n/a
	Tide - PM low	11:47	11:44	11:55	11:44	11:38	11:18	11:57	11:57	n/a	n/a	n/a
	Tide - AM high	4:27	4:27	4:03	4:14	4:17	4:55	4:05	4:05	n/a	n/a	n/a
	Tide - PM high	5:09	5:09	4:45	4:46	4:59	5:37	4:47	4:47	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland	
8/20/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wind Speed (mph)	0.9	0.1	2.2	3.0	0.0	4.1	1.8	0.0	0.1	0.7	0.5	
	Wind Direction	WNW	N	WNW	NW	S	NNW	N	S	NW	NNE	W	
	Mean Air Temp (F)	75.1	75.8	71.8	75.0	73.9	75.3	73.8	73.4	74.7	71.7	72.8	
	Mean Water Temp (F)	73.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	68.0	72.0	71.0	79.0
	Tide - AM low	11:03	11:00	11:11	11:00	10:54	1:00	11:13	11:13	n/a	n/a	n/a	n/a
	Tide - PM low	--	--	--	--	--	12:16	--	--	n/a	n/a	n/a	n/a
	Tide - AM high	5:30	5:30	5:06	5:17	5:20	5:58	5:08	5:08	n/a	n/a	n/a	n/a
	Tide - PM high	6:08	6:08	5:44	5:55	5:58	6:36	5:46	5:46	n/a	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
8/21/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wind Speed (mph)	0.3	0.0	0.5	4.0	0.0	4.5	1.5	0.0	0.1	0.0	2.9	
	Wind Direction	SSE	S	SE	SE	S	ESE	S	S	NW	S	ESE	
	Mean Air Temp (F)	69.7	69.6	71.5	66.0	69.0	68.1	68.1	68.3	68.6	57.2	68.2	
	Mean Water Temp (F)	73.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	72.0	71.0	79.0	
	Tide - AM low	12:23	12:20	12:31	12:20	12:14	1:36	12:33	12:33	n/a	n/a	n/a	n/a
	Tide - PM low	11:47	11:44	11:55	11:44	11:38	1:00	11:57	11:57	n/a	n/a	n/a	n/a
	Tide - AM high	6:26	6:26	6:02	6:13	6:16	6:54	6:04	6:04	n/a	n/a	n/a	n/a
	Tide - PM high	6:57	6:57	6:33	6:44	6:47	7:25	6:35	6:35	n/a	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
8/22/2010	Precipitation (in)	1.24	0.73	0.71	0.65	1.77	0.07	0.59	0.67	0.95	2.08	1.19	
	Wind Speed (mph)	7.1	0.0	2.1	9.0	0.0	9.6	6.0	0.0	0.7	0.8	5.2	
	Wind Direction	E	N	E	ESE	S	ESE	SE	S	N	E	NE	
	Mean Air Temp (F)	70.1	70.2	70.6	70.0	67.4	71.7	68.7	68.3	67.3	66.2	67.0	
	Mean Water Temp (F)	73.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	72.0	71.0	75.0	
	Tide - AM low	12:50	12:47	12:58	12:47	12:41	2:03	1:00	1:00	n/a	n/a	n/a	n/a
	Tide - PM low	12:29	12:26	12:37	12:26	12:20	1:42	12:39	12:39	n/a	n/a	n/a	n/a
	Tide - AM high	7:13	7:13	6:49	7:00	7:03	7:41	6:51	6:51	n/a	n/a	n/a	n/a
	Tide - PM high	7:39	7:39	7:15	7:46	7:29	8:07	7:17	7:17	n/a	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
8/23/2010	Precipitation (in)	1.44	0.17	0.03	0.05	0.28	0.77	0.15	0.08	0.22	0.47	0.96	
	Wind Speed (mph)	16.0	0.9	3.3	16.0	0.0	12.6	3.8	0.0	4.8	2.8	13.7	
	Wind Direction	NE	N	NNE	NE	S	NE	SE	S	NE	N	NNE	
	Mean Air Temp (F)	64.6	65.7	66.1	66.0	64.9	65.9	64.5	64.4	63.2	63.4	62.9	
	Mean Water Temp (F)	73.0	74.0	70.0	74.0	72.0	68.0	68.0	68.0	72.0	71.0	75.0	
	Tide - AM low	1:14	1:11	1:22	1:11	1:05	2:27	1:24	1:24	n/a	n/a	n/a	n/a
	Tide - PM low	1:10	1:07	1:18	1:07	1:01	2:23	1:20	1:20	n/a	n/a	n/a	n/a
	Tide - AM high	7:54	7:54	7:30	7:41	7:44	8:22	7:32	7:32	n/a	n/a	n/a	n/a
	Tide - PM high	8:17	8:17	7:53	8:04	8:07	8:45	7:55	7:55	n/a	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
8/24/2010	Precipitation (in)	0.33	0.2	0.12	0.04	0.2	0.01	0.32	0.16	0.2	0.4	0.51	
	Wind Speed (mph)	16.3	0.3	3.4	17.0	0.0	11.4	2.4	0.0	4.1	3.4	13.7	
	Wind Direction	NNE	N	N	NNE	S	NNE	ESE	S	NE	N	NNE	
	Mean Air Temp (F)	63.2	63.7	63.8	62.0	63.1	63.7	62.8	62.6	62.3	62.1	62.0	
	Mean Water Temp (F)	73.0	74.0	70.0	74.0	72.0	68.0	68.0	68.0	72.0	71.0	75.0	
	Tide - AM low	1:43	1:40	1:51	1:40	1:34	2:56	1:53	1:53	n/a	n/a	n/a	n/a
	Tide - PM low	1:51	1:48	1:59	1:48	1:42	3:04	2:01	2:01	n/a	n/a	n/a	n/a
	Tide - AM high	8:31	8:31	8:07	8:18	8:21	8:59	8:09	8:09	n/a	n/a	n/a	n/a
	Tide - PM high	8:52	8:52	8:28	8:39	8:42	9:20	8:30	8:30	n/a	n/a	n/a	n/a
	Lunar cycle	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous	Waxing Gibbous
8/25/2010	Precipitation (in)	0.52	0.21	0.19	0.26	0.28	0.08	0.48	0.39	0.22	0.29	0.32	
	Wind Speed (mph)	11.0	0.0	4.4	10.0	0.0	6.6	2.7	0.0	0.5	1.6	10.4	
	Wind Direction	NW	N	NW	N	S	N	N	S	NE	N	N	
	Mean Air Temp (F)	66.4	67.4	67.5	66.0	67.4	67.9	66.2	66.7	65.1	65.3	64.2	
	Mean Water Temp (F)	73.0	74.0	70.0	74.0	72.0	68.0	68.0	68.0	72.0	71.0	73.0	
	Tide - AM low	2:15	2:12	2:23	2:12	2:14	3:28	2:11	2:11	n/a	n/a	n/a	n/a
	Tide - PM low	2:31	2:28	2:39	2:28	2:30	3:44	2:27	2:27	n/a	n/a	n/a	n/a
	Tide - AM high	9:06	9:06	8:42	8:53	9:02	9:34	8:40	8:40	n/a	n/a	n/a	n/a
	Tide - PM high	9:25	9:25	9:01	9:12	9:21	9:53	8:59	8:59	n/a	n/a	n/a	n/a
	Lunar cycle	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon	Full Moon
8/26/2010	Precipitation (in)	0.02	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.19	0.00	0.01	
	Wind Speed (mph)	7.4	0.0	4.3	4.0	0.0	4.8	2.5	0.0	0.4	0.4	3.5	
	Wind Direction	W	N	WNW	WNW	S	W	NW	S	WSW	NE	SSW	
	Mean Air Temp (F)	71.9	72.7	71.0	72.0	71.6	70.4	71.3	70.7	69.9	69.1	69.3	
	Mean Water Temp (F)	73.0	74.0	70.0	74.0	72.0	68.0	68.0	68.0	72.0	71.0	73.0	
	Tide - AM low	2:47	2:44	2:55	2:44	2:46	4:00	2:45	2:45	n/a	n/a	n/a	n/a
	Tide - PM low	3:10	3:07	3:18	3:07	3:09	4:23	3:06	3:06	n/a	n/a	n/a	n/a
	Tide - AM high	9:40	9:40	9:16	9:27	9:36	10:08	9:14	9:14	n/a	n/a	n/a	n/a
	Tide - PM high	9:58	9:58	9:34	9:45	9:54	10:26	9:32	9:32	n/a	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland	
8/27/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.10	0.00	0.00	
	Wind Speed (mph)	7.2	0.1	4.0	6.0	0.0	4.0	2.1	0.0	0.1	0.5	3.4	
	Wind Direction	WNW	N	WNW	NW	S	NW	NNW	S	SSW	N	SSW	
	Mean Air Temp (F)	68.6	70.8	67.6	68.0	68.5	67.7	67.3	67.0	66.4	64.5	65.5	
	Mean Water Temp (F)	73.0	74.0	70.0	74.0	72.0	68.0	68.0	68.0	68.0	72.0	71.0	73.0
	Tide - AM low	3:20	3:17	3:28	3:17	3:19	4:33	3:16	3:16	n/a	n/a	n/a	n/a
	Tide - PM low	3:46	3:43	3:54	3:43	3:45	4:59	3:42	3:42	n/a	n/a	n/a	n/a
	Tide - AM high	10:13	10:13	9:49	10:00	10:09	10:41	9:47	9:47	n/a	n/a	n/a	n/a
	Tide - PM high	10:33	10:33	10:09	10:20	10:29	11:01	10:07	10:07	n/a	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
8/28/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	
	Wind Speed (mph)	5.2	0.0	1.2	2.0	0.0	3.9	1.5	0.0	0.2	0.5	3.3	
	Wind Direction	W	N	W	NW	S	WNW	NNW	S	WSW	N	W	
	Mean Air Temp (F)	67.7	68.4	67.6	66.0	68.2	66.5	67.5	66.8	67.3	64.3	66.7	
	Mean Water Temp (F)	73.0	74.0	70.0	74.0	72.0	68.0	68.0	68.0	72.0	71.0	73.0	
	Tide - AM low	3:53	3:50	4:01	3:50	3:52	5:06	3:49	3:49	n/a	n/a	n/a	n/a
	Tide - PM low	4:21	4:18	4:29	4:18	4:20	5:34	4:17	4:17	n/a	n/a	n/a	n/a
	Tide - AM high	10:48	10:48	10:24	10:35	10:44	11:16	10:22	10:22	n/a	n/a	n/a	n/a
	Tide - PM high	11:10	11:10	10:46	11:57	11:06	11:38	10:44	10:44	n/a	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
8/29/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wind Speed (mph)	6.8	0.1	4.0	2.0	0.0	4.4	1.7	0.0	0.1	0.5	3.6	
	Wind Direction	WNW	N	WNW	NW	S	WNW	NNW	S	ENE	N	W	
	Mean Air Temp (F)	77.1	76.3	76.4	73.0	75.9	74.3	77.4	77.4	75.8	72.7	74.3	
	Mean Water Temp (F)	73.0	74.0	70.0	74.0	72.0	68.0	68.0	68.0	70.0	71.0	73.0	
	Tide - AM low	4:25	4:22	4:33	4:22	4:24	5:38	4:21	4:21	n/a	n/a	n/a	n/a
	Tide - PM low	4:57	4:54	5:05	4:54	4:56	6:10	4:53	4:53	n/a	n/a	n/a	n/a
	Tide - AM high	11:25	11:25	11:01	11:12	11:21	11:53	10:59	10:59	n/a	n/a	n/a	n/a
	Tide - PM high	11:51	11:51	11:27	11:38	11:47	--	11:25	11:25	n/a	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
8/30/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wind Speed (mph)	6.7	0.1	3.6	5.0	0.1	5.2	1.9	0.0	0.2	0.4	5.7	
	Wind Direction	NW	N	WNW	NW	S	NW	NNW	S	SSE	N	W	
	Mean Air Temp (F)	78.9	77.3	77.8	76.0	77.4	76.3	77.2	76.3	76.4	73.5	74.9	
	Mean Water Temp (F)	72.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	70.0	71.0	73.0	
	Tide - AM low	4:49	4:56	5:07	4:56	4:58	6:12	4:55	4:55	n/a	n/a	n/a	n/a
	Tide - PM low	5:36	5:33	5:44	5:33	5:35	6:49	5:32	5:32	n/a	n/a	n/a	n/a
	Tide - AM high	--	12:07	11:43	11:54	12:03	12:19	11:41	11:41	n/a	n/a	n/a	n/a
	Tide - PM high	12:07	--	--	--	--	12:35	--	--	n/a	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
8/31/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wind Speed (mph)	5.7	0.0	2.0	4.0	0.0	4.9	1.6	0.0	0.1	0.4	3.7	
	Wind Direction	WNW	S	WNW	NNW	WSW	W	NNW	S	SW	N	SSW	
	Mean Air Temp (F)	83.0	80.6	80.8	80.0	83.4	80.3	80.9	78.4	81.3	79.2	79.4	
	Mean Water Temp (F)	72.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	70.0	71.0	70.0	
	Tide - AM low	5:38	5:35	5:46	5:35	5:37	6:51	5:34	5:34	n/a	n/a	n/a	n/a
	Tide - PM low	6:25	6:22	6:33	6:22	6:24	7:38	6:21	6:21	n/a	n/a	n/a	n/a
	Tide - AM high	12:36	12:36	12:12	12:23	12:32	1:04	12:10	12:10	n/a	n/a	n/a	n/a
	Tide - PM high	12:54	12:54	12:30	12:41	12:50	1:22	12:28	12:28	n/a	n/a	n/a	n/a
	Lunar cycle	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous	Waning Gibbous
9/1/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wind Speed (mph)	5.0	0.0	0.9	3.0	0.1	2.8	1.4	0.0	0.2	0.0	2.1	
	Wind Direction	WSW	S	W	WSW	SSW	WSW	W	S	SW	SW	WSW	
	Mean Air Temp (F)	82.8	80.1	80.3	80.0	81.5	79.2	81.2	78.3	81.5	77.7	79.9	
	Mean Water Temp (F)	72.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	70.0	71.0	70.0	
	Tide - AM low	6:25	6:22	6:33	6:22	6:24	7:38	6:21	6:21	n/a	n/a	n/a	n/a
	Tide - PM low	7:36	7:33	7:44	7:33	7:35	8:49	7:32	7:32	n/a	n/a	n/a	n/a
	Tide - AM high	1:27	1:27	1:03	1:14	1:23	1:55	1:01	1:01	n/a	n/a	n/a	n/a
	Tide - PM high	1:47	1:47	1:23	1:34	1:43	2:15	1:21	1:21	n/a	n/a	n/a	n/a
	Lunar cycle	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter	Third Quarter
9/2/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wind Speed (mph)	7.8	0.0	2.8	5.0	0.8	5.4	2.1	0.0	0.9	1.2	4.6	
	Wind Direction	SW	S	W	SSW	SW	SW	WSW	S	WSW	S	SW	
	Mean Air Temp (F)	80.9	78.0	76.8	78.0	80.1	77.3	78.1	74.7	81.4	82.1	80.3	
	Mean Water Temp (F)	72.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	70.0	71.0	70.0	
	Tide - AM low	7:26	7:23	7:34	7:23	7:25	8:39	7:22	7:22	n/a	n/a	n/a	n/a
	Tide - PM low	9:22	9:19	9:30	9:19	9:21	10:36	9:18	9:18	n/a	n/a	n/a	n/a
	Tide - AM high	2:24	2:24	2:00	2:11	2:20	2:51	1:58	1:58	n/a	n/a	n/a	n/a
	Tide - PM high	2:47	2:27	2:23	2:34	2:43	3:15	2:21	2:21	n/a	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent

2010 Meteorological Data

Date	Meteorological Condition	Warwick	Bristol	Narragansett	Newport	North Kingstown	Westerly - Watch Hill	Tiverton	Little Compton	Johnston	Coventry	Cumberland
9/3/2010	Precipitation (in)	0.95	1.81	1.11	1.14	1.14	1.08	0.76	0.63	0.44	0.78	0.95
	Wind Speed (mph)	6.7	0.1	0.8	6.0	0.4	5.3	1.5	0.0	0.6	0.6	5.1
	Wind Direction	NE	N	N	ENE	NE	NNE	SE	S	NE	N	ENE
	Mean Air Temp (F)	74.5	76.2	74.4	74.0	74.0	74.8	74.8	74.7	74.8	73.5	74.7
	Mean Water Temp (F)	72.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	68.0	71.0	70.0
	Tide - AM low	8:42	8:39	8:50	8:39	8:41	9:55	8:38	8:38	n/a	n/a	n/a
	Tide - PM low	10:53	10:32	10:43	10:32	10:34	11:49	10:31	10:31	n/a	n/a	n/a
	Tide - AM high	3:26	3:26	3:02	3:13	3:22	3:54	3:00	3:00	n/a	n/a	n/a
	Tide - PM high	3:54	3:54	3:30	3:41	3:50	4:21	3:28	3:28	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
9/4/2010	Precipitation (in)	0.99	0.30	0.01	0.05	0.04	1.24	0.07	0.12	0.10	0.01	0.06
	Wind Speed (mph)	13.8	0.0	9.7	11.0	1.2	9.7	5.4	0.0	1.4	1.0	10.9
	Wind Direction	W	S	WNW	WNW	WSW	W	NW	S	WSW	WSW	W
	Mean Air Temp (F)	75.0	75.4	74.9	72.0	75.4	74.5	73.7	76.0	73.1	72.2	71.9
	Mean Water Temp (F)	72.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	68.0	70.0	70.0
	Tide - AM low	9:57	9:54	10:05	9:54	9:56	11:10	9:53	9:53	n/a	n/a	n/a
	Tide - PM low	11:26	11:23	11:34	11:23	11:25	--	11:22	11:22	n/a	n/a	n/a
	Tide - AM high	4:33	4:33	4:09	4:20	4:29	5:01	4:07	4:07	n/a	n/a	n/a
	Tide - PM high	5:02	5:02	4:38	4:49	4:58	5:30	4:36	4:36	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
9/5/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
	Wind Speed (mph)	9.4	0.0	3.9	6.0	0.7	6.8	3.9	0.0	0.8	0.5	5.9
	Wind Direction	WSW	S	W	WSW	SW	WSW	NW	S	WSW	SSW	WSW
	Mean Air Temp (F)	65.4	67.6	67.6	66.0	66.0	66.1	65.6	67.9	64.4	61.8	64.3
	Mean Water Temp (F)	72.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	68.0	70.0	69.0
	Tide - AM low	11:04	11:01	11:12	11:01	11:03	12:39	11:00	11:00	n/a	n/a	n/a
	Tide - PM low	--	--	--	--	--	12:17	--	--	n/a	n/a	n/a
	Tide - AM high	5:37	5:37	5:13	5:24	5:33	6:05	5:11	5:11	n/a	n/a	n/a
	Tide - PM high	6:05	6:05	5:41	5:52	6:01	6:33	5:39	5:39	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent
9/6/2010	Precipitation (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
	Wind Speed (mph)	8.6	0.0	1.0	3.0	0.7	5.8	1.5	0.0	0.5	0.8	3.4
	Wind Direction	SW	S	SW	SSW	SW	SSW	WSW	S	WSW	S	WSW
	Mean Air Temp (F)	65.8	65.6	65.6	62.0	65.0	66.9	64.8	65.2	63.5	64.9	64.7
	Mean Water Temp (F)	72.0	74.0	70.0	73.0	72.0	68.0	68.0	68.0	68.0	70.0	69.0
	Tide - AM low	12:10	12:07	12:18	12:07	12:09	1:24	12:06	12:06	n/a	n/a	n/a
	Tide - PM low	12:03	12:00	12:11	12:00	12:02	1:16	11:59	11:59	n/a	n/a	n/a
	Tide - AM high	6:35	6:35	6:11	6:22	6:31	7:03	6:09	6:09	n/a	n/a	n/a
	Tide - PM high	7:00	7:00	6:36	6:47	6:56	7:28	6:34	6:34	n/a	n/a	n/a
	Lunar cycle	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent	Waning Crescent

Notes

- Precipitation reported
- Greater than or equal to 0.5 inches of precipitation reported
- No data Available
- N=North, S=South, E=East, and W=West
- Not Applicable

Appendix F
Urban Beach Initiative Water Data

URBAN INITIATIVE BEACH PROJECT

NAME	DATE SAMPLED	TIME SAMPLED	RESULT DATE	TESTED FOR	RESULTS
SABIN PT	7/6/2010	11AM	7/7/2010	ENTEROCOCCI	<10
ROSE LARISA C	7/6/2010	12	7/7/2010	ENTEROCOCCI	<10
ROSE LARISA E	7/6/2010	12	7/7/2010	ENTEROCOCCI	<10
ROSE LARISA W	7/6/2010	12	7/7/2010	ENTEROCOCCI	10
GASPEE PT C	N/A	N/A	N/A	N/A	N/A
GASPEE PT E	N/A	N/A	N/A	N/A	N/A
GASPEE PT W	N/A	N/A	N/A	N/A	N/A
SABIN PT	7/7/2010	12	7/8/2010	ENTEROCOCCI	52
ROSE LARISA C	7/7/2010	1PM	7/8/2010	ENTEROCOCCI	10
ROSE LARISA E	7/7/2010	1PM	7/8/2010	ENTEROCOCCI	10
ROSE LARISA W	7/7/2010	1PM	7/8/2010	ENTEROCOCCI	<10
GASPEE PT C	N/A	N/A	N/A	N/A	N/A
GASPEE PT E	N/A	N/A	N/A	N/A	N/A
GASPEE PT W	N/A	N/A	N/A	N/A	N/A
SABIN PT	7/8/2010	10AM	7/9/2010	ENTEROCOCCI	<10
ROSE LARISA C	7/8/2010	11AM	7/9/2010	ENTEROCOCCI	<10
ROSE LARISA E	7/8/2010	11AM	7/9/2010	ENTEROCOCCI	<10
ROSE LARISA W	7/8/2010	11AM	7/9/2010	ENTEROCOCCI	<10
GASPEE PT C	7/8/2010	12	7/9/2010	ENTEROCOCCI	31
GASPEE PT E	N/A	N/A	N/A	N/A	N/A
GASPEE PT W	7/8/2010	12	7/9/2010	ENTEROCOCCI	20
SABIN PT	7/12/2010	10AM	7/13/2010	ENTEROCOCCI	31
ROSE LARISA C	7/12/2010	11AM	7/13/2010	ENTEROCOCCI	410
ROSE LARISA E	7/12/2010	11AM	7/13/2010	ENTEROCOCCI	189
ROSE LARISA W	7/12/2010	11AM	7/13/2010	ENTEROCOCCI	20
GASPEE PT C	7/12/2010	12	7/13/2010	ENTEROCOCCI	20
GASPEE PT E	N/A	N/A	N/A	N/A	N/A
GASPEE PT W	7/12/2010	12	7/13/2010	ENTEROCOCCI	10
SABIN PT	7/13/2010	10AM	7/14/2010	ENTEROCOCCI	52
ROSE LARISA C	7/13/2010	11AM	7/14/2010	ENTEROCOCCI	1050
ROSE LARISA E	7/13/2010	11AM	7/14/2010	ENTEROCOCCI	278
ROSE LARISA W	7/13/2010	11AM	7/14/2010	ENTEROCOCCI	20
GASPEE PT C	7/13/2010	12	7/14/2010	ENTEROCOCCI	10
GASPEE PT E	7/13/2010	12	7/14/2010	ENTEROCOCCI	318
GASPEE PT W	7/13/2010	12	7/14/2010	ENTEROCOCCI	31
SABIN PT	7/14/2010	10AM	7/15/2010	ENTEROCOCCI	30
ROSE LARISA C	N/A	N/A	N/A	N/A	N/A
ROSE LARISA E	N/A	N/A	N/A	N/A	N/A
ROSE LARISA W	N/A	N/A	N/A	N/A	N/A
GASPEE PT C	7/14/2010	12	7/15/2010	ENTEROCOCCI	<10
GASPEE PT E	7/14/2010	12	7/15/2010	ENTEROCOCCI	52
GASPEE PT W	N/A	N/A	N/A	N/A	N/A
SABIN PT	7/15/2010	10AM	7/16/2010	ENTEROCOCCI	52
ROSE LARISA C	7/15/2010	11AM	7/16/2010	ENTEROCOCCI	85
ROSE LARISA E	N/A	N/A	N/A	N/A	N/A

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ROSE LARISA W	N/A		N/A		N/A		N/A		N/A
GASPEE PT C	7/15/2010		12		7/16/2010		ENTEROCOCCI		537
GASPEE PT E	7/15/2010		12		7/16/2010		ENTEROCOCCI		1169
GASPEE PT W	7/15/2010		12		7/16/2010		ENTEROCOCCI		609
SABIN PT	7/19/2010		9AM		7/20/2010		ENTEROCOCCI		<10
ROSE LARISA C	7/19/2010		10AM		7/20/2010		ENTEROCOCCI		<10
ROSE LARISA E	7/19/2010		10AM		7/20/2010		ENTEROCOCCI		<10
ROSE LARISA W	7/19/2010		10AM		7/20/2010		ENTEROCOCCI		10
GASPEE PT C	7/19/2010		11AM		7/20/2010		ENTEROCOCCI		20
GASPEE PT E	7/19/2010		11AM		7/20/2010		ENTEROCOCCI		1281
GASPEE PT W	7/19/2010		11AM		7/20/2010		ENTEROCOCCI		<10
SABIN PT	7/20/2010		9AM		7/21/2010		ENTEROCOCCI		<10
ROSE LARISA C	7/20/2010		10AM		7/21/2010		ENTEROCOCCI		10
ROSE LARISA E	7/20/2010		10AM		7/21/2010		ENTEROCOCCI		<10
ROSE LARISA W	7/20/2010		10AM		7/21/2010		ENTEROCOCCI		10
GASPEE PT C	7/20/2010		11AM		7/21/2010		ENTEROCOCCI		<10
GASPEE PT E	7/20/2010		11AM		7/21/2010		ENTEROCOCCI		<10
GASPEE PT W	7/20/2010		11AM		7/21/2010		ENTEROCOCCI		<10
SABIN PT	7/21/2010		9AM		7/22/2010		ENTEROCOCCI		20
ROSE LARISA C	N/A		N/A		N/A		N/A		N/A
ROSE LARISA E	7/21/2010		10AM		7/22/2010		ENTEROCOCCI		<10
ROSE LARISA W	7/21/2010		10AM		7/22/2010		ENTEROCOCCI		10
GASPEE PT C	7/21/2010		11AM		7/22/2010		ENTEROCOCCI		<10
GASPEE PT E	7/21/2010		11AM		7/22/2010		ENTEROCOCCI		<10
GASPEE PT W	7/21/2010		11AM		7/22/2010		ENTEROCOCCI		<10
SABIN PT	7/22/2010		9AM		7/23/2010		ENTEROCOCCI		20
ROSE LARISA C	7/22/2010		10AM		7/23/2010		ENTEROCOCCI		62
ROSE LARISA E	7/22/2010		10AM		7/23/2010		ENTEROCOCCI		52
ROSE LARISA W	7/22/2010		10AM		7/23/2010		ENTEROCOCCI		31
GASPEE PT C	7/22/2010		11AM		7/23/2010		ENTEROCOCCI		74
GASPEE PT E	7/22/2010		11AM		7/23/2010		ENTEROCOCCI		10
GASPEE PT W	7/22/2010		11AM		7/23/2010		ENTEROCOCCI		20
SABIN PT	7/26/2010		9AM		7/27/2010		ENTEROCOCCI		20
ROSE LARISA C	7/26/2010		10AM		7/27/2010		ENTEROCOCCI		<10
ROSE LARISA E	7/26/2010		10AM		7/27/2010		ENTEROCOCCI		20
ROSE LARISA W	7/26/2010		10AM		7/27/2010		ENTEROCOCCI		173
GASPEE PT C	7/26/2010		11AM		7/27/2010		ENTEROCOCCI		20
GASPEE PT E	7/26/2010		11AM		7/27/2010		ENTEROCOCCI		<10
GASPEE PT W	7/26/2010		11AM		7/27/2010		ENTEROCOCCI		52
SABIN PT	7/27/2010		9AM		7/28/2010		ENTEROCOCCI		10
ROSE LARISA C	7/27/2010		10AM		7/28/2010		ENTEROCOCCI		10
ROSE LARISA E	7/27/2010		10AM		7/28/2010		ENTEROCOCCI		20
ROSE LARISA W	7/27/2010		10AM		7/28/2010		ENTEROCOCCI		<10
GASPEE PT C	7/27/2010		11AM		7/28/2010		ENTEROCOCCI		10
GASPEE PT E	7/27/2010		11AM		7/28/2010		ENTEROCOCCI		<10
GASPEE PT W	7/27/2010		11AM		7/28/2010		ENTEROCOCCI		10

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SABIN PT		7/28/2010		9AM		7/29/2010		ENTEROCOCCI	<10
ROSE LARISA C		7/28/2010		10AM		7/29/2010		ENTEROCOCCI	<10
ROSE LARISA E		7/28/2010		10AM		7/29/2010		ENTEROCOCCI	<10
ROSE LARISA W		7/28/2010		10AM		7/29/2010		ENTEROCOCCI	<10
GASPEE PT C		7/28/2010		11AM		7/29/2010		ENTEROCOCCI	52
GASPEE PT E		7/28/2010		11AM		7/29/2010		ENTEROCOCCI	63
GASPEE PT W		7/28/2010		11AM		7/29/2010		ENTEROCOCCI	<10
SABIN PT		7/29/2010		9AM		7/30/2010		ENTEROCOCCI	41
ROSE LARISA C		7/29/2010		10AM		7/30/2010		ENTEROCOCCI	10
ROSE LARISA E		7/29/2010		10AM		7/30/2010		ENTEROCOCCI	<10
ROSE LARISA W		7/29/2010		10AM		7/30/2010		ENTEROCOCCI	<10
GASPEE PT C		7/29/2010		11AM		7/30/2010		ENTEROCOCCI	30
GASPEE PT E		7/29/2010		11AM		7/30/2010		ENTEROCOCCI	10
GASPEE PT W		7/29/2010		11AM		7/30/2010		ENTEROCOCCI	<10
SABIN PT		8/2/2010		9AM		8/3/2010		ENTEROCOCCI	10
ROSE LARISA C		8/2/2010		10AM		8/3/2010		ENTEROCOCCI	<10
ROSE LARISA E		8/2/2010		10AM		8/3/2010		ENTEROCOCCI	<10
ROSE LARISA W		8/2/2010		10AM		8/3/2010		ENTEROCOCCI	<10
GASPEE PT C		8/2/2010		11AM		8/3/2010		ENTEROCOCCI	<10
GASPEE PT E		8/2/2010		11AM		8/3/2010		ENTEROCOCCI	41
GASPEE PT W		8/2/2010		11AM		8/3/2010		ENTEROCOCCI	<10
SABIN PT		8/3/2010		9AM		8/4/2010		ENTEROCOCCI	52
ROSE LARISA C		8/3/2010		10AM		8/4/2010		ENTEROCOCCI	20
ROSE LARISA E		8/3/2010		10AM		8/4/2010		ENTEROCOCCI	10
ROSE LARISA W		8/3/2010		10AM		8/4/2010		ENTEROCOCCI	<10
GASPEE PT C		8/3/2010		11AM		8/4/2010		ENTEROCOCCI	<10
GASPEE PT E		8/3/2010		11AM		8/4/2010		ENTEROCOCCI	<10
GASPEE PT W		8/3/2010		11AM		8/4/2010		ENTEROCOCCI	10
SABIN PT		8/4/2010		9AM		8/5/2010		ENTEROCOCCI	161
ROSE LARISA C		8/4/2010		10AM		8/5/2010		ENTEROCOCCI	<10
ROSE LARISA E		8/4/2010		10AM		8/5/2010		ENTEROCOCCI	<10
ROSE LARISA W		8/4/2010		10AM		8/5/2010		ENTEROCOCCI	<10
GASPEE PT C		8/4/2010		11AM		8/5/2010		ENTEROCOCCI	52
GASPEE PT E		8/4/2010		11AM		8/5/2010		ENTEROCOCCI	<10
GASPEE PT W		8/4/2010		11AM		8/5/2010		ENTEROCOCCI	<10
SABIN PT		8/5/2010		9AM		8/6/2010		ENTEROCOCCI	<10
ROSE LARISA C		8/5/2010		10AM		8/6/2010		ENTEROCOCCI	<10
ROSE LARISA E		8/5/2010		10AM		8/6/2010		ENTEROCOCCI	<10
ROSE LARISA W		8/5/2010		10AM		8/6/2010		ENTEROCOCCI	<10
GASPEE PT C		8/5/2010		11AM		8/6/2010		ENTEROCOCCI	<10
GASPEE PT E		8/5/2010		11AM		8/6/2010		ENTEROCOCCI	<10
GASPEE PT W		8/5/2010		11AM		8/6/2010		ENTEROCOCCI	<10
SABIN PT		8/10/2010		9AM		8/11/2010		ENTEROCOCCI	52
ROSE LARISA C		8/10/2010		10AM		8/11/2010		ENTEROCOCCI	30
ROSE LARISA E		8/10/2010		10AM		8/11/2010		ENTEROCOCCI	109
ROSE LARISA W		8/10/2010		10AM		8/11/2010		ENTEROCOCCI	20
GASPEE PT C		8/10/2010		11AM		8/11/2010		ENTEROCOCCI	110

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GASPEE PT E		8/10/2010		11AM		8/11/2010		ENTEROCOCCI		10
GASPEE PT W		8/10/2010		11AM		8/11/2010		ENTEROCOCCI		95
SABIN PT		8/11/2010		9AM		8/12/2010		ENTEROCOCCI		122
SABIN PT	PIPE	8/11/2010		9AM		8/12/2010		ENTEROCOCCI		51
ROSE LARISA C		8/11/2010		10AM		8/12/2010		ENTEROCOCCI		30
ROSE LARISA E		N/A		N/A		N/A		N/A		N/A
ROSE LARISA W		N/A		N/A		N/A		N/A		N/A
GASPEE PT C		8/11/2010		11AM		8/12/2010		ENTEROCOCCI		98
GASPEE PT E		8/11/2010		11AM		8/12/2010		ENTEROCOCCI		581
GASPEE PT W		8/11/2010		11AM		8/12/2010		ENTEROCOCCI		776
SABIN PT		8/12/2010		9AM		8/13/2010		ENTEROCOCCI		63
ROSE LARISA C		8/12/2010		10AM		8/13/2010		ENTEROCOCCI		62
ROSE LARISA E		N/A		N/A		N/A		N/A		N/A
ROSE LARISA W		N/A		N/A		N/A		N/A		N/A
GASPEE PT C		8/12/2010		11AM		8/13/2010		ENTEROCOCCI		<10
GASPEE PT E		8/12/2010		11AM		8/13/2010		ENTEROCOCCI		185
GASPEE PT W		8/12/2010		11AM		8/13/2010		ENTEROCOCCI		373
SABIN PT		8/16/2010		9AM		8/17/2010		ENTEROCOCCI		285
ROSE LARISA C		8/16/2010		10AM		8/17/2010		ENTEROCOCCI		20
ROSE LARISA E		8/16/2010		10AM		8/17/2010		ENTEROCOCCI		41
ROSE LARISA W		8/16/2010		10AM		8/17/2010		ENTEROCOCCI		30
GASPEE PT C		8/16/2010		11AM		8/17/2010		ENTEROCOCCI		10
GASPEE PT E		8/16/2010		11AM		8/17/2010		ENTEROCOCCI		20
GASPEE PT W		8/16/2010		11AM		8/17/2010		ENTEROCOCCI		<10
SABIN PT		8/17/2010		9AM		8/18/2010		ENTEROCOCCI		<10
ROSE LARISA C		8/17/2010		10AM		8/18/2010		ENTEROCOCCI		<10
ROSE LARISA E		8/17/2010		10AM		8/18/2010		ENTEROCOCCI		41
ROSE LARISA W		8/17/2010		10AM		8/18/2010		ENTEROCOCCI		10
GASPEE PT C		8/17/2010		11AM		8/18/2010		ENTEROCOCCI		31
GASPEE PT E		8/17/2010		11AM		8/18/2010		ENTEROCOCCI		<10
GASPEE PT W		8/17/2010		11AM		8/18/2010		ENTEROCOCCI		<10
SABIN PT		8/18/2010		9AM		8/19/2010		ENTEROCOCCI		<10
ROSE LARISA C		8/18/2010		10AM		8/19/2010		ENTEROCOCCI		20
ROSE LARISA E		8/18/2010		10AM		8/19/2010		ENTEROCOCCI		<10
ROSE LARISA W		8/18/2010		10AM		8/19/2010		ENTEROCOCCI		<10
GASPEE PT C		8/18/2010		11AM		8/19/2010		ENTEROCOCCI		<10
GASPEE PT E		8/18/2010		11AM		8/19/2010		ENTEROCOCCI		<10
GASPEE PT W		8/18/2010		11AM		8/19/2010		ENTEROCOCCI		97
SABIN PT		8/19/2010		9AM		8/20/2010		ENTEROCOCCI		74
ROSE LARISA C		8/19/2010		10AM		8/20/2010		ENTEROCOCCI		<10
ROSE LARISA E		8/19/2010		10AM		8/20/2010		ENTEROCOCCI		<10
ROSE LARISA W		8/19/2010		10AM		8/20/2010		ENTEROCOCCI		<10
GASPEE PT C		8/19/2010		11AM		8/20/2010		ENTEROCOCCI		<10
GASPEE PT E		8/19/2010		11AM		8/20/2010		ENTEROCOCCI		<10
GASPEE PT W		8/19/2010		11AM		8/20/2010		ENTEROCOCCI		52

Appendix G

Sanitary Survey Form



Rhode Island Department of Health Beach Monitoring Program



BEACH NAME:

DATE OF SURVEY:

Beach Contact Information

Narrative

Beach Monitoring Activities

Closure History (Last 5-years)



Rhode Island Department of Health Beach Monitoring Program



BEACH NAME:

DATE SURVEY COMPLETED:

Is beach area marked (i.e. roped off, etc.)? Describe.	
Lat/Long of ends of beach area (N/S or E/W boundaries)	
Length of swimming area	
Lat/Long of Sample Stations	
Length of entire beach	
Location of storm water run-off points? Describe and/or get lat/long	
Comments	



Rhode Island Department of Health Beach Monitoring Program



BEACH NAME:
COMPLETED:

DATE

SURVEY

Beach History and Known Sources of Contamination:

Does the Beach meet its use classification?	YES/NO (if no, high risk)						
303d Listed?	YES/NO (add 1 point per impairment)						
Confirmed Illness Reports?	YES/NO (if yes, add 5 points)						
Closed during the 2006 Bathing Season?	1-5days 1 Point	6-10days 2 Points	11-15days 3 Points	16-20days 4 Points	21-25days 5 Points	26-30days 6 Points	
Closed during the 2005 Bathing Season?	1-5days 1 Point	6-10days 2 Points	16-20days 4 Points	21-25days 5 Points	26-30days 6 Points	31-35days 7 Points	
Is the beach located in an UA or DPA?	YES/NO (if yes, add 10 points)						
Number of PS Discharges within a 5 mile radius?	(1 point per discharge)						
Is the area subject to CSO's or SSO's?	YES/NO (if yes, add 25 points)						
Is the area subject to Agricultural run-off?	YES/NO						
The nearest POTW is _____miles away?	0-1 mile 15 points	1-2 miles 10 points	2-3 miles 5 points	3-4 miles 3 points	4-5 miles 1 point		
Number of POTW's within 5 miles?	(1 point per POTW)						
Level of Private Septic Systems?	High 10 points		Medium 5 points		Low 1 point		
Is there a TMDL in progress?	YES/NO (if yes, subtract 5 points)						
Ave. # of times the single sample standard was violated?	(1 point per exceedance)						
How important is this beach to the local economy?	High 10 points		Medium 5 points		Low 1 point		
Number of Marine Pump-Outs within 5 miles?	(Subtract 1 point per facility)						

Field Survey:

Sanitary facilities located at Beach?	YES/NO (if no, add 5 points)			
Number of Marinas to likely have an effect on the beach?	(1 point per marina)			
Level of boat traffic?	High 10 points	Medium 5 points	Low 1 point	
Wild animals present on/near beach?	YES/NO (if yes, add 5 points)			

Domestic animals on/near beach?	YES/NO (if yes, add 5 points)					
Approx. # of Birds on a typical 100ft. section of beach?	(.25 points per bird)					
Ave. # of users during peak beach season?	1-500 5 points	501-1500 10 points	1500-5000 15 points	5001-10000 20 points	>10001 25 points	
Ave # of off-peak users (primary contact)?	1-25 1 point		26-50 5 points		>50 10 points	
Density of susceptible population?	0-33% 5 points		34-67% 10 points		68-100% 15 points	
Visible stormwater run-off?	YES/NO (if yes, 5 points per occurrence)					
Pipes at/adjacent to beach?	YES/NO (if yes, pipe <12"-1 point, >12"-2 points)					
Presence of floatable debris?	YES/NO (if yes, add 5 points)					
Presence of scum/oil sheen?	YES/NO (if yes, add 5 points)					

General Information:

Length of beach			
Location of pipes?			
Location of sampling points?			
Location of stormwater run-off points?			
Distance to stream/river?			
Wrack present?	YES/NO	Width:	Do they rake? YES/NO

Grand Total:	
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Comments:

Appendix H

Homepage for HEALTH's Beach Monitoring Program

Rhode Island Department of Health - Beach Monitoring - Windows Internet Explorer

http://www.ribeaches.org/

File Edit View Favorites Tools Help

Rhode Island Department of Health - Beach Monitoring

RI.gov R.I. Government Agencies | Privacy Policy | Search RI.gov: Go

Rhode Island Department of Health
David R. Gifford, MD, MPH, Director
Donald L. Carcieri, Governor

HOME HEALTH TOPICS NEWS DATA PROGRAMS PUBLICATIONS SITE MAP

Beach Monitoring Home **Beach Water Quality Monitoring** Today is March 26 2010
News and Publications Today's weather and ozone forecast
Closures and Advisories
Water Quality Information
Fact Sheets for Beach Goers
Illness Complaint Form
Related Links
RIBeach Watch Login
Content Syndication
Beach Owners and Managers

The purpose of the Rhode Island Department of Health Beach Monitoring Program is to provide real-time water quality and safety information concerning all 126 monitored bathing facilities. Through effective management of these beaches, the Department of Health can minimize public health risks associated with swimming in contaminated waters.

For information regarding Recent Beach Closures and/or Openings please see the "RECENT BEACH CLOSURES" section in the right-hand menu. Alternatively you can use the "SEARCH BEACH RESULTS" feature on the right-hand menu to search for a specific beach by beach name or by town to see a full water quality monitoring history for that beach.

- Recent Closures and Advisories
- Recent Press Releases
- Fact Sheets for Beach Goers

If you have any questions, comments or suggestions for the Beach Monitoring Program website, please contact us at: ribeaches@health.ri.gov

Beach Monitoring Program
3 Capital Hill Room 203
Providence, RI 02908-5097
(401)222-7727 or (401)222-2751
Amie Parris - Beach Coordinator
amie.parris@health.ri.gov

For questions or comments on the Beach Monitoring Program site, please e-mail RIBeaches@health.ri.gov

SEARCH BEACH RESULTS
Any Beach
Select a Beach or Select a Town
Any Town
Search Click Search

BEACH SEARCH TIPS
Select a Beach or Town to search. When complete you will be presented with an alphabetical list of all beaches that match your search criteria.

RECENT PRESS RELEASES
No Recent Press Releases Available.
More ...

RECENT BEACH CLOSURES
No Recent Beach Closures Available.
More ...

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Voice: 401-222-2231 • Fax: 401-222-6548 • TTY: 711 • Contact Us
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