



GROWING AREA WI

**Towns of Cape Elizabeth, South Portland, Portland, Long Island, Great Chebeague
Island, Falmouth, Cumberland, Yarmouth and Freeport**

Annual Review for 2009

**Glenn E. Nutting
Anna Bourakovsky**

Report Date: September 17, 2010

APPROVAL

Division Director:

Print name

signature

Date: _____



TABLE OF CONTENTS

Executive Summary 5
 Growing Area Description 6
 Current Classification(s)..... 6
 Activity during Review Period 7
 Current Management Plan(s) for Conditional Area(s)..... 9
 Current Annual Review of Management Plan(s)..... 9
 Water Quality Review and Discussion 9
 Shoreline Survey Activity for 2009 22
 Aquaculture/Wet Storage Activity 22
 Classification Changes Required and Requested 22
 Recommendation for Future Work..... 23
 Summary..... 23
 Recommendations for Future Work 23
 Appendix A. Annual Review of Conditional Area Management Plan – Cousins River 24
 Appendix B. Key to Water Quality Table Headers 26
 Appendix C. Growing Area WI 2009 Data 27

LIST OF TABLES

Table 1. Geometric Means and P90 Scores, Growing Area WI..... 10
 Table 2. Geometric Means and P90 Scores, WI Conditional Stations, Open Status Data 10
 Table 3. WI Sampling Effort for 2009..... 11

LIST OF FIGURES

Figure 1. Growing Area - West, with Active Water Stations (2009) 3
 Figure 2. Growing Area - East, with Active Water Stations (2009) 4
 Figure 3. Area WI P90 Scores for Approved Stations (expressed as the percent of the approved standard), 2007-2009..... 14
 Figure 4. Area WI P90 Scores for Conditionally Approved and Conditionally Restricted (**)
 Stations, Open Status (expressed as the percent of the approved standard), 2007-2009 14
 Figure 5. Area WI P90 Scores for Restricted Stations (expressed as the percent of the
 approved standard), 2007-2009..... 16
 Figure 6. Area WI P90 Scores for Prohibited Stations (expressed as the percent of the
 approved standard), 2007-2009..... 16



Figure 1. Growing Area - West, with Active Water Stations (2009)

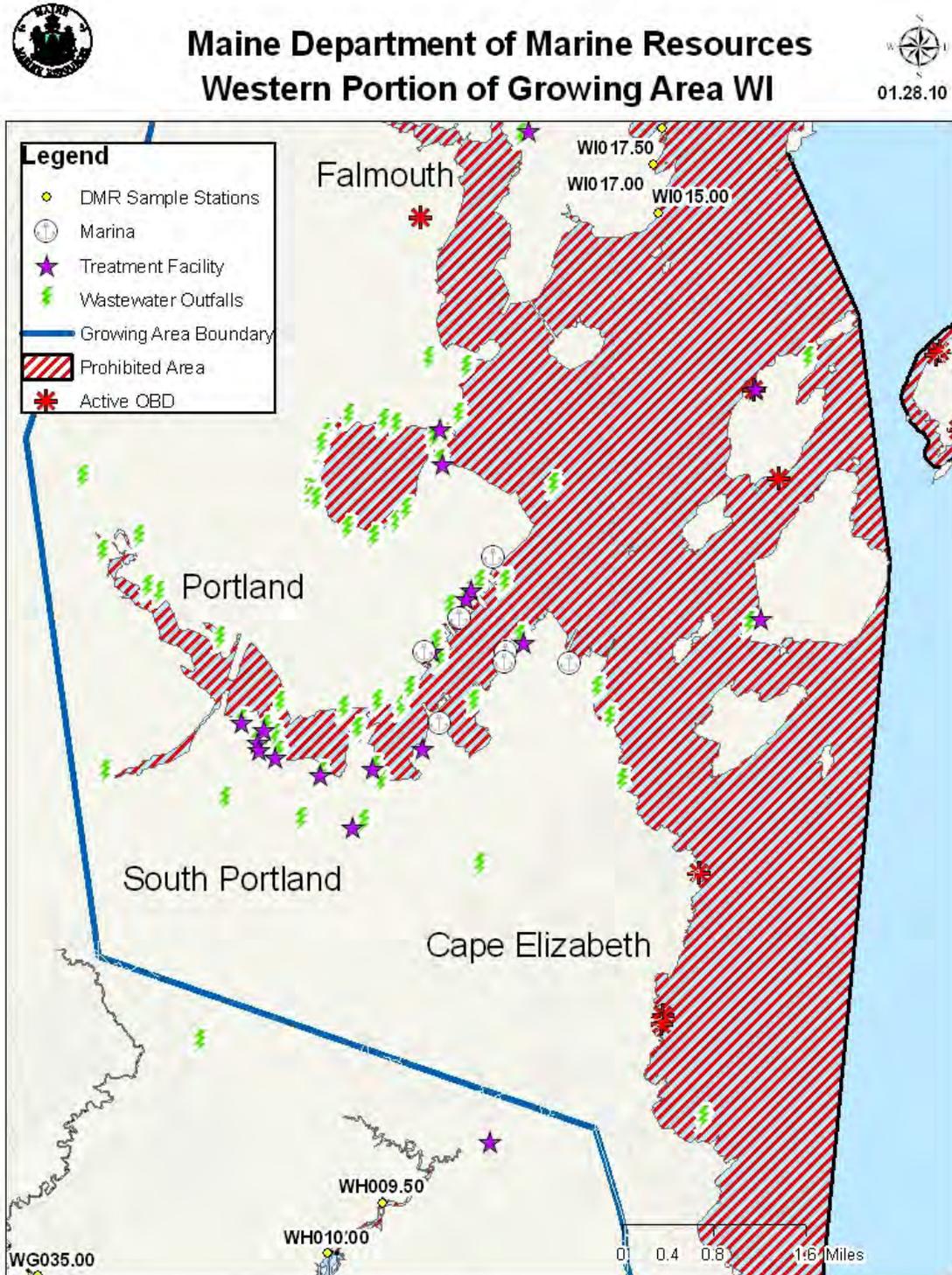
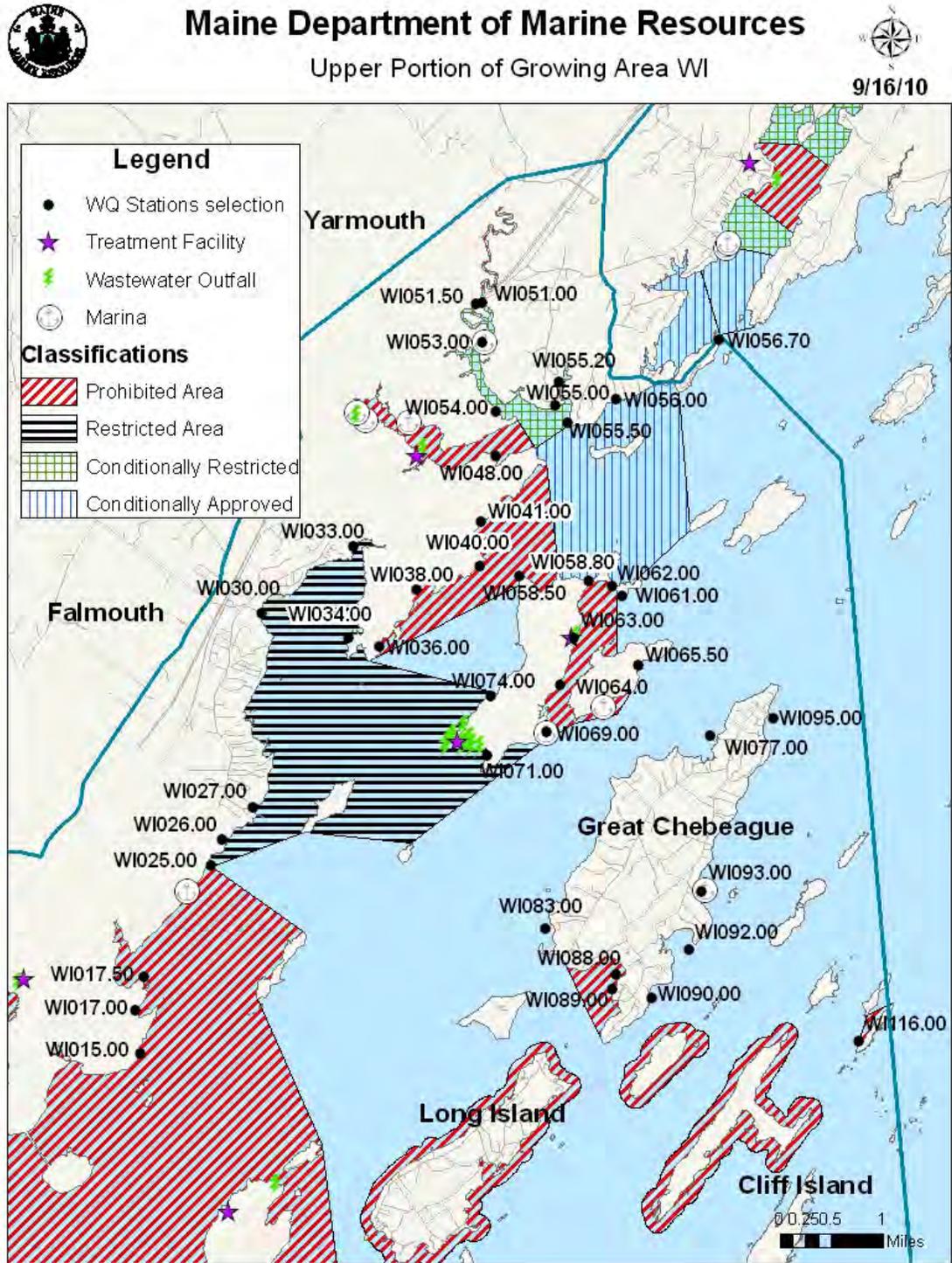




Figure 2. Growing Area - East, with Active Water Stations (2009)





Executive Summary

This is an annual report for growing area WI written in compliance with the requirements of the 2007 Model Ordinance and the National Shellfish Sanitation Program. Growing area WI is the area between McKenney Pt, Cape Elizabeth, and Staples Pt, Freeport.

During the 2009 review year, the following classification changes and legal notice amendments occurred in area WI: in January 2009, a portion of the Falmouth shoreline (stations WI 15, 17.5 and 25) was reclassified from 'conditionally approved' to 'prohibited' due to the lack of a recent shoreline survey. Also in January, most of Great Chebeague Island was reclassified from "approved" to "prohibited," due to lack of a recent shoreline survey. The shoreline survey work was updated for all areas that had been placed under this administrative closure, and in May 2009, a portion of the Chebeague Island shoreline (stations WI 77, 88 and 95) was reclassified from 'prohibited' to 'approved' due to an updated shoreline survey. An additional portion of Chebeague Island shoreline was re-opened in October, after that portion of the island was re-surveyed by DMR staff. On May 9, 2009, the southeastern shore of Cousins Island and the southwestern shore of Littlejohn Island were reclassified to prohibited due to the presence of a malfunctioning septic system on the Cousins Island shore. In the same legal notice amendment, the conditionally restricted area north and west of the Cousins Island bridge on the Yarmouth shore and the Sandy Point area on Cousins Island were reclassified to prohibited due to the presence of two malfunctioning septic systems, a straight pipe on the Yarmouth shore, and dog feces on the beach at Sandy Point. This amendment also reclassified a portion of the Princes Point area of Yarmouth from restricted to prohibited due to a malfunctioning septic system. On May 27, 2009, a portion of the Cousins River and Pratt's Brook (Yarmouth, Freeport) north of U.S. Route 1, was reclassified from conditionally restricted to prohibited, due to the presence of a malfunctioning septic system. On October 27, 2009, a portion of the Cousins River conditionally restricted area, closed due to a gasoline spill; this area reopened on November 14th.

During the 2009 review year, the following station changes occurred: in March 2009, prohibited station WI 67 was deactivated due to its proximity to multiple OBDs that were not on the priority removal list. In June 2009, stations WI 19, 20 and 21 were deactivated; these prohibited stations were located in an area that had a long history of poor water quality and was not being considered for an upgrade in classification. No stations were activated or created during the review year. As a result of this report, one area is being proposed for an upgrade in classification from prohibited to conditionally approved.

The next triennial review of growing area WI is due after the completion of 2010 review year; the next sanitary survey is due after the completion of the 2012 review year.



Growing Area Description

Growing Area WI includes Cape Elizabeth, South Portland, Portland, Falmouth, Cumberland, Yarmouth, Long Island, Great Chebeague Island, other Casco Bay islands and part of Freeport (Figures 1 and 2); a detailed boundary description can be found in central files. The growing area includes the rocky coast of Cape Elizabeth, all of Portland Harbor, narrow beaches along the Falmouth and Cumberland shore, the Cousins and Royal Rivers in Yarmouth and Freeport, and numerous islands in Casco Bay including, but not limited to, Great Chebeague Island, Cousins Island, Littlejohn Island and Long Island.

The major sources of pollution in Growing Area WI included the Cape Elizabeth, South Portland, Portland, Peaks Island, Yarmouth, Sea Meadows and Falmouth Wastewater Treatment Plants (WWTP), combined sewer overflows (CSOs) in Portland, South Portland and Cape Elizabeth which are located in the large prohibited area around Portland Harbor. There is also the Yarmouth WWTP in the Royal River and the Sea Meadows Community WWTP on the east side of Cousins Island. There are 108 overboard discharges (OBDs) in Growing Area WI, all of which are located in prohibited areas.

Current Classification(s)

At the end of 2009, shellfish growing area WI had areas classified as:

Approved

Great and Little Chebeague Islands, Chebeague (7 Stations), WI 77, 83, 88, 90, 92, 93, 95

Cousins and Littlejohn Islands, Yarmouth (2 Stations), WI 61 (New station with less than 30 datapoints) and 65.5

Yarmouth (1 station), WI 56.7

Conditionally Approved

Outside Cousins River, Yarmouth and Freeport (2 Stations) (conditional on performance of the Yarmouth WWTP), WI 55.5, 56 and 58.8

Conditionally Restricted

Cousins River, Yarmouth and Freeport (6 Stations) (due to non-point source pollution and proximity to Yarmouth WWTP), WI 51, 51.5, 53, 54, 55, and 55.2

Restricted

Broad Cove, Cumberland and Yarmouth (5 Stations) (due to water quality exceeding the approved standard), WI 26, 27, 30, 33 and 34

Cousins Island, Yarmouth (2 Stations) (due to water quality surpassing the approved standard), WI 71 and 74 (boundary with approved)



Prohibited

Falmouth Foreside, Falmouth (4 stations) (due to non-point source pollution and expired shoreline survey), WI 15, 17, 17.5 and 25
Bennett Cove, Chebeague Island (1 Station) (due to proximity to an OBD), WI 89
Bates Island (1 Station) (due to the presence of a straight pipe), WI 116
Royal River, Yarmouth (1 Station) (due to WWTP outfall) WI 48
Cousins Island, Yarmouth (5 Stations) (due to proximity to OBDs and WWTP outfall), WI 62, 63, 64 and 69
Cousins Island, Yarmouth (1 Station) (due to identified pollution sources) WI 58.5
Princes Point, Yarmouth (4 Stations) (identified pollution sources) WI 36 (boundary), 38, 40 and 41

Visit the DMR website to view Legal Notices:

Area No. 13-A, Portland Area (Cape Elizabeth to Cumberland)
Area No. 13-B, Great Chebeague, Bates, Long and Cliff Islands (Cumberland, Long Island, Portland)
Area No. 14, Royal River, Cousins River, Cousins Island, Littlejohn Island (Yarmouth and Freeport)

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

Activity during Review Period

The following legal notice amendments occurred during the 2009 review year:

Area No. 13-A, Portland Area (Cape Elizabeth to Cumberland)

January 21, 2009: Area No. 13-A, Portland Area (Cape Elizabeth to Falmouth), was amended to reclassify an area in Falmouth from "Conditionally Approved" and "Approved" to "Prohibited," due to lack of a recent shoreline survey.

Area No. 13-B, Great Chebeague, Bates, Long and Cliff Islands (Cumberland, Long Island, Portland)

January 22, 2009: Area No. 13-B, Great Chebeague, Bates, Long and Cliff Islands (Cumberland, Long Island, Portland); amendment changed the title of the rule and reclassified Hope Island and most of Great Chebeague Island from "Approved" to "Prohibited," due to lack of a recent shoreline survey.

May 21, 2009: Area No. 13-B, Western Casco Bay (Long Island to Chebeague Island); amendment reclassified the Back Shore, a portion of Hamilton Beach, and a portion of Chandler Cove, Chebeague Island from prohibited to approved, due to a recent update in sanitary survey status.



October 1, 2009: The Department modified Area No. 13-B to reclassify the eastern shore of Chebeague Island from "prohibited" to "approved", due to the completion of a shoreline survey.

Area No 14, Royal River, Cousins River, Cousins Island, Littlejohn Island (Yarmouth and Freeport)

May 12, 2009: Area No. 14, Royal River, Cousins River, and vicinity (Falmouth to Freeport), amendment reclassified the southeastern shore of Cousins Island and the southwestern shore of Littlejohn Island as prohibited due to a malfunctioning septic system on the Cousins Island shore. It also reclassified, combined and enlarged the conditionally restricted area north and west of the Cousins Island bridge on the Yarmouth shore and the Sandy Point area on Cousins Island as prohibited due to one malfunctioning septic system and one straight pipe on the Yarmouth shore and dog feces on the beach at Sandy Point along with a malfunctioning septic system along that shore. This amendment also reclassified a portion of the Princes Point area of Yarmouth from restricted to prohibited due to a malfunctioning septic system.

May 27, 2009: Area No. 14, Royal River, Cousins River, and vicinity (Falmouth to Freeport); amendment reclassifies a portion of the Cousins River and Pratt's Brook (Yarmouth, Freeport) north of U.S. Route 1, from conditionally restricted to prohibited, due to the presence of a malfunctioning septic system.

October 27, 2009: Area No. 14, Royal River, Cousins River, and vicinity (Falmouth to Freeport); amendment closes a portion of the Cousins River conditionally restricted area, due to a gasoline spill.

November 14, 2009: Area No. 14, Royal River, Cousins River, and vicinity (Falmouth to Freeport); amendment reopens a portion of the Cousins River conditionally restricted area post gasoline spill due to shellfish passing the fuel spill test criteria.

The following incidences were reported to the Department in 2009:

June 22, 2009: Falmouth WWTP reported that there was a pump station failure on a pump near Mill Creek; amount of sewage spilled was not known. The classification surrounding this pump station was reviewed by DMR staff. The entire shoreline surrounding this pump station is classified as prohibited, and no additional closures were required.

October 26, 2009: a gasoline spill occurred on the Cousins River (conditionally restricted portion of the river) near the Muddy Rudder Restaurant on Rt 1, Yarmouth. The spill resulted from a car fire which was difficult to get under control. As a result of the fire some automobile fuel and oil spilled into the Cousins River. Foam that was used to put out the fire also spilled into the river. Foam and gasoline made their way into the marsh area at the Rt 1 location and made their way into the Cousins River. A closure was made on October 27, 2009. The area re-opened on November 14, 2009, following a negative sensory test of shellfish meats for gasoline and oil.



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

There is one conditionally managed area in Growing Area WI: Cousins River and Casco Bay outside the Cousins and Royal Rivers: WWTP conditional area, conditionally restricted stations WI 51, 51.5, 53, 54, 55, 55.2; conditionally approved stations 55.5 and 56, and 58.8.

The management plans for the WI conditional areas can be found in DMR's central files. The WWTP conditional management plan requires reporting by the Yarmouth Wastewater Treatment Plant; this plan was last updated in December 9, 2009.

Current Annual Review of Management Plan(s)

The Cousins River wastewater treatment plant conditionally approved and conditionally restricted areas are sampled monthly when the area is in the open status. These areas are placed in the closed status when a malfunction occurs at the Yarmouth WWTP, remain closed for at least two weeks and do not reopen until water and shellfish samples meet appropriate standards. In 2009, there were no malfunctions at this treatment facility and no conditional area closures were implemented.

Water Quality Review and Discussion

Table 1 lists all active prohibited stations in Growing Area WI, with their respective Geomean and P90 calculations for 2009. Please refer to Appendix A for a key to interpreting the headers on the columns of Table 2. The approved and restricted standards for each station are also displayed in Table 2. 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 MFCount column. This fluctuating standard will cease when all 30 data points have been analyzed by the MF method. A more detailed explanation of this transition can be found in central files.

All approved stations met their NSSP standard at the end of 2009. All stations which serve as boundary stations (noted in table) met the approved standard at the end of 2009. Multiple restricted and prohibited stations also met the approved standard; these stations must remain classified as such due to their proximity to identified pollution sources (septic system malfunction, OBDs, wastewater treatment plant outfalls, etc), or due to variability of the water quality sample results in the datasets of stations. All restricted stations met the NSSP restricted standard. All conditionally approved and conditionally restricted stations in growing area met their NSSP standard at the end of 2009 (Table 2).



Table 1. Geometric Means and P90 Scores, Growing Area WI, 2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std	Min_Date
WI015.00	P	30	28	2.9	0.32	22	7.5	31	169	4/25/2006
WI017.00	P	30	28	5.4	0.7	480	43.6	31	169	4/25/2006
WI017.50	P	30	28	4.1	0.45	104	15.9	31	169	4/25/2006
WI025.00	P	30	28	3.5	0.42	78	12.6	31	169	4/25/2006
WI026.00	R	29	20	6.8	0.59	160	39	35	196	10/24/2005
WI027.00	R	30	20	5.1	0.43	58	18.3	36	199	8/24/2005
WI030.00	R	30	20	5.4	0.61	460	33.1	36	199	8/24/2005
WI033.00	R	30	21	7.2	0.55	160	36.8	35	195	6/16/2005
WI034.00	R	30	19	2.8	0.27	46	6.4	36	203	6/2/2005
WI036.00	P	30	13	3.5	0.38	93	10.8	40	230	9/5/2002
WI038.00	P	30	19	5.3	0.74	1100	48.4	36	203	6/16/2005
WI040.00	P	30	13	5.7	0.58	460	32.2	40	230	6/12/2003
WI041.00	P	30	30	4.5	0.61	420	27.6	31	163	6/6/2007
WI048.00	P	30	30	6.8	0.78	880	70.4	31	163	5/1/2007
WI056.70	A	30	26	3.5	0.47	120	14.4	32	176	4/26/2006
WI058.50	P	30	30	3.8	0.59	148	21.9	31	163	6/6/2007
WI061.00	A	15	15	2.1	0.16	8	3.4	31	163	9/11/2007
WI062.00	P	30	23	3.4	0.59	1200	19.7	34	187	7/14/2005
WI063.00	P	30	23	4.6	0.58	460	25.8	34	187	7/14/2005
WI064.00	P	30	23	5	0.52	207	23.7	34	187	7/14/2005
WI065.50	A	30	23	3.4	0.46	126	13.6	34	187	7/14/2005
WI069.00	P	30	21	2.8	0.27	33	6.4	35	195	7/14/2005
WI071.00	R	30	21	5	0.67	1700	37	35	195	7/14/2005
WI074.00	R	30	21	3.3	0.36	56	9.7	35	195	8/11/2005
WI077.00	A	30	21	4.3	0.62	580	27.1	35	195	6/16/2005
WI083.00	A	30	21	2.9	0.42	144	10.4	35	195	6/16/2005
WI088.00	A	30	23	3.7	0.54	146	18.5	34	187	6/16/2005
WI089.00	P	30	23	4.1	0.51	100	18.9	34	187	9/13/2005
WI090.00	A	30	21	2.6	0.3	64	6.6	35	195	6/16/2005
WI092.00	A	30	21	3.2	0.37	64	9.6	35	195	5/19/2005
WI093.00	A	30	21	2.6	0.34	140	7.3	35	195	6/16/2005
WI095.00	A	30	21	3.1	0.48	580	13.2	35	195	6/16/2005
WI116.00	P	30	19	2.3	0.12	6	3.3	36	203	7/1/2004

Table 2. Geometric Means and P90 Scores, WI Conditional Stations, Open Status Data, 2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std	Min_Date
WI051.00	CR	30	30	4.6	0.67	1700	33.5	31	163	7/23/2007
WI051.50	CR	30	30	5.8	0.67	1700	42.6	31	163	7/25/2007
WI053.00	CR	30	30	5	0.75	1700	47.3	31	163	6/6/2007



Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std	Min_Date
WI054.00	CR	30	30	4.2	0.64	1160	28	31	163	7/23/2007
WI055.00	CR	30	30	4	0.57	760	21.5	31	163	7/8/2007
WI055.20	CR	30	30	7	0.66	1700	50	31	163	7/8/2007
WI055.50	CA	30	30	3.7	0.61	760	23.3	31	163	7/24/2007
WI056.00	CA	30	30	3.3	0.42	42	11.7	31	163	7/24/2007

Table 3 shows the number of samples taken during the 2009 sampling year. All approved, restricted and prohibited stations, with the exception of WI 116, were sampled at least six times, following a systematic random sampling schedule (SRS); for some stations, additional samples were collected under adverse conditions. Prohibited station WI 116 was sampled only five times; this station can only be sampled by boat and was missed one time due to mechanical boat issues. All conditionally approved and restricted stations were sampled 12 times in the open status (monthly). Appendix C shows random data collected in 2009 for all active stations in growing area WI.

Table 3. WI Sampling Effort for 2009

Station	Class	Adverse		Extra Open	Random		Total	Comments
		Closed	Open		Closed	Open		
WI015.00	CA					1	8	Reclassified from CA to P on Jan 21 due to expired survey
	P				7			
WI017.00	P				8		8	
WI017.50	CA					1	8	Reclassified from CA to P on Jan 21 due to expired survey
	P				7			
WI019.00	P				4		4	
WI020.00	P				4		4	
WI021.00	P				4		4	
WI025.00	CA					1	8	Reclassified from CA to P on Jan 21 due to expired survey
	P				7			
WI026.00	R					6	6	
WI027.00	R					6	6	
WI030.00	R		1			6	7	
WI033.00	R		1			6	7	
WI034.00	R		1			6	7	
WI036.00	P				4		6	Reclassified from R to P on May 12
	R					2		
WI038.00	P				4		6	Reclassified from R to P on May 12
	R					2		
WI040.00	P				4		6	Reclassified from R to P on May 12
	R					2		
WI041.00	CR					4	12	Reclassified from CR to P on May 12
	P				8			
WI048.00	P				11		11	
WI051.00	CR					12	12	



Station	Class	Adverse		Extra Open	Random		Total	Comments
		Closed	Open		Closed	Open		
WI051.50	CR					12	12	
WI053.00	CR					12	12	
WI054.00	CR					12	12	
WI055.00	CR					12	12	
WI055.20	CR					12	12	
WI055.50	CA					12	12	
WI056.00	CA	12				12	24	Flood Station
WI056.70	A		1	2		6	9	
WI058.50	CR					4	12	Reclassified from CR to P on May 12
	P				8			
WI058.80	CA					12	12	
WI061.00	A					6	6	
WI062.00	P				6		6	
WI063.00	P				6		6	
WI064.00	P				6		6	
WI065.50	A					6	6	
WI069.00	P				6		6	
WI071.00	R					6	6	
WI074.00	R	3				6	9	
WI077.00	A					5	5	Reclassified from A to P on Jan 22 due to expired survey; reclassified from P to A on May 12 due to updated survey
	P				1		1	
WI083.00	A					6	6	
WI088.00	A					5	6	Reclassified from A to P on Jan 22 due to expired survey; reclassified from P to A on May 12 due to updated survey
	P				1			
WI089.00	P				6		6	
WI090.00	A					6	6	
WI092.00	A					6	6	
WI093.00	A					6	6	
WI095.00	A					5	6	Reclassified from A to P on Jan 22 due to expired survey; reclassified from P to A on May 12 due to updated survey
	P				1			
WI116.00	P				5		5	

Figure 3 shows the P90 trends over the past three years for all approved stations in growing area WI. During the transition from MPN to MF analysis method, the approved standard will decrease every year, until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90 scores are expressed as a percentage of the approved standard; any station showing a column on or above the 100 percent line does not meet the standard for approved classification. While all approved stations



met the approved standard at the end of the review year, several stations have shown an increase in their P90 scores over the past three years. Station WI 77, located on the western shore of Chebeague Island has shown the steepest increase in scores. The cause of this rise in scores is currently unknown. This area of the island was surveyed in 2009, and no pollution sources were identified. If this upward trend continues over the next review year, this area may need to be downgraded in classification. Stations WI 56.7, 88 and 95 have also shown increases in scores over the past three years, however these stations are currently well under the approved standard limit, and are not in danger of being downwardly reclassified over the next review year.

Figure 4 shows P90 trends for conditionally approved and conditionally restricted stations; data reflects open status only. Both the conditionally approved and conditionally restricted stations are evaluated against the approved standard; conditionally restricted stations are marked with an asterisk. Stations WI 56, 58.8 55 and 55.2 are new stations, and had less than 30 data points in their datasets in 2007 and 2008; therefore only 2009 data is presented in figure 4. Conditionally restricted stations WI 51, 53 and 54 have shown an improvement in water quality over the past three years; however stations WI 51 and 53 are still over the approved standard and therefore are appropriately classified as conditionally restricted. In 2009, several septic system malfunction, located north of stations WI 51.5 and 51, were remediated. In 2010, additional samples are scheduled to be collected in the conditionally restricted portion of the river; these samples specifically target wet weather events to determine whether water quality in the Cousins River will meet the approved standard under adverse conditions.



Figure 3. Area WI P90 Scores for Approved Stations (expressed as the percent of the approved standard), 2007-2009

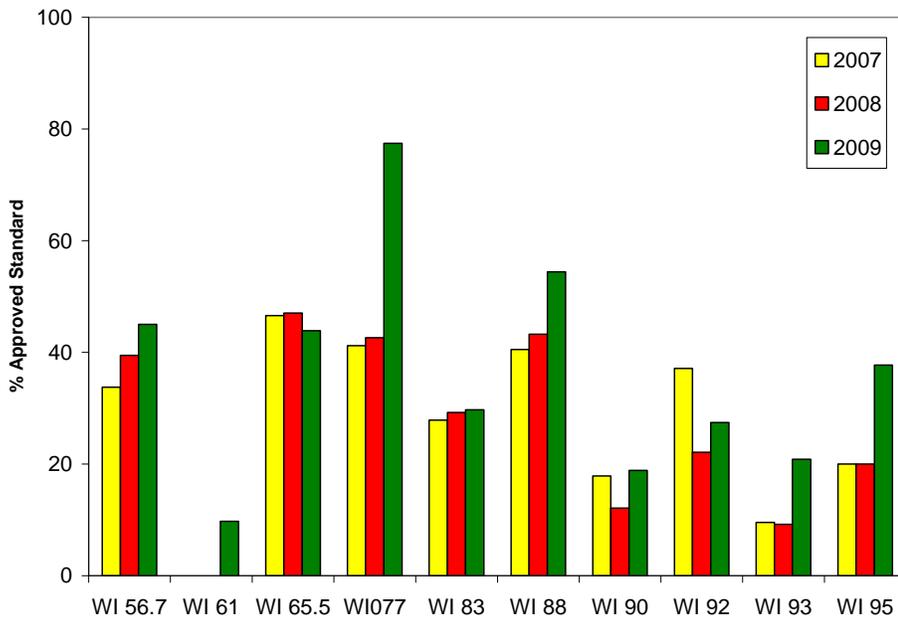


Figure 4. Area WI P90 Scores for Conditionally Approved and Conditionally Restricted () Stations, Open Status (expressed as the percent of the approved standard), 2007-2009**

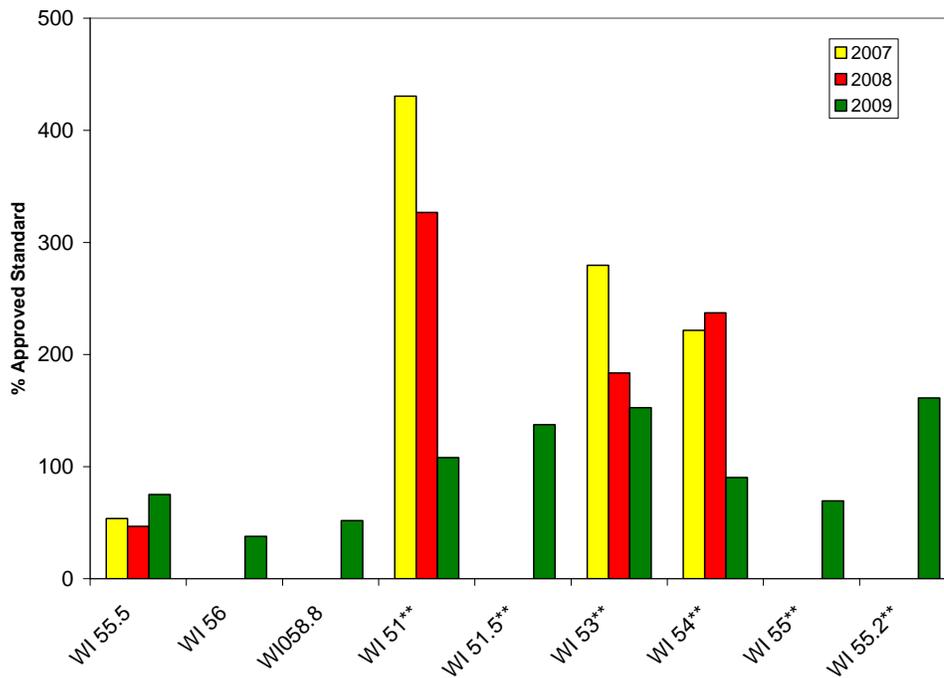




Figure 5 shows P90 trends for stations classified as restricted; stations are evaluated against the approved standard limit. Station WI 26 has shown the greatest improvement in water quality over the past three years; however this station is over the approved standard limit and is therefore appropriately classified as restricted. Stations WI 30 and 33 have shown little change in water quality between 2008 and 2009. Stations WI 34 and 74 have shown water quality that consistently met the approved standard; these stations serve as a boundary for the restricted area and must meet the approved standard. Station WI 71 has shown a slight improvement in water quality since 2008; however this station remains over the approved standard limit and is appropriately classified as restricted.

Figure 6 shows P90 trends for stations classified as prohibited; stations are evaluated against the approved standard limit. At the end of 2009 multiple stations meet the approved standard. Stations WI 15, 17.5 and 25 meet the approved standard but are classified as prohibited due to an expired shoreline survey. This survey work has been scheduled to be completed in 2010. There is a large marina located in the vicinity of these stations, and this area may be reclassified to conditionally approved based on season, with the open status defined by the operating time of the marina. This classification change will be reviewed at the end of 2010 review year. Stations WI 36 (boundary), 38, 40, 41 and 58.5 are classified as prohibited due to poor water quality and multiple identified pollution sources. Stations WI 48, 62, 63 and 64 are located within the prohibited areas surrounding the outfalls of the Yarmouth and Sea Meadows wastewater treatment plants. Station WI 69 is a boundary station between the prohibited and approved areas, and therefore must meet the approved standard; it has met the approved standard for the past three years. Stations WI 89 and 116 meet the approved standard, however these stations are located in the vicinity of an OBD and a straight pipe, respectively, and must remain classified as prohibited.



Figure 5. Area WI P90 Scores for Restricted Stations (expressed as the percent of the approved standard), 2007-2009

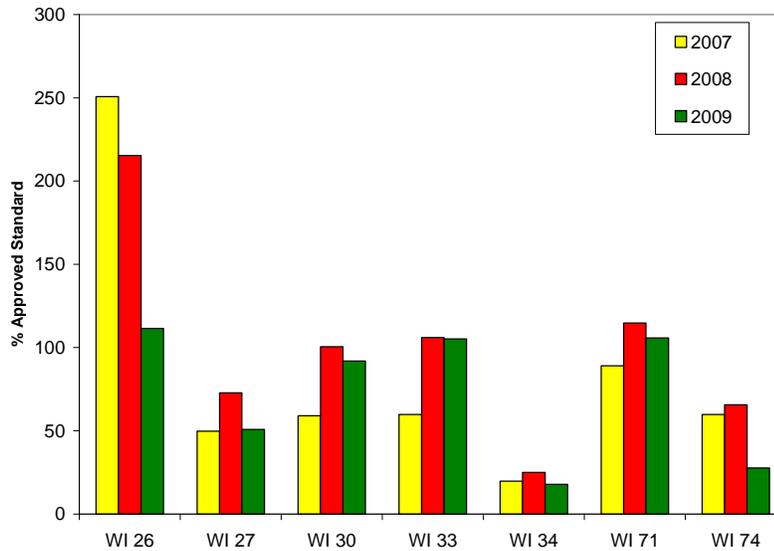
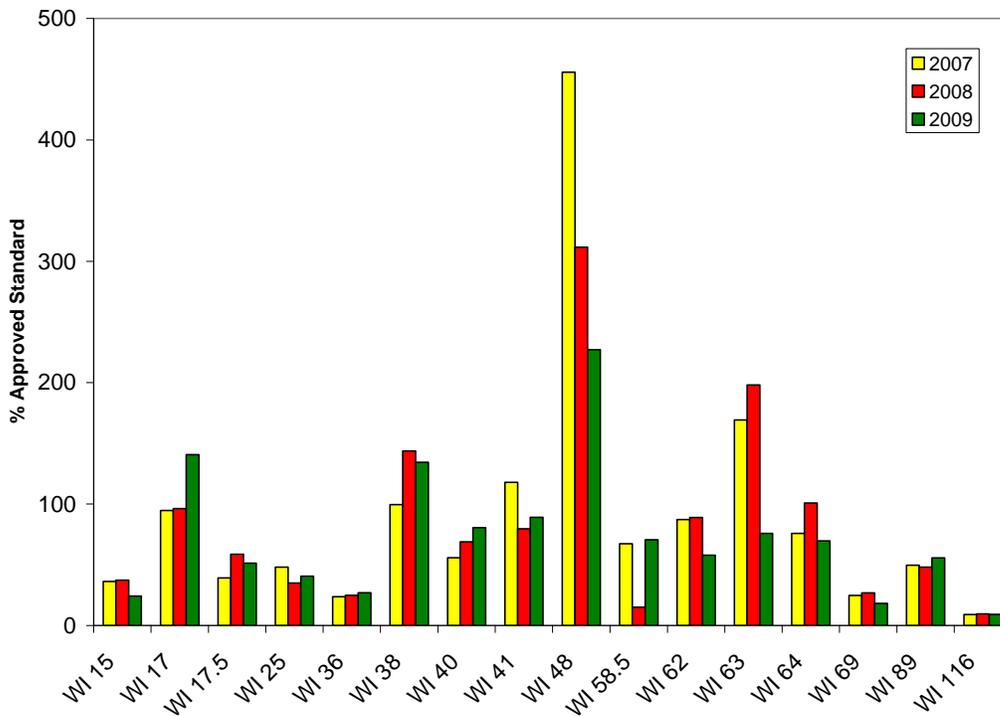


Figure 6. Area WI P90 Scores for Prohibited Stations (expressed as the percent of the approved standard), 2007-2009





Proposal for Upward Classification

Sandy Point, Cousins Island, Yarmouth

Sandy Point Beach, monitored by station WI 58.5, is being proposed for an upgrade in classification from prohibited to conditionally approved (based on Yarmouth treatment plant operation). The area was reclassified from conditionally approved to prohibited in May 2008, due to documented dog feces on the beach, a poorly maintained portable toilet with a potential to impact the shoreline of Sandy Point, and a cesspool that was believed to be malfunctioning. The station that monitors water quality at Sandy Point has met the approved standard over the past three years (Figure 6). At the end of 2009, the P90 for this station was 21.9, with an approved standard of 31. At the time of this assessment (September 2010), the P90 of this station was 15.6, with a standard of 31. While this station is classified as prohibited, it continues to be sampled monthly, along with the conditionally approved station in this sewage treatment plant conditional area.

In September 2010, the Yarmouth codes enforcement officer confirmed that the property that was identified as having a potential cesspool malfunction was actually an inground septic system with a leach field; the system was reported to be in good working condition, with the septic tank being routinely serviced by the Town of Yarmouth. Also in September 2010, DMR conducted a survey of Sandy Point and Potato Cove, specifically noting any dog waste and the condition of the portable toilet that services the parking area for Sandy Point. It was noted that no dog waste was present on the beach; bags for dog waste pick up as well as a trash can was available at the head of the trail that provides access to the beach. A sign requiring dog waste pick up on the beach had also been installed at the head of the trail. The portable toilet, located at the parking area for the beach (approximately 250 feet from shore) was well maintained and no human waste or trash was noted anywhere in the vicinity of the portable toilet.

Table 4 shows all water quality scores for station WI 58.5 from 2002 through September 2010; rainfall (per 24 hours) for each day, within 4 days of collection is noted in the table. Dates where the cumulative rainfall within 4 days of collection exceeded 0.5 inches are highlighted in turquoise. All scores that exceeded the variability standard are highlighted in yellow. Since 2002, this station had four scores exceeding the variability standard. These scores have occurred across a range of precipitation events, but were limited to summer months of June and July. One of the elevated scores occurred after more than 2 inches of rain occurring in 24 hours (June 6, 2007); under the current flood protocol, this amount of rainfall would constitute an emergency flood closure. The seasonal elevated scores may be attributed to seasonal use of the beach by dog owners. A geometric mean was calculated for each individual month; all months met the approved classification geometric mean standard of 14. To further assess the impact of rainfall on water quality, the P90 score was recalculated using only data collected after 0.5 inches of rainfall (cumulative, within 4 days). Using this subset of data collected after 0.5 inches of rainfall (total of 25 data points), the P90 score continued to meet the approved standard, with a score of 35.4, and a standard of 37.

At the present time, there are no identified pollution sources in the vicinity of Sunset Point beach; water quality continues to meet the approved standard year round. This area is



recommended for an upgrade, from prohibited to conditionally approved, based on the performance of the Yarmouth WWTP (Figure 7). Additionally, it is recommended that a new station is established between station WI 58.5 and 58.8, to be sampled monthly as part of the WWTP conditional sample collection run. A periodic check of the beach for dog waste should also be completed by DMR staff an annual basis.

Figure 7. Sunset Point, Yarmouth, with Classification Upgrade

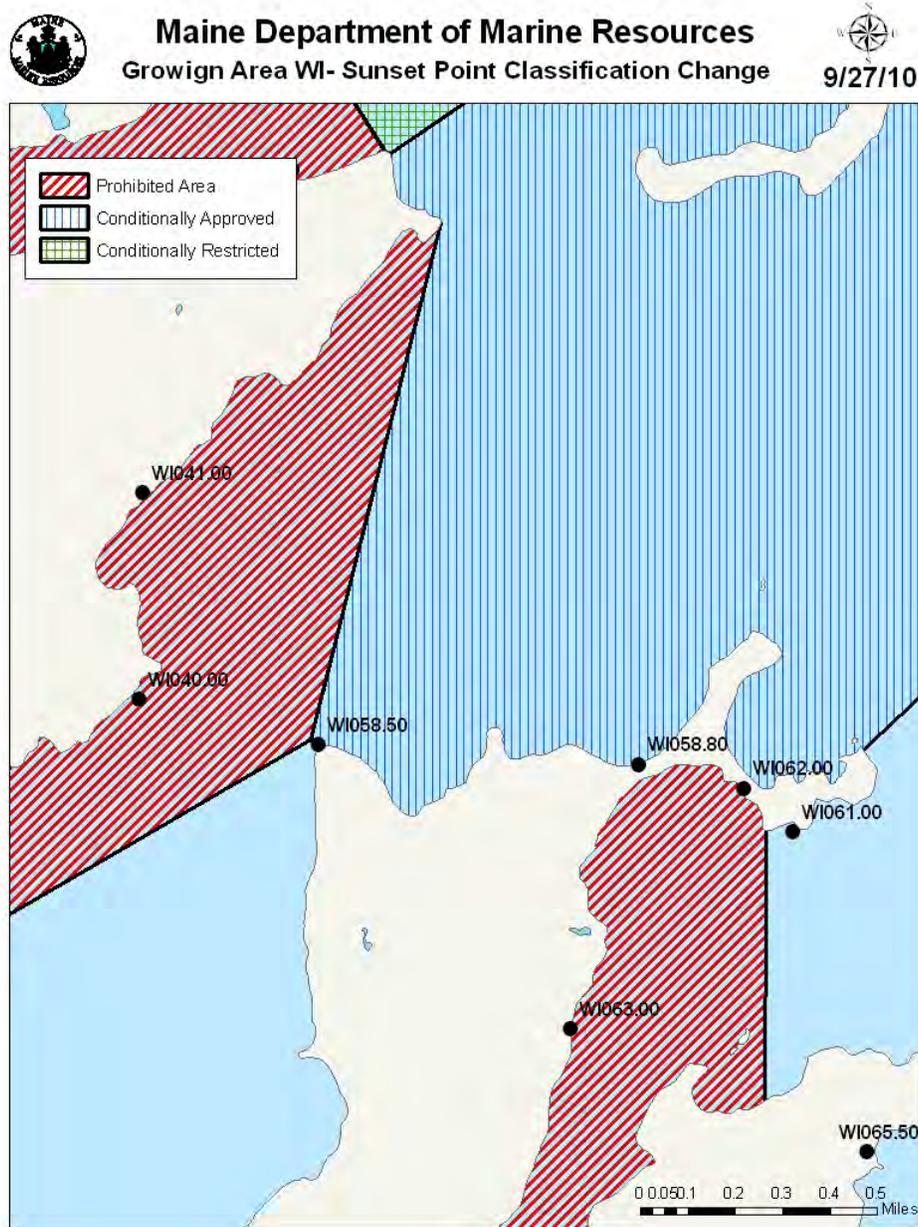




Table 4. Station WI 58.5 Rainfall and Seasonal Assessment

Date	Rain 1	Rain 2	Rain 3	Rain 4	Sal	Tide	Adv	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5/9/2002	0.23	0	0	0	30	HF	X					2.9							
6/6/2002	1.18	0.25	0	0	30	HE	P						2.9						
7/11/2002	0	0	0.27	0.28	30	HF	X							3.6					
8/8/2002	0	0	0.03	0.02	31	E	X								2.9				
9/5/2002	0	0.11	0.39	0.04	30	H	X									3.6			
10/17/2002	0.02	2.0	0	0	32	HE	P										15		
29-May-03	0.17	0.03	0.01	0.93	27	HF	X					3.6							
12-Jun-03	0.01	0	0	0	29	HE	X						3.6						
24-Jul-03	0	0.11	0.16	0	30	HE	P							3.6					
21-Aug-03	0	0	0	0	30	E	X								3.6				
11-Sep-03	0	0	0	0	30	F	X									2.9			
09-Oct-03	0	0	0	0	31	F	X										2.9		
13-May-04	0	0	0.02	0.04	30	E	X					2.9							
03-Jun-04	0.49	0.32	0.21	0	29	F	X						2.9						
01-Jul-04	0	0	0.19	0	30	HF	X							9.1					
12-Aug-04	0.9	0.02	0	0	30	HF	P								2.9				
16-Sep-04	0	0	0	0	31	F	X									2.9			
07-Oct-04	0	0	0	0	30	HE	X										2.9		
02-Jun-05	0	0	0	0.04	20	HE	X						2.9						
16-Jun-05	0.06	0.21	1.55	0	21	E	P						240						
14-Jul-05	0.15		0	0	30	E	X							2.9					
11-Aug-05	0	0	0.17	0	30	F	X								2.9				
15-Sep-05	0.68	0	0	0	30	HE	X									9.1			
06-Oct-05	0.01	0	0	0	30	F	X										21		
08-Mar-06	0	0	0	0	30	L	X			2.9									



WI Annual Review
Effective Date 09.27.10

Date	Rain 1	Rain 2	Rain 3	Rain 4	Sal	Tide	Adv	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
26-Apr-06	0	0	0.29	0.18	32	HE	X				2.9								
10-May-06	0.49	0.56	0	0	28	H	P					43							
19-Jul-06	0	0.02	0	0	29	E	X							43					
02-Aug-06	0.01	0.1	0.02	0	28	LE	X								9.1				
27-Sep-06	0	0	0	0.29	31	F	X									1.9			
08-Jan-07	0.94	0	0.25	0.08	30	LF	P	1.9											
06-Feb-07	0	0	0	0	33	F	X		1.9										
05-Mar-07	0.01	0	0.01	1.04	32	E	X			1.9									
03-Apr-07	0.04	0.26	0.02	0	25	F	P				1.9								
01-May-07	0	0.24	0.23	0.18	26	HF	P					2							
14-May-07	0.01	0	0	0.33	30	HE	S					10							
06-Jun-07	0	0.12	2.12	0.52	22	F	X						80						
09-Jul-07	1.13	0.25	0.27	0.1	31	E	P							2					
23-Jul-07	0.11	0	0	0.38	30	E	X							1.9					
14-Aug-07	0	0.03	0	0.01	30	F	X								1.9				
11-Sep-07	1.65	0.02	0.13	0	31	HF	P									1.9			
10-Oct-07	0.02	0.05	0.08	0.01	32	H	X										24		
13-Nov-07	0.6	0.01	0	0	30	F	X											2	
05-Dec-07	0	0.01	0.58	0	30	E	X												1.9
02-Jan-08	0.01	0.77	0.46	0.02	29	LE	X	2											
11-Feb-08	0	0.29	0.14	2.31	29	F	P		2										
05-Mar-08	0.56	0.4	0.01	0	30	E	PT			1.9									
08-Apr-08	0	0	0	0.03	24	F	X				1.9								
07-May-08	0.01	0	0	0.55	25	F	X					24							
10-Jun-08	0.01	0	0	0	32	F	X						24						
30-Jul-08	0	0	0	0.2	30	HE	X							148					
22-Sep-08	0	0	0	0	30	L	X									1.9			
08-Oct-08	0		0.01	0	30	E	X										1.9		
18-Nov-08	0	0	0.17	0.4	28	F	X											2	
10-Dec-08	0.44	0.13	0	0.04	32	HE	P												8



WI Annual Review
Effective Date 09.27.10

Date	Rain 1	Rain 2	Rain 3	Rain 4	Sal	Tide	Adv	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
05-Jan-09	0.01	0	0	0	31	F	X	1.9											
04-Feb-09	0.01	0.02	0.01	0.01	31	LF	X		1.9										
03-Mar-09	0	0.4	0.03	0.04	30	F	X			1.9									
15-Apr-09	0	0	0	0	29	F	X				1.9								
13-May-09	0	0	0.01	0.11	30	F	X					1.9							
10-Jun-09	0.01	0.37	0.01	0.01	28	H	X						1.9						
08-Jul-09	1.5	1.57	0	0	24	HE	P							82					
05-Aug-09	0	0	0.01	0	26	F	X								1.9				
22-Sep-09	0	0	0	0	30	E	X									1.9			
06-Oct-09	0.01	0.06	0	1.9	30	H	X										2		
02-Nov-09	0	0.01	0.05	0.01	30	HE	X											1.9	
08-Dec-09	0	0	0.03	0.12	30	F	X												1.9
06-Jan-10	0.01	0.01	0.01	0.04	30	F	X	1.9											
17-Feb-10	0	0.06	0	0	30	H	X		1.9										
06-Apr-10	0.08	0	0	0	25	F	W				1.9								
21-Apr-10	0.01	0	0	0.07	29	F	X				1.9								
24-May-10	0	0	0	0	30	HE	X					1.9							
10-Jun-10	0.29	0	0.03	0	30	F	X						1.9						
12-Jul-10	0	0.01	0.40	0	30	F	P							6					
24-Aug-10	0	0.07	0.03	0	30	F	P								1.9				
14-Sep-10	0.01	0.01	0	0	32	F	P										8		
Monthly Geometric Mean								1.9	1.9	2.1	2.0	5.1	8.0	9.1	2.9	3.1	5.8	2.0	3.0



Shoreline Survey Activity for 2009

On **May 18th, 19th, 20th and 22nd, 2009**: DMR, along with the Chebeague Island shellfish warden/harbor master, surveyed 145 properties on the island, in areas that were classified as prohibited due to an expired shoreline survey. One cracked septic pipe was found and immediately repaired on the following day. No additional actual or potential problems were identified and the surveyed areas were reclassified from prohibited to approved on May 21, 2009.

On **May 18, 2009**, DEP conducted shoreline survey activities in the Pratt's Brook drainage area of the Cousins River. DEP staff inspected properties on Granite Street and East Main Street. One actual pollution problem was identified. The area north of U.S. Route 1 was reclassified from conditionally restricted to prohibited on May 27, 2009 due to the presence of the malfunctioning septic system.

On **September 16, 2009** a sanitary survey for Chebeague Island was conducted by DMR and Chebeague Island harbor master. A total of 42 properties were surveyed, located on Tax maps 103 and 102. There were no actual or potential problems identified.

On **October 8, 2009** a sanitary survey for Chebeague Island was conducted by DMR and Chebeague Island harbor master. A total of 47 properties were surveyed, located on tax maps 102 and 101. Two properties were identified that were identified as potential problems (possible septic system malfunctions). Both of these properties were brought to the attention of Chebeague Island's code officer on October 8th after the survey was completed.

On **December 11, 2009** a drive through survey of Growing Area WI was conducted by DMR. No new pollution sources were noted at the time of this survey.

Aquaculture/Wet Storage Activity

There are no wet storage sites in growing area WI. There are twelve aquaculture leases in growing area WI. Please visit the aquaculture web site for more information about current leases in Casco Bay.

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

Classification Changes Required and Requested

Based on the results of the current review, no classification downgrades are required at this time. One classification upgrade is proposed in this report.



Recommendation for Future Work

- 1) Conduct shoreline survey in Falmouth and Cumberland
- 2) Collect adverse ad extra samples in Broad Cove (Cumberland and Yarmouth) and assess for an upward classification at the end of 2010 review period
- 3) Monitor dog activity at Sandy Beach, Cousins Island
- 4) Follow up on outstanding pollution sources in Yarmouth. If pollution sources have been remediated, assess areas that are meeting the approved standard for an upward classification at the end of 2010.

Summary

At the end of 2009 review year, all stations were meeting their classification standards and no downgrades in classification were required. Overall, water quality was varied, with some areas showing an improvement in water quality scores (Cousins River), while other areas showing increasing fecal trends (Chebeague Island stations). In 2009, there were no conditional area closures due to malfunction events at the Yarmouth treatment plant. Portions of growing area WI were downgraded to prohibited in 2009 due to expired shoreline survey work; this work has been scheduled and will be completed during the 2010 review year. Once the required work is completed, areas under administrative closures will be evaluated to return to their previous classification. As a result of this report, one area (Sandy Point, Cousins Island, Yarmouth) is being proposed for an upward classification change, based on the absence of pollution sources and water quality meeting the approved standard. No downgrades in classification are required.

Recommendations for Future Work

The following work is recommended for the 2010 review year:

- 1) Assess animal farms/activity in Broad Cove, Yarmouth
- 2) Assess impact from dog waste at Sandy Beach, Cousins Island.
- 3) Sample storm drain at Wildwood Development, Cumberland following rainfall.
- 4) Adverse weather sample collection in Cousins River and Cumberland (Broad Cove)
- 5) Complete shoreline survey in Cumberland and Falmouth
- 6) Establish a new water quality monitoring station in Potato Cove, Cousins Island, Yarmouth



Appendix A. Annual Review of Conditional Area Management Plan – Cousins River

Cousins River Conditional Area, Area No. 14, Growing Area WI

Scope

The Cousins River is conditionally restricted based on the proper functioning of the Yarmouth Wastewater Treatment Plant. The river itself is classified conditionally restricted and the area outside the river, between Winslow Park in Freeport, the north end of Cousins Island, and the bridge from Yarmouth mainland to Cousins Island, is classified conditionally approved. In 2009, the area was monitored by the following stations: conditionally restricted stations WI 51, 51.5, 53, 54, 55, and 55.2, and conditionally approved stations WI 55.5 and 56.

Compliance with management plan

Under the management, this conditional area must close immediately following a malfunction event at the Yarmouth waste water treatment facility. In 2009, there were no closures resulting from a malfunction at this treatment facility.

Adequacy of reporting and cooperation of involved persons

The emergency response plan with the Yarmouth Wastewater Treatment Plant was updated to clarify the responsibilities of WWTP and DMR on December 11, 2009. The plant is very cooperative and communicates well with the Department.

Compliance with approved growing area criteria

The annual review open status data analysis showed that the conditionally approved and conditionally restricted stations in the Cousins River WWTP conditional area met approved and restricted standards, respectively, during the open status (Table 1).

Table 1. Geometric means and P90 scores, Yarmouth Conditional Stations, Open Status 2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std	Min_Date
WI051.00	CR	30	30	4.6	0.67	1700	33.5	31	163	7/23/2007
WI051.50	CR	30	30	5.8	0.67	1700	42.6	31	163	7/25/2007
WI053.00	CR	30	30	5	0.75	1700	47.3	31	163	6/6/2007
WI054.00	CR	30	30	4.2	0.64	1160	28	31	163	7/23/2007
WI055.00	CR	30	30	4	0.57	760	21.5	31	163	7/8/2007



Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std	Min_Date
WI055.20	CR	30	30	7	0.66	1700	50	31	163	7/8/2007
WI055.50	CA	30	30	3.7	0.61	760	23.3	31	163	7/24/2007
WI056.00	CA	30	30	3.3	0.42	42	11.7	31	163	7/24/2007

Water sampling compliance history

The management plan for this conditional area requires monthly sampling for all Conditionally Approved and Conditionally Restricted stations. In 2009, all conditional stations were sampled monthly.

Analysis-Recommendations

The emergency response management plan for this conditional area must be reviewed annually. This was last completed in December 2009, and must be reviewed and amended (if necessary) at the completion of the 2010 review year.

Several areas which were previously classified as conditionally approved were reclassified to prohibited as a result of identified septic malfunctions in the vicinity of these stations. If these malfunctions have been remediated, the areas should be re-evaluated for an upgrade in classification.



Appendix B. Key to Water Quality Table Headers

Station = water quality monitoring station

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

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

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

Geo_Mean = means the antilog (base 10) of the arithmetic mean of the sample result logarithm (base 10).

SDV = standard deviation

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

P90 = 90th percentile

APPD_STD = the 90th percentile, at or below which the station would meet approved criteria in the absence of pollution sources or poisonous and deleterious substances.

RESTR_STD = the 90th percentile, at or below which the station would meet restricted criteria.



Appendix C. Growing Area WI 2009 Data

Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
WI015.00	05-Jan-09	MLP	LF	SW	0	32	R	X	O	CA	2
	10-Feb-09	MLP	HE	SW	0	30	R	X	C	P	<2
	04-Mar-09	MLP	F	NE	3	30	R	X	C	P	<2
	21-Apr-09	MLP	H	NE	6	28	R	P	C	P	2
	10-Jun-09	JJC	HE	E	14	30	R	P	C	P	<2
	05-Aug-09	CUMB	HF	SE	19	26	R	X	C	P	2
	22-Sep-09	CUMB	F	S	15	30	R	B	C	P	<2
	02-Nov-09	JJC	F	N	8	30	R	X	C	P	2
WI017.00	12-Jan-09	MLP	HF	CL	-4	31	R	X	C	P	<2
	10-Feb-09	MLP	HE	SW	0	30	R	X	C	P	<2
	04-Mar-09	MLP	F	CL	6	30	R	X	C	P	<2
	21-Apr-09	MLP	H	NE	6	28	R	P	C	P	42
	10-Jun-09	JJC	HE	E	18	28	R	PW	C	P	10
	05-Aug-09	CUMB	HF	SE	20	26	R	X	C	P	2
	22-Sep-09	CUMB	F	SE	16	30	R	X	C	P	<2
	02-Nov-09	JJC	F	N	6	28	R	W	C	P	36
WI017.50	05-Jan-09	MLP	F	CL	0	32	R	X	O	CA	<2
	10-Feb-09	MLP	HE	S	0	30	R	X	C	P	<2
	04-Mar-09	MLP	F	NW	2	30	R	X	C	P	<2
	21-Apr-09	MLP	H	NE	6	28	R	P	C	P	2
	10-Jun-09	JJC	HE	CL	18	28	R	P	C	P	6
	05-Aug-09	CUMB	HF	SE	18	27	R	X	C	P	<2
	22-Sep-09	CUMB	F	SE	15	32	R	W	C	P	<2
	02-Nov-09	JJC	F	NW	7	29	R	X	C	P	2
WI025.00	05-Jan-09	MLP	F	W	2	32	R	X	O	CA	<2
	10-Feb-09	MLP	E	SW	0	30	R	X	C	P	<2
	04-Mar-09	MLP	F	SW	2	31	R	X	C	P	<2
	21-Apr-09	MLP	HE	E		28	R	P	C	P	34
	10-Jun-09	JJC	H	E	16	29	R	PM	C	P	<2
	05-Aug-09	CUMB	H	SE	20	26	R	M	C	P	<2
	22-Sep-09	CUMB	F	SE	15	30	R	M	C	P	2
	02-Nov-09	JJC	F	N	9	30	R	MW	C	P	<2
WI026.00	04-Mar-09	MLP	F	CL	2	30	R	W	O	R	16
	21-Apr-09	MLP	HE	E		28	R	P	O	R	44



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
	10-Jun-09	JJC	H	E	16	27	R	PM	O	R	<2
	05-Aug-09	CUMB	H	SE	20	25	R	X	O	R	<2
	22-Sep-09	CUMB	F	SE	15	30	R	X	O	R	2
	02-Nov-09	JJC	F	N	9	30	R	X	O	R	2
WI027.00	04-Mar-09	MLP	HF	CL	3	30	R	X	O	R	<2
	21-Apr-09	MLP	HE	E		28	R	P	O	R	11
	10-Jun-09	JJC	H	E	14	28	R	P	O	R	5.5
	05-Aug-09	CUMB	H	SE	20	26	R	X	O	R	2
	22-Sep-09	CUMB	F	SE	15	30	R	X	O	R	4
	02-Nov-09	JJC	F	N	9	30	R	X	O	R	4
WI030.00	04-Mar-09	MLP	HF	CL	0	29	R	X	O	R	<2
	21-Apr-09	MLP	HE	E		20	R	P	O	R	86
	10-Jun-09	JJC	H	E	14	24	R	P	O	R	20
	05-Aug-09	CUMB	H	SE	21	26	R	X	O	R	<2
	01-Sep-09	EXT	H	CL	19	30	A	X	O	R	<2
	22-Sep-09	CUMB	F	SE	17	30	R	X	O	R	<2
	02-Nov-09	JJC	HF	N	8	30	R	X	O	R	4
WI033.00	24-Mar-09	EXT	HF	N	0	30	R	W	O	R	2
	21-Apr-09	MLP	HE	NE		25	R	P	O	R	20
	10-Jun-09	JJC	HF	E	18	29	R	PW	O	R	4
	25-Aug-09	CLV	F	CL	25	28	R	P	O	R	6
	01-Sep-09	EXT	H	CL	19	30	A	X	O	R	2
	02-Nov-09	MPK	HE		8	30	R	X	O	R	<2
	08-Dec-09	EXT	F	SW	8	30	R	X	O	R	4
WI034.00	04-Mar-09	MLP	HF	NW	-1	28	R	X	O	R	4
	21-Apr-09	MLP	E	NE		25	R	PW	O	R	<2
	10-Jun-09	JJC	HF	CL	16	29	R	P	O	R	5.5
	05-Aug-09	CUMB	H	S	22	26	R	X	O	R	<2
	01-Sep-09	EXT	H	CL	19	30	A	X	O	R	<2
	22-Sep-09	CUMB	HF	SE	16	30	R	X	O	R	<2
	02-Nov-09	JJC	HF	N	8	30	R	X	O	R	<2
WI036.00	04-Mar-09	MLP	H	NW	2	31	R	W	O	R	<2
	21-Apr-09	MLP	E	NE		25	R	PW	O	R	<2
	10-Jun-09	JJC	HF	E	14	29	R	P	C	P	<2
	05-Aug-09	CUMB	HE	S	22	26	R	X	C	P	4
	22-Sep-09	CUMB	HF	E	15	32	R	X	C	P	4



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
	02-Nov-09	JJC	HF	N	9	30	R	X	C	P	<2
WI038.00	04-Mar-09	MLP	H	CL	2	30	R	W	O	R	<2
	21-Apr-09	MLP	E	NE		20	R	PW	O	R	148
	10-Jun-09	JJC	HF	E	14	28	R	P	C	P	<2
	05-Aug-09	CUMB	HE	S	21	26	R	X	C	P	<2
	22-Sep-09	CUMB	HF	E	15	31	R	X	C	P	<2
	02-Nov-09	JJC	HF	N	8	31	R	X	C	P	<2
WI040.00	04-Mar-09	MLP	H	CL	2	30	R	X	O	R	<2
	21-Apr-09	MLP	E	NE		28	R	P	O	R	2
	10-Jun-09	JJC	HF	E	13	28	R	PW	C	P	4
	05-Aug-09	CUMB	HE	S	22	26	R	X	C	P	120
	22-Sep-09	CUMB	HF	E	16	30	R	X	C	P	<2
	02-Nov-09	JJC	HF	N	9	30	R	X	C	P	2
WI041.00	05-Jan-09	MLP	F	CL	2	30	R	T	O	CR	<2
	03-Mar-09	MLP	HF	N	3	29	R	X	O	CR	<2
	31-Mar-09	MLP	F	CL	11	15	R	PT	O	CR	4
	15-Apr-09	EXT	F	S	16	29	R	X	O	CR	<2
	13-May-09	EXT	F	SE	20	28	R	X	C	P	<2
	10-Jun-09	MPK	H	SW	14	27	R	X	C	P	<2
	08-Jul-09	MPK	HE		12	12	R	P	C	P	420
	05-Aug-09	AB	H	CL	22	26	R	X	C	P	15
	22-Sep-09	MPK	E	SW	15	30	R	X	C	P	<2
	06-Oct-09	MPK	H	W	13	30	R	X	C	P	4
	02-Nov-09	MPK	H		8	30	R	X	C	P	2
	08-Dec-09	EXT	F	S	9	30	R	X	C	P	<2
WI048.00	03-Mar-09	MLP	HF	N	0	18	R	X	C	P	<2
	31-Mar-09	MLP	F	N	6	2	R	P	C	P	16
	15-Apr-09	EXT	F	CL	8	28	R	X	C	P	<2
	13-May-09	EXT	F	SE	18	26	R	X	C	P	<2
	10-Jun-09	MPK	HF	CL	14	28	R	X	C	P	<2
	08-Jul-09	MPK	HE		14	2	R	P	C	P	720
	05-Aug-09	AB	HE	CL	22	17	R	X	C	P	10
	22-Sep-09	MPK	HE	CL	15	30	R	X	C	P	<2
	06-Oct-09	MPK	H	W	13	30	R	X	C	P	46
	02-Nov-09	MPK	H		7	26	R	X	C	P	2
	08-Dec-09	EXT	F	S	9	19	R	X	C	P	2



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
WI051.00	05-Jan-09	MLP	F	CL	-2	18	R	T	O	CR	2
	10-Feb-09	MLP	E	CL	1	28	R	X	O	CR	<2
	03-Mar-09	MLP	H	N	0	12	R	X	O	CR	<2
	15-Apr-09	EXT	HF	CL	7	22	R	X	O	CR	<2
	13-May-09	EXT	F	SE	18	24	R	X	O	CR	2
	10-Jun-09	MPK	HF	CL	14	27	R	X	O	CR	2
	08-Jul-09	MPK	E		9	0	R	P	O	CR	>1600
	05-Aug-09	AB	HE	CL	20	22	R	X	O	CR	6
	22-Sep-09	MPK	HE	CL	14	30	R	X	O	CR	<2
	06-Oct-09	MPK	HE	W	13	30	R	X	O	CR	44
	02-Nov-09	MPK	H		8	30	R	X	O	CR	<2
	08-Dec-09	EXT	F	CL	7	25	R	X	O	CR	3.6
WI051.50	12-Jan-09	MLP	F	CL	-4	20	R	X	O	CR	4
	17-Mar-09	CLV	H	SW	2	4	R	WT	O	CR	<2
	31-Mar-09	MLP	HF	NW	5	0	R	P	O	CR	18
	15-Apr-09	EXT	HF	SE	10	11	R	X	O	CR	<2
	13-May-09	EXT	F	SE	21	12	R	X	O	CR	<2
	10-Jun-09	MPK	HF	CL	14	24	R	X	O	CR	2
	08-Jul-09	MPK	E		9	1	R	P	O	CR	>1600
	05-Aug-09	AB	HE	CL	23	18	R	X	O	CR	14
	22-Sep-09	MPK	HE	CL	14	28	R	X	O	CR	<2
	06-Oct-09	MPK	H	W	13	26	R	X	O	CR	70
	02-Nov-09	MPK	H		8	28	R	X	O	CR	<2
	08-Dec-09	EXT	F	CL	6	12	R	X	O	CR	10
WI053.00	05-Jan-09	MLP	F	CL	-1	26	R	X	O	CR	<2
	03-Mar-09	MLP	H	CL	1	28	R	X	O	CR	<2
	31-Mar-09	MLP	HF	N	6	10	R	P	O	CR	2
	15-Apr-09	EXT	HF	SE	7	26	R	X	O	CR	<2
	13-May-09	EXT	F	CL	15	27	R	X	O	CR	<2
	10-Jun-09	MPK	HF	CL	13	27	R	X	O	CR	<2
	08-Jul-09	MPK	E		9	6	R	P	O	CR	>1600
	05-Aug-09	AB	HE	CL	23	20	R	X	O	CR	20
	22-Sep-09	MPK	HE	CL	15	30	R	X	O	CR	<2
	06-Oct-09	MPK	H	W	13	29	R	X	O	CR	35
	02-Nov-09	MPK	H		8	28	R	X	O	CR	2
	08-Dec-09	EXT	F	CL	8	27	R	X	O	CR	4



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
WI054.00	05-Jan-09	MLP	F	W	-1	26	R	T	O	CR	2
	04-Feb-09	EXT	F	CL	1	16	R	X	O	CR	2
	03-Mar-09	MLP	HF	N	1	28	R	X	O	CR	<2
	15-Apr-09	EXT	F	SE	7	27	R	X	O	CR	<2
	13-May-09	EXT	F	CL	17	28	R	X	O	CR	<2
	10-Jun-09	MPK	HF	CL	14	28	R	X	O	CR	4
	08-Jul-09	MPK	H		14	6	R	P	O	CR	1160
	05-Aug-09	AB	E	NW	22	23	R	X	O	CR	<2
	22-Sep-09	MPK	HE	CL	15	30	R	X	O	CR	<2
	06-Oct-09	MPK	H	W	13	29	R	X	O	CR	46
	02-Nov-09	MPK	H		7	30	R	X	O	CR	<2
	08-Dec-09	EXT	F	CL	8	29	R	X	O	CR	<2
	WI055.00	05-Jan-09	MLP	F	CL	-1	23	R	T	O	CR
10-Feb-09		MLP	E	SW	-1	27	R	X	O	CR	8
03-Mar-09		MLP	H	CL	3	26	R	X	O	CR	<2
15-Apr-09		EXT	HF	CL	11	24	R	X	O	CR	<2
13-May-09		EXT	HF	SE	19	24	R	X	O	CR	<2
10-Jun-09		MPK	HF	CL	14	28	R	X	O	CR	2
08-Jul-09		MPK	HE		14	2	R	P	O	CR	760
05-Aug-09		AB	E	S	23	21	R	X	O	CR	7.3
22-Sep-09		MPK	HE	SW	15	30	R	X	O	CR	<2
06-Oct-09		MPK	H	W	13	26	R	X	O	CR	88
02-Nov-09		MPK	H		8	30	R	X	O	CR	<2
08-Dec-09		EXT	F	SW	8	26	R	X	O	CR	3.6
WI055.20	12-Jan-09	MLP	HF	CL	-4	26	R	X	O	CR	8
	17-Mar-09	CLV	HE	CL	5	12	R	X	O	CR	2
	31-Mar-09	MLP	HF	NW	7	4	R	PW	O	CR	20
	15-Apr-09	EXT	HF	CL	12	24	R	X	O	CR	<2
	13-May-09	EXT	HF	CL	21	22	R	X	O	CR	<2
	10-Jun-09	MPK	H	CL	15	26	R	X	O	CR	2
	08-Jul-09	MPK	HE		13	2	R	P	O	CR	>1600
	05-Aug-09	AB	E	CL	24	17	R	X	O	CR	14
	22-Sep-09	MPK	HE	SW	15	28	R	X	O	CR	<2
	06-Oct-09	MPK	H	CL	13	23	R	X	O	CR	160
	02-Nov-09	MPK	H		7	25	R	X	O	CR	2
	08-Dec-09	EXT	F	CL	7	18	R	X	O	CR	6



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
WI055.50	05-Jan-09	MLP	F	CL	-2	22	R	T	O	CA	<2
	03-Mar-09	MLP	HE	N	2	28	R	X	O	CA	<2
	31-Mar-09	MLP	HF	NW	6	18	R	P	O	CA	<2
	15-Apr-09	EXT	HF	SE	9	26	R	X	O	CA	<2
	13-May-09	EXT	HF	SE	19	27	R	X	O	CA	<2
	10-Jun-09	MPK	H	SW	14	28	R	X	O	CA	<2
	08-Jul-09	MPK	HE		15	2	R	P	O	CA	760
	05-Aug-09	AB	E	SW	22	22	R	X	O	CA	8
	22-Sep-09	MPK	HE	SW	16	30	R	X	O	CA	<2
	06-Oct-09	MPK	H	W	12	25	R	X	O	CA	160
	02-Nov-09	MPK	H		7	30	R	X	O	CA	4
	08-Dec-09	EXT	F	NW	6	22	R	X	O	CA	2
WI056.00	05-Jan-09	MLP	HF	CL	0	30	R	X	O	CA	<2
	10-Feb-09	MLP	E	SW	0	28	R	X	O	CA	<2
	03-Mar-09	MLP	HE	N	3	30	R	X	O	CA	<2
	15-Apr-09	EXT	H	SE	10	28	R	X	O	CA	<2
	13-May-09	EXT	HF	SE	18	28	R	X	O	CA	2
	10-Jun-09	MPK	H	SW	13	29	R	X	O	CA	<2
	08-Jul-09	MPK	HE		14	25	R	P	O	CA	42
	05-Aug-09	AB	E	CL	23	25	R	X	O	CA	8
	22-Sep-09	MPK	HE	SW	15	30	R	X	O	CA	2
	06-Oct-09	MPK	H	W	12	30	R	X	O	CA	30
	02-Nov-09	MPK	H		8	30	R	X	O	CA	4
	08-Dec-09	EXT	HF	NW	8	29	R	X	O	CA	<2
WI056.70	03-Mar-09	EXT	F	NW	1	30	R	X	O	A	<2
	14-Apr-09	TKF	F	CL	5	30	R	X	O	A	<2
	15-Jun-09	TKF	E	S	15	28	R	P	O	A	5.5
	06-Jul-09	TKF	F	SW	16	26	E	PW	O	A	4
	03-Aug-09	TKF	H	S	19	28	R	X	O	A	2
	14-Sep-09	TKF	H	W	15	30	R	P	O	A	2
	05-Oct-09	TKF	H	SW	14	30	A	P	O	A	4
	02-Nov-09	EXT	HF	NE	10	30	R	X	O	A	<2
	01-Dec-09	TKF	F	CL	7	30	E	P	O	A	4
WI058.50	05-Jan-09	MLP	F	CL	-1	31	R	X	O	CR	<2
	04-Feb-09	EXT	LF	NE	2	31	R	X	O	CR	<2
	03-Mar-09	MLP	F	N	1	30	R	X	O	CR	<2



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
	15-Apr-09	EXT	F	SE	6	29	R	X	O	CR	<2
	13-May-09	EXT	F	SE	14	30	R	X	C	P	<2
	10-Jun-09	MPK	H	SW	13	28	R	X	C	P	<2
	08-Jul-09	MPK	HE		12	24	R	P	C	P	82
	05-Aug-09	AB	F	CL	20	26	R	X	C	P	<2
	22-Sep-09	MPK	E	SW	15	30	R	X	C	P	<2
	06-Oct-09	MPK	H	W	13	30	R	X	C	P	2
	02-Nov-09	MPK	HE		8	30	R	X	C	P	<2
	08-Dec-09	EXT	F	S	7	30	R	X	C	P	<2
WI058.80	12-Jan-09	MLP	HF	CL	-3	29	R	X	O	CA	2
	17-Mar-09	CLV	H	SW	5	30	R	X	O	CA	<2
	31-Mar-09	MLP	F	N	6	12	R	P	O	CA	2
	15-Apr-09	EXT	F	CL	10	28	R	X	O	CA	<2
	13-May-09	EXT	F	SE	22	28	R	X	C	P	<2
	10-Jun-09	MPK	H	SW	14	28	R	X	C	P	<2
	08-Jul-09	MPK	E		12	24	R	P	C	P	34
	05-Aug-09	AB	H	CL	20	26	R	X	C	P	2
	22-Sep-09	MPK	E	SW	15	30	R	X	C	P	2
	06-Oct-09	MPK	H	W	13	29	R	X	C	P	32
	02-Nov-09	MPK	HE		8	30	R	X	C	P	<2
	08-Dec-09	EXT	F	CL	9	29	R	X	C	P	<2
WI061.00	03-Mar-09	MLP	F	CL	1	30	R	X	O	A	<2
	15-Apr-09	EXT	F	S	9	28	R	X	O	A	<2
	10-Jun-09	MPK	HE	SW	14	29	R	W	O	A	2
	05-Aug-09	AB	H	S	20	27	R	X	O	A	<2
	22-Sep-09	MPK	E	SW	15	30	R	X	O	A	<2
	02-Nov-09	MPK	HE		8	30	R	X	O	A	<2
WI062.00	03-Mar-09	MLP	F	N	5	31	R	X	C	P	<2
	15-Apr-09	EXT	F	S	8	29	R	X	C	P	<2
	10-Jun-09	MPK	HE	SW	14	30	R	X	C	P	<2
	05-Aug-09	AB	H	S	22	26	R	X	C	P	10
	22-Sep-09	MPK	E	SW	15	30	R	X	C	P	<2
	02-Nov-09	MPK	HE		8	30	R	X	C	P	<2
WI063.00	03-Mar-09	MLP	F	N	2	30	R	W	C	P	<2
	15-Apr-09	EXT	F	S	11	29	R	X	C	P	<2
	10-Jun-09	MPK	HE	SW	14	30	R	X	C	P	<2



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
	05-Aug-09	AB	H	CL	21	26	R	X	C	P	6
	22-Sep-09	MPK	E	SW	15	30	R	X	C	P	<2
	02-Nov-09	MPK	HE		8	30	R	X	C	P	<2
WI064.00	03-Mar-09	MLP	F	CL	0	28	R	X	C	P	<2
	15-Apr-09	EXT	F	CL	11	30	R	X	C	P	<2
	10-Jun-09	MPK	HE	SW	13	29	R	X	C	P	<2
	05-Aug-09	AB	H	CL	22	26	R	X	C	P	8
	22-Sep-09	MPK	E	SW	15	30	R	X	C	P	<2
	02-Nov-09	MPK	HE		8	30	R	X	C	P	<2
WI065.50	03-Mar-09	MLP	F	N	2	31	R	X	O	A	<2
	15-Apr-09	EXT	F	S	7	29	R	X	O	A	<2
	10-Jun-09	MPK	HE	SW	13	30	R	X	O	A	<2
	05-Aug-09	AB	H	CL	20	27	R	X	O	A	<2
	22-Sep-09	MPK	E	SW	14	31	R	X	O	A	2
	02-Nov-09	MPK	HE		8	31	R	X	O	A	<2
WI069.00	03-Mar-09	MLP	F	N	2	31	R	X	C	P	6
	15-Apr-09	EXT	F	S	6	30	R	X	C	P	<2
	10-Jun-09	MPK	HE	SW	12	30	R	X	C	P	<2
	05-Aug-09	AB	F	SW	19	26	R	X	C	P	<2
	22-Sep-09	MPK	E	SW	14	30	R	X	C	P	<2
	02-Nov-09	MPK	HE		8	30	R	X	C	P	<2
WI071.00	03-Mar-09	MLP	F	N	2	30	R	X	O	R	<2
	15-Apr-09	EXT	F	S	8	28	R	X	O	R	<2
	10-Jun-09	MPK	H	SW	14	30	R	X	O	R	2
	05-Aug-09	AB	HF	SW	21	25	R	X	O	R	20
	22-Sep-09	MPK	E	SW	14	30	R	X	O	R	<2
	02-Nov-09	MPK	HE		8	30	R	X	O	R	<2
WI074.00	03-Mar-09	MLP	F	N	0	30	R	X	O	R	<2
	15-Apr-09	EXT	F	CL	7	30	R	X	O	R	<2
	10-Jun-09	MPK	H	SW	13	30	R	X	O	R	10
	05-Aug-09	AB	HF	CL	21	26	R	X	O	R	4
	22-Sep-09	MPK	E	SW	15	30	R	X	O	R	<2
	02-Nov-09	MPK	E		8	30	R	X	O	R	<2
WI077.00	13-May-09	CRO	F	S	10	29	R	X	C	P	<2
	10-Jun-09	CRO	LF	NE	12	30	R	P	O	A	<2
	08-Jul-09	CRO	F	E	14	26	R	P	O	A	38



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
	05-Aug-09	CRO	H	S	20	26	R	W	O	A	<2
	22-Sep-09	CRO	F	W	14	31	R	X	O	A	<2
	06-Oct-09	AJS	F	W	11	30	R	X	O	A	580
WI083.00	13-May-09	CRO	F	S	10	30	R	W	O	A	<2
	10-Jun-09	CRO	F	NE	10	30	R	P	O	A	<2
	08-Jul-09	CRO	H	E	13	28	R	P	O	A	29
	05-Aug-09	CRO	HE	S	20	25	R	W	O	A	<2
	22-Sep-09	CRO	F	S	14	30	R	X	O	A	<2
	06-Oct-09	AJS	F	SW	12	32	R	X	O	A	<2
WI088.00	13-May-09	CRO	F	S	10	29	R	X	C	P	<2
	10-Jun-09	CRO	F	NE	10	30	R	P	O	A	<2
	08-Jul-09	CRO	HF	E	13	26	R	P	O	A	146
	05-Aug-09	CRO	HE	S	21	25	R	X	O	A	<2
	22-Sep-09	CRO	F	S	13	31	R	X	O	A	<2
	06-Oct-09	AJS	F	SW	13	30	R	X	O	A	11
WI089.00	13-May-09	CRO	F	S	9	30	R	X	C	P	<2
	10-Jun-09	CRO	F	NE	10	30	R	P	C	P	2
	08-Jul-09	CRO	HF	E	13	26	R	P	C	P	42
	05-Aug-09	CRO	HE	S	19	26	R	W	C	P	<2
	22-Sep-09	CRO	F	S	13	30	R	X	C	P	7.3
	06-Oct-09	AJS	F	SW	12	32	R	X	C	P	18
WI090.00	13-May-09	CRO	F	S	10	30	R	X	O	A	<2
	10-Jun-09	CRO	F	NE	11	30	R	P	O	A	2
	08-Jul-09	CRO	HF	E	13	24	R	P	O	A	64
	05-Aug-09	CRO	HE	S	17	28	R	X	O	A	<2
	22-Sep-09	CRO	F	S	13	30	R	X	O	A	<2
	06-Oct-09	AJS	F	CL	13	32	R	X	O	A	<2
WI092.00	13-May-09	CRO	F	S	10	31	R	X	O	A	<2
	10-Jun-09	CRO	F	NE	11	30	R	P	O	A	2
	08-Jul-09	CRO	HF	E	13	27	R	P	O	A	10
	05-Aug-09	CRO	HE	S	16	28	R	X	O	A	<2
	22-Sep-09	CRO	F	S	13	30	R	X	O	A	2
	06-Oct-09	AJS	F	SW	11	32	R	X	O	A	64
WI093.00	13-May-09	CRO	F	S	10	29	R	X	O	A	<2
	10-Jun-09	CRO	F	NE	11	30	R	P	O	A	<2
	08-Jul-09	CRO	F	E	13	22	R	P	O	A	140



Station	Date	Collector	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
	05-Aug-09	CRO	H	S	18	28	R	X	O	A	<2
	22-Sep-09	CRO	F	SW	13	31	R	X	O	A	<2
	06-Oct-09	AJS	F	CL	12	32	R	X	O	A	<2
WI095.00	13-May-09	CRO	F	S	10	28	R	X	C	P	<2
	10-Jun-09	CRO	F	NE	12	30	R	P	O	A	<2
	08-Jul-09	CRO	F	E	13	25	R	P	O	A	580
	05-Aug-09	CRO	H	S	19	28	R	N	O	A	<2
	22-Sep-09	CRO	F	W	14	31	R	X	O	A	<2
	06-Oct-09	AJS	F	CL	12	32	R	X	O	A	4
WI116.00	13-May-09	CRO	F	S	9	28	R	X	C	P	<2
	10-Jun-09	CRO	F	NE	10	30	R	P	C	P	<2
	08-Jul-09	CRO	HF	E	12	26	R	P	C	P	6
	05-Aug-09	CRO	HE	S	17	28	R	X	C	P	<2
	22-Sep-09	CRO	F	S	13	31	R	X	C	P	<2