



GROWING AREA EE
Swan's Island and Frenchboro
Sanitary Survey Report

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APPROVAL

Division Director:

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Figure 1. Growing Area EE

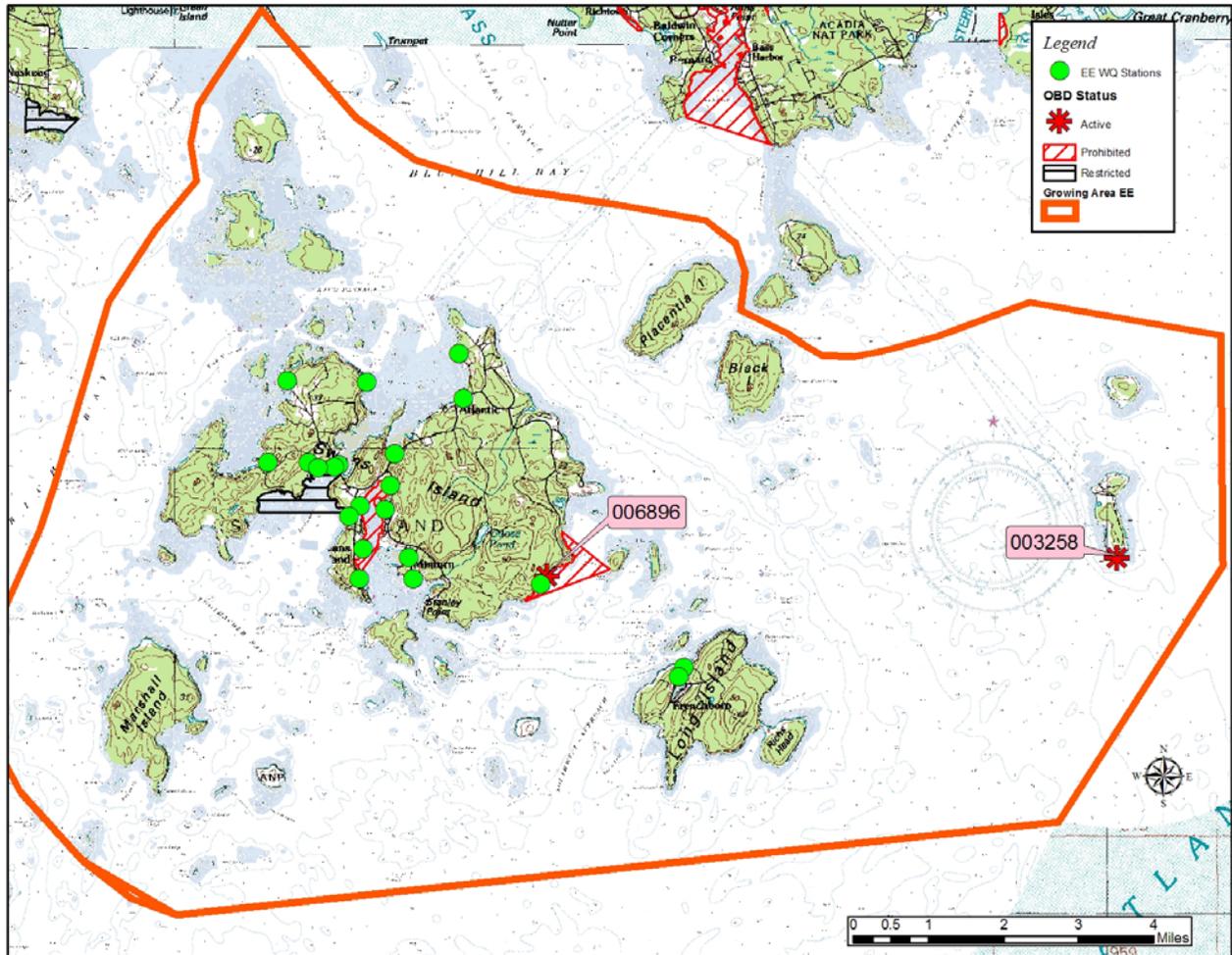
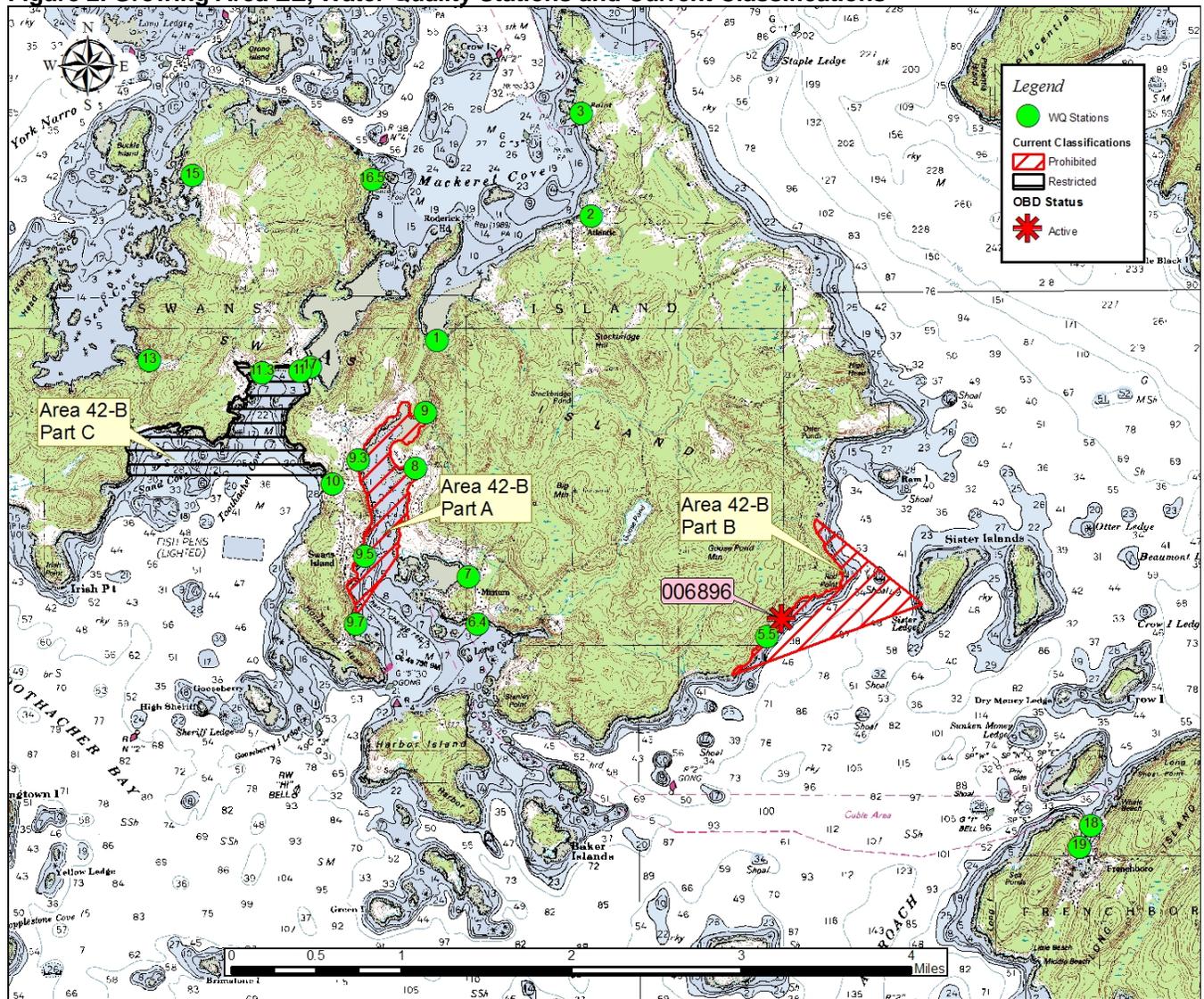




Figure 2. Growing Area EE, Water Quality Stations and Current Classifications





Executive Summary

This is a sanitary survey report for growing area EE written in compliance with the requirements of the 2007 Model Ordinance and the National Shellfish Sanitation Program. This report includes a water quality review, based on water quality data collected through 2009, as well as an evaluation of all pollution sources identified during the 2009 shoreline survey of the shores of the growing area. Pollution sources reviewed in this report include domestic waste, including private in-ground systems and overboard discharges (OBDs), recreational areas, agricultural activities, domestic animal and wildlife areas, and non-point pollution transported by streams. Hydrographic and meteorological data are discussed in this report, including assessments of tides and currents, rainfall, and salinity. A discussion of current classifications and recommendations for future work are also presented in this report.

As a result of this sanitary survey, the Mill Pond section of Swan's Island was reclassified from approved to restricted. New water quality station EE 11.3 was added to find a new boundary line for the high fecal levels at station EE 11. Station EE 5.5 was deactivated after an evaluation showed consistently clean scores and a lack of nearby resource. The shoreline survey component revealed five new malfunctions requiring Prohibited areas. These five malfunctions were encompassed by an expansion of the Burnt Coat Harbor closure (Area No. 42B – Part A). Classification changes implemented since the last Sanitary Survey include: the repeal of a prohibited area in Mackerel Cove, upward classification changes in Burnt Coat Harbor as a result of survey work and the removal of OBDs, a repeal of the prohibited area in Lunt Harbor, Frenchboro after the removal of OBDs, and the promulgation of a restricted area in Toothacher Cove, Swan's Island. More detail of these classification changes can be found in the History of Growing Area Classification section of this report.

Growing Area Description

Growing area EE falls in Hancock County and consists of numerous islands that are located in the southern end of Blue Hill Bay and just southwest of Mount Desert Island (Figures 1 and 2). Swan's Island and Frenchboro (Long Island) make up the majority of this growing area, with several surrounding uninhabited islands and ledges. The area is bounded on the west by Marshall Island, on the south by Marshall Island and Frenchboro (Long Island), on the east by The Duck Islands, and on the north by Pond, Placentia, and Black Islands. Since this area is made up of relatively small islands, there is no defined upland boundary. This is a rural area with sparse population and land use is predominantly residential with a few small fishing piers. There are no municipal waste water treatment plants and only two licensed overboard discharges (OBDs). There are two aquaculture lease sites for Atlantic salmon, both located adjacent to uninhabited islands.

History of Growing Area Classification

The last complete sanitary survey was conducted in 1997 with triennial reports written for 2000, 2003, and 2006. Annual update reports were written for 1998, 1999, 2001, 2002, 2004, 2005, 2007, and 2008.



The following changes in classification have occurred since the last Sanitary Survey in 1996:

March 30, 1998: Repeal and Promulgation of Closed Area No. 42-E, Southeastern Mackerel Cove, Swan's Island. This reduced the size of the prohibited area after shoreline survey work was completed.

August 8, 2000: Repeal and Promulgation of Closed Area No. 42-B, Burnt Coat Harbor, Swan's Island. This reduced the size of the prohibited area and opened the southwestern portion of Burnt Coat Harbor from the lighthouse to Tainter's wharf after shoreline survey work was completed.

April 9, 2001: Repeal and Promulgation of Closed Area No. 42-D, Red Point, Swan's Island. This increased the size of the prohibited area to encompass the licensed OBD in the area.

November 15, 2001: Repeal and Promulgation of Closed Area No. 42-B, Burnt Coat Harbor, Swan's Island. This reduced the size of the prohibited area and opened the northwestern portion of Burnt Coat Harbor due to improved water quality scores.

July 15, 2004: Repeal and Promulgation of Closed Area No. 42-B, Burnt Coat Harbor, Swan's Island. This reduced the size of the prohibited area and opened the vicinity of Johnston's Island after two OBDs were removed.

May 1, 2007: Repeal and Promulgation of Closed Area No. 42-B, Swan's Island, Frenchboro, and Surrounding Islands (Swan's Island, Frenchboro). This combined Closed Area Numbers 42-A, Lunt Harbor, Frenchboro; 42-B, Burnt Coat Harbor, Swan's Island; and 42-D, Red Point, Swan's Island into one legal notice. This also reclassified a prohibited area to approved and repealed Closed Area No. 42-E, Southeastern Mackerel Cove, Swan's Island after an improvement in water quality scores and shoreline survey in the area. This also reclassified a prohibited area to approved and repealed Closed Area No. 42-B Part 1 after water quality scores at station EE 8 improved; AND reclassified a prohibited area to approved and repealed Closed Area No. 42-B Part 3 after water quality scores at station EE 7 improved.

February 2, 2009: This amendment to Closed Area No. 42-B, Swan's Island, Frenchboro, and Surrounding Islands, reclassified Lunt Harbor, Frenchboro from prohibited to approved after confirmation that the two remaining OBDs were removed; AND created a new restricted area in Toothacher Cove, Swan's Island after decline in water quality at station EE 11, due to non-point source.

August 26, 2009: This amendment to Area No. 42-B, Swan's Island, Frenchboro, and Surrounding Islands enlarged the prohibited area Part A, to include a malfunctioning septic system on the northwestern shore of Burnt Coat Harbor.

Current Classification(s)

At the end of the 2009 review year, shellfish growing area EE has areas classified as:



Approved

- Sample stations; EE 1, 3, 6.4, 7, 9.7, 10, 13, 15, 16.5, 17, 18, & 19.

Restricted

- Area No. 42-B Part C, Toothacher Cove (Swan's Island), Restricted due to non-point pollution. Sample stations associated with classification; EE 11, 11.3, & 11.4.

Prohibited

- Area No. 42-B Part A, Burnt Coat Harbor (Swan's Island), Prohibited due to a malfunctioning septic systems. Sample stations associated with classification; EE 8, 9, 9.3, & 9.5.
- Area No. 42-B Part B, Red Point (Swan's Island), Prohibited due to licensed OBD #6896. Sample station associated with classification; EE 5.5.

Please visit the DMR website to view legal notices:

http://www.maine.gov/dmr/rm/public_health/closures/closedarea.htm#EE

Pollution Sources Survey

The first critical control point in a successful shellfish sanitation program (preventing food borne illness associated with shellfish consumption) is identifying areas that have good sanitary quality. One component of a successful sanitary survey and subsequent proper classification of the growing area is the identification and evaluation of pollution sources which do or may impact the growing area. The identification and evaluation of pollution sources is known as the shoreline survey. The information obtained by conducting a thorough shoreline survey is valuable in determining, evaluating and documenting the location and direct or indirect impact of actual and potential pollution sources. Sources of bacteria include septic systems, overboard discharges, municipal and industrial discharges of wastewater, illegal sewage discharge from boats and polluted storm water runoff.

The Swan's Island portion of Growing Area EE survey was conducted by the DMR Public Health Shellfish Program in the summer and fall of 2009, and the Frenchboro portion surveyed in the November of 2008. The survey area was reviewed by a lot-by-lot inspection of shoreline properties. Parcel-based tax maps were acquired from the Towns of Swan's Island and Frenchboro, and used to assign a unique identifier to each lot in the survey area. Basic information on each property (land use, sewage disposal facilities, ownership, etc.) was documented from town hall records and during initial field surveys for possible pollution sources. A potential impact to the growing area (direct or indirect) was assigned to each source based on its location relative to the growing waters.

All identified pipes, tidal creeks, streams with flowing water, and other potential bacterial pollution sources located along the shore were documented and sampled during the shoreline surveys. Homes bordering the growing area were visually evaluated for malfunctioning septic systems, discharging pipes, outhouses and other potential pollution sources. Water samples were collected in sterile "Whirl-Pak" bags, labeled, and kept on ice packs in coolers until delivery to the Lamoine Water Quality Laboratory for fecal coliform analyses.



Identification and Evaluation of Pollution Sources

Pollution sources found in Growing Area EE were limited to six malfunctioning septic systems, located on the western shore of Burnt Coat Harbor and one licensed overboard discharge system in the Red Point area (Table 2). All pollution sources are encompassed by prohibited areas. Growing Area EE has no municipal waste water treatment plants.

The following section of this Sanitary Survey Report provides detailed descriptions of various pollution sources that were identified during the most recent sanitary survey field work. In each sub-section, a particular type of a pollution source is listed, described and evaluated, and is accompanied by maps and tables.

Domestic Waste (IG Systems and OBDs)

Individual septic systems are the principal form of residential wastewater treatment in rural Maine. Malfunctioning septic systems may cause sewage to back up in the home, break out through the surface of the ground, run off in surface water, or seep undetected into groundwater or cracks in the bedrock. Septic systems malfunction due to inadequate maintenance, overloading, or poor design and construction (e.g. septic systems installed before the plumbing code revision may violate current public health standards because they are sited in areas with poor soil conditions and shallow depth to bedrock). In some cases, buildings still utilize outhouses for a disposal system.

Growing area EE is serviced entirely by private septic systems. These septic systems were inspected during a 12 year shoreline survey conducted in the summer and fall of 2009 by the Department. Table 1 lists the dates of inspections of the various regions of Area EE. The Frenchboro, Long Island section of the growing area was surveyed on November 5, 2008 to confirm the removal of all licensed OBDs and the absence of any other pollution sources. This was an effort that resulted in the repeal of a prohibited area in Lunt Harbor, Long Island included in the amendment of 42-B on February 2, 2009.

Of the 237 private systems inspected, 7 were found to be pollution threats (Table 2 and Figure 3). All malfunctioning systems found in the shoreline survey have been reported to the Local Plumbing Inspector for follow up homeowner notification and possible enforcement action. Six of these systems had an indirect impact and the seventh has a direct impact. All systems are within Prohibited areas.



Table 1. Shoreline Survey Dates

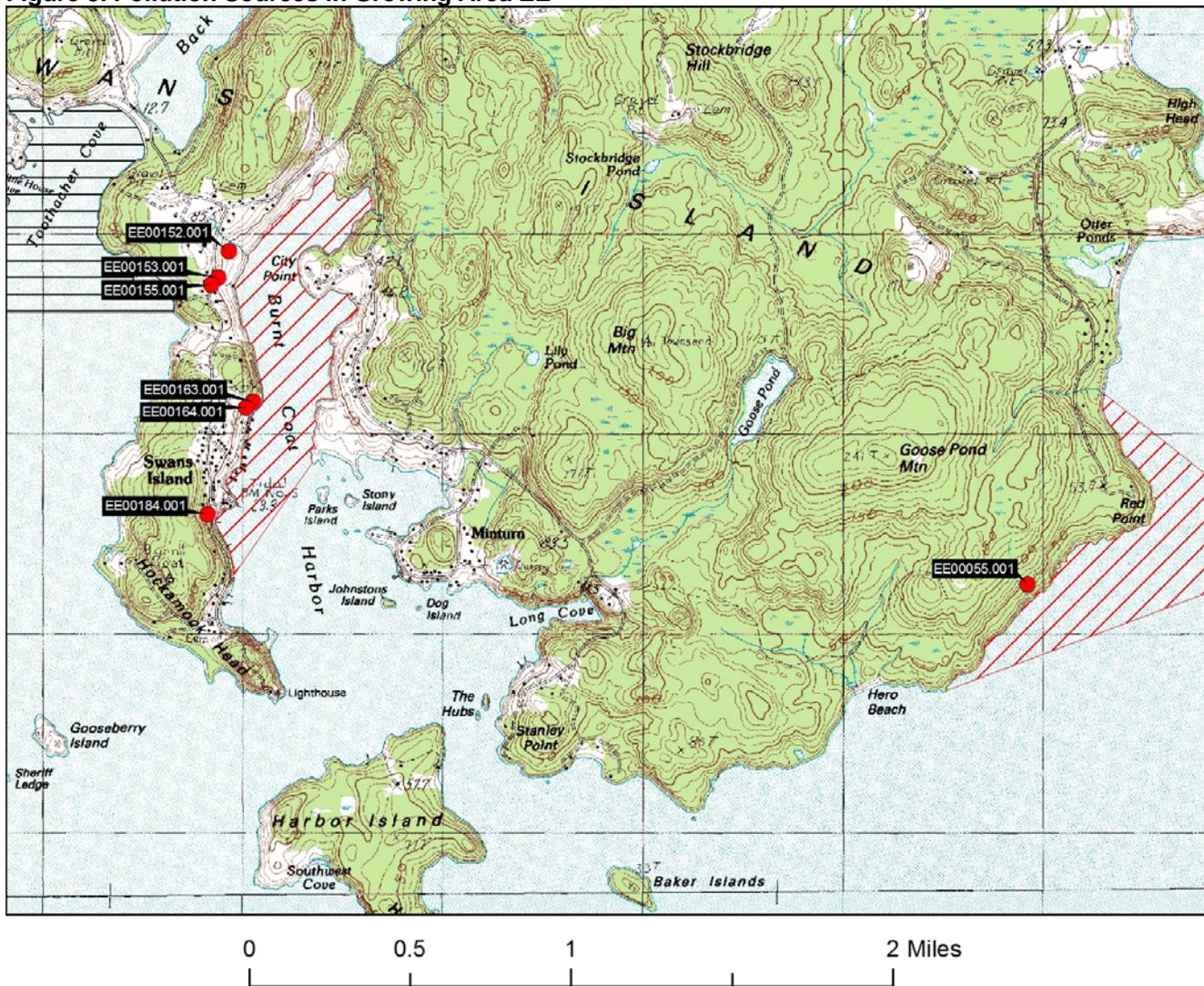
Date	Properties Inspected
6/8/09	EE00001.00 – EE00013.00
8/12/09	EE00014.00 – EE00019.00
8/17/09	EE00020.00 – EE00039.00
9/21/09	EE00040.00 – EE00058.00
9/29/09	EE00059.00 – EE00069.00
10/16/09	EE00070.00 – EE00107.00
10/23/09	EE00108.00 – EE00152.00
10/26/09	EE00153.00 – EE00179.00
11/4/09	EE00180.00 – EE00361.00 & EE00367.00
11/5/09	EE00375.00 – EE00410.00
11/9/09	EE00362.00 – EE00366.00 & EE00420.00 – EE00458.00
11/12/09	EE00459.00 – EE00477.00
11/16/09	EE00478.00 – EE00505.00
11/5/08	EE01001.00 – EE01050.00 Frenchboro, Long Island

Table 2. Growing Area EE Domestic Pollution Sources

SLS ID#	POLLUTION SOURCE TYPE	IMPACT	CLOSURE#
EE00055.00	Licensed Overboard Discharge	Actual/Direct	42-B, Part B
EE00152.00	Malfunctioning Septic	Actual/Indirect	42-B, Part A
EE00153.00	Malfunctioning Septic	Actual/Indirect	42-B, Part A
EE00155.00	Malfunctioning Septic	Actual/Indirect	42-B, Part A
EE00163.00	Open Cesspool	Actual/Indirect	42-B, Part A
EE00164.00	Septic Overflow Pipe	Actual/Indirect	42-B, Part A
EE00184.00	Septic Overflow Pipe	Actual/Indirect	42-B, Part A



Figure 3. Pollution Sources in Growing Area EE



In addition to individual private septic systems, growing area EE has two licensed overboard discharges. An overboard discharge (OBD) 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 mid-1970'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 then disinfect it prior to discharge. If they are not properly maintained or if they malfunction, they have the potential to discharge the harmful bacteria and other pathogens directly into the water.



The wastewater from most OBD facilities receives secondary treatment before being disinfected and discharged. 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. Wastewater is first contained in a septic tank where most of the solids settle out and are partially digested by microbes. The wastewater flows from the septic 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, collected and discharged to a disinfection unit. Mechanical package plants consist of a tank where waste is broken up, mixed and aerated. Wastes are digested by naturally occurring bacteria. The aerated treated water is held in a calm condition for a time while the solids settle to the bottom. The clarified water is pumped off the top and through a disinfection unit. Maine law requires homeowners with mechanical systems to have a contract with a licensed service contractor to maintain the unit. DEP inspectors look for a tag on the treatment unit identifying the service contractor and the last date of service. Mechanical treatment systems must have an operating alarm on a separate electrical circuit so that the alarm will activate if the treatment unit malfunctions.

Both systems discharge treated wastewater to 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.

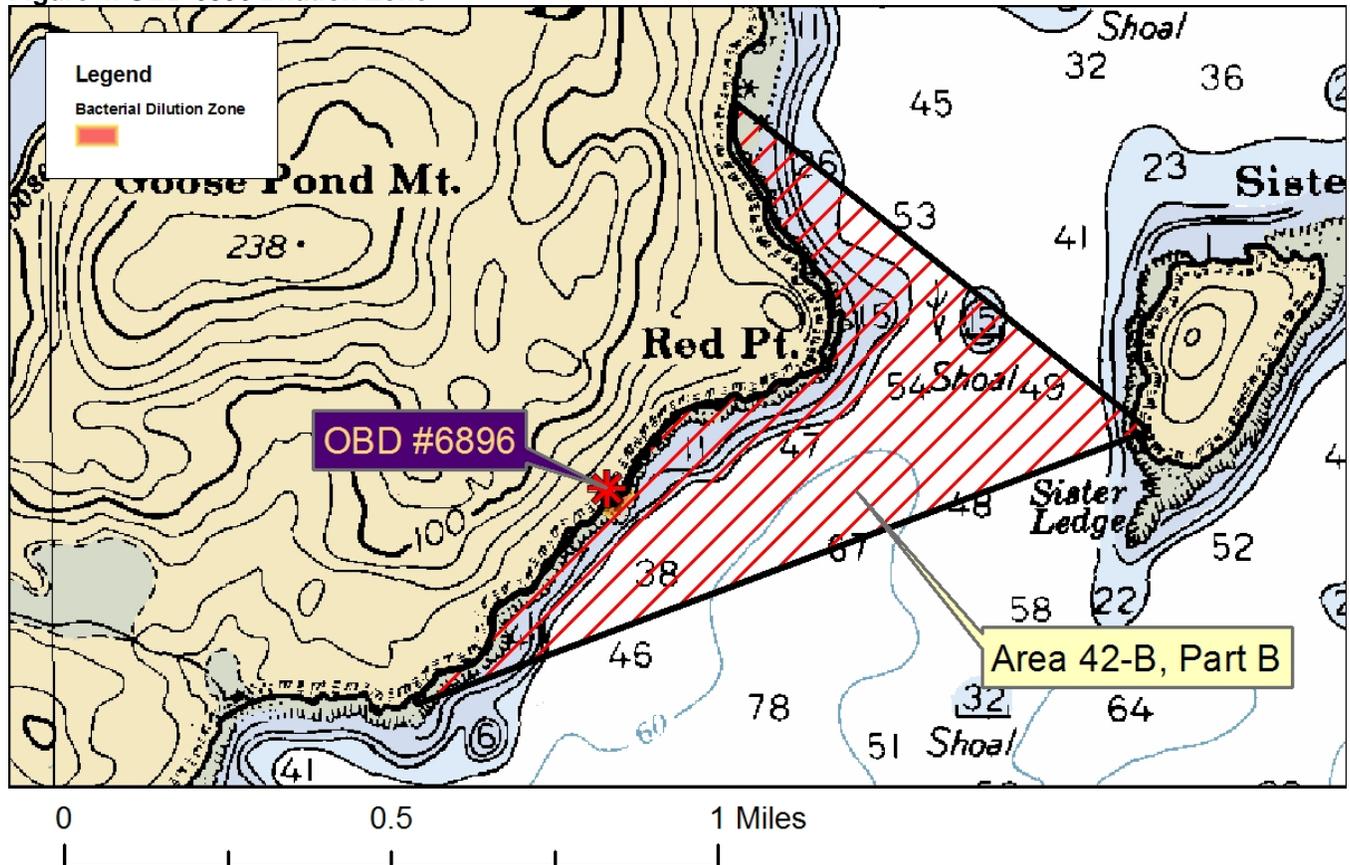
Overboard discharges require licensing and inspections by the Maine Department of Environmental Protection (DEP). Overboard Discharge (OBD) licenses must be transferred to the new owner every time a property changes hands. If the license has expired, it must be renewed at this time. The primary exhibits for a license transfer are the completed application for transfer, a copy of the deed reflecting the new ownership and the results of a Licensed Site Evaluator's determination of the feasibility of installing an alternative to the OBD. It is the property owner's responsibility to maintain a current overboard discharge license and it must be renewed every five years. Additionally, the DEP is developing a schedule for license renewal based on the water body the OBD impacts and contacting owners according to that schedule. Before applying for renewal, the homeowner will be required to have a qualified Licensed Site Evaluator examine the property to determine if there is a technologically feasible alternative to the OBD system. Any application for renewal must include the results of a Licensed Site Evaluator's determination of the feasibility of installing an alternative to the OBD. Any new OBDs or increases in OBD flows, whether by volume or duration, are prohibited by Maine law under the Classification of Maine waters 38 M.R.S.A. §464 4.(A)(6), <<http://www.mainelegislature.org/legis/statutes/38/title38sec464.html>>. These regulations clearly state that the DEP may not issue a water discharge license for new discharges of domestic pollutants to the surface waters of the State. An increase in volume or duration beyond that already licensed is a considered a new discharge and is therefore prohibited.

One of the OBDs located in growing area EE (OBD Lic. #3258) services a grey water system on Great Duck Island, a remote location to the east of Swan's Island (Figure 1). This system discharges only seasonally and into deep water. No closure is required around this system since it discharges only grey water and the receiving waters are deep with fast moving currents, making the dilution zone too small to practically enforce. The second OBD, located on Red Point, Swan's Island (OBD Lic. #6896) is licensed to discharge a maximum of 300 gallons per day of treated household septic. A



dilution zone is established around this OBD to protect public health; the minimum size of the dilution zone is established using permitted flow rate of the OBD, the depth of the receiving water at mid-tide, and a standard fecal concentration of 1.4×10^5 FC/100 ml. Using the permitted flow rate of 300 GPD and the mid-tide depth of 10 ft, the required minimum closure size is 0.9 acres. The actual closure surrounding this OBD is 178 acres (Figure 4).

Figure 4. OBD 6896 Dilution Zone



Municipal Wastewater Treatment Plant(s)

There are no wastewater treatment plants or combined sewer overflow points within growing area EE.

Industrial Pollution

There are no National Pollutant Discharge Elimination System (NPDES) permitted waste discharges in growing area EE.



Marinas and Mooring Fields

There are no marinas in growing area EE. Most marina type activity consists solely of small clusters of less than 10 moored work boats without discharging heads, and an occasional day use type pleasure craft on a private mooring adjacent to a shorefront residence. There are three mooring fields where day use type work boats moor. The first is a cluster of approximately 30 lobster boats that range between stations EE 9.5 and 9.7. The second is a cluster of approximately 15 lobster boats in the vicinity of station EE 6.4. The third mooring field is in Lunt Harbor, Long Island, with station EE 19 in the middle of the cluster. These lobster boats are day use type work boats and typically do not have marine heads onboard. All the above mentioned monitoring stations have P90 calculations of less than 10 FC/100ml.

Stormwater

Growing Area EE is primarily rural with no storm water management other than a few small culverts at key points under low lying roads. Any runoff points that may have an impact on the growing area have been sampled and are detailed in the next section of this report.

Non-Point Pollution Sources (streams, etc)

Growing Area EE has 29 streams that were sampled to determine their potential impact on the shellfish beds (Table 3, Figures 5 and 6). Samples and flow measurements are taken at the end of the low tide cycle and just before flooding waters begin to back up the stream flow, in order to isolate data that is most representative of the stream itself. Only stream EE00497.00 showed an elevated fecal count on November 30, 2009. A sample was taken at station EE 2 within minutes of this stream sample and showed a score of 29 FC/100ml. Sample station EE 2 is located approximately 30 yards away and within the same small cove as stream EE00497.00. Station EE 2 meets approved standards with a geometric mean of 3.2 FC/100ml, and a P90 calculation of 11.6 FC/100ml.

Table 3. Stream Sample Results

SLS ID	SAMPLE DATE	FC/100ml	FLOW RATE(GPM)	COMMENTS
EE00014.00	11/30/09	1.9	606	
EE00023.00	12/19/06	2	2073	
	11/30/09	6	1084	
EE00023.01	12/19/06	1.9	NR	Seawater sample 20' from mouth of EE00023.00
EE00032.00	11/30/09	1.9	119	
EE00044.50	11/30/09	1.9	485	
EE00072.00	11/30/09	5.5	63	
EE00075.00	12/19/06	1.9	690	
	11/30/09	2	1346	
EE00104.00	12/19/06 & 11/30/09		No Flow	No flow on sample dates
EE00107.00	12/19/06	4	1	
EE00111.00	12/19/06	6	622	



SLS ID	SAMPLE DATE	FC/100ml	FLOW RATE(GPM)	COMMENTS
	11/30/09	6	2154	
EE00128.90	11/30/09	4	63	
EE00130.10	12/19/06	1.9	4	
	11/30/09	78	37	
EE00131.10	12/19/06	18	21	
	11/30/09	14	45	
EE00139.40	12/19/06	1.9	211	
	11/30/09	2	264	
EE00154.30	11/30/09	1.9	36	
EE00357.90	11/30/09	22	43	
EE00366.00	11/30/09	6	350	
EE00401.00	11/30/09	18	242	
EE00422.00	11/30/09	1.9	125	
EE00461.00	12/19/06	4	166	
	11/30/09	1.9	826	
EE00464.50	11/30/09	1.9	101	
EE00467.21	11/30/09	70	126	
EE00473.00	12/19/06 & 11/30/09		No Flow	No flow on sample dates
EE00474.00	12/19/06	2	87	
	11/30/09	1.9	294	
EE00478.00	11/30/09	2	673	
EE00483.00	11/30/09	2	404	
EE00491.00	12/19/06	2	5	
	11/30/09	22	404	
EE00496.00	12/19/06	2	1	
	11/30/09	112	90	Nearby station EE2=29 FC/100ml
EE00497.00	12/19/06	8	54	
	11/30/09	700	404	Nearby station EE2=29 FC/100ml
EE01011.00	11/5/08	2	10	
EE01025.50	11/5/08	1.9	5	



Figure 5. Stream Sample Locations - Swans Island

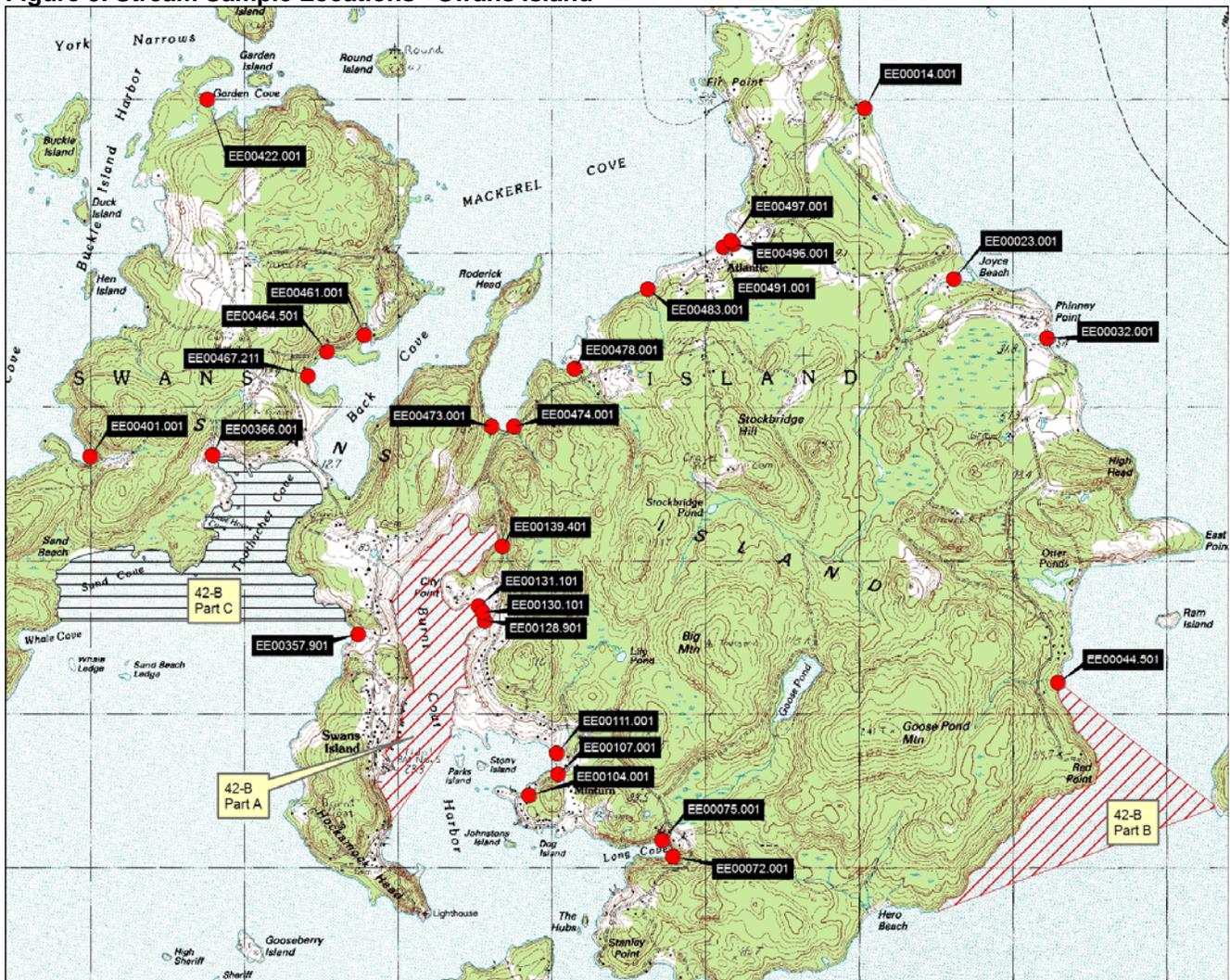
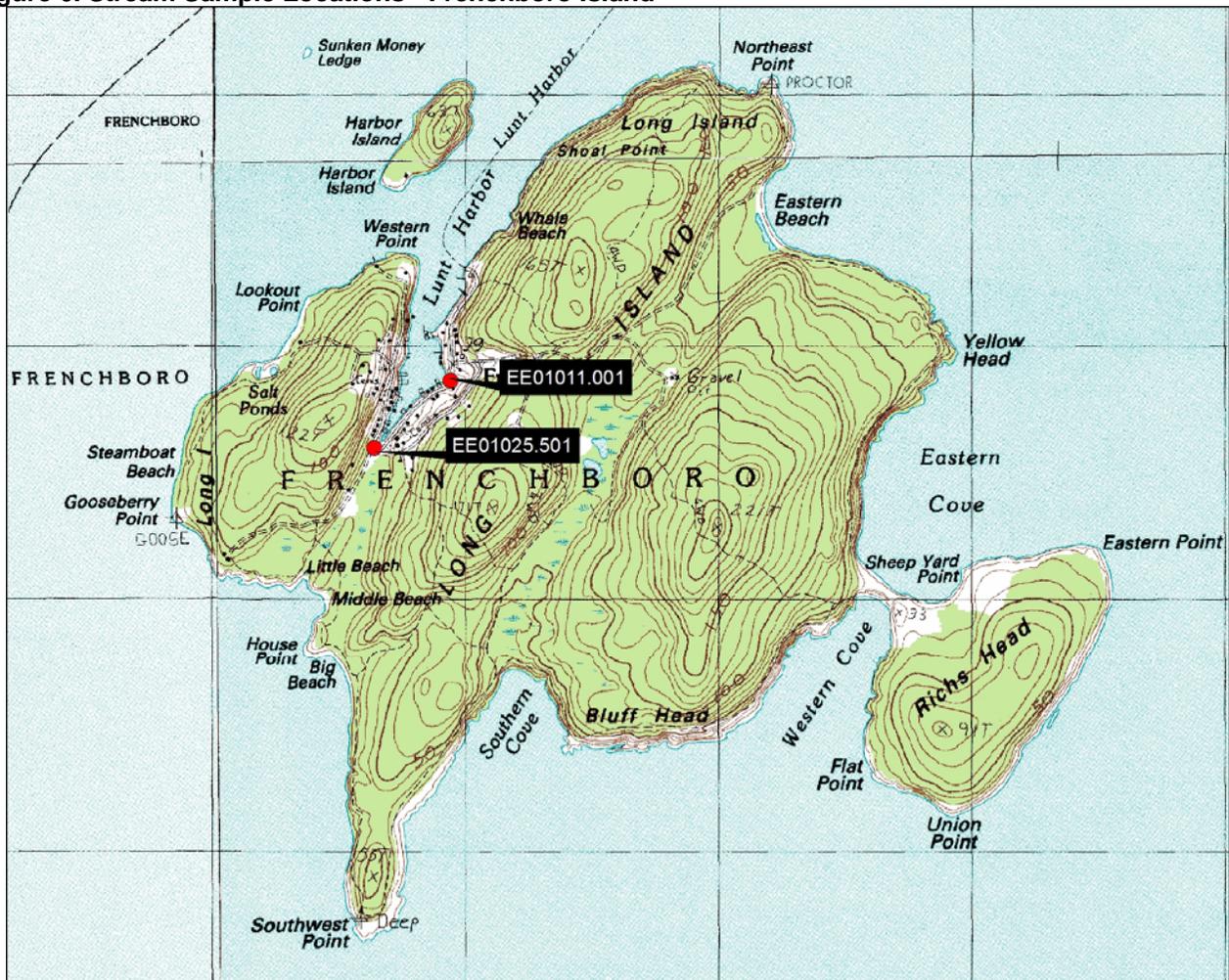




Figure 6. Stream Sample Locations - Frenchboro Island



Agricultural Activities

Agricultural activities are limited to personal gardens at a few residential sites that do not have an adverse impact on water quality.

Domestic Animals and Wildlife Activity

Domestic animals are limited to household pets and homeowners employ best management practices to keep pet waste from affecting shellfish harvest areas. There are no designated wildlife areas within Growing Area EE.



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

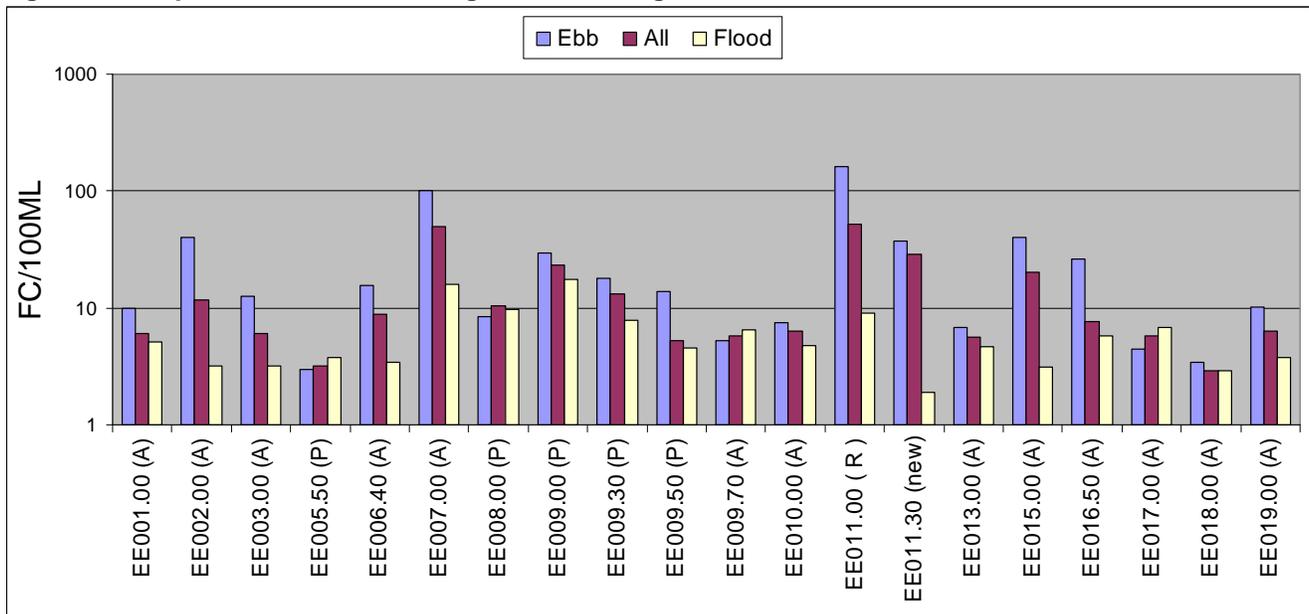
This growing area is made up of islands of various sizes that are subject to very cold deep water currents. As a result, beaches are not used for swimming. There are no conservation areas in this growing area.

Hydrographic and Meteorological Assessment

Tides

This area is subject to a semi-diurnal tidal cycle which presents two high tides and two low tides per lunar day. The mean range of tide is 10 feet in this region of the coast. Because of this large tidal range, some sampling stations are dry at low tide. As a result, these stations will not have sample data during the low or lower tide stages. Figure 7 shows SRS data collected between 2005 and 2009 grouped by tidal stage with P90 scores recalculated using this data grouping. Data provided for the Ebb tide calculation include high ebb, ebb, low ebb and low tide samples. Data for the Flood tide calculation include low flood, flood, high flood and high tide samples. Classification of each sample station is noted in the Figure. This graph serves as a comparison of fecal coliform levels of ebb tides and flood tides against all tides. In almost all cases, the scores were higher in samples taken during an ebb tide. One possible explanation for this pattern is that a high tide can soak bacteria from the wrack line built up at the high tide mark, and then carry it in the receding waters as the tide ebbs.

Figure 7. Sample Scores vs. Tide Stages for Growing Area EE





Rainfall

In order to investigate how water quality is impacted by rainfall events which do not necessitate an emergency flood closure, a rainfall assessment for all stations in growing area EE was completed. For this assessment, the geometric mean and P90 scores were recalculated using only data points which were collected after 0.50 or more inches of cumulative rainfall were recorded up to 72 hours prior to sample collection (Table 4). Station EE 11.3 is not included in this table since it is a new station and has only two data points that meet the above criteria. In this calculation, all random data collected from 2002 through 2009 were included. While the results of this calculation show that all stations that are classified as approved retain geometric mean scores of less than 14 when using data collected after rainfall, the P90 scores for two stations increase, indicating that these two stations are impacted by intermittent pollution that occurs after rain events. Stations where the calculated P90 exceeded the approved standard are EE 7 and 15.

Table 4. Geomean and P90 Calculations, Rainfall Data

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
EE001.00	A	16	6	2.9	0.25	23	6.3	41	238
EE002.00	A	15	7	4.1	0.52	142	19.7	39	225
EE003.00	A	14	6	2.7	0.15	7	4.3	40	230
EE005.50	P	13	5	2.4	0.09	2.9	3.2	41	237
EE006.40	A	14	6	3.6	0.43	93	13.4	40	230
EE007.00	A	14	6	7.4	0.72	520	65.6	40	230
EE008.00	P	14	6	5	0.66	240	36.9	40	230
EE009.00	P	13	5	5.2	0.62	280	33.9	41	237
EE009.30	P	14	6	4.7	0.47	48	19.6	40	230
EE009.50	P	14	6	2.7	0.17	9.1	4.7	40	230
EE009.70	A	14	6	3.9	0.29	21	9.4	40	230
EE010.00	A	14	6	3.7	0.25	14	8.1	40	230
EE011.00	R	14	6	5.4	0.66	320	39.7	40	230
EE013.00	A	14	6	2.8	0.16	8	4.7	40	230
EE015.00	A	14	5	5.8	0.71	480	49.3	41	241
EE016.50	A	14	6	3.9	0.42	42	14	40	230
EE017.00	A	14	5	3.4	0.3	23	8.5	41	241
EE018.00	A	14	4	2.6	0.09	3.6	3.4	42	252
EE019.00	A	14	4	5.1	0.6	150	31.5	42	252

A further assessment of rainfall and seasonal impact was completed for the two stations that exceeded their P90 standard during high runoff events (Tables 5 and 6). These assessments considered individual fecal scores using data collected over the previous eight years (2002-2009 data range) for each potentially impacted station in comparison to the cumulative rainfall and the season. Based on the approved standard of the year of sample collection, a score of 49 or higher is considered elevated for data up to August of 2006 when samples were analyzed using the MPN method. After this date samples have been analyzed using a membrane filtration method; a score of 31 and higher is considered elevated and was highlighted in the table and discussed.



Station EE 7 showed elevated scores in September and November. These scores appear to be of a seasonal nature and not tied to rainfall. There is a high score of 300 FC/100ml in November of 2009 after a dry period in the three days prior to sampling, suggesting that this is not related to a rainfall/runoff event. There are also elevated scores in September of 2006, 2008, and 2009 that happen after a rain event; however there are more occurrences of very low scores with similar rain amounts in the 72 hour time period. Station EE 7 is located in the Mill Pond on Swan's Island and is being recommended for downward reclassification from approved to restricted.

Table 5. Rainfall and Seasonal Impact, Station EE 7

72 hour rain total	Date	Sal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	9/9/02	32									9.1			
	9/9/03	30									6.4			
	3/1/04	32			3.2									
	7/12/04	30							7.3					
	9/27/04	30									2.9			
	9/6/05	30									2.9			
	7/17/06	17							43					
	12/19/06	28												4
	4/9/07	10					6							
	8/1/07	32								1.9				
	10/3/07	32										1.9		
	4/9/08	31					1.9							
	4/15/08	30					1.9							
	11/3/08	31											1.9	
	3/23/09	31				2								
	8/10/09	32									1.9			
11/18/09	28												300	
0.03	10/25/04	31										2.9		
0.05	7/20/05	29							3.6					
0.07	7/28/08	30							2					
0.08	10/20/03	30										3.2		
0.1	6/29/04	30						2.9						
0.2	4/13/05	30				2.9								
0.22	1/25/06	30	3.6											
0.24	10/23/02	30										21		
0.25	3/12/02	24			2.9									
	5/6/03	30					2.9							
	5/13/09	31					1.9							
0.28	7/22/02	31						9.1						
0.3	5/21/07	31					1.9							
0.33	4/17/02	30				2.9								
0.39	6/4/08	31						1.9						
0.4	4/8/03	30				2.9								
0.44	9/15/08	18									132			



72 hour rain total	Date	Sal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.47	7/16/03	29							18.6					
0.55	5/16/05	30					2.9							
0.6	5/20/02	24					2.9							
0.75	4/4/06	31				2.9								
0.9	4/5/04	11				3.6								
0.96	6/30/09	28						1.9						
0.98	11/28/07	28											13	
1.2	9/5/06	22									110			
1.47	5/27/03	30					2.9							
1.55	10/18/06	30										4		
	6/4/07	32						2						
1.9	9/28/09	26									520			
2.18	5/17/06	26					7.3							
3.15	3/28/05	30			2.9									
3.26	10/25/05	30										28		

Station EE 15 shows three elevated scores when rainfall was above 0.4 inches of total accumulation in the three days prior to sampling. This represents only 18% of the samples taken when rainfall was greater than or equal to 0.4 inches. The other 82% had low fecal levels and did not indicate a problem. The elevated scores after rainfall are not consistent.

Table 6. Rainfall and Seasonal Impact, Station EE 15

72 hour rain total	Date	Sal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	9/9/02	31									2.9			
	9/9/03	31									3.6			
	7/12/04	30							2.9					
	9/6/05	30									2.9			
	7/17/06	31							2.9					
	5/14/07	31					1.9							
	8/1/07	31								1.9				
	10/3/07	32										2		
	3/11/08	30			1.9									
	4/15/08	30				1.9								
	11/3/08	31											1.9	
	3/23/09	32			1.9									
	8/10/09	30								1.9				
	9/14/09	32									1.9			
11/18/09	30											2		
0.03	10/25/04	31										3.6		
0.04	9/29/04	30									2.9			
0.05	7/20/05	29							9.1					
0.07	7/28/08	32							4					
0.08	10/20/03	30										2.9		



72 hour rain total	Date	Sal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.2	4/13/05	30				2.9								
0.24	10/23/02	32										2.9		
0.25	3/12/02	31			2.9									
	5/6/03	30					2.9							
	7/25/05	29							2.9					
	5/23/06	31					2.9							
	5/13/09	30					1.9							
0.28	7/22/02	32						2.9						
0.3	5/21/07	32					1.9							
0.33	4/17/02	30				2.9								
0.39	6/4/08	30						1.9						
0.4	4/8/03	30				2.9								
0.44	9/15/08	29									34			
0.47	7/16/03	30							43					
0.5	5/17/04	31					2.9							
0.55	5/16/05	30					2.9							
0.6	5/20/02	30					2.9							
0.75	4/4/06	28				2.9								
0.9	4/5/04	30				2.9								
0.93	5/5/04	30					2.9							
0.98	11/28/07	32											1.9	
1.2	9/5/06	30									18			
1.47	5/27/03	30					2.9							
1.55	10/18/06	26										480		
	6/4/07	31						1.9						
2.18	5/17/06	30					2.9							
2.35	9/29/09	30									94			
3.26	10/25/05	30										3.6		

Winds

An analysis of GOMOOS data (2001-2006) show winter winds (Figure 8) along coastal Maine are typically from the south and west during clear periods and from the northeast during storms. Migratory weather systems cause winds that frequently change in strength and direction.

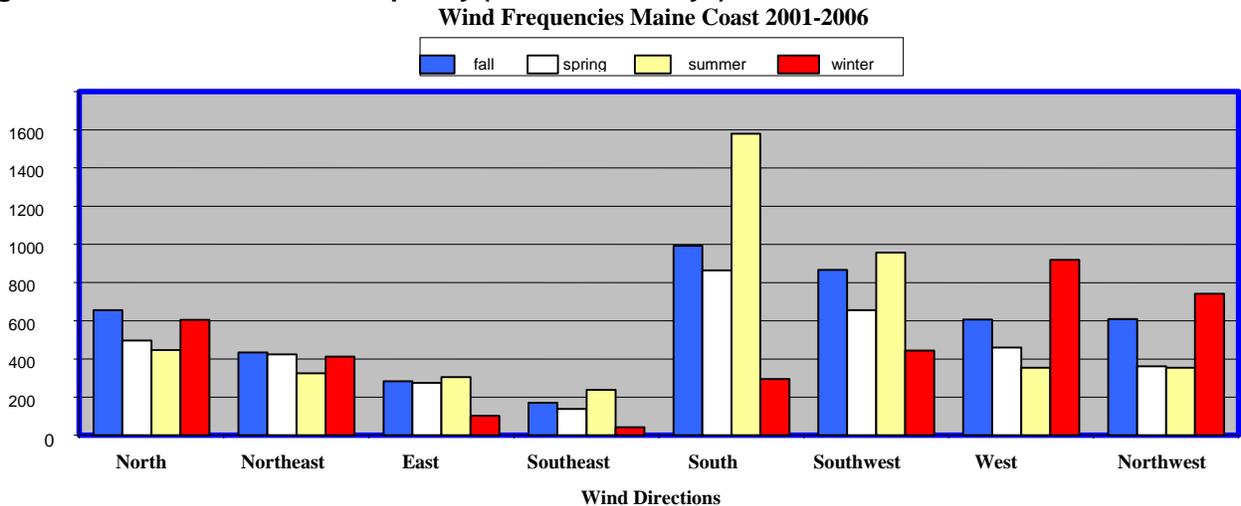
Gulf of Maine winds are generally westerly, but often take on a northerly component in winter and a southerly one in summer. Strongest winds are generated by lows and cold fronts in fall and winter and by fronts and thunderstorms during spring and summer. Extreme winds are usually associated with a hurricane or severe northeaster and can reach 125 knots. Sustained winds of 100 knots occur about every 50 years on average; gusts are usually about 30 percent higher.

In the open seas, away from the influence of land, winds are stronger and less complex. From December through March, winds are mainly out of the west through north with gales occurring about 6 to 12 percent of the time. In general, wind speeds increase with distance from the coast. If winds



persist for a long time over a long fetch they will generate rough seas. In the Gulf of Maine, winter wind speeds of 15 knots or more persist for more than 12 hours about 70 to 80 percent of the time. However these winds often shift and a new fetch is established. Summer winds are usually out of the south through southwest, and gales are infrequent. During the spring and fall, winds are more variable.

Figure 8. Wind Direction and Frequency (in number of days)



Summary of Hydrographic and Meteorological Assessment

Tide cycles appear to have an effect which elevates fecal coliform concentrations on an ebbing tide. One possible explanation for this pattern is that a high tide can soak bacteria from the wrack line built up at the high tide mark, and then carry it in the receding waters as the tide ebbs. Only two sampling stations, EE 7 and 11, have P90 levels above approved standards during an ebb tide cycle. Both stations are classified as restricted. (*Station 7 was classified as restricted as of June 11, 2010*).

Stations EE 7 and 15 show an increase in P90 calculations after rainfall, but closer examination of individual scores indicate that the higher scores are more of a seasonal nature than as a result of runoff. Wind currents along the coast have not been identified to have an effect on pollution travel due to the lack of sufficient data. Tidal currents are likely strong enough to limit any wind effects on pollution travel.

Water Quality Review

Table 8 lists all active approved, restricted, and prohibited stations in Growing Area EE, with their respective Geomean and P90 calculations for 2009. Please refer to Appendix A for a key to interpreting the headers on the columns of Table 1. The approved and restricted standards for each station are also displayed in Table 1. These standards will fluctuate yearly as a result of the DMR



transition from a most probable number (MPN) fecal coliform test method to a membrane filtration (MF) method and are dependent on the number of sample analyzed by MPN versus MF. The total number of data points used in the calculations is displayed in the Count column and includes both MPN and MF values. The number of data points analyzed by MF is displayed in the MFCount column. This fluctuating standard will cease when all 30 data points have been analyzed by the MF method. A more detailed explanation of this transition can be found in central files.

Station EE 11 was reclassified from approved to restricted on February 2, 2009 after a review of the 2008 year end data showed the P90 scores going from 63% of the approved standard in 2007 up to 125%. This restricted a large part of northern Toothacher Cove, only because the next passing water quality station (EE 10) was half way down the cove and current policy is to classify to the next station that meets approved standards. Station EE 11.3 was added to Toothacher Cove on the northwestern shore in an effort to decrease the size of the new restricted area by creating a new boundary station. This new station was sampled for the first time on May 13, 2009 and has been sampled 6 times in 2009. There is not enough information yet to show any trends or draw any conclusions from the present data set.

Station EE 5.5 shows a consistently low geometric mean and P90. It is located in a remote, bold section of the island and was intended to monitor impact from OBD #6896. Both years of low sample scores and a dilution calculation of the OBD showing an extremely small zone of impact, prove that this station is not needed. Station EE 5.5 will be deactivated; the prohibited zone will be left in place as long as the OBD is present.

All approved and restricted stations met their NSSP classification standard in 2009, with the exception of station EE 7 (highlighted in yellow). Station 7 is classified as approved but has shown an upward trend (increasing scores) over the past three years with 2009 putting it over the approved standard. This station must now be downwardly reclassified to restricted (*this station and area was reclassified to restricted on June 11, 2010*).

Table 7. Geomean and P90 Scores, Growing Area EE, 2005-2009

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
EE001.00	A	30	21	2.5	0.28	30	6	35	195
EE002.00	A	30	22	3.2	0.43	142	11.6	35	191
EE003.00	A	30	20	2.6	0.28	56	6.1	36	199
EE005.50	P	30	20	2.2	0.12	6	3.2	36	199
EE006.40	A	30	20	3	0.36	93	8.9	36	199
EE007.00	A	30	21	5.8	0.72	520	49	35	195
EE008.00	P	30	21	3	0.41	58	10.4	35	195
EE009.00	P	30	21	4.2	0.57	280	23.2	35	195
EE009.30	P	30	21	3.7	0.42	48	13.2	35	195
EE009.50	P	30	20	2.7	0.22	14	5.2	36	199
EE009.70	A	30	20	2.7	0.24	21	5.7	36	199
EE010.00	A	30	20	2.9	0.26	15	6.3	36	199
EE011.00	R	30	20	5.4	0.76	1280	51.8	36	199
EE011.30	new	6	6	4.7	0.6	33	29	31	163
EE013.00	A	30	20	2.7	0.25	26	5.6	36	199



STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
EE015.00	A	30	20	3.8	0.56	480	20.3	36	199
EE016.50	A	30	20	2.9	0.33	42	7.7	36	199
EE017.00	A	30	20	2.6	0.26	23	5.8	36	199
EE018.00	A	30	21	2.1	0.09	3.6	2.9	35	195
EE019.00	A	30	21	2.5	0.31	75	6.4	35	195

Table 9 shows the samples collected in area EE in 2009. All of the stations were sampled a minimum of six times following the systematic random sampling strategy (SRS) over the course of the sampling season. Station EE 2 was sampled one extra time during a stream sampling run in order to determine any impact from the stream at that time. Station EE 9.3 was also sampled one extra time during the summer to investigate any possible impact from a newly malfunctioning septic system.

Table 8. EE Samples Collected in 2009

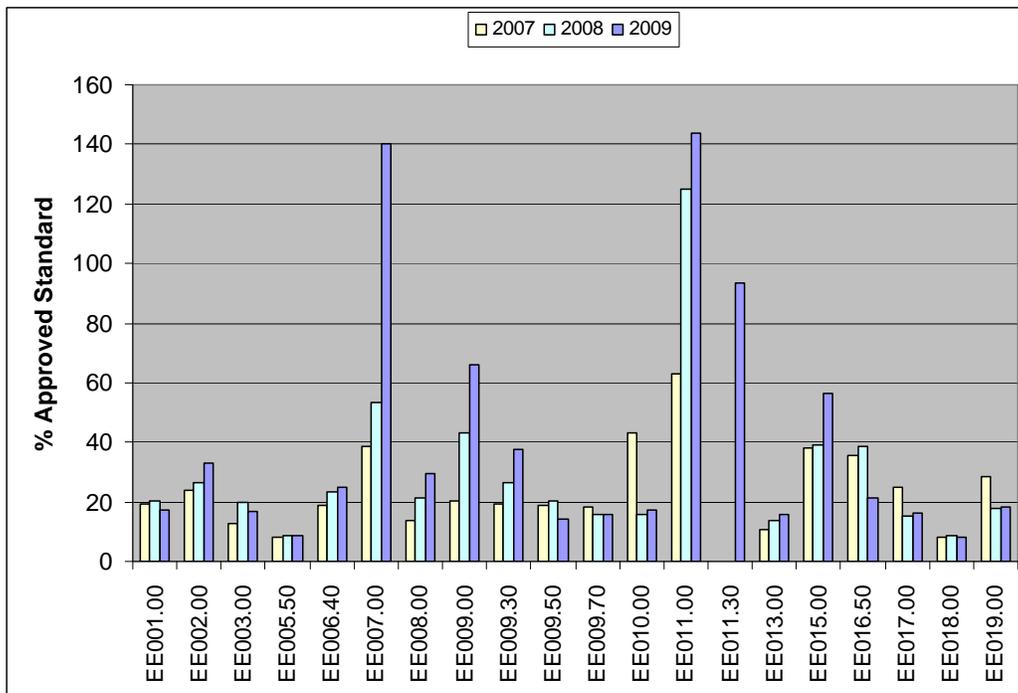
Station	Class at time of Collection	Adverse	Extra		Random		Total	Comments	
		Closed	Closed	Open	Closed	Open			
EE001.00	A					6	6		
EE002.00	A			1		6	7		
EE003.00	A					6	6		
EE005.50	P				6		6		
EE006.40	A					6	6		
EE007.00	A					6	6		
EE008.00	A					4	6	Reclass-A to P 8/26/09	
	P				2				
EE009.00	A					3	6		
	P				3				
EE009.30	A					4	7		
	P		1		2				
EE009.50	A					4	6		
	P				2				
EE009.70	A					6	6		
EE010.00	A					6	6		Became a boundary station to a Restricted area on 2/2/09.
EE011.00	R					6	6	Reclass-A to R on 2/2/09	
EE011.30	R					6	6	New station 5/13/09	
EE013.00	A					6	6		
EE015.00	A					6	6		
EE016.50	A					6	6		
EE017.00	A					6	6		
EE018.00	A					6	6	Reclass-P to A on 2/2/09.	
EE019.00	A					6	6		



Figure 9 shows the P90 trends over the past three years, for all Approved, Restricted and Prohibited stations in growing area EE. During the transition from MPN to MF analysis method, the Approved standard will decrease every year, until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90 scores are expressed as a percentage of the approved standard; any station showing the 2009 column on or above 100 percent does not meet the standard for approved classification. Generally, most stations have remained consistent with prior year's results.

At the end of 2009, station EE 7 did not meet the approved standard and was downgraded in classification to restricted. Stations EE 9 and EE 15 currently meet approved standards, but have shown increases in scores over the past three years. Station EE 9 is currently classified as prohibited because three malfunctioning septic systems were found approximately 750 yards to the southwest, and may be contributing to the increase in scores. These malfunctioning systems have been brought to the attention of the local plumbing inspector and are scheduled for replacement in early 2010. Follow up investigation will be reported in the 2010 Growing Area EE Annual Report. Station EE 15 shows an increase in P90 score but is still well below the approved standard with a current P90 calculation of 20.3 FC/100ml or 56% of the approved standard. This station is located in an uninhabited area with unknown causes for this increase. Station EE 10 had a significant decrease in scores (improvement in water quality) from 2007 (43% of approved standard) to 2008 (16% of approved standard). There were no changes in the vicinity of this station that might have caused this decrease, reasons are yet unknown.

Figure 9. Area EE P90 Scores for All Stations (expressed as the percent of the approved standard), 2007-2009





Water Quality Discussion and Classification Determination

Non-point pollution appears to be the contributing factor to the increase in fecal coliform levels in the vicinity of northern Toothacher Cove (station EE 11). The shoreline survey of that area did not reveal any point sources of pollution however; there has been a steady decline in water quality at that station that has resulted in a downward reclassification from approved to restricted. This area is open to the south and prevailing winds can land a heavy wrack line of seaweed at the high tide line. One possible explanation for this pattern is that a high tide can soak bacteria from the wrack line built up at the high tide mark, and then carry it in the receding waters as the tide ebbs. Additional stations will be set up in the area in an attempt to establish a new boundary line closer to the actual extent of the impact.

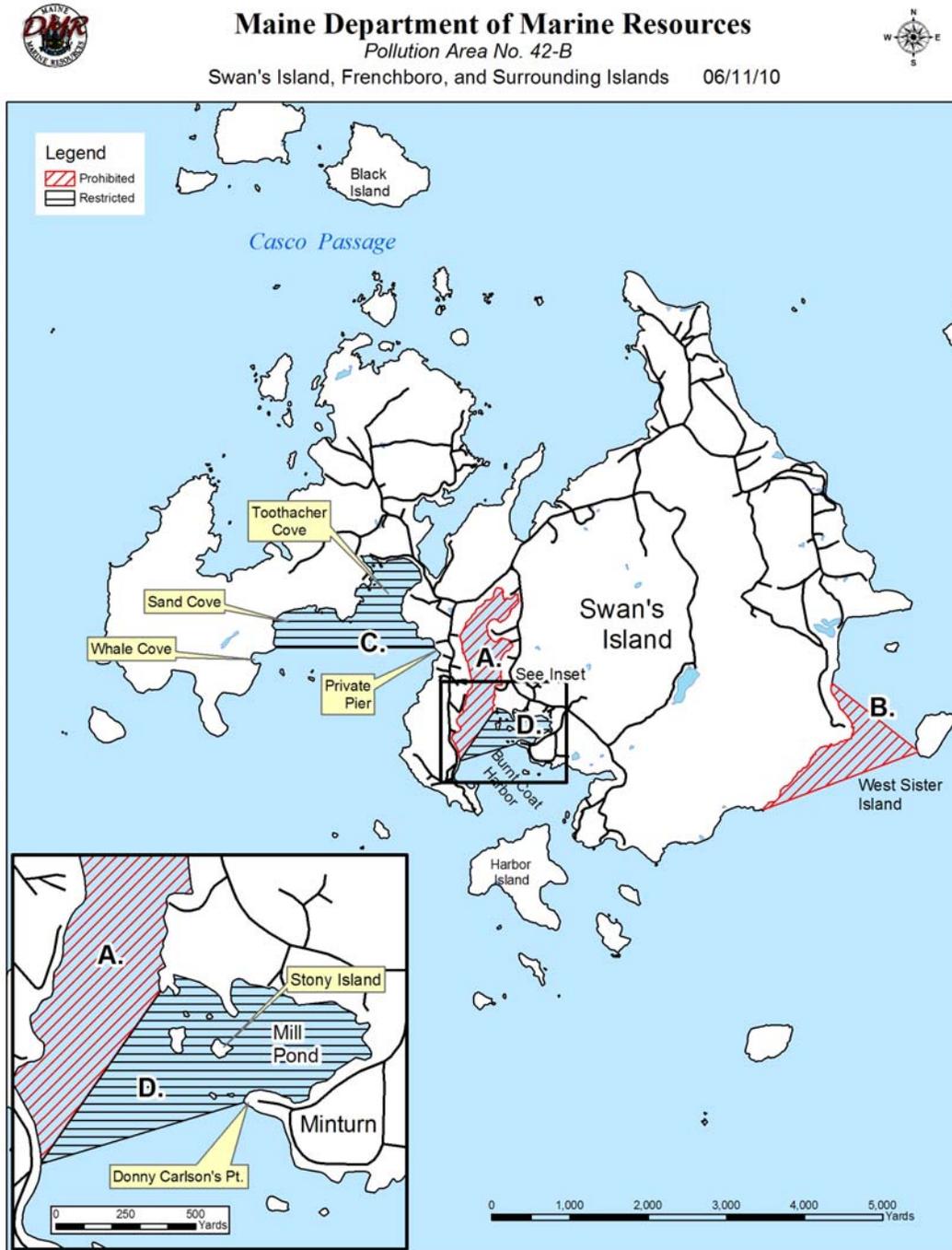
The Mill Cove (station EE 7), which is a subsection of Burnt Coat Harbor and along its eastern shore, has also shown an increase in water quality scores forcing a downward reclassification from approved to restricted. This reclassification was amended on June 11, 2010. Analysis of the individual sample scores shows no particular pattern for elevated scores linked to rainfall, but there is a seasonal pattern for high scores in the fall. New Restricted area boundaries are shown in Figure 10.

A small section on the southwestern shore of Burnt Coat Harbor has been classified as prohibited for years as a result of the discovery of a malfunctioning septic system (EE00184.00) during a previous survey. There was a report of a malfunctioning system in August of 2009, also on the western shore of Burnt Coat Harbor, which resulted in the extension of that prohibited area to include the northern portion of the harbor (see Figure 4.). Completion of the shoreline survey already in progress found four additional problems within the newly expanded prohibited area for a total of 6 problems within Area No. 42-B, Part A. These properties were visited by DMR staff and Local Plumbing Inspector on June 18, 2010 for confirmation and follow up action by the LPI. Once these systems have been fixed, Burnt Coat Harbor can be reevaluated for upward reclassification.

Overall, water quality for growing area EE remained static with ten stations showing an increase in P90 calculations and ten stations showing a decrease. Stations with greater than 20% increase are EE 1, 2, 13, and 17; although these still meet approved criteria in spite of the increase. Only station EE 6.4 had more than a 20% decrease in P90 calculation. Reasons for the fluctuations are unknown.



Figure 10. Mill Cove Restricted Area





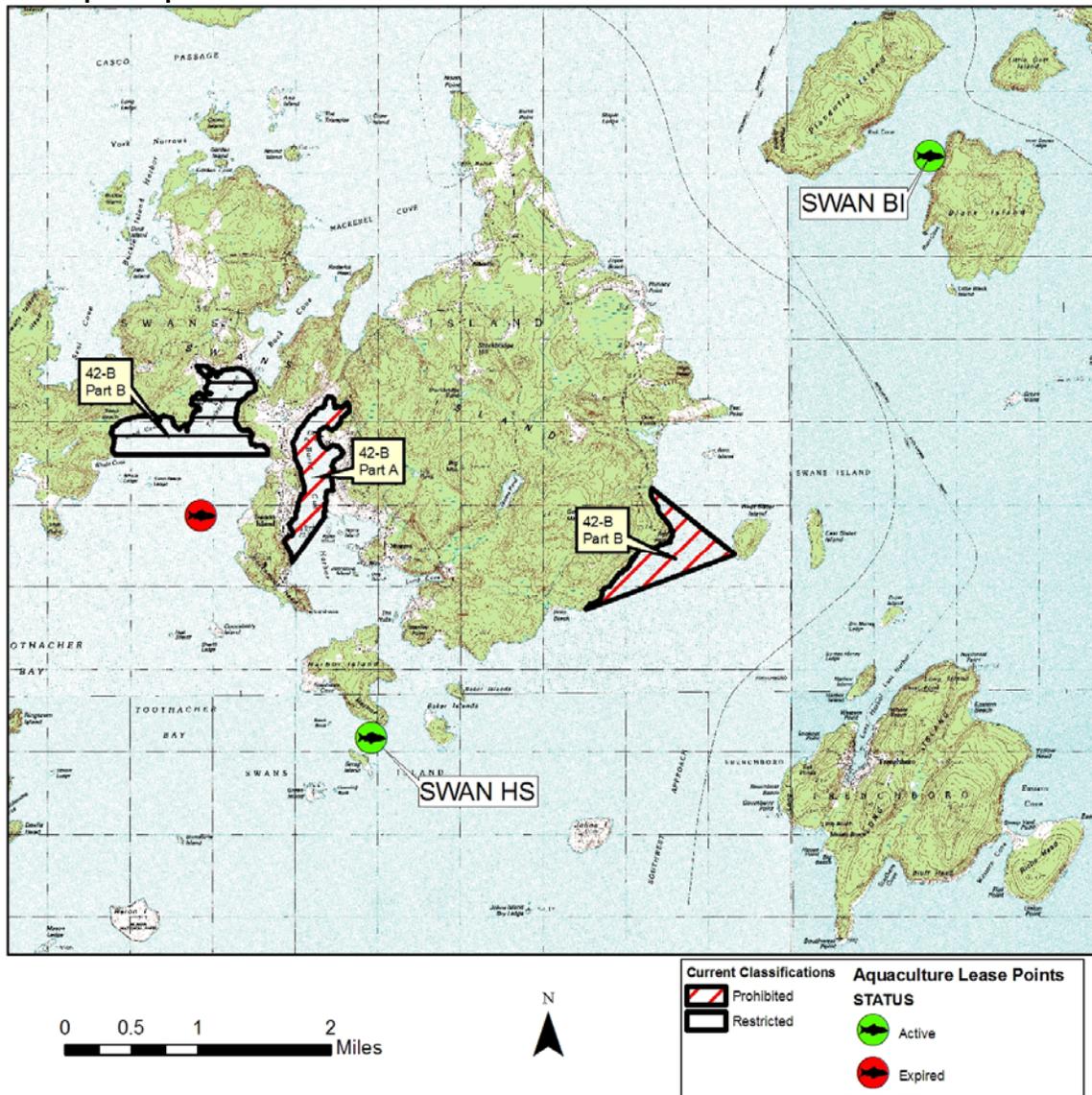
Aquaculture/Wet Storage Activity

There are two aquaculture sites in shellfish growing area EE. These sites both raise Atlantic Salmon and are located in approved areas. Information on these lease sites is shown below. This information is also available at the DMR aquaculture website at:

<http://www.maine.gov/dmr/aquaculture/leaseinventory/index.htm>

Site ID	Name	Primary Species	Expiration Date
SWAN HS	Island Aquaculture Corp.	Atlantic Salmon	6/14/2014
SWAN BI	Island Aquaculture Corp.	Atlantic Salmon	3/14/2019

Figure 11. Map of Aquaculture Lease Sites





Conclusion

New pollution sources in the form of malfunctioning septic systems were located on the western shore of Burnt Coat Harbor during the shoreline survey of 2009 and an existing prohibited area was enlarged to encompass these point sources in August of 2009. These malfunctioning systems have been brought to the attention of the local plumbing inspector and have begun the abatement process. Progress will be monitored in 2010 and the area will be reviewed for possible upward reclassification when abatement is complete. Water quality in the Mill Cove section of Burnt Coat Harbor declined and warranted a reclassification from approved to restricted, which was implemented on June 11, 2010. This change will be further reviewed to see if a seasonal conditional classification may be more appropriate. Water quality at station EE 11, Toothaker Cove, started to decline in 2008 and has continued through 2009. The area was reclassified from approved to restricted in February of 2009. A new station was added to further assess the extent of the impact and possibly reduce the size of the restricted area. Accelerated sampling and another new station added in 2010 will be necessary to reevaluate this area.

Overall water quality for Growing Area EE remained static with ten stations showing an increase in P90 calculations and ten stations showing a decrease. Stations with greater than 20% increase are EE 1, 2, 13, and 17; although these still meet approved criteria in spite of the increase. Only station EE 6.4 had more than a 20% decrease in P90 calculation. Reasons for the fluctuations are unknown.

No upgrades in classification are being proposed at this time.

Recommendation for Future Work

The northeastern portion of Burnt Coat Harbor may be opened again after abatement of the malfunctioning septic systems found during the 2009 shoreline survey. Close work with the Local Plumbing Inspector and confirmation of system replacement, along with confirming water samples from nearby stations will accomplish this objective.



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 = 90th percentile

APPD_STD = the 90th 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 90th percentile, at or below which the station would meet Restricted criteria.



Appendix B. Growing Area EE 2009 Data

Station	Date	Strategy	Open Closed	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
EE001.00	3/23/09	R	O	A		-1	32	HE	NW	<2
	5/13/09	R	O	A		8	31	H	CL	<2
	8/10/09	R	O	A	O	15	30	F	CL	<2
	9/28/09	R	O	A	P	10	32	E	CL	<2
	10/14/09	R	O	A	P	10	30	L	NW	2
	11/18/09	R	O	A	O	4	32	HE	SW	<2
EE002.00	3/23/09	R	O	A		-1	31	H	NW	<2
	5/13/09	R	O	A		10	30	H	W	<2
	6/30/09	R	O	A	P	7	30	F	CL	<2
	8/10/09	R	O	A	O	15	30	F	CL	<2
	9/28/09	R	O	A	P	11	32	LF	SW	<2
	11/18/09	R	O	A	O	5	30	HE	SW	<2
	11/30/09	E	O	A	P		30	L	NW	29
EE003.00	3/23/09	R	O	A		1	31	E	NW	<2
	5/13/09	R	O	A		7	30	HE	SW	<2
	6/30/09	R	O	A	P	8	30	F	CL	<2
	8/10/09	R	O	A	O	15	30	F	CL	<2
	9/28/09	R	O	A	P	16	30	LF	SW	<2
	11/18/09	R	O	A	O	4	31	H	SW	<2
EE005.50	3/23/09	R	C	P		1	32	E	NW	<2
	5/13/09	R	C	P		6	31	H	S	<2
	7/13/09	R	C	P	O	10	31	F	SW	<2
	8/10/09	R	C	P	O	13	32	HE	SW	<2
	9/29/09	R	C	P	P	10	32	LE	CL	<2
	11/18/09	R	C	P	O	4	32	HE	SW	<2
EE006.40	3/23/09	R	O	A		0	31	HE	NW	<2
	5/13/09	R	O	A		8	31	H	W	<2
	6/30/09	R	O	A	P	7	30	F	S	<2
	8/10/09	R	O	A	O	17	32	HE	SW	<2
	9/28/09	R	O	A	P	10	31	LE	SW	2
	11/18/09	R	O	A	O	5	32	HE	SW	<2
EE007.00	3/23/09	R	O	A		-1	31	HE	NW	2
	5/13/09	R	O	A		8	31	H	SW	<2
	6/30/09	R	O	A	P	10	28	F	CL	<2
	8/10/09	R	O	A	W	17	32	HE	SW	<2
	9/28/09	R	O	A	P	14	26	LE	SW	520
	11/18/09	R	O	A	O	4	28	HE	SW	300
EE008.00	3/23/09	R	O	A		-1	32	HE	NW	<2
	5/13/09	R	O	A		10	30	HF	SW	2
	6/30/09	R	O	A	P	10	30	F	CL	<2
	8/10/09	R	O	A	O	22	31	HE	SW	2
	9/28/09	R	C	P	P	13	30	LE	SW	42
	11/18/09	R	C	P	O	5	30	HE	SW	<2



EE Sanitary Survey 2009
Effective Date 2/15/11

Station	Date	Strategy	Open Closed	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
EE009.00	3/23/09	R	O	A		-1	32	HE	NW	<2
	5/13/09	R	O	A		9	30	HF	SW	2
	8/10/09	R	O	A	O	20	32	HE	SW	<2
	9/14/09	R	C	P	O	14	32	LF	NW	<2
	9/28/09	R	C	P	P	13	28	LE	SW	280
	11/18/09	R	C	P	O	4	32	HE	SW	<2
EE009.30	3/23/09	R	O	A		0	32	HE	NW	<2
	5/13/09	R	O	A		8	30	HF	S	10
	6/30/09	R	O	A	P	10	28	F	CL	<2
	8/10/09	R	O	A	O	17	31	HE	SW	<2
	9/14/09	E	C	P	O	17	32	LF	NW	<2
	9/28/09	R	C	P	P	12	31	LE	SE	31
	11/18/09	R	C	P	O	4	31	HE	SW	2
EE009.50	3/23/09	R	O	A		1	32	E	NW	<2
	5/13/09	R	O	A		8	31	F	SE	<2
	6/30/09	R	O	A	P	8	30	LF	E	<2
	8/10/09	R	O	A	O	15	31	H	SW	<2
	9/28/09	R	C	P	P	10	32	LE	S	4
	11/18/09	R	C	P	O	4	32	HE	SW	14
EE009.70	3/23/09	R	O	A		1	32	E	NW	<2
	5/13/09	R	O	A		8	30	F	S	<2
	6/30/09	R	O	A	P	9	30	F	SE	2
	8/10/09	R	O	A	O	15	30	H	SW	<2
	9/28/09	R	O	A	P	10	32	L	S	6
	11/18/09	R	O	A	O	5	32	E	SW	<2
EE010.00	3/23/09	R	O	A		0	31	E	NW	<2
	5/13/09	R	O	A		9	30	F	S	<2
	6/30/09	R	O	A	P	6	30	LF	CL	<2
	8/10/09	R	O	A	O	16	30	H	SW	<2
	9/28/09	R	O	A	P	11	28	L	SW	4
	11/18/09	R	O	A	O	5	32	E	SW	<2
EE011.00	3/23/09	R	O	R		1	32	E	NW	<2
	5/13/09	R	O	R		10	30	F	S	2
	6/30/09	R	O	R	P	6	30	L	N	2
	8/10/09	R	O	R	O	20	30	H	SW	<2
	9/28/09	R	O	R	P	13	28	L	S	42
	11/18/09	R	O	R	O	4	32	E	SW	8
EE011.30	5/13/09	R	O	R		8	30	F	S	<2
	6/30/09	R	O	R	P	7	30	LF	NE	2
	8/10/09	R	O	R	O	18	31	H	SW	<2
	9/14/09	R	O	R	O	15	32	LF	NW	<2
	9/28/09	R	O	R	P	11	30	L	S	24
	11/18/09	R	O	R	O	4	31	E	SW	33
EE013.00	3/23/09	R	O	A		0	32	E	NW	<2
	5/13/09	R	O	A		8	30	F	SW	<2



EE Sanitary Survey 2009
Effective Date 2/15/11

Station	Date	Strategy	Open Closed	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
	6/30/09	R	O	A	P	8	30	LF	E	4
	8/10/09	R	O	A	O	15	30	F	CL	<2
	9/28/09	R	O	A	P	13	31	LF	NE	8
	11/18/09	R	O	A	O	4	31	E	SW	<2
EE015.00	3/23/09	R	O	A		1	32	E	NW	<2
	5/13/09	R	O	A		8	30	HF	SW	<2
	8/10/09	R	O	A	O	16	30	F	CL	<2
	9/14/09	R	O	A	O	14	32	E	NW	<2
	9/29/09	R	O	A	P	11	30	E	SW	94
	11/18/09	R	O	A	O	5	30	E	SW	2
EE016.50	3/23/09	R	O	A		0	31	E	NW	<2
	5/13/09	R	O	A		7	30	HF	CL	<2
	6/30/09	R	O	A	P	7	29	L	NE	2
	8/10/09	R	O	A	O	14	30	F	CL	2
	9/29/09	R	O	A	P	10	32	E	CL	<2
	11/18/09	R	O	A	O	4	32	E	SW	<2
EE017.00	3/23/09	R	O	A		-1	31	E	NW	<2
	5/13/09	R	O	A		8	30	F	S	<2
	8/10/09	R	O	A	O	14	30	F	SW	<2
	9/14/09	R	O	A	O	15	31	E	NW	4
	9/29/09	R	O	A	P	11	31	E	S	<2
	11/18/09	R	O	A	O	5	31	E	SW	<2
EE018.00	4/29/09	R	O	A		5	32	F	NW	<2
	5/18/09	R	O	A	P	7	30	F	N	<2
	7/13/09	R	O	A	O	12	30	F	SW	<2
	8/10/09	R	O	A	O	13	32	HE	SW	<2
	9/14/09	R	O	A	O	14	32	F	NW	<2
	10/14/09	R	O	A	P	10	32	E	NW	<2
EE019.00	4/29/09	R	O	A		6	31	F	NW	<2
	5/18/09	R	O	A	P	7	30	F	N	<2
	7/13/09	R	O	A	O	12	30	F	SW	<2
	8/10/09	R	O	A	O	14	32	HE	SW	<2
	9/14/09	R	O	A	O	14	32	F	NW	<2
	10/14/09	R	O	A	P	10	31	E	NW	<2