



**NJ Department of Environmental Protection  
Water Monitoring and Standards  
Bureau of Marine Water Monitoring**

**Sanitary Survey of Shellfish Growing Area SE3  
(Lakes Bay to Peck Bay)**



**December 2016**

# **Sanitary Survey of Shellfish Growing Area SE3 (Lakes Bay to Peck Bay)**

New Jersey Department of Environmental Protection (NJDEP)

Bureau of Marine Water Monitoring  
Robert Schuster, Bureau Chief

December 2016

Data from  
July 2010 to December 2015

Report Prepared by:  
Lisa DiElmo

## **Acknowledgements:**

Special acknowledgments are given to the Boat Captains for their perseverance in collecting shellfish water quality samples and to the laboratory staffs at Leed's Point for their analysis of these water quality samples. Special thanks to Dominick Fresco for his assistance in doing shoreline surveys.

Cover Photo by Lisa DiElmo

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## EXECUTIVE SUMMARY

Shellfish Growing Area SE3 is situated in southern New Jersey's Atlantic Coastal Plain, between Atlantic and Cape May County. This area also lies within the Great Egg Harbor Estuary Complex. The Great Egg Harbor Estuary Complex includes the entire Great Egg Harbor River, Great Egg Harbor Bay, Peck Bay, and the adjacent salt marsh habitat from the mouth of the river to the inlet. The Great Egg Harbor Bay is part of New Jersey back-barrier lagoon system. This area is characterized by open water, salt marsh, and sandy shoreline habitat.

The approximate size of this shellfish growing area is about 15,200 acres. The shellfish waters are classified as *Approved*, *Conditionally Approved*, *Restricted*, and *Prohibited*. Sixty-eight percent of shellfish waters in this area are classified as harvestable and the remaining shellfish waters are either closed or require a special permit.

All of the adjacent city/municipalities are connected to city sewer system and are serviced by the Atlantic County Utilities Authority (ACUA) or Ocean City Regional Wastewater Treatment Facility (OCRWTF). These facilities discharge their treated wastewater effluent to the Atlantic Ocean. Therefore, there are no direct discharges of treated wastewater effluent to the back bay shellfish waters. There are several facilities that possess a NJPDES permits for stormwater and industrial discharge. One major surface water discharger is the Atlantic Electric-BL England Generating Power Plant. This facility is permitted to discharge the plant cooling water to the Great Egg Harbor Bay, which may contain chemicals such as heavy metals and PCBs.

This report was based on data collected from July 2010 to December 2015. There were approximately 5,945 samples analyzed for this report, which were collected from 170 sampling sites. This shellfish growing area is sampled using the Systematic Random Sampling (SRS) strategy. Based on the NSSP SRS criteria, the majority of the sampling stations do meet their respective shellfish classifications. Based on the data analyzed for this report, 16 stations failed to meet the NSSP SRS *Approved* criteria. The majority of these stations are situated in *Restricted*, *Prohibited* or the *Conditionally Approved* waters of Lakes Bay. Two of the stations located in *Conditionally Approved* waters (2507B and 2508B) do not meet the *Approved* criteria for the months of the year that they are open for shellfish harvest. One station (2527) located in the *Approved* waters of Shelter Island Bay did not meet its current shellfish classification. This station failed to meet the ten percent cutoff criteria. Upon further testing (ARA), it was proven that the raised fecal counts were due to wildlife in the area. During a shoreline survey, it was noted that there was a large waterfowl population in the water and on the small islands adjacent to the sampling station. There is no downgrade recommended at this time.

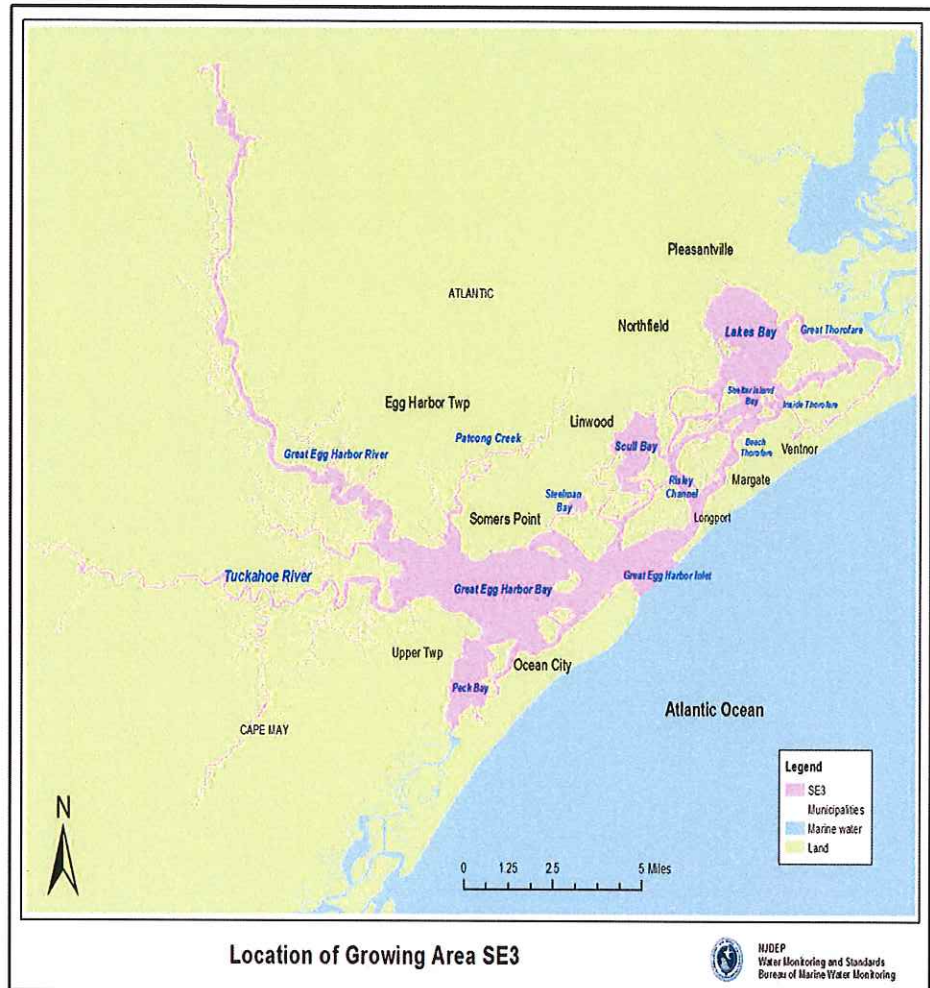


## GROWING AREA PROFILE

### **Location and Description**

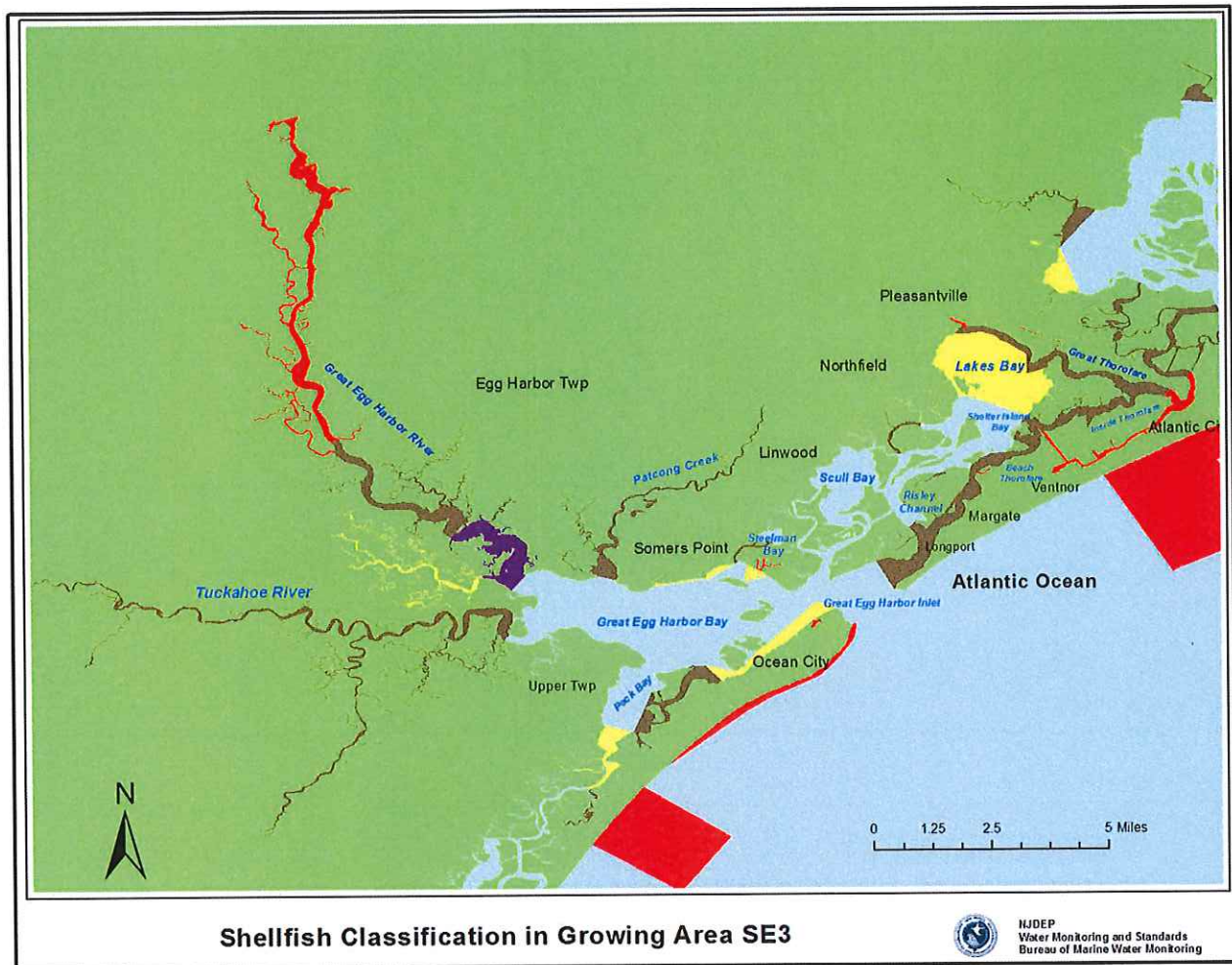
Shellfish Growing Area SE3 is located in southern New Jersey's Atlantic Coastal Plain, encompassing sections of Atlantic and Cape May Counties. The primary waterbodies in this growing area include: Lakes Bay, Shelter Island Bay, Scull Bay, Steelman Bay, Great Egg Harbor Bay, Great Egg Harbor River and Peck Bay. Several large fresh water tributaries flow into the Great Egg Harbor Bay; they include the Great Egg Harbor River, Patcong Creek and Tuckahoe River.

The Great Egg Harbor Bay is part of New Jersey's back-barrier lagoon system. This area is characterized by open water, salt marsh and sandy shoreline habitat. Water depth varies from less than 3 feet in shallow areas to greater than 33 feet in the deeper channels. Tidal influence to this growing area is through the Great Egg Harbor Inlet. Extensive sand flats and mudflats occur in the bay due to the movement of sand through this inlet. This bay is also influenced by the freshwater flow that comes from the Great Egg Harbor River. The Great Egg Harbor River is one of the longest rivers (approximately 59 miles) in New Jersey and is tidal for the lower 14 miles. It originates in Camden County and is joined by tributaries in Gloucester and Atlantic County before draining into Great Egg Harbor Bay. (*U.S. Fish and Wildlife Service*)



## Growing Area Classification Summary

This shellfish growing area is approximately 15,200 acres in size. The current shellfish classifications are as follows: *Approved*, *Conditionally Approved*, *Restricted* and *Prohibited*. The majority of shellfish waters in this area are classified as *Approved* year round.



The areas that are classified as *Approved* are located in the Great Egg Harbor Bay, Scull Bay, Steelman Bay, a portion of Peck Bay and Ship and Risley Channels. The *Conditionally Approved* (November to April) areas are located in Lakes Bay, Peck Bay and along the shoreline in Somers Point and Ocean City. The only *Conditionally Approved* (January to April) area is in the Great Egg Harbor River. Beach Thorofare, Great Thorofare, Back Thorofare, Patcong Creek, Tuckahoe River, and a section of the Great Egg Harbor River are classified as *Restricted*. *Prohibited* areas can be found in the upper portion of the Great Egg Harbor River and Inside Thorofare.

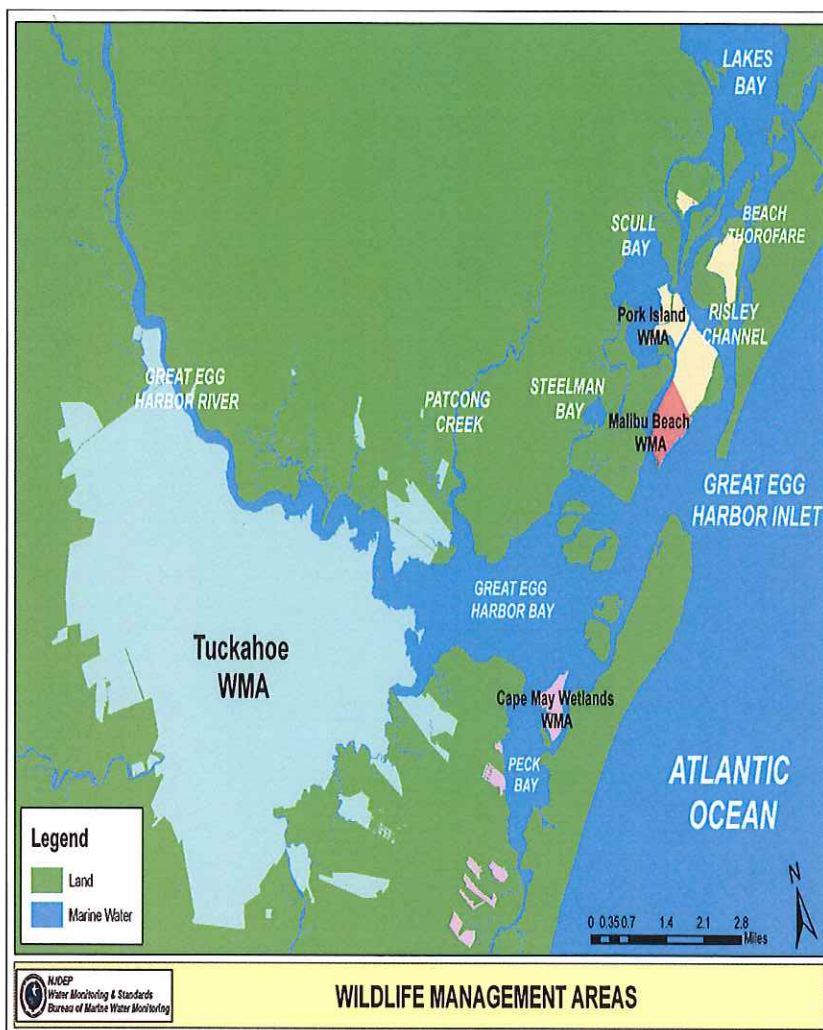
This figure illustrates the shellfish classifications for this growing area. The classifications are also shown on the 2016 State of New Jersey Shellfish Growing Water Classification Charts or on WM&S/BMWM website at <http://www.state.nj.us/dep/bmw/>.



## Evaluation of Biological Resources

Shellfish growing area SE3 is situated within the Great Egg Harbor Estuary Complex. Within this complex are several state operated wildlife management areas, including the Lester G. McNamara Wildlife Management Area (aka Tuckahoe Wildlife Management Area), Pork Island Wildlife Management Area, Malibu Beach Wildlife Management Area and Cape May Coastal Wetlands Wildlife Management Area. Approximately, 99% of the eligible waterways and adjacent lands in this complex are part of the Pinelands National Reserve. ([www.nps.gov](http://www.nps.gov))

Due to its undisturbed and relatively pristine waterways, it provides a rich habitat for several threatened and endangered plant and animal species including the bald eagle, the peregrine falcon and the Pine Barrens tree frog. The freshwater and tidal wetlands serve as resting, feeding and breeding areas for waterfowl throughout the year.



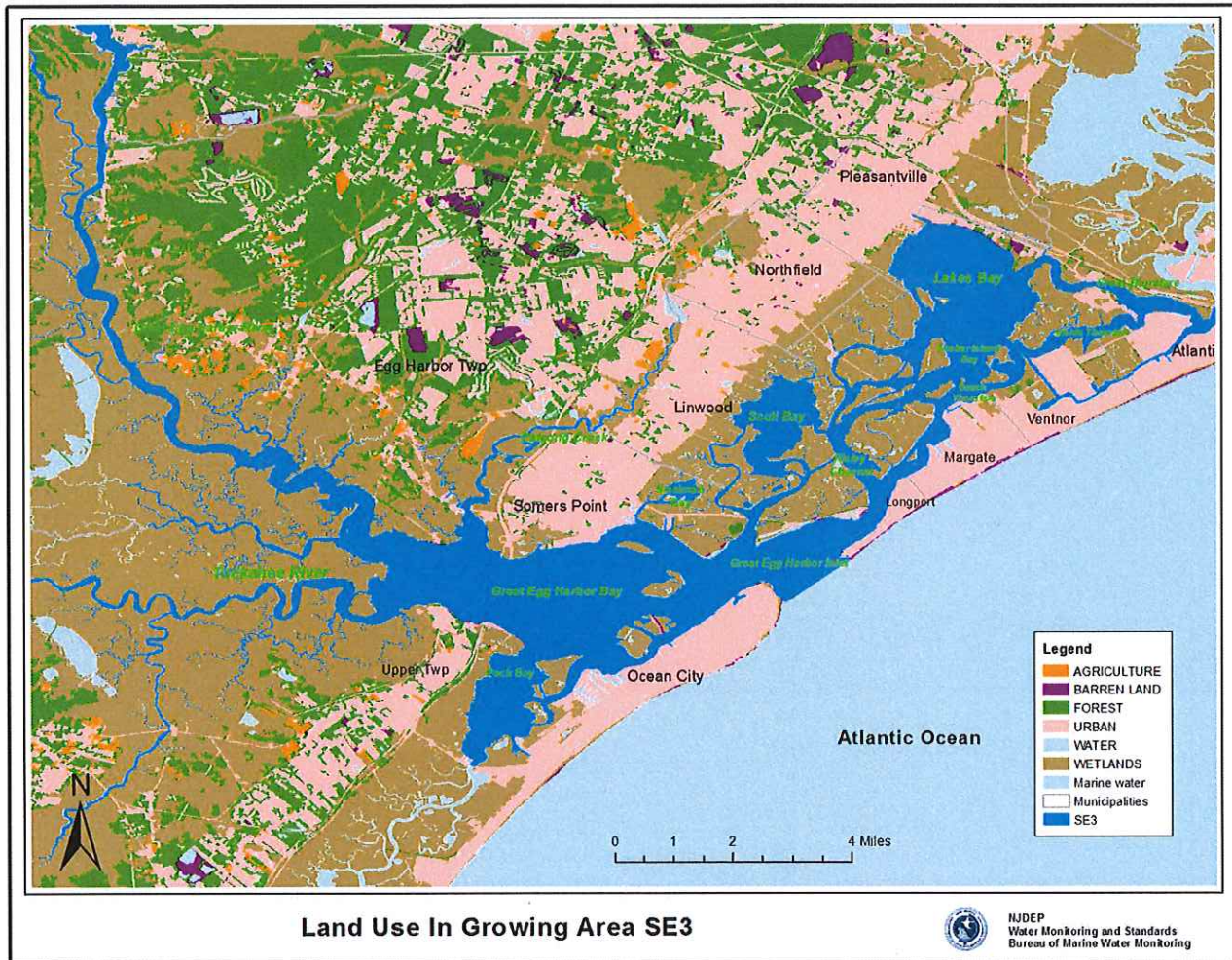
## Shoreline Survey: Evaluation of Potential Pollution Sources

Shoreline surveys or site-specific tours of areas nearby or adjacent to shellfish growing waters can provide insight as to the location and nature of land use, surface water discharges, marinas, unpermitted discharges, stormwater discharges and other pollution sources. Shoreline surveys of SE3 were conducted in 2015 and 2016, by land and by boat. The following sections detail information derived collectively from those surveys and those that preceded them. See Appendix B for information on the individual shoreline surveys, potential pollution sites and pump stations located within this growing area.



## Land Use

Shellfish growing area SE3 is situated within the Great Egg Harbor Watershed Management Area. The majority of this watershed is forest and wetlands but according to the most recent land use study in 2012, urban land use is on the rise. As more land is being converted to urban areas, more runoff is likely to occur as the natural landscape is replaced with impervious surfaces.



## Surface water discharges

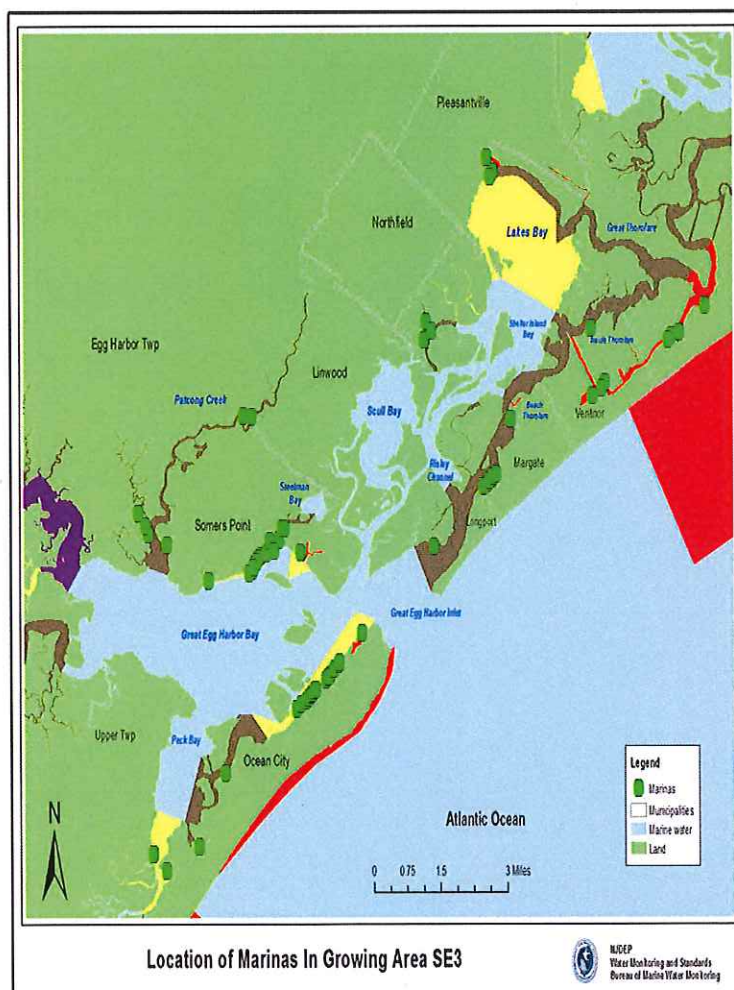
A surface water discharge involves the release of treated effluent from various municipal and industrial facilities directly into a river, stream or the ocean. The discharge of pollutants from a point source is authorized under New Jersey Pollutant Discharge Elimination System (NJPDES) and the regulations are found at N.J.A.C. 7:14A. The main purpose of the NJPDES program is to ensure proper treatment and discharge of wastewater. The program does this by limiting the amount or concentration of pollutants that can be discharged into ground water, streams, rivers and the ocean.



Within this area are two major surface water discharges that have the potential to impair water quality. This includes the Ocean City Regional Wastewater Treatment Facility (OCRWTF), located in Ocean City. The OCRWTF discharges their treated wastewater effluent to the Atlantic Ocean, which minimizes bacteria loading to this growing area. However, due to its location and proximity to shellfish waters, there is the risk of accidental spill and/or unplanned discharges to shellfish waters. For this reason, the shellfish waters that are adjacent to this facility are classified as *Restricted* or *Prohibited*. Another major surface water discharge is the Atlantic Electric-BL England Power Station, located at Beesley's Point. This plant is permitted to discharge its cooling water to the Great Egg Harbor Bay, which may contain chemicals such as heavy metals and PCBs. (See Appendix B)

## 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 a threat to human health if ingested. (Klein, 2009) For this reason, waters within the marina basin are restricted to shellfish harvesting. 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 *Conditionally Approved*, *Restricted* or *Prohibited*. 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 2012. See the following table for more information on the marinas located in this growing area.



FID #	Marina Name	Address	Municipality	County	# of Boat Slips	Dates of Operation	Facility Services	Remarks
363	Blue Water Marina	9511 Amherst Ave.	Margate City	Atlantic	30	Seasonal		
364	Captain Andy's Fish and Fun	9317 Amherst Ave.	Margate City	Atlantic	17	Seasonal	pump out, fuel	
365	Egg Harbor Yacht Club	Bay Ave.	Somers Point	Atlantic	30	Seasonal		
366	Yacht Club of Pleasantville	Bayview Ave.	Pleasantville	Atlantic	15	Seasonal		Only 3 active slips in 2016
367	Ocean Heights Marina	5001 Ocean Heights Ave.	Egg Harbor Twp.	Atlantic	100	Seasonal		
368	Hackney's Boat Yard	Margate Blvd.	Egg Harbor Twp.	Atlantic	84	Year Round		
369	Waterfront Boat Yard	1821 Somers Point Mays Landing Rd.	Egg Harbor Twp.	Atlantic	20	Year Round		
370	Sea Village Community	125 Margate Blvd.	Egg Harbor Twp.	Atlantic	30	Year Round	fuel	Village is closed has been sold, no active
371	Integrity Marine (Angler's Roost)	9401 Amherst Ave.	Margate City	Atlantic	14	Seasonal		
372	Seaview Harbor Marina	301 Longport-Somers Point Blvd.	Egg Harbor Twp.	Atlantic	300	Year Round	pump out, fuel	
373	Harbour Cove Marina	660 Bay Ave.	Somers Point	Atlantic	360	Year Round		
374	Ocean Heights Marina South	1820 Mays Landing Rd.	Egg Harbor Twp.	Atlantic	39	Year Round		
375	All Seasons Marina	551 Roosevelt Blvd.	Upper Twp.	Cape May	250	Seasonal	fuel	
376	Lemont's Marina	308 Bay Ave.	Ocean City	Cape May	40	Seasonal		
377	Chelsea View Townhouse Community	Harrisburg Ave.	Atlantic City	Atlantic	60	Seasonal		
378	Crown Key Yacht Club	East Dr.	Ventnor	Atlantic	50	Seasonal		
379	Bay Colony Townhomes	151 Annapolis Ave.	Atlantic City	Atlantic	10	Seasonal		
380	Lamberti's Sunset Restaurant and Marina	9707 Amherst Ave.	Margate City	Atlantic	200	Seasonal		
381	Sunset Bay Marina	Amherst Ave.	Margate City	Atlantic	24	Seasonal		
382	Pleasantville Municipal Marina	Bayview Ave.	Pleasantville	Atlantic	59	Seasonal		
383	Condo Marina	198 Broadway Ave.	Somers Point	Atlantic	22	Year Round		
384	Junior Donuts and Dogs	9315 Amherst Ave.	Margate City	Atlantic	19	Year Round		
385	Waterfront Restaurant and Marina	998 Bay Ave.	Somers Point	Atlantic	20	Year Round		
388	Smith's Marina	910 Bay Ave.	Somers Point	Atlantic	136	Seasonal	pump out	
389	Across from Gaef Marine	Launch Ave.	Somers Point	Atlantic	20	Year Round		
390	Holiday Marina	900 N. Jerome Ave.	Margate City	Atlantic	50	Year Round		
391	Marine Max Mid-Atlantic	600 Bay Ave.	Somers Point	Atlantic	50	Year Round	pump out, fuel	
392	Condo Marina	Beach Dr.	Egg Harbor Twp.	Atlantic	20	Seasonal		
394	Wonder Bar	3701 Sunset Ave.	Atlantic City	Atlantic	3	Seasonal		Boats only docking to eat, non-permanent
395	Condo Marina	236 N. Derby Ave.	Ventnor	Atlantic	33	Seasonal		
396	Condo Marina	Monmouth Ave.	Ventnor	Atlantic	22	Seasonal		
397	Newport Marine	6403 Sunset Ave.	Ventnor	Atlantic	50	Seasonal		
398	Bay Breeze Village	1790 Mayslanding Somers Point Rd.	Egg Harbor Twp.	Atlantic	30	Year Round		Mobile home community with docks
399	Steve's Deepwater Marina	5012 Ocean Height Ave.	Egg Harbor Twp.	Atlantic	70	Seasonal		
400	Condo Marina	Bayland Dr.	Ocean City	Cape May	28	Seasonal		
401	Ocean Reef Condo	Genoa Ct.	Ocean City	Cape May	12	Seasonal		
402	Condo Marina	Palen Ave.	Ocean City	Cape May	24	Seasonal	pump out, fuel	
403	Condo Marina	W. Revere Pl.	Ocean City	Cape May	12	Seasonal		
404	Condo Marina	Pleasure Ave.	Ocean City	Cape May	10	Seasonal		



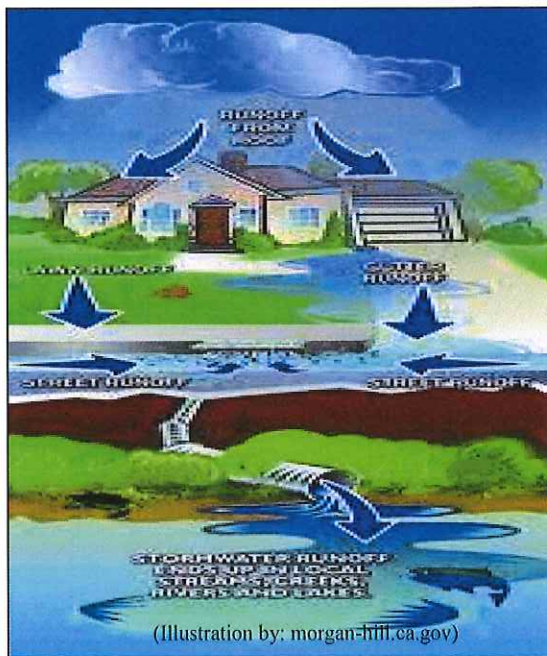
FID #	Marina Name	Address	Municipality	County	# of Boat Slips	Dates of Operation	Facility Services	Remarks
405	Noreaster Condo	Pleasure Ave.	Ocean City	Cape May	65	Seasonal		
406	Condo Marina	Pleasure Ave.	Ocean City	Cape May	30	Seasonal		
407	Unknown Name	Pleasure Ave.	Ocean City	Cape May	20	Seasonal		
408	Condo Marina	Pleasure Ave.	Ocean City	Cape May	30	Seasonal		
409	Condo Marina	Pleasure Ave.	Ocean City	Cape May	12	Seasonal		
410	Bay Village Marina	W. 6 <sup>th</sup> St.	Ocean City	Cape May	20	Seasonal		
411	Bay Club	Bay Ave. / W. 4 <sup>th</sup> St.	Ocean City	Cape May	50	Seasonal		
412	Bayview Marina	312 Bay Ave.	Ocean City	Cape May	80	Seasonal		
471	Mayer Marine	830 Bay Ave.	Somers Point	Atlantic	75	Year Round		
473	Randall's Seafood	301 Ansley Blvd.	Pleasantville	Atlantic	2	Year Round		
475	C Jam Yacht Sales	680 Bay Ave.	Somers Point	Atlantic	43	Year Round	pump out	
476	Graef Boat Yard	101 Longport Blvd.	Egg Harbor Twp.	Atlantic	40	Year Round		
477	Ray Scott's Dock	9211 Amherst Ave.	Margate City	Atlantic	20	Seasonal		
478	Ocean City Marina	Bay Ave.	Ocean City	Cape May	24	Seasonal		
479	Harbor House Marina	Bay Ave. / 2 <sup>nd</sup> St.	Ocean City	Cape May	110	Seasonal		
483	Sunset Bay Marina	65 Dockside Dr.	Somers Point	Atlantic	30	Seasonal	fuel	
	Holtz Boatworks LLC.	1301 Tuckahoe Rd.	Marmora	Cape May	15	Year Round		
	Somerset Cove Marina	1810 Somers Point Rd.	Egg Harbor Twp.	Atlantic	70	Year Round	fuel	1000 gallon tank, above ground
	Unknown Name	2 Meadowview Lane	Tuckahoe	Cape May	10	Seasonal		Floating dock: present, land under construction, pilings in place for a building
	No Name Yet	97 Somers Point Mays Landing Rd.	Somers Point	Atlantic	90	Seasonal		Won't be operational for at least 2 years: same owner as Ocean Heights Marina

## Spills, Unpermitted Discharges and Closures

Indirect discharges are groundwater discharges, 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 results in higher than normal bacteria counts.

In August of 2011 and October of 2012, a precautionary closure was issued for the state of New Jersey due to Hurricane Irene and Hurricane Sandy, respectively. The entire growing area was closed for several weeks with each incident and was reopened once it was confirmed that bacteria levels were at acceptable levels.

## Storm Water Discharges and Other Pollution Sources



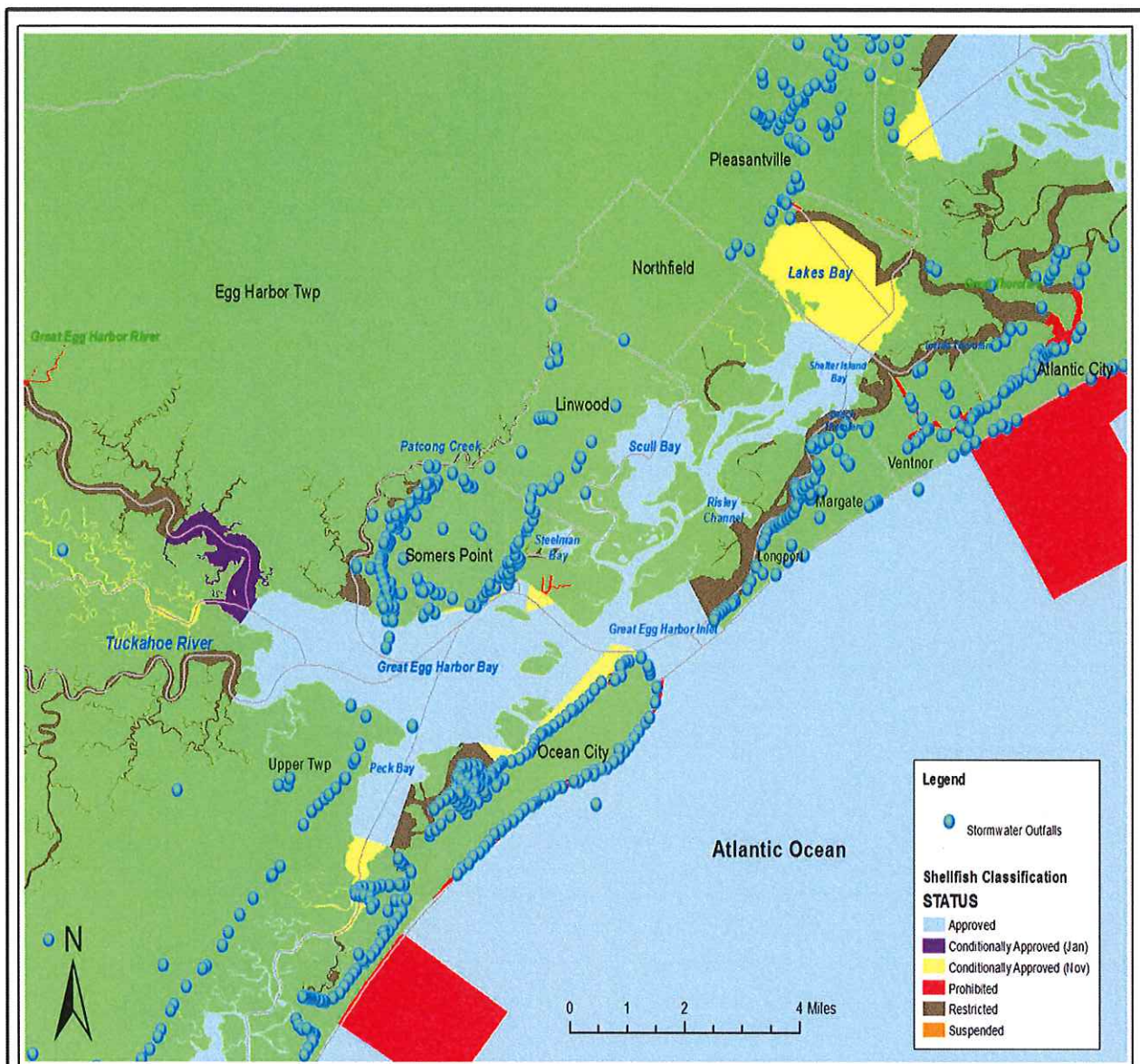
Non-point source pressures on shellfish beds in New Jersey originate in materials that enter the water via stormwater. Stormwater runoff is generated when precipitation from rain and snowmelt flow over land or impervious surfaces and does not percolate into the ground. As the runoff flows over the land 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. (*Modularwetlands.com*) The typical pollutants that are associated with stormwater runoff are bacteria, heavy metals, pesticides, herbicides, chlorides, petroleum and nutrients. (*Cleanwaternj.org*)

WM&S/BMWM has identified several potential stormwater impacted areas. These areas include Beach Thorofare, Great Channel and Inside Thorofare. The

bacteriological levels in these areas tend to be much higher after a rainfall event. Areas impacted by stormwater are usually classified as *Restricted*, *Prohibited* or *Conditionally Approved*.

Malibu Beach Wildlife Management Area (Dog Beach) is a public beach where people are allowed to walk their dogs on the beach area. There is a potential for pollution to the growing area if the dog waste is not disposed of properly. Three new sampling stations located in the water surrounding the beach have been added to the 2017 sampling schedule to assess the impact that runoff from this beach may have on water quality in this growing area. See Appendix B for more information on this location.







## WATER QUALITY STUDIES

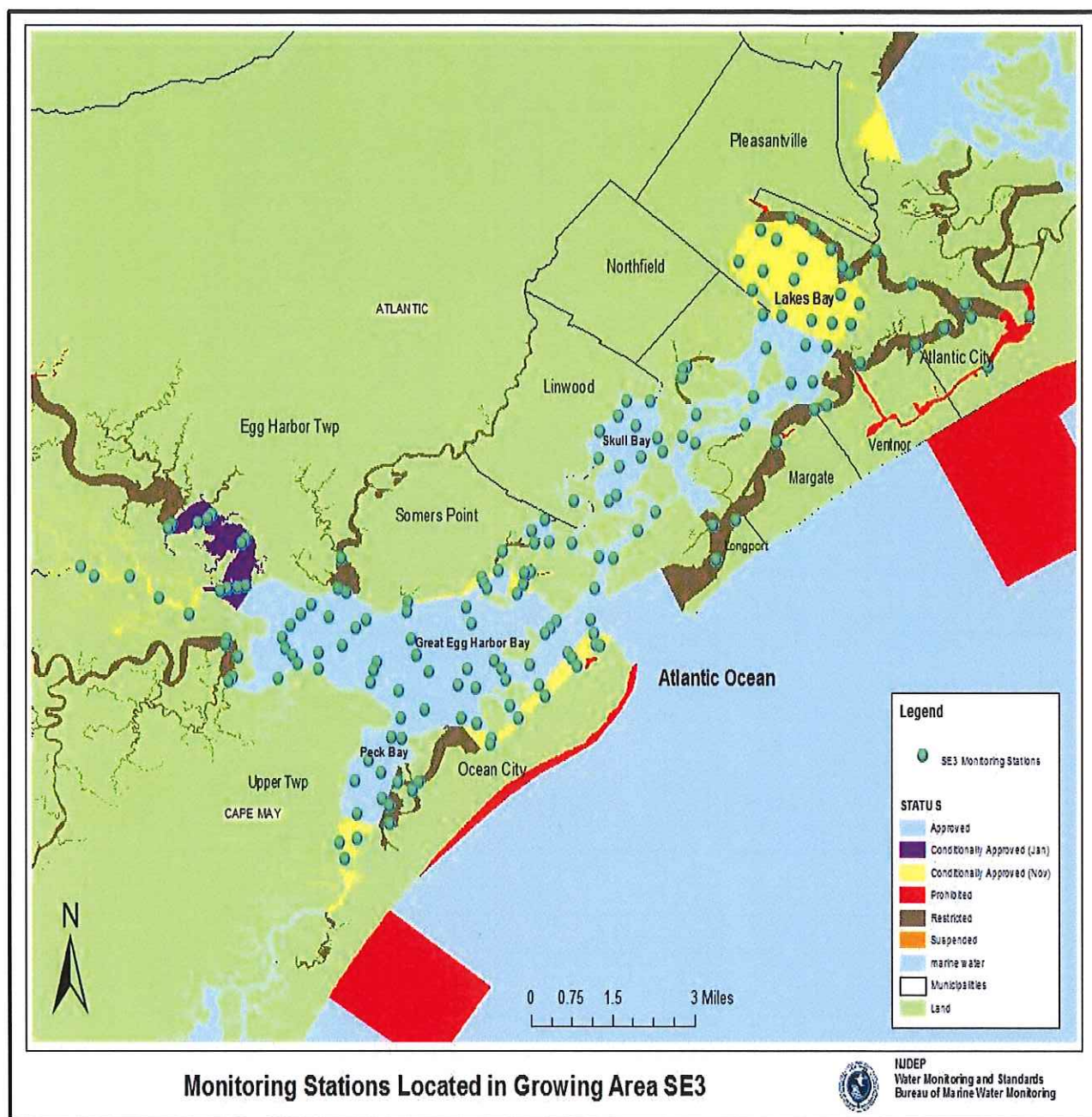
### ***Sampling Strategy***

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, 2012*. This shellfish growing area is sampled under the Systematic Random Strategy (SRS) due to impact by non-point source.

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. In the past, New Jersey shellfish growing water classifications were based on total coliform analysis. In 2012, New Jersey adopted the fecal coliform criterion as their method of assessing shellfish waters. For additional information, see *Shellfish Growing Area Report Guidance Document, 2012*.

Classification criterion is composed of a measure of the statistical 'central tendency' (geometric mean) and the relative variability of the data set. The criteria for the bacterial acceptability of shellfish growing waters are provided in the NSSP *Guide for the Control of Molluscan Shellfish, 2013* Revision. For the Systematic Random Sampling Strategy, variability is expressed as the 90<sup>th</sup> percentile. The water quality of each growing area must be evaluated before an area can be classified as *Approved*, *Conditionally Approved (Nov-Apr or Jan-Apr)*, *Restricted* or *Prohibited*. A *Conditionally Approved* area must be sampled and meet the *Approved* criterion during the time of the year that it is open for harvest.

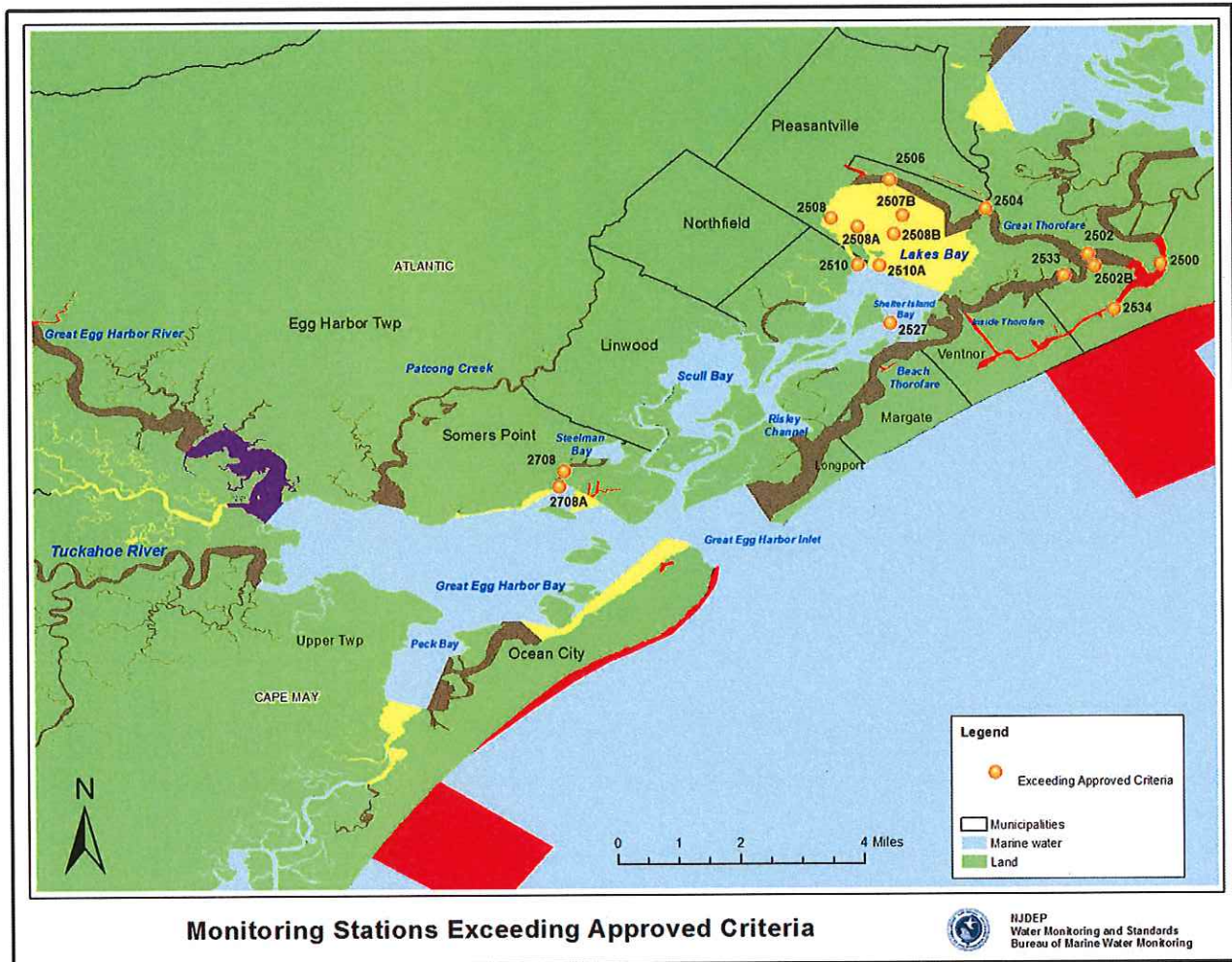
Water sampling was performed in accordance with the Field Procedures Manual (NJDEP, 2005). From July 2010 to December 2015, 5945 water samples were collected for fecal coliform bacteria from 170 monitoring stations. The locations of these stations are shown in the map below. Water quality sampling, shoreline and watershed surveys were conducted in accordance with the NSSP *Guide for the Control of Molluscan Shellfish, 2013* Revision. 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*).





# BACTERIOLOGICAL QUALITY

## Compliance with NSSP Criteria



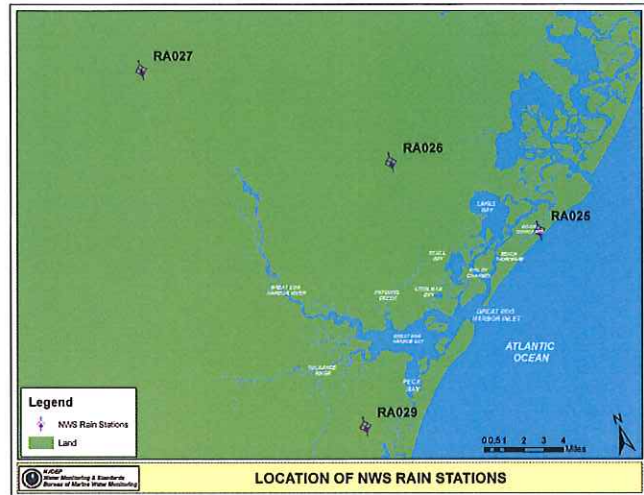
Each shellfish growing area is sampled using either the APC or SRS sampling strategy. This shellfish growing area is sampled using the SRS sampling strategy.

Based on the data analyzed for this report, 16 stations failed to meet the NSSP SRS *Approved* criteria. The majority of these stations are situated in *Restricted*, *Prohibited* or the *Conditionally Approved* waters of Lakes Bay (see map). Two of the stations located in *Conditionally Approved* waters (2507B and 2508B) do not meet the *Approved* criteria for the months of the year that they are open for shellfish harvest. One station (2527) located in the *Approved* waters of Shelter Island Bay does not meet its current shellfish classification. This station failed to meet the ten percent cutoff criteria. Upon further testing (ARA), it was proven that the raised fecal counts were due to the wildlife in the area. During a shoreline survey, it was noted that there was a large waterfowl population in the water and on the small islands adjacent to the sampling station.

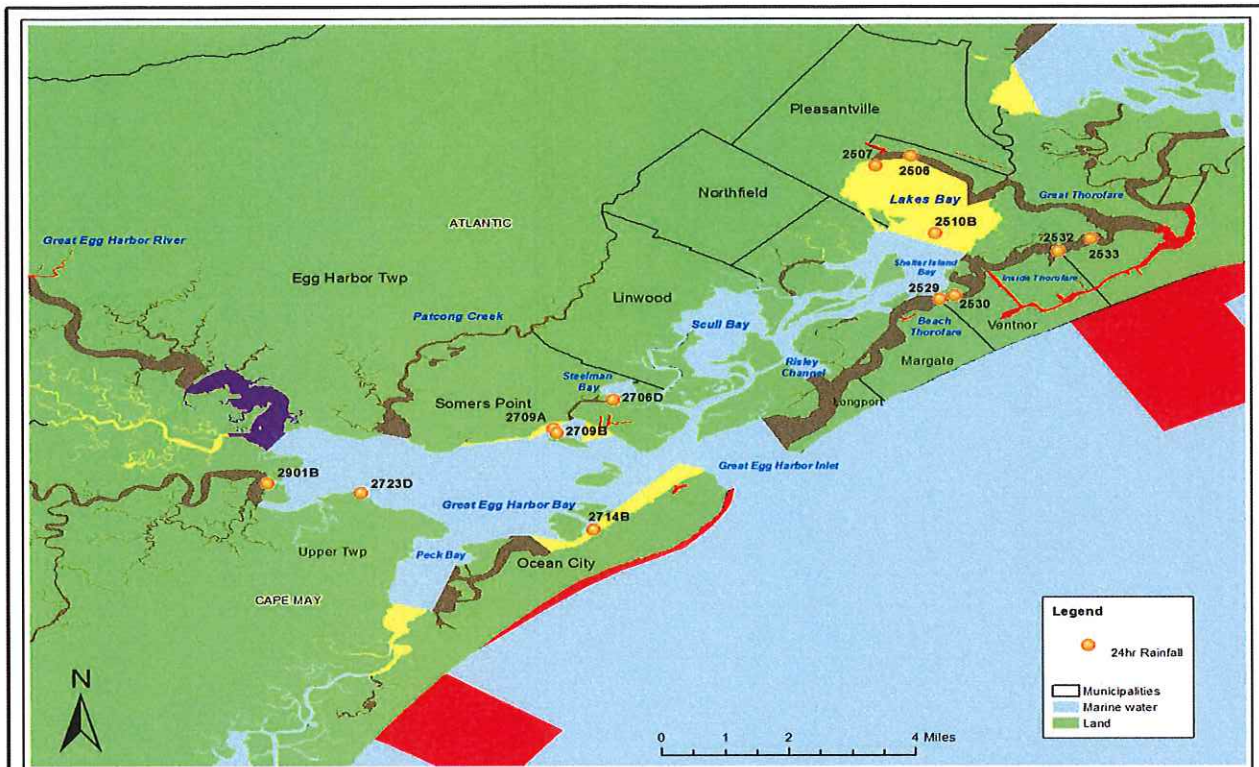


## Rainfall Effect

Precipitation data for 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 gauge observations and recordings. Precipitation assessment for this shellfish growing area was based on rainfall data collected at Station RA025, RA026, RA027 and RA029. Rainfall data collected from these stations were used in the t-test to determine which monitoring stations are impacted by rainfall.



WM&S/BMWM uses the t-test method to assess rainfall effects. This method compares the fecal coliform values from samples collected during dry weather to samples collected during wet weather and helps to identify areas where runoff 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 cumulative rainfall prior to sampling. Any station with a t-statistical probability of less than 0.05 is believed to be impacted. Even if a station is found to be impacted, it does not necessarily mean it is also out of compliance with NSSP criteria. Stations that are impacted by rainfall are shown on the maps below. The highest percentage of stations impacted was from 48 hours rainfall cumulative. This finding suggests that there is a delayed rainfall effect to shellfish waters. Lakes Bay seems to have a strong rain influence at all 3 rainfall intervals. Great Egg Harbor Bay is influenced at 48 and 72 hours prior to sampling.



**Monitoring Stations Impacted by Rainfall (24 hrs Cumulative)**



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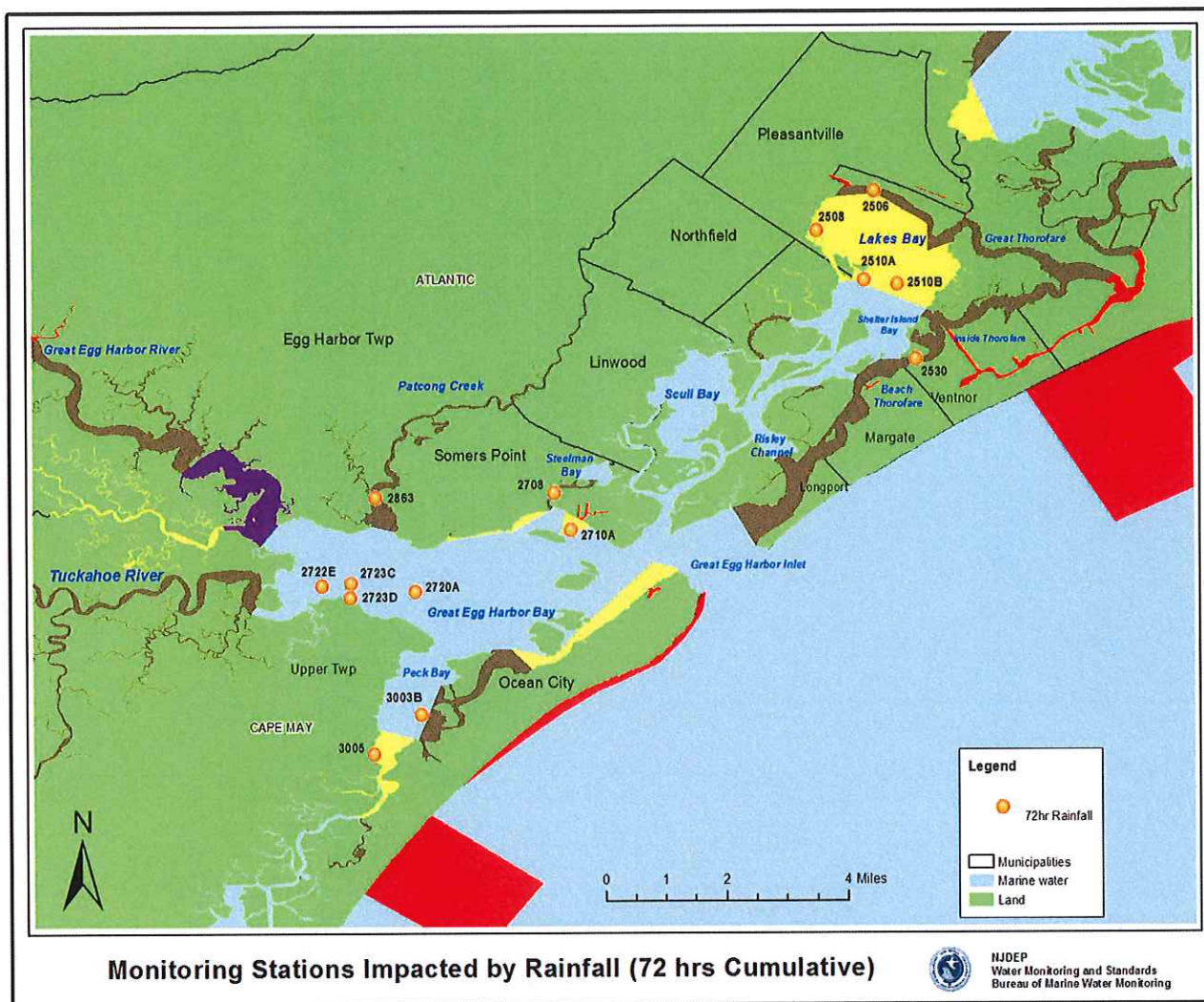


**Monitoring Stations Impacted by Rainfall (48 hrs Cumulative)**

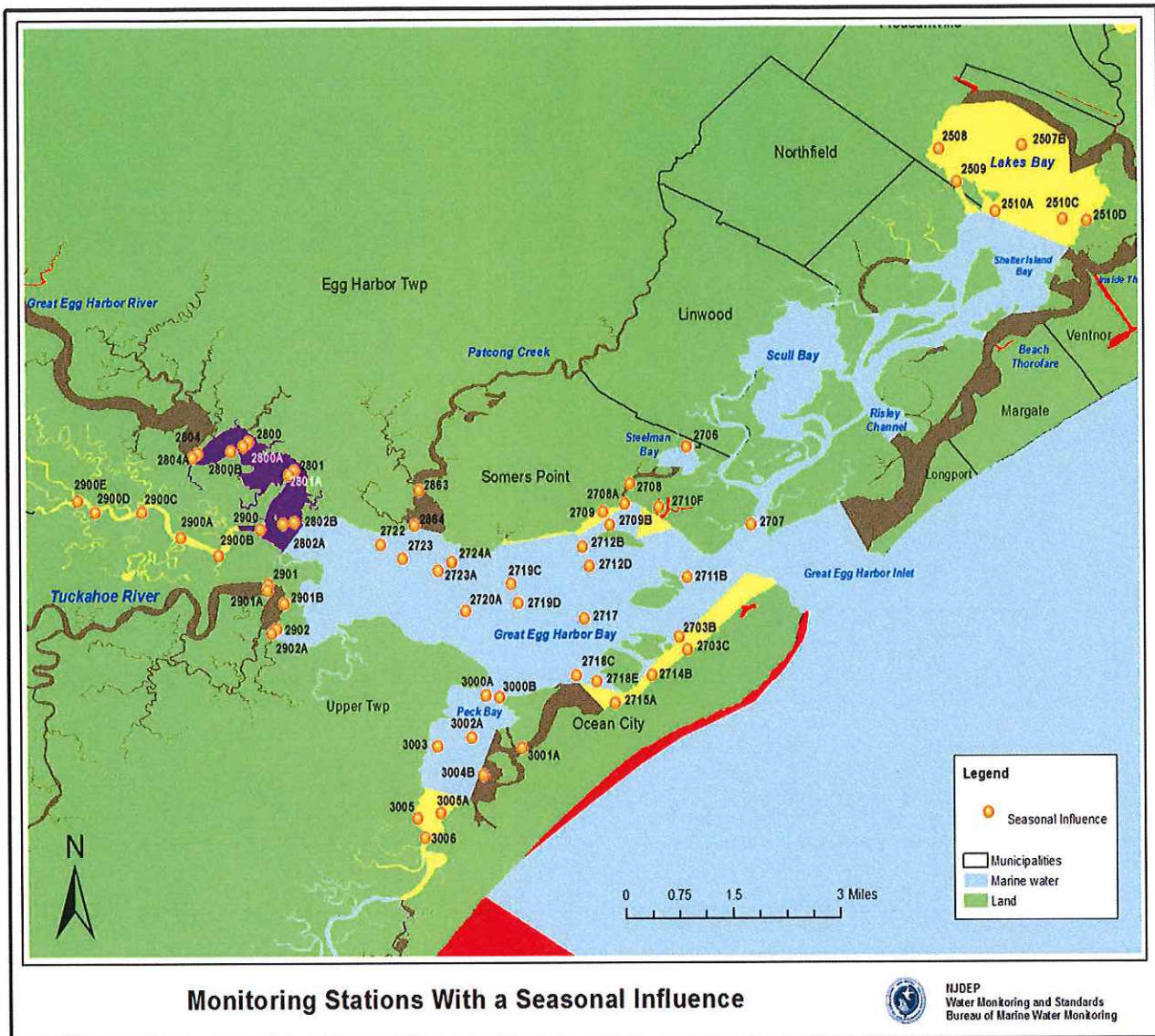


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## Seasonal Effects



To determine seasonal effects, WM&S/BMWM uses the t-test to compare the fecal coliform values from samples collected during the summer months (May thru October) versus samples collected during the winter months (November thru April). Any station with a t-probability of less than 0.05 is believed to be impacted by seasonal components.

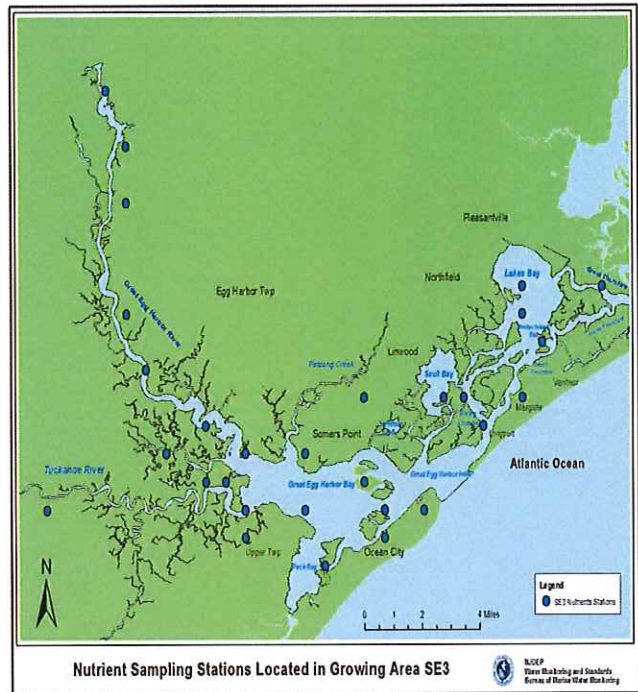
Seasonal statistics show sixty one sampling stations are impacted by seasonal components. Most of these stations are located in the Great Egg Harbor Bay and Great Egg Harbor River areas. The majority of these stations are influenced by the summer season. Only one station, located in Lakes Bay, was influenced by winter components (see map above).



## RELATED STUDIES

### Nutrients

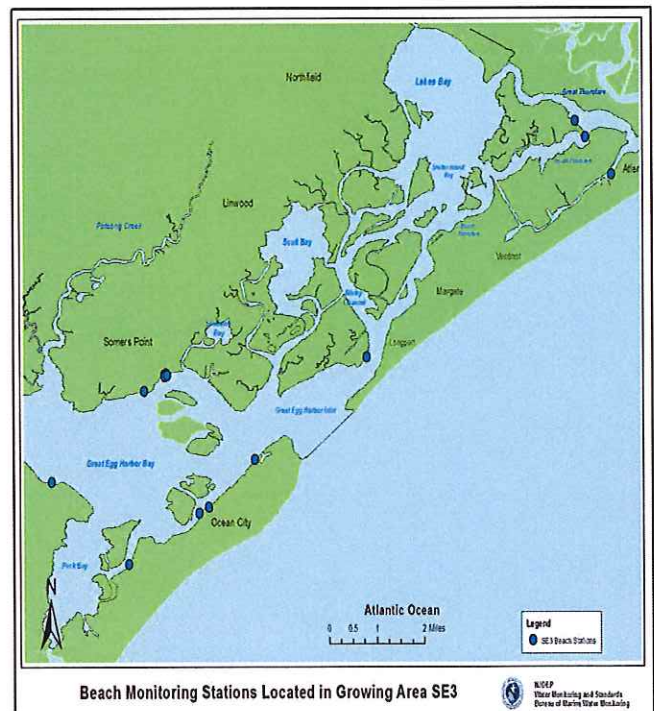
WM&S/BMWM performs additional water quality studies related to the bacteriological monitoring program. Nutrient monitoring and the collection of nutrient data as part of the NJ Coastal Monitoring Network is an example of one of those programs. Nutrient stations are sampled monthly on a biennial basis. The 82 nutrient stations are spread throughout the State's back bay waters and tidally impacted rivers. At these nutrient monitoring sites, various parameters are measured including water temperature, biogenic silica, chlorophyll a, pH, salinity, secchi depth, total suspended solids, dissolved oxygen, ammonia, nitrate and nitrite, orthophosphate, total nitrogen and total phosphorus. 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 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. Local health agencies and law enforcement may close a beach at any time if the results exceed the State Sanitary Code of 104 Enterococci per 100mL. WM&S/BMWM utilizes these data as adjunct information. The closure of shellfish waters do not correspond to these results.

There are several CCMP monitoring stations located within this shellfish growing area (see map). For more information regarding this program, bathing beach data, and closures, see [http://www.nj.gov/dep/beaches/monitoring\\_results.htm](http://www.nj.gov/dep/beaches/monitoring_results.htm)



## National Coastal Condition Assessment

The National Coastal Condition Assessment (NCCA) is a statistical survey of the condition of our Nation's marine and Great Lakes coasts as part of the USEPA National Aquatic Resource Surveys (NARS). The goals of the NCCA are to address questions about the quality of the Nation's coastal waters. The first marine NARS sampling field study was conducted in 2000. The most recent field study was conducted in 2015. Data collected includes benthic macroinvertebrates, chlorophyll a, ecological fish tissue contaminants, dissolved oxygen, nitrogen, phosphorus, salinity, sediment contaminants, sediment toxicity and water clarity. The most recent NCCA data available for this area were collected in 2010. A total of 238 NCCA sites were sampled to assess approximately 10,700 square miles of Northeast Coast waters (epa.gov). For additional NCCA data or program information, visit <https://www.epa.gov/national-aquatic-resource-surveys/ncca>.

## CONCLUSIONS

The majority of the sampling stations within this area meet the NSSP criteria. Based on the data analyzed for this report, 16 stations failed to meet the NSSP SRS *Approved* criteria. The majority of these stations are situated in *Restricted*, *Prohibited* or the *Conditionally Approved* waters of Lakes Bay (see map). Two of the stations located in *Conditionally Approved* waters (2507B and 2508B) do not meet the *Approved* criteria for the months of the year that they are open for shellfish harvest. One station (2527) located in the *Approved* waters of Shelter Island Bay did not meet its current shellfish classification. This station failed to meet the ten percent cutoff criteria. Upon further testing (ARA), it was proven that the raised fecal counts were due to wildlife in the area. During a shoreline survey, it was noted that there was a large waterfowl population in the water and on the small islands adjacent to the sampling station.

Seasonal and rainfall assessment shows these stations are impacted by seasonal components and rainfall. Stations with seasonal components show higher fecal coliform geometric mean during the summer season, which implies that bacteria counts were influenced by summer related and wildlife activities. Stormwater runoff still poses problems for some areas including Lakes Bay and Beach Thorofare. These areas responded immediate to rainfall, possibly due to its close proximity to urban areas and the numerous stormwater outfalls that line the shore.

## RECOMMENDATIONS

Continue sampling under the NSSP SRS sampling protocol. Add three new monitoring stations to the water surrounding the Dog Beach area to assess its potential impact on water quality. No downgrade or upgrade of shellfish waters is recommended at this time.



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## **Supporting Documentation**

Data Sheets – Sanitary Survey Report for Shellfish Growing Area SE3 (Lakes Bay-Peck Bay), December 2016, see the Shellfish Growing Area Reports section at [www.state.nj.us/dep/wms/bmw](http://www.state.nj.us/dep/wms/bmw).

Shoreline survey field notes and pictures - Sanitary Survey Report for Shellfish Growing Area SE3 (Lakes Bay-Peck Bay), December 2016 see the Shellfish Growing Area Reports section at [www.state.nj.us/dep/wms/bmw](http://www.state.nj.us/dep/wms/bmw).

## **APPENDICES**

- A. Data Listing – July, 2010 through December , 2015
  - 1. Seasonal Evaluation
  - 2. Wet/Dry Statistics
  - 3. Rainfall Amount
- B. Shoreline Survey Sheets, Potential Pollution Sites and Pump Station locations.



SHORELINE SURVEY AREA SE3Boat ☐ Land ☒ Air ☐SURVEYOR: Lisa DiElmoDATE: 9/15/15TIME: 1000WEATHER CONDITIONS: SunnyTEMPERATURE: 73**New Stormwater Outfalls:**

	General Area	Latitude	Longitude	Diameter	Description (foul odor, damaged, etc.)
1					
2					
3					
4					

**Is there any new development in the area that may have an effect on the coastline? Note name and location.**

No new development, but there is still rebuilding going on from Hurricane Sandy.

**Do you notice any significant animal populations (migrating birds, horseshoe crabs , etc.)? Note name and location.**

No

**Do you notice any expansion in local marinas? (Without approaching marina owners) Note name, location, & changes.**

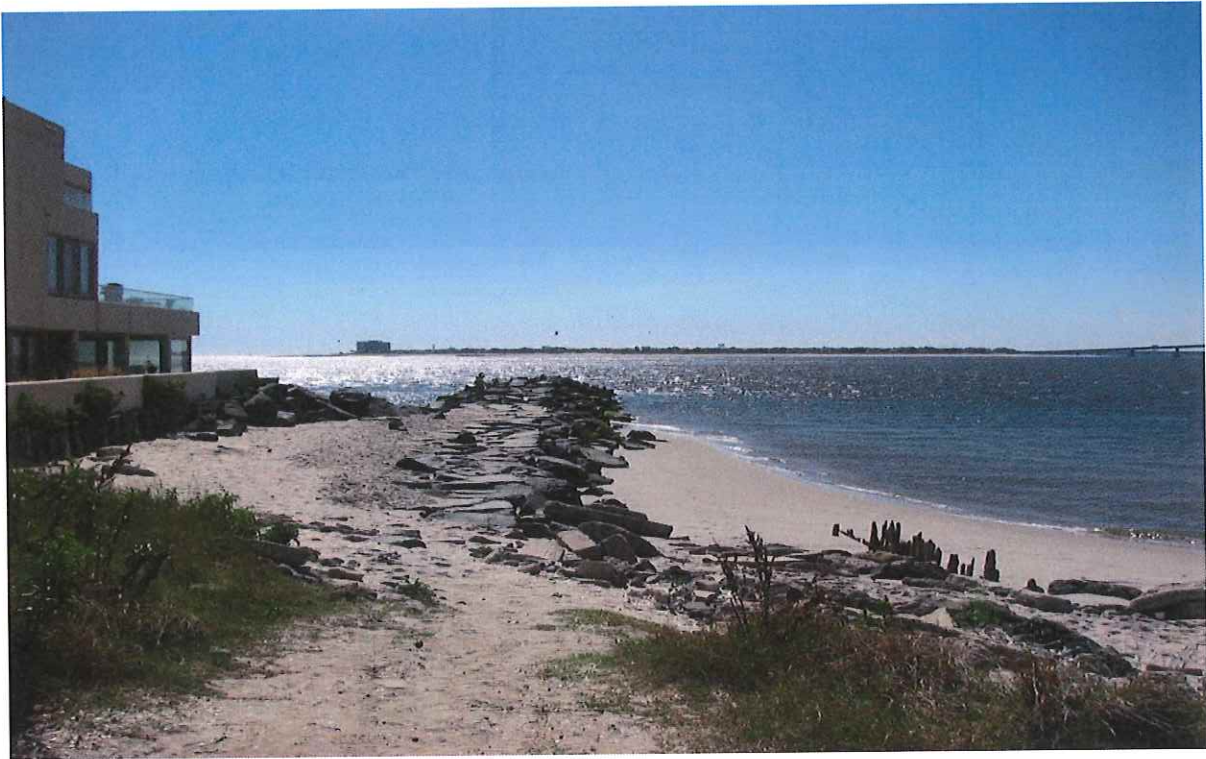
No, just rebuilding from Hurricane Sandy.

**Direct Discharges:**

	Yes	No	Details
Any Direct Discharge to Growing Area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Plant Survey Conducted?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A

**Additional Direct Discharge Notes:****Additional Observations and Comments (bulkhead, land use, dredging, etc.):**

Photos Shoreline Survey 9/15/15



Beach in Longport



Lakes Bay





Lakes Bay



Porta Potty on bridge going to Ocean City





BL England Plant on Great Bay



Beach on Great Bay



SHORELINE SURVEY AREA SE3Boat ☐ Land ☒ Air ☐SURVEYOR: Lisa DiElmo DATE: 10/26/16 TIME: 1030  
WEATHER CONDITIONS: Sunny, Breezy TEMPERATURE: 50**New Stormwater Outfalls:**

	General Area	Latitude	Longitude	Diameter	Description (foul odor, damaged, etc.)
1					
2					
3					
4					

Is there any new development in the area that may have an effect on the coastline? Note name and location.

No

Do you notice any significant animal populations (migrating birds, horseshoe crabs , etc.)? Note name and location.

No

Do you notice any expansion in local marinas? (Without approaching marina owners) Note name, location, &amp; changes.

No

**Direct Discharges:**

	Yes	No	Details
Any Direct Discharge to Growing Area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A
Plant Survey Conducted?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A

Additional Direct Discharge Notes:

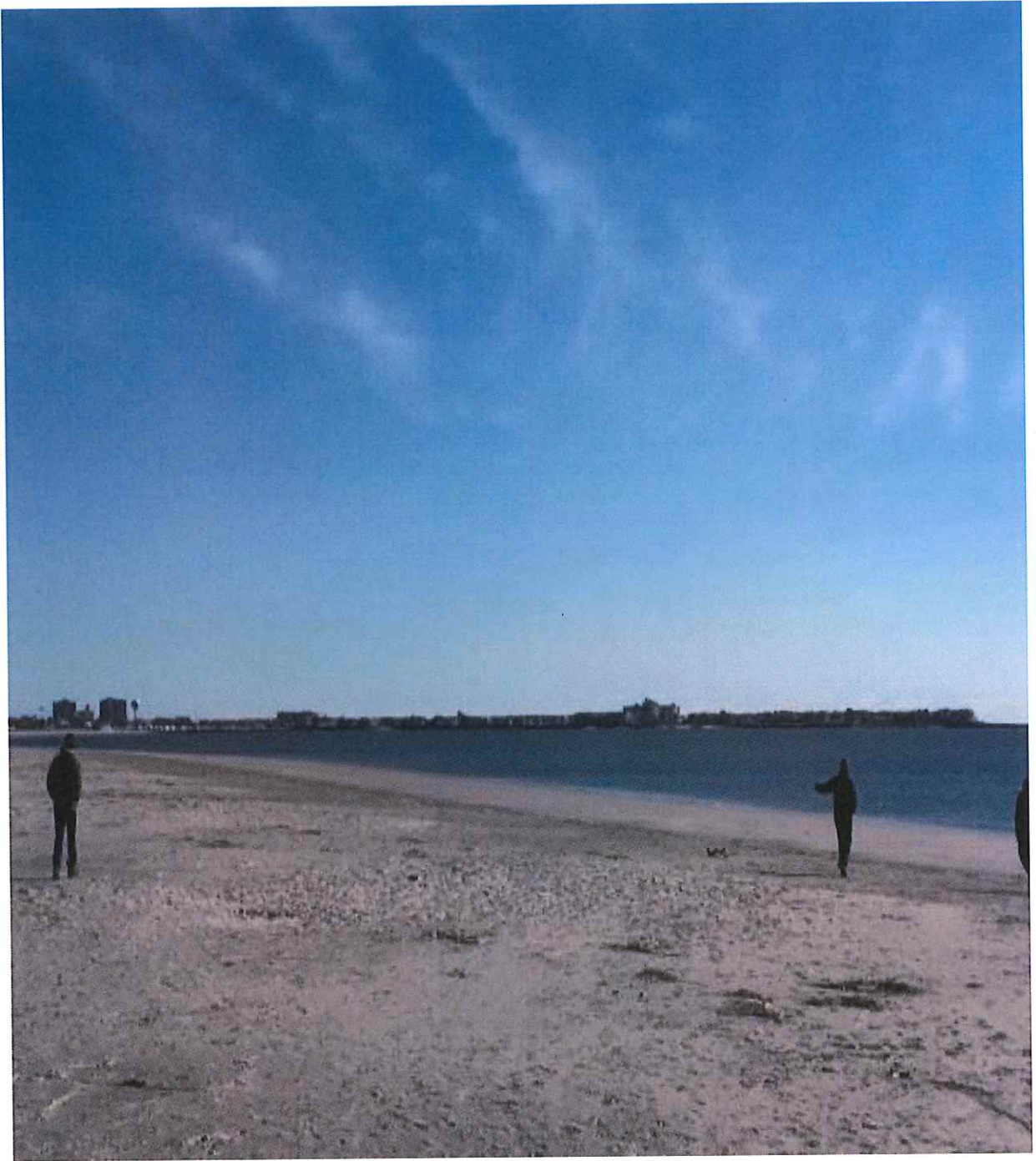
**Additional Observations and Comments (bulkhead, land use, dredging, etc.):**

Malibu Beach Wildlife Management Area (also know as Dog Beach) - this location is a beach area that allows people to bring their dogs on the beach area. I observed a pile of garbage bags located near the parking lot (see photo). There was also fecal matter on the beach (see photo).

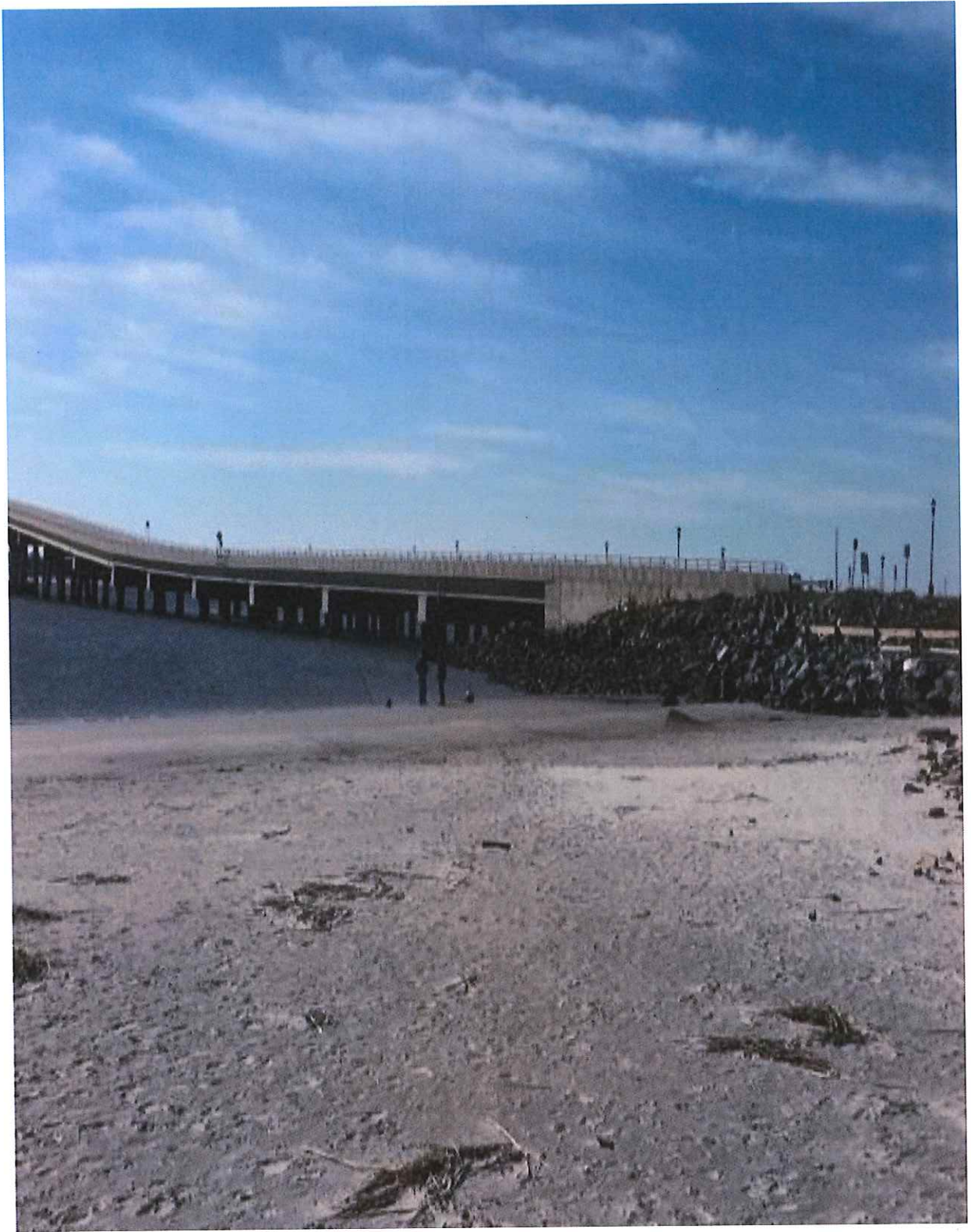


Trash at Dog Beach near parking lot





Dog Beach



Dog Beach





Dog waste on Dog Beach



SHORELINE SURVEY AREA SE3

Boat ☐ Land ☒ Air ☐

SURVEYOR: Lisa DiElmo DATE: 10/26/16 TIME: 1230  
WEATHER CONDITIONS: Sunny, Breezy TEMPERATURE: 50

**New Stormwater Outfalls:**

	General Area	Latitude	Longitude	Diameter	Description (foul odor, damaged, etc.)
1					
2					
3					
4					

Is there any new development in the area that may have an effect on the coastline? Note name and location.

No

Do you notice any significant animal populations (migrating birds, horseshoe crabs , etc.)? Note name and location.

No

Do you notice any expansion in local marinas? (Without approaching marina owners) Note name, location, & changes.

No

**Direct Discharges:**

	Yes	No	Details
Any Direct Discharge to Growing Area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A
Plant Survey Conducted?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A

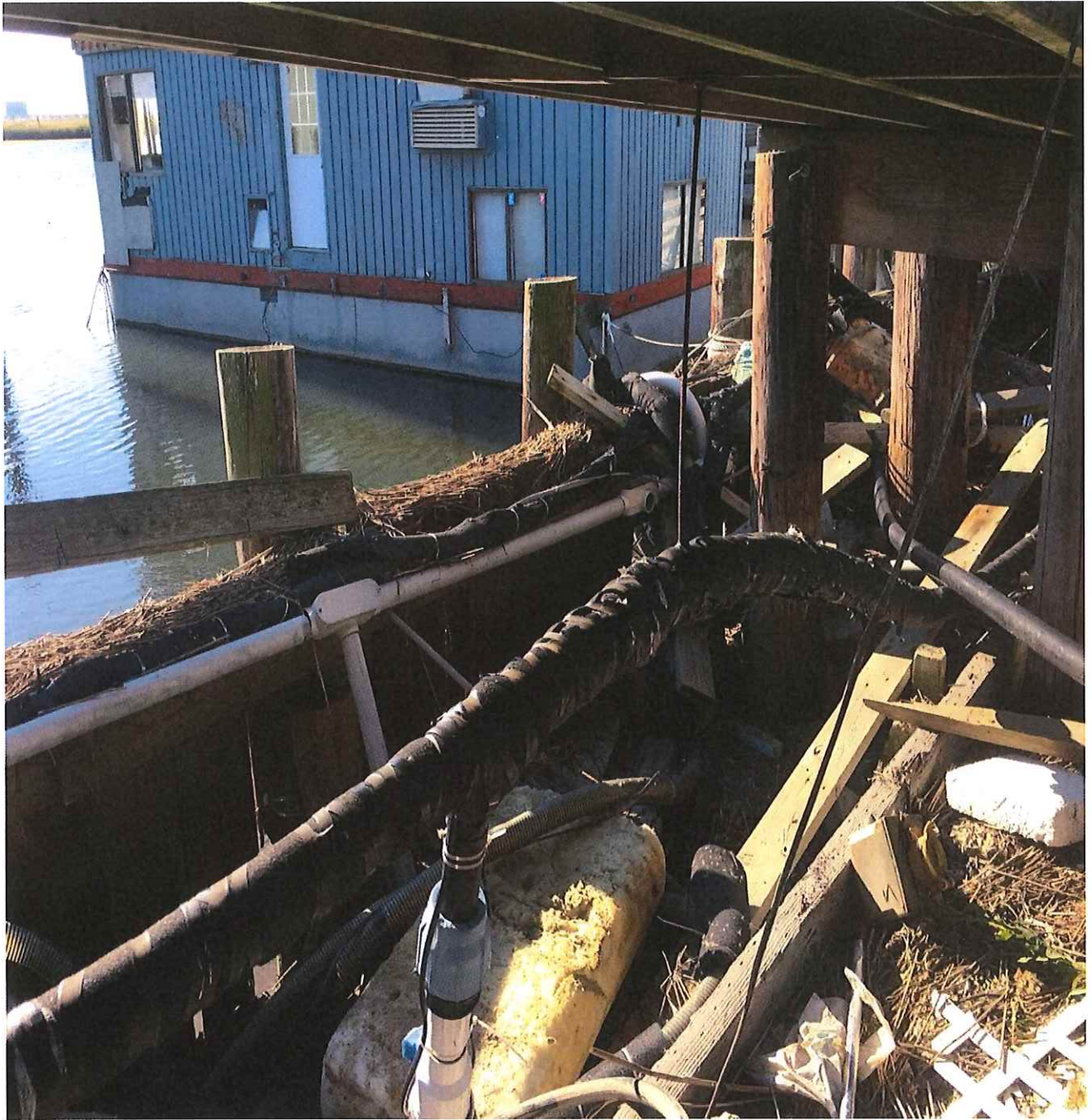
Additional Direct Discharge Notes:

**Additional Observations and Comments (bulkhead, land use, dredging, etc.):**

Visited the Sea Village Boat House Community - this location was hit very hard by Hurricane Sandy. The current owner stated that no one has lived here since the storm and that the property is currently being foreclosed on. The current owner didn't know what the new owner will be doing with the property so there will be a need to visit this location again in the spring of 2017 to ascertain what will be built on the property and if it will have an impact on the growing water classification.



Photos Shoreline Survey 10/25/16b



Various pipes and wires at Sea Village





Various pipes and wires at Sea Village





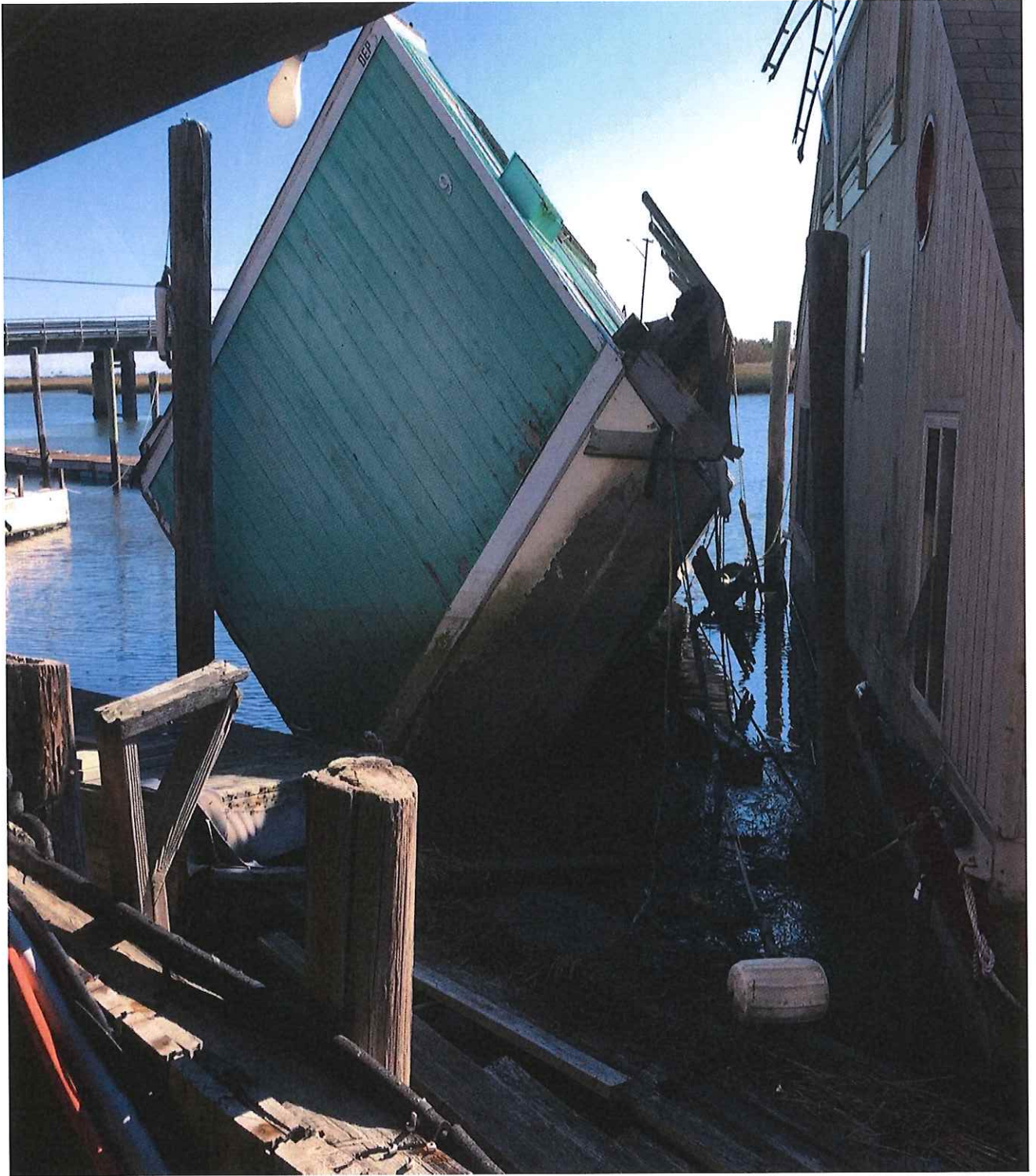
Various pipes and wires at Sea Village





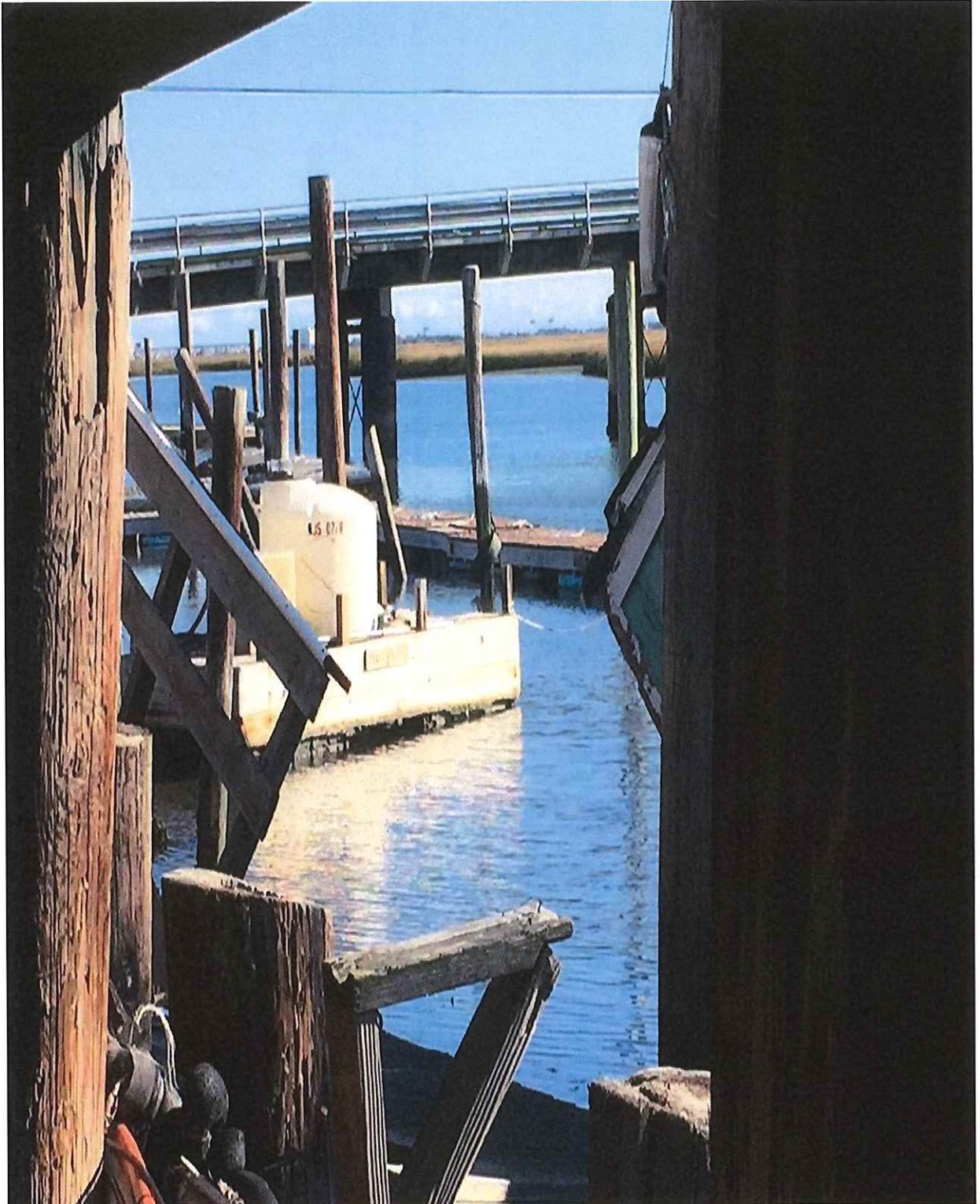
Various pipes and wires at Sea Village





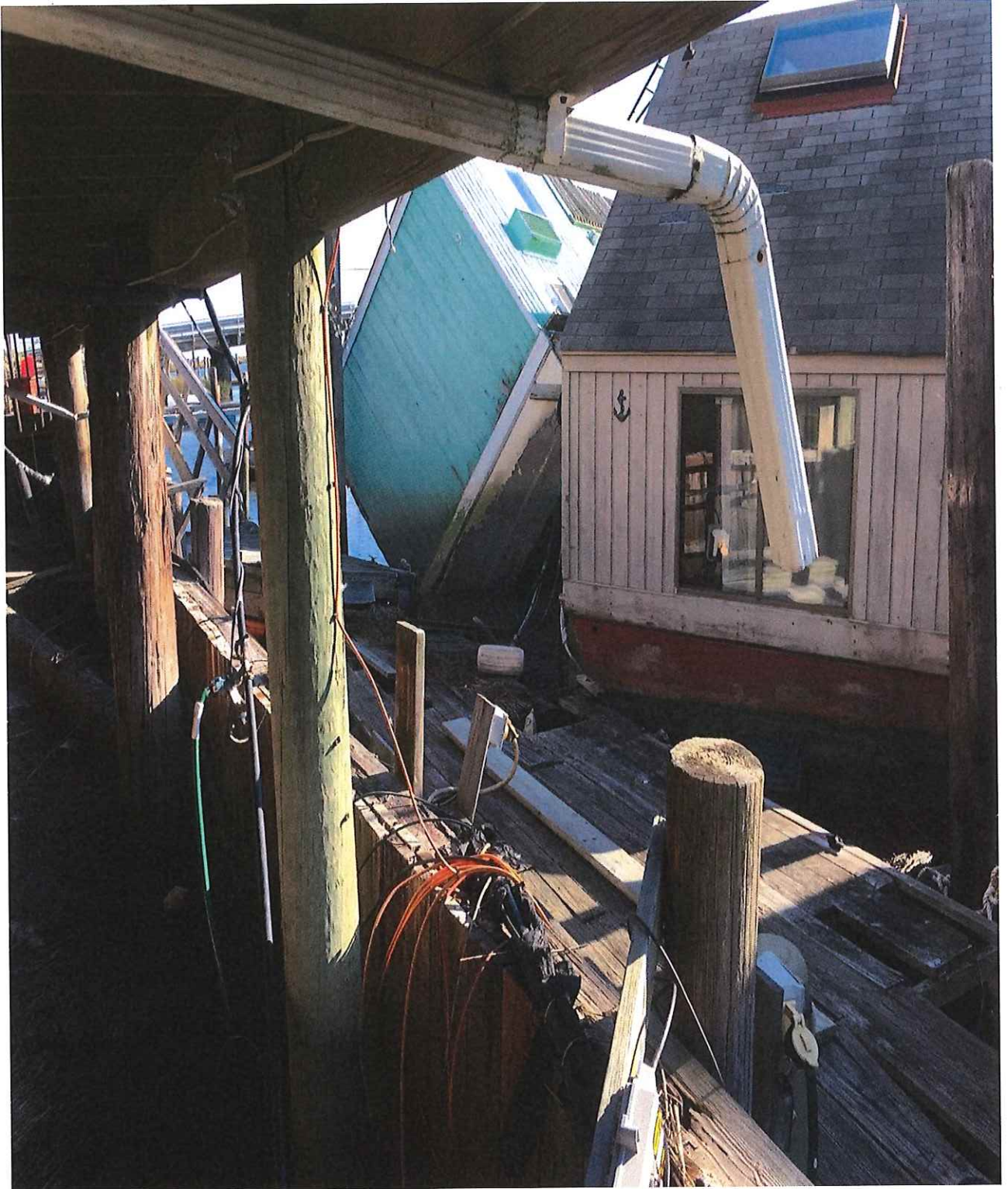
House boat falling into water at Sea Village





Pumpout at Sea Village





Various pipes and wires at Sea Village

SHORELINE SURVEY AREA SE3Boat ☒ Land ☐ Air ☐SURVEYOR: Rodney SloanDATE: 11/14/16TIME: 1000WEATHER CONDITIONS: Partly cloudyTEMPERATURE: 50**New Stormwater Outfalls:**

	General Area	Latitude	Longitude	Diameter	Description (foul odor, damaged, etc.)
1					
2					
3					
4					

Is there any new development in the area that may have an effect on the coastline? Note name and location.

No

Do you notice any significant animal populations (migrating birds, horseshoe crabs , etc.)? Note name and location.

Significant bird population in Lakes Bay.

Do you notice any expansion in local marinas? (Without approaching marina owners) Note name, location, &amp; changes.

No

**Direct Discharges:**

	Yes	No	Details
Any Direct Discharge to Growing Area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Plant Survey Conducted?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A

Additional Direct Discharge Notes:

Additional Observations and Comments (bulkhead, land use, dredging, etc.):

Boat Captain Rodney Sloan observed a significant amount of birds in Lakes Bay in the area near the stations that exceed criteria. This backs up the results of the MAR testing that showed the source of contamination was wildlife.



Photos from Rodney Sloan 11/14/16

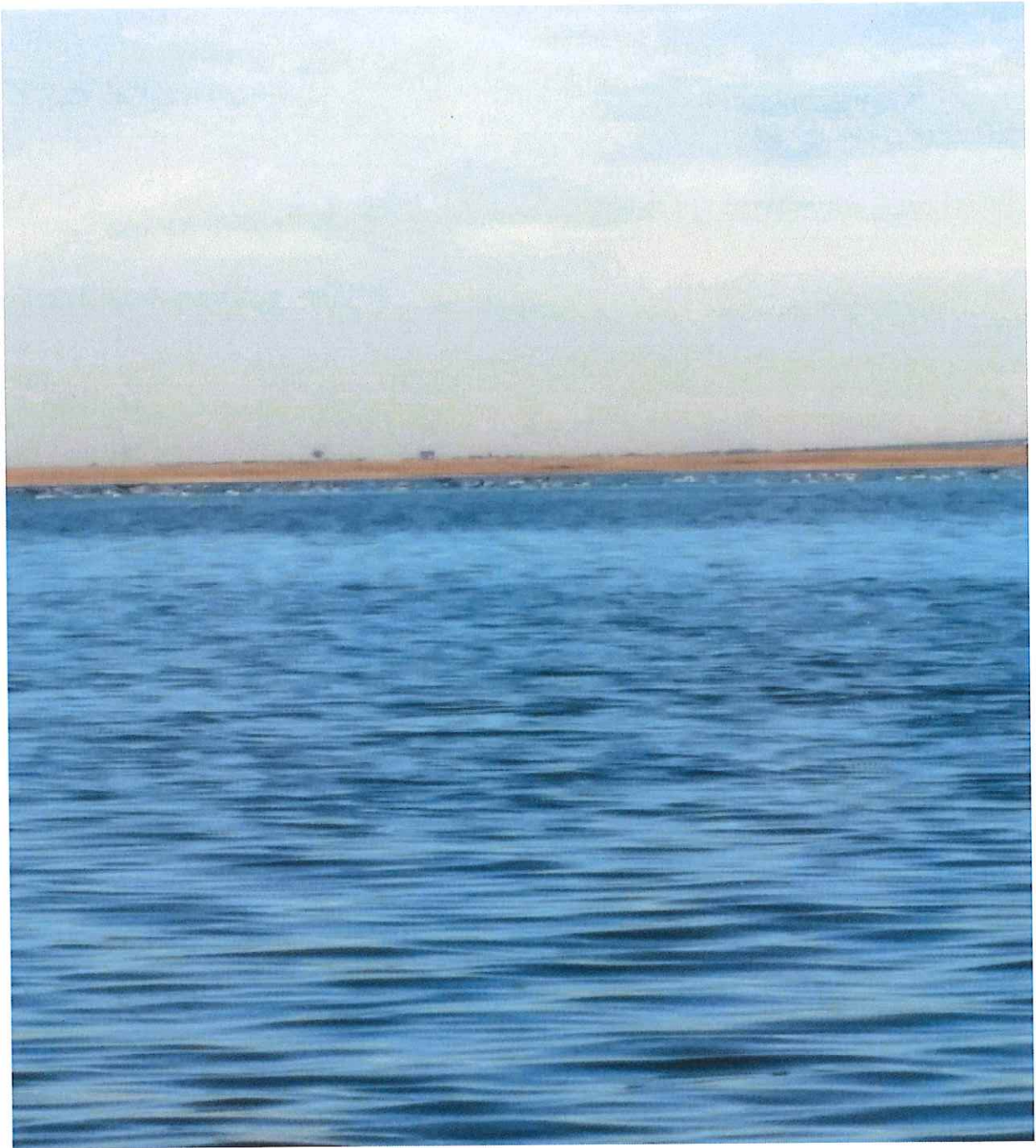


Waterfowl on Lakes Bay



Waterfowl on Lakes Bay





Waterfowl on Lakes Bay

SHORELINE SURVEY AREA SE3Boat ☐ Land ☒ Air ☐SURVEYOR: Lisa DiElmo DATE: 11/25/16 TIME: 1000  
WEATHER CONDITIONS: Sunny TEMPERATURE: 45

## New Stormwater Outfalls:

	General Area	Latitude	Longitude	Diameter	Description (foul odor, damaged, etc.)
1					
2					
3					
4					

Is there any new development in the area that may have an effect on the coastline? Note name and location.

No

Do you notice any significant animal populations (migrating birds, horseshoe crabs , etc.)? Note name and location.

No

Do you notice any expansion in local marinas? (Without approaching marina owners) Note name, location, &amp; changes.

No

## Direct Discharges:

	Yes	No	Details
Any Direct Discharge to Growing Area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Plant Survey Conducted?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A

Additional Direct Discharge Notes:

Additional Observations and Comments (bulkhead, land use, dredging, etc.):

Septic tank observed at All Season Marina on Roosevelt Blvd in Upper Twp. The tank is approx. 112 feet from water with no visible leakage. The tank is raised above ground and is emptied every week. See photos.



Photos 11/25/16a Shoreline Survey



All Season Marina septic tank building



All Season Marina – inside septic tank building





All Season Marina septic tank building

SHORELINE SURVEY AREA SE3

Boat ☐ Land ☒ Air ☐SURVEYOR: Lisa DiElmo DATE: 11/25/16 TIME: 1100  
WEATHER CONDITIONS: Sunny TEMPERATURE: 45**New Stormwater Outfalls:**

	General Area	Latitude	Longitude	Diameter	Description (foul odor, damaged, etc.)
1					
2					
3					
4					

Is there any new development in the area that may have an effect on the coastline? Note name and location.

No

Do you notice any significant animal populations (migrating birds, horseshoe crabs , etc.)? Note name and location.

No

Do you notice any expansion in local marinas? (Without approaching marina owners) Note name, location, &amp; changes.

No

**Direct Discharges:**

	Yes	No	Details
Any Direct Discharge to Growing Area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Plant Survey Conducted?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A

Additional Direct Discharge Notes:

**Additional Observations and Comments (bulkhead, land use, dredging, etc.):**

Septic tank observed at Boulevard Super Liquors on Roosevelt Blvd in Upper Twp. The tank is approx. 468 feet from water with no visible leakage. The leach field is approx. 432 feet from the water. Tank is pumped every other year.



Photos Shoreline Surveyb 11/25/16



Septic tank manhole cover at Boulevard Super Liquor





Septic tank manhole cover at Boulevard Super Liquor





Leach field at Boulevard Super Liquors



Leach field at Boulevard Super Liquors





Leach field at Boulevard Super Liquors



Leach field and manhole cover at Boulevard Super Liquors



SHORELINE SURVEY AREA SE3Boat ☐ Land ☒ Air ☐

SURVEYOR: Lisa DiElmo DATE: 11/25/16 TIME: 1130  
WEATHER CONDITIONS: Sunny TEMPERATURE: 45

**New Stormwater Outfalls:**

	General Area	Latitude	Longitude	Diameter	Description (foul odor, damaged, etc.)
1					
2					
3					
4					

Is there any new development in the area that may have an effect on the coastline? Note name and location.

No

Do you notice any significant animal populations (migrating birds, horseshoe crabs , etc.)? Note name and location.

No

Do you notice any expansion in local marinas? (Without approaching marina owners) Note name, location, & changes.

No

**Direct Discharges:**

	Yes	No	Details
Any Direct Discharge to Growing Area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Plant Survey Conducted?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A

Additional Direct Discharge Notes:

Additional Observations and Comments (bulkhead, land use, dredging, etc.):

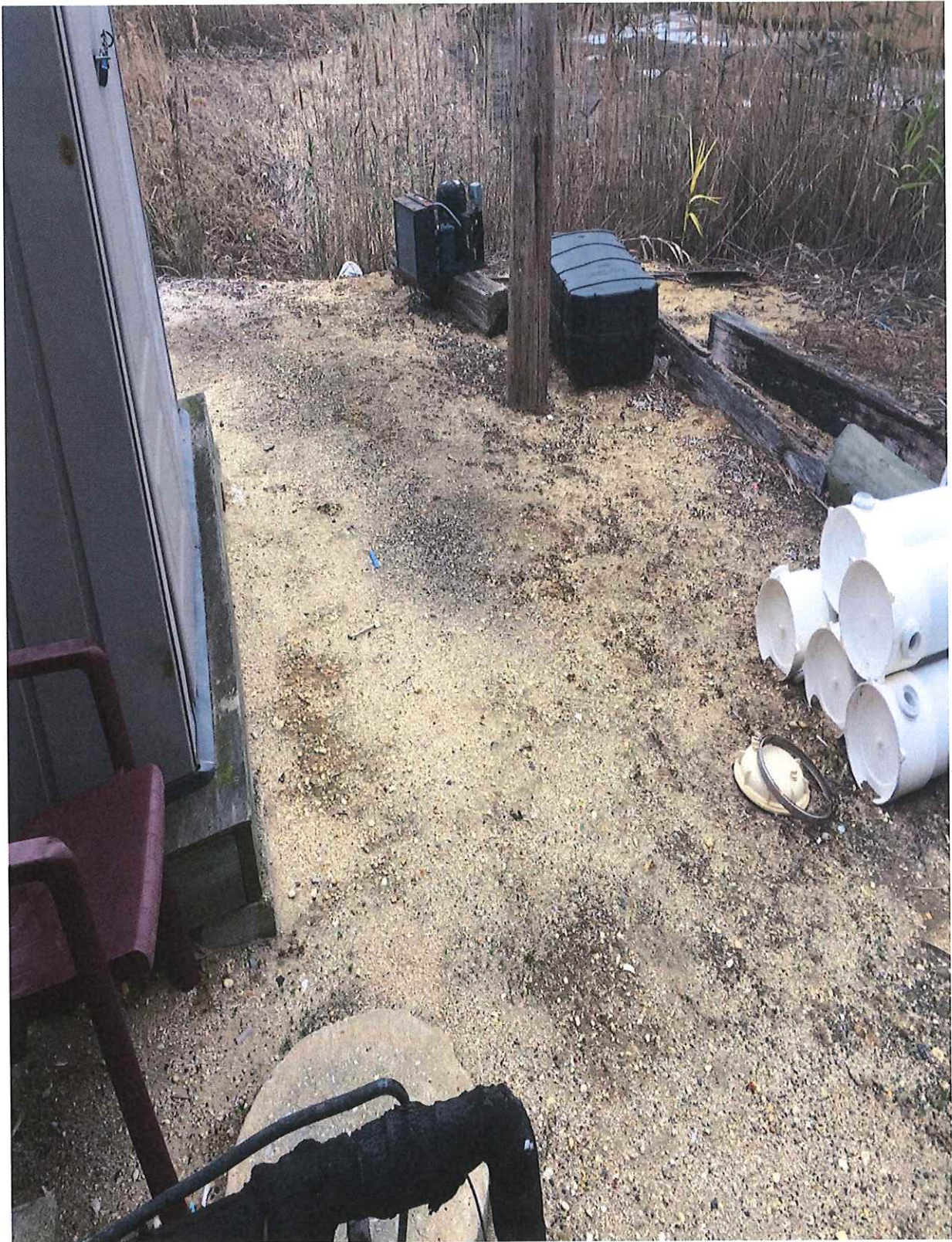
Septic tank observed at Captain Obadiahs Seafood Market on Roosevelt Blvd in Upper Twp.  
The tank is approx. 297 feet from water with no visible leakage.

**Photos 11/25/16c Shoreline Survey**



Septic tank manhole cover at Obadiahs Seafood Market





Septic tank manhole cover at Obadiahs Seafood Market



SHORELINE SURVEY AREA SE3Boat ☐ Land ☒ Air ☐SURVEYOR: Lisa DiElmo DATE: 11/25/16 TIME: 1215  
WEATHER CONDITIONS: Sunny TEMPERATURE: 45**New Stormwater Outfalls:**

	General Area	Latitude	Longitude	Diameter	Description (foul odor, damaged, etc.)
1					
2					
3					
4					

Is there any new development in the area that may have an effect on the coastline? Note name and location.

No

Do you notice any significant animal populations (migrating birds, horseshoe crabs , etc.)? Note name and location.

No

Do you notice any expansion in local marinas? (Without approaching marina owners) Note name, location, &amp; changes.

No

**Direct Discharges:**

	Yes	No	Details
Any Direct Discharge to Growing Area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Plant Survey Conducted?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Improvements Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Since Last Survey?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repairs Planned?	<input type="checkbox"/>	<input type="checkbox"/>	N/A

Additional Direct Discharge Notes:

**Additional Observations and Comments (bulkhead, land use, dredging, etc.):**

Septic tank observed at Sketties Restaurant on Roosevelt Blvd in Upper Twp. The tank is approx. 297 feet from water with no visible leakage.



**Photos 11/25/16d Shoreline Survey**



Septic tank manhole cover at Sketties Restaurant





Septic tank manhole cover at Sketties Restaurant





Septic tank manhole cover at Sketties Restaurant