



**GROWING AREA WB
Towns of Kittery and York**

Annual Review for 2009

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APPROVAL

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_____ Date: _____
Print name signature



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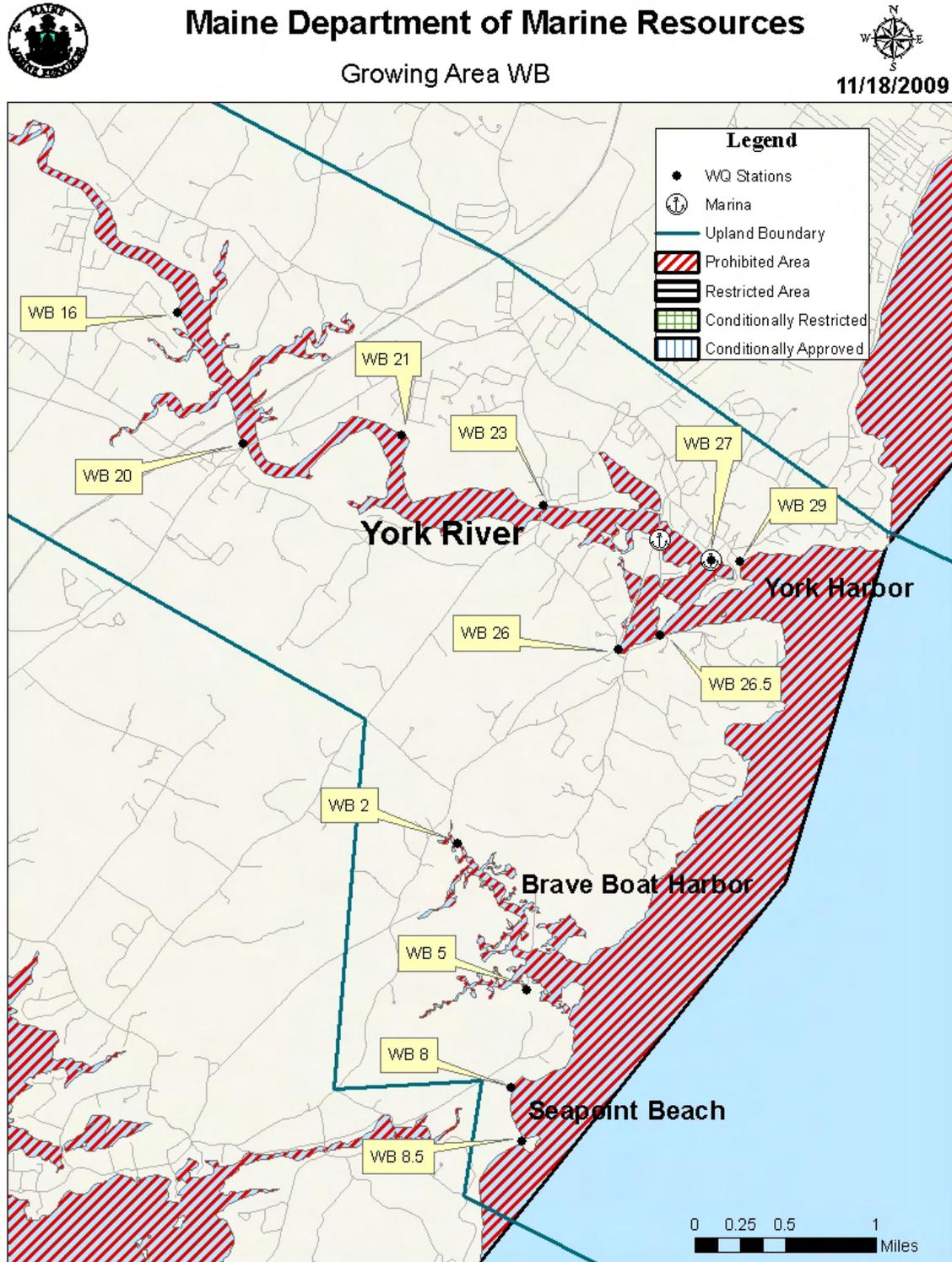
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Figure 1. Growing Area WB, with Active Water Stations





Executive Summary

This is an annual report for growing area WB written in compliance with the requirements of the 2007 Model Ordinance and the National Shellfish Sanitation Program.

Growing area WB includes Seapoint Beach, Brave Boat Harbor, and the York River. Existing pollution sources in this growing area include two marinas located in the lower portion of the York River, as well as 311 moorings and 155 slips managed by the Town of York. There are no municipal waste water facilities in this area. There were no additional pollution sources identified during the 2009 review year.

There were no stations added or removed from the growing area in 2009. On January 12, 2009 all stations within area WB were reclassified to prohibited due to an expired shoreline survey. In October 2009, a shoreline survey was completed from the mouth of the York River to the Sewalls Bridge.

Four stations are being recommended for upward classifications due to the completion of a partial shoreline survey and water quality meeting the appropriate NSSP classification standard (WB 23, WB 26, WB 26.5, and WB 27). The rest of area WB will remain prohibited until additional shoreline survey work can be completed.

The next triennial report is due in 2010; the next sanitary survey report is due in 2012.

Growing Area Description

Growing area WB includes small portions of the towns of Kittery and York in Southern Maine (Figure 1). The growing area boundary begins at Sisters Point Kittery and includes Seapoint Beach, Brave Boat Harbor, and the York River ending at the northeast end of Western Beach, just outside the York River. A complete boundary description for this growing area can be found in DMR central files.

The lower portion of the York River has two marinas, as well as 311 moorings and 155 slips managed by the Town of York. The marina area is frequented with summer traffic beginning in early May and tapering off by the end of October. Mooring and slip concentrations are highest starting south of Stage Neck to the Sewalls Bridge. The majority of the summer boating activity is transients with some fishing vessels and one live aboard boat.



Current Classification(s)

Shellfish growing area WB currently has areas classified as:

Prohibited

- Seapoint Beach, Kittery (2 Stations) (Expired Shoreline Survey)
- Brave Boat Harbor, Kittery (2 Stations) (Expired Shoreline Survey)
- York River, York (8 Stations) (Expired Shoreline Survey)

Please visit the DMR website to view legal notices:

Pollution Area No. 3, Seapoint to York River (Kittery and York)

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

Activity During Review Period

On January 12, 2009 all stations in area WB were reclassified to prohibited due to an expired shoreline survey. Table 1 lists all the stations in area WB with their previous and current classifications.

Table 1. Classification Changes for Area WB in 2009

Station	Previous Class	Current Class
WB002.00	R	P
WB005.00	A	P
WB008.00	P	P
WB008.50	A	P
WB016.00	P	P
WB020.00	P	P
WB021.00	A	P
WB023.00	A	P
WB026.00	CA	P
WB026.50	CA	P
WB027.00	CA	P
WB029.00	A	P

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

There are currently no conditional areas in area WB due to all stations being reclassified to prohibited.



Water Quality Review and Discussion

Table 2 lists all active prohibited stations in Growing Area WB, 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.

Based on the current review of water quality data some prohibited stations are meeting the approved NSSP standard, but will remain prohibited until a full shoreline survey and water quality assessment can be completed. Stations WB 23, WB 26, WB 26.5, and WB 27 are currently classified as prohibited, but are meeting the approved standard. These stations are being recommended for an upward classification to conditionally approved based on season, due to the completion of partial shoreline survey in October of 2009. These stations can not be classified to approved, due to the presence of more than 10 boats with heads at the two marinas and at the town run moorings and slips.

Table 2. Geomean and P90 Scores, Growing Area WB, 2005-2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std
WB002.00	P	30	20	6.7	0.62	240	42.6	36	199
WB005.00	P	30	20	3.3	0.34	44	9.2	36	199
WB008.00	P	30	20	5.5	0.5	93	24.6	36	199
WB008.50	P	30	20	3.3	0.38	41	10.7	36	199
WB016.00	P	30	20	9.6	0.62	158	61.1	36	199
WB020.00	P	30	20	11.2	0.67	1700	81.4	36	199
WB021.00	P	30	20	7	0.51	82	32	36	199
WB023.00	P	30	30	4.6	0.53	102	22.8	31	163
WB026.00	P	30	28	5.9	0.52	108	27.7	31	169
WB026.50	P	30	30	3.7	0.44	52	13.5	31	163
WB027.00	P	30	30	2.6	0.28	20	6.1	31	163
WB029.00	P	30	20	3.4	0.34	62	9.5	36	199

All stations that were active at the beginning of the year were sampled at least 6 times in 2009, following the systematic random sampling (SRS) schedule. Table 3 shows the number of random samples taken during the 2009 sampling year; Appendix C shows random data collected in 2009 for all active stations in growing area WB.



Table 3. WB Samples Collected in 2009

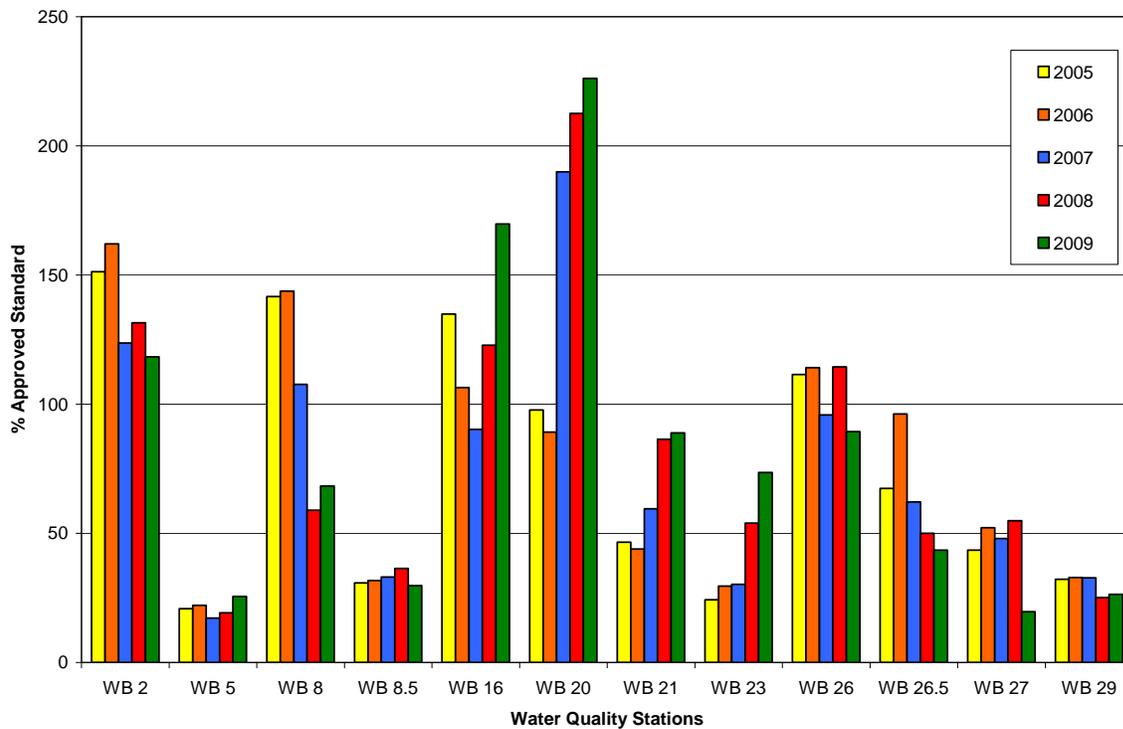
Station	Class	Extra	Random		Grand Total	Notes
		Closed	Closed	Open		
WB002.00	P		6		6	Restricted status changed to Prohibited on 1/12/2009 due to lack of shoreline survey
WB005.00	P		6		6	Approved status changed to Prohibited on 1/12/2009 due to lack of shoreline survey
WB008.00	P		6		6	
WB008.50	P		6		6	Approved status changed to Prohibited on 1/12/2009 due to lack of shoreline survey
WB016.00	P		6		6	
WB020.00	P		6		6	
WB021.00	P		6		6	Approved status changed to Prohibited on 1/12/2009 due to lack of shoreline survey
WB023.00	P	1	7		8	Approved status changed to Prohibited on 1/12/2009 due to lack of shoreline survey
WB026.00	P	1	7		8	Conditionally Approved status changed to Prohibited on 1/12/2009 due to lack of shoreline survey
WB026.50	P	1	7		8	Conditionally Approved status changed to Prohibited on 1/12/2009 due to lack of shoreline survey
WB027.00	P	1	7		8	Conditionally Approved status changed to Prohibited on 1/12/2009 due to lack of shoreline survey
WB029.00	P		6		6	Approved status changed to Prohibited on 1/12/2009 due to lack of shoreline survey

Figure 2 shows the P90 trends over the past five years for all stations in area WB. During the transition from MPN to MF analysis method, the approved standard will decrease every year, until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90 scores are expressed as a percentage of the approved standard; any station showing the 2009 column on or above the 100 percent line does not meet the standard for approved classification. Station WB 20 has shown a significant increase in P90



scores over the past three years (decreasing water quality). Stations WB 2, WB 8, WB 26, WB 26.5, and WB 27 are trending downward in their P90 scores (improving water quality). Station WB 23 has continued to increase in P90 scores over the past five years. Although this station still meets the NSSP approved standard, it should be closely watched especially since it is being recommended for an upward classification as part of a conditional area. Continued shoreline survey work is recommended for all of area WB as part of the 2010 triennial review.

Figure 2. Area WB P90 Scores for Active Stations (expressed as the percent of the approved standard), Year Round Data, 2005-2009



Recommendations for Upward Classification

Stations WB 23, 26, 26.5, and 27 were reclassified from either conditionally approved or approved to prohibited in January of 2009 as the result of an expired shoreline survey. In October 2009, the area surrounding these stations (mouth of the York River to the Sewalls Bridge) was surveyed. No potential or actual pollution sources were identified at the time of the survey. These stations currently meet the NSSP approved standard year round and are being recommended for an upward classification. However, these stations are located in the vicinity of two marinas, as well as numerous town moorings and slips. Interviews with the marina managers and the town Harbor Master indicated that during typical boating season (May to



October), more than 10 boats with heads may be present in this portion of the York River. Therefore, a conditionally approved classification is necessary, with a closed status from May 1 to November 15.

A complete Conditional Area Management plan for 2010 can be found in DMR central files. The town Harbor Master could not verify the total number of boats with heads which are typically present during peak boating season; therefore a dilution calculation for this area cannot be completed at this time. However, the shellfish harvesting areas located on both sides of the proposed marina conditional area are currently classified as prohibited due to expired sanitary survey. Therefore no shellfish harvesting can take place in these areas when the marina conditional area is in closed status due to the presence of boats, and therefore a dilution calculation is not required at this time. A dilution calculation will be required prior to any upward classification changes in areas which currently border the conditional area.

Table 4 lists the four stations in the proposed conditional area in growing area WB, with their respective Geomean and P90 calculations for the recommended open status of November 16 through April 30. WB 26.50 was created in 2005 and does not have 30 data points during the open status time period. The P90 was calculated using all data points from 2005 to 2009 and meets the appropriate NSSP standard. Sample stations WB 23, 26, and 27 meet the approved NSSP standard for the open status of the conditional area.

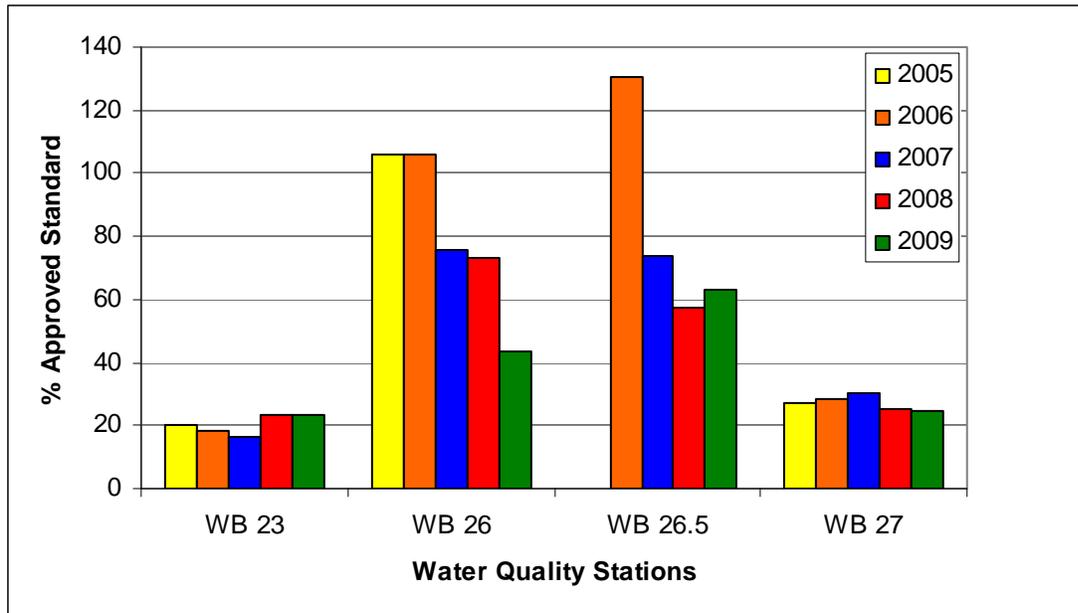
Table 4. Geomean and P90 Scores for the Proposed Conditional Area, November 16 – April 30, 2004-2009

Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std
WB023.00	P	30	19	3.3	0.31	40	8.4	36	203
WB026.00	P	30	17	4.4	0.44	93	16.1	37	212
WB026.50	P	26	19	4.4	0.53	93	22	35	192
WB027.00	P	30	19	2.8	0.38	240	8.9	36	203

Figure 3 shows the P90 trends (as percent of approved standard) over the past five years for stations WB 23, 26, 26.5, and 27, during the proposed open status of November 16 to April 30. Station WB 26.5 does not have a P90 calculation for 2005 because this was the year it was created. All stations currently meet the appropriate NSSP standard to be classified as conditionally approved.



Figure 3. Area WB P90 Scores for the Proposed Conditional Area (expressed as the percent of the approved standard), November 16 – April 30, 2005-2009



Shoreline Survey Activity 2009

The following areas in Growing Area WB were surveyed in 2009:

October 23, 2009 – Survey work of the York River started on the south side of the river on Ice House Point Road and ended on Pine Island. A total of 27 properties were surveyed and no potential or actual problems were identified.

October 29, 2009 – Survey was continued starting on the south side of the York River from Windmill Acres and ending at Seabury Road. A total of 42 properties were surveyed and no potential or actual problems were identified.

October 30, 2009 – Survey work of the York River was finished starting with Seawall Hills and ending on the north side of the river at Stage Neck Road. A total of 54 properties with septic systems were surveyed with no potential or actual problems identified. A drive-through survey of 56 properties on town sewer was also completed on the same date. Town sewer begins on the north side of the river at Indian Trail and continues along the river eastward to the mouth of the river, with the exception of two properties that were surveyed.



Aquaculture/Wet Storage Activity

There is no aquaculture or wet storage sites in area WB.

Classification Changes Required and Requested

Stations WB 23, 26, 26.5, and 27 are recommended for an upward classification from prohibited to conditionally approved based on season and the presence of boats with heads. These stations were originally part of a conditional area in the York River, but were downgraded in January 2009 due to an expired shoreline survey. In October 2009, the area surrounding these stations (mouth of the river to the Sewalls Bridge) was surveyed and no potential or actual problems were identified. Water quality review for 2009 of these stations shows that they meet the appropriate NSSP standard. The conditional area is being recommended to the original open status of November 16 through April 30 due to the presence of more than 10 boats with heads in the river from May 1 to November 1. A complete Conditional Area Management plan for 2010 can be found in central files.

Summary

At the end of 2009, all stations in growing area WB were classified as prohibited as a result of an expired shoreline survey. While a number of stations met the approved NSSP standard, these stations will remain classified as prohibited until future shoreline survey work and water quality assessment can be completed. Stations WB 23, 26, 26.5, and 27 are being recommended for an upward classification to conditionally approved due to the completion of a shoreline survey in the vicinity of these stations. Based on the current review of water quality data for 2009, these stations meet the appropriate NSSP classification standard.

The lower portion of the York River was surveyed in October of 2009. All data collected during this recent survey has been entered into the DMR database. Continued shoreline survey work is recommended for all of area WB as part of the 2010 triennial review.



Appendix A. Key to water quality table headers.

Station = water quality monitoring station

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

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

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

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

SDV = standard deviation

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

P90 = 90th percentile

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

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



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

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

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

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

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



Appendix C. Growing Area WB 2009 Data

Station	Date	Collect	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
WB002.00	16-Mar-09	DCP	F		4	24	R	X	C	P	1.9
	17-Jun-09	DCP	E	CL	15	30	R	X	C	P	4
	12-Aug-09	DCP	F	E	25	27	R	P	C	P	33
	26-Aug-09	EXT	H	CL	22	30	R	X	C	P	2
	29-Sep-09	DCP	H	CL	15	30	R	P	C	P	16
	30-Nov-09	EXT	HE	CL	9	23	R	X	C	P	12
WB005.00	16-Mar-09	DCP	F		4	30	R	X	C	P	1.9
	17-Jun-09	DCP	E	CL	14	30	R	X	C	P	4
	12-Aug-09	DCP	F	CL	20	30	R	P	C	P	4
	26-Aug-09	EXT	H	CL	24	30	R	X	C	P	1.9
	29-Sep-09	DCP	H	CL	14	30	R	P	C	P	44
	30-Nov-09	EXT	HE	CL	10	30	R	X	C	P	1.9
WB008.00	16-Mar-09	DCP	E	E	1	32	R	X	C	P	1.9
	17-Jun-09	DCP	E	CL	15	30	R	X	C	P	1.9
	12-Aug-09	DCP	F	CL	23	30	R	P	C	P	6
	26-Aug-09	EXT	HF	SW	27	30	R	X	C	P	1.9
	29-Sep-09	DCP	HE	CL	14	32	R	PW	C	P	6
	30-Nov-09	EXT	E	CL	9	30	R	X	C	P	46
WB008.50	16-Mar-09	DCP	E	E	1	32	R	X	C	P	1.9
	17-Jun-09	DCP	E	CL	15	30	R	X	C	P	2
	12-Aug-09	DCP	F	CL	20	30	R	PW	C	P	1.9
	26-Aug-09	EXT	HF	SW	24	30	R	X	C	P	7.3
	29-Sep-09	DCP	HE	CL	14	31	R	P	C	P	1.9
	30-Nov-09	EXT	HE	W	10	31	R	X	C	P	1.9
WB016.00	16-Mar-09	MLP	F	SW	4	12	R	X	C	P	1.9
	04-May-09	LSM	HE	CL	10	28	R	X	C	P	1.9
	17-Jun-09	EXT	F	CL	20	18	R	X	C	P	6
	12-Aug-09	MLP	F	CL	24	15	R	X	C	P	158
	29-Sep-09	MLP	H	CL	17	28	R	X	C	P	16
	30-Nov-09	EXT	H	CL	9	22	R	X	C	P	110
WB020.00	16-Mar-09	MLP	F	SW	3	15	R	X	C	P	2
	04-May-09	LSM	HE	CL	9	26	R	X	C	P	4
	17-Jun-09	EXT	L	CL	18	15	R	X	C	P	8
	12-Aug-09	MLP	F	SE	22	20	R	X	C	P	106
	29-Sep-09	MLP	H	CL	16	29	R	X	C	P	6



Station	Date	Collect	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
	30-Nov-09	EXT	H	CL	10	28	R	X	C	P	42
WB021.00	16-Mar-09	MLP	F	CL	3	18	R	X	C	P	1.9
	04-May-09	LSM	HE	NW	8	30	R	X	C	P	1.9
	17-Jun-09	EXT	L	CL	19	18	R	X	C	P	15
	12-Aug-09	MLP	F	CL	21	22	R	X	C	P	82
	29-Sep-09	MLP	H	CL	15	31	R	X	C	P	5.5
	30-Nov-09	EXT	H	CL	10	30	R	X	C	P	12
WB023.00	12-Jan-09	MLP	H	NE	0	32	R	X	C	P	1.9
	16-Mar-09	MLP	F	S	4	25	R	X	C	P	1.9
	04-May-09	LSM	H	CL	8	30	R	X	C	P	1.9
	17-Jun-09	EXT	L	SE	18	20	R	X	C	P	8
	12-Aug-09	MLP	F	CL	20	26	R	X	C	P	36
	29-Sep-09	MLP	HE	CL	14	32	R	X	C	P	48
	30-Nov-09	EXT	HE	CL	10	30	R	X	C	P	2
	14-Dec-09	EXT	H	CL	8	32	E	X	C	P	6
WB026.00	12-Jan-09	MLP	HE	CL	-1	28	R	X	C	P	1.9
	16-Mar-09	MLP	F	NE	5	0	R	X	C	P	1.9
	04-May-09	LSM	H	CL	8	30	R	X	C	P	1.9
	17-Jun-09	EXT	F	SE	22	26	R	X	C	P	4
	12-Aug-09	MLP	F	NE	25	11	R	X	C	P	108
	29-Sep-09	MLP	HE	CL	15	31	R	X	C	P	11
	30-Nov-09	EXT	HE	CL	10	30	R	X	C	P	4
	14-Dec-09	EXT	HE	CL	7	30	E	X	C	P	11
WB026.50	12-Jan-09	MLP	HE	CL	-1	30	R	X	C	P	1.9
	16-Mar-09	MLP	F	NE	5	30	R	X	C	P	1.9
	04-May-09	LSM	H	CL	8	30	R	X	C	P	1.9
	17-Jun-09	EXT	F	CL	17	29	R	X	C	P	1.9
	12-Aug-09	MLP	F	NE	19	30	R	X	C	P	5.5
	29-Sep-09	MLP	HE	CL	15	32	R	X	C	P	16
	30-Nov-09	EXT	HE	CL	10	28	R	X	C	P	7.3
	14-Dec-09	EXT	H	CL	7	25	E	X	C	P	52
WB027.00	12-Jan-09	MLP	HE	NW	0	32	R	X	C	P	1.9
	16-Mar-09	MLP	F	SE	3	30	R	X	C	P	1.9
	04-May-09	LSM	H	CL	6	31	R	X	C	P	1.9
	17-Jun-09	EXT	L	SE	18	24	R	X	C	P	6
	12-Aug-09	MLP	F	E	19	28	R	B	C	P	16



Station	Date	Collect	Tide	Wind	Temp	Salin	Strat	Adv	Status	Class	Col
	29-Sep-09	MLP	HE	W	14	32	R	BM	C	P	4
	30-Nov-09	EXT	H	NW	10	31	R	X	C	P	1.9
	14-Dec-09	EXT	HE	CL	9	31	E	X	C	P	4
WB029.00	16-Mar-09	MLP	F	SE	4	30	R	X	C	P	1.9
	04-May-09	LSM	HE	N	5	30	R	X	C	P	1.9
	17-Jun-09	EXT	LF	SE	17	28	R	X	C	P	6
	12-Aug-09	MLP	F	E	22	30	R	X	C	P	62
	29-Sep-09	MLP	HE	W	14	32	R	X	C	P	6
	30-Nov-09	EXT	H	CL	10	30	R	X	C	P	6