



**GROWING AREA WE
Town of KENNEBUNKPORT
TRIENNIAL REVIEW for 2007**

Final Report: 8/6/08

LAURA LIVINGSTON

APPROVAL

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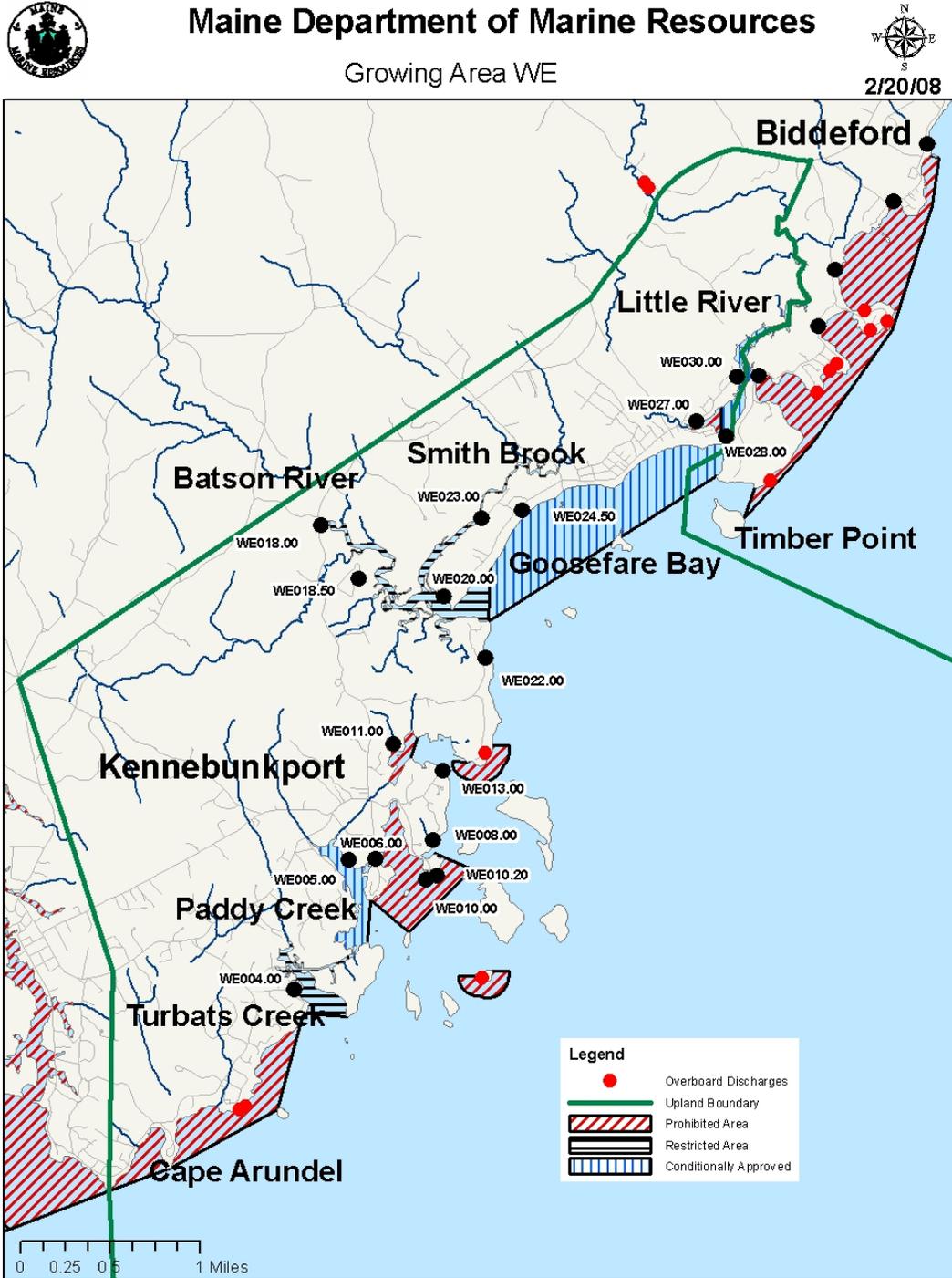
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Figure 1. Growing Area WE with Active Stations and Overboard Discharges, 2007





Executive Summary

This is a triennial report written in compliance with the requirements of the 2005 Model Ordinance and the National Shellfish Sanitation Program (NSSP). The next sanitary survey report will be written in 2010.

Growing Area WE is located between Cape Arundel, Kennebunkport and Timber Point, Biddeford (Figure 1). A complete boundary description can be found in the central files. The growing area includes several coves (Turbats Creek, Paddy Creek, and Sampson Cove), Cape Porpoise Harbor, Goosefare Bay, and two small rivers (Batson River and Little River). Sources of pollution in the growing area includes four licensed residential overboard discharges. No discharges were removed in 2007; one OBD located on Goat Island was replaced with a new in-ground septic system on 6/5/08. Non-point pollution from streams and increased seasonal shore usage are also of concern in this growing area.

During the 2007 review year, one station, WE 4, located in Turbats Creek, was reclassified from conditionally approved to restricted, due to water quality no longer meeting approved standards. 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. As a result of the current water quality review, one upward classification change is requested at this time: the small prohibited area, 18 acres, around the south end of Goat Island can be repealed.

Current Classification(s)

Shellfish growing area WE currently has areas classified as:

Approved

- Sampson Cove (2 stations)
- Goosefare Bay (1 station)

Conditionally Approved (Seasonal variation in water quality)

- Paddy Creek (1 station) (Reclassified Prohibited 3/21/08)
- Goosefare Bay and Little River (3 stations)

Restricted (Non-point pollution)

- Smith Brook and Batson River (4 stations)
- Turbats Creek and Cross Creek (1 station)

Prohibited

- Cape Arundel (Two overboard discharges, No sampling data, No shoreline survey)
- Cape Porpoise Harbor (3 stations) (Non-point Pollution)
- Sampson Cove (1 station) (Needs Survey Work)
- Nessler Point (Overboard Discharge)
- Goat Island (Overboard Discharge) (Removed 6/5/08)
- Little River (1 station) (Non-point Pollution)



Visit the DMR website to view Legal Notices:

MDMR Regulation 95.10Y, Closed Area No. 8, Kennebunk River to Cape Porpoise (Kennebunk and Kennebunkport)

MDMR Regulation 95.10Z, Closed Area No. 9, Batson River to Fortunes Rocks (Kennebunkport and Biddeford).

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

Activity During Review Period

Station WE 4, located in Turbats Creek, was reclassified from conditionally approved to restricted in 9/26/07, due to water quality no longer meeting approved standards.

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 on 8/1/07, in response to the town's 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.

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.

Current Management Plan for Conditional Areas

There are management plans for two conditionally approved areas in growing area WE. Paddy Creek and Goosefare Bay/Little River seasonal conditionally approved areas are closed to harvesting June 1st through September 30th per the management plans. Copies of the management plans can be found in DMR central files.

Annual Review of Management Plan for Conditional Area

Paddy Creek Seasonal Conditionally Approved Area

In 2007, the seasonal conditional area closed on June 1 and reopened on October 1. The seasonal water quality was reviewed prior to reopening and water quality at Station WE 5 continued to meet approved standards for the open season. A complete management plan review can be found in Appendix A.

Goosefare Bay/Little River Seasonal Conditionally Approved Area

In 2007, the seasonal conditional area closed on June 1 and reopened on October 1. The seasonal water quality was reviewed prior to reopening and water quality at Stations WE 24.5, 28 and 30 continued to meet approved standards for the open season. A complete management plan review can be found in Appendix A.



Review of Water Quality

Table 1 lists all active stations in Growing Area WE, with their respective Geomean and P90 calculations for 2007. Please refer to Appendix B 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 verses 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 MFCNT 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 Appendix C. All active approved and restricted stations met their current NSSP classifications. The open season for the conditionally approved stations is from October 1 through May 31; all conditionally approved stations met the approved standards during the open season (Table 2).

Table 1. Geomean and P90 Scores for Growing Area WE, 2001-2007

STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WE004.00	R	30	13	7.5	0.61	500	45.4	40	230
WE006.00	New	10	3	6.5	0.51	93	30.8		
WE008.00	A	30	9	3.4	0.25	23	7.1	43	250
WE010.00	P	30	4	22.2	0.80	280	236.3	46	277
WE010.20	New	3	3	2.5	0.18	4	4.3		
WE011.00	P	30	9	4.1	0.41	108	13.8	43	250
WE013.00	A	30	9	3.5	0.35	43	9.8	43	250
WE018.00	New	24	9	19.4	0.55	240	98.1		
WE018.50	New	18	9	4.9	0.51	84	22.3		
WE020.00	R	30	12	4.3	0.44	43	15.3	41	235
WE022.00	A	30	8	5.1	0.46	43	19.7	43	255
WE023.00	R	30	9	5.2	0.43	43	18.7	43	250
WE027.00	P	30	12	14.0	0.65	460	94.9	41	235

Table 2. WE Conditional Area Geomean and P90 scores, Open Status, October 1- May 31

STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WE005.00	CA	30	10	4.2	0.37	43	12.8	42	245
WE024.50	CA	30	10	5.1	0.63	1700	32.8	42	245
WE028.00	CA	30	11	4.7	0.52	240	21.9	41	240
WE030.00	CA	30	9	4.4	0.39	93	13.8	43	250

All stations were sampled following a systematic random sampling schedule. All approved and restricted stations that were active at the beginning of the year were sampled at least 6 times. Conditionally approved stations were sampled at least six times in the open status, except for



station WE 30, which was only sampled 5 times in the open status due to a scheduling error on 11/19/07, when Station WE 28 was sampled twice (Table 3 and Appendix D).

Table 3. 2007 Sample Counts for Adverse, Extra and Random Sampling Strategies, Open and Closed Status

Station	Classification	Adverse	Extra		Random		Comments
		Closed	Closed	Open	Closed	Open	
WE004.00	CA				3	4	Reclassified on 9/26/07
	R					2	
WE005.00	CA				3	6	
WE006.00	New				3		
WE008.00	A					6	
WE010.00	New		1		4		
WE010.20	New				3		
WE011.00	P				6		
WE013.00	A	2				6	
WE018.00	R			1		6	
WE018.50	R					6	
WE020.00	R					9	
WE022.00	A					6	
WE023.00	R					6	
WE024.50	CA				3	6	
WE027.00	P				9		
WE028.00	CA				3	7	
WE030.00	CA				3	5	

Classification: A – approved, R – restricted, P – prohibited, CA – conditionally approved

In 2006, DMR switched from MPN fecal coliform test method to a membrane filtration (MF) fecal coliform test method. The precision of the MF method far exceeds that of MPN with a resulting lower P90 approved standard (MPN P90 = 49 vs. MF P90 = 31). During the transition from MPN to MF data points, each year the approved standard will be lower than the previous year until all samples have been analyzed by the MF method. In order to show the trend of the P90 scores over the years, the calculated P90s are expressed as a percentage of the approved standard. Figure 2 shows P90 trends for approved stations, expressed as a percentage of the approved standard, over the past five years. The chart shows that over the past three years, water quality has improved at stations WE 8 and WE 13. Figure 3 shows P90 trends for conditionally approved stations in the open status; water quality at stations WE 5, and 28 has declined slightly over the past 3 years, while station 24.5 has shown a more drastic increase in P90 scores over the past 3 years.



Figure 2. P90 Trends for Growing Area WE Approved Stations

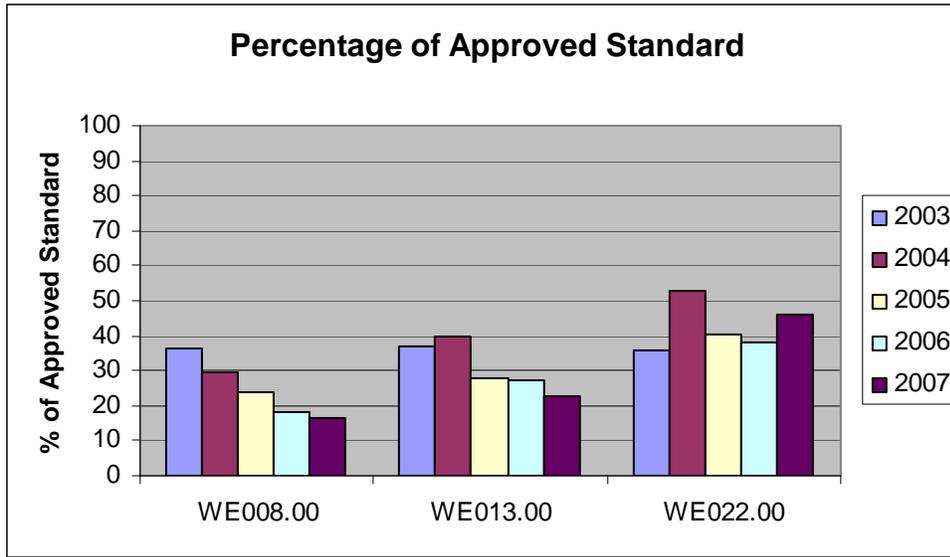
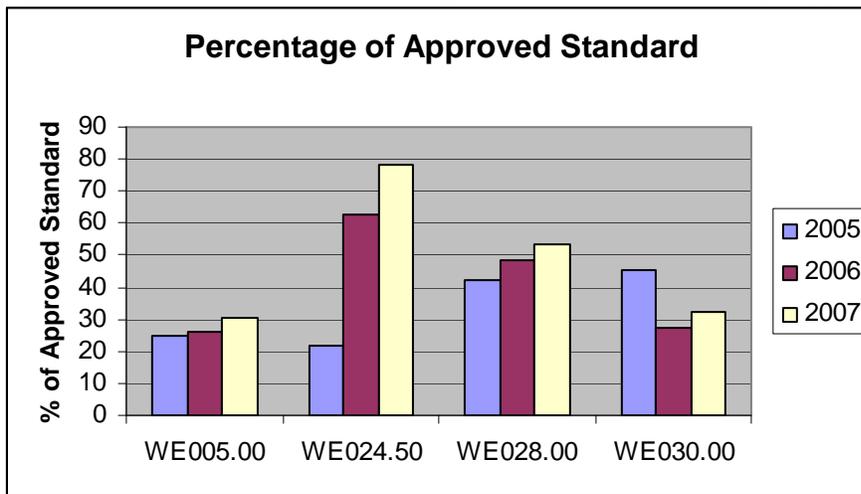


Figure 3. P90 Trends for Growing Area WE Conditionally Approved Stations



Documentation of Pollution Sources

Evaluation of New Pollution Sources

The only new pollution source in Growing Area WE that was identified during the current review period was a failing septic system in the northwest corner of Paddy Creek, which was identified on 3/20/08. The Creek was reclassified as prohibited, the code enforcement officer was notified, and the owner is seeking grant money to connect to the town sewer system.



Re-Evaluation of Existing Pollution Sources

Waste Water Treatment Plants

The Kennebunkport Waste Water Treatment Plant sewer collection system serves most of Cape Porpoise Harbor and extends along Marshall Point and Goosefare Bay. However, the outfall for the plant is not located in Growing Area WE. The plant discharges to the Kennebunk River in Growing Area WD and is discussed further in the Growing Area WD triennial review. 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 Turbats 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 1/14/08.

Overboard Discharges

There are four residential licensed overboard discharges in Growing Area WE. One is located at Nessler Point (#2425), one on Goat Island (#3165), and two are near Cape Arundel (#4096 and 1144). On 6/5/08, the OBD on Goat Island (3165) was replaced with an in-ground septic system. Table 4 shows the dilution calculation results (based on 10,000 fc/100 ml) for the OBDs in growing area WE. The OBD located at Nessler Point requires an 0.16 acre closure; currently there is a 22 acre prohibited area surrounding the point. The two discharges at Cape Arundel are in a 107 acre prohibited area, and they require 0.39 acres for proper dilution.

Table 4. Residential Licensed Overboard Discharges in Growing Area WE

DEP ID	Location	Flow (gpd)	Depth of Water (ft mid tide)	Acres Need for Dilution
2425	Nessler Pt	300	4	0.16
4096	Cape Arundel	315	4	0.17
1144	Cape Arundel	400	4	0.22

Agricultural and Industrial Discharges

There are no industrial discharges or large agricultural activities in the growing area, but there is one small farm located near the head of the Batson River. The farm grazes anywhere from 20 to 50 sheep at a time, plus there is a small pond in the field, which attracts waterfowl. Station WE 18.5 was established to identify any impact the farm might have on the river.

Marinas

There are no marinas in the growing area, but there is a town dock in Cape Porpoise Harbor where fishing boats can offload their catch. The harbormaster was interviewed on 7/15/08 and stated that there are 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.



Wildlife

Much of the shore around Sampson Cove, Smith Brook, Batson River and Little River is Rachel Carson Preserve marshland. The preserve is home for deer, fox, raccoons and various waterfowl. There are also beaver in Beaver Pond, and the drainage from the pond impacts water quality at Station WE 27, which is classified prohibited.

Streams

Baseline stream samples were collected on 7/19/07. Runoff conditions were low at the time of stream sample collection and no flow rates were documented; please refer to Table 3 and Figure 2 for stream data. Stream sample station WEA0066.50 is located upstream of stream station WEA0063.00, which drains into Turbats Creek. These two stream stations had high fecal coliform scores, and may have been impacted by non-point pollution from the road culvert as well as the low lying wetland located between the two stream sites. The upstream station. WEA0063.00 should be further monitored and assessed for impact on the cove. Sample WEA0106.00 is a steady flowing stream entering the northwest corner of the cove near Paddy Creek and should also be monitored and assessed for impact on the cove. Sample WEA0118.00 is not a stream, but a tidal marsh channel; this area yielded the lowest fecal coliform score. Sample WEA0288.30 is also a tidal marsh stream, and sample WEA0288.10 is a small road culvert in a new housing development; both drain into the upper restricted area of Batson River. Samples WEA0298.50 and WEA0298.00 are also tidal streams at the head of Smith Brook. Sample WEA0439.10 is a stream draining Beaver Pond and has an impact on water quality at monitoring station WE 27. This station is classified prohibited because of poor water quality. In future review years, streams WEA0063.00 and WEA0106.00 should be further sampled under varying weather conditions, and flow rates should be measured and recorded, in order to evaluate the impact of these fresh water sources on water quality in Turbats Creek and Paddy Creek.

Table 5. Growing Area WE Stream Samples Collected 7/19/07

DMR ID	Physical Location	Fecal Score
WEA0063.00	Turbats Creek	320
WEA0066.50	Turbats Creek	260
WEA0106.00	Paddy Creek	102
WEA0118.00	Paddy Creek	54
WEA0288.30	Batson River	134
WEA0288.10	Batson River	280
WEA0298.50	Smith Brook	74
WEA0298.00	Smith Brook	54
WEA0439.10	Beaver Pond	76



Figure 4. Growing Area WE Stream Locations





Meteorological/Hydrographical Information

A comprehensive review of rainfall and sample data shows that:

- Stations WE 10 and 27, classified prohibited, have variability in the sampling data that may not be related to rainfall. High scores at station WE 10 occurred with zero rainfall within 72 hours of collection and high scores at Station WE 27 occurred after less than 0.5 inches of rainfall. The range of sample salinities was from 8 to 29 ppt, suggesting a possible fresh water impact on water quality.
- Station WE 18, classified restricted, shows impact with rainfall, and high scores had salinities ranging from 0 to 7 ppt, suggesting a fresh water impact on water quality.
- Station WE 4, which was just reclassified from conditionally approved to restricted, had three high scores with little to no rainfall in the past 72 hours; salinities were 30 to 32 ppt.
- Station WE 24.5, classified conditionally approved, had one very high score of 1700 with no rainfall; the salinity of this sample was 32. There was also a score of 46 after four days of light rain each day, totaling 1.1 inches of rain in 72 hours. The salinity was 22. Both samples were collected during the open season.

In November 2006, FB Environmental put together a final report titled, "Summer 2006 Goose Rocks Beach Water Quality Monitoring Project". The report concluded that human septic waste was present in Smith Brook, Batson River and Little River, particularly in August and after rainfall events. Optical brighteners were detected with higher fresh water input in those areas. Additional stream samples and further rainfall assessment will be done for the sanitary survey report in 2010. The full report can be found at the following web site:

<http://www.fbenvironmental.com/images/projects/GooseRocksBeachFinalReport.pdf>

Shoreline Survey Activity

Kennebunkport sewer connections were confirmed in 2004, and all of the shoreline in the Paddy Creek (63 properties) conditionally approved and the Sampson Cove (18 properties) approved areas were resurveyed on 3/20/08. DMR walked the tidal shore around Goosefare Bay in 2004, in conjunction with the Maine Healthy Beach Program, and Maine DEP completed a survey of upstream properties in this same area in 2006. A drive through survey of growing area WE was conducted on 7/19/07, when stream samples were collected. No changes in development, no new homes or alterations to drainages, were identified during the drive through survey.

Aquaculture/Wet Storage Activity

There currently are no active aquaculture lease sites or wet storage areas in growing area WE.



Classification Changes Requested

The prohibited area around Goat Island should be repealed.

Discussion & Summary

Turbats Creek was reclassified as restricted in 2007 due to poor water quality at station WE 4. Additional stream sampling and surveying should be done to determine the source(s) of pollution at this site. Paddy Creek was reclassified as prohibited in March 2008 due to a failing septic system. The town Code Enforcement Officer is working with the homeowner on trying to get the house connected to the town sewer system, but because of a nearby cemetery, excavation of the site may be difficult, and the replacement of the system may take time.

In the Smith Brook and Batson River, water quality is meeting approved standards at stations WE 20 and 23. A new station, WE 18.5, was established to determine the extent of impact from non-point pollution upriver at station WE 18 and a nearby sheep farm. Water quality is meeting approved standards at Station WE 18.5, but there are only 18 samples. When there are 30 samples at this site, and the shoreline survey has been updated, the classification of the river should be reassessed.

The head of Sampson Cove, station WE 11, is classified prohibited, because there was insufficient data for reclassification to a higher level. There are now 30 samples at station WE 11 and water quality is meeting approved standards. The shore at the head of the cove needs to be surveyed for any potential pollution problems.

Goat Island was last surveyed on 1994. It's a small island with only a lighthouse on it. The island is owned by the Coast Guard and the lighthouse is only occupied off and on in the summer by special visitors. The light itself is automated. On 6/5/08, the licensed overboard discharge at the lighthouse was replaced with a functioning inground septic system. This was confirmed on 7/15/08 by the Code Enforcement Officer. The prohibited area around the south side of the island can be repealed.



Appendix A. Annual Review of Management Plan- Paddy Creek, Goosefare Bay and Little River

2007 Annual Review Paddy Creek, Goosefare Bay and Little River Conditional Area Growing Area WE

Scope

Paddy Creek (station WE5), Goosefare Bay (station WE 24.5) and Little River (stations WE 28 and 30) are conditionally approved areas due to seasonal variation in water quality, possibly due to an increase in shore usage. Water quality meets approved standards between October 1 and May 31.

Compliance with management plan

In 2007, the conditional areas closed on June 1 and reopened on October 1 in accordance with the management plan. The seasonal water quality was reviewed prior to reopening and water quality at Station WE 5 continued to meet approved standards for the open season.

Adequacy of reporting and cooperation of involved persons

This management plan does not require reporting.

Compliance with approved growing area criteria

All conditionally approved stations in growing area WE met approved standards during the open season (Table 1).

Table 1. Geomean and P90 Scores, WE Conditional Areas, Open Status

STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WE005.00	CA	30	10	4.2	0.37	43	12.8	42	245
WE024.50	CA	30	10	5.1	0.63	1700	32.8	42	245
WE028.00	CA	30	11	4.7	0.52	240	21.9	41	240
WE030.00	CA	30	9	4.4	0.39	93	13.8	43	250



Field inspection of critical pollution sources

The potential for pollution in Growing Area WE comes from increased shore usage (swimming, walking pets, etc.) and the influx of summer residents to their seasonal homes. Visual observations are made throughout the year during the course of random sampling and shoreline surveying.

Water sampling compliance history

All stations were collected 6 times when in the open status, except Station WE 30 was only sampled 5 times due to a scheduling error on 11/19/07, when Station WE 28 was sampled twice.

Analysis-Recommendations

It is MDMR policy to reassess the seasonal data before opening a seasonal area to ensure ongoing compliance with approved standards. The seasonal data will be reassessed at the end of September 2008.



Appendix B. 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 C. Transitioning to Membrane Filtration for Seawater and Pollution Source Samples

The Maine Department of Marine Resources has switched to a Membrane Filtration (MF) method for Fecal Coliforms using mTEC agar with a two hour resuscitation step. The geometric mean and the 90th percentile are calculated on 30 data points extending over a five year period. During the transition from MPN to MF, we will be accumulating MF data points. The statistical calculations will be a combination of MPN and MF data points.

During this transition the P90 standard for approved and restricted classification will migrate from the MPN standard to the MF standard. The FDA has determined that the best way to handle the data is to perform the calculations as always for the data set, but to compare the data set to a hybrid weighted 90th percentile. This hybrid standard is calculated by weighting the relative contributions of each method to the database. This will mean that as the number of MPN data points reduce and the number of MF data points increase the 90th percentile standard that the sample site is compared to will change over time. Once all 30 data points are analyzed using MF, the 90th percentile for approved classification will be 31 and for restricted (for depuration) will be 163. The geomean approved standard of 14 fecal coliforms per 100 ml and geomean restricted standard of 88 fecal coliforms per 100 ml will remain the same for both methods.

Reports that display 90th percentiles will show the number of data points derived from MF analysis and will show the appropriate 90th percentile standard for that MPN/MF combination for approved and restricted classifications. It must be remembered that this weighted standard is only used for data sets encompassing data from the two different test methods, MF and MPN (3 tube/3 dilution). If decisions are to be made on a single test result analyzed by the MF method or a multiple number of test results all exclusively analyzed by the MF method, the 90th percentile standard is 31 fecal coliforms per 100 ml.

This was the first year the water quality program documented, in the database, the inability to collect a sample based on the following parameters: if the tide stage was too low to collect the sample, there was a safety issue with collecting the sample, the location was inaccessible or "other" which was accompanied by a comment on the data sheet. Stations that were unable to be sampled due to any of these parameters show 999 in the salinity column and have no data recorded in any of the columns except the time which is recorded so the actual tide stage can be computed. Stations that were missed due to the above parameters were required to be made up to assure that each station would receive the required six samples during the sampling season.



Appendix D. 2007 Water Quality Data

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WE004.00	01/03/07	LL	H	5	31	R	P	O	CA	9.1	SW
WE004.00	03/06/07	FP	F	-4	32	R	-	O	CA	<2.0	-
WE004.00	04/30/07	LL	E	8	24	R	P	O	CA	3.6	E
WE004.00	05/30/07	EXT	HE	16	30	R	-	O	CA	74	CL
WE004.00	06/19/07	MHE	F	18	28	R	-	O	CA	<2.0	CL
WE004.00	08/13/07	EXT	F	16	31	R	-	C	CA	8	CL
WE004.00	09/24/07	EXT	HE	13	32	R	-	C	CA	<2.0	CL
WE004.00	10/16/07	MHE	F	11	32	R	P	O	R	<2.0	NE
WE004.00	11/19/07	LL	F	5	32	R	-	O	R	2	CL
WE005.00	01/03/07	LL	H	5	21	R	P	O	CA	14	SW
WE005.00	03/06/07	FP	F	-5	32	R	-	O	CA	2.8	-
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WE005.00	05/30/07	EXT	HE	15	30	R	-	O	CA	<2.0	S
WE005.00	06/19/07	MHE	F	25	28	R	-	C	CA	20	S
WE005.00	08/13/07	EXT	HF	15	31	R	-	C	CA	<2.0	CL
WE005.00	09/24/07	EXT	HE	13	32	R	-	C	CA	4	SW
WE005.00	10/16/07	MHE	F	12	32	R	P	O	CA	<2.0	NW
WE005.00	11/19/07	LL	F	5	32	R	-	O	CA	<2.0	CL
WE006.00	08/13/07	EXT	HF	16	31	R	-	C	P	14	CL
WE006.00	10/16/07	MHE	F	10	32	R	P	C	P	<2.0	CL
WE006.00	11/19/07	EXT	E	3	32	R	-	C	P	6	NE
WE008.00	01/03/07	LL	H	3	30	R	P	O	A	<2.0	SW
WE008.00	03/06/07	FP	F	-5	32	R	-	O	A	2	-
WE008.00	04/30/07	LL	E	7	24	R	P	O	A	4	E
WE008.00	06/19/07	MHE	F	22	28	R	-	O	A	<2.0	E
WE008.00	08/13/07	EXT	HF	15	32	R	-	O	A	4	CL
WE008.00	10/16/07	MHE	F	11	32	R	P	O	A	2	NW
WE010.00	01/03/07	LL	H	5	31	R	P	C	P	<2.0	SW
WE010.00	04/30/07	LL	E	7	25	R	P	C	P	<2.0	E
WE010.00	08/13/07	EXT	HF	15	32	R	-	C	P	280	CL
WE010.00	10/16/07	MHE	F	10	32	R	P	C	P	13	NW
WE010.20	08/13/07	EXT	HF	15	32	R	-	C	P	<2.0	CL
WE010.20	10/16/07	MHE	F	10	32	R	P	C	P	4	NW
WE010.20	11/19/07	EXT	E	3	31	R	-	C	P	2	NE
WE011.00	01/03/07	LL	H	3	30	R	P	C	P	4	SW
WE011.00	04/30/07	LL	E	7	22	R	P	C	P	108	E
WE011.00	05/30/07	EXT	HE	11	30	R	-	C	P	<2.0	SW



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WE011.00	06/19/07	MHE	F	24	28	R	-	C	P	16	CL
WE011.00	08/13/07	EXT	H	15	32	R	-	C	P	4	CL
WE011.00	10/16/07	MHE	F	11	32	R	P	C	P	<2.0	NE
WE013.00	01/03/07	LL	H	5	31	R	P	O	A	<2.0	SW
WE013.00	03/06/07	FP	F		32	R	-	O	A	<2.0	-
WE013.00	04/30/07	LL	E	7	24	R	P	O	A	2	E
WE013.00	06/19/07	MHE	F	16	28	R	-	O	A	2	SE
WE013.00	08/13/07	EXT	H	16	31	R	-	O	A	2	CL
WE013.00	10/16/07	MHE	F	10	32	R	P	O	A	<2.0	NW
WE018.00	01/03/07	LL	H	3	14	R	P	O	R	16	SW
WE018.00	03/06/07	FP	F		0	R	-	O	R	8	-
WE018.00	04/30/07	LL	E	7	1	R	P	O	R	124	E
WE018.00	06/19/07	MHE	F	19	0	R	-	O	R	68	E
WE018.00	08/13/07	EXT	HE	19	24	R	-	O	R	80	CL
WE018.00	10/16/07	MHE	F	11	17	R	P	O	R	90	CL
WE018.50	01/03/07	LL	H	3	30	R	P	O	R	2	SW
WE018.50	04/30/07	LL	E	7	8	R	P	O	R	46	E
WE018.50	05/30/07	EXT	H	12	29	R	-	O	R	<2.0	SW
WE018.50	06/19/07	MHE	F	16	27	R	-	O	R	<2.0	SE
WE018.50	08/13/07	EXT	H	15	30	R	-	O	R	84	CL
WE018.50	10/16/07	MHE	F	10	32	R	P	O	R	<2.0	NE
WE020.00	01/03/07	LL	HE	5	30	R	P	O	R	<2.0	SW
WE020.00	03/06/07	FP	F		30	R	-	O	R	<2.0	-
WE020.00	04/30/07	LL	E	7	22	R	P	O	R	2	E
WE020.00	05/30/07	EXT	H	13	28	R	-	O	R	<2.0	W
WE020.00	06/19/07	MHE	F	18	27	R	W	O	R	<2.0	SE
WE020.00	08/13/07	EXT	HE	15	32	R	-	O	R	<2.0	SW
WE020.00	09/24/07	EXT	HE	11	32	R	-	O	R	2	CL
WE020.00	10/16/07	MHE	F	10	32	R	P	O	R	<2.0	NW
WE020.00	11/19/07	EXT	LE	3	20	R	-	O	R	22	NE
WE022.00	01/03/07	LL	H	5	30	R	P	O	A	<2.0	SW
WE022.00	03/06/07	FP	F		32	R	-	O	A	<2.0	-
WE022.00	04/30/07	LL	E	7	24	R	P	O	A	<2.0	E
WE022.00	06/19/07	MHE	F	19	28	R	-	O	A	<2.0	SE
WE022.00	08/13/07	EXT	H	14	32	R	-	O	A	2	CL
WE022.00	10/16/07	MHE	F	12	30	R	P	O	A	14	N
WE023.00	01/03/07	LL	HE	5	31	R	P	O	R	<2.0	SW
WE023.00	03/06/07	FP	F		22	R	-	O	R	2	-



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WE023.00	04/30/07	LL	E	7	18	R	P	O	R	2	E
WE023.00	06/19/07	MHE	F	17	28	R	-	O	R	2	SE
WE023.00	08/13/07	EXT	HE	15	32	R	-	O	R	<2.0	CL
WE023.00	10/16/07	MHE	F	12	32	R	PW	O	R	<2.0	NW
WE024.50	01/03/07	LL	HE	5	31	R	P	O	CA	<2.0	SW
WE024.50	03/06/07	FP	F		32	R	-	O	CA	<2.0	-
WE024.50	04/30/07	LL	HE	7	22	R	P	O	CA	46	E
WE024.50	05/23/07	EXT	L	9	29	R	-	O	CA	2	NE
WE024.50	06/19/07	MHE	F	17	28	R	W	C	CA	2	SE
WE024.50	08/13/07	EXT	HE	15	32	R	-	C	CA	<2.0	SW
WE024.50	09/24/07	EXT	HE	12	32	R	-	C	CA	<2.0	CL
WE024.50	10/16/07	MHE	F	10	32	R	P	O	CA	<2.0	CL
WE024.50	11/19/07	EXT	LE	4	32	R	-	O	CA	<2.0	CL
WE027.00	01/03/07	LL	HE	5	6	R	P	C	P	27	SW
WE027.00	03/06/07	FP	F		8	R	-	C	P	4	-
WE027.00	04/30/07	LL	HE	6	5	R	P	C	P	36	E
WE027.00	05/30/07	EXT	H	14	28	R	-	C	P	10	CL
WE027.00	06/19/07	MHE	F	21	24	R	-	C	P	36	S
WE027.00	08/13/07	EXT	E	17	32	R	-	C	P	<2.0	SW
WE027.00	09/24/07	EXT	H	12	32	R	-	C	P	22	CL
WE027.00	10/16/07	MHE	HF	12	31	R	P	C	P	3.6	NW
WE027.00	11/19/07	LL	F	4	22	R	-	C	P	14	CL
WE028.00	01/03/07	LL	HE	5	30	R	P	O	CA	<2.0	SW
WE028.00	03/06/07	FP	F		32	R	-	O	CA	<2.0	-
WE028.00	04/30/07	LL	E	6	21	R	P	O	CA	10	E
WE028.00	05/30/07	EXT	H	12	29	R	-	O	CA	<2.0	SW
WE028.00	06/19/07	MHE	F	17	28	R	-	C	CA	<2.0	S
WE028.00	08/13/07	EXT	HE	16	32	R	-	C	CA	<2.0	CL
WE028.00	09/24/07	EXT	HE	12	32	R	-	C	CA	4	SW
WE028.00	10/16/07	MHE	HF	12	32	R	P	O	CA	2	NW
WE028.00	11/19/07	LL	F	4	30	R	-	O	CA	4	CL
WE028.00	11/19/07	EXT	L	3	14	R	-	O	CA	13	NE
WE030.00	01/03/07	LL	HE	5	30	R	P	O	CA	8	SW
WE030.00	03/06/07	FP	F		32	R	-	O	CA	<2.0	-
WE030.00	04/30/07	LL	HE	6	20	R	P	O	CA	18	E
WE030.00	05/30/07	EXT	H	12	29	R	-	O	CA	<2.0	W
WE030.00	06/19/07	MHE	HF	14	29	R	-	C	CA	<2.0	SE
WE030.00	08/13/07	EXT	E	15	32	R	-	C	CA	2	SW
WE030.00	09/24/07	EXT	H	12	32	R	-	C	CA	2	CL
WE030.00	10/16/07	MHE	HF	11	32	R	P	O	CA	4	N



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