Partial Sanitary Report of Shellfish Growing Area SE2 (Absecon-Reeds Bay)

March 2013

State of New Jersey
Chris Christie, Governor
Kim Guadagno, Lt. Governor

NJ Department of Environmental Protection
Bob Martin, Commissioner

Partial Sanitary Report of Shellfish Growing Area SE2

(Absecon-Reeds Bay)

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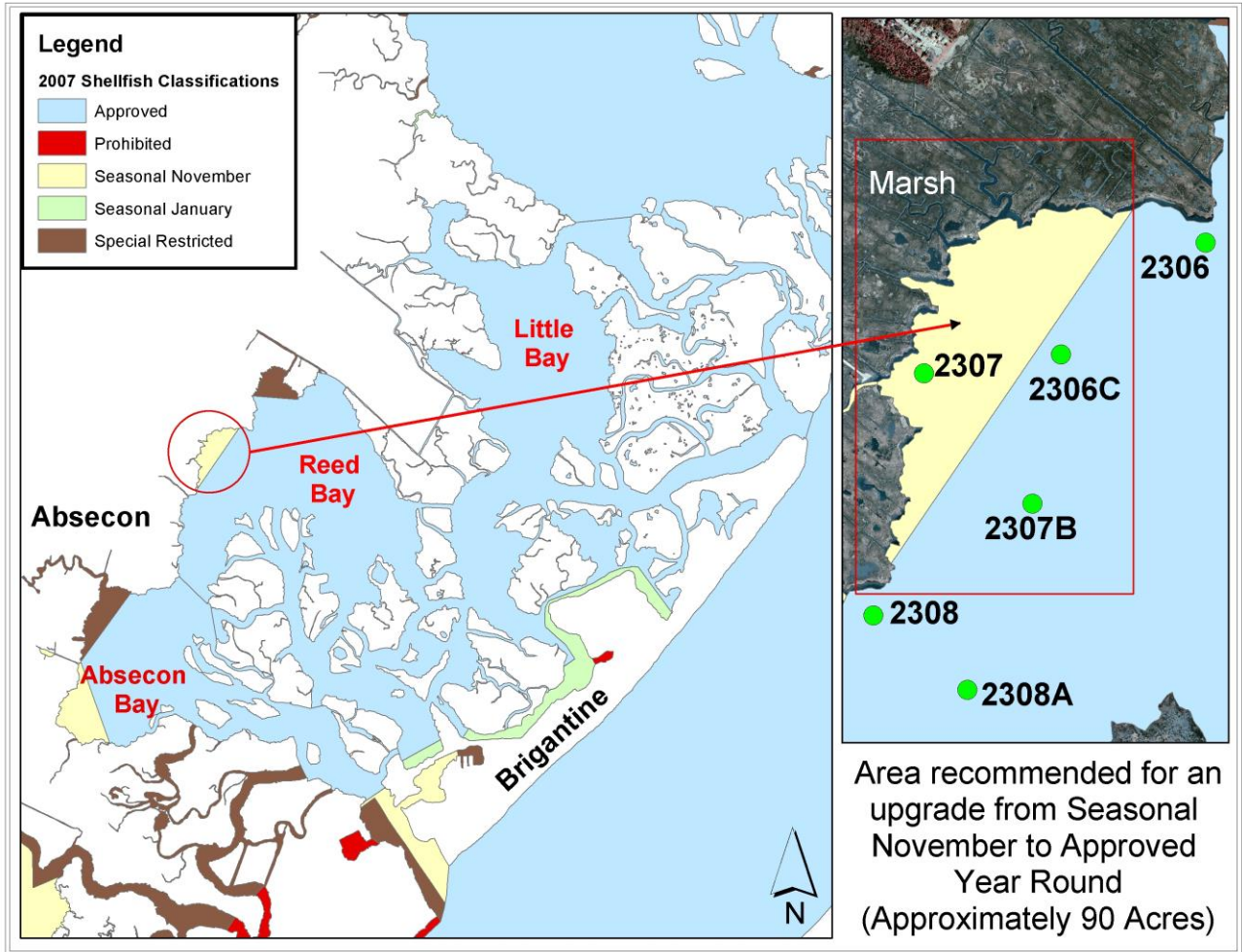Cover Photo –by Julie Nguyen

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EXECUTIVE SUMMARY

Shellfish Growing Area SE2 is located in southern New Jersey's Atlantic Coastal Plain, Atlantic County. This backbay area includes Absecon Bay, Reeds Bay, Little Bay, and Grassy Bay. Enclosed in these waterbodies are numerous thorofares, channels, coves, and inlets. The backbay is connected to the Atlantic Ocean via the Absecon Inlet and Brigantine Inlet. The approximate size of this shellfish area is 14,400 acres. About, ninety-two percent of the waters in this area are classified as either *Approved* or *Seasonally Approved* for shellfish harvesting. Less than eight percent of shellfish waters are still designated as either *Prohibited* or *Special Restricted*.

Atlantic City, Brigantine City, Galloway Township, Absecon City, and Pleasantville City are urban communities that border this shellfish growing area. These communities are connected to city sewers that are managed by the Atlantic County Utilities Authority (ACUA). ACUA is located in Atlantic City by Beach Thorofare. Before ACUA came into existence, effluents were being discharged directly into the backbay. Today, treated effluents are diverted to the Atlantic Ocean, roughly 1.59 miles off shore on Raleigh Avenue in Atlantic City. This transition had significantly reduced the pollution loading to the backbay, thus enhancing water quality for the entire shellfish growing area.

This report was based on data collected from October 2003 to September 2006. A total of 2,419 water samples were collected from 109 sampling sites and analyzed for total coliform using the standard three-tube MPN method and/or standard three-tube four-dilution method. Based on NSSP Adverse Pollution Condition criteria, none of the stations in this growing area had exceeded their respective criteria. Sediment and tissue data from the Environmental Monitoring for Public Access & Community Tracking (EMPACT), NOAA Mussel Watch, and National Coastal Assessment (NCA) programs were also evaluated. None of the tissue data collected by the Mussel Watch or EMPACT project had exceeded the available FDA criteria. Sediment data collected by the NCA program were compared with the Effect Range Median (ERM) and Effect Range Low (ERL) values, which was established by Long (1995). None of the sediment parameters exceeded the ERM values. There were two parameters (Arsenic and Cadmium) that slightly exceeded the ERL values. Adverse effect from concentration below the ERL values are rarely observed.

The water quality for this area continues to improve, especially in Reeds Bay. The current data supports the classification of *Approved* year-round for this area. Therefore, it is recommended that approximately 90 acres of waters in Reeds Bay be upgrade from *Seasonal Approved* to *Approved* year round. See map for location.

Legend

2007 Shellfish Classifications
- Approved
- Prohibited
- Seasonal November
- Seasonal January
- Special Restricted

Little Bay

Reed Bay

Absecon

Absecon Bay

Brigantine

Marsh

2306

2307

2306C

2307B

2308

2308A

N

Area recommended for an upgrade from Seasonal November to Approved Year Round (Approximately 90 Acres)

GROWING AREA PROFILE

Location and Description

Shellfish Growing Area SE2 is located in southern New Jersey's Atlantic Coastal Plain, Atlantic County. This shellfish growing area encompasses all backbay waters between Great Bay and Lakes Bay, excluding Great Bay and Lakes Bay. Surrounding this area are urbanized communities including Galloway Township, Absecon Township, Pleasantville City, Brigantine City, and Atlantic City.

The boundary of this growing area, starting from north to south, begin at the southern end of Great Bay and terminating at the intersection of Beach Thorofare and Great Channel by Lakes Bay. The waters of the Atlantic Ocean and Great Channel are not included in this growing area. The approximate size of this shellfish growing area is about 14,400 acres. The main waterbodies in this shellfish area include Absecon Bay, Reed Bay, Little Bay, and Grassy Bay. Enclosed in these main waterbodies are numerous thorofares, channels, coves, and inlets. Some of the larger thorofares and channels are the Absecon Channel, Beach Thorofare, Bonita Tideway, Golden Hammock Thorofare, and Brigantine Channel. The backbay is connected to the Atlantic Ocean via the Absecon Inlet and Brigantine Inlet.

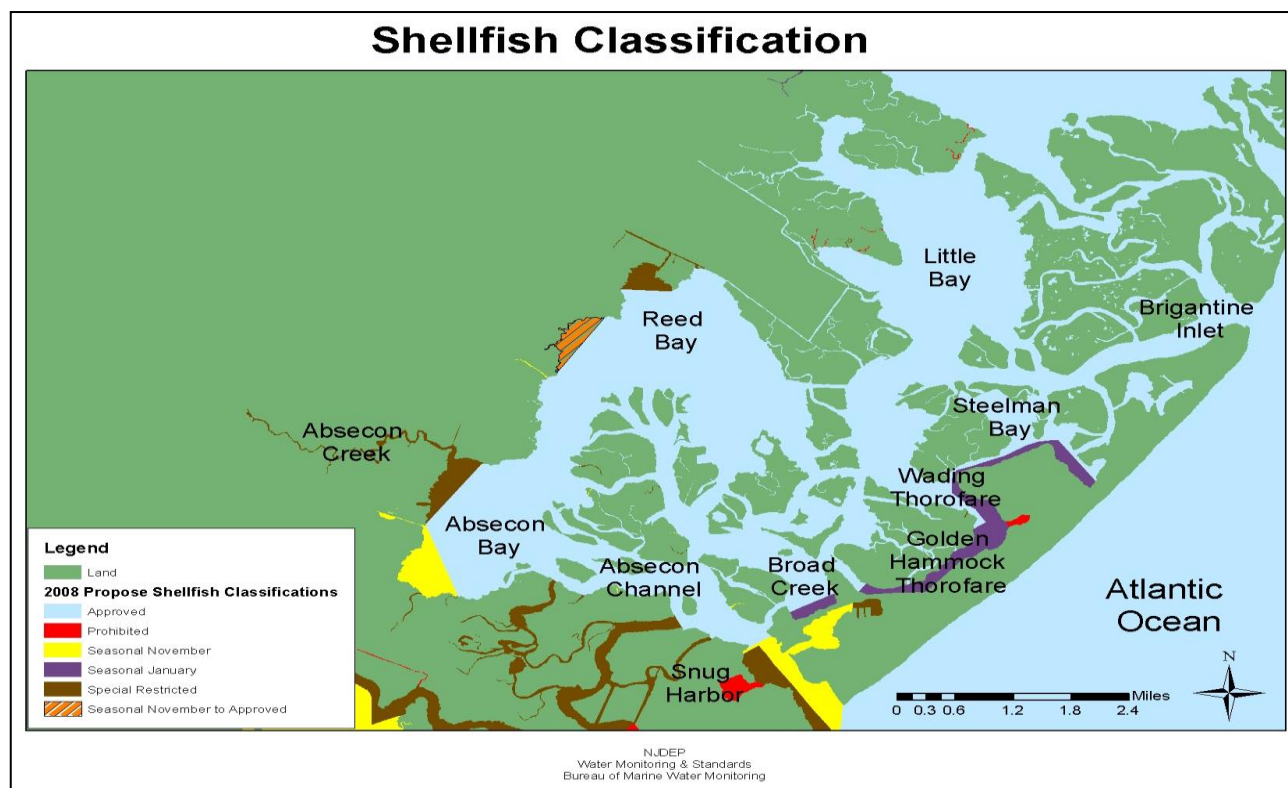**LOCATION OF SHELLFISH GROWING AREA SE2**
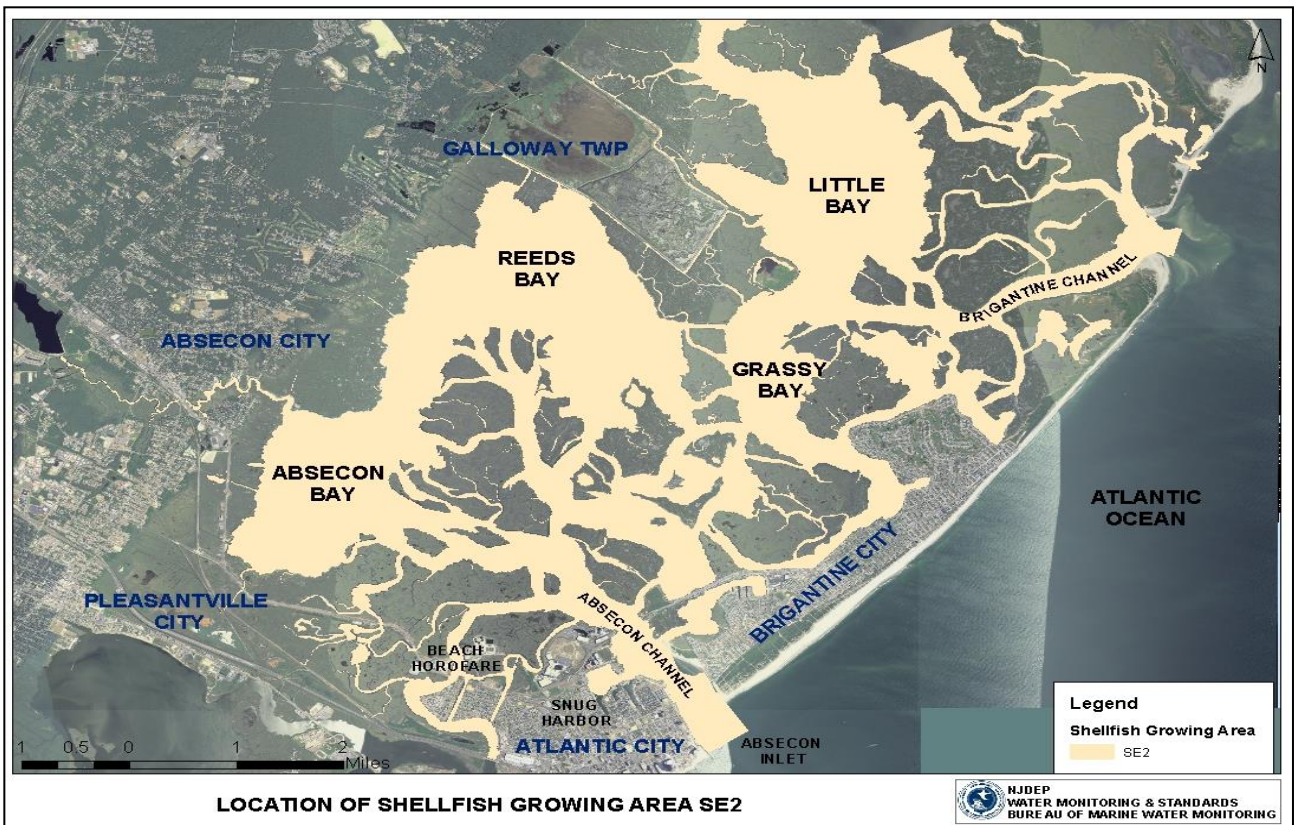
Growing Area Classification Summary

In the 1960's, approximately fifty percent of the shellfish waters in this area were classified as *Prohibited*. This included Absecon Bay, Absecon Channel, Bonita Tideway, Broad Creek, Beach Thorofare, and portion of Reeds Bay. Water quality degradation was contributed to malfunctioning septic systems, illegal dumping, runoffs, and the direct discharges of effluents to the backbay. By the late 1970's, water quality began to improved, mainly due to the elimination of direct discharges and the implementation of city sewer systems, administered by the Atlantic County Utilities Authority. The elimination of pollution to the backbay had resulted in the reclassification of shellfish waters. Today, over ninety percent of shellfish waters in this area are either classified as *Approved* or *Seasonally Approved* and less than eight percent of shellfish waters are still designated as *Prohibited* or *Special Restricted.* Poor water quality still exists in areas where there are numerous marinas and stormwater outfalls.

Shellfish Classification Status

- Approved
- Seasonally Approved (November)
- Seasonally Approved (January)
- Special Restricted
- Prohibited
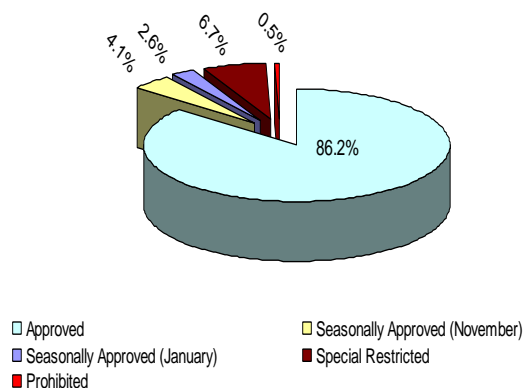
The figure below illustrates the shellfish classifications for this growing area. It is also on the 2007 State of New Jersey Shellfish Growing Water Classification Charts and on WM&S/BMWM website at http://www.state.nj.us/dep/bmw/

Evaluation of Biological Resources

Biological resoures in this shellfish growing area are in abundance because of it proximity to wildlife refuges. The Edwin B. Forsythe National Wildlife Refuge and the Absecon Wildlife Management Area supports a very large seasonal population of waterfowl, wading birds, and shore birds that uses these lands for nesting and hunting. The refuge covers approximately 46,000 acres, which includes portions of the following counties: Atlantic, Burlington, and Ocean. Nearly 80% of the refuge is tidal salt meadow and marshes. The remaining acreage is wooded land that is dominated by pitch pines, oaks, and white cedar. The map shows the location of the wildlife management areas that are situated in this growing area. Additional information about these wildlife refuges can be found on http://www.fws.gov.
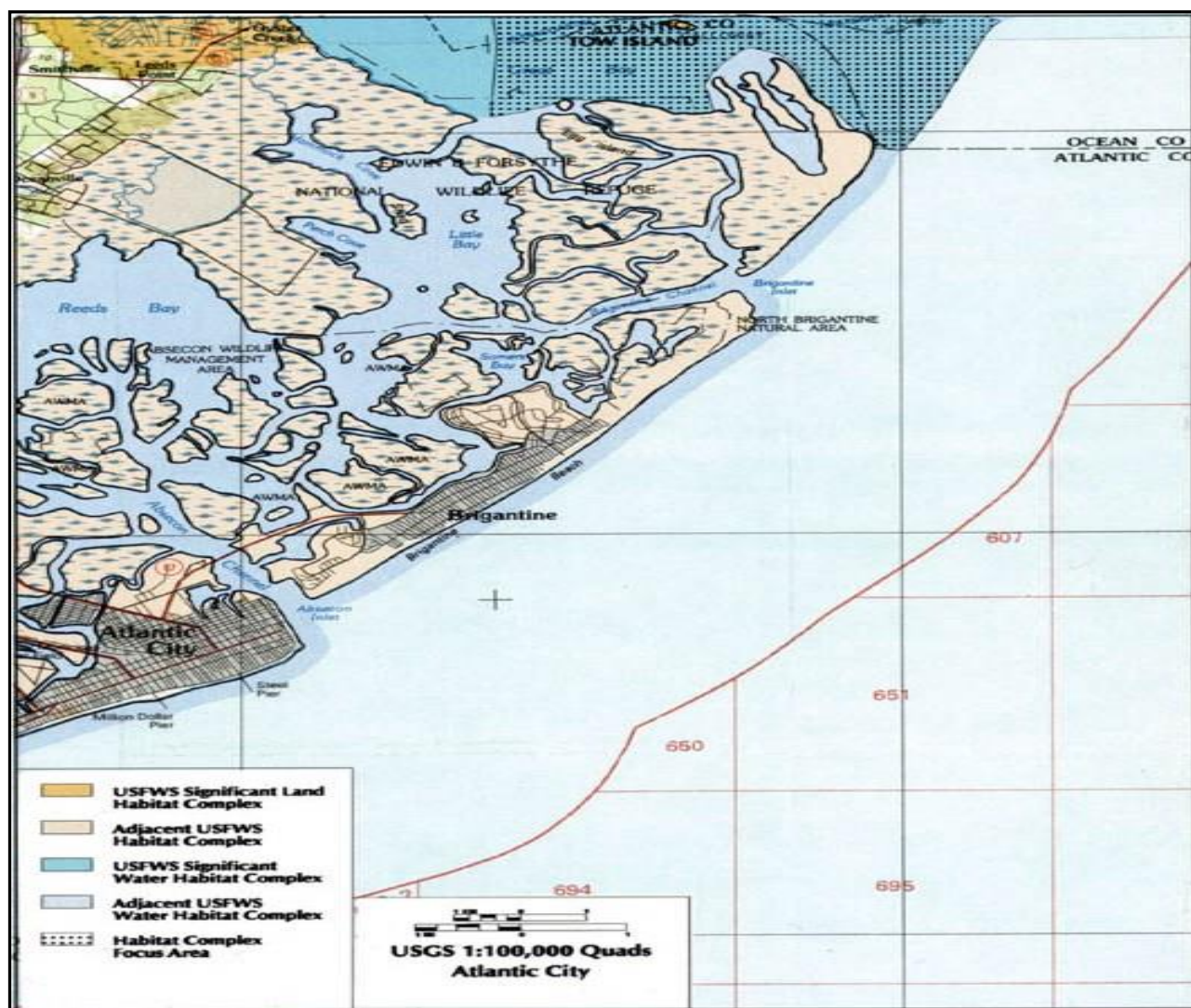
Reeds Bay and Absecon Bay are very shallow, approximately 5-7 feet in depth, which make them very productive in generating hard clams (*Mercenaria mercenaria*). According to the 1963 survey conducted by the U.S. Fish and Wildlife Service in cooperation with the Bureau of Shellfisheries, they found an abundance of hard clams in this area that were commercially valuable. The most recent study in this area was done in 2003 by the Bureau of Shellfisheries, which determined the density of hard clams to be low to moderate. The maps below represent the relative abundances of hard clams in Absecon Bay, Perch Cove, and Little Bay.

Hard Clams Relative Abundances in Absecon Bay

Hard Clam Abundances

✖ None
● Low
▲ Moderate
★ High

Hard Clams Relative Abundances in Perch Cove

Legend

⊟ None
Low Density
Moderate Density
High Density

Hard Clams Relative Abundances in Little Bay
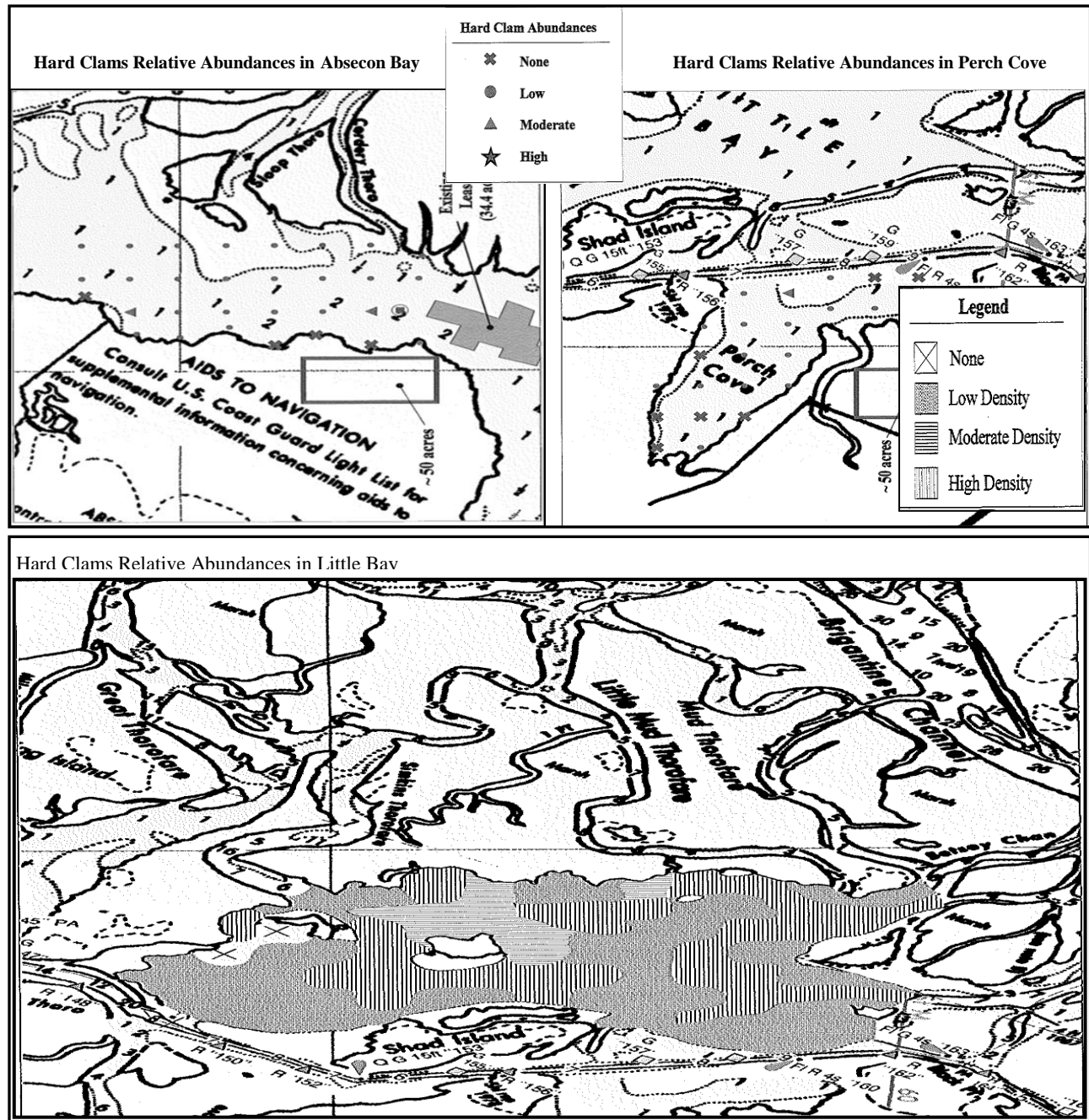
Shoreline Survey: Evaluation of Potential Pollution Sources

Shoreline surveys or site-specific tours of areas nearby or abutting shellfish growing waters can provide insight as to the location and nature of land use, surface water discharges, marinas, unpermitted discharges, and stormwater inputs. Shoreline surveys of SE2 were conducted in 2007 and 2008. The following sections detail information derived collectively from those surveys, and those that preceded them.

Land Use

Surrounding this shellfish growing area are urban communities. Absecon City, Brigantine City, and Galloway Township are primarily residential communities with very few large commercial businesses. The biggest industry in this area is the casino industry, located in Atlantic City.

The surrounding landscape had not changed significantly since the last shoreline survey. Wetlands still dominate the surrounding area. These wetlands are part of the Edwin B. Forsythe National Wildlife Refuge and the Absecon Wildlife Management Area; therefore, they cannot be utilized for urban development. The shellfish waters are enclosed within these wetlands, which act as a barrier from the surrounding population center. The wetland acts both as a purifier against pollutants as well as utilizes the nutrients obtained for plant growth. By doing so, these wetlands help to reduce pollutants entering into the shellfish growing area.
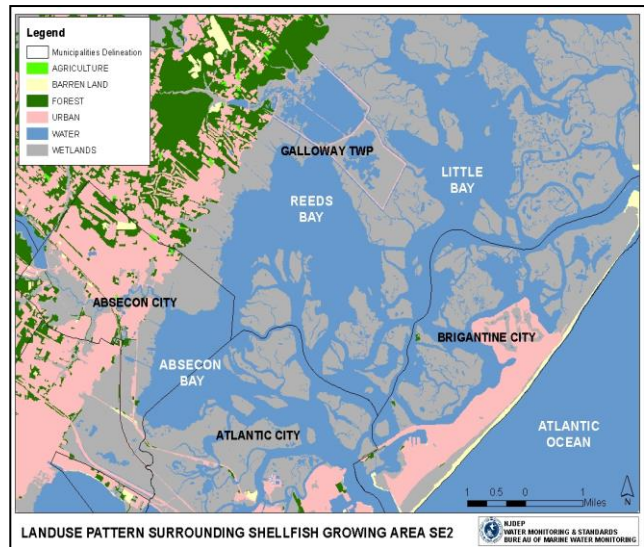
Surface water dischargers

A surface water discharge involves the release of treated effluent from various municipal and industrial facilities directly into a river, stream, or the ocean. The discharge of pollutants from a point source is authorized under New Jersey Pollutant Elimination System (NJPDES), and the regulations are found at N.J.A.C. 7:14A. The main purpose of the NJPDES program is to ensure proper treatment and discharges of wastewater. By doing so, the permit limits the amount or concentration of pollutants that can be discharged into ground water, streams, rivers, and the ocean. According to the NJPDES program, there are several surface dischargers in this shellfish growing area. The only facility that does have the potential to impact water quality is the Atlantic County Utilities Authority (ACUA), located in Atlantic City. This wastewater facility became operational in 1978, and provides service to the surrounding communities. The treated effluents are discharged to the Atlantic Ocean, approximately 1.59 miles off Raleigh Avenue in Atlantic City. Because of the facility close proximity to shellfish waters, there is a perpetual risk from accidental spill or unplanned discharges to shellfish waters.

Marinas

The discharge of sewage from vessels into the waterways can contribute to the degradation of the marine environment by introducing disease-causing microorganisms (pathogens), such as bacteria, protozoan, and viruses, into the marine environment. Chemical compounds, such as oil and gasoline resulting from spills, leaks, and pressure washing from vessels can poison fish and other marine organisms. Research has shown that by-products from the biological breakdown of petroleum products can harm fish and wildlife, and pose threats to human health if ingested. (NOAA) For this reason, waters enclosed by the marina, (the marina basin) are classified as *Prohibited.* Depending on the size of the marina, the water quality, flushing rates and water depth, shellfish waters immediately adjacent to each marina, known as the buffer zone, may be classified as *Prohibited*, *Special Restricted* or *Seasonally Approved* (no harvest during summer months when the marina is normally active). Marina buffers are calculated using the NJ Marina Buffer Equation. For additional information on the marina buffer equation, see the Shellfish Growing Area Report Guidance Document 2007.

In recent years, NJDEP had implemented the Clean Marina Program, a volunteer based program for marina's owner and boater. The program was designed to help reduce pollution generated by marina related activities by providing assistance and guidance on ways to reduce pollution, including sewage management, fueling operations, fish and solid waste management, and proper boat cleaning procedures. Currently, there are only a small percentage of marinas in the state that do participate in this program. The lists of marinas that are certified and/or pledged under this program are on http://www.njcleanmarina.org/.

There are twenty-four marinas in this shellfish growing area. The locations of these marinas are displayed on the map.

LOCATION OF MARINAS IN SHELLFISH GROWING AREA SE2

Map_ID	Facility_Type	Name	Total_Slip
1	Marina	Conways Marina	12
2	Marina	Up The Creek Marina	32
3	Marina	Bobs Outboard Marine	20
4	Marina	North Point Marina	39
5	Marina	Sen. Frank S. Farley State Marina	650
6	Marina	Deebold Boatyard	30
7	Marina	Absecon Bay Sportsman Center	20
8	Marina	Brigantine Yacht Club	16
9	Marina	Brigantine BPO Elks	50
10	Marina	Jolly Roger Marina	18
11	Marina	Bayside Marina	94
12	Marina	Jersey State Marina	38
13	Marina	Kammermans Atlantic City Marina	14
14	Marina	Atlantic City Fishing Center	12
15	Marina	Absecon Marine	24
16	Private Property	Private Property	9
17	Private Property	Private Property	10
18	Condo	Snug Harbor Condo	7
19	Marina	Captain Richs	13
20	Condo	Condo	38
21	Condo	Condo	20
22	Marina	Fish & Fun Marina	22
23	Condo	Condo	12
24	Marina	Historic Gardeners Basin	52

Legend
□ Marina

NJDEP
WATER MONITORING & STANDARDS
BUREAU OF MARINE WATER MONITORING

Spills, Unpermitted Discharges, and Closure

Indirect discharges are groundwater discharge, malfunctioning septic systems, known contaminated sites, spills, dredging projects, and impacts from wildlife areas. Under normal circumstances, these indirect discharges do not routinely affect water quality. However, on occasion they do result in the closure of shellfish waters due to accidental discharge that result in higher than normal bacteria counts. Between 2003 and 2006, no closure was issued in this area. There were several reports of manhole's overflow caused by heavy rain. Most of these spills were terminated within a few hours and the discharges usually flow into nearby creeks and/or lagoons. By the time the pollutants reaches shellfish water, the bacteria levels had diminished.

Storm Water Discharges
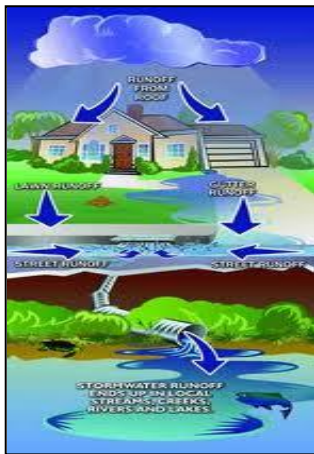
Non-point source pressures on shellfish beds in New Jersey originate in materials that enter the water via stormwater. Stormwater runoffs are generated when precipitation from rain and snowmelt flows over land or impervious surfaces and does not percolate into the ground. As the runoff flows over the land or impervious surfaces (paved streets, parking lots, and building rooftops), it accumulates debris, chemicals, sediment or other pollutants that could adversely affect water quality if the runoff is discharged untreated. The typical pollutants that are associated with stormwater run-off are bacteria, heavy metals, pesticides, herbicides, chlorides, petroleum, and nutrients. (NJStormwater.Org) Most of the stormwater outfalls within this growing area are near residential and urbanized area. (Illustration by: morgan-hill.ca.gov)

Stormwater outfalls in this area usually discharges to nearby creeks, but there are some that discharges directly to shellfish waters. The highest emphases are placed on the stormwater outfalls that discharge directly to shellfish waters. WM&S/BMWM had identified several potential stormwater impacted areas. Stormwater impacted area include Absecon Bay, Bonita Tideway, Golden Hammock Thorofare, and St. George Thorofare. These areas tend to have higher bacteriological counts after a rainfall event.

LOCATION OF STORMWATER OUTFALLS IN SHELLFISH GROWING AREA SE2

# WATER QUALITIES STUDIES

Sampling Strategy

The State Shellfish Control Authority has the option of choosing one of two water monitoring sampling strategies for each growing area. For additional information on the types of sampling strategies, see the *Shellfish Growing Area Report Guidance Document, 2007*. This shellfish growing area uses the Adverse Pollution Condition Sampling Strategy (APC) because of the wastewater facility and because it is a rainfall impacted area.

Each shellfish producing state is directed to adopt either the total coliform or fecal coliform criterion to classify its waters. The criteria were developed to ensure that shellfish harvested from designated waters would be free of pathogenic (disease-producing) bacteria. Combinations of these criteria may also be used. With the exception of ocean water analysis where fecal coliform criterion is used, New Jersey has determined its remaining shellfish growing water classifications with total coliform analysis.

Each classification criterion is composed of a measure of the statistical 'central tendency' (geometric mean) and the relative variability of the data set. For the Adverse Pollution Condition sampling strategy, variability is expressed as the percentage that exceeds the variability criteria. An area to be approved under the *Seasonal* classification must be sampled and meet the criterion during the time of year that it is approved for the harvest of shellfish. The table on the following page shows the statistical criteria for the APC sampling strategy.

| Statistical Criteria for Adverse Pollution Condition Sampling Strategy (APC)				
Classification	**Total Coliform Criteria**		**Fecal Coliform Criteria**	
	Geometric Mean (MPN/100 mL)	**No More Than 10% Of The Samples Can Exceed (MPN/100 mL)**	**Geometric Mean (MPN/100 mL)**	**Maximum 90th Percentile (MPN/100 mL)**
Approved	70	330	14	49
Special Restricted	700	3300	88	300

Water sampling was performed in accordance with the Field Procedures Manual (NJDEP, 2005). From 2003 through 2006, approximately 2,419 water samples were collected for total coliform bacteria from 109 monitoring stations. The locations of these stations are shown in the map below. These samples were analyzed by the standard three-tube MPN method and/or standard three-tube four-dilution method (APHA, 1970). Water quality sampling, shoreline and watershed surveys were conducted in accordance with the NSSP *Guide for the Control of Molluscan Shellfish,* Revision 2003. Data management and analysis was accomplished using database applications developed for the Bureau. Mapping of pollution data was performed with the Geographic Information System (GIS: ARCMap).

LOCATION OF MONITORING SITES IN SHELLFISH GROWING AREA SE2
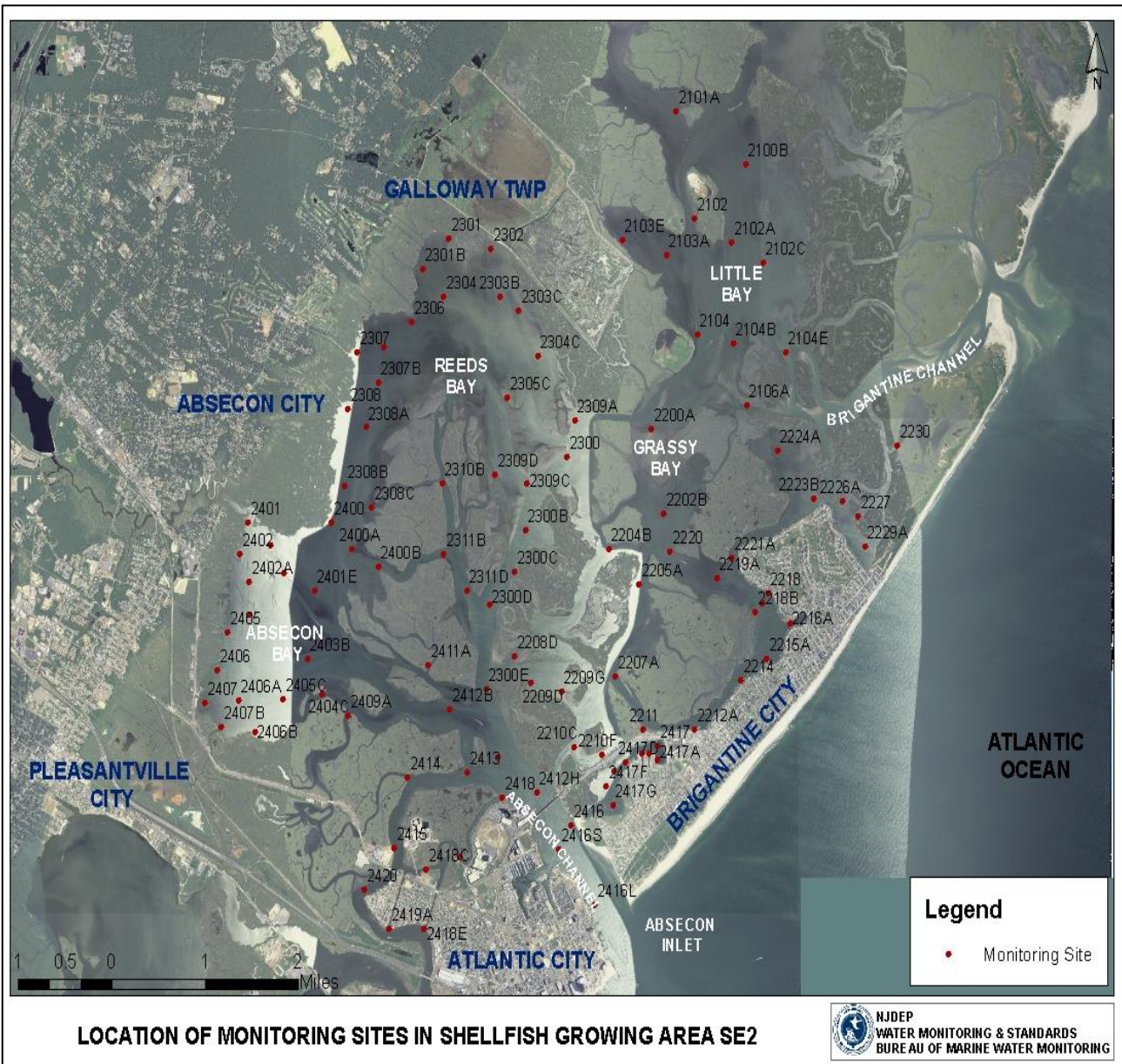
# BACTERIOLOGICAL QUALITY

## *Compliance with NSSP APC Criteria*

Based on the dataset analyzed for this report, five sampling stations had exceeded the NSSP APC approved criteria. These stations are located in *Special Restricted* waters of Beach Thorofare and St. George's Thorofare. These stations had exceeded the approved criteria in the past. For this reason, the waters in these areas are classified as *Special Restricted* due to poor water quality. Even though, these stations were found to exceed the approved criteria, they were within the special restricted criteria; thus, meeting their respective shellfish classification. None of the sampling stations in this area exceeded the NSSP APC special restricted criteria. All stations in seasonal areas also met their respective shellfish classifications.
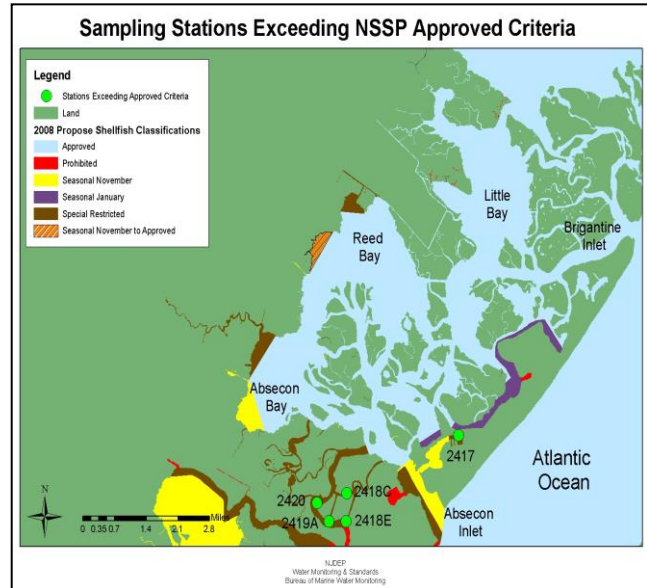

Rainfall Effects

The meteorological monitoring provides valuable contextual data for interpreting water quality implications of short-term weather events and for investigating estuarine responses to longer-term climatic variability (NOAA). Precipitation inputs to this area were provided by Middle Atlantic River Forecast Center (MARFC), an office in the National Weather Service (NWS). The MARFC provides 24 hour estimated precipitation based on a Multi-Sensor Precipitation Estimation (MPE) calculation using data collected from NWS' NEXRAD radar, together with rain gage observations and recordings. Precipitation assessment for this shellfish growing area was based on rainfall data collected at Station RA024. This rainfall station was selected to help determine whether

run-off would affect the shellfish waters within this growing area. The annual precipitations reported at Station RA024 between 2001 through 2006 are shown in the chart below.

Annual precipitations at Station RA024 (2001-2006)
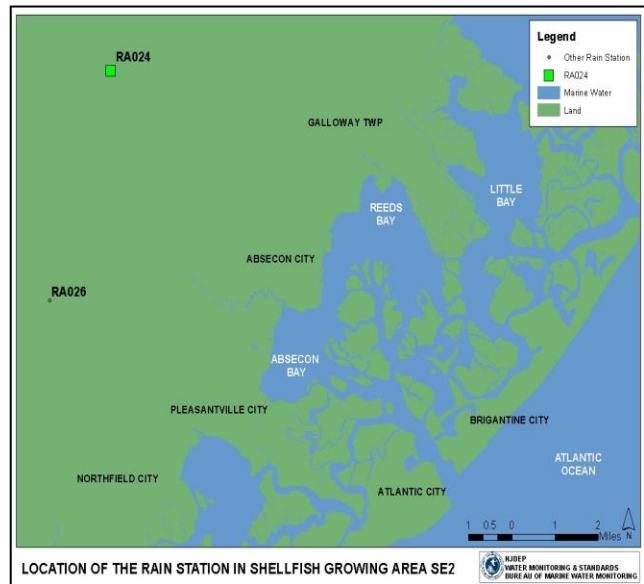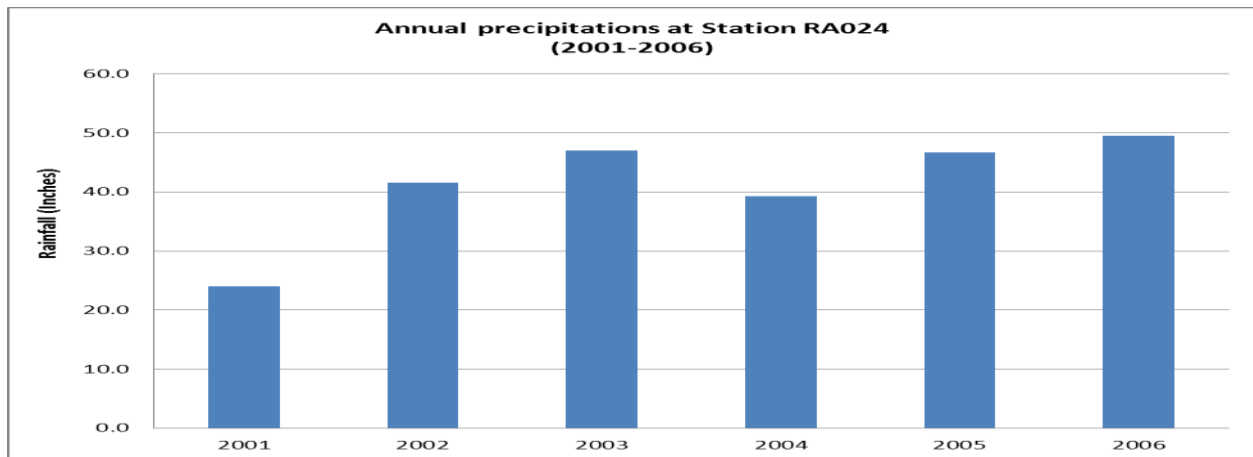
WM&S/BMWM used the t-test method to assess rainfall effects. This method compares the total coliform MPN values from samples collected during dry weather to samples collected during wet weather and identifies areas where runoffs can potentially affect water quality. The Wet/Dry Cutoff determines whether a sample was collected under wet or dry condition. For this growing area, the Wet/Dry Cutoff criterion was set at 0.2 inches, which is the typical standard used for assessing rainfall effects. The t-test calculated the statistical probability for each station based on 24, 48, and 72 hours of rainfall cumulative. Any stations with a t-statistical probability of less than 0.05 are believed to be impacted. Stations that are found to be impacted tend to have a higher total coliform count during a rainfall event. Even if, they are impacted by rain it does not necessarily mean they are also out of compliance with NSSP.

At prior 24 hours cumulative, forty monitoring stations show a correlation to rainfall. Most of the impacted stations were along the shoreline of Brigantine City. It was predicted that these stations would respond rapidly to rain due to their proximity to city center and numerous stormwater outfalls. Besides being impacted by urban runoffs, these stations can also be impacted by wildlife runoffs. The greatest differences between wet and dry weather geometric mean was in the Penrose Canal and Beach Thorofare. These areas are highly sensitive to wet weather.

Stations Impacted By Rainfall @ Prior 24 Hrs Cumulative
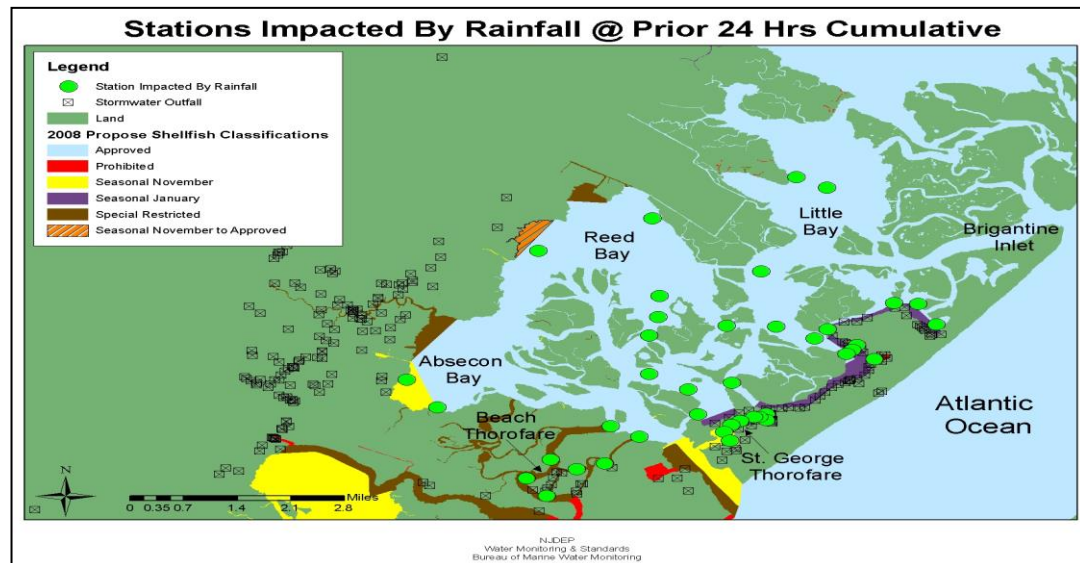
At 48 hours cumulative, forty-six monitoring stations had a t-statistical probability of less than 0.05. Most of the impacted stations were scattered around Broad Creek, Grassy Bay, Golden Hammock Thorofare, and St. George's Thorofare. Previous study had determined that St. George's Thorofare would be impacted by rain due to it physical characteristics (semi-enclosed and poor tidal flow). With poor tidal flow and dilution, pollutants that enter into this waterbody are trapped where they circulate and multiply over time; thus, resulting in higher bacteria counts. At 72 hours cumulative, thirty-four monitoring stations were affected by rainfall.
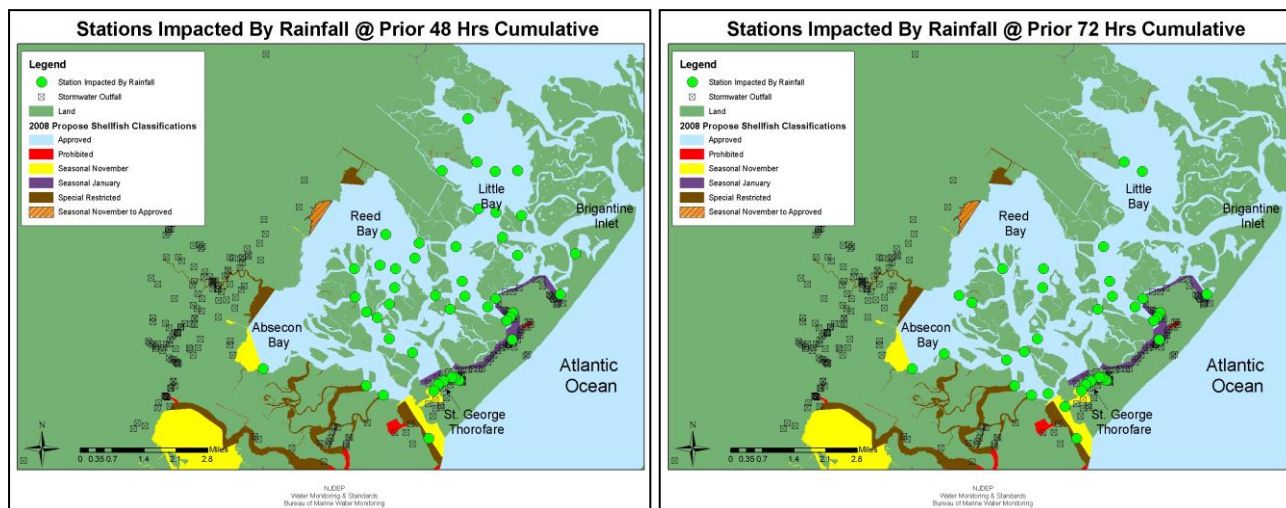
Seasonal Effects

As the earth experiences variations in the tilt of its axis and its revolution around the sun, it goes through seasonal phases of summer, spring, autumn, and winter. These seasonal phases cause much variation in the atmosphere of the earth, resulting in changes in weather patterns. Temperature, precipitation, wind, and the general circulation of the atmosphere have seasonal variations that also affect the marine environment (Ingmanson and Wallace, 1989). Seasonal variation may also be the result of a variety of conditions, including specific agricultural land-use practices, biological activity, stream flow and/or sediment.

To determine whether seasonal variation can influence bacteria counts, WM&S/BMWM uses a t-test to compare the total coliform MPN values from samples collected during the summer season versus samples collected during the winter months. Based on the t-test results, ten monitoring stations had a t-statistical probability of less than 0.05. Nine of the ten sampling stations were affected by the summer season and only one station was affected by winter.
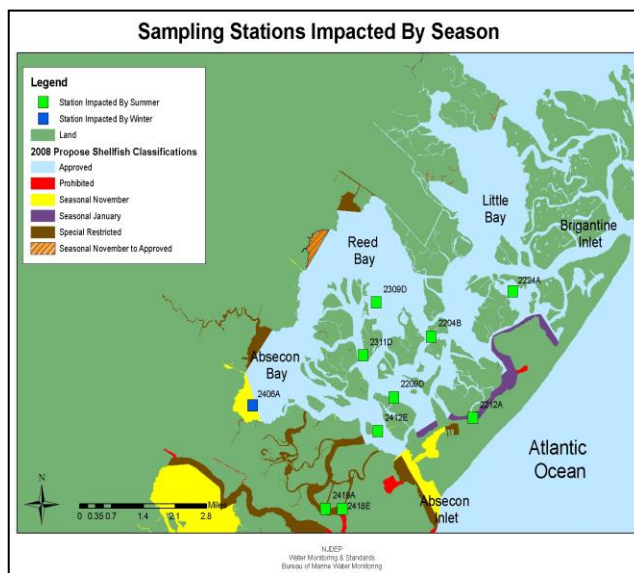
RELATED STUDIES

Nutrients

WM&S/BMWM perform additional water quality studies related to the bacteriological monitoring program. Nutrient monitoring and the collection of nutrient data as part of the NJ Coastal Monitoring Network is an example of one of those studies.

Nutrient stations are sampled on a quarterly basis. There are approximately 250 nutrient sampling stations within the coastal and inner coastal waters of New Jersey. Twenty-four of those stations are located within the ocean waters off the New Jersey coast. The 226 remaining nutrient stations are spread throughout the States back-bay waters. At these nutrient monitoring sites, various parameters were measured including water temperature, salinity levels, secchi depth, total suspended solids, dissolved oxygen levels, ammonia levels, nitrate and nitrite levels, orthophosphate levels, total nitrogen levels, and the inorganic nitrogen to phosphorus ratios. Nutrient monitoring sites for this shellfish area are shown in the map. The WM&S/BMWM compiles the results of nutrient levels from such stations and then prepares a separate report. For full nutrient assessment, see the Estuarine Monitoring Reports, available electronically at:
http://www.state.nj.us/dep/bmw/
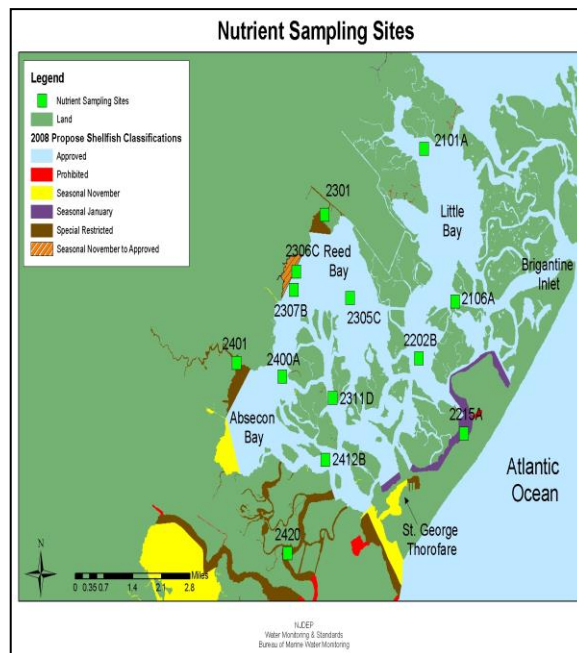
Cooperative Coastal Monitoring Program

NJDEP, along with the New Jersey Department of Health and Senior Services and local health agencies, implements the Cooperative Coastal Monitoring Program (CCMP) which is responsible for conducting sanitary surveys of beaches and monitors the concentration of bacteria in coastal and estuarine waters that are open to the public for recreational bathing. Samples are taken once a week, usually on Monday, for the entire summer. There are approximately 218 (ocean and bay) sampling stations throughout the state. The samples collected at these sites are tested for Enterococci. Local health agencies and law enforcement may close a beach at any time if the results exceeded the State Sanitary Code of 104 Enterococci per 100mL. WM&S/BMWM utilizes these data as adjunct information. The closure of shellfish waters does not necessarily correspond to these results.   For more information regarding this program, bathing beach data, and closures, see http://www.nj.gov/dep/beaches/monitoring_results.htm.

There are several CCMP monitoring stations located within this shellfish growing area. They are environmental monitoring sites and not actual bathing beaches. During the 2003 to 2006 sampling year, there were many results that exceeded the criteria. However, no closures were imposed because these sites are not actual recreational bathing beach area. The map and table below show the location of the CCMP monitoring sites and the annual enterococci geometric mean.

LOCATION OF CCMP MONITORING SITES

| Municipality	Beach	Station No.	CCMP Results			
			2003 Fecal Coliform	2004 Enterococci	2005 Enterococci	2006 Enterococci
Atlantic County Bay Stations						
Brigantine	Public Dock	CCMPAC0005	2.0	3.3	1.7	3.5
Atlantic City	Harrah's Marina	CCMPAC0009	2,971.2	32,640.3	5.5	47.3
Atlantic City	Maryland	CCMPAC0065	2.5	4.3	1.9	4.7
Atlantic City	Adriatic	CCMPAC0071	2.0	4.7	1.9	4.1
Atlantic City	Harrah Pond	CCMPAC0072	2.0	53.5	1.9	8
Atlantic City	City Island STP	CCMPAC0013	1.4	14.9	1.9	4.9
Atlantic City	Murray & Riverside	CCMPAC0015	2.0	9.5	2	4.9

National Coastal Assessment

USEPA National Coastal Assessment (NCA) EMAP and its partners began sampling in the coastal and estuarine water of the United States in 1990. Data collected include water column parameters, sediment chemistry & toxicity, benthic communities, and tissue contaminants. Since there were no FDA criteria for assessing sediment contaminants, trace metals and organic compounds can be evaluated using an effects-based method developed by Long et al. (1995), which estimates the percent incidence at which adverse biological effects occur to aquatic organisms at specific contaminant concentrations.

For each chemical, effects range-low (ERL) and effects range-medium (ERM) are used that correspond to the likelihood of adverse effects: when concentrations are less than the ERL, adverse effects are rare; when they fall between the ERL and ERM, adverse effects are occasional, and when they are greater than the ERM, adverse effects are frequent. The criteria for assessing sediment contaminants by site are shown in the table below.

Criteria for Assessing Sediment Contaminants by Site	
(Source: USEPA, National Coastal Condition Report)	
Rating	**Criteria**
Good	No ERM concentrations are exceeded, and less than five ERL concentrations are exceeded.
Fair	No ERM concentrations are exceeded, and five or more ERL concentrations are exceeded.
Poor	An ERM concentration is exceeded for one or more contaminants.

There were several NCA and one Mussel Watch monitoring stations located in this shellfish growing area. The most recent data available are from 2004 to 2006. The tissue data were compared with available FDA criteria, and the ERL/ERM guidance values were used for sediment comparison. Based on these data, no parameters were found to exceed available FDA criteria and sediments were ranked as "Good" for sediment quality. For additional NCA data or program information, visit http://www.epa.gov/emap/nca/index.html


TOXIC MONITORING SITES (2004-2006)
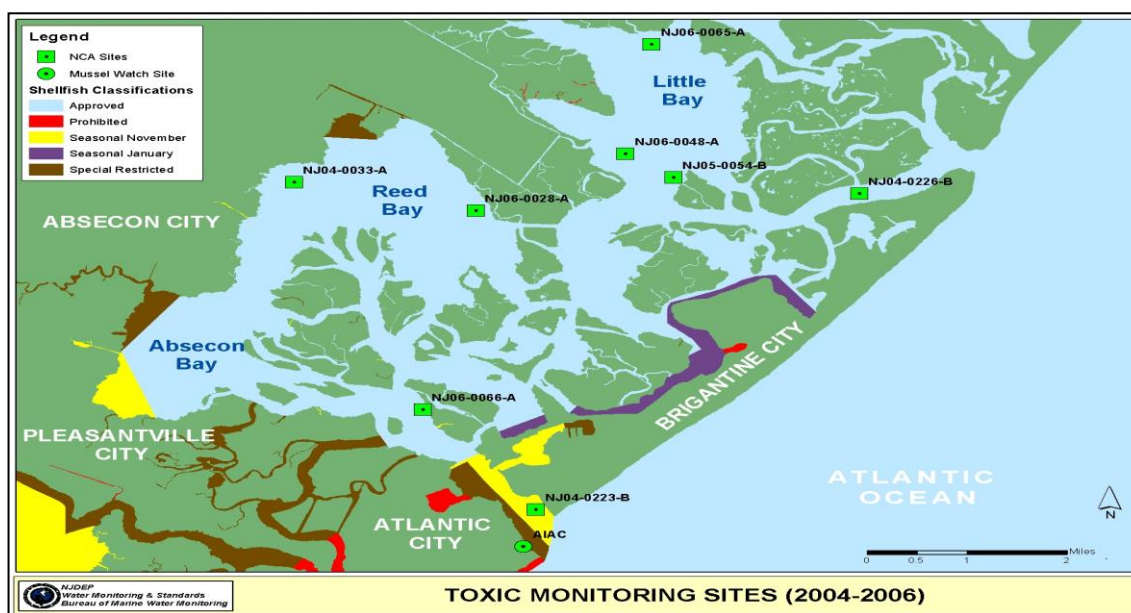
CONCLUSIONS

Data evaluated for this report meets the current shellfish classifications of *Approved*, *Seasonally Approved*, *Prohibited*, or *Special Restricted*. There were sampling stations that were impacted by seasonal components and rainfall. However, the bacteria levels were still minimal. Sediment and tissue data from the Environmental Monitoring for Public Access & Community Tracking (EMPACT), NOAA Mussel Watch, and National Coastal Assessment (NCA) programs were evaluated. None of the tissue data collected by the Mussel Watch or EMPACT project had exceeded the available FDA criteria. Sediment data collected by the NCA program were compared with the Effect Range Median (ERM) and Effect Range Low (ERL) values, which was established by Long (1995). None of the sediment parameters exceeded the ERM values. There were two parameters (Arsenic and Cadmium) that slightly exceeded the ERL values. Adverse effects from concentrations below the ERL values are rarely observed.

RECOMMENDATIONS

The water quality of this shellfish growing area continues to improve, especially in Reeds Bay. The current data support an upgrade of water in this area. Therefore, it is recommended that 90 acres of waters in Reeds Bay be upgraded from *Seasonally Approved* to *Approved* year-round.
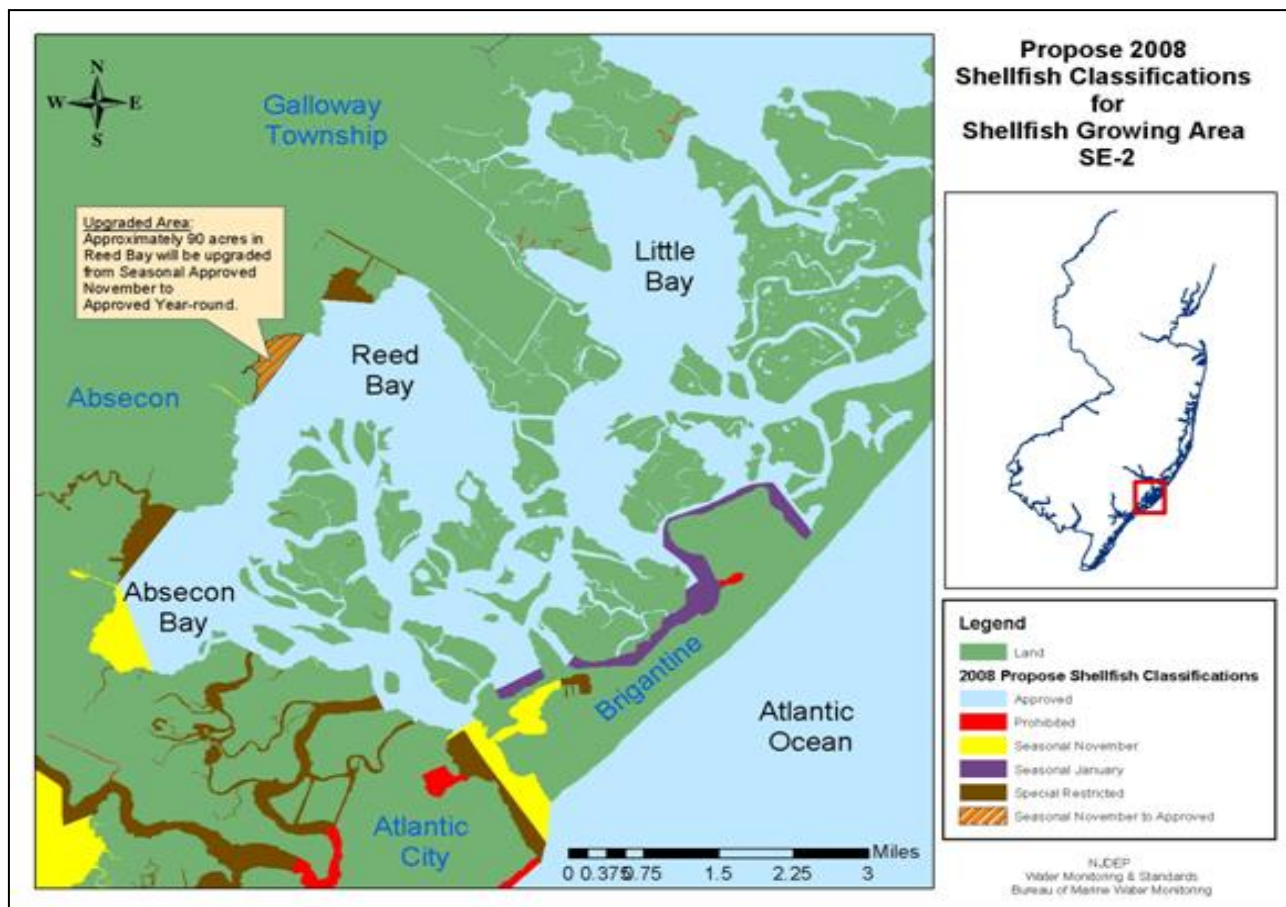
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NJDEP, Data Miner, http://datamine2.state.nj.us/dep/DEP_OPRA/

NJDEP, Bureau of Marine Water Monitoring, http://www.nj.state.nj.us/dep/bmw

NJDEP, Division of Fish and Wildlife, http://www.nj.gov/dep/fgw

NJDEP, Clean Marina Program, http://www.njcleanmarina.org/

Supporting Documentation

Data Sheets - Reappraisal Report for Shellfish Growing Area SE2 (Absecon Bay-Reeds Bay), see the Shellfish Growing Area Reports section at *www.state.nj.us/dep/wms/bmw*.

Shoreline survey field notes and pictures - Reappraisal Report for Shellfish Growing Area SE2 (Absecon Bay-Reeds Bay), see the Shellfish Growing Area Reports section at *www.state.nj.us/dep/wms/bmw*.