

Seabrook Harbor Beach, Seabrook

BEACH WATER QUALITY REPORT

SUMMER 2004



February 2005

Prepared by: Alicia Carlson and Sara Sumner



BACKGROUND

The New Hampshire Department of Environmental Services (NHDES) has operated its Public Beach Inspection Program, or Beach Program, for over twenty years. Coastal beach monitoring began in 1989 and has continued through the present. NHDES recognizes the threat to public health at public beaches and continues to monitor public beaches throughout the state for the presence of pathogenic organisms. Coastal beaches are monitored for the presence of the fecal bacteria *Enterococci*. These fecal bacteria are present in the intestines of warm-blooded animals including humans. Fecal bacteria, when present in high concentrations and ingested, can commonly cause gastrointestinal illnesses such as nausea, vomiting and diarrhea. They are also known as indicator organisms, meaning their presence in water may indicate the presence of other potentially pathogenic organisms.

In October of 2000, the United States Environmental Protection Agency (EPA) signed into law the Beaches Environmental Assessment and Coastal Health (BEACH) Act. The BEACH Act is an amendment to the Clean Water Act that authorizes the EPA to award grants to eligible states. The purpose of the BEACH Act is to reduce the risk of disease to users of the nation's recreational waters. BEACH Act grants provide support for development and implementation of monitoring and notification programs that help protect the public from exposure to pathogenic microorganisms in coastal recreation waters.

NHDES received grant funding in 2002 to develop and implement a beach monitoring and notification program consistent with EPA's performance criteria requirements published in the *National Beach Guidance and Required Performance Criteria for Grants* document (www.epa.gov/waterscience/beaches/grants). NHDES has successfully met all requirements and continues to expand the monitoring and notification program. In 2002, only 9 coastal beaches were monitored, in 2003 fifteen coastal beaches and in 2004 sixteen coastal beach were monitored on a routine basis.

Table of Contents

Beach Description.....	4
Tier Status and Sampling Frequency.....	5
Water Quality.....	6
Areas of Concern.....	8
Thoughts for the Future.....	9

List of Figures

Figure 1. Map of Seabrook Harbor Beach.....	5
Figure 2. Seabrook Harbor Beach Enterococci Data 2004.....	8

List of Tables

Table 1. Seabrook Harbor Beach Enterococci Data 2004.....	7
---	---

Beach Description

Seabrook Harbor Beach is a sandy beach overlooking Seabrook/Hampton Harbor. Its total length is 787 feet. The beach is frequented by residents and vacationers for recreational activities. There are 41 access points to the beach area from the neighborhood and the main parking lot (this includes all the narrow paths through the grass). Lifeguards are not present. Sanitary facilities are available during the beach season.

Waterfowl are frequently observed at the beach. The most commonly seen are gulls. The town restricts dogs and fishing on the beach. The Hampton/Seabrook Harbor area has a large boat mooring field and several shellfish beds.

Below is a brief description of the sampling stations at Seabrook Harbor Beach, Seabrook. The stations are pictured in Figure 1.

- The right sample station is located to the north side of the main beach entrance and to the right of a sign that reads “No Fishing (etc)... from beach”. There is a path to the north of the sign to access the beach area. The sample is collected in front of the access point.
- The center sample station is located between the main beach entrance and restroom facilities. There is a path between the 5th and 6th wooden post south of the main beach entrance to access the beach area. The sample is collected in front of the access point.
- The left sample station is located to the south of the restrooms and south of a sign that reads “No Bus or Camper Parking”. There is a path next to the sign to access the beach area. The sample is collected in front of the access point.

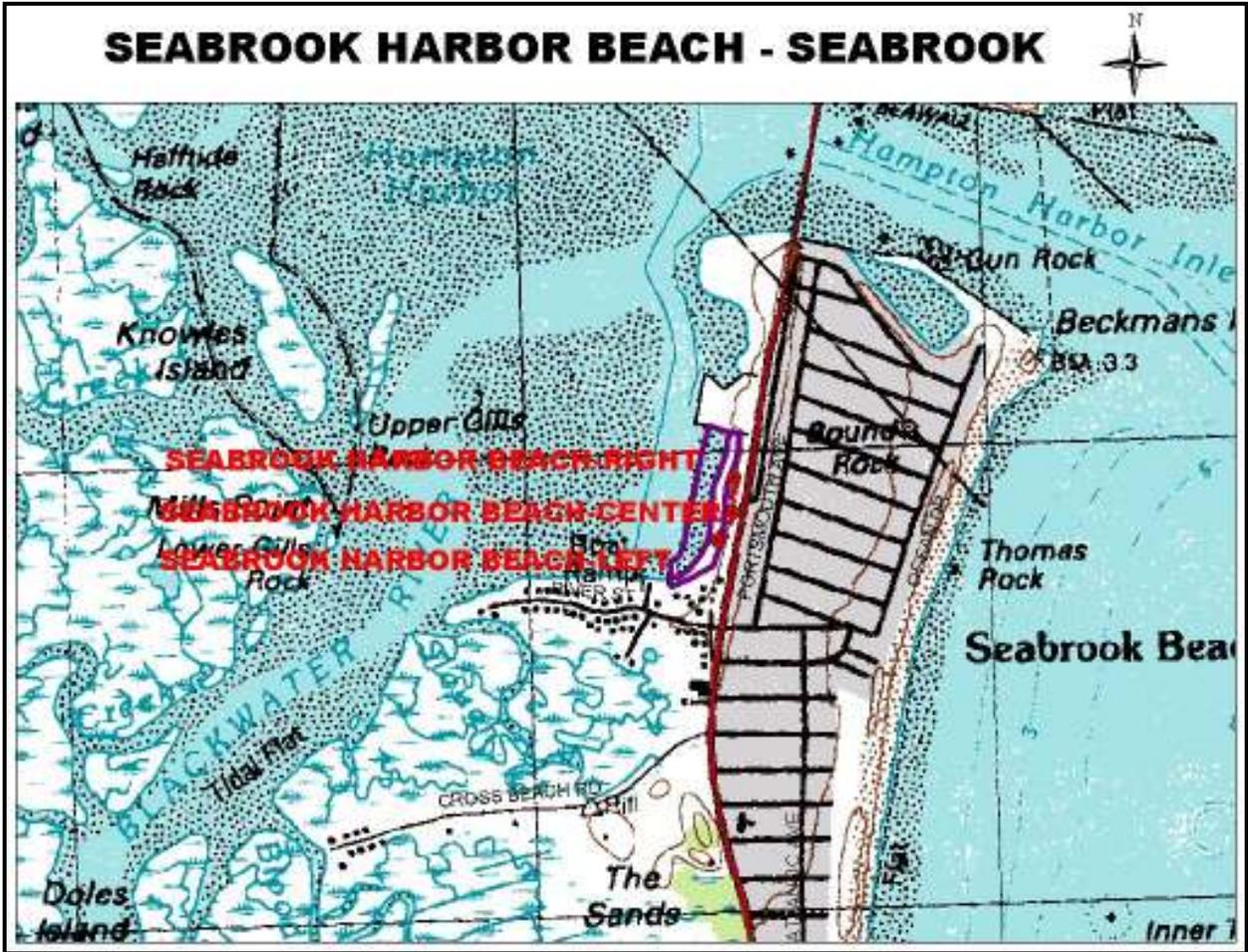


Figure 1. Map of Seabrook Harbor Beach

Tier Status and Sampling Frequency

The Beach Program developed a risk-based beach evaluation process and tiered monitoring approach and implemented this approach during the 2003 beach season. Beach evaluations are conducted annually to determine potential health threats to the public. Evaluations are based on several criteria in three main categories: beach history, microbial pathogen sources, and beach use. Based on these criteria, beaches are assigned either a Tier I or Tier II status. Tier I are high priority beaches that have an increased potential to affect public health while Tier II are low priority beaches that have less potential to affect public health. Beach sample frequency is based on the Tier statuses; Tier I beaches are sampled weekly and Tier II beaches are sampled every other week.

Seabrook Harbor Beach is a Tier I beach. This ranking indicates the beach is popular with local residents and there are potential pollution sources and risks present. Ranking of the beach has changed since 2002, when the ranking system was implemented. Seabrook Harbor Beach was

considered a Tier II beach in 2003, its initial year in the program, due to insufficient beach data. Water quality data and additional information were gathered during the 2003 season. The 2004 annual evaluation incorporated this data and the result was a change to Tier I status.

Water Quality

Beaches are monitored to ensure compliance with State Water Quality Standards. Marine waters are analyzed for the presence of the fecal bacteria Enterococci. Enterococci are known as indicator organisms, meaning their presence may indicate the presence of pathogenic bacteria. The state standard for Enterococci at public beaches is 104 counts/100 mL in one sample, or a geometric mean of 35 counts/100 mL in three samples collected over sixty days. Standard exceedances require the issuance and posting of a beach advisory. Beach advisories remain in effect until subsequent beach sampling indicates safe water quality conditions.

The number of samples collected at each beach is determined by the beach length. Beaches less than 100 feet in length are sampled at left and right locations 1/3 of the distance from either end of the beach. Beaches greater than 100 feet in length are bracketed into thirds and sampled at left, center and right locations. Routine sample collection may be enhanced by sampling known or suspected pollution sources to the beach area. Also, storm event sampling may be conducted at beaches where wet-weather events are expected to affect beach water quality.

The 2004 sampling season began June 1st. June was cooler and drier than normal, July was cooler and wetter than normal, while August was warmer and wetter than normal. The sampling season encompassed 108 days, of which precipitation was recorded on 42 days (based on Seabrook WWTF recorded precipitation). Twenty beach days (normal beach hours are considered 9:00 a.m. to 5:00 p.m.) were directly affected by precipitation.

Seabrook Harbor Beach was sampled once per week from June 1st through Labor Day. Pre-season wet weather sampling occurred in April and May. There were a total of 16 inspections performed and 48 samples collected in 2004. Three samples were collected at left, center and right stations (Figure 1).

Table 1 includes Enterococci data from each sampling event in 2004. Overall, the Enterococci levels were moderate. Enterococci levels did not exceed State standards and no bacteria advisories were issued. Enterococci levels were elevated on June 7, July 7, July 19, and August 3, 2004 (Figure 2). Field inspection data indicate that on all but one occasion there were greater than ten boats moored in the harbor. Also, on August 3, 2004, fishermen complained of fish heads on beach. Waterfowl were either absent or sparse, and only one rain event occurred prior to sampling on August 3, 2004. No direct evidence exists to identify the cause(s) of the elevated Enterococci levels.

Table 1. Seabrook Harbor Beach Enterococci Data 2004

Sample Date	Station Name	Results (counts per 100 mL)
04/15/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	10
	Seabrook Harbor Beach – Right	<10
05/11/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	<10
	Seabrook Harbor Beach – Right	<5
06/01/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	<10
	Seabrook Harbor Beach – Right	<10
06/07/2004	Seabrook Harbor Beach – Left	30
	Seabrook Harbor Beach – Center	<10
	Seabrook Harbor Beach – Right	50
06/15/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	<10
	Seabrook Harbor Beach – Right	<10
06/21/2004	Seabrook Harbor Beach – Left	10
	Seabrook Harbor Beach – Center	30
	Seabrook Harbor Beach – Right	20
06/28/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	<5
	Seabrook Harbor Beach – Right	<10
07/07/2004	Seabrook Harbor Beach – Left	70
	Seabrook Harbor Beach – Center	20
	Seabrook Harbor Beach – Right	30
07/14/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	<10
	Seabrook Harbor Beach – Right	<10
07/19/2004	Seabrook Harbor Beach – Left	90
	Seabrook Harbor Beach – Center	40
	Seabrook Harbor Beach – Right	70
07/26/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	<10
	Seabrook Harbor Beach – Right	<10
08/03/2004	Seabrook Harbor Beach – Left	80
	Seabrook Harbor Beach – Center	60
	Seabrook Harbor Beach – Right	60
08/09/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	<10
	Seabrook Harbor Beach – Right	<10
08/17/2004	Seabrook Harbor Beach – Left	20
	Seabrook Harbor Beach – Center	10
	Seabrook Harbor Beach – Right	20
08/25/2004	Seabrook Harbor Beach – Left	<10
	Seabrook Harbor Beach – Center	<10
	Seabrook Harbor Beach – Right	10
08/30/2004	Seabrook Harbor Beach – Left	30
	Seabrook Harbor Beach – Center	20
	Seabrook Harbor Beach – Right	30

Figure 2 depicts the Enterococci data in relation to the state standard for coastal beaches.

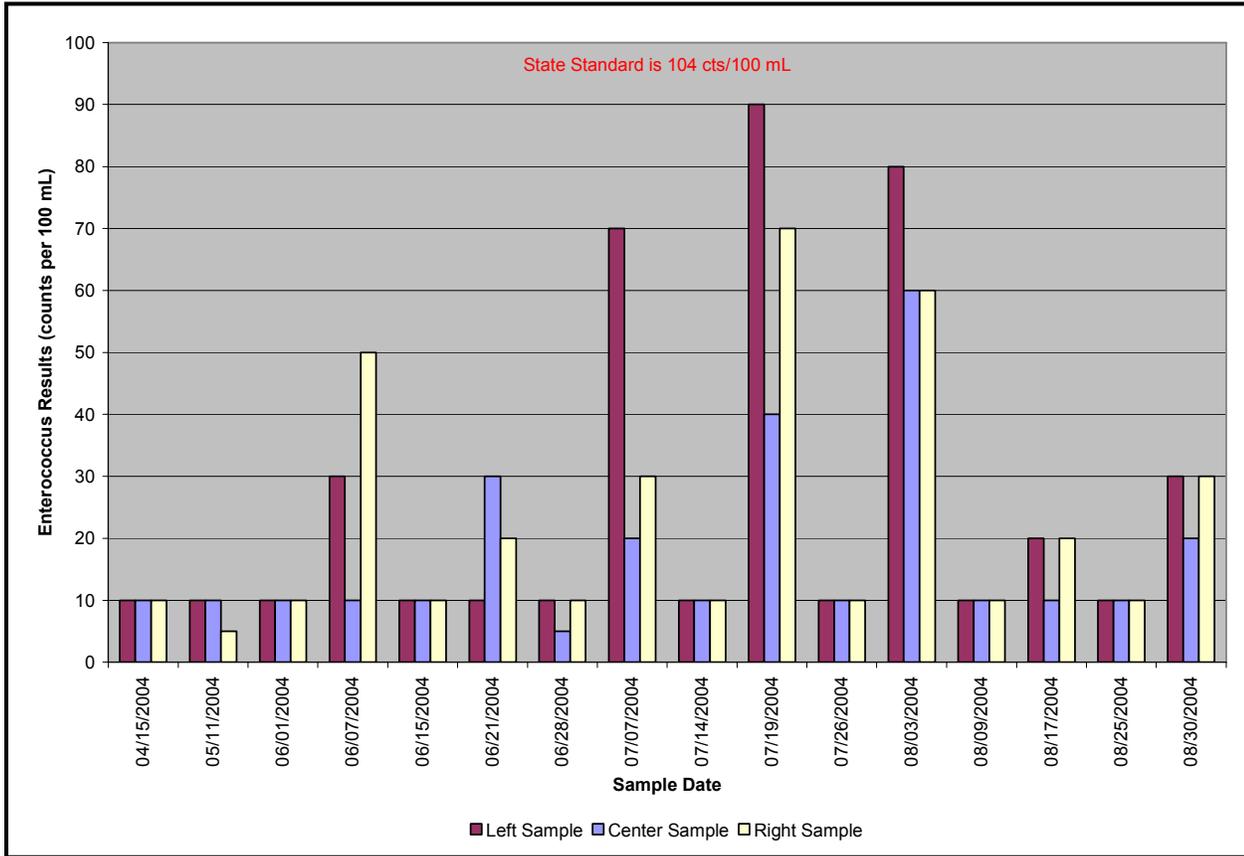


Figure 2. Seabrook Harbor Beach Enterococci Data 2004

The Beach Program staff analyzed whether a relationship exists between elevated Enterococci levels and precipitation at Seabrook Harbor Beach. Analyses of the data indicate no direct correlation. DES will continue to monitor precipitation data and Enterococci levels. Precipitation often causes elevated bacteria levels due to runoff in the watershed.

Areas of Concern

While there are restrictions against fishing on the beach, fishermen were frequently observed with their lines cast into the harbor. Fish heads and a fish skeleton were found on the beach on a few occasions this summer. The fishermen indicated that perhaps the fish were discarded from the boats moored in the harbor. Whether or not these fish remains were discarded by the beach fishermen or boats moored in the harbor, an effort should be made by the town and the state to end these practices. The health of people using the beach may be compromised by the fish remains.

The number of boats moored in the harbor directly in front of the beach area is also an area of concern. Some of the boats have toilet facilities on board, and although discharging waste into the harbor is illegal, there have been documented cases. The NHDES Shellfish Program is also concerned that boat sewage is a threat to shellfish beds in the harbor. If a boat is observed discharging to the harbor, please notify local authorities and Marine Patrol. There are sufficient boat pumpout stations located along the coast and also a mobile pumpout boat to discharge boat sewage.

Thoughts for the Future

- The beach area should be used for recreational purposes such as picnicking, swimming, or sun bathing. Consider increased enforcement efforts against fishermen violating beach rules. Fishing lines and lures are dangerous to swimmers and the discarded fish parts pose a nuisance to beach goers.
- The Seabrook Beach Committee, local businesses, or school group should consider joining NHDES' Adopt-a-Beach Program. The program would consist of beach clean-ups and water quality monitoring. DES would conduct training sessions and participate in education and outreach activities for the community. If you are interested, please contact Sara Sumner at 603-271-8803 or ssumner@des.state.nh.us.
- The Seabrook Beach Committee, the Town of Seabrook and NHDES could partner to install an informational kiosk at the beach. The kiosk could include information about the Beach Program and the surrounding community.