



**GROWING AREA WM
Kennebec River**

ANNUAL REVIEW for 2009

Report Date: August 11, 2010

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APPROVAL

Division Director:

_____ Date: _____
Print name signature



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Figure 1. Growing Area WM, with Upland Boundary



Maine Department of Marine Resources

Growing Area WM - Kennebec River



1/19/10

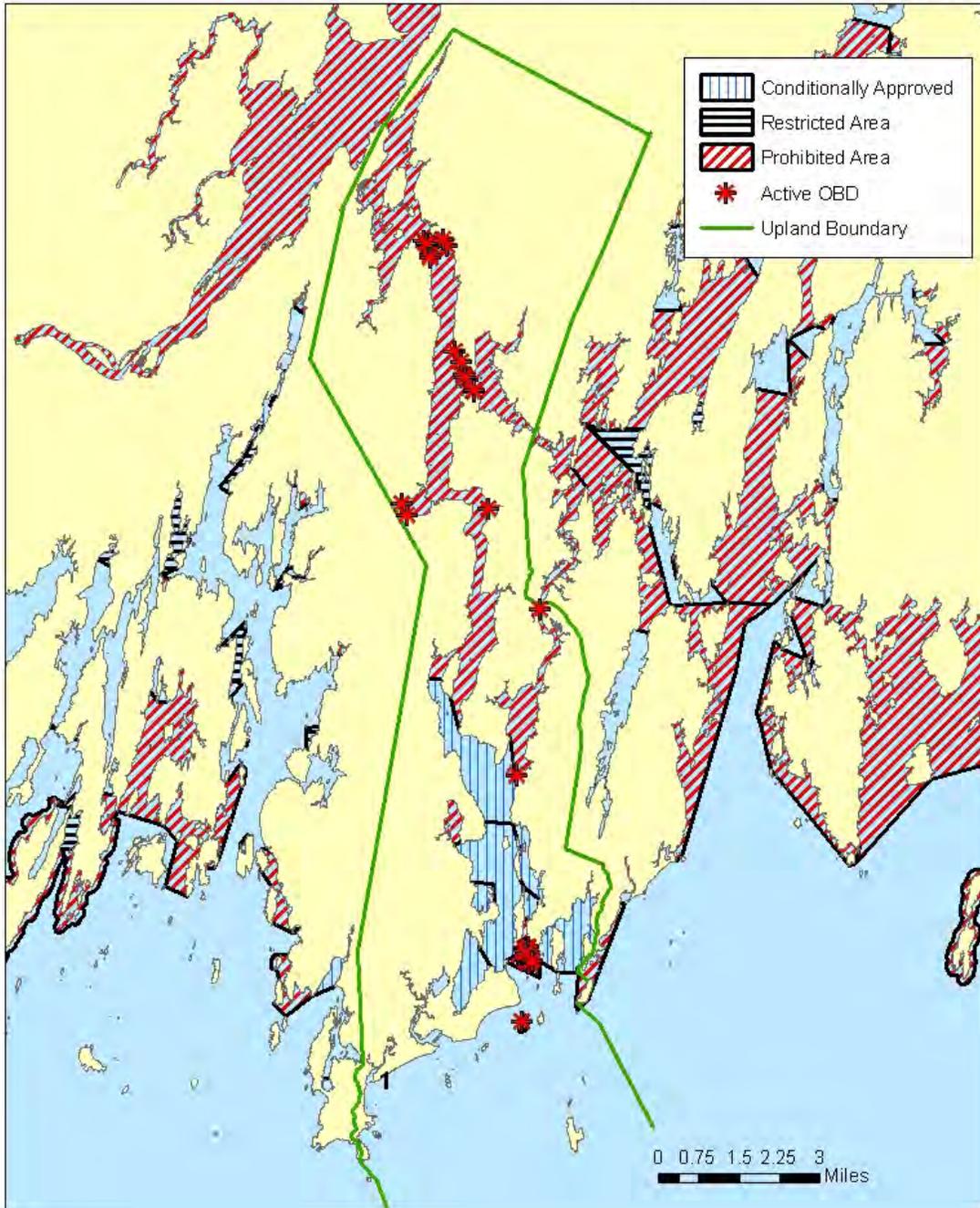


Figure 2. Growing Area WM, with Active Water Stations

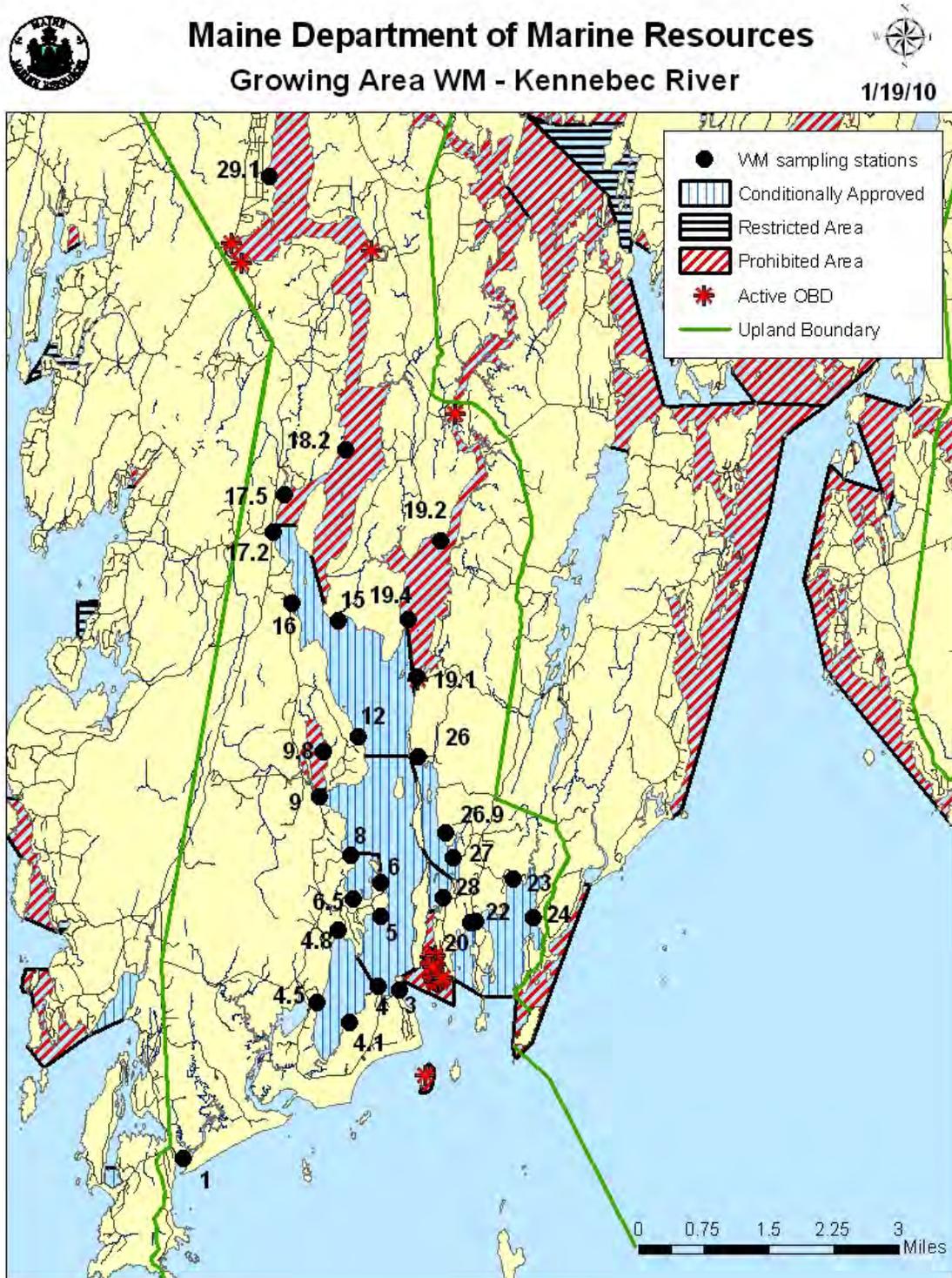
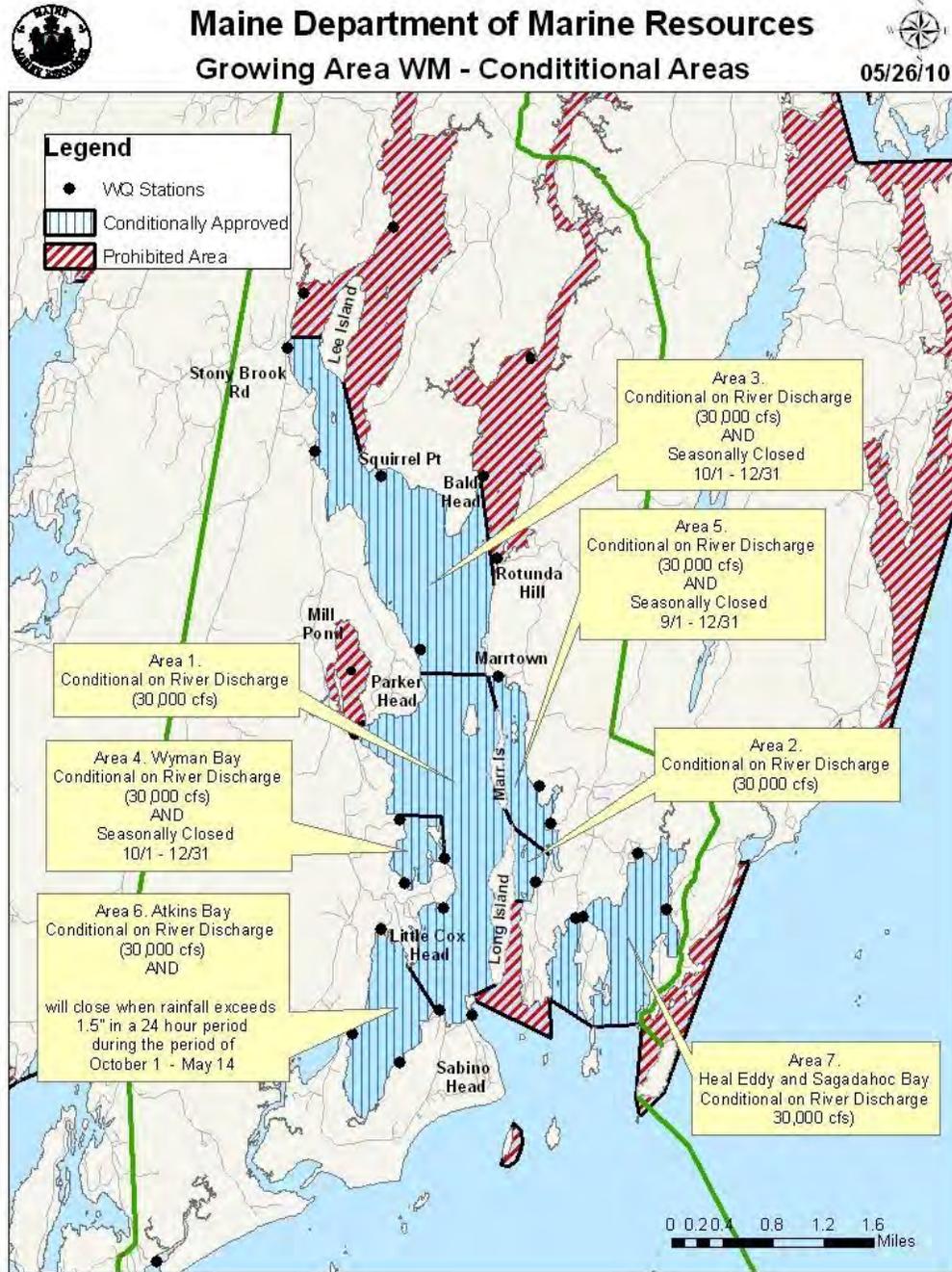


Figure 3. Growing Area WM- Conditional Areas





Executive Summary

This is an annual report for growing area WM written in compliance with the requirements of the 2007 Model Ordinance and the National Shellfish Sanitation Program. The next triennial report is due in 2010; the next sanitary survey report is due in 2011.

During the 2009 review year, no new stations were added to the growing area; one station, WM 19.5 was deactivated. No licensed overboard discharges (OBDs) were removed during the review year. Two known actual pollution sources (straight pipe and septic system malfunction), discharging into Mill Pond, Phippsburg were remediated. As a result of these remediation efforts, Mill Pond is being evaluated for an upward classification change, from prohibited to conditionally approved based on river discharge. Additional data collections are recommended as part of this evaluation, prior to the upward classification taking effect.

During 2009, the majority of the flats in this growing area were reclassified to conditionally approved based on river discharge; currently all areas (not including prohibited areas) located north of Popham Beach are conditional on river discharge and close when river discharge exceeds 30,000 cfs. At the end of the review period, all stations were meeting their NSSP classification standard. As a result of this report, a change to the management plan for Sagadahoc and Heal Eddy is being proposed; based on a water quality and river discharge data review, an increase of the closure trigger for this area is being proposed, from 30,000 cfs to 60,000 cfs.

Growing Area Description

Growing area WM is the lower Kennebec River, and includes that portion of the river which passes through the towns of Phippsburg, Bath, Woolwich, Arrowsic, and Georgetown (Figures 1 and 2). This portion of the river begins at the mouth of Merrymeeting Bay, located between West Chops Pt., North Bath and Chops Pt., Woolwich. The distance from the Chops downstream to the nearest open shellfish growing beds is approximately 12 miles, and 17 miles to the mouth of the river at Popham Beach, Phippsburg.

The Kennebec River is the second largest river in the state of Maine. The Androscoggin River, the third largest river, drains into the Kennebec River, and the two rivers come together in Merrymeeting Bay. Together, these two rivers have a drainage area of 8,600 square miles, which is more than 1/5 of the total state acreage.

There are ten sewage treatment plants (STP) located in the Kennebec River watershed, with some located as far as Waterville on the Kennebec River, and Lewiston on the Androscoggin River. The Bath STP is the only facility located below the "Chops" – the mouth of Merrymeeting Bay, which marks the confluence of the Kennebec and Androscoggin Rivers. This location is approximately seven miles north of the closest shellfish growing beds which are open for shellfish harvesting. The towns adjacent to approved shellfish growing beds in area WM are Phippsburg, Woolwich, Arrowsic, and Georgetown; these towns have no municipal sewage



treatment facilities. All disposal systems located in those towns are private inground systems, licensed overboard discharges, outhouses or composting toilet systems. There are no marinas south of the Bath Bridge. There are only two working piers which provide support to local lobstering and fishing activities. Both of these are located in at the mouth of Atkins Bay and at the mouth of Back River.

Growing area WM is monitored by 30 water quality stations. The flats of this growing area are classified as approved, conditionally approved and prohibited. There are 7 distinct conditionally approved areas (Figure 3). Three of these areas are conditional on river discharge (Areas 1, 2 and 7), three are conditional on river discharge and season (Areas 3, 4, and 5), and one is conditional on river discharge and seasonal rainfall (Area 6).

Current Classification(s)

Shellfish growing Area WM currently has shellfish areas classified as:

Approved (2 stations: WM 1 and 3)

Conditionally Approved (19 stations):

Lower Kennebec River Conditional Area; Phippsburg and Georgetown (2 stations: WM 5 and 28)- conditional on river discharge

Sagadahoc Bay and Heal Eddy Conditional Areas; Georgetown (4 Stations: WM 20, 22, 23 and 24)- conditional on river discharge

Squirrel Point-Parker Head Flats Conditional Area; Phippsburg, Arrowsic and West Georgetown (3 stations: WM 12, 15, and 16)- conditional on river discharge and season

Cox Head Conditional Area, Phippsburg (3 stations: WM 6, 6.5 and 8)- conditional on river discharge and season

Todd Bay Conditional Area, Georgetown (3 stations: WM 26, 26.9 and 27)- conditional on river discharge and season

Atkins Bay Conditional Area, Phippsburg (4 stations: WM 4, 4.1, 4.5, and 4.8)- conditional on seasonal rainfall and river discharge

Prohibited (9 stations)

Kennebec River, Georgetown, Woolwich, Phippsburg, Arrowsic and West Georgetown (8 stations: WM 17.2 (boundary with CA area), 17.5, 18.2, 19.1, 19.2, 19.4, and 29.1)- prohibited due to non-point source pollution

20A.2. Mill Pond, Phippsburg (2 stations: WM 9 (boundary with CA) and 9.8)

20A.3. Lower Kennebec River, Georgetown and Phippsburg (no stations, closed due to the presence of OBDs)

20A.4. Wood Island (no stations, closed due to presence of OBD)

Please visit the Maine DMR website to view DMR Regulation 95.07F, Closed Area No. 20, Kennebec River and Tributaries:

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



Activity during Review Period

The following classification changes and conditional area status changes occurred in 2009:

January 6, 2009: amendment reopened the rainfall conditional area in Atkins Bay, Phippsburg for the harvest of shellfish due to water quality returning to the approved standard.

April 29, 2009: amendment reclassified approved and conditionally approved areas in the Kennebec River, included Atkins Bay (Phippsburg), Heal Eddy and Sagadahoc Bay (Georgetown), to conditionally approved based on river discharge, and all areas shall close when river discharge meets or exceeds 30,000 cubic feet per second (cfs). All seasonal and rainfall conditional areas remain in effect.

May 12, 2009: amendment reopened the rainfall and river discharge conditional areas in the Kennebec River due to water quality returning to approved standards.

June 22, 2009: amendment closed the river discharge conditional areas in the Kennebec River, Heal Eddy and Sagadahoc Bay, due to river discharge exceeding 30,000 cfs.

August 19, 2009: amendment re-opened the river discharge conditionally approved areas in the Kennebec River, due to water quality returning to the approved standard. This amendment also expanded the prohibited area at Mill Pond, due to the presence of a wastewater discharge source to the river.

October 10, 2009: amendment closed the Atkins Bay rainfall conditional area, due to rainfall exceeding 1.5 inches in 24 hours. Area was under a flood closure since October 4, 2009.

October 19, 2009: amendment opened the Atkins Bay rainfall conditionally approved area (Phippsburg), due to water quality returning to the approved standard.

October 26, 2009: amendment closed the river discharge conditional areas in the Kennebec River, due to river discharge exceeding 30,000 cfs.

November 9, 2009: amendment re-opened the river discharge conditionally approved areas in the Kennebec River, with exception of Atkins Bay. Atkins Bay remained closed due to water quality not meeting the approved standard.

November 10, 2009: amendment re-opened Atkins Bay conditional area, due to water quality returning to the approved standard.

November 16, 2009: amendment closed the river discharge and rainfall conditional areas in the Kennebec River, due to river discharge exceeding 30,000 cfs, and rainfall exceeding 1.5 inches in 24 hours.

December 18, 2009: amendment re-opened the river discharge conditional areas in the Kennebec River due to water quality returning to the approved standard. Atkins Bay remained closed due to water quality exceeding the approved standard.



December 22, 2009: amendment re-opened Atkins Bay conditional area, due to water quality returning to the approved standard.

Current Management Plan(s) for Conditional Area(s)

There currently are six conditionally managed areas in Growing Area WM:

- 1) Atkins Bay, Phippsburg; (closes on ≥ 1.5 "/24 hours from 10/1-5/14 AND when river discharge exceeds 30,000 cfs), Stations WM 4.0, 4.1, 4.5, and 4.8.
- 2) Squirrel Point-Parker Head Flats, Lower Kennebec River (closes 10/1-12/31 AND when river discharge exceeds 30,000 cfs), stations WM 12, 15 and 16.
- 3) Cox Head-Wyman Bay, Lower Kennebec River (closes 10/1-12/31 AND when river discharge exceeds 30,000 cfs), stations WM 6, 6.5 and 8.
- 4) Todd Bay, Georgetown (closes 9/1 – 12/31 AND when river discharge exceeds 30,000 cfs), stations WM 26, 26.9 and 27.
- 5) Sagadahoc Bay and Heal Eddy, Georgetown (closes when river discharge exceeds 30,000 cfs), 4 Stations: WM 20, 22, 23 and 24)
- 6) Lower Kennebec River, Phippsburg and Georgetown (closes when river discharge exceeds 30,000 cfs), 2 stations: WM 5 and 28

Growing area WM has a total of four management plans: 1) River Discharge Conditional Management Plan (applies to all of the conditional areas listed above); 2) Seasonal Rainfall Conditional Management Plan (applies to Atkins Bay area only); 3) Seasonal Conditional Management Plan with open status from 1/1 to 9/30 (applies to Squirrel Point-Parker Head Flats and Cox Head-Wyman Bay flats); and 4) Seasonal Conditional Management Plan with open status from 1/1 to 8/31 (applies to Todd Bay area only). Management plans for all conditional areas in this growing area can be found in DMR's central files.

Current Annual Review of Management Plan(s)

River Discharge Conditional Management Plan

The river discharge conditional management plan is new as of April 29, 2009. Under this management plan, all shellfish areas (other than those classified as prohibited) located in the Kennebec River, north of Fort Popham, close when river discharge exceeds 30,000 cfs. During the current review year, there were 4 closures under this management plan.

Atkins Bay Seasonal Rainfall Conditional Management Plan

Under this management plan, the flats in Atkins Bay close upon rainfall of ≥ 1.5 "/24 hours, during the period from 10/1-5/14. In 2009, there were five closures due to rainfall, as defined by this management plan. Four of these closures coincided with closures due to exceedences of river discharge, as defined by the River Discharge Conditional Management Plan.



Lower Kennebec Seasonal Management Plan

Under this management plan, shellfish harvesting areas at Squirrel Point-Parker Head Flats and at Cox Head-Wyman Bay are seasonally closed from October 1 to December 31. Prior to each years re-opening, a data analysis is completed for all stations in this conditional area, to confirm that the areas are meeting the approved standard in the open status. During the 2009 review year, these seasonal conditional areas opened as scheduled.

Todd Bay Seasonal Management Plan

Under this management plan, Todd Bay shellfish harvesting areas are seasonally closed from September 1 to December 31. Prior to each years re-opening, a data analysis is completed for all stations in this conditional area, to confirm that the areas are meeting the approved standard in the open status. During the 2009 review year, this seasonal conditional area opened as scheduled.

The complete reviews of the management plans for each of the conditional areas in shellfish growing area WM are located in Appendices A through D.

Water Quality Review and Discussion

Table 1 lists all active approved and prohibited stations in Growing Area WM, with their respective Geomean and P90 calculations for 2009. Please refer to Appendix D 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 samples 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 MFCNT column. This fluctuating standard will cease when all 30 data points have been analyzed by the MF method. At the end of the 2009 review year, the two approved stations in growing area WM met the approved standard.

Table 1. Growing Area WM Fecal Coliform Report

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std	Min_Date
WM001.00	A	30	21	4.5	0.48	240	18.5	35	195	5/10/2005
WM003.00	A	30	25	4.4	0.52	125	20.5	33	180	9/8/2005
WM009.00**	P-boundary with CA	30	25	8.4	0.52	142	39.7	33	180	9/8/2005
WM009.80	P	30	24	10.3	0.54	116	50.9	33	184	8/23/2005
WM017.20	P	30	25	10.1	0.5	140	44.6	33	180	9/8/2005
WM017.50	P	30	24	13.4	0.6	180	79	33	184	8/23/2005
WM018.20	P	30	6	10.6	0.54	240	53.4	44	265	5/8/2002
WM019.10	P-boundary with CA	30	22	9.5	0.59	360	55.7	35	191	6/26/2005
WM019.20	P	30	29	8	0.59	160	46.1	31	166	7/17/2006
WM019.40	P	30	30	8.2	0.57	124	44.7	31	163	8/23/2006



Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std	Min_Date
WM029.10	P	30	23	14.2	0.6	240	83.8	34	187	8/22/2005

** in 2010, it was noted that the classification assigned to station WM 9 (considered P-CA boundary station) was incorrect. This station is located within the CA, not P area, and therefore should be correctly classified as Conditionally Approved, not Prohibited. The station classification was corrected and updated in the DMR database.

Table 2 lists all conditionally approved stations in growing area WM that are conditional on river discharge, with their respective Geomean and P90 calculations for 2009. Data for conditionally approved stations reflects only the open status. All of the stations met the approved standard during open status in 2009.

Table 2. Kennebec River Conditionally Approved Stations, River Discharge <30,000; Open Status Data

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM004.00	CA-boundary with rainfall CA	30	16	4.0	0.40	43	13.0	38
WM005.00	CA	30	13	3.8	0.35	43	10.7	40
WM008.00	CA	30	12	4.9	0.36	23	14.1	41
WM009.00	P-boundary	30	13	7.0	0.42	43	23.7	40
WM020.00	CA	30	16	3.9	0.38	23	11.9	38
WM022.00	CA	30	16	3.9	0.43	43	13.9	38
WM023.00	CA	30	16	4.3	0.50	93	19	38
WM024.00	CA	30	16	4.5	0.53	460	21.5	38
WM026.00	CA	30	16	5.1	0.50	93	22.3	38
WM028.00	CA	30	15	4.6	0.46	96	17.7	39

Table 3 lists all conditionally approved stations in Atkins Bay river discharge and seasonal/rainfall conditional area with their respective Geomean and P90 calculations for 2009. Data for conditionally approved stations reflects only the open status (based on river discharge and rainfall). All of the stations met the approved standard during open status in 2009.

Table 3. Atkins Bay Conditionally Approved Stations, River Discharge <30,000 cfs AND Seasonal Rainfall >1.5 inches in 24 hours, Open Status Data

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM004.00	CA	30	14	4.2	0.9	43	13.2	40
WM004.10	CA	30	13	4.5	0.40	43	14.9	40
WM004.50	CA	30	13	4.0	0.33	25	10.6	40
WM004.80	CA	30	14	4.2	0.42	75	14.6	40

Table 4 lists all conditionally approved stations in the river discharge and seasonal conditional area in Cox Head/Wyman Bay and Squirrel Point/Parker Head, with their respective Geomean and P90 calculations for 2009. Data for conditionally approved stations reflects only the open status (river discharge and season). All stations in this conditional area met the approved standard during open status in 2009.



Table 4. Cox Head and Squirrel Point/Parker Head Conditionally Approved Stations and Boundary Stations, River Discharge <30,000 cfs AND Seasonal Open Status 01/01-09/30, 2003-2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM006.00	CA	30	13	5.1	0.38	43	15.5	40
WM006.50	New	13	12	3.2	0.33	14	8.5	32
WM008.00	CA	30	11	4.5	0.30	16	10.7	41
WM012.00	CA	30	15	4.8	0.36	93	14.1	39
WM015.00	CA	30	15	4.8	0.46	43	19	39
WM016.00	CA	30	15	5.8	0.41	46	19.8	39
WM017.20	P-boundary	30	11	6.5	0.36	93	18.5	41
WM019.10	P-boundary	30	12	7.8	0.48	93	32.6	41
WM019.40	P-boundary	30	14	5.6	0.35	43	16.1	40

Table 5 lists all conditionally approved stations in the river discharge and seasonal conditional area in Todd Bay, with their respective Geomean and P90 calculations for 2009. Data for conditionally approved stations reflects only the open status (based on river discharge and season). All stations in this conditional area met the approved standard during open status in 2009.

Table 5. Todd Bay River Conditionally Approved Stations, River Discharge <30,000 and Seasonal Open Status 01/01-08/31, 2002-2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM026.00	CA	30	10	5.5	0.47	93	22.2	42
WM026.90	CA	26	10	4.5	0.44	93	16.8	41
WM027.00	CA	25	10	4.6	0.35	23	13.1	41

In 2009, all approved and prohibited stations were sampled at least six times, following the systematic random sample strategy (SRS) (Table 6). Atkins Bay conditionally approved stations (WM 4, 4.1, 4.5 and 4.8) had 9 SRS samples, with 7 in the open status; conditionally approved station WM 5 was sampled 8 times (SRS), with 6 times in the open status. Wyman Bay conditionally approved stations WM 6, 6.5, and 8 were sampled a total of 9 times (SRS), with 7 in the open status. Conditionally approved stations in the upper Kennebec River (WM 12, 15 and 16) were sampled a total of 9 times (SRS), with 7 times in the open status. Conditionally approved stations in Heal Eddy and Sagadahoc Bay (WM 20, 22, 23, and 24) were sampled 7 times (SRS), with 6 in the open status. Conditionally approved stations in Todd Bay (WM 26, 26.9 and 27) were sampled a total of eight times, with 5 times in the open status; this area was open for less than 6 months in 2009 (172 days). Many of the sampling stations were sampled additional times, under Adverse conditions; the scores served either as reopening samples after flood closures / conditional area closures, or were collected in order to supplement the database with additional scores during rainfall/high river flow conditions.

Table 6. Sampling Effort, 2009

Station	Class	Adverse		Extra		Random		Total	Comments
		Closed	Open	Closed	Open	Closed	Open		
WM001.00	A					1	6	7	



Station	Class	Adverse		Extra		Random		Total	Comments
		Closed	Open	Closed	Open	Closed	Open		
WM003.00	A	30	3		1	1	7	42	Flood Station
WM004.00	CA	15	1			2	7	25	
WM004.10	CA	15	1			2	7	25	
WM004.50	CA	19	1			2	7	29	
WM004.80	CA	19	1			2	7	29	
WM005.00	A		1			1	1	17	Reclassified from A to CA on 4/29/09
	CA	8				1	5		
WM006.00	CA	2	1			2	7	12	
WM006.50	CA	2	1			2	7	12	
WM008.00	CA	5	1			2	7	15	
WM009.00	P	4		1		8		13	
WM009.80	P	1		1		8		10	
WM012.00	CA	2	1			2	7	12	
WM015.00	CA	4	1			2	7	14	
WM016.00	CA	2	1			2	7	12	
WM017.20	P	4		1		9		14	
WM017.50	P	1		1		8		10	
WM018.20	P	1		1		8		10	
WM019.10	P					8		8	
WM019.20	P	1		1		8		10	
WM019.40	P	4		1		9		14	
WM019.50	P					7		7	Deactivated September 2009
WM020.00	A	2				1	1	25	Reclassified from A to CA on 4/29/09
	CA	16					5		
WM022.00	A	2				1	1	21	Reclassified from A to CA on 4/29/09
	CA	12					5		
WM023.00	A	2				1	1	22	Reclassified from A to CA on 4/29/09
	CA	13					5		
WM024.00	A	2				1	1	22	Reclassified from A to CA on 4/29/09
	CA	13					5		
WM026.00	CA	11				3	5	19	
WM026.90	CA	4				3	5	12	
WM027.00	CA	8				3	5	16	
WM028.00	A					1	1	16	Reclassified from A to CA on 4/29/09
	CA	9					5		
WM029.10	P			1		7		8	

Figure 4 shows the P90 scores, expressed as a percent of the approved standard, for the two approved stations in growing area WM. Station WM 1 has shown steady water quality over the past three review years; station WM 3 showed an increase in scores in 2008, and a decline in scores over the 2009 review year. The upward trend in 2008 for this station is most likely attributed to a wet summer, with samples being collected after significant rainfall. Figure 4 shows the P90 trends for conditionally approved stations and boundary stations; data reflects



the open status only (based on river discharge, season and rainfall, as appropriate). All stations currently classified as conditionally approved are managed under the river discharge management plan; this plan was developed using data through 2008, and implemented in the spring of 2009. Therefore, only two years of data are presented in Figure 4. For most conditionally approved stations, there was little change (less than 10 percent) in P90 scores over the past two review years. Station WM 12, 15 and boundary station WM 19.4 showed a decline in scores, indicating improving water quality; the cause of such an improvement is undetermined. Station WM 19.1 and WM 24 showed an increase in scores over the past review year. In 2009, station WM 19.1 (a prohibited stations, serving as a boundary station for the Upper Kennebec River Conditionally approved area) received one score surpassing the geometric mean standard (score of 18 FC /100 ml on June 14, 2009); no new domestic pollution sources were identified in the vicinity of this station during the most recent sanitary survey. However, there is a licensed OBD located in the prohibited area, in the vicinity of this station. The prohibited area surrounding this OBD was confirmed with a dilution calculation, and is of adequate size. The immediate landscape around station WM 19.1 is comprised of a marsh, and it is possible that elevated fecal scores are from wildlife. Station WM 24 had one score surpassing the geometric mean standard (20 FC/ 100 ML on September 20, 2009); this station is not located near any identified pollution sources. Overall, none of the conditionally approved stations in growing area WM are within 10 percent of the approved standard limit when managed on their respective conditional criteria, and no station indicates a threat of being downgraded in classification over the next review year.

Figure 4. P90 Scores (as percent of approved standard) for WM Approved Stations

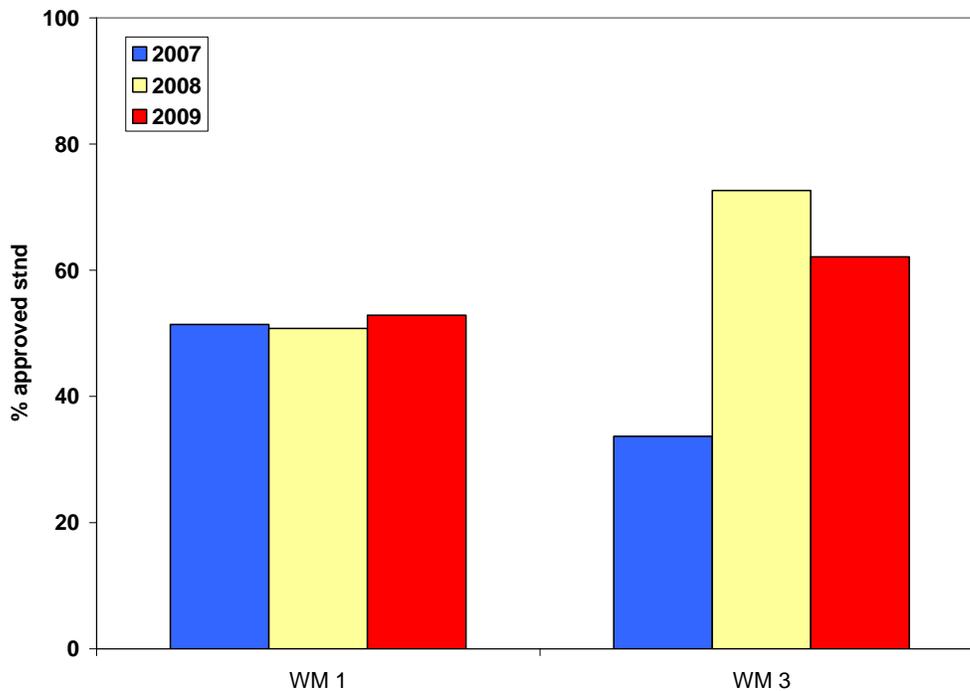
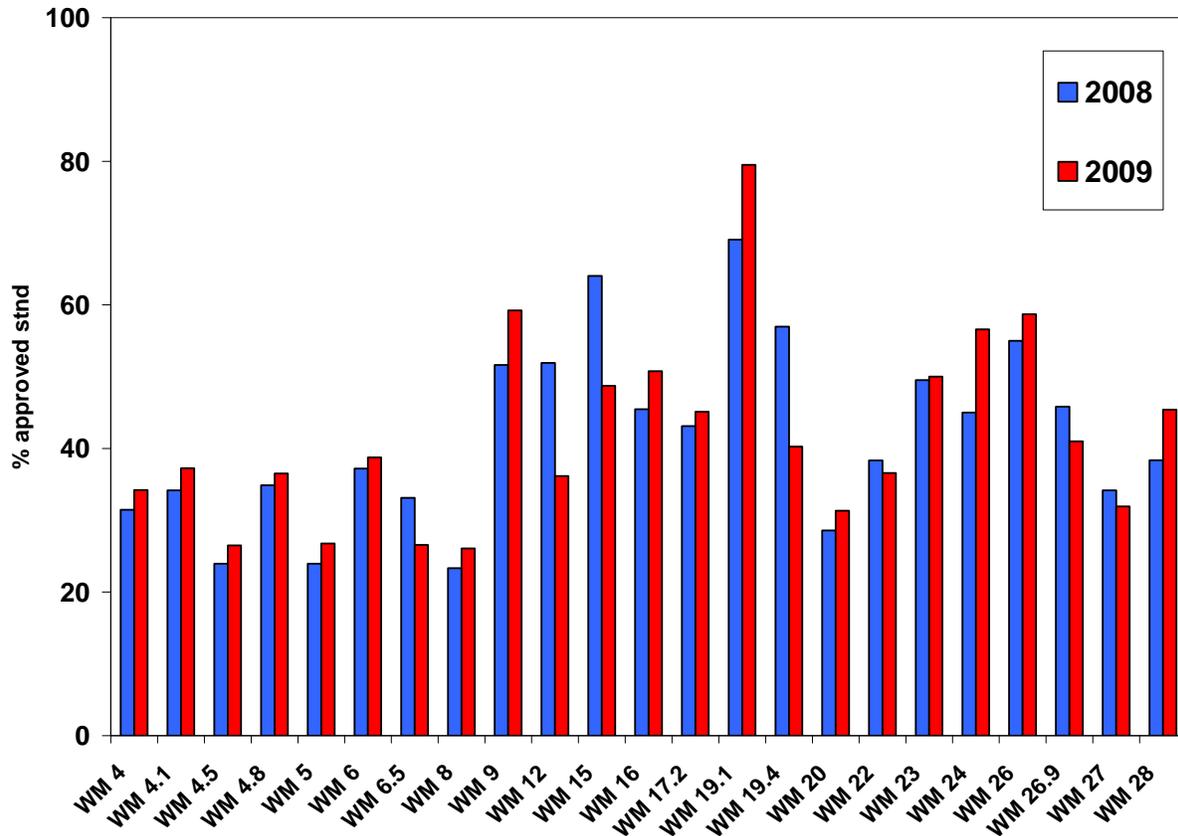




Figure 5. P90 Trends for Conditionally Approved Stations, Open Status Data



Recommendations for Classification Changes

Note: the river discharge management plan is a new management plan, implemented in April 2009. Therefore, open and closed status, based on river flow, is not indicated for samples collected prior to April 2009. For the following recommendations, data queries to obtain datapoints that would fall under the "Open" status were defined as follows: no violation of the river discharge closure trigger on the date of sample collection or within the week prior to sample collection. Under the current management plan, once the area violates the conditions of its open status by surpassing a predetermined discharge rate, it is closed for a minimum of two weeks; prior to re-opening for harvesting, the discharge rate is required to return to pre-violation conditions and water samples are collected to confirm that water quality has returned to the approved standard. Water quality is expected to return to background, pre-violation levels by the start of the second week after the end of the management plan violation, to assure sufficient time for shellfish cleansing. Therefore, in completing the following assessment, data collected within a week of the proposed river discharge rate violation trigger (60,000 cfs for Sagadahoc Bay/Heal Eddy, and 30,000 cfs for Mill Pond), were considered "closed" status data, and were not considered in classification calculations.



Sagadahoc Bay and Heal Eddy

At the end of 2008, three of the four approved water quality monitoring stations located in Heal Eddy and Sagadahoc Bay failed to meet the approved standard. Fecal scores at all WM stations (excluding those classified as prohibited) were compared to river daily average discharge rates, as reported by the U.S. Geological Survey (USGS) river gauges, for the Androscoggin River (Auburn gauge) and the Kennebec River (North Sydney gauge). A relationship was established between river discharge and fecal scores. On April 29, 2009, the entire Kennebec River, north of Fort Popham, and including the flats on Heal Eddy and Sagadahoc Bay were downgraded in classification from approved and conditionally approved based on season, to conditionally approved based on river discharge. A single closure trigger of 30,000 cubic feet per second (cfs) was set for the entire growing area. A recommendation was made to further assess individual shellfish harvesting areas within growing area WM, to determine if certain areas located in the lower portion of the Kennebec River watershed were less affected by fresh water inputs from the Kennebec and Androscoggin rivers, and whether the closure trigger could be increased for such areas.

In 2009, additional data were collected among the multiple stations in the Kennebec River; some of the additional data collected aimed to provide more data points when the river was in closed status, in order to investigate whether certain portions of the growing area were less sensitive to fecal pollution associated with river discharge, and could be managed under a separate conditional management plan, with a higher closure trigger. In the current proposal presented in this section of the report, data collected in Heal Eddy and Sagadahoc Bay showed that these two areas, located at the mouth of the Kennebec River, are less affected by fresh water draining the Kennebec River watershed. The management plan that controls the opening and closing of these two areas is being proposed for a change, with the closure trigger being increased from 30,000 cfs to 60,000 cfs.

Additionally, in 2009 the codes enforcement officer for the town of Georgetown, along with the municipal shellfish warden, inspected all properties along the shoreline of Sagadahoc Bay and Heal Eddy to confirm that no existing actual pollution sources were present on the shoreline of these two areas. No actual problems were noted during this inspection. The area was previously surveyed by DMR staff and the municipal shellfish warden in 2007.

Table 7 shows the current geometric means and P90 scores for Heal Eddy and Sagadahoc Bay, under the current river discharge management plan (areas close at 30,000 cfs). All four stations meet the approved standard in the open status.

Table 7. Heal Eddy and Sagadahoc Bay, Data Collected at <30,000 cfs

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM020.00	CA	30	16	3.9	0.38	23	11.9	38
WM022.00	CA	30	16	3.9	0.43	43	13.9	38
WM023.00	CA	30	16	4.3	0.50	93	19	38
WM024.00	CA	30	16	4.5	0.53	460	21.5	38



Tables 8 through 11 show individual fecal coliform scores at the four water quality monitoring stations located in Heal Eddy and Sagadahoc Bay, collected between 2002 and 2009. All SRS, Extra and Adverse strategy data, including data collected during flood closures is presented (indicated by F in Adversity column in each table). Rainfall (in inches, cumulative within 4 days of collection) and river discharge (Q) (in cfs, within three days of collection) are also presented in these tables. The final column indicates whether the river would have been in the closed status, based on this proposed Management plan. Cumulative rainfall over 0.5 inches is highlighted in green; fecal scores surpassing the variability standards (49 for A1 method and 31 for MF method) are highlighted in yellow in each table. Considering **all** data collected at these four stations between 2002 and 2009, the frequency of elevated scores (those surpassing the variability standard) was as follows:

Station WM 20: a total of 84 samples were collected, with a total of 9 elevated scores. Of the nine elevated scores, three were collected during an emergency flood closure. Of the remaining six elevated scores, three were collected during the proposed "Closed Status" based on river discharge trigger of 60,000 cfs or more. The remaining three elevated scores were as follows: a 240 FC/100 ML, collected in June 2002, following 1.01 inches of cumulative rainfall, and two marginally elevated scores of 33 FC/ 100 ML and 36 FC/100 ML, collected on December 2009 and November 2007, respectively. The December 2009 sample was collected following 1.28 inches of cumulative rainfall, while the November 2007 sample had only 0.1 inches of cumulative rainfall associated with the day of collection.

Omitting the samples collected while the river was under an emergency flood closure due to extreme coastal rainfall, there were a total of 26 samples collected after 0.5 inches or more of cumulative rainfall; a total of 16 samples were collected after 1.0 inches or more of cumulative rainfall. There were five elevated scores associated with rainfall of at least 0.5 inches; three of these scores occurred when river discharge met or exceeded the proposed closure trigger of 60,000 cfs. The two remaining elevated scores that would have occurred in the open status were collected in June 2002 (240 FC/100 ML) and December 2009 (33 FC/100 ML). The remainder of the scores collected after rainfall showed scores below the variability standard.

Station WM 22: a total of 75 samples were collected between 2002 and 2009, with a total of four elevated scores (those exceeding the variability standard). Of these four elevated scores, two were collected during an emergency coastal flood closure. Of the remaining two elevated scores, one was collected during the proposed "Closed" Status, based on river discharge trigger of 60,000 cfs. The one remaining elevated score occurred in November 2002, after 1.37 inches of cumulative rainfall.

Omitting the samples collected while the river was under an emergency flood closure due to extreme coastal rainfall, there were a total of 26 samples collected after 0.5 inches or more of cumulative rainfall; a total of 18 samples were collected after 1.0 inches or more of cumulative rainfall. There were two elevated scores associated with rainfall of at least 0.5 inches; one of these scores occurred when river discharge met or exceeded the proposed closure trigger of 60,000 cfs. The remaining elevated score that would have occurred in the open status was collected in November 2002 (93 FC/100 ML). The remainder of the scores collected after rainfall showed scores below the variability standard.



Station WM 23: a total of 76 samples were collected between 2002 and 2009, with a total of six elevated scores (those exceeding the variability standard). Of these six elevated scores, one was collected during an emergency coastal flood closure. Of the remaining five elevated scores, one was collected during the proposed "Closed" Status, based on river discharge trigger of 60,000 cfs. The four remaining elevated score occurred on the following dates: July 2005 (93 FC/100 ML following 0.02 inches of cumulative rainfall within 4 days of collection); August 21, 2005 (93 FC/100 ML following 0.02 inches of cumulative rainfall within 4 days of collection); November 25, 2007 (44 FC/100 ML following 0.1 inches of cumulative rainfall within 4 days of collection); and July 19, 2009 (36 FC/100 ML following 0.79 inches of cumulative rainfall).

Omitting the samples collected while the river was under an emergency flood closure due to extreme coastal rainfall, there were a total of 26 samples collected after 0.5 inches or more of cumulative rainfall; a total of 18 samples were collected after 1.0 inches or more of cumulative rainfall. There were two elevated scores associated with rainfall of at least 0.5 inches; one of these scores occurred when river discharge met or exceeded the proposed closure trigger of 60,000 cfs. The remaining elevated score that would have occurred in the open status was collected in July 2009 (36 FC/100 ML). The remainder of the scores collected after rainfall showed scores below the variability standard.

Station WM 24: a total of 75 samples were collected between 2002 and 2009, with a total of eight elevated scores (those exceeding the variability standard). Of these eight elevated scores, two were collected during an emergency coastal flood closure. Of the remaining six elevated scores, two were collected during the proposed "Closed" Status, based on river discharge trigger of 60,000 cfs. The four remaining elevated scores occurred on the following dates: September 18, 2005 (460 FC/100 ML following 1.76 inches of cumulative rainfall within 4 days of collection); November 25, 2007 (42 FC/100 ML, following 0.1 inches of cumulative rainfall); July 19, 2009 (44 FC/100 ML following 0.63 inches of cumulative rainfall); and July 22, 2009 (33 FC/100 ML following 0.79 inches of cumulative rainfall).

Omitting the samples collected while the river was under an emergency flood closure due to extreme coastal rainfall, there were a total of 24 samples collected after 0.5 inches or more of cumulative rainfall; a total of 17 samples were collected after 1.0 inches or more of cumulative rainfall. There were five elevated scores associated with rainfall of at least 0.5 inches; two of these scores occurred when river discharge met or exceeded the proposed closure trigger of 60,000 cfs. The remaining three elevated scores that would have occurred in the open status were collected on September 18, 2005 (460 FC/100 ML), July 19, 2009 (42 FC/100 ML), and July 22, 2009 (33 FC/100 ML). The remainder of the scores collected after rainfall showed scores below the variability standard. A further rainfall assessment for this station is presented at a later section of this report.



Table 8. Heal Eddy, Station WM 20, River Discharge Assessment (Q1= discharge (cfs) on day of sample collection; Q2= discharge 1 day prior sample collection; Q3= discharge 2 days prior sample collection)

Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q1	Q2	Q3	Flood Closure	Falling into Closed Status
11-Aug-02	HF	23	R	X	0	3.6	4270	5490	6460		
12-Aug-01	F	26	R	X	0	3.6	4570	4470	6890		
29-Jul-07	F	25	R	X	0.04	6	4680	4430	5700		
22-Sep-02	HF	26	R	X	0	9.1	4890	5200	5350		
23-Feb-03	HF	30	R	X	1.28	<3	4940	4690	4720		
21-Aug-05	F	30	R	X	0.02	9.1	5030	4400	4850		
09-Sep-01	HE	28	R	X	0	<3	5340	5580	5470		
13-Jun-04	H	25	R	X	0.02	<3	5490	5650	6530		
20-Sep-09	H	26	R	X	0	2	5780	5920	5790		
08-Jul-01	HF	24	R	X	0	9.1	6290	6940	8470		
21-Jul-02	F	24	R	X	0.34	<3	6640	7260	7720		
06-Jul-03	F	26	R	X	0.26	<3	6650	6660	6800		
18-Sep-05	F	30	R	X	1.76	9.1	6750	6940	6710		
16-Sep-07	F	24	R	X	0.26	<2	7260	7140	7160		
18-Jul-04	HF	25	R	X	0.07	<3	7280	5710	6370		
17-Nov-02	H	30	R	P	1.37	9.1	7540	8370	7760		
21-Jul-05	HF	26	R	N	0.02	23	7810	7960	8170		
14-Nov-04	F	30	R	X	0.11	23	8060	7900	8150		
06-Sep-06	F	25	R	X	1.17	2	8310	9770	8630		
17-Aug-03	F	30	R	X	0.2	9.1	8340	8130	8890		
18-Oct-09	H	26	R	X	0	20	8540	7320	7260		
28-Sep-03	F	24	R	P	1.38	11	8570	9560	10470		
26-Sep-04	HE	28	R	X	0	3.6	9050	9360	10680		
13-Oct-09	HE	24	A	FW	0.59	2	9250	10360	10270	Yes	
07-Oct-09	H	24	A	FP	2.73	70	9740	10470	10820	Yes	
24-Oct-04	H	21	R	X	0	9.1	9850	9730	8140		



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q1	Q2	Q3	Flood Closure	Falling into Closed Status
21-Mar-04	E	30	R	T	0.7	<3	9880	10490	11200		
13-Oct-08	F	30	R	X	0	<2	10350	9940	10410		
20-May-01	HF	24	R	X	0	3.6	10740	7610	8120		
02-May-04	E	20	R	X	0	<3	11200	14370	16000		
26-May-09	F	20	R	X	0.09	<2	11210	10470	9410		
08-Oct-09	HE	28	A	F	0.92	6	11360	9740	10470	Yes	
22-Mar-06	LE	28	R	X	0	<3	12030	13160	14730		
22-Feb-04	HE	30	R	W	1.12	<3	12070	12220	12200		
18-May-03	F	22	R	X	0	<3	12490	11750	14700		
31-Aug-09	HF	20	R	P	1.83	<2	12620	11880	13650		
22-Aug-04	F	20	R	P	1.61	9.1	12790	13110	12990		
03-Jun-07	HF	23	R	X	0.19	<2	12840	11670	11510		
18-Dec-06	HE	24	R	N	0.01	2	13660	14880	16680		
12-May-02	H	20	R	X	0.63	<3	14120	15530	15750		
08-Apr-01	H	19	R	X	0	9.1	14320	11750	10850		
12-Aug-09	F	20	A	P	0.08	<2	14400	13250	15620		
26-Jun-05	F	30	R	X	0	9.1	14440	15820	19460		
09-Dec-07	F	28	R	X	0.15	<2	14860	14820	15820		
23-Mar-03	F	22	R	X	1.15	<3	15580	11070	8780		
22-Jul-09	E	22	A	X	0.63	9.1	15690	16200	18130		
19-Jul-09	F	25	A	X	0.79	14	16320	15760	17060		
08-Jun-03	F	30	R	X	0.48	<3	17020	16530	13620		
25-Jun-06	F	24	R	X	0.76	3.6	17380	17410	18580		
26-Feb-08	HF	18	R	X	0.34	2	17490	17940	18990		
06-May-09	HF	20	A	P	0.44	<2	17820	18770	19510		
14-Jun-09	F	28	R	P	3.00	<2	18170	19710	11340		
15-Jun-08	HF	18	R	P	0.23	<2	18190	19680	21250		
22-May-05	HF	20	R	P	0.92	3.6	18230	18550	18790		
13-Dec-09	HE	18	A	X	0	3.4	18380	19460	20930		
02-Nov-08	HF	30	R	X	0	<2	18470	21230	24000		



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q1	Q2	Q3	Flood Closure	Falling into Closed Status
29-Jul-09	H	18	A	F	0.19	16	18530	19120	22300	Yes	
15-Oct-06	HE	20	R	X	1.85	12	19080	22280	32000		
28-Jul-09	H	16	A	F	0.18	7.3	19120	22300	23100	Yes	
26-Oct-03	H	15	R	P	0.23	23	19370	20300	25110		
18-Mar-07	F	20	R	P	3.36	24	21310	21860	19500		
15-Mar-09	F	26	R	X	0	<2	21606	25349	27123		
27-Oct-09	HE	21	A	X	1.36	6	21700	37300	32900		
30-Jul-09	H	18	A	FP	0.21	29	22360	18530	19120	Yes	
25-Nov-07	F	15	R	X	0.1	36	22370	26400	25210		
03-Jun-01	HF	22	R	P	0	3.6	22430	9910	9370		
20-Apr-09	H	20	A	X	0	<2	23190	22420	20160		
27-Apr-03	HF	30	R	P	1.66	<3	23400	22300	23930		
16-Jun-02	HF	20	R	X	1.01	240	23960	28630	40100		
05-Aug-09	HF	18	A	FH	0	22	26300	35300	32600	Yes	
06-Nov-05	F	10	R	X	0.04	9.1	28100	30960	34800		
01-Dec-09	HF	21	A	P	1.28	33	28600	32000	40600		
22-Nov-09	F	28	A	F	0.12	<2	28800	29700	21040	Yes	
30-Mar-05	H	15	R	F	2.95	<3	29540	22470	15240	Yes	
26-Apr-09	F	8	A	F	0.26	5.5	35700	41600	51600	Yes	
21-Apr-02	F	20	R	X	0.01	3.6	42400	52900	63900		Yes
21-May-06	E	14	R	X	0.83	14	44400	42500	35600		
08-Jul-09	F	18	A	FP	1.8	60	49500	43300	49300	Yes	Yes
29-Apr-07	HF	8	R	F	0.96	104	54800	53600	60100	Yes	Yes
19-Nov-06	F	14	R	X	0.98	160	59800	84500	53900		Yes
13-Apr-08	E	23	R	X	0.4	<2	63100	57700	53800		Yes
10-Aug-08	HE	5	R	X	2.16	280	68900	83400	77700		Yes
05-Apr-09	H	6	R	FPNT	0.97	22	79900	67900	44200	Yes	Yes
27-Apr-05	F	10	R	PN	3.16	93	89600	105800	95800		Yes



Table 9. Sagadahoc Bay, Station WM 22, River Discharge Assessment (Q1= discharge (cfs) on day of sample collection; Q2= discharge 1 day prior sample collection; Q3= discharge 2 days prior sample collection), 2002-2009

Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q2	Q3	Flood Closure	Falling into Closed Status
11-Aug-02	HF	30	R	X	0	9.1	4270	5490	6460		
29-Jul-07	F	25	R	X	0.04	2	4680	4430	5700		
22-Sep-02	HF	30	R	X	0	<3	4890	5200	5350		
23-Feb-03	HF	30	R	X	1.28	<3	4940	4690	4720		
21-Aug-05	F	30	R	X	0.02	23	5030	4400	4850		
13-Jun-04	H	25	R	X	0.02	<3	5490	5650	6530		
20-Sep-09	H	30	R	X	0	<2	5780	5920	5790		
21-Jul-02	F	28	R	X	0.34	3.6	6640	7260	7720		
06-Jul-03	F	28	R	X	0.26	3.6	6650	6660	6800		
18-Sep-05	F	30	R	X	1.76	43	6750	6940	6710		
16-Sep-07	F	28	R	X	0.26	2	7260	7140	7160		
18-Jul-04	HF	24	R	X	0.07	<3	7280	5710	6370		
17-Nov-02	H	26	R	P	1.37	93	7540	8370	7760		
21-Jul-05	HF	28	R	X	0.02	23	7810	7960	8170		
14-Nov-04	F	31	R	X	0.11	9.1	8060	7900	8150		
06-Sep-06	F	25	R	X	1.17	<2	8310	9770	8630		
17-Aug-03	F	30	R	X	0.2	9.1	8340	8130	8890		
18-Oct-09	H	28	R	X	0	4	8540	7320	7260		
28-Sep-03	HF	28	R	P	1.38	15	8570	9560	10470		
26-Sep-04	HE	30	R	X	0	3.6	9050	9360	10680		
11-Sep-06	F	28	A	X	0.43	16	9460	9370	9780		
07-Oct-09	H	26	A	FP	2.73	16	9740	10470	10820	Yes	
24-Oct-04	H	30	R	X	0	43	9850	9730	8140		



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q2	Q3	Flood Closure	Falling into Closed Status
21-Mar-04	E	30	R	TW	0.7	<3	9880	10490	11200		
01-Feb-05	HF	31	R	W	0	<3	10120	9720	10690		
13-Oct-08	F	32	R	X	0	<2	10350	9940	10410		
02-May-04	E	25	R	X	0	<3	11200	14370	16000		
26-May-09	F	25	R	X	0.09	<2	11210	10470	9410		
08-Oct-09	HE	28	A	F	0.92	5.5	11360	9740	10470	Yes	
22-Feb-04	HE	30	R	W	1.12	<3	12070	12220	12200		
18-May-03	F	25	R	X	0	<3	12490	11750	14700		
31-Aug-09	HF	30	R	P	1.83	<2	12620	11880	13650		
22-Aug-04	F	16	R	P	1.61	9.1	12790	13110	12990		
03-Jun-07	HF	24	R	X	0.19	2	12840	11670	11510		
18-Dec-06	HE	26	R	X	0.01	<2	13660	14880	16680		
12-May-02	H	25	R	X	0.63	<3	14120	15530	15750		
12-Aug-09	F	26	A	P	0.08	<2	14400	13250	15620		
26-Jun-05	F	29	R	X	0	3.6	14440	15820	19460		
09-Dec-07	F	26	R	X	0.15	<2	14860	14820	15820		
23-Mar-03	F	26	R	X	1.15	<3	15580	11070	8780		
22-Jul-09	E	24	A	X	0.63	14	15690	16200	18130		
19-Jul-09	F	29	A	X	0.79	22	16320	15760	17060		
08-Jun-03	F	30	R	X	0.48	<3	17020	16530	13620		
25-Jun-06	F	25	R	X	0.76	<3	17380	17410	18580		
26-Feb-08	HF	22	R	X	0.34	<2	17490	17940	18990		
06-May-09	HF	24	A	P	0.44	<2	17820	18770	19510		
14-Jun-09	F	25	R	P	3.00	<2	18170	19710	11340		
15-Jun-08	HF	24	R	P	0.23	10	18190	19680	21250		



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q2	Q3	Flood Closure	Falling into Closed Status
22-May-05	HF	27	R	P	0.92	9.1	18230	18550	18790		
13-Dec-09	HE	30	A	X	0	<2	18380	19460	20930		
02-Nov-08	HF	29	R	X	0	2	18470	21230	24000		
15-Oct-06	HE	24	R	X	1.85	<2	19080	22280	32000		
26-Oct-03	H	22	R	P	0.23	23	19370	20300	25110		
18-Mar-07	F	26	R	P	3.36	<2	21310	21860	19500		
15-Mar-09	F	22	R	X	0	<2	21606	25349	27123		
27-Oct-09	HE	21	A	X	1.36	4	21700	37300	32900		
25-Nov-07	F	20	R	X	0.1	22	22370	26400	25210		
20-Apr-09	H	21	A	X	0	<2	23190	22420	20160		
27-Apr-03	HF	29	R	P	1.66	<3	23400	22300	23930		
16-Jun-02	HF	30	R	X	1.01	43	23960	28630	40100		
05-Aug-09	HF	21	A	FH	0	<2	26300	35300	32600	Yes	
06-Nov-05	F	30	R	X	0.04	9.1	28100	30960	34800		
01-Dec-09	HF	30	A	P	1.28	<2	28600	32000	40600		
22-Nov-09	F	27	A	F	0.12	<2	28800	29700	21040	Yes	
30-Mar-05	H	20	R	FN	2.95	<3	29540	22470	15240	Yes	
26-Apr-09	F	18	A	F	0.26	2	35700	41600	51600	Yes	
21-Apr-02	F	20	R	X	0.01	3.6	42400	52900	63900		Yes
21-May-06	E	16	R	X	0.83	9.1	44400	42500	35600		
08-Jul-09	F	24	A	FP	1.8	66	49500	43300	49300	Yes	Yes
29-Apr-07	HF	8	R	F	0.96	80	54800	53600	60100	Yes	Yes
19-Nov-06	HF	26	R	X	0.98	8	59800	84500	53900		Yes
13-Apr-08	E	18	R	X	0.4	4	63100	57700	53800		Yes
10-Aug-08	HE	5	R	X	2.16	220	68900	83400	77700		Yes



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q2	Q3	Flood Closure	Falling into Closed Status
05-Apr-09	HF	15	R	FPNT	0.97	10	79900	67900	44200	Yes	Yes
27-Apr-05	F	10	R	P	3.16	23	89600	105800	95800		Yes

Table 10. Sagadahoc Bay, Station WM 23, River Discharge Assessment (Q1= discharge (cfs) on day of sample collection; Q2= discharge 1 day prior sample collection; Q3= discharge 2 days prior sample collection), 2002-2009

Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q 2	Q 3	Flood Closure	Falling into Closed Status
11-Aug-02	HF	30	R	X	0	<3	4270	5490	6460		
29-Jul-07	F	28	R	X	0.04	<2	4680	4430	5700		
22-Sep-02	F	30	R	X	0	3.6	4890	5200	5350		
23-Feb-03	HF	32	R	X	1.28	<3	4940	4690	4720		
21-Aug-05	F	30	R	X	0.02	93	5030	4400	4850		
13-Jun-04	H	25	R	X	0.02	<3	5490	5650	6530		
20-Sep-09	HE	30	R	W	0	<2	5780	5920	5790		
21-Jul-02	HF	28	R	X	0.34	3.6	6640	7260	7720		
06-Jul-03	F	28	R	X	0.26	<3	6650	6660	6800		
18-Sep-05	F	28	R	X	1.76	39	6750	6940	6710		
16-Sep-07	F	25	R	X	0.26	<2	7260	7140	7160		
18-Jul-04	HF	25	R	X	0.07	<3	7280	5710	6370		
17-Nov-02	H	30	R	P	1.37	23	7540	8370	7760		
21-Jul-05	HF	28	R	N	0.02	93	7810	7960	8170		
14-Nov-04	F	28	R	X	0.11	23	8060	7900	8150		
06-Sep-06	HF	29	R	X	1.17	2	8310	9770	8630		
17-Aug-03	HF	30	R	X	0.2	9.1	8340	8130	8890		
18-Oct-09	H	30	R	X	0	4	8540	7320	7260		
28-Sep-03	HF	24	R	P	1.38	9.1	8570	9560	10470		
26-Sep-04	HE	28	R	X	0	23	9050	9360	10680		
24-Oct-04	HF	30	R	X	0	3.6	9850	9730	8140		



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q 2	Q 3	Flood Closure	Falling into Closed Status
21-Mar-04	E	27	R	TW	0.7	<3	9880	10490	11200		
01-Feb-05	HF	32	R	NW	0	<3	10120	9720	10690		
13-Oct-08	F	31	R	X	0	<2	10350	9940	10410		
02-May-04	E	20	R	X	0	<3	11200	14370	16000		
26-May-09	F	28	R	X	0.09	4	11210	10470	9410		
22-Mar-06	LE	28	R	X	0	<3	12030	13160	14730		
22-Feb-04	HE	30	R	W	1.12	<3	12070	12220	12200		
18-May-03	F	22	R	X	0	3.6	12490	11750	14700		
31-Aug-09	H	30	R	P	1.83	<2	12620	11880	13650		
22-Aug-04	F	16	R	P	1.61	7.3	12790	13110	12990		
03-Jun-07	HF	23	R	X	0.19	<2	12840	11670	11510		
18-Dec-06	HE	25	R	N	0.01	7.3	13660	14880	16680		
12-May-02	H	20	R	X	0.63	<3	14120	15530	15750		
12-Aug-09	HF	26	A	P	0.08	2	14400	13250	15620		
26-Jun-05	F	25	R	X	0	9.1	14440	15820	19460		
09-Dec-07	F	28	R	X	0.15	4	14860	14820	15820		
23-Mar-03	F	22	R	X	1.15	<3	15580	11070	8780		
22-Jul-09	E	24	A	X	0.63	6	15690	16200	18130		
19-Jul-09	F	28	A	X	0.79	36	16320	15760	17060		
08-Jun-03	F	31	R	X	0.48	<3	17020	16530	13620		
25-Jun-06	F	25	R	X	0.76	<3	17380	17410	18580		
26-Feb-08	HF	22	R	X	0.34	<2	17490	17940	18990		
06-May-09	HF	30	A	P	0.44	<2	17820	18770	19510		
14-Jun-09	F	28	R	P	3.00	<2	18170	19710	11340		
15-Jun-08	HF	25	R	P	0.23	<2	18190	19680	21250		
22-May-05	F	21	R	P	0.92	3.6	18230	18550	18790		
13-Dec-09	HE	30	A	X	0	<2	18380	19460	20930		
02-Nov-08	HF	24	R	X	0	7.3	18470	21230	24000		
29-Jul-09	HE	20	A	F	0.19	22	18530	19120	22300	Yes	
15-Oct-06	E	24	R	X	1.85	2	19080	22280	32000		



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q 2	Q 3	Flood Closure	Falling into Closed Status
28-Jul-09	H	18	A	F	0.18	6	19120	22300	23100	Yes	
26-Oct-03	H	22	R	P	0.23	23	19370	20300	25110		
18-Mar-07	F	26	R	P	3.36	2	21310	21860	19500		
15-Mar-09	F	26	R	X	0	<2	21606	25349	27123		
27-Oct-09	HE	22	A	W	1.36	4	21700	37300	32900		
30-Jul-09	H	18	A	FP	0.21	12	22360	18530	19120	Yes	
25-Nov-07	F	15	R	X	0.1	44	22370	26400	25210		
20-Apr-09	HE	22	A	X	0	<2	23190	22420	20160		
27-Apr-03	HF	30	R	P	1.66	<3	23400	22300	23930		
16-Jun-02	H	20	R	N	1.01	43	23960	28630	40100		
05-Aug-09	HF	18	A	FH	0	20	26300	35300	32600	Yes	
06-Nov-05	F	21	R	X	0.04	9.1	28100	30960	34800		
01-Dec-09	HF	30	A	P	1.28	2	28600	32000	40600		
22-Nov-09	F	26	A	F	0.12	2	28800	29700	21040	Yes	
30-Mar-05	H	22	R	F	2.95	<3	29540	22470	15240	Yes	
26-Apr-09	F	28	A	F	0.26	<2	35700	41600	51600	Yes	
21-Apr-02	F	22	R	X	0.01	3.6	42400	52900	63900		Yes
21-May-06	E	24	R	X	0.83	43	44400	42500	35600		
08-Jul-09	F	25	A	FP	1.8	42	49500	43300	49300	Yes	Yes
29-Apr-07	HF	18	R	F	0.96	20	54800	53600	60100	Yes	Yes
19-Nov-06	HF	26	R	X	0.98	4	59800	84500	53900		Yes
13-Apr-08	E	16	R	X	0.4	<2	63100	57700	53800		Yes
10-Aug-08	HE	5	R	X	2.16	220	68900	83400	77700		Yes
05-Apr-09	H	14	R	FPNT	0.97	2	79900	67900	44200	Yes	Yes
27-Apr-05	F	10	R	PN	3.16	9.1	89600	105800	95800		Yes



Table 11. Sagadahoc Bay, Station WM 24, River Discharge Assessment (Q1= discharge (cfs) on day of sample collection; Q2= discharge 1 day prior sample collection; Q3= discharge 2 days prior sample collection)

Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q 2	Q 3	Flood Closure	Falling into Closed Status
11-Aug-02	HF	32	R	X	0	3.6	4270	5490	6460		
29-Jul-07	F	25	R	X	0.04	2	4680	4430	5700		
22-Sep-02	F	30	R	X	0	<3	4890	5200	5350		
23-Feb-03	HF	32	R	X	1.28	<3	4940	4690	4720		
21-Aug-05	F	30	R	X	0.02	23	5030	4400	4850		
13-Jun-04	HE	30	R	X	0.02	<3	5490	5650	6530		
20-Sep-09	HF	30	R	X	0	20	5780	5920	5790		
19-Dec-02	F	28	R	X	0	3	6220	7050	8130		
21-Jul-02	HF	28	R	X	0.34	9.1	6640	7260	7720		
06-Jul-03	HF	28	R	X	0.26	<3	6650	6660	6800		
18-Sep-05	F	28	R	X	1.76	460	6750	6940	6710		
16-Sep-07	HF	28	R	X	0.26	<2	7260	7140	7160		
18-Jul-04	HF	24	R	X	0.07	<3	7280	5710	6370		
17-Nov-02	H	30	R	P	1.37	<3	7540	8370	7760		
21-Jul-05	H	28	R	X	0.02	31	7810	7960	8170		
14-Nov-04	F	31	R	X	0.11	<3	8060	7900	8150		
06-Sep-06	HF	29	R	X	1.17	6	8310	9770	8630		
17-Aug-03	HE	30	R	X	0.2	<3	8340	8130	8890		
18-Oct-09	F	30	R	X	0	10	8540	7320	7260		
28-Sep-03	HF	28	R	P	1.38	3.6	8570	9560	10470		
26-Sep-04	H	30	R	X	0	<3	9050	9360	10680		
24-Oct-04	HE	30	R	X	0	3.6	9850	9730	8140		
21-Mar-04	E	26	R	TW	0.7	<3	9880	10490	11200		
01-Feb-05	HF	31	R	X	0	<3	10120	9720	10690		
13-Oct-08	HF	30	R	X	0	<2	10350	9940	10410		
02-May-04	E	24	R	X	0	3	11200	14370	16000		
26-May-09	HF	28	R	X	0.09	<2	11210	10470	9410		
22-Mar-06	LE	28	R	X	0	<3	12030	13160	14730		



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q 2	Q 3	Flood Closure	Falling into Closed Status
22-Feb-04	E	28	R	W	1.12	<3	12070	12220	12200		
18-May-03	F	25	R	X	0	<3	12490	11750	14700		
31-Aug-09	HE	30	R	P	1.83	<2	12620	11880	13650		
22-Aug-04	HF	15	R	P	1.61	3.6	12790	13110	12990		
03-Jun-07	H	23	R	X	0.19	4	12840	11670	11510		
18-Dec-06	H	25	R	X	0.01	<2	13660	14880	16680		
12-Aug-09	HF	26	A	P	0.08	<2	14400	13250	15620		
26-Jun-05	F	28	R	X	0	3.6	14440	15820	19460		
09-Dec-07	HF	28	R	X	0.15	2	14860	14820	15820		
23-Mar-03	F	25	R	X	1.15	<3	15580	11070	8780		
22-Jul-09	E	24	A	X	0.63	33	15690	16200	18130		
19-Jul-09	HF	28	A	X	0.79	42	16320	15760	17060		
08-Jun-03	F	30	R	X	0.48	<3	17020	16530	13620		
25-Jun-06	F	28	R	X	0.76	23	17380	17410	18580		
26-Feb-08	F	23	R	X	0.34	<2	17490	17940	18990		
06-May-09	H	30	A	P	0.44	2	17820	18770	19510		
14-Jun-09	F	28	R	P	3	2	18170	19710	11340		
15-Jun-08	HF	22	R	P	0.23	<2	18190	19680	21250		
22-May-05	F	30	R	P	0.92	9.1	18230	18550	18790		
13-Dec-09	E	30	A	X	0	<2	18380	19460	20930		
02-Nov-08	H	24	R	X	0	2	18470	21230	24000		
29-Jul-09	HE	22	A	F	0.19	6	18530	19120	22300	Yes	
15-Oct-06	E	18	R	X	1.85	7.3	19080	22280	32000		
28-Jul-09	H	21	A	F	0.18	16	19120	22300	23100	Yes	
26-Oct-03	E	22	R	P	0.23	43	19370	20300	25110		
18-Mar-07	HF	25	R	P	3.36	4	21310	21860	19500		
15-Mar-09	HF	22	R	X	0	<2	21606	25349	27123		
27-Oct-09	HE	30	A	W	1.36	<2	21700	37300	32900		
30-Jul-09	HF	21	A	FP	0.21	50	22360	18530	19120	Yes	
25-Nov-07	F	15	R	X	0.1	42	22370	26400	25210		



Date	Tide	Salin	Strat	Adv	Cumulative Rain (inches)	Col Score	Q 1	Q 2	Q 3	Flood Closure	Falling into Closed Status
20-Apr-09	HE	28	A	X	0	<2	23190	22420	20160		
27-Apr-03	E	30	R	P	1.66	<3	23400	22300	23930		
16-Jun-02	HF	28	R	X	1.01	43	23960	28630	40100		
05-Aug-09	H	20	A	FH	0	10	26300	35300	32600	Yes	
06-Nov-05	HF	20	R	X	0.04	7.3	28100	30960	34800		
01-Dec-09	H	30	A	P	1.28	<2	28600	32000	40600		
22-Nov-09	HF	26	A	F	0.12	6	28800	29700	21040	Yes	
30-Mar-05	HE	20	R	F	2.95	<3	29540	22470	15240	Yes	
26-Apr-09	HF	28	A	F	0.26	<2	35700	41600	51600	Yes	
21-May-06	E	20	R	X	0.83	<3	44400	42500	35600		
08-Jul-09	F	24	A	FP	1.8	54	49500	43300	49300	Yes	
29-Apr-07	HF	16	R	F	0.96	22	54800	53600	60100	Yes	Yes
19-Nov-06	HF	26	R	X	0.98	4	59800	84500	53900		Yes
13-Apr-08	E	16	R	X	0.4	5.5	63100	57700	53800		Yes
10-Aug-08	HE	9	R	X	2.16	280	68900	83400	77700		Yes
05-Apr-09	HF	12	R	FPNT	0.97	12	79900	67900	44200	Yes	Yes
27-Apr-05	F	10	R	P	3.16	93	89600	105800	95800		Yes



A further seasonal assessment was completed for all four stations. Tables 12 through 15 show fecal scores for Heal Eddy and Sagadahoc Bay stations, split by month of collection, and sorted by cumulative rainfall, in ascending order; river discharge on the day of sample collection is also noted in these tables. These tables show only SRS and Adverse data collected during the proposed "Open Status", based on a river discharge closure trigger of 60,000 cfs.

Stations WM 20 and 22 did not show a seasonal or rainfall impact on fecal scores (Tables 12 and 13). Station WM 23 (Table 14) did not show a rainfall effect, but had three of its four elevated scores occur in July and August, with two scores of 93 FC/100 ML each, occurring in consecutive summer samples in 2005; no rainfall is associated with these high scores. Stations WM 22 and 24, located on the western and eastern shore of Sagadahoc Bay, respectively, were both sampled on the same dates, and both had scores below the variability standard. It is likely the consecutive high scores at station WM 23 were a result of a localized pollution source. Since these two elevated scores, this area has been surveyed twice (in 2007 and 2009), and no pollution sources were noted in either of the surveys. Therefore, the cause of these two high scores remains unknown. In assessing the risk of seasonal pollution during the months of July and August, all recent (2006 through 2009) water results collected during these months were reviewed. The more recent scores were as follows: <2 FC/100 ML occurring on July 29, 2007, and August 31, 2009; 2 FC/100 ML occurring on August 12, 2009; 6 FC/100ml occurring on July 22, 2009; and 36 FC/100 ML collected on July 19, 2009. There were no scores surpassing the variability standard for any samples collected in the months of June and September, between 2002 and 2009.

Station WM 24 did not show a seasonal impact, but showed an intermittent rainfall impact (Table 15), with all four of its elevated scores occurring after at least 0.5 inches of cumulative precipitation. To further assess the impact of rainfall, the geometric mean and P90 score for this station were recalculated using only data points collected after 0.5 inches or more of cumulative rainfall; all 22 random and adverse data points presented in Table 15 that were collected after 0.5 inches or more of cumulative rainfall were used for this calculation. Using this dataset, the geometric mean was 6.2 and the P90 score was 37.8 (Standard is 39). These scores indicate that while rainfall has some adverse impact on fecal scores, its impact is not enough to cause this station to exceed the geometric mean or P90 standard.



Table 12. WM 20, Data Collected under 60,000 cfs, SRS and Adverse Data, 2002-2009

Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
11-Aug-02	0	4270	HF	R	23								3.6				
22-Sep-02	0	4890	HF	R	26									9.1			
18-May-03	0	12490	F	R	22					<3							
2-May-04	0	11200	E	R	20					<3							
26-Sep-04	0	9050	HE	R	28									3.6			
24-Oct-04	0	9850	H	R	21										9.1		
26-Jun-05	0	14440	F	R	30						9.1						
22-Mar-06	0	12030	LE	R	28			<3									
13-Oct-08	0	10350	F	R	30										<2		
2-Nov-08	0	18470	HF	R	30											<2	
15-Mar-09	0	21606	F	R	26			<2									
20-Apr-09	0	23190	H	A	20				<2								
20-Sep-09	0	5780	H	R	26									2			
18-Oct-09	0	8540	H	R	26										20		
13-Dec-09	0	18380	HE	A	18												3.4
18-Dec-06	0.01	13660	HE	R	24												2
13-Jun-04	0.02	5490	H	R	25						<3						
21-Jul-05	0.02	7810	HF	R	26							23					
21-Aug-05	0.02	5030	F	R	30								9.1				
6-Nov-05	0.04	28100	F	R	10											9.1	
29-Jul-07	0.04	4680	F	R	25							6					
18-Jul-04	0.07	7280	HF	R	25							<3					
12-Aug-09	0.08	14400	F	A	20								<2				
26-May-09	0.09	11210	F	R	20					<2							
25-Nov-07	0.1	22370	F	R	15											36	
14-Nov-04	0.11	8060	F	R	30											23	
9-Dec-07	0.15	14860	F	R	28												<2
3-Jun-07	0.19	12840	HF	R	23						<2						
17-Aug-03	0.2	8340	F	R	30								9.1				
26-Oct-03	0.23	19370	H	R	15										23		



Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
15-Jun-08	0.23	18190	HF	R	18						<2						
6-Jul-03	0.26	6650	F	R	26							<3					
16-Sep-07	0.26	7260	F	R	24									<2			
21-Jul-02	0.34	6640	F	R	24							<3					
26-Feb-08	0.34	17490	HF	R	18		2										
6-May-09	0.44	17820	HF	A	20					<2							
8-Jun-03	0.48	17020	F	R	30						<3						
12-May-02	0.63	14120	H	R	20					<3							
22-Jul-09	0.63	15690	E	A	22							9.1					
21-Mar-04	0.7	9880	E	R	30			<3									
25-Jun-06	0.76	17380	F	R	24						3.6						
19-Jul-09	0.79	16320	F	A	25							14					
21-May-06	0.83	44400	E	R	14					14							
22-May-05	0.92	18230	HF	R	20					3.6							
16-Jun-02	1.01	23960	HF	R	20						240						
22-Feb-04	1.12	12070	HE	R	30		<3										
23-Mar-03	1.15	15580	F	R	22			<3									
6-Sep-06	1.17	8310	F	R	25									2			
23-Feb-03	1.28	4940	HF	R	30		<3										
1-Dec-09	1.28	28600	HF	A	21												33
27-Oct-09	1.36	21700	HE	A	21										6		
17-Nov-02	1.37	7540	H	R	30											9.1	
28-Sep-03	1.38	8570	F	R	24									11			
22-Aug-04	1.61	12790	F	R	20								9.1				
27-Apr-03	1.66	23400	HF	R	30				<3								
18-Sep-05	1.76	6750	F	R	30									9.1			
31-Aug-09	1.83	12620	HF	R	20								<2				
15-Oct-06	1.85	19080	HE	R	20										12		
14-Jun-09	3	18170	F	R	28						<2						
18-Mar-07	3.36	21310	F	R	20			24									



Table 13. WM 22, Data Collected under 60,000 cfs, SRS and Adverse Data, 2002-2009

Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
11-Aug-02	0	4270	HF	R	30								9.1				
22-Sep-02	0	4890	HF	R	30									<3			
18-May-03	0	12490	F	R	25					<3							
2-May-04	0	11200	E	R	25					<3							
26-Sep-04	0	9050	HE	R	30									3.6			
24-Oct-04	0	9850	H	R	30										43		
1-Feb-05	0	10120	HF	R	31		<3										
26-Jun-05	0	14440	F	R	29						3.6						
13-Oct-08	0	10350	F	R	32										<2		
2-Nov-08	0	18470	HF	R	29											2	
15-Mar-09	0	21606	F	R	22			<2									
20-Apr-09	0	23190	H	A	21				<2								
20-Sep-09	0	5780	H	R	30									<2			
18-Oct-09	0	8540	H	R	28										4		
13-Dec-09	0	18380	HE	A	30												<2
18-Dec-06	0.01	13660	HE	R	26												<2
13-Jun-04	0.02	5490	H	R	25						<3						
21-Jul-05	0.02	7810	HF	R	28							23					
21-Aug-05	0.02	5030	F	R	30								23				
6-Nov-05	0.04	28100	F	R	30											9.1	
29-Jul-07	0.04	4680	F	R	25							2					
18-Jul-04	0.07	7280	HF	R	24							<3					
12-Aug-09	0.08	14400	F	A	26								<2				
26-May-09	0.09	11210	F	R	25					<2							
25-Nov-07	0.1	22370	F	R	20											22	
14-Nov-04	0.11	8060	F	R	31											9.1	
9-Dec-07	0.15	14860	F	R	26												<2
3-Jun-07	0.19	12840	HF	R	24						2						



Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
17-Aug-03	0.2	8340	F	R	30								9.1				
26-Oct-03	0.23	19370	H	R	22										23		
15-Jun-08	0.23	18190	HF	R	24						10						
6-Jul-03	0.26	6650	F	R	28							3.6					
16-Sep-07	0.26	7260	F	R	28									2			
21-Jul-02	0.34	6640	F	R	28							3.6					
26-Feb-08	0.34	17490	HF	R	22		<2										
11-Sep-06	0.43	9460	F	A	28									16			
6-May-09	0.44	17820	HF	A	24					<2							
8-Jun-03	0.48	17020	F	R	30						<3						
12-May-02	0.63	14120	H	R	25					<3							
22-Jul-09	0.63	15690	E	A	24							14					
21-Mar-04	0.7	9880	E	R	30			<3									
25-Jun-06	0.76	17380	F	R	25						<3						
19-Jul-09	0.79	16320	F	A	29							22					
21-May-06	0.83	44400	E	R	16					9.1							
22-May-05	0.92	18230	HF	R	27					9.1							
16-Jun-02	1.01	23960	HF	R	30						43						
22-Feb-04	1.12	12070	HE	R	30		<3										
23-Mar-03	1.15	15580	F	R	26			<3									
6-Sep-06	1.17	8310	F	R	25									<2			
23-Feb-03	1.28	4940	HF	R	30		<3										
1-Dec-09	1.28	28600	HF	A	30												<2
27-Oct-09	1.36	21700	HE	A	21										4		
17-Nov-02	1.37	7540	H	R	26											93	
28-Sep-03	1.38	8570	HF	R	28									15			
22-Aug-04	1.61	12790	F	R	16								9.1				
27-Apr-03	1.66	23400	HF	R	29				<3								
18-Sep-05	1.76	6750	F	R	30									43			
31-Aug-09	1.83	12620	HF	R	30								<2				
15-Oct-06	1.85	19080	HE	R	24										<2		



Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
14-Jun-09	3	18170	F	R	25						<2						
18-Mar-07	3.36	21310	F	R	26			<2									

Table 14. WM 23, Data Collected under 60,000 cfs, SRS and Adverse Data, 2002-2009

Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
11-Aug-02	0	4270	HF	R	30								<3				
22-Sep-02	0	4890	F	R	30									3.6			
18-May-03	0	12490	F	R	22					3.6							
2-May-04	0	11200	E	R	20					<3							
26-Sep-04	0	9050	HE	R	28									23			
24-Oct-04	0	9850	HF	R	30										3.6		
1-Feb-05	0	10120	HF	R	32		<3										
26-Jun-05	0	14440	F	R	25						9.1						
22-Mar-06	0	12030	LE	R	28			2.9									
13-Oct-08	0	10350	F	R	31										<2		
2-Nov-08	0	18470	HF	R	24											7.3	
15-Mar-09	0	21606	F	R	26			<2									
20-Apr-09	0	23190	HE	A	22				<2								
20-Sep-09	0	5780	HE	R	30									<2			
18-Oct-09	0	8540	H	R	30										4		
13-Dec-09	0	18380	HE	A	30												<2
21-Apr-02	0.01	42400	F	R	22					3.6							
18-Dec-06	0.01	13660	HE	R	25												7.3
13-Jun-04	0.02	5490	H	R	25						<3						
21-Jul-05	0.02	7810	HF	R	28							93					
21-Aug-05	0.02	5030	F	R	30								93				
6-Nov-05	0.04	28100	F	R	21											9.1	
29-Jul-07	0.04	4680	F	R	28							<2					
18-Jul-04	0.07	7280	HF	R	25							<3					



Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12-Aug-09	0.08	14400	HF	A	26								2				
26-May-09	0.09	11210	F	R	28					4							
25-Nov-07	0.1	22370	F	R	15											44	
14-Nov-04	0.11	8060	F	R	28											23	
9-Dec-07	0.15	14860	F	R	28												4
3-Jun-07	0.19	12840	HF	R	23						<2						
17-Aug-03	0.2	8340	HF	R	30								9.1				
26-Oct-03	0.23	19370	H	R	22										23		
15-Jun-08	0.23	18190	HF	R	25						<2						
6-Jul-03	0.26	6650	F	R	28							<3					
16-Sep-07	0.26	7260	F	R	25									<2			
21-Jul-02	0.34	6640	HF	R	28							3.6					
26-Feb-08	0.34	17490	HF	R	22		<2										
6-May-09	0.44	17820	HF	A	30					<2							
8-Jun-03	0.48	17020	F	R	31						<3						
12-May-02	0.63	14120	H	R	20					<3							
22-Jul-09	0.63	15690	E	A	24							6					
21-Mar-04	0.7	9880	E	R	27			<3									
25-Jun-06	0.76	17380	F	R	25						<3						
19-Jul-09	0.79	16320	F	A	28							36					
21-May-06	0.83	44400	E	R	24					43							
22-May-05	0.92	18230	F	R	21					3.6							
16-Jun-02	1.01	23960	H	R	20						43						
22-Feb-04	1.12	12070	HE	R	30		<3										
23-Mar-03	1.15	15580	F	R	22			<3									
6-Sep-06	1.17	8310	HF	R	29									2			
23-Feb-03	1.28	4940	HF	R	32		<3										
1-Dec-09	1.28	28600	HF	A	30												2
27-Oct-09	1.36	21700	HE	A	22										4		
17-Nov-02	1.37	7540	H	R	30											23	
28-Sep-03	1.38	8570	HF	R	24									9.1			



Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
22-Aug-04	1.61	12790	F	R	16								7.3				
27-Apr-03	1.66	23400	HF	R	30				<3								
18-Sep-05	1.76	6750	F	R	28									39			
31-Aug-09	1.83	12620	H	R	30								<2				
15-Oct-06	1.85	19080	E	R	24										2		
14-Jun-09	3	18170	F	R	28						<2						
18-Mar-07	3.36	21310	F	R	26			2									

Table 15. WM 24, Data Collected under 60,000 cfs, SRS and Adverse Data, 2002-2009

Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
11-Aug-02	0	4270	HF	R	32								3.6				
22-Sep-02	0	4890	F	R	30									<3			
19-Dec-02	0	6220	F	R	28												3
18-May-03	0	12490	F	R	25					<3							
2-May-04	0	11200	E	R	24					3							
26-Sep-04	0	9050	H	R	30									<3			
24-Oct-04	0	9850	HE	R	30										3.6		
1-Feb-05	0	10120	HF	R	31		<3										
26-Jun-05	0	14440	F	R	28						3.6						
22-Mar-06	0	12030	LE	R	28			<3									
13-Oct-08	0	10350	HF	R	30										<2		
2-Nov-08	0	18470	H	R	24											2	
15-Mar-09	0	21606	HF	R	22			<2									
20-Apr-09	0	23190	HE	A	28				<2								
20-Sep-09	0	5780	HF	R	30									20			
18-Oct-09	0	8540	F	R	30										10		
13-Dec-09	0	18380	E	A	30												<2
18-Dec-06	0.01	13660	H	R	25												<2
13-Jun-04	0.02	5490	HE	R	30						<3						



Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21-Jul-05	0.02	7810	H	R	28							31					
21-Aug-05	0.02	5030	F	R	30								23				
6-Nov-05	0.04	28100	HF	R	20											7.3	
29-Jul-07	0.04	4680	F	R	25							2					
18-Jul-04	0.07	7280	HF	R	24							<3					
12-Aug-09	0.08	14400	HF	A	26								<2				
26-May-09	0.09	11210	HF	R	28					<2							
25-Nov-07	0.1	22370	F	R	15											42	
14-Nov-04	0.11	8060	F	R	31											<3	
9-Dec-07	0.15	14860	HF	R	28												2
3-Jun-07	0.19	12840	H	R	23						4						
17-Aug-03	0.2	8340	HE	R	30								<3				
26-Oct-03	0.23	19370	E	R	22										43		
15-Jun-08	0.23	18190	HF	R	22						<2						
6-Jul-03	0.26	6650	HF	R	28							<3					
16-Sep-07	0.26	7260	HF	R	28									<2			
21-Jul-02	0.34	6640	HF	R	28							9.1					
26-Feb-08	0.34	17490	F	R	23		<2										
6-May-09	0.44	17820	H	A	30					2							
8-Jun-03	0.48	17020	F	R	30						<3						
22-Jul-09	0.63	15690	E	A	24							33					
21-Mar-04	0.7	9880	E	R	26			<3									
25-Jun-06	0.76	17380	F	R	28						23						
19-Jul-09	0.79	16320	HF	A	28							42					
21-May-06	0.83	44400	E	R	20					<3							
22-May-05	0.92	18230	F	R	30					9.1							
16-Jun-02	1.01	23960	HF	R	28						43						
22-Feb-04	1.12	12070	E	R	28		<3										
23-Mar-03	1.15	15580	F	R	25			<3									
6-Sep-06	1.17	8310	HF	R	29									6			
23-Feb-03	1.28	4940	HF	R	32		<3										



Date	Sum Rain (inch)	Discharge (cfs)	Tide	Strat	Salin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1-Dec-09	1.28	28600	H	A	30												<2
27-Oct-09	1.36	21700	HE	A	30										<2		
17-Nov-02	1.37	7540	H	R	30											<3	
28-Sep-03	1.38	8570	HF	R	28									3.6			
22-Aug-04	1.61	12790	HF	R	15								3.6				
27-Apr-03	1.66	23400	E	R	30				<3								
18-Sep-05	1.76	6750	F	R	28									460			
31-Aug-09	1.83	12620	HE	R	30								<2				
15-Oct-06	1.85	19080	E	R	18										7.3		
14-Jun-09	3	18170	F	R	28						2						
18-Mar-07	3.36	21310	HF	R	25			4									



The geometric mean and P90 scores were recalculated for Heal Eddy and Sagadahoc Bay; table 16 shows the results obtained from the 30 most recent SRS datapoints that were collected when river discharge was at or below 60,000 cfs within a week of sample collection. Table 16 shows that all stations in Sagadahoc Bay and Heal Eddy would meet the approved standard, if the closure trigger for the area was increased from 30,000 cfs to 60,000 cfs. Based on the presented assessment, it is recommended that the closure trigger for Sagadahoc Bay and Heal Eddy be increased, from 30,000 cfs to 60,000 cfs. This change to the management plan was implemented on January 27, 2010.

Table 16. Heal Eddy and Sagadahoc Bay, Data Collected at <60,000 cfs

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM020.00	CA	30	19	4.8	0.44	36	17.4	37
WM022.00	CA	30	19	0.4.2	0.46	43	16.4	37
WM023.00	CA	30	19	5.1	0.55	93	26.1	37
WM024.00	CA	30	19	5.1	0.56	460	26.8	37

Mill Pond, Phippsburg

Mill Pond, Phippsburg, is being evaluated for an upgrade in classification, from prohibited to conditionally approved based on river discharge. This area has been classified as prohibited due to water quality not meeting the approved standard, and due to the presence of noted pollution sources. In 2009, two actual pollution sources capable of impacting the waters of Mill Pond were confirmed to be remediated; a new septic system was installed on Egret Lane, and a gray water straight pipe was connected into an inground septic system.

Table 17 shows all water quality scores for station WM 9.8, collected under the SRS sampling strategy, form 2002 through 2009; the table also notes cumulative rainfall and river discharge values (Q). The data is sorted by river discharge (cubic feet per second (cfs) on the day of collection. Two cumulative rainfall amounts are noted; rainfall 3 day refers to the cumulative rainfall amount from the evening prior to the day of sample collection and going back 72 hours, to the evening 4 days prior. Rainfall 4 days is the cumulative amount noted in Rain 3 day column, plus any additional rainfall occurring through the evening of the collection date; please note that some or all of the rainfall occurring during the day of collection may have occurred after the sample was collected. The final column in Table 17 indicates whether river stage had exceeded 30,000 cfs within a week of sample collection, thus placing the river into "Closed" status. There was only one water quality score that exceeded the variability standard during the proposed open status (closure trigger of 30,000 cfs), occurring after a 0.51 inches of cumulative rainfall within three days of sample collection.



Table 17. Mill Pond (WM 9.8) Water Quality Scores (FC/100 ML) and River Discharge (cfs), 2002-2009; (Q1= discharge (cfs) on day of sample collection; Q2= discharge 1 day prior sample collection; Q3= discharge 2 days prior sample collection)

Date	rain 3 day	rain 4 day	Stage1	Stage2	Stage3	Tide	Adv	Col Score	Falling into Closed Status?
22-Jan-02	0.56	0.56	3780	3820	3740	F	PWN	<3	
21-Aug-02	0.00	0.00	4010	3940	4270	F	N	3.6	
21-Aug-07	0.07	0.07	4670	5030	5220	F	N	<2	
26-Sep-02	1.64	1.64	4800	5000	4830	HE	N	9.1	
11-Feb-03	0.02	0.04	4840	4920	4920	E	NW	<3	
11-Feb-02	0.23	0.99	4970	3870	4180	F	P	23	
13-Jan-03	0.09	0.09	4990	4830	4910	HE	WN	43	
17-Mar-03	0.00	0.00	5320	4930	4820	F	NW	3.6	
08-Sep-05	0.00	0.00	5380	4630	6220	HF	X	3.6	
15-Sep-03	0.00	0.00	5430	4960	4850	HF	N	<3	
16-Oct-02	0.64	2.10	5500	5030	5890	HF	N	3.6	
23-Aug-05	0.02	0.12	5900	6140	5030	HF	N	9.1	
04-Aug-03	0.65	0.73	6030	5420	5450	HF	N	<3	
14-Jul-03	0.46	0.46	6060	6060	5520	H	N	23	
15-Sep-09	0.05	0.08	6360	6250	6310	HF	P	4	
15-Nov-04	0.11	0.11	6830	8060	7900	HF	N	43	
27-Jul-05	0.00	0.95	6880	6780	7640	F	N	9.1	
29-Sep-09	0.88	1.69	7400	5150	4800	HF	P	9.1	
26-Jun-07	0.00	0.00	7540	6970	7430	F	N	8	
29-Jul-02	0.44	0.46	7680	6610	6440	HF	N	<3	
18-Nov-02	1.35	1.70	8200	7540	8370	H	P	23	
16-Dec-02	1.85	1.85	8390	6620	4700	H	P	43	
24-Oct-07	0.00	0.03	8530	9960	12130	HF	X	9.1	
05-Oct-04	0.17	0.17	8680	8700	7350	HF	N	23	
22-Mar-04	0.70	0.70	10260	9880	10490	F	N	3.6	
19-May-04	0.70	0.70	10630	9680	9770	F	PN	<3	
17-Jul-06	0.00	0.00	10720	10400	9750	HE	N	23	
03-Jun-09	0.11	0.11	10810	12350	13880	HF	N	<2	
02-Jun-04	0.12	0.18	11290	12480	14400	F	P	3.6	



Date	rain 3 day	rain 4 day	Stage1	Stage2	Stage3	Tide	Adv	Col Score	Falling into Closed Status?
25-Aug-04	0.00	0.00	11430	12490	13630	H	N	23	
21-Sep-04	1.94	1.94	11620	12240	10020	F	P	<3	
18-Oct-06	0.00	0.67	11730	12490	14420	H	P	28	Y
22-Feb-05	0.19	0.38	12310	12650	13760	HF	X	15	
14-Oct-03	0.70	0.70	12380	13330	7970	H	N	3.6	
17-Feb-04	0.00	0.00	12580	12820	12720	H	N	3.6	
31-Aug-09	1.81	1.83	12620	11880	13650	F	X	20	
23-Aug-06	0.99	1.01	12650	13220	11410	F	X	4	
13-Mar-07	0.30	0.30	12960	11990	10660	HE	X	4	
09-Jun-03	0.04	0.38	13670	17020	16530	H	N	23	
13-Dec-04	0.51	0.56	13710	14270	14730	F	P	93	
25-Jul-04	0.47	0.47	13750	9560	7590	HE	N	23	
28-Mar-06	0.00	0.00	14040	13630	11330	F	W	3.6	
13-Nov-07	0.00	0.19	14190	13970	15540	F	X	54	Y
08-Dec-03	1.14	1.14	14690	15900	17020	HF	N	43	Y
17-May-09	0.27	0.94	15050	16880	20870	HF	P	2	
04-Nov-08	0.00	0.00	15630	16930	18470	HF	N	8	Y
20-Jun-02	0.00	0.00	16660	19440	22050	H	X	240	Y
26-Jun-06	0.75	0.95	16960	17380	17410	F	P	43	
04-Mar-02	0.84	0.84	17590	12910	11880	F	P	9.1	
25-Feb-08	0.34	0.34	17940	18990	19480	HF	X	10	Y
07-Apr-03	0.38	0.38	17980	19640	23210	HE	N	23	Y
14-Dec-09	0.00	0.97	18570	18380	19460	HF	P	6	Y
08-May-02	0.00	0.00	18850	19750	21410	HF	X	9.1	
26-Apr-04	0.11	0.69	19090	21400	24200	F	P	3.6	Y
06-Dec-06	0.16	0.16	20940	24100	29200	HF	X	38	Y
01-Apr-02	0.31	0.91	21040	15670	12000	F	PW	<3	
24-Feb-09	1.20	1.20	25347	23147	22315	F	P	2	Y
05-May-03	0.11	0.11	25900	34400	28800	HF	X	<3	Y
07-Nov-05	0.04	0.31	29000	28100	30960	F	P	43	Y
18-Jun-08	0.48	0.51	30400	20400	18720	F	N	2	Y
03-Nov-03	0.11	0.40	30800	35800	48700	E	P	43	Y



Date	rain 3 day	rain 4 day	Stage1	Stage2	Stage3	Tide	Adv	Col Score	Falling into Closed Status?
15-Jun-05	1.73	2.18	32300	17080	16480	E	PN	23	
10-May-05	1.51	1.51	33100	36600	38500	HF	P	15	Y
18-Nov-08	1.36	1.36	33500	43800	39300	F	P	98	Y
26-Oct-09	1.38	1.38	37300	32900	6620	F	P	15	Y
28-Apr-08	0.03	1.06	37700	42700	54600	F	P	3.6	Y
07-May-07	0.00	0.00	37800	41700	43900	E	X	44	Y
06-Jun-07	1.22	1.22	38100	27300	14850	H	P	29	Y
11-Aug-08	2.11	2.11	52700	68900	83400	H	P	116	Y
27-Apr-05	1.20	3.16	89600	105800	95800	F	P	43	Y



Table 18 shows all data collected at station WM 9.8 at or below 30,000 cfs (proposed Open status), split by month. Individual scores exceeding the geometric mean standard, but not the variability standard are highlighted in yellow; the only score exceeding the variability standard is highlighted in magenta. There were no evident trends in water quality scores by tidal stage or rainfall amounts. To further assess the impact of precipitation on this station, the geometric mean and P90 score was re-calculated, using a dataset restricted to those scores obtained from samples collected after rainfall events of 0.5 inches or more (cumulative, within 3 days). Using this dataset, both the geometric mean and P90 score met the approved standard.

Due to multiple individual scores exceeding the approved classification geometric mean standard of 14, the geometric means were recalculated by each month of collection to evaluate if any month would exceed the approved standard; these scores are shown in the last line of Table 18. The data indicated that the monthly geometric means for all months, except November and December meet the geometric standard. It is therefore recommended, that prior to this classification upgrade taking place, additional samples are collected in the fall months to evaluate whether the removal of the straight pipe and septic system malfunction on Mill Pond was contributing to the elevated scores during the fall months. Additionally, observations of migratory bird populations which may inhabit Mill Pond in the fall months should also be completed. If this additional data shows clean scores, then the area may be able to be upwardly re-classified.

During a drive through survey of the area, it was noted that 3 horses are pastured in the vicinity of Mill Pond; the horses graze in a pasture that drains towards a small, unnamed pond that overflows into Mill Creek at low tide. There are no water quality stations located in this portion of Mill Pond, and water quality is unknown. Therefore, it is recommended that the portion of Mill Pond (13 acres, located east of Egret Point) remain classified as prohibited (Figure 5).



Table 18. Mill Pond (WM 9.8) Water Quality Scores (FC/100 ml) by Month, 2002-2009; Discharge <30,000 cfs

Date	Tide	rain 3 day	rain 4 day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
08-May-02	HF	0.00	0.00					9.1							
21-Aug-02	F	0.00	0.00								3.6				
17-Mar-03	F	0.00	0.00			3.6									
15-Sep-03	HF	0.00	0.00									<3			
17-Feb-04	H	0.00	0.00		3.6										
25-Aug-04	H	0.00	0.00								23				
08-Sep-05	HF	0.00	0.00									3.6			
28-Mar-06	F	0.00	0.00			3.6									
17-Jul-06	HE	0.00	0.00							23					
26-Jun-07	F	0.00	0.00						8						
24-Oct-07	HF	0.00	0.03										9.1		
27-Jul-05	F	0.00	0.95							9.1					
11-Feb-03	E	0.02	0.04		<3										
23-Aug-05	HF	0.02	0.12								9.1				
09-Jun-03	H	0.04	0.38						23						
15-Sep-09	HF	0.05	0.08									4			
21-Aug-07	F	0.07	0.07								<2				
13-Jan-03	HE	0.09	0.09	43											
15-Nov-04	HF	0.11	0.11											43	
03-Jun-09	HF	0.11	0.11						<2						
02-Jun-04	F	0.12	0.18						3.6						
05-Oct-04	HF	0.17	0.17										23		
22-Feb-05	HF	0.19	0.38		15										
11-Feb-02	F	0.23	0.99		23										
17-May-09	HF	0.27	0.94					2							
13-Mar-07	HE	0.30	0.30			4									
01-Apr-02	F	0.31	0.91				<3								
29-Jul-02	HF	0.44	0.46							<3					
14-Jul-03	H	0.46	0.46							23					
25-Jul-04	HE	0.47	0.47							23					
13-Dec-04	F	0.51	0.56												93
22-Jan-02	F	0.56	0.56	<3											



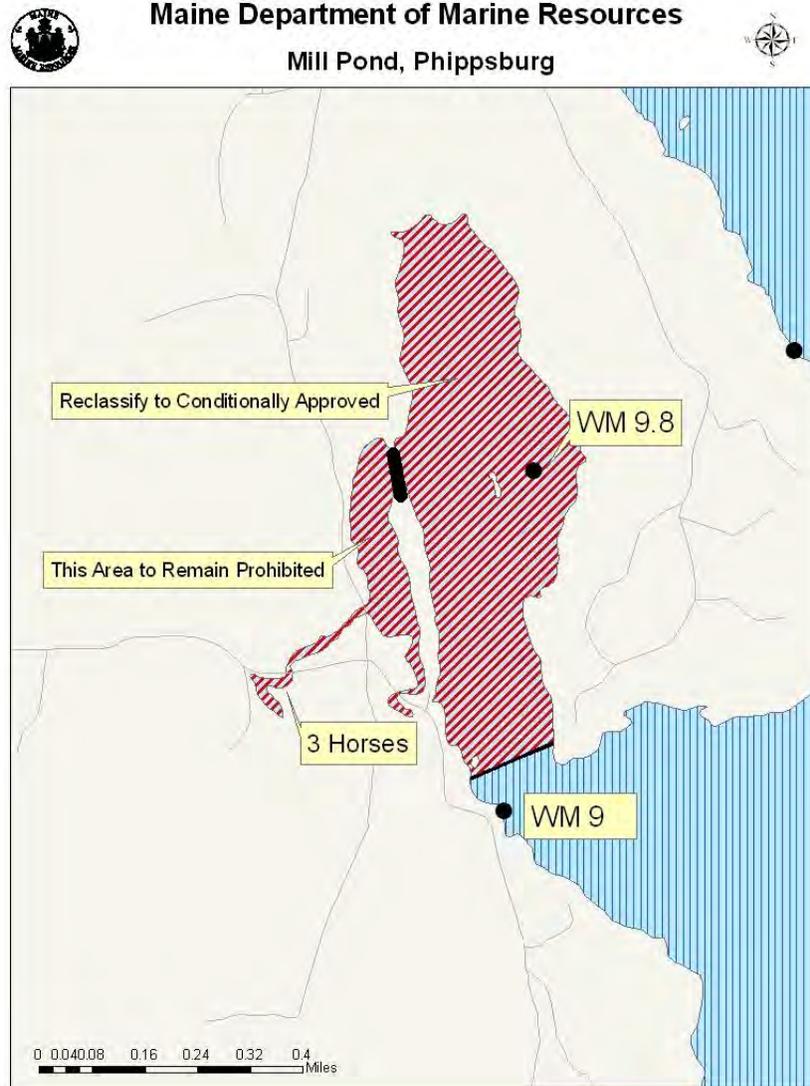
Date	Tide	rain 3 day	rain 4 day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
16-Oct-02	HF	0.64	2.10										3.6		
04-Aug-03	HF	0.65	0.73								<3				
14-Oct-03	H	0.70	0.70										3.6		
22-Mar-04	F	0.70	0.70			3.6									
19-May-04	F	0.70	0.70					<3							
26-Jun-06	F	0.75	0.95						43						
04-Mar-02	F	0.84	0.84			9.1									
29-Sep-09	HF	0.88	1.69									9.1			
23-Aug-06	F	0.99	1.01								4				
18-Nov-02	H	1.35	1.70											23	
26-Sep-02	HE	1.64	1.64									9.1			
15-Jun-05	E	1.73	2.18						23						
31-Aug-09	F	1.81	1.83								20				
16-Dec-02	H	1.85	1.85												43
21-Sep-04	F	1.94	1.94									<3			
Monthly Geomean				11.2	7.7	4.4	2.9	3.8	10.4	12.6	6.1	4.6	7.2	31.4	63.2



Table 19. WM 9.8 Geomean and P90 score using restricted datasets, 2002-2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Min_Date	Dataset Used
WM 9.8	P	30	11	8.1	0.46	93	30.9	41	14-Oct 03	SRS data collected at 30,000 or less, within a week of sample collection
WM 9.8	P	17	3	9.0	0.50	93	39.7	45	22-Jan 02	SRS data collected at 30,000 or less, within a week of sample collection AND data collected when cumulative rainfall >0.5 inches

Figure 6. Proposed Classification Change for Mill Pond, Phippsburg
Maine Department of Marine Resources





Shoreline Survey Activity

A drive through survey of the western shore of the Kennebec River (Georgetown) was completed on September 26, 2009; no changes in pollution were noted. A drive through survey of the eastern shore of the Kennebec River (Phippsburg) was completed on November 2, 2009; a new septic system was noted of Egret Rd, on the shore of Parker Head Pond (classified as prohibited). No other changes in pollution status were observed during the drive through surveys.

Aquaculture/Wet Storage Activity

There are no aquaculture sites or wet storage activity in growing area WM.

Classification Changes Required and Requested

As a result of this review, one classification change is proposed. Mill Pond, Phippsburg, is proposed for an upgrade from prohibited to conditionally approved, based on river discharge. After the Mill Pond, Phippsburg is evaluated the reclassification will be delayed pending the results for additional fall data. A change in the river discharge management plan for Sagadahoc and Heal Eddy is also proposed. This change is to increase the river discharge closure trigger for Sagadahoc Bay and Heal Eddy from 30,000 cfs to 60,000 cfs.

Summary

At the end of 2009, all stations in the Kennebec River were meeting their classification standard, and no downgrades in classification were required. With the exception of three stations, water quality in the approved and conditionally approved portions of the Kennebec River has shown little variation over the past review year. No new pollution changes were noted during the 2009 review year. Based on this report, two classification changes are proposed. Mill Pond, Phippsburg is proposed for an upward classification from prohibited to conditionally approved, based on river discharge of 30,000 cfs. After the Mill Pond, Phippsburg is evaluated the reclassification will be delayed pending the results for additional fall data. The closing trigger defined in the management plan for Sagadahoc Bay and Heal Eddy conditionally approved areas is proposed for a modification, with an increase from 30,000 cfs to 60,000 cfs.

Recommendation for Future Work

- 1) Collect samples from the pond overflow culvert at Mill Pond, Phippsburg
- 2) Begin shoreline survey of the Kennebec River, to be completed by end of 2011



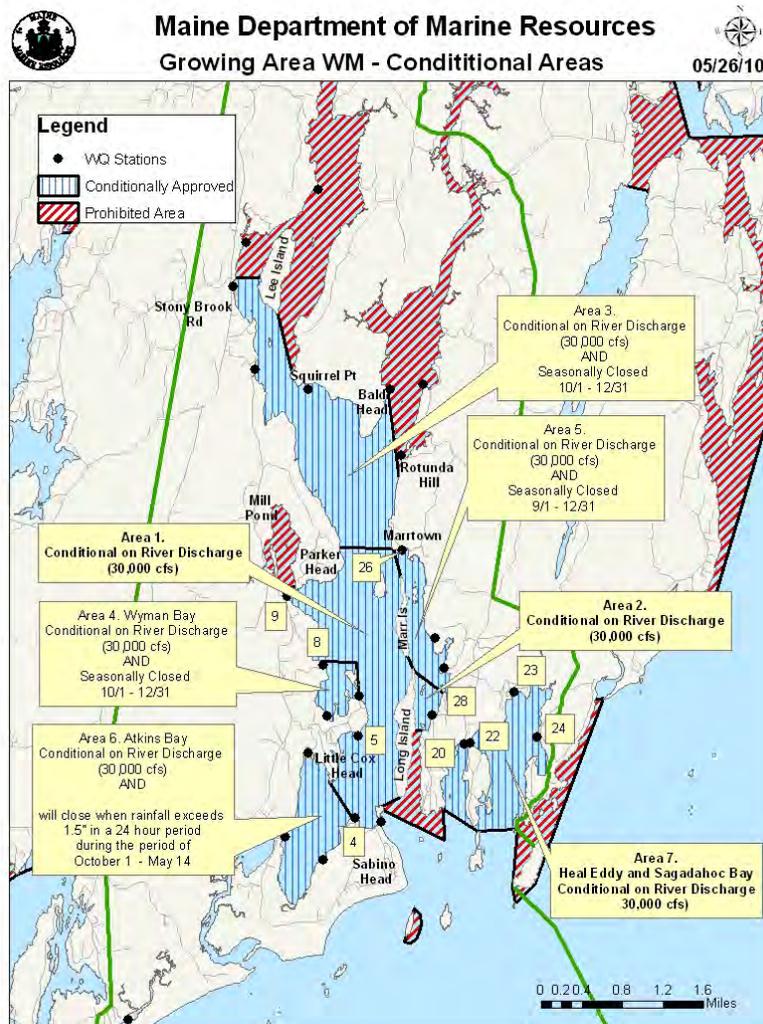
- 3) In July and August 2010, revisit all potential pollution sources in Georgetown, noted during the 2006 sanitary survey
- 4) Collect stream samples draining into Sagadahoc Bay, to be presented in the next triennial evaluation
- 5) Collect extra samples at Mill Pond, station WM 9.8 in the months of September through December.



Appendix A. Review of Management Plan for Lower Kennebec River and Sagadahoc Bay/Heal Eddy River Discharge Conditional Areas, 2009

Scope

In April 2009, the portions of growing area located north of Popham Beach, which were previously classified as approved, were reclassified to conditionally approved based on river discharge (areas 1, 2, and 7 on map). These areas close when river discharge exceeds 30,000 cfs. Water quality at these areas is monitored by the following ten stations: WM 4 (boundary with Atkins Bay rainfall area), WM 5, WM 8 (boundary with Wyman Bay seasonal area), WM 9, WM 26 (boundary station with Todd Bay seasonal area), WM 20, WM 22, WM 23, WM 24 and WM 28. All conditionally approved stations in this area are sampled at least six times in the open status, following a systematic random sampling schedule.





Compliance with management plan

This area closes when river discharge exceeds 30,000 cfs. In 2009, there were four river discharge closures. Records for river discharge rates were reviewed and all the required closures were implemented, per the management plan. Once the river discharge has returned to normal discharge (<30,000 cfs) and water quality returned to the approved standard (confirmed by re-opening samples), the river discharge areas were re-opened for shellfish harvesting. In 2009, these areas were closed as follows:

Date Closed	Reason for Closure	Date Re-Opened	Days Closed
4/3/2009	Flood Closure	5/12/2009	39
4/29/2009	River Discharge (first closure under this management plan)		
6/19/2009	Flood Closure	8/19/2009	60
6/22/2009	River Discharge		
8/24/2009	Flood Closure (discharge did not exceed)	8/30/2009	6
10/4/2009	Flood Closure (discharge did not exceed)	10/10/2009 (Heal Eddy remains closed)	6
		10/14/09 (Heal Eddy opens)	10
10/26/2009	River Discharge	11/10/2009	15
11/15/2009	Flood Closure	12/22/2009	37
11/16/2009	River Discharge		
Total Days Closed in 2009			163 (excluding Heal Eddy)
			167 (Heal Eddy)
Total Days Open in 2009			202 (excluding Heal Eddy)
			198 (Heal Eddy)

Adequacy of reporting and cooperation of involved persons

The management plan for this conditional area does not require reporting.

Compliance with approved growing area criteria

At the end of the 2009 review period, all conditionally approved and prohibited stations located on the boundary lines with the conditionally approved areas, met the approved standard while in the open status (Table 1).

Table 1. Lower Kennebec River, Sagadahoc Bay and Heal Eddy Conditional Stations and Boundary Stations, Open Status

Station	Class	Count	MFC	GM	SDV	MAX	P90	Appd_Std
WM004.00	CA	30	16	4.0	0.40	43	13.0	38
WM005.00	CA	30	13	3.8	0.35	43	10.7	40
WM008.00	CA	30	12	4.9	0.36	23	14.1	41



Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM009.00	P	30	13	7.0	0.42	43	23.7	40
WM020.00	CA	30	16	3.9	0.38	23	11.9	38
WM022.00	CA	30	16	3.9	0.43	43	13.9	38
WM023.00	CA	30	16	4.3	0.50	93	19	38
WM024.00	CA	30	16	4.5	0.53	460	21.5	38
WM026.00	CA	30	16	5.1	0.50	93	22.3	38
WM028.00	CA	30	15	4.6	0.46	96	17.7	39

Water sampling compliance history

In 2009, all stations were sampled at least six times in the open status (based on river discharge closures). Specifically, stations WM 5, 9, 20, 22, 23, 24, and 28 were sampled six times in the open status, and stations WM 4, 8, and 26, were sampled seven times in the open status.

Analysis-recommendations

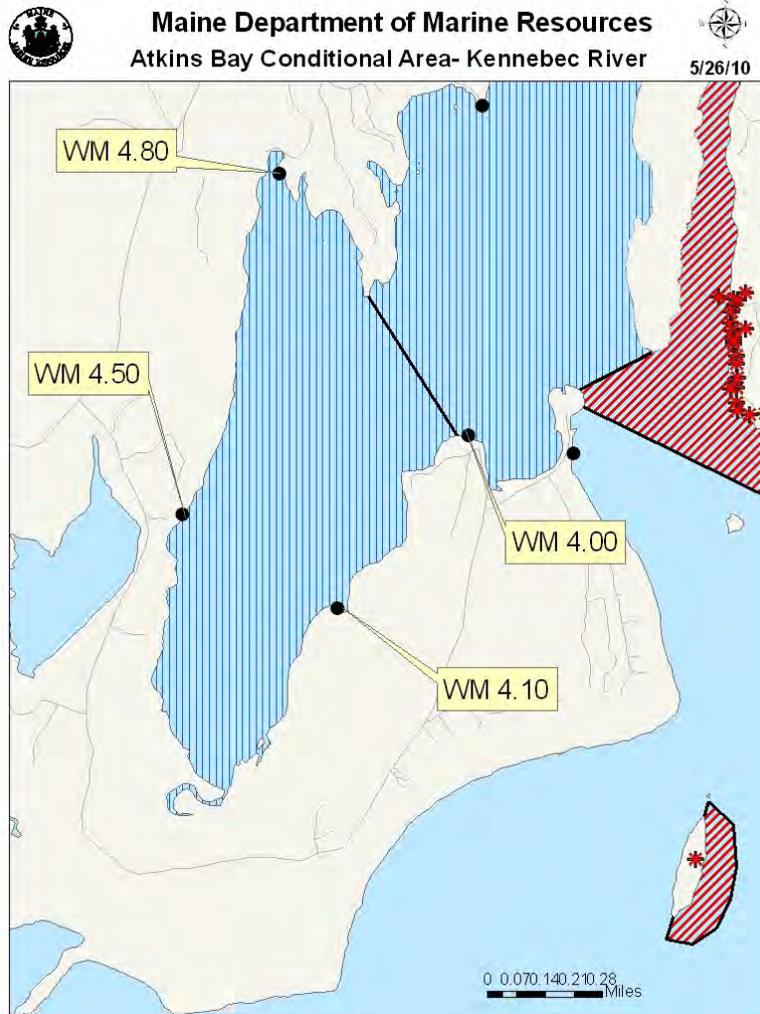
All stations located in the Lower Kennebec River (WM 4, 5, 8, 9, 26 and 28) and in Sagadahoc Bay and Heal Eddy (WM 20 through WM 24) met the approved standard while in the open status (Table 1). A recommendation to increase the closure trigger for Heal Eddy/Sagadahoc Bay conditionally approved area, from 30,000 cfs to 60,000 cfs is presented in the Recommendation for Upward Classification section of this report.



Appendix B. Review of Management Plans for Atkins Bay Conditional Area, 2009

Scope

A portion of growing area WM is classified as conditionally approved based on seasonal rainfall and on river discharge. Atkins Bay, located in Phippsburg, shall be closed when rainfall meets or exceeds 1.5 inches in a 24 hour period, between the period of October 1st and May 14th AND when river discharge exceeds 30,000 cfs. Water quality in this conditional area is monitored by 4 stations: WM 4, 4.1, 4.5 and 4.8. All conditionally approved stations in Atkins Bay are sampled at least 6 times in the open status, following a systematic random sampling schedule.





Compliance with management plans

This area is conditionally managed under two management plans. In 2009, there were five closures of this conditional area; four of the closures were due to exceedences of rainfall and river discharge, and one was due to exceedences of rainfall only. Records for rainfall amounts and river discharge rates were reviewed and all the required closures were implemented, per the management plan. In 2009, this area was closed as follows:

Date Closed	Reason for Closure	Date Opened	Days Closed
Closed in 2008	Rainfall	1/6/2009	5
4/3/2009	Flood Closure	5/12/2009	39
4/29/2009	River Discharge (first closure under this management plan)		
6/19/2009	Flood Closure	8/19/2009	60
6/22/2009	Rainfall and River Discharge		
8/24/2009	Flood Closure (discharge did not exceed)	8/30/2009	6
10/4/2009	Flood Closure, Rainfall	10/19/2010	15
10/26/2009	River Discharge	11/10/2009	15
11/15/2009	Flood Closure	12/22/2009	37
11/16/2009	Rainfall and River Discharge		
Total Days Closed in 2009			177
Total Days Open in 2009			188

Adequacy of reporting and cooperation of involved persons

In the event that a conditional area closure must be implemented due to rainfall exceeding 1.5 inches in 24 hours, the management plan requires reporting by the Town of Phippsburg. In 2009, the cooperation between all involved parties was excellent and all necessary notifications were received at appropriate times. Closures necessitated by exceedences of river discharge do not require reporting by a third party.

Compliance with approved growing area criteria

At the end of 2009, all stations in Atkins Bay met the approved classification standard while in the open status (Table 1).

Table 1. Atkins Bay Conditional Area, Open Status

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM004.00	CA	30	14	4.2	0.9	43	13.2	40
WM004.10	CA	30	13	4.5	0.40	43	14.9	40
WM004.50	CA	30	13	4.0	0.33	25	10.6	40
WM004.80	CA	30	14	4.2	0.42	75	14.6	40



Water sampling compliance history

In 2009, conditionally approved stations in Atkins Bay were sampled 7 times in the open status and met the sampling frequency requirements set by the NSSP Model ordinance.

Analysis-Recommendations

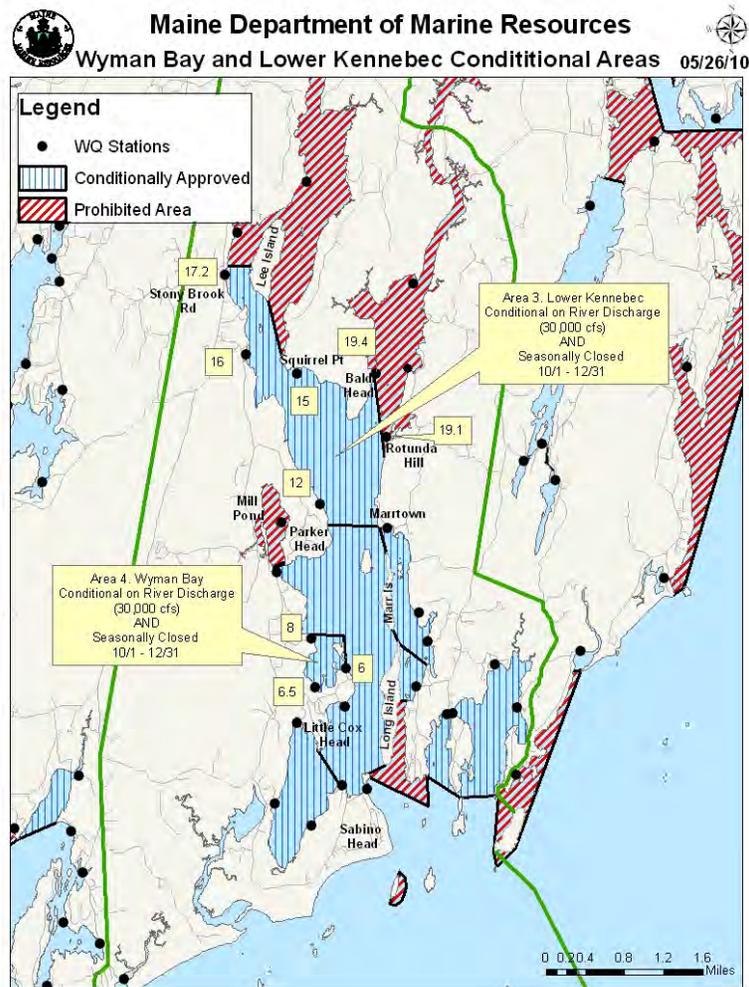
No changes to the current management plans are recommended at this time.



Appendix C. Review of Management Plans for Squirrel Point- Parker Head Flats and Cox Head-Wyman Bay Conditional Areas, 2009

Scope

A portion of growing area WM, including The Parker Head -Squirrel Pt flats, and Cox Head-Wyman Bay flats, are classified as conditionally approved based on season **and** on river discharge. These flats are seasonally closed from October 1 to December 31; as of April 29, 2009, these flats also close when river discharge exceeds 30,000 cfs. The seasonal pollution impact is likely due to the increased presence of migratory birds in this portion of the growing area during the closed status period. Water quality in this conditional area is monitored by nine stations: WM 6, 6.5 and 8 (Wyman Bay) and WM 12, 15, 16, 17.2, 19.1, and 19.4 (Squirrel Pt/Parker Head). All conditionally approved stations in this area are sampled at least 6 times in the open status, following a systematic random sampling schedule.





Compliance with management plan

These conditional areas are managed under two management plans: river discharge and seasonal. Between January 1 and September 30, these areas close when river discharge exceeds 30,000 cfs; these areas are seasonally closed from October 1 to December 31. Records for river discharge rates were reviewed and all the required closures were implemented, per the river discharge management plan. Prior to reopening after a river discharge violation, water samples were collected to confirm that water quality has returned to the approved standard. In 2009, these areas were closed as follows:

Date Closed	Reason for Closure	Date Re-Opened	Days Closed
4/3/2009	Flood Closure	5/12/2009	39
4/29/2009	River Discharge (first closure under this management plan)		
6/19/2009	Flood Closure	8/19/2009	60
6/22/2009	River Discharge		
8/24/2009	Flood Closure (discharge did not exceed)	8/30/2009	6
10/1/2009	Seasonal Closure	1/1/2010	92
Total Days Closed in 2009			197
Total Days Open in 2009			168

Adequacy of reporting and cooperation of involved persons

The management plans for this conditional area does not require reporting by a third party.

Compliance with approved growing area criteria

The annual review of water quality data for all active conditionally approved stations, as well as boundary stations, in the Lower Kennebec River are shown in Table 1. At the end of 2009, all stations met the approved standard while in the open status (based both on season and when river discharge is <30,000 cfs).

Table 1. Cox Head-Wyman Bay and Squirrel Point/Parker Head Conditionally Approved Stations and Boundary Stations, Open Status

Station	Class	Count	MFC	GM	SDV	MAX	P90	Appd_Std
WM006.00	CA	30	13	5.1	0.38	43	15.5	40
WM006.50	New	13	12	3.2	0.33	14	8.5	32
WM008.00	CA	30	11	4.5	0.30	16	10.7	41
WM012.00	CA	30	15	4.8	0.36	93	14.1	39
WM015.00	CA	30	15	4.8	0.46	43	19	39
WM016.00	CA	30	15	5.8	0.41	46	19.8	39
WM017.20	P-boundary	30	11	6.5	0.36	93	18.5	41
WM019.10	P-boundary	30	12	7.8	0.48	93	32.6	41
WM019.40	P-boundary	30	14	5.6	0.35	43	16.1	40



Water sampling compliance history

In 2009, all stations in the Parker Head -Squirrel Pt flats, and Cox Head-Wyman Bay Conditional areas were sampled at seven times in the open status. Boundary stations which are classified as prohibited were sampled on the same days as the conditionally approved stations, during the open status period.

Analysis-recommendations

No changes to the current management plans are required at this time. In the coming review years, the need for the seasonal closure status should be re-evaluated; more data should be collected during the current seasonal closed status to be used in this assessment.



Appendix D. Review of Management Plans for Todd Bay Conditional Area, 2009

Scope

A portion of growing area WM- Todd Bay, is classified as conditionally approved based on season **and** on river discharge. These flats are seasonally closed from September 1 to December 31; as of April 29, 2009, these flats also close when river discharge exceeds 30,000 cfs. The seasonal pollution impact is likely due to the increased presence of migratory birds in this portion of the growing area during the closed status period. Water quality in this conditional area is monitored by 3 stations: WM 26, 26.9 and 27; station WM 4 is a boundary station. All conditionally approved stations in Todd Bay are sampled at least 6 times in the open status (if area is in open status for more than 6 months/year), or monthly (if area is in closed status for more than 6 months/year), following a systematic random sampling schedule.





Compliance with management plan

This area closes when river discharge exceeds 30,000 cfs; this area is seasonally closed from September 1 to December 31. In 2009, there were two closures based on exceedences of river discharge. Records for river discharge rates were reviewed and all the required closures were implemented, per the management plan. Once the river discharge has returned to normal discharge (<30,000) and water quality returned to the approved standard (confirmed by re-opening samples), the river discharge areas were re-opened for shellfish harvesting. In 2009, these areas were closed as follows:

Date Closed	Reason for Closure	Date Opened	Days Closed
4/3/2009	Flood Closure	5/12/2009	39
4/29/2009	River Discharge (first closure under this management plan)		
6/19/2009	Flood Closure	8/19/2009	60
6/22/2009	River discharge		
8/24/2009	Flood Closure (discharge did not exceed)	8/30/2009	6
9/1/2009	Seasonal Closure	1/1/2010	122
Total Days Closed in 2009			227
Total Days Open in 2009			138

Adequacy of reporting and cooperation of involved persons

The management plan for this conditional area does not require reporting by a third party.

Compliance with approved growing area criteria

The annual review of water quality data for all conditionally approved stations in Todd Bay conditional area meet the approved standard when in the open status, based on season and river discharge (Table 1).

Table 1. Todd Bay Conditionally Approved Stations, Open Status, 2003-2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std
WM026.00	CA	30	10	5.5	0.47	93	22.2	42
WM026.90	CA	26	10	4.5	0.44	93	16.8	41
WM027.00	CA	25	10	4.6	0.35	23	13.1	41

Water sampling compliance history

This area was open for less than 6 months in 2009. This area was sampled 5 times in the open status, on the following dates: January 27, March 15, May 26, June 14 and August 31.



Analysis-recommendations

No changes to the current management plans are required at this time. In the coming review years, the need for the seasonal closure status should be re-evaluated; more data should be collected during the current seasonal closed status to be used in this assessment.



Appendix E. 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 F. Growing Area WM 2009 Data

Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	MFCOL
WM001.00	2/24/2009	DDO	H	CL	1	33	R	W	O	A	<2
	5/6/2009	DDO	HE	SW	8	26	R	P	O	A	<2
	6/3/2009	DDO	HE	W	12	27	R		O	A	<2
	8/10/2009	DDO	F	S	16	26	R		O	A	<2
	9/15/2009	DDO	H	NW	16	29	R		O	A	4
	10/27/2009	DDO	E	NE	8	25	R		O	A	6
WM003.00	2/24/2009	RL	F	NW	3	26	R	P	O	A	<2
	5/17/2009	RL	F	SE	9	21	R	P	O	A	6
	6/3/2009	RL	F	NW	10	26	R	N	O	A	<2
	8/31/2009	RL	F	NW	16	20	R		O	A	2
	9/15/2009	RL	F	NW	14	30	R	P	O	A	<2
	9/29/2009	RL	F	SW	12	31	R	P	O	A	<2
	10/26/2009	RL	HE	NE	10	26	R	P	O	A	<2
WM004.00	1/13/2009	RL	F	SW	5	25	R	N	O	CA	8
	2/24/2009	RL	F	NW	3	20	R	P	O	CA	2
	5/17/2009	RL	F	SE	10	14	R	P	O	CA	2
	6/3/2009	RL	F	NW	11	23	R	N	O	CA	<2
	8/31/2009	RL	F	NW	17	14	R		O	CA	4
	9/15/2009	RL	F	NW	15	28	R	P	O	CA	2
	9/29/2009	RL	HF	SW	13	28	R	P	O	CA	6
10/26/2009	RL	HE	NE	9	12	R	P	C	CA	8	
WM004.10	1/13/2009	RL	F	SW	4	16	R	N	O	CA	12
	2/24/2009	RL	F	NW	2	18	R	P	O	CA	2
	5/17/2009	RL	HF	SE	11	13	R	P	O	CA	<2
	6/3/2009	RL	F	NW	11	16	R	N	O	CA	2
	8/31/2009	RL	F	NW	17	14	R		O	CA	4
	9/15/2009	RL	F	NW	16	21	R	P	O	CA	6
	9/29/2009	RL	HF	SW	14	24	R	P	O	CA	2
	10/26/2009	RL	HE	NE	8	12	R	P	C	CA	2
WM004.50	1/13/2009	RL	F	SW	4	16	R	N	O	CA	14
	2/24/2009	RL	F	NW	2	18	R	P	O	CA	3.6
	5/17/2009	RL	HF	SE	11	13	R	P	O	CA	<2
	6/3/2009	RL	F	NW	11	15	R	N	O	CA	<2
	8/31/2009	RL	F	NW	17	16	R		O	CA	6
	9/15/2009	RL	HF	NW	16	21	R	P	O	CA	<2
	9/29/2009	RL	HF	SW	14	24	R	P	O	CA	4
	10/26/2009	RL	HE	NE	8	11	R	P	C	CA	2



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	MFCOL
WM004.80	1/13/2009	RL	F	SW	4	14	R	NW	O	CA	10
	2/24/2009	RL	F	NW	2	18	R	P	O	CA	3.6
	5/17/2009	RL	HF	SE	11	12	R	P	O	CA	<2
	6/3/2009	RL	F	NW	12	15	R	N	O	CA	<2
	8/31/2009	RL	F	NW	17	16	R		O	CA	4
	9/15/2009	RL	HF	NW	16	20	R	P	O	CA	6
	9/29/2009	RL	HF	SW	15	24	R	P	O	CA	<2
	10/26/2009	RL	HE	NE	9	12	R	P	C	CA	6
WM005.00	2/24/2009	RL	F	NW	3	26	R	P	O	A	<2
	5/17/2009	RL	HF	SE	10	16	R	P	O	CA	<2
	6/3/2009	RL	HF	NW	10	25	R	N	O	CA	<2
	8/31/2009	RL	F	NW	18	16	R		O	CA	9.1
	9/15/2009	RL	HF	NW	15	28	R	P	O	CA	<2
	9/29/2009	RL	HF	SW	14	26	R	P	O	CA	<2
	10/26/2009	RL	HE	NE	10	22	R	P	C	CA	<2
WM006.00	1/13/2009	RL	F	SW	3	12	R	N	O	CA	13
	2/24/2009	RL	F	NW	3	15	R	P	O	CA	<2
	5/17/2009	RL	HF	SE	11	10	R	P	O	CA	2
	6/3/2009	RL	HF	NW	12	12	R	N	O	CA	3.6
	8/31/2009	RL	F	NW	18	14	R		O	CA	18
	9/15/2009	RL	HF	NW	16	20	R	P	O	CA	<2
	9/29/2009	RL	HF	SW	14	22	R	P	O	CA	6
	10/26/2009	RL	HE	NE	8	8	R	P	C	CA	3.6
WM006.50	1/13/2009	RL	F	SW	3	12	R	N	O	CA	12
	2/24/2009	RL	F	NW	3	14	R	P	O	CA	2
	5/17/2009	RL	HF	SE	12	9	R	P	O	CA	<2
	6/3/2009	RL	HF	NW	12	12	R	N	O	CA	<2
	8/31/2009	RL	F	NW	18	11	R		O	CA	8
	9/15/2009	RL	HF	NW	16	18	R	P	O	CA	2
	9/29/2009	RL	HF	SW	14	22	R	P	O	CA	2
	10/26/2009	RL	HE	NE	8	8	R	P	C	CA	8
WM008.00	1/13/2009	RL	F	SW	3	17	R	N	O	CA	14
	2/24/2009	RL	F	NW	2	14	R	P	O	CA	12
	5/17/2009	RL	HF	SE	12	8	R	P	O	CA	4
	6/3/2009	RL	HF	NW	12	15	R	N	O	CA	2
	8/31/2009	RL	F	NW	18	10	R		O	CA	10
	9/15/2009	RL	HF	NW	16	24	R	P	O	CA	2
	9/29/2009	RL	HF	SW	15	24	R	P	O	CA	4
	10/26/2009	RL	E	NE	9	11	R	P	C	CA	2



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	MFCOL
WM009.00	2/24/2009	RL	F	NW	3	14	R	P	C	P	3.6
	5/17/2009	RL	HF	SE	12	8	R	P	C	P	2
	6/3/2009	RL	HF	NW	12	10	R	N	C	P	2
	8/31/2009	RL	F	NW	18	10	R		C	P	13
	9/15/2009	RL	HF	NW	17	20	R	P	C	P	6
	9/29/2009	RL	HF	SW	15	21	R	P	C	P	10
	10/26/2009	RL	E	NE	9	11	R	P	C	P	<2
12/14/2009	RL	HF	N	4	10	E	P	C	P	20	
WM009.80	2/24/2009	RL	F	NW	2	14	R	P	C	P	2
	5/17/2009	RL	HF	SE	12	10	R	P	C	P	2
	6/3/2009	RL	HF	NW	12	12	R	N	C	P	<2
	8/31/2009	RL	F	NW	18	14	R		C	P	20
	9/15/2009	RL	HF	NW	17	19	R	P	C	P	4
	9/29/2009	RL	HF	SW	15	23	R	P	C	P	9.1
	11/1/2009	RL	F	NE	8	11	R	P	C	P	15
12/14/2009	RL	HF	N	4	10	E	P	C	P	6	
WM012.00	1/13/2009	RL	F	SW	3	10	R	N	O	CA	16
	2/24/2009	RL	HF	NW	3	12	R	P	O	CA	5.5
	5/17/2009	RL	HF	SE	12	7	R	P	O	CA	2
	6/3/2009	RL	HF	NW	13	8	R	N	O	CA	4
	8/31/2009	RL	HF	NW	18	10	R		O	CA	7.3
	9/15/2009	RL	HF	NW	17	20	R	P	O	CA	2
	9/29/2009	RL	HF	SW	14	26	R	P	O	CA	4
10/26/2009	RL	E	NE	9	6	R	P	C	CA	<2	
WM015.00	1/13/2009	RL	F	SW	3	10	R	N	O	CA	28
	2/24/2009	RL	HF	NW	3	12	R	P	O	CA	<2
	5/17/2009	RL	HF	SE	12	8	R	P	O	CA	4
	6/3/2009	RL	HF	NW	13	10	R	N	O	CA	<2
	8/31/2009	RL	HF	NW	19	8	R		O	CA	5.5
	9/15/2009	RL	HF	NW	16	23	R	P	O	CA	4
	9/29/2009	RL	H	SW	15	22	R	P	O	CA	<2
10/26/2009	RL	E	NE	9	10	R	P	C	CA	10	
WM016.00	1/13/2009	RL	F	SW	3	12	R	N	O	CA	20
	2/24/2009	RL	HF	NW	4	20	R	P	O	CA	<2
	5/17/2009	RL	HF	SE	12	8	R	P	O	CA	2
	6/3/2009	RL	HF	NW	11	19	R	N	O	CA	<2
	8/31/2009	RL	HF	NW	19	10	R		O	CA	4
	9/15/2009	RL	HF	NW	16	24	R	P	O	CA	<2
	9/29/2009	RL	H	SW	15	24	R	P	O	CA	8



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	MFCOL
	10/26/2009	RL	E	NE	10	8	R	P	C	CA	6
WM017.20	1/13/2009	RL	F	SW	3	8	R	N	C	P	20
	2/24/2009	RL	HF	NW	3	12	R	PW	C	P	4
	5/17/2009	RL	H	SE	12	8	R	P	C	P	5.5
	6/3/2009	RL	HF	NW	13	7	R	N	C	P	2
	8/31/2009	RL	HF	NW	19	10	R		C	P	3.6
	9/15/2009	RL	H	NW	17	17	R	P	C	P	8
	9/29/2009	RL	H	SW	15	18	R	P	C	P	9.1
	10/26/2009	RL	E	NE	9	6	R	P	C	P	16
	12/14/2009	RL	HF	N	4	7	E	P	C	P	24
WM017.50	2/24/2009	RL	HF	NW	3	8	R	PW	C	P	8
	5/17/2009	RL	H	SE	13	4	R	P	C	P	6
	6/3/2009	RL	H	NW	13	8	R	N	C	P	4
	8/31/2009	RL	HF	NW	19	6	R		C	P	16
	9/15/2009	RL	H	NW	17	12	R	P	C	P	10
	9/29/2009	RL	H	SW	16	16	R	P	C	P	28
	10/26/2009	RL	E	NE	8	4	R	P	C	P	12
	12/14/2009	RL	HF	N	3	6	E	P	C	P	34
WM018.20	2/24/2009	RL	HF	NW	3	6	R	P	C	P	6
	5/17/2009	RL	H	SE	13	2	R	P	C	P	7.3
	6/3/2009	RL	H	NW	15	5	R	N	C	P	2
	8/31/2009	RL	HF	NW	20	4	R		C	P	15
	9/15/2009	RL	H	NW	17	11	R	P	C	P	2
	9/29/2009	RL	H	SW	16	14	R	P	C	P	25
	10/26/2009	RL	E	NE	9	4	R	P	C	P	3.6
	12/14/2009	RL	HF	N	3	4	E	P	C	P	25
WM019.10	1/13/2009	EXT	F	SW	0	19	R		C	P	6
	3/15/2009	CCA	F	SW	9	15	R		C	P	<2
	5/26/2009	CCA	F	NE	14	21	R		C	P	2
	6/14/2009	CCA	F	SE	16	18	R	P	C	P	18
	8/31/2009	CCA	HF	NW	17	20	R	P	C	P	14
	9/20/2009	CCA	H	SW	16	26	R		C	P	<2
	10/18/2009	JHZ	HF	N	9	22	R		C	P	2
WM019.20	2/24/2009	RL	F	NW	2	14	R	PW	C	P	5.1
	5/17/2009	RL	HF	SE	12	8	R	P	C	P	<2
	6/3/2009	RL	HF	NW	13	10	R	N	C	P	2
	8/31/2009	RL	F	NW	19	10	R		C	P	10
	9/15/2009	RL	HF	NW	17	16	R	P	C	P	4
	9/29/2009	RL	HF	SW	15	19	R	P	C	P	2



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	MFCOL
	10/26/2009	RL	E	NE	9	8	R	P	C	P	11
	12/14/2009	RL	HF	N	4	8	E	P	C	P	9.1
WM019.40	1/13/2009	RL	F	SW	3	10	R	N	C	P	18
	2/24/2009	RL	HF	NW	2	14	R	P	C	P	2
	5/17/2009	RL	HF	SE	12	9	R	P	C	P	2
	6/3/2009	RL	HF	NW	13	10	R	N	C	P	5.5
	8/31/2009	RL	F	NW	19	11	R		C	P	4
	9/15/2009	RL	HF	NW	17	16	R	P	C	P	<2
	9/29/2009	RL	HF	SW	15	19	R	P	C	P	10
	10/26/2009	RL	E	NE	8	7	R	P	C	P	6
	12/14/2009	RL	HF	N	4	8	E	P	C	P	36
WM020.00	3/15/2009	CCA	F	SW	9	26	R		O	A	<2
	5/26/2009	CCA	F	NE	13	20	R		O	CA	<2
	6/14/2009	CCA	F	SE	14	28	R	P	O	CA	<2
	8/31/2009	CCA	HF	NW	16	20	R	P	O	CA	<2
	9/20/2009	CCA	H	SW	17	26	R		O	CA	2
	10/18/2009	JHZ	H	N	9	26	R		O	CA	20
WM022.00	3/15/2009	CCA	F	SW	10	22	R		O	A	<2
	5/26/2009	CCA	F	NE	14	25	R		O	CA	<2
	6/14/2009	CCA	F	SE	14	25	R	P	O	CA	<2
	8/31/2009	CCA	HF	NW	16	30	R	P	O	CA	<2
	9/20/2009	CCA	H	SW	16	30	R		O	CA	<2
	10/18/2009	JHZ	H	N	9	28	R		O	CA	4
WM023.00	3/15/2009	CCA	F	SW	9	26	R		O	A	<2
	5/26/2009	CCA	F	NE	13	28	R		O	CA	4
	6/14/2009	CCA	F	SE	15	28	R	P	O	CA	<2
	8/31/2009	CCA	H	NW	17	30	R	P	O	CA	<2
	9/20/2009	CCA	HE	SW	18	30	R	W	O	CA	<2
	10/18/2009	JHZ	H	N	8	30	R		O	CA	4
WM024.00	3/15/2009	CCA	HF	SW	8	22	R		O	A	<2
	5/26/2009	CCA	HF	NE	13	28	R		O	CA	<2
	6/14/2009	CCA	F	SE	14	28	R	P	O	CA	2
	8/31/2009	CCA	HE	NW	16	30	R	P	O	CA	<2
	9/20/2009	CCA	HF	SW	15	30	R		O	CA	20
	10/18/2009	JHZ	F	N	9	30	R		O	CA	10
WM026.00	1/13/2009	EXT	HF	SW	-1	9	R		O	CA	18
	3/15/2009	CCA	F	SW	9	30	R		O	CA	<2
	5/26/2009	CCA	F	NE	14	20	R		O	CA	<2
	6/14/2009	CCA	F	SE	15	20	R	P	O	CA	<2



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	MFCOL
	8/31/2009	CCA	HF	NW	15	21	R	P	O	CA	3.6
	9/20/2009	CCA	H	SW	16	20	R		C	CA	2
	10/18/2009	JHZ	HF	N	10	18	R		C	CA	5.5
WM026.90	1/13/2009	EXT	HF	SW	-1	14	R		O	CA	18
	3/15/2009	CCA	HF	SW	9	29	R		O	CA	<2
	5/26/2009	CCA	HF	NE	13	20	R		O	CA	<2
	6/14/2009	CCA	F	SE	15	25	R	P	O	CA	3.6
	8/31/2009	CCA	H	NW	17	20	R	P	O	CA	<2
	9/20/2009	CCA	HE	SW	17	30	R		C	CA	4
	10/18/2009	JHZ	H	N	10	24	R		C	CA	<2
WM027.00	1/27/2009	RL	F	NE	2	16	R		O	CA	8
	3/15/2009	CCA	HF	SW	10	26	R		O	CA	<2
	5/26/2009	CCA	F	NE	12	26	R		O	CA	4
	6/14/2009	CCA	F	SE	15	20	R	P	O	CA	<2
	8/31/2009	CCA	H	NW	16	30	R	P	O	CA	<2
	9/20/2009	CCA	HE	SW	17	25	R		C	CA	2
	10/18/2009	JHZ	H	N	9	24	R		C	CA	15
WM028.00	3/15/2009	CCA	F	SW	9	23	R		O	A	<2
	5/26/2009	CCA	F	NE	14	26	R		O	CA	2
	6/14/2009	CCA	F	SE	16	26	R	P	O	CA	96
	8/31/2009	CCA	HF	NW	16	30	R	P	O	CA	<2
	9/20/2009	CCA	H	SW	16	30	R		O	CA	<2
	10/18/2009	JHZ	H	N	8	28	R		O	CA	<2
WM029.10	3/24/2009	EXT	E	NE	-1	4	R		C	P	10
	5/17/2009	RL	HF	SE	13	2	R	P	C	P	4.5
	6/3/2009	RL	HF	NW	15	5	R	N	C	P	2
	8/31/2009	RL	F	NW	21	2	R		C	P	4
	9/15/2009	RL	HF	NW	18	11	R	P	C	P	2
	9/29/2009	RL	HF	SW	16	14	R	P	C	P	18
	10/26/2009	RL	E	NE	10	2	R	P	C	P	18
	12/14/2009	RL	HF	N	3	4	E	P	C	P	31