GROWING AREA EM

Pleasant River, Addison, Cape Split, Columbia Falls and Harrington

ANNUAL REVIEW for 2009

Report Date: April 16, 2010

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APPROVAL

Division Director:

_____ _____ Date: _____
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Table of Contents

Executive Summary 5
Growing Area Description 5
Current Classification(s) 5
Activity during Review Period 6
Water Quality Review and Discussion 6
Recommendations for Upward Classification 9
Shoreline Survey Activity 9
Summary 9
References 9
Appendix A. Key to Water Quality Table Headers 10
Appendix B. Transition to Membrane Filtration 11
Appendix C. Growing Area EM 2009 12

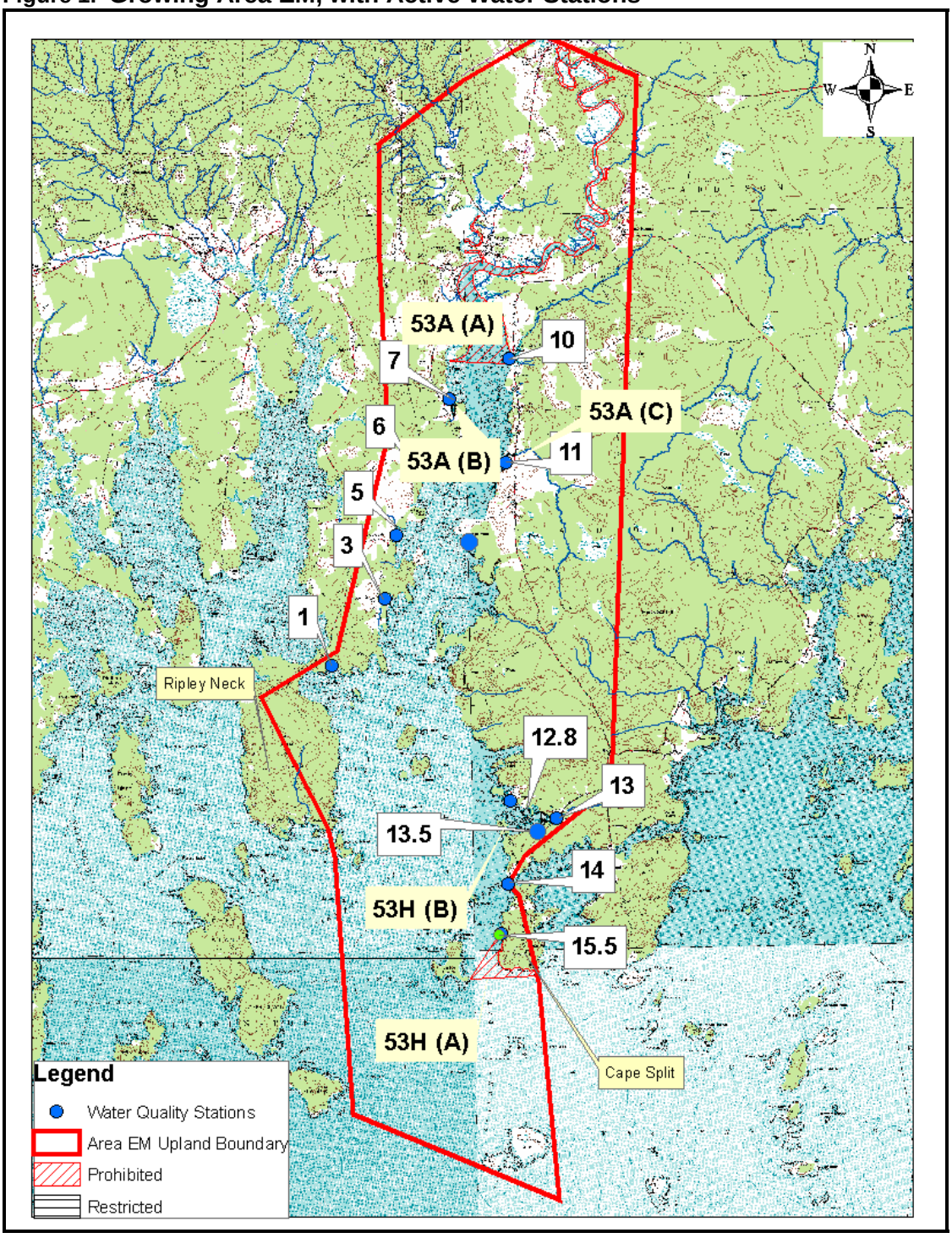
List of Table

Table 1. Geomean and P90 Scores, Growing Area EM, 2005-2009 6
Table 2. 2009 Sample Count 7

List of Figures

Figure 1. Growing Area EM, with Active Water Stations 4
Figure 2. Area EM P90 Scores for Approved Stations (expressed as the percent of the approved standard), 2007-2009 8
Figure 3. Area EM P90 Scores for Restricted Stations (expressed as the percent of the restricted standard), 2007-2009 8

Figure 1. Growing Area EM, with Active Water Stations



Executive Summary

This is an annual report for growing area EM written in compliance with the requirements of the 2007 Model Ordinance and the National Shellfish Sanitation Program. This report covers growing area EM which is bounded on the west by Ripley Neck, Harrington and on the east by Cape Split, Addison (Figure 1).

There were no licensed overboard discharges removed during the review period. There are no conditionally managed areas and there are no aquaculture sites in Growing Area EM. No changes in classification are recommended as a result of this annual review. The next triennial report is due in 2011; the next sanitary survey report is due in 2018.

Growing Area Description

This area is more conveniently described as, Pleasant River Bay. The growing area lies entirely within the towns of Harrington and Addison, although the main branch of the river is tidally influenced inland to Columbia Falls. Fresh water influence along these shores is from two rivers draining into this area; the main and west branches of the Pleasant River and numerous brooks and streams. These have been evaluated microbiologically. The drainage area for this watershed is 60.6 sq/miles (USGS 01022260 Pleasant River near Epping, Maine). A complete description can be found in the central files.

There are no municipal sewage treatment facilities in this growing area; however there are 12 private licensed overboard discharges between the towns of Columbia Falls, Addison Village and Cape Split. There are two farms along the shores of this growing area. One is a commercial llama and red deer farm and the other is a small private farm with chickens, geese and one horse. There are no commercial marinas but there are numerous private piers for small recreational boats and local fishing boats. The local fishing boats are mainly lobster boats and one small herring purse seine vessel.

Current Classification(s)

Shellfish growing area EM currently has areas classified as:

Approved: Eight sample sites; EM 1, 3, 5, 6, 10, 12.8, 13.5 and 14

Restricted: Area No. 53B South end of Dyer Cove (non point source pollution), 1 sample site EM 7
Area No. 53C Batson Brook (non point source pollution), 1 sample site EM 11
Area No. 53H (B) Mash Harbor (non point source pollution), 1 sample site EM 13

Prohibited: Area No. 53A Pleasant River (OBD's) no sample sites EM 10 on Boundary is classified approved
Area No. 53H (A) Cape Split (OBD's) 1 sample site EM 15.5

Please visit the DMR website to view legal notices:

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

Activity during Review Period

- **Classification Changes**: none
- **OBD's Removed:** None
- A drive through survey was conducted on July 2, 2009.
- **8/12/09 stream sampling:** 12 samples collected

Water Quality Review and Discussion

Table 1 lists all active approved, restricted and prohibited stations in Growing Area EM, 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 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 central files and in Appendix B.

All approved stations met their NSSP classification standard in 2009. Station EM 7 (highlighted in yellow) is classified as restricted and meets the standard for approved but because of the proximity to a llama farm will remain restricted. Station EM 15.5 (highlighted in green), which is currently classified as prohibited, meets the approved standard but will remain prohibited as it is in the dilution zone for a licensed OBD.

Table 1. Geomean and P90 Scores, Growing Area EM, 2005-2009

Station	Class	Count	MFCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std
EM001.00	A	30	20	3.4	0.52	460	16.3	36	199
EM003.00	A	30	20	3.8	0.47	93	15.8	36	199
EM005.00	A	30	20	2.6	0.3	68	6.5	36	199
EM006.00	A	30	21	2.8	0.29	43	6.8	35	195
EM007.00	R	30	20	3.4	0.5	460	15.5	36	199
EM010.00	A	30	20	6.7	0.48	80	28.4	36	199

Station	Class	Count	MFCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std
EM011.00	R	30	20	7.8	0.66	480	56	36	199
EM012.80	A	30	20	3	0.33	46	8.1	36	199
EM013.00	R	30	21	10.2	0.71	240	84.3	35	195
EM013.50	new	12	12	4.2	0.57	52	23.8	31	163
EM014.00	A	30	20	2.8	0.29	23	6.7	36	199
EM015.50	new	24	24	2	0.1	6	2.7	31	163

All stations that were active at the beginning of 2009 were sampled at least 6 times following the systematic random sampling (SRS) schedule. Stations EM 6 and 10 were both sampled during flood events. (Table 2 and Appendix C).

Table 2. 2009 Sample Count

Station	Class	status	Adverse	Random	Total Samples 2009	COMMENTS
EM001.00	A	O		6	6	
EM003.00	A	O		6	6	
EM005.00	A	O		6	6	
EM006.00	A	C	12		18	12 flood samples
	A	O		6		
EM007.00	R	O		6	6	
EM010.00	A	C	9		15	9 flood samples
	A	O		6		
EM011.00	R	O		6	6	
EM012.80	A	O		6	6	
EM013.00	R	O		6	6	
EM013.50	R	O		6	6	
EM014.00	A	O		6	6	
EM015.50	P	C		6	6	

Figures 2 and 3 below show the three year P90 trend for all approved and restricted stations for area EM. EM 10 is currently at 79% of the approved standard and has been trending upward. The station is located near the mouth of a small tidally influenced stream and has a high concentration of year round waterfowl and will continue to be reviewed quarterly during the 2010 sampling season to see if this upward trend continues.

Figure 2. Area EM P90 Scores for Approved Stations (expressed as the percent of the approved standard), 2007-2009

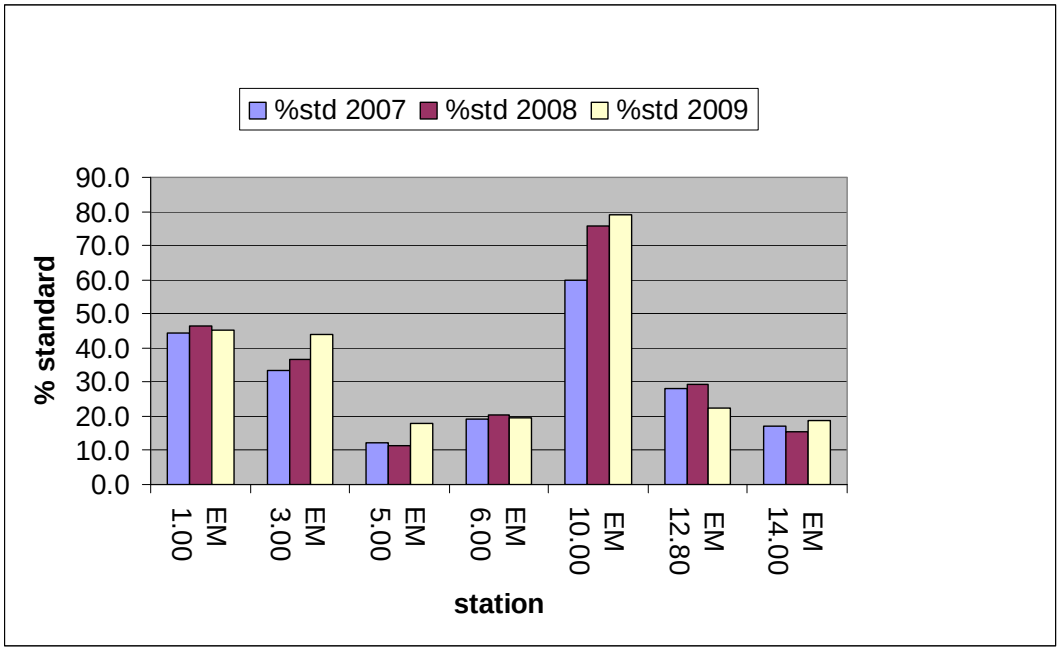
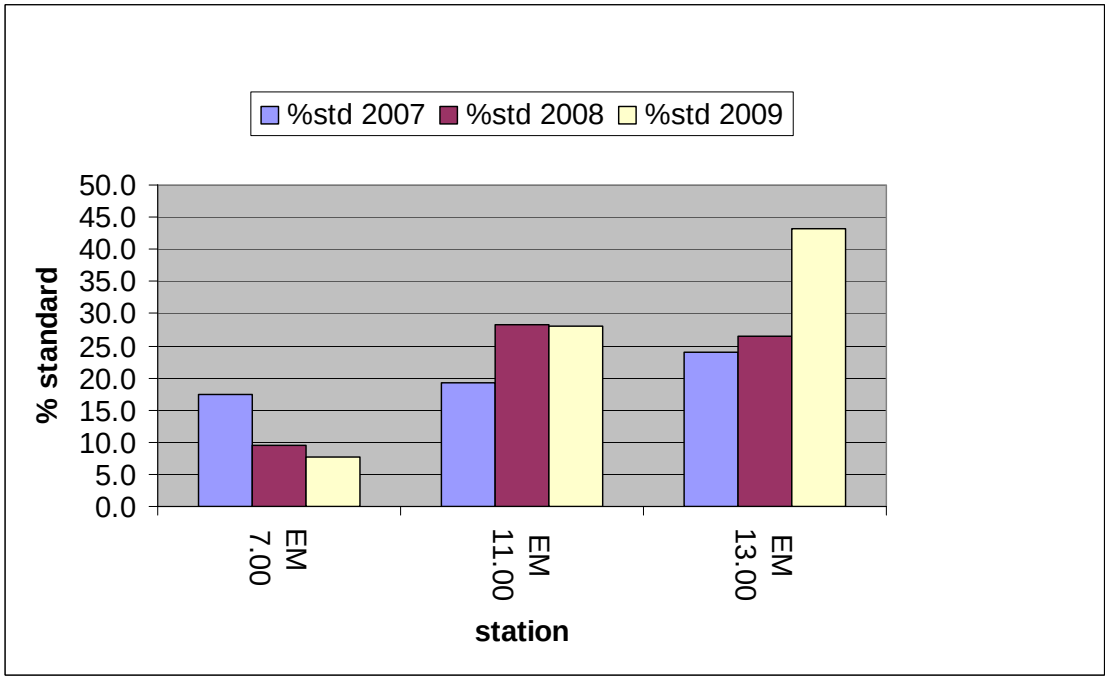


Figure 3. Area EM P90 Scores for Restricted Stations (expressed as the percent of the restricted standard), 2007-2009



EM 13 has shown an increase but is still below 50% of the standard for restricted harvest. This station is located near the mouth of a small stream that is intermittently impacted by beavers and during stream sampling on August 12, 2009 fresh beaver sign was found at this stream.

Recommendations for Upward Classification

There are no recommendations for upward classification in this report.

Shoreline Survey Activity

A drive through survey was conducted on July 2, 2009. During this survey it was discovered and noted in the shoreline survey data base that the trailer located near EM 6 had been removed and replaced with a new gambrel style camp with an in ground septic system. There were 9 llamas counted at the Pleasant Bay Bed and Breakfast llama farm on the day of the drive through survey. Six RV's were counted at the Pleasant River RV Park. None were observed discharging to the ground. Five boats were counted at the town landing, 4 were workboats < 35' in length and one was a pleasure boat. On August 12, 2009 12 stream samples were collected in area EM.

Summary

As evidenced by this year end report, water quality for this growing area supports its current classification under the NSSP guidelines. Water quality, with the exception of EM 10, has remained consistent over the last year.

Sample station EM 10 has now reached 79% of the standard for approved classification. It will be watched closely for the 2010 season to see if this upward trend continues. A survey and detailed analysis of the area will take place during the 2010 season to try and determine what may be causing this increase in P90.

References

USGS 2008 Water Report http://wdr.water.usgs.gov/wy2008/pdfs/01022260.2008.pdf; Accessed March 2010

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. Transition to Membrane Filtration

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 the transition the P90 standard for approved and restricted classification will migrate from the MPN standard to 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.

Appendix C. Growing Area EM 2009

Station	Date	Strategy	Status	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
EM001.00	2/24/2009	R	O	A		0	31	H	N	<2
	4/14/2009	R	O	A		7	15	F	NW	<2
	6/8/2009	R	O	A		14	30	HF	SW	<2
	7/15/2009	R	O	A	O	16	29	LF	W	<2
	8/26/2009	R	O	A	P	15	30	E	SW	10
	10/20/2009	R	O	A	P	7	28	HF	SW	<2
EM003.00	2/24/2009	R	O	A		0	29	HE	N	<2
	4/14/2009	R	O	A			25	F	NW	<2
	6/8/2009	R	O	A		14	28	HF	SW	5.4
	7/15/2009	R	O	A	O	20	28	F	W	<2
	8/26/2009	R	O	A	P	15	28	E	SW	62
	10/20/2009	R	O	A	P	7	28	HF	SW	2
EM005.00	2/24/2009	R	O	A		0	28	HE	N	<2
	4/14/2009	R	O	A		7	22	F	NW	<2
	6/8/2009	R	O	A		14	30	HF	SW	<2
	7/15/2009	R	O	A	O	16	28	F	NW	<2
	8/26/2009	R	O	A	P	15	26	E	SW	68
	10/20/2009	R	O	A	P	7	30	HF	SW	2
EM006.00	2/24/2009	R	O	A		0	30	HE	N	<2
	4/14/2009	R	O	A		7	22	F	NW	<2
	4/26/2009	A	C	A	F	4	25	HF	N	<2
	4/27/2009	A	C	A	F	7	21	HF	S	<2
	6/8/2009	R	O	A		14	29	HF	SW	<2
	6/23/2009	A	C	A	F	6	25	H	NE	20
	6/24/2009	A	C	A	F	9	24	H	CL	10
	6/25/2009	A	C	A	F	9	23	F	SE	8
	7/15/2009	R	O	A	O	17	25	F	W	2
	8/26/2009	R	O	A	P	16	29	E	SW	6
	9/1/2009	A	C	A	F	13	26	E	NW	22
	9/2/2009	A	C	A	F	13	28	HE	SW	11
	9/7/2009	A	C	A	F	15	27	F	SW	2
	9/8/2009	A	C	A	F	15	27	F	SW	12
	10/20/2009	R	O	A	P	8	30	HF	SW	<2
	10/28/2009	A	C	A	F	4	26	E	NE	15
	10/29/2009	A	C	A	F	5	28	E	NE	<2
	10/30/2009	A	C	A	F	5	28	E	E	<2
EM007.00	3/25/2009	R	O	R		2	28	HF	N	2
	4/15/2009	R	O	R		8	14	F	N	<2
	6/8/2009	R	O	R		14	30	HF	SW	<2

Station	Date	Strategy	Status	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
	7/15/2009	R	O	R	O	18	25	F	NW	<2
	9/15/2009	R	O	R	P	15	30	H	NW	4
	10/20/2009	R	O	R	P	7	28	F	SW	<2
EM010.00	3/25/2009	R	O	A		1	24	HF	N	<2
	4/14/2009	R	O	A		7	0	F	NW	<2
	4/26/2009	A	C	A	F	6	20	H	N	4
	4/27/2009	A	C	A	F	5	24	H	S	2
	6/8/2009	R	O	A		15	18	HF	SW	4
	6/23/2009	A	C	A	F	7	23	H	NE	38
	6/24/2009	A	C	A	F	8	25	H	CL	35
	6/25/2009	A	C	A	F	10	9	F	SE	31
	7/15/2009	R	O	A	O	21	13	F	NW	8
	9/1/2009	A	C	A	F	13	14	E	NW	96
	9/2/2009	A	C	A	F	13	15	HE	SW	66
	9/7/2009	A	C	A	F	15	24	F	SW	2
	9/8/2009	A	C	A	F	15	27	F	SW	6
	9/15/2009	R	O	A	P	15	27	H	NW	13
	10/20/2009	R	O	A	P	6	15	F	SW	13
EM011.00	3/25/2009	R	O	R		1	22	HF	N	2
	4/14/2009	R	O	R		6	0	F	NW	<2
	6/8/2009	R	O	R		14	24	HF	SW	<2
	7/15/2009	R	O	R	O	20	12	F	W	44
	9/15/2009	R	O	R	P	16	30	H	NW	2
	10/20/2009	R	O	R	P	7	20	F	SW	11
EM012.80	2/24/2009	R	O	A		0	30	E	N	<2
	4/14/2009	R	O	A		6	30	F	NW	<2
	6/8/2009	R	O	A		13	29	F	SW	2
	7/15/2009	R	O	A	O	15	29	F	W	10
	8/26/2009	R	O	A	P	15	30	LE	SW	7.3
	10/20/2009	R	O	A	P	6	30	F	SW	<2
EM013.00	3/25/2009	R	O	R		2	26	HF	N	2
	4/14/2009	R	O	R		7	30	F	NW	<2
	6/8/2009	R	O	R		14	14	F	SW	144
	7/15/2009	R	O	R	O	19	22	F	W	66
	9/15/2009	R	O	R	P	15	25	H	NW	44
	10/20/2009	R	O	R	P	6	4	F	SW	42
EM013.50	2/24/2009	R	O	R		-1	30	E	N	<2
	4/14/2009	R	O	R		7	30	F	NW	<2
	6/8/2009	R	O	R		14	30	F	SW	<2
	7/15/2009	R	O	R	O	16	27	F	W	52
	9/15/2009	R	O	R	P	15	22	H	NW	32
	10/20/2009	R	O	R	P	6	32	F	SW	4

Station	Date	Strategy	Status	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
EM014.00	2/24/2009	R	O	A		0	30	E	N	<2
	4/14/2009	R	O	A		6	30	F	NW	<2
	6/8/2009	R	O	A		12	30	F	SW	<2
	7/15/2009	R	O	A	O	17	29	F	W	4
	8/26/2009	R	O	A	P	15	30	LE	SW	<2
	10/20/2009	R	O	A	P	6	32	F	SW	13
EM015.50	3/25/2009	R	C	P		2	30	HF	N	<2
	4/14/2009	R	C	P		4	28	F	NW	<2
	6/8/2009	R	C	P		12	30	F	SW	<2
	7/15/2009	R	C	P	O	16	30	F	W	6
	8/26/2009	R	C	P	P	15	31	LE	SW	<2
	10/20/2009	R	C	P	P	5	32	F	SW	<2