



**GROWING AREA WE**  
**Cape Arundel, Kennebunkport to Timber Point, Biddeford**  
**Sanitary Survey Report**

**Report Date: 06-27-2014**

**Final**

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**APPROVAL**

Division Director:

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## **Executive Summary**

This is a Sanitary Survey report for Growing Area WE written in compliance with the requirements of the 2011 Model Ordinance and the National Shellfish Sanitation Program. Two changes in classification are needed at this time due to water quality no longer meeting classification standards. Station WE18 at the head of the Batson River is no longer meeting the restricted standard and will be reclassified to Prohibited and station WE13 in Sampson Cove is no longer meeting approved standard and will be reclassified to Restricted. One water quality station was added (WE10.2) and two stations were reactivated (WE6 & 10). The next sanitary survey is due in 2025 and the next Triennial in 2016.

Growing Area WE is located between Cape Arundel, Kennebunkport and Timber Point, Biddeford (Figure 1). The growing area includes several coves (Turbat's Creek, Paddy Creek, and Sampson Cove), Cape Porpoise Harbor, Goosefare Bay, and two small rivers (Batson River and Little River) which bound Goose Rocks Beach. A complete boundary description can be found in DMR central files.

Growing Area WE contain rocky coastline, a salt marsh dominated harbor, and a pocket beach system flanked by tidal rivers and rocky headlands. While some pollution may derive from the watersheds of the tidal rivers and few streams that exist in the area much of these areas are almost completely undeveloped as large portions of these areas are encompassed within the Rachel Carson Wildlife Preserve. Major pollution sources in growing area WE include three licensed residential overboard discharges (OBDs) and one farm that may impact the Batson River.

Large sections of the area are serviced by the Kennebunkport Sewer Department, most specifically Goose Rocks Beach and portions of Cape Porpoise Harbor. Other sections, such as the coast from Cape Arundel to Vaughn Island are not serviced by sewer and rely on in-ground residential disposal systems to handle residential waste.



### Maine Department of Marine Resources Growing Area WE

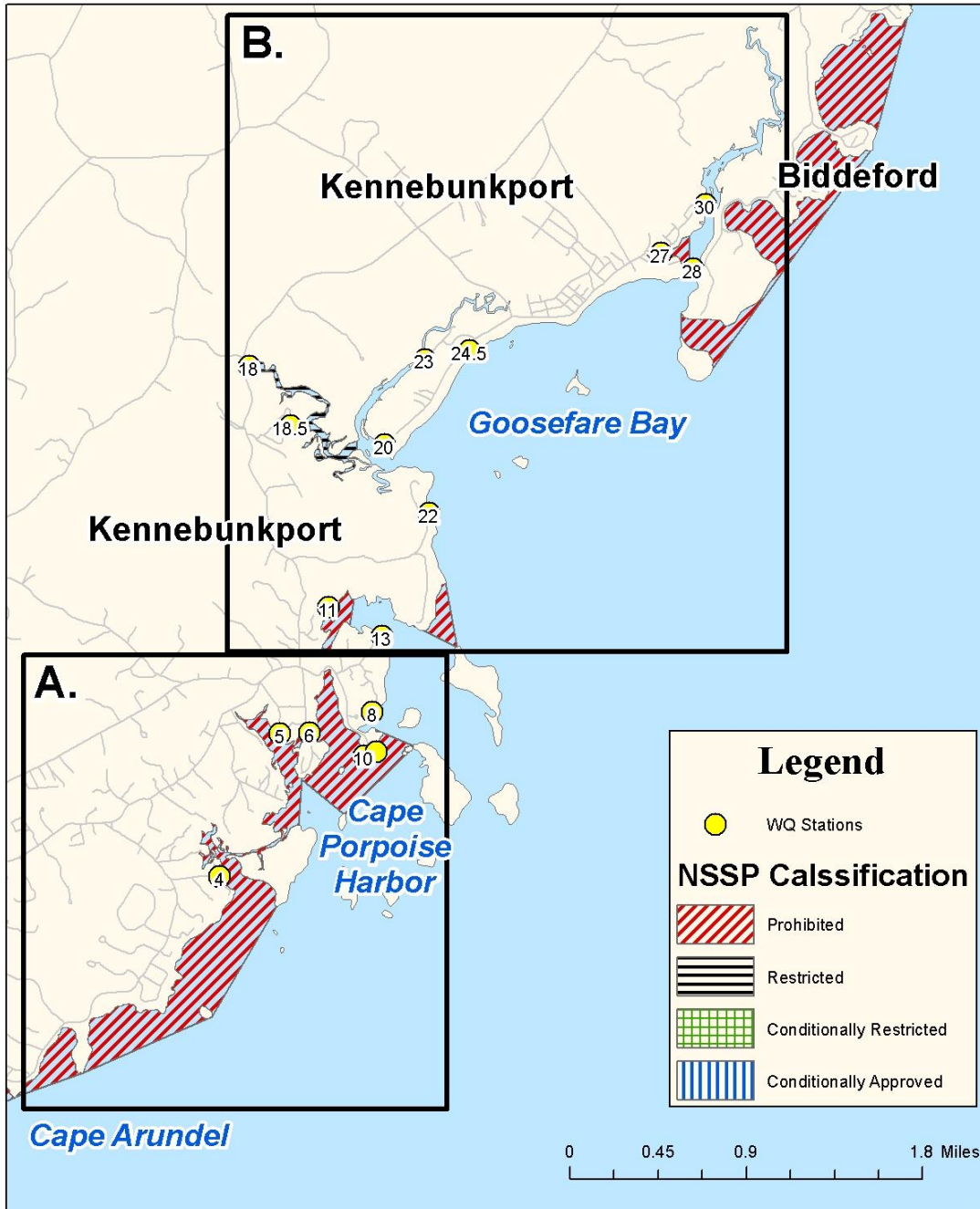


Figure 1. Growing area WE overview map. Insets A & B correspond to DMR Pollution Areas 8 & 9 respectively.



### Maine Department of Marine Resources

Growing Area WE, Pollution Area 9

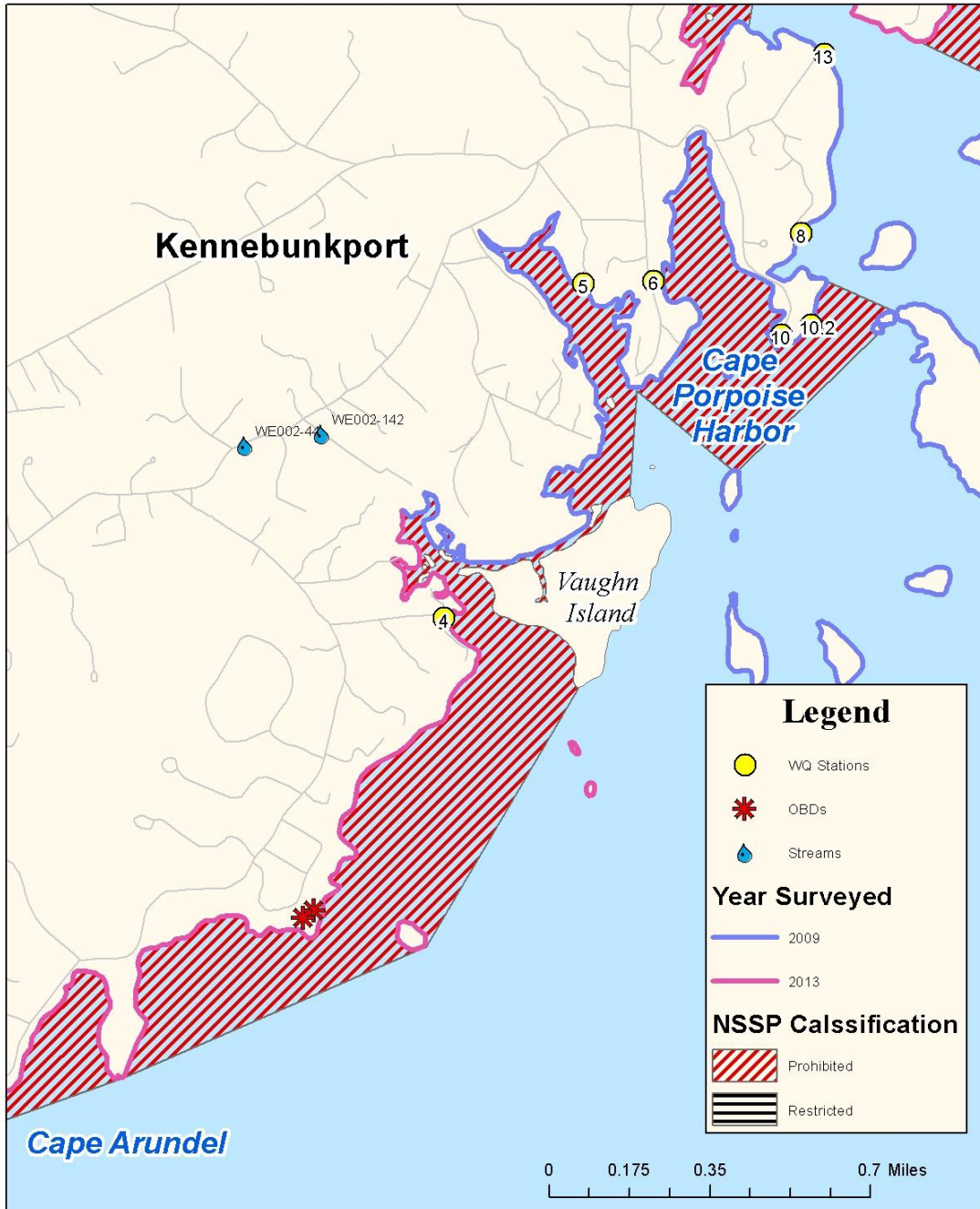


Figure 2. Map A, Pollution Area 8 with Pollution Sources.



# Maine Department of Marine Resources

Growing Area WE, Pollution Area 9

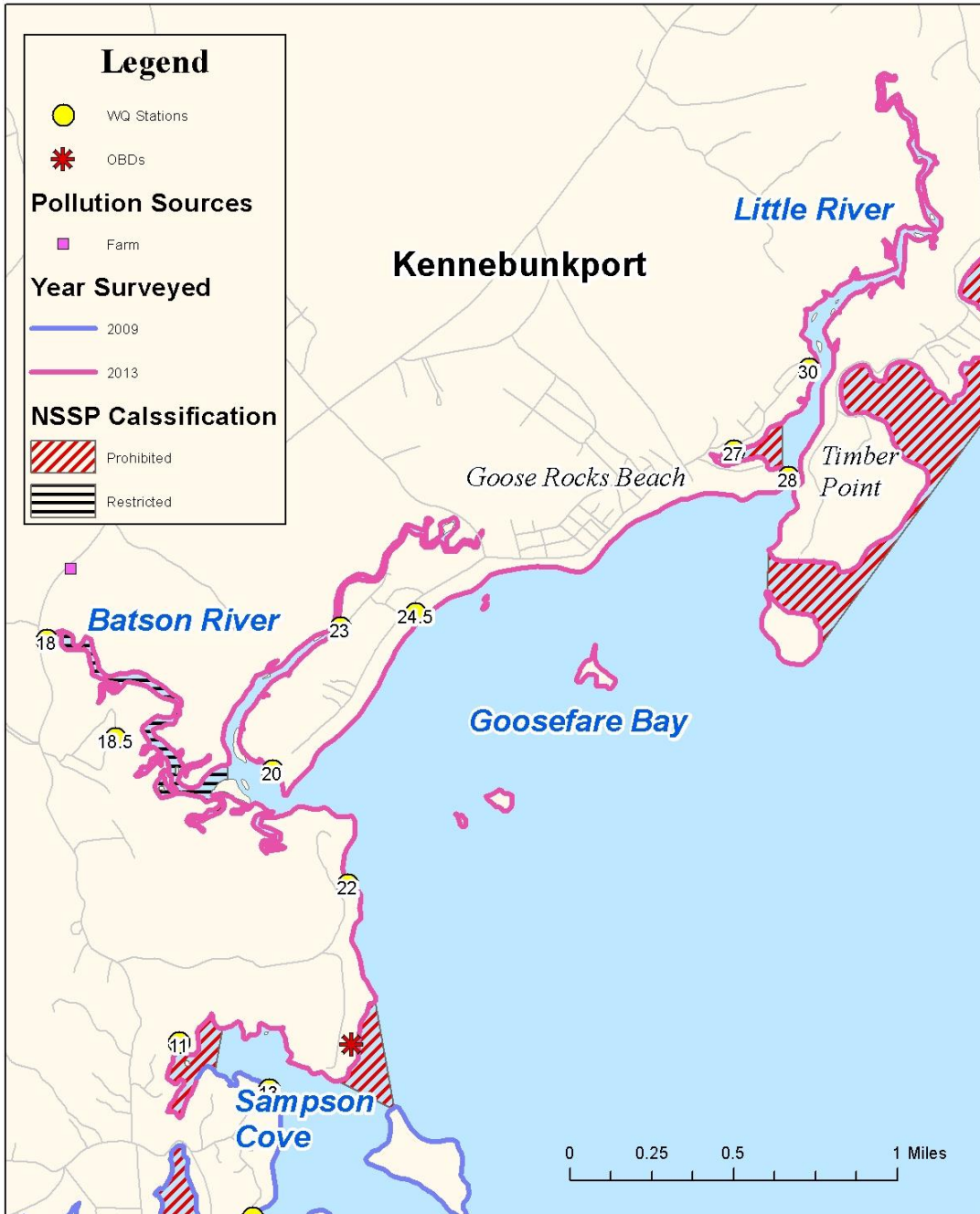


Figure 3. Map B Pollution Area 9 with Pollution Sources.



## History of Growing Area Classification

2002, 2003, 2004, 2005

No Activity

2006:

No Activity

2007:

August 1, 2007 - A new sampling station, WE 10.2, was added northeast of the town dock, and stations WE 6 and 10, in Cape Porpoise Harbor, were reactivated in response to the towns request for a reduction in closure size around the town dock (station WE 10). Stations WE 6 and 10.2 will provide more information on surrounding water quality.

September 26, 2007 – Turbat’s Creek, was reclassified from Conditionally Approved to Restricted in due to water quality no longer meeting approved standards.

2008:

March 8, 2008 Pollution Area 8; Paddy Creek, Kennebunkport, was reclassified from Conditionally Approved to Prohibited due to a failing septic system.

2009:

On January 12, 2009 - The Town of Kennebunkport applied for a pilot project through the DMR Shellfish Advisory Council to conduct accelerated sampling of sample station WE 10.2 which is a six-acre area north of sample station WE 10 and south of WE 8.0 (“High Flats”). The area between the new sample station and sample station WE 8.0 must be surveyed before the area can be considered for upward classification and accelerated sampling at station 10.2. The pilot project submitted was not accepted by the DMR Shellfish Advisory Council. The area was scheduled to be surveyed by the DMR in 2009.

May 27, 2009 –Pollution Area No 9; Little River, Goosefare Bay, Smith Brook and Batson River were reclassified to Prohibited due to lack of a recent shoreline survey, and the presence of a licensed overboard discharge at Timber Point (Biddeford).

May 27, 2009 –Pollution Area No 8, Turbat’s Creek was reclassified from Restricted to Prohibited, due to lack of a recent shoreline survey. Goat Island was reclassified to Approved due to the removal of a licensed overboard discharge.

August 4, 2009 -The upland boundary between growing area WE and WF was adjusted so that the eastern boundary line no longer went through the middle of Little River (Kennebunkport, Biddeford). No sample stations or shoreline survey database entries had to be changed as a result of the update.

August 14, 2009 – Pollution Area No 9 Little River (Biddeford and Kennebunkport), Goosefair Bay (Kennebunkport) and Smith Brook (Kennebunkport) were reclassified from Prohibited to Approved due to a review of the findings of the most recent shoreline survey and water quality





meeting the approved standard; this amendment also reclassified Batson River from Prohibited to Restricted, due to a review of the findings of the most recent shoreline survey and water quality meeting the restricted standard.

2010:  
No Activity

2011:  
No Activity

2012:  
No Activity

2013:  
No Activity

### **Current Classification(s)**

The following legal notice describes the shellfish classification boundaries in Shellfish Growing Area WE and can be found on the DMR website at:

[http://www.maine.gov/dmr/rm/public\\_health/closures/closedarea.htm#](http://www.maine.gov/dmr/rm/public_health/closures/closedarea.htm#)

Area 8: Cape Arundel to Cape Porpoise (Kennebunkport)

Area 9: Sampson Cove to Fortunes Rocks (Kennebunkport and Biddeford)

At the end of the 2013 review year, shellfish growing area WE had areas classified as:

**Approved:** 8 stations: WE 8, 13, 20, 22, 23, 24.5, 28 & 30

**Restricted:** 2 stations: WE 18 & 18.5

**Prohibited:** 7 stations: WE 4, 5, 6, 10, 10.2, 11 & 27

### **Activity during Review Period (Shoreline Survey)**

**2002:** none

**2003:** none

**2004:** Kennebunkport sewer connections were confirmed in 2004 and the dwellings not connected to the sewer were inspected. Turbat's Creek, Paddy Creek, Smith Brook, Batson River, Goosefare Bay and Little River were surveyed.

**2005:** Maine DMR conducted a survey of the tidal shore around Goosefare Bay in 2005 in conjunction with the Maine Healthy Beach Program. As a result of these surveys, two licensed



overboard discharges, located at the head of the Little were added to the Maine DEP OBD priority list for removal. During the drive through surveys, no new development or alterations to drainages was observed.

**2006:** Goosefare, Maine DEP conducted a survey of upstream properties on the Little and Batson Rivers.

**2007:** One new sampling station, WE 10.2 was added, and two stations, WE 6 and 10, were reactivated to better evaluate water quality in Cape Porpoise Harbor.

**2008:** Paddy Creek was resurveyed on 3/20/08 and a failing septic system was found. On 3/21/08, the area was reclassified from Conditionally Approved to Prohibited. The Code Enforcement Officer was notified and the owner will be seeking grant money to connect to the town sewer system.

**2009:** On August 4, 2009 the upland boundary between growing areas WE and WF was adjusted so that the eastern boundary line no longer went through the middle of Little River (Kennebunkport, Biddeford). No sample stations or shoreline survey database entries had to be changed as a result of the boundary update.

DMR. A total of 95 properties were surveyed around Cape Porpoise Harbor starting at the end of Fishers Lane (east of harbor) and ending on Wood Road off of Langsford Road (west of harbor). All of Pier Rd, Bickford Island, Langsford Rd, and Wood Rd are on town sewer with the exception of 6 properties that were surveyed and systems were documented. None of the properties at the end of Fishers Lane down to the end of Agamenticus Ave are on town sewer. There were no issues found.

On October 16, 2009 a sanitary survey for Kennebunkport was completed by DMR. A total of 95 properties were surveyed around the Paddy Creek and Turbat's Creek area. All of Ward Road, Wildes District Rd, Rose Leith Lane, Turbat's Creek Rd, and Nehoc Lane are on town sewer with the exception of a few properties. None of the properties down Lands End Road, McKenney Lane, Bufflehead Lane, or Fieldpoint Rd are on town sewer. Prior to conducting the survey the codes enforcement officer, Brian Shaw, brought to our attention a known malfunction located on Wildes District Road. This property has been vacant for 4-5 months. There is an issue with fixing the system and or tying into the sewer line that runs down Wildes District Rd due to the fact that the property is bordered on both sides by cemeteries and there are ordinance conflicts. A possible malfunction located at McKenny Lane was documented. The field is located SW of the house and runs down towards a stream that empties into Turbat's Creek. Water was oozing out of the field and the home owner had dug a gully to the stream to drain the wet area. The home owner stated that this is from the cellar drain; however, it had a sewer smell. This property was reported to Brian Shaw. Also noted were sheep (seven) located at a property on Wildes District Road. The sheep were fenced behind the house in a low wet area that runs along Bufflehead Lane. The fencing crosses over the stream along the culvert that runs under Bufflehead Lane.



**2010: none**

**2011: none**

**2012: none**

**2013:** To create a more uniform and comprehensive understanding of pollution sources impacting areas along the Maine coastline, DMR has implemented a protocol for surveying an entire growing area when due for a sanitary survey. To that end, the entirety of growing area WE within 500ft of shore was surveyed in 2013, excluding portions surveyed in 2009.

The area surveyed in 2013 reached from Cape Arundel to Vaughn Island and from Sampson Cove to Timber Point including a drive through survey of areas on town sewer along Goose Rocks Beach. A total of 117 properties were surveyed in 2013 within area WE. Over these 117 properties, DMR inspected 98 in ground septic systems, one grey water discharge, one farm, two streams, three holding tanks, two unknown drain pipes (non-septic), and two DEP verified OBD's. There were no pollution problems identified during the survey.

## **Pollution Sources Survey**

The following sections include information on pollution sources which do or may impact water quality in growing area WE. Pollution sources that are reviewed in this section include domestic waste, including both private inground systems and over board discharges (OBDs), marinas and mooring fields, stormwater and pollution from non-point sources (streams), farms and other agricultural activities, domestic animals and wildlife areas, and recreational areas.

### **Domestic Waste (*IG Systems and OBDs*)**

#### ***In Ground Systems***

Sections of area WE are not tied into the Kennebec sewer district due to limitations to the geography of the area, namely, sections of coastline with little soil and prominent ledge that precludes cost effective expansion of the sewer lines to these areas as well as areas with lower density of development. Areas where in ground systems are the dominant method of waste disposal were targeted for survey in 2013. To date, there is one outstanding documented problem with in ground septic systems over the review period, documented on 10/16/2009 at the head of Paddy Creek. DMR has sent a problem form and follow up letter to the town LPI in 2013 and is awaiting confirmation of remediation. Paddy Creek is in Cape Porpoise harbor, the entire area surrounding the problem parcel is classified Prohibited.

#### ***Overboard Discharge***

There are three overboard discharges (OBDs) that discharge their treated effluent into the waters of the area WE (Figures 2 & 3). One OBD was removed over the past three review years (2011) and was located on the western bank of the mouth of the Batson River.



An overboard discharge is the discharge of wastewater from residential, commercial, and publicly owned facilities to Maine's streams, rivers lakes, and the ocean. Commercial and residential discharges of sanitary waste have been regulated since the mid1970's when most direct discharges of untreated waste were banned. Between 1974 and 1987 most of the "straight pipes" were connected to publicly-owned treatment works or replaced with standard septic systems. Overboard discharge treatment systems were installed for those facilities that were unable to connect to publicly-owned treatment works or unable to install a septic system because of poor soil conditions or small lot sizes.

All overboard discharge systems include a process to clarify the wastewater and disinfect it prior to discharge. There are two general types of treatment systems; mechanical package plants and sand filters. Sand filter systems consist of a septic tank and a sand filter. In such systems, the wastewater is first directed to a holding tank where the wastewater solids are settled out and undergo partial microbial digestion. The partially treated wastewater then flows from the tank into a sand filter, consisting of distribution pipes, layers of stone and filter sand, and collection pipes within a plastic liner. The wastewater is biologically treated as it filters down through the sand, and is then collected and discharged to a disinfection unit. Mechanical package plants consist of a tank, where waste is mechanically broken up, mixed and aerated; mechanical systems require electric power, and must have an operating alarm on a separate electrical circuit that will activate if the treatment unit malfunctions due to a power failure. The aerated treated wastewater is held in a calm condition for a time, allowing for solids to settle and for the waste to be partially digested by naturally occurring bacteria. The clarified water from the tank is then pumped off the top into a disinfection unit. There are two types of disinfection units, UV and chlorinators (most common). In a chlorinator, the treated water contacts chlorine tablets and remains in a tank for at least 20 minutes where bacteria and other pathogens are killed. The treated and disinfected water is discharged from the disinfection unit to below the low water mark of the receiving waterbody (the ocean, a river, or a stream) via an outfall pipe.

OBDs are licensed and inspected by the Maine Department of Environmental Protection. At each inspection, DEP looks for tags on each treatment unit identifying the service contractor and the last date of service. If an OBD is not properly maintained, or if the OBD malfunctions, it has the potential to directly discharge untreated wastewater to the shore; therefore, preventative closures are implemented surrounding every OBD located in growing area WE (Table 1). The size of each closure is determined based on a dilution, using on the permitted flow rate of the OBD (in gallons per day, GPD), and the depth of the receiving water that each OBD discharges to; the fecal concentration used for this dilution calculation is  $1.4 \times 10^5$  FC /100 ml. All current closures are of adequate size to protect public health.

**Table 1. Current (2013) licensed overboard discharges located within growing area WE.**

DEP ID	Town	Receiving Water	Depth Receiving Water	Licensed Flow (GPD)	Type*	Required Closure Acres	Acres Closed
2424	Kennebunkport	Gulf of Maine	5	300	S	1.841	21
4096	Kennebunkport	Gulf of Maine	5	360	S	2.209	Entire Shore
1144	Kennebunkport	Gulf of Maine	5	360	S	2.209	



## **Municipal WWTP**

There are no municipal wastewater treatment plants within the boundaries of growing area WE. The Kennebunkport Waste Water Treatment Plant sewer collection system serves most of Cape Porpoise Harbor and extends along Marshall Point and Goosefare Bay. The plant discharges to the Kennebunk River in Growing Area WD. There are pump stations in growing area WE: two near Little River, three on Goosefare Bay, one near Sampson Cove, one near Paddy Creek, two near Turbat's Creek, two inland and five on the Kennebunk River in growing area WD. All of the pump stations have dual pumps, alarms and no overflow pipes per the review of the plant on January 14, 2008.

## **Industrial Pollution**

There are no permitted industrial discharges in area WE.

## **Marinas and Mooring Fields**

There are no marinas in the area, however the Cape Porpoise Town Pier which has 76 moorings: 48 for fishing boats and 28 for recreational boats. Only two of the recreational boats have heads and the peak season for usage is Memorial Day to Labor Day. This area is currently classified as Prohibited.

## **Stormwater**

Stormwater runoff is generated when precipitation from rain and snowmelt events 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 (US EPA 2009). Thus, stormwater pollution is caused by the daily activities of people within the watershed. Currently, polluted stormwater is the largest source of water quality problems in the United States.

The primary method to control stormwater discharges is the use of best management practices (BMPs). In addition, most major stormwater discharges are considered point sources and require coverage under an NPDES permit. In 1990, under authority of the Clean Water Act, the U.S. EPA promulgated Phase I of its stormwater management program, requiring permitting through the National Pollution Discharge Elimination System (NPDES). The Phase I program covered three categories of discharges: (1) "medium" and "large" Municipal Separate Storm Sewer Systems (MS4s) generally serving populations over 100,000, (2) construction activity disturbing 5 acres of land or greater and (3) ten categories of industrial activity. In 1999, US EPA issued Phase II of the stormwater management program, expanding the Phase I program to include all urbanized areas and smaller construction sites.

Although it is a federal program, in the state of Maine, the Phase II Stormwater permit is issued and regulated by the Maine DEP (Chapter 500 and 502). Under the MS4 regulations, each municipality must implement the following six Minimum Control Measures: (1) Public education



and outreach, (2) Public participation, (3) Illicit discharge detection and elimination, (4) Construction site storm water runoff control, (5) Post-construction stormwater management, and (6) Pollution prevention/good housekeeping. The permit required each city or town to develop a draft Stormwater Management Plan by September 3, 2003 that will establish measurable goals for each of the Minimum Control Measures. The Town must document the implementation of the Plan, and provide annual reports to the Maine DEP. Currently the discharge of stormwater from 28 Maine municipalities is regulated under the Phase II permit requirements, however, no municipalities located within the boundaries of Growing Area WE fall under these regulations. Additionally, the Maine Stormwater Management Law provides stormwater standards for projects located in organized areas that include one acre or more of disturbed area (Maine DEP 2009).

### **Non-Point Pollution Sources** (*streams, etc*)

In 2009, two streams were evaluated for bacteria impact in area WE; each drain into a portion of Cape Porpoise Harbor. Fecal Coliform scores at each location were less than 35 CFU/100ml for a single sample (Table 2).

**Table 2. Stream scores (Fecal Coliform, CFU/100ml) for growing area WE.**

Sample Date	Stream	Score
6/7/2009	WE002-142	20
6/7/2009	WE002-44	35

Over all there is low potential input from streams within growing area WE. The largest freshwater inputs are sourced from Batson and Little Rivers which are both small salt marsh tributaries emptying to Goosefare Bay. Current water quality scores associated with the outlet of each river do not indicate significant pollution contribution with the exception of station WE 18 at head of tide on the Batson River. This area is currently Restricted and will be reclassified as Prohibited.

Surface runoff stemming from impervious surfaces poses another potential source of non-point pollution (1" of rain on a 1000ft<sup>2</sup> roof will yield 600 gallons of runoff). While the density of development is relatively low along the coast, residential properties tend to be larger houses on lots cleared to the water. The large surface area created by the roofs of structures on the properties, and any associated roads and driveways creates impervious surfaces with the potential for surface water to runoff directly to coastal waters.

### **Agricultural Activities**

There is a farm which grazes 20-50 sheep and a pond that has wild and domestic geese on the upper portion of the Batson Brook watershed. This area is classified as Prohibited.

### **Domestic Animals and Wildlife Activity**

Most of the shore around Sampson Cove, Smith Brook, Batson River and Little River is part of the Rachel Carson Preserve marshland. The preserve is home to deer, fox, raccoons and various waterfowl.



### **Conservation/Recreation Areas (beaches, trails, etc.)**

The Rachel Carson Preserve includes most of the shore around Sampson Cove, Smith Brook, Batson River and Little River.

## **Hydrographic and Meteorological Assessment**

### **Tides**

Maine tidal fluctuations can approach in excess of 3m on southern coasts. This can create the opportunity for pollutants emanating from streams, runoff, and stormwater systems to disperse greater distances by being drawn far from the pollution source at low tides, and subsequently reintroduced to locations on the incoming tide that are dependent on the local hydrography and currents and often disparate of their source.

The most plausible areas in Growing Area WE at which tides are likely to have adverse effects on transport of pollutants is in Goosfare Bay, which is a pocket beach system (Goose Rocks Beach) flanked by two tidal rivers. In YEAR, the Maine Healthy Beaches Program (MHB) in partnership with the Maine Geological Survey (MGS) conducted a hydrographic study of the bay. The results of this study suggested that effluent from the Little River becomes entrained in a localized eddy and does not travel far from the eastern side of the bay. However, the study also noted that effluent from the Batson River may under certain conditions, travel eastward along the beach face and become entrained in the same localized eddy as the effluent from the little river.

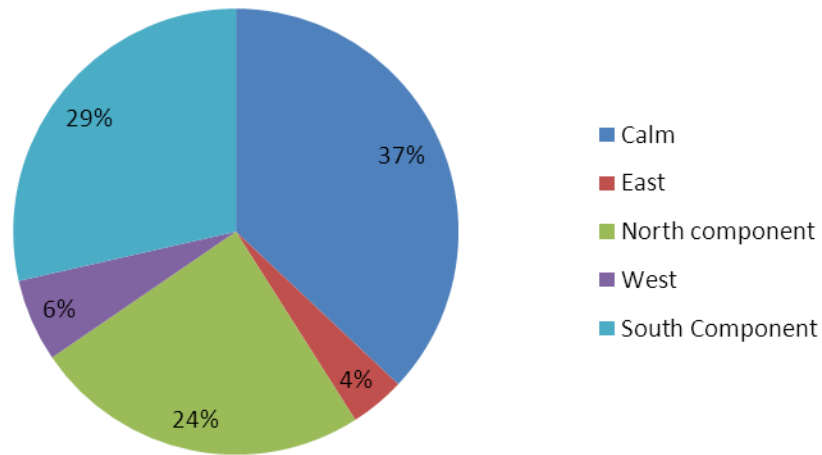
### **Rainfall**

There are currently no areas within area WE managed on rainfall. The Kennebunk River represents the area with highest probability of rainfall impact in the area. As discussed previously, this river empties into growing area WD and local current patterns tend to retain effluent locally and subsequently move it westward along the beach face, away from growing are WE.



### **Winds**

Wind direction can impact pollution transport, retention and flushing behaviors of shellfish growing areas. Area WE has few streams and limited runoff potential, because of this, the impact of prevailing wind direction is likely to be minimal. A breakdown of prevailing wind direction over the sanitary survey report period is provided in figure #. Wind direction along the coast of Maine varies seasonally with a consistent and predictable southerly sea breeze dominating the summer and shoulder spring and fall seasons. Over the course of a full year, wind direction during sampling events is evenly distributed between calm winds and those with northerly or southerly components at about 30% of samples for each. The remaining 10% is evenly split between due west and due east wind directions. A full breakdown of wind direction is provided in figure #.



**Figure 4. Generalized breakdown of prevailing wind direction during all water quality sampling events over the 12 year review period.**



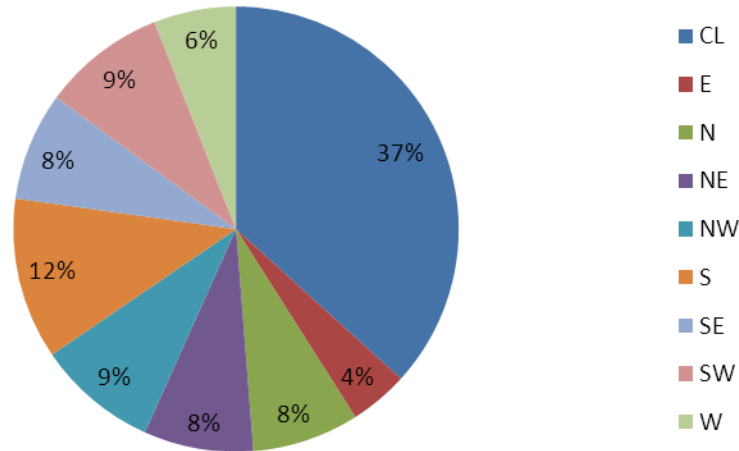


Figure 5. Detailed breakdown of prevailing wind direction during all water quality sampling events over the 12 year review period.

### River Discharge

There are no rivers directly impact in growing are WE. The Kennebunk River, located along the western border between growing areas WD and WE discharges to area WD. A joint study between MHB and MGS suggests that the Kennebunk river plume may be largely retained in a localized eddy along the Gooch's beach system in Kennebunk, moving along shore gradually in a southwesterly direction, way from growing area WE. There are no areas in WE managed around river discharge.

### Water Quality Review

A review of water quality data for the final review year (2013) show all stations with the exceptions of WE13 and WE18 are maintaining compliance with their current classifications (Table 2). There are no conditional areas within area WE, and all stations were sampled six times over the course of 2013 (Table 3).

Table 3. Water quality data summary for 2013. For header definitions see appendix A. Cells highlighted red indicate stations not meeting their classification standard.

Station	Class	Count	MFCOUNT	GM	SDV	MAX	P90	Appd_Std	Restr_Std	Min_Date
WE008.00	A	30	30	4.2	0.48	90	18.1	31	163	3/11/2009
WE013.00	A	30	30	4.4	0.69	660	35	31	163	3/11/2009
WE020.00	A	30	30	3.5	0.47	82	14.5	31	163	3/11/2009
WE022.00	A	30	30	3.3	0.58	740	18.8	31	163	3/11/2009
WE023.00	A	30	30	4.5	0.59	380	26.5	31	163	3/11/2009
WE024.50	A	30	30	3.7	0.48	50	15.2	31	163	3/11/2009
WE028.00	A	30	30	3.1	0.4	42	10.2	31	163	3/11/2009
WE030.00	A	30	30	3.3	0.4	52	11	31	163	3/11/2009



WE004.00	P	30	30	6	0.76	1601	56.8	31	163	3/11/2009
WE005.00	P	30	30	4.2	0.5	132	18.7	31	163	3/11/2009
WE006.00	P	30	30	4.5	0.56	180	23.7	31	163	11/5/2008
WE010.00	P	30	30	6.1	0.64	140	41.5	31	163	3/11/2009
WE010.20	P	30	30	4	0.66	1700	28	31	163	10/4/2010
WE011.00	P	30	30	3.2	0.48	144	13.8	31	163	3/11/2009
WE027.00	P	30	30	8	0.65	340	54.9	31	163	3/11/2009
WE018.00	R	30	30	32	0.61	460	195.2	31	163	3/11/2009
WE018.50	R	30	30	5.2	0.59	200	30.2	31	163	3/11/2009

**Table 4. Sample counts for water quality stations located in growing area WE for 2013.**

Station	Class	Random		Extra		Grand Total
		Closed	Open	Closed	Open	
WE004.00	P	6				6
WE005.00	P	6				6
WE006.00	P	6				6
WE008.00	A		6			6
WE010.00	P	6				6
WE010.20	P	6				6
WE011.00	P	6				6
WE013.00	A		6			6
WE018.00	R		6			6
WE018.50	R		6			6
WE020.00	A		6			6
WE022.00	A		6			6
WE023.00	A		6			6
WE024.50	A		6			6
WE027.00	P	6				6
WE028.00	A		6			6
WE030.00	A		6			6



## **Water Quality Discussion and Classification Determination**

Excepting 2013, no downward classification changes have been implemented in growing area WE since 2009 due to water quality no longer meeting classification standards, indicating both relative stability of water quality as well as adequacy of current growing area classifications.

For year-end 2013, Water quality in area WE has over all maintained a stable profile with the exception of stations WE13 and WE18 which are the only two stations within the growing area not currently meeting their classification standards. Station WE13 is located in Sampson Cove and is exceeding the approved standard.

The upper part of Sampson Cove, monitored by station WE 11, is currently classified as Prohibited. However, this station is meeting the restricted standard and there are no known pre-existing pollution sources precluding that station from being reclassified as Restricted. The entirety of Sampson Cove, inclusive of both stations WE11 and 13 will be reclassified as Restricted. Station WE18, located in the upper portion of the Batson River, is no longer meeting the restricted standard, and this portion of the river will be reclassified to Prohibited.

## **Aquaculture/Wet Storage Activity**

There is no aquaculture or wet storage in area WE.

## **Recommendation for Future Work**

The water quality stations needing reclassification following analysis of 2013 data (WE13 & 18) are currently in (WE13) or are upstream of (WE18) historic resource areas in area WE. While harvest in this growing area is largely recreational, DMR recommends further investigation surrounding these stations. DMR shoreline survey efforts in 2009 and 2013 found no problems within 500ft of shore surrounding these areas. Stream sampling and more extensive property surveying outside of 500ft in conjunction with Maine Department of Environmental Protection may be warranted.



## **Appendix A. Key to Water Quality Table Headers**

Station = water quality monitoring station

Class = classification assigned to the station; prohibited (P), restricted (R), conditionally restricted (CR), conditionally approved (CA) and approved (A).

Count = the number of samples evaluated for classification, must be a minimum of 30.

MFCNT = the number of samples evaluated with the MTec method (included in the total Count column)

Geo\_Mean = means the antilog (base 10) of the arithmetic mean of the sample result logarithm (base 10).

SDV = standard deviation

Max = maximum score of the 30 data points in the count column

P90 = 90<sup>th</sup> percentile

APPD\_STD = the 90<sup>th</sup> percentile, at or below which the station would meet approved criteria in the absence of pollution sources or poisonous and deleterious substances.

RESTR\_STD = the 90<sup>th</sup> percentile, at or below which the station would meet restricted criteria.