GROWING AREA WL

New Meadows River
Towns of Harpswell, Brunswick, West Bath and Phippsburg

Annual Review for 2007

10/08/08

Amy M. Fitzpatrick

APPROVAL

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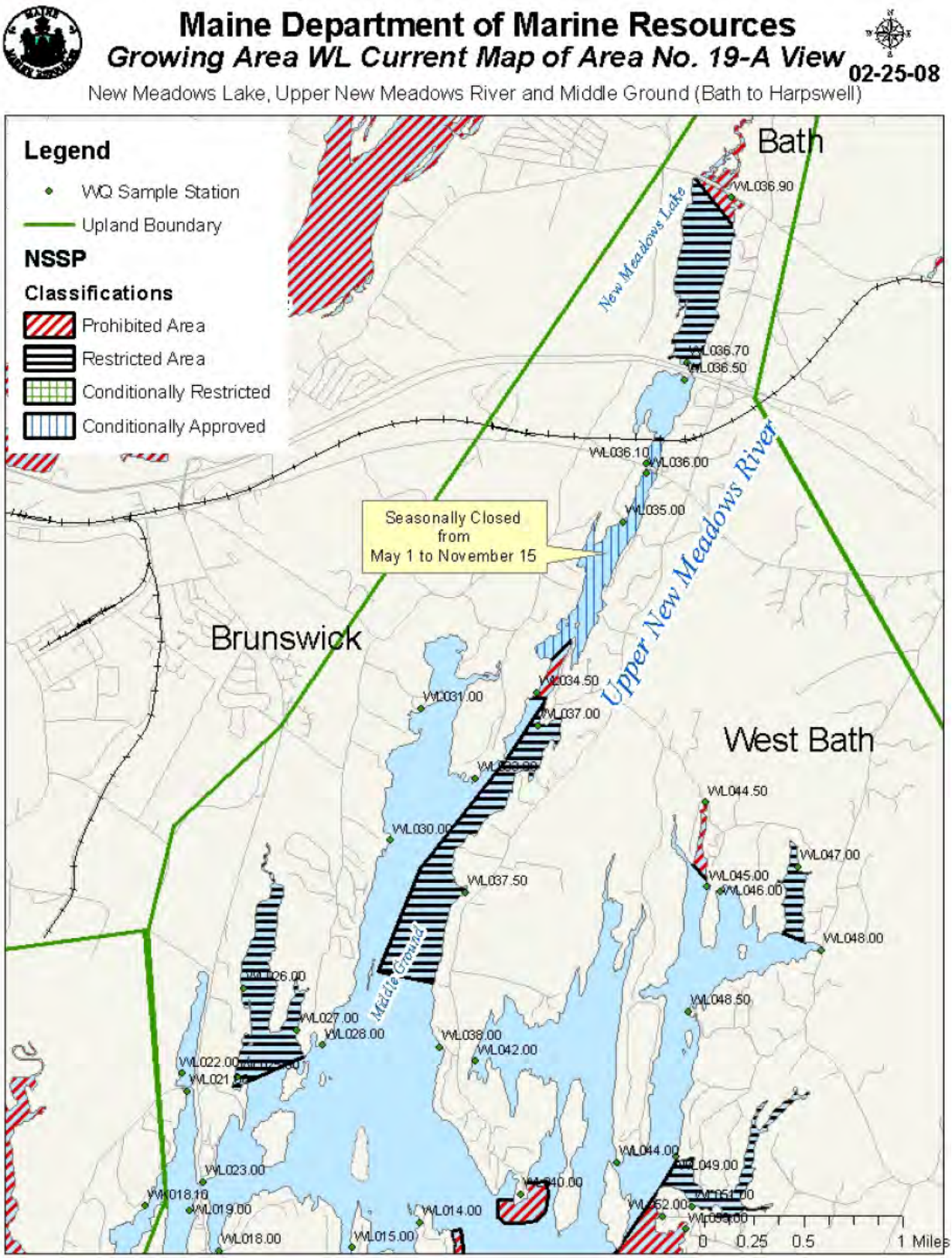
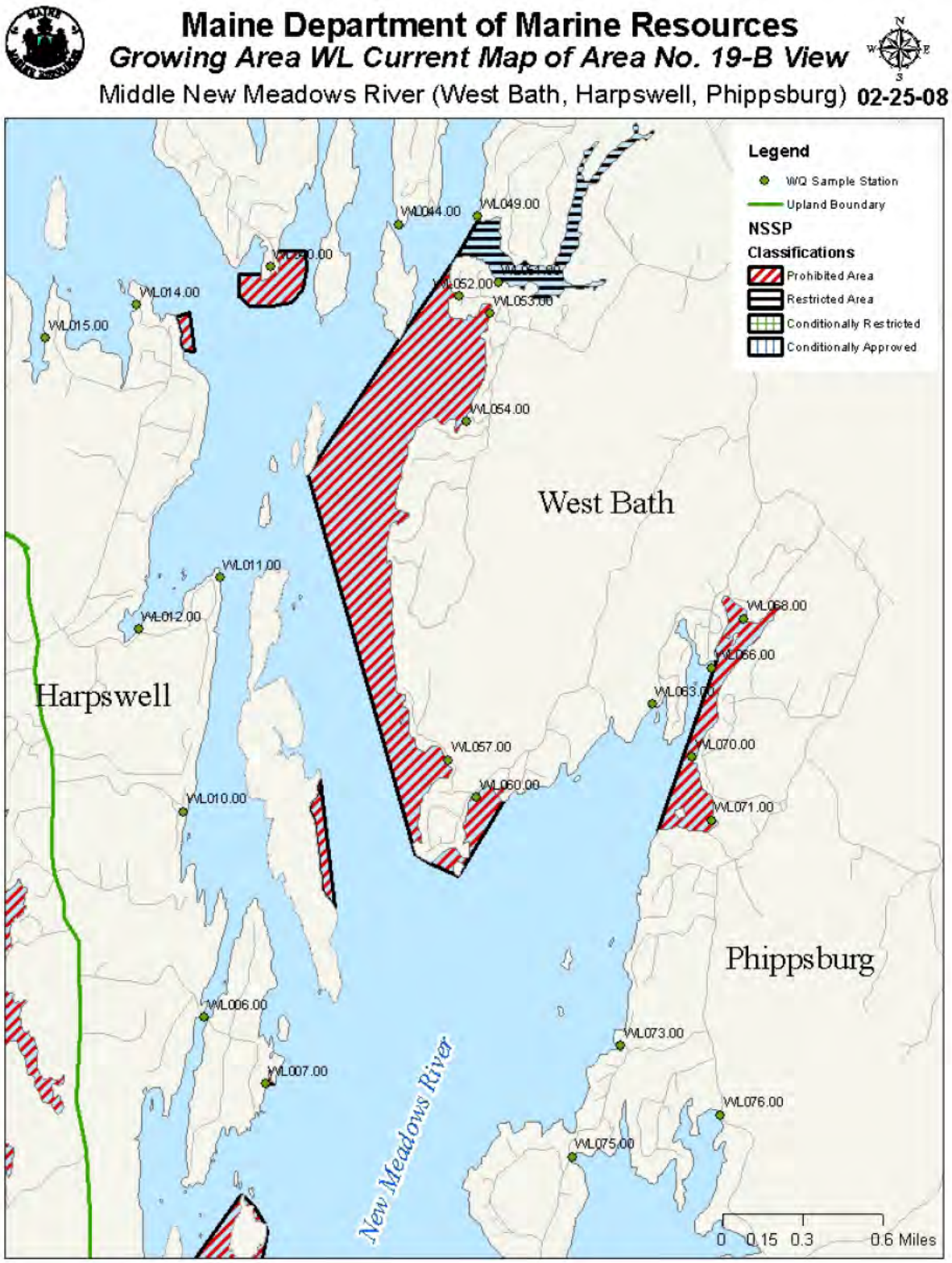


Figure 2. Growing Area WL- Upper New Meadows River



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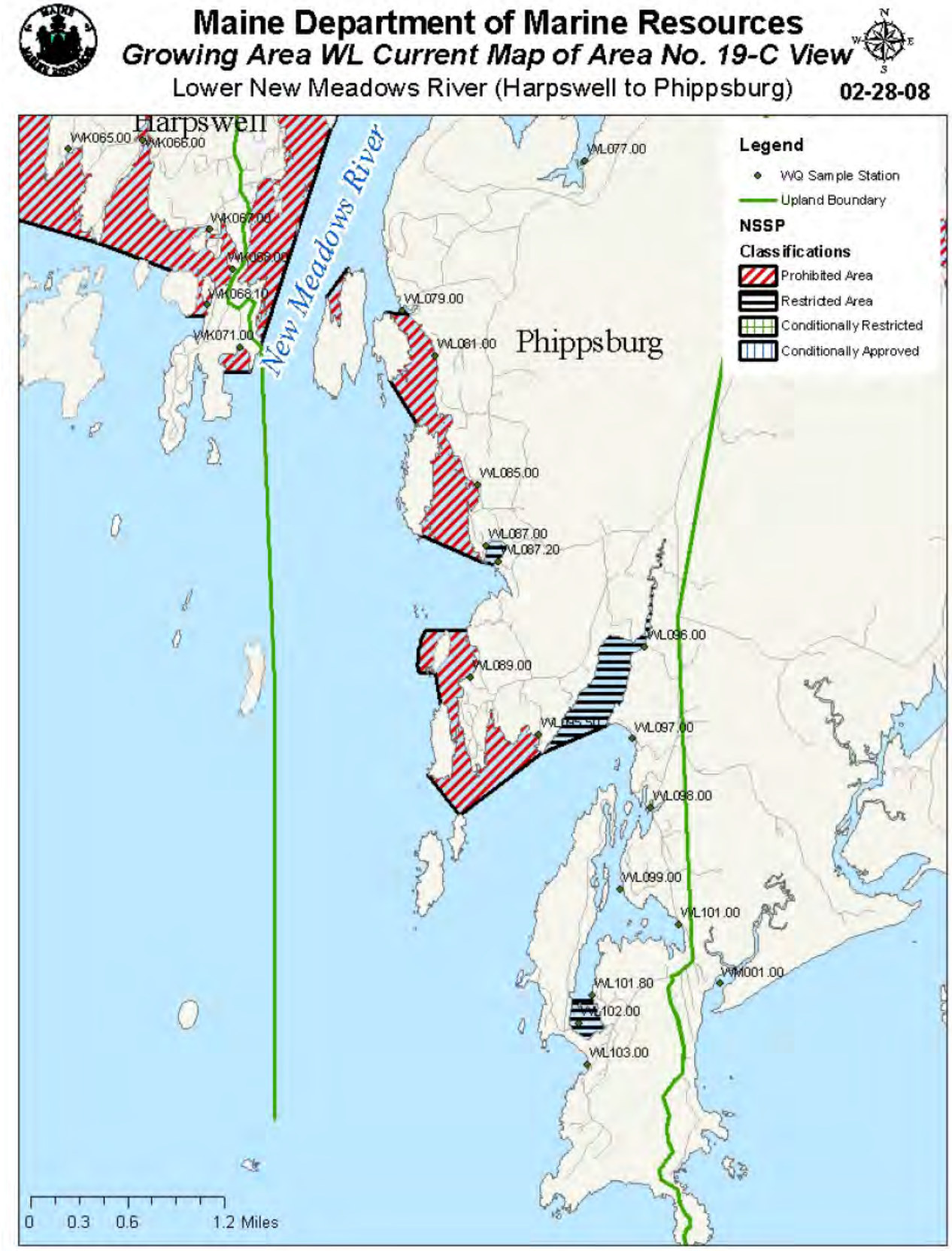


Executive Summary

This is an annual report written in compliance with the requirements of the 2005 Model Ordinance (MO) and the National Shellfish Sanitation Program (NSSP). The next triennial report is due in 2008 and the sanitary survey report is due in 2016.

Shellfish Growing Area WL begins at Fort Point, Cundys Harbor and ends at Small Point, Phippsburg and is comprised of the New Meadows River, including Buttermilk and Doughty Coves (Figure 1-3). The towns in this growing area are Harpswell, Brunswick, West Bath and Phippsburg. There are no municipal treatment facilities in this growing area. All residences have private waste disposal systems most of which are in ground systems. There are a few licensed overboard discharge systems, outhouses, chemical toilets or composting toilets scattered throughout the area, predominantly at seasonal properties. There is one marina in area WL, located near the head of the river, and several piers which provide support to local lobstering and fishing activities. There is also a large multi-season resort, Sebasco Harbor Resort, located in the Phippsburg portion of the growing area. There are no industrial discharges in the area.

In 2007, 2 sample stations were reclassified, 3 stations were deactivated and 2 stations were created. There were several classification changes in 2007. Five areas were downgraded from approved to restricted and one area was downgraded from approved to prohibited. One area was upgraded from prohibited to approved. Details can be found in the Activity During Review Period section of this report. One OBD was removed in 2007 on Bombazine Island, Harpswell. There was 1 OBD removed from Bombazine Island, Harpswell in 2007.

Several classification changes are proposed in this report. One downgrade in classification will be presented for a station no longer meeting approved standards. Six upward classification proposals will be recommended. One reduction in the size of a prohibited area will be proposed.

Current Classifications

Shellfish growing Area WL currently has shellfish areas classified as;

Approved

- Pollution Area No. 19-A New Meadows Lake, Upper New Meadows River and Middle Ground (Bath, Brunswick, West Bath and Harpswell), 19-B Middle New Meadows River (West Bath, Harpswell and Phippsburg) and 19-C Lower New Meadows River (Harpswell to Phippsburg); 38 sample stations monitor the approved areas.

Conditionally Approved

- Pollution Area No. 19-A New Meadows Lake, Upper New Meadows River and Middle Ground (Bath, Brunswick, West Bath and Harpswell); sample stations monitoring the conditionally approved (seasonal based on a marina) area are WL 35.0, 36.0 and 36.1.

Restricted

- Pollution Area No. 19-A New Meadows Lake, Upper New Meadows River and Middle Ground (Bath, Brunswick, West Bath and Harpswell), 19-B Middle New Meadows River (West Bath, Harpswell and Phippsburg) and 19-C Lower New Meadows River (Harpswell to Phippsburg); 10 sample stations monitor the restricted areas (restricted due to non-point source pollution).

Prohibited

- Pollution Area No. 19-A New Meadows Lake, Upper New Meadows River and Middle Ground (Bath, Brunswick, West Bath and Harpswell), 19-B Middle New Meadows River (West Bath, Harpswell and Phippsburg) and 19-C Lower New Meadows River (Harpswell to Phippsburg), 19-B and 19-C; 17 sample stations monitor the prohibited areas (prohibited due to licensed overboard discharges and unknown pollution).

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

Activity During Review Period

There were several classification changes in 2007:

- On 8/21/07, Woodward Cove, Brunswick was downgraded from approved to restricted due to water quality not meeting the approved standard.
- On 8/21/07, the prohibited area around Bombazine Island, Harpswell was repealed due to the removal of an overboard discharge (OBD).
- On 8/21/07, the inner portion of Winnegance Bay, West Bath and Phippsburg was downgraded from approved to prohibited due to intermittently elevated microbiological contamination from an unknown source.
- On 12/31/07, Round Cove, Phippsburg, was downgraded from approved to restricted due to water quality not meeting the approved standard.
- On 12/21/07, Dam Cove, West Bath, was downgraded from approved to restricted due to water quality not meeting the approved standard.
- On 12/21/07, The Branch portion of Small Point Harbor, Hermit Island, Phippsburg was downgraded from approved to restricted due to water quality not meeting the approved standard.

Current Management Plan

Area No. 19-A, Seasonal Conditionally Approved area based on the presence of a marina. The closed status is from May 1 through November 15.

Current Annual Review of Management Plan

The conditionally approved area met the conditions of the management plan in 2007. Each station (WL 35.0, 36.0 and 36.1) was sampled at least six times in the open status. Station WL 35.0 was sampled 10 times in 2007. Sample stations WL 36.0 and 36.1 were sampled 9 times in 2007. All three stations meet approved standards during the open status.

For a more complete review, please refer to the Annual Review of the Management Plan under Appendix A.

Review of Water Quality and Discussion

Table 1 below lists all active stations in Growing Area WL, with their respective geometric mean (geo_mean) and P90 calculations for 2007. A key to header titles can be found in Appendix B. The approved and restricted standards for each station area also displayed in this table. These standards will fluctuate yearly as a result of the DMR transition from an MPN fecal coliform test method to a membrane filtration (MF) method and area 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 numbers of data points analyzed by MF are displayed in the MFCNT column. This fluctuating standard will cease when all 30 data points have been analyzed by the MF method. A more detailed explanation of this transition can be found in Appendix C.

All stations, except WL 51 and 73, meet the standard for their current classification. Stations that are recommended for upward classification are highlighted green, stations recommended for downgrades in classification area highlighted yellow and stations that do not have the minimum 30 data points are highlighted gray.

Table 1. Fecal Coliform Report for Growing Area WL for Last 30 Data Points 2003-2007

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WL005.00	P	30	9	4.3	0.5	93	18.7	43	250
WL006.00	new	24	8	3.8	0.47	240	15.6		
WL007.00	A	30	8	3.3	0.23	15	6.4	43	255
WL010.00	A	30	8	3.2	0.22	15	6.2	43	255
WL011.00	A	30	8	4.7	0.53	320	22.1	43	255
WL012.00	A	30	10	5	0.44	93	18.2	42	245
WL014.00	A	30	9	5.1	0.52	200	23.9	43	250
WL015.00	A	30	9	4.2	0.37	80	12.3	43	250
WL018.00	A	30	9	4.2	0.35	70	11.6	43	250
WL019.00	A	30	9	4.4	0.37	43	13.3	43	250
WL020.00	A	30	9	5.5	0.42	130	18.8	43	250
WL021.00	A	30	8	5.4	0.48	140	22.4	43	255
WL022.00	A	30	8	6.5	0.57	240	34.5	43	255
WL023.00	A	30	8	4	0.36	44	11.6	43	255
WL025.00	R	30	8	6.6	0.58	460	36.7	43	255
WL026.00	R	30	9	11	0.7	460	87.6	43	250

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WL027.00	R	30	8	7	0.56	460	36.8	43	255
WL028.00	A	30	8	4.5	0.47	460	18.3	43	255
WL030.00	A	30	8	4.8	0.36	29	13.9	43	255
WL031.00	A	30	8	4.6	0.37	40	13.8	43	255
WL033.00	A	30	8	5.1	0.45	93	19.1	43	255
WL034.50	P	30	8	4.4	0.49	240	18.4	43	255
WL036.50	A	30	8	4	0.31	23	9.9	43	255
WL036.70	R	30	8	4.3	0.52	240	20.1	43	255
WL036.90	P	30	8	5.6	0.56	98	29.6	43	255
WL037.00	R	30	8	7.3	0.79	1149	74.5	43	255
WL037.50	R	30	8	6.2	0.69	1100	47.6	43	255
WL038.00	A	30	8	4	0.37	43	11.7	43	255
WL040.00	P	30	8	6.1	0.62	240	38.2	43	255
WL042.00	new	29	8	4.6	0.61	1200	27.6		
WL044.00	A	30	8	3.7	0.47	460	14.8	43	255
WL044.50	P	30	8	6.1	0.6	1100	35.9	43	255
WL045.00	A	30	8	4.3	0.45	93	15.9	43	255
WL046.00	A	30	8	5.7	0.62	460	35.3	43	255
WL047.00	R	30	8	6.2	0.64	460	40.4	43	255
WL048.00	A	30	8	4.9	0.57	1200	26.5	43	255
WL048.50	A	30	8	4	0.4	75	12.9	43	255
WL049.00	A	30	8	4.4	0.57	460	23.9	43	255
WL051.00	A	30	8	6.5	0.65	460	44	43	255
WL052.00	P	30	8	8	0.74	1200	69.4	43	255
WL053.00	P	30	8	5.9	0.59	240	33.4	43	255
WL054.00	P	30	8	4.8	0.6	1100	28	43	255
WL057.00	P	30	8	5.3	0.68	1200	39.3	43	255
WL060.00	P	30	8	4.9	0.62	1200	30.8	43	255
WL063.00	A	30	8	4.9	0.6	1200	28.5	43	255
WL066.00	new	20	5	5.4	0.59	240	30.8		
WL068.00	P	30	8	6.7	0.68	1100	49.9	43	255
WL070.00	P	30	8	4.1	0.41	93	13.9	43	255
WL071.00	P	30	8	7.3	0.53	118	35	43	255
WL073.00	A	30	8	6.5	0.72	1700	55	43	255
WL075.00	A	30	8	3.7	0.35	43	10.5	43	255
WL076.00	A	30	8	4.9	0.47	43	19.2	43	255
WL077.00	A	30	9	5.7	0.56	240	29.5	43	250
WL079.00	A	30	8	3.6	0.47	460	14.2	43	255
WL081.00	P	30	8	6.8	0.64	460	45.3	43	255
WL085.00	P	30	8	8.4	0.67	1200	60.5	43	255
WL087.00	R	30	8	6.6	0.67	240	46.8	43	255
WL089.00	P	30	8	4.7	0.44	93	17.2	43	255
WL095.50	new	15	8	2.9	0.2	9.1	5.3		
WL096.00	R	30	9	6.5	0.63	460	41.6	43	250
WL097.00	new	22	8	3.3	0.44	240	12.3		
WL098.00	P	30	9	5.2	0.42	78	18.1	43	250
WL099.00	A	30	8	3.4	0.24	34	6.9	43	255

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WL101.00	A	30	8	5	0.42	43	17.5	43	255
WL102.00	R	30	9	6.2	0.67	400	44.4	43	250
WL103.00	A	30	8	3.3	0.19	9.1	5.7	43	255

There are only three conditionally approved stations in WL. All of them are located in the marina area. Water samples were collected 9 times at stations WL36.00 and 36.10 with 6 being collected in the open status. Water samples were collected 10 times at station WL35.00 with 7 collected in the open status. All conditionally approved stations met the approved standard in the open status (Table 2).

Table 2. Conditionally Approved Geometric Mean and P90 During Open Status 2007

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD
WL035.00	CA	30	7	3.3	0.23	23	6.7	44
WL036.00	CA	30	7	3.4	0.35	128	9.6	44
WL036.10	CA	30	7	3.3	0.33	54	8.7	44

All water sampling stations active for the whole year in shellfish growing area WL were sampled six times during the 2007 sampling season except for station WL 66.0 (Table 3). Station WL 66.0 was only sampled 5 times in 2007 and was a deactivated station that was reactivated after the first two random sample runs (1/16/07 and 3/13/07) were completed. It was scheduled to be collected on 10/23/07, but was not collected due to a vehicle breakdown.

Table 3. Sample Count for Adverse, Extra and Random samples collected in 2007

Station	Class	Adverse	Extra	Random		Grand Total	Comments
		Closed	Open	Closed	Open		
WL005.00	P			6		6	
WL005.50	P			2		2	
WL006.00	A				6	6	
WL007.00	A				6	6	
WL010.00	A				6	6	
WL010.50	P			2		2	
WL011.00	A	4			6	10	
WL012.00	A				6	6	
WL014.00	A				6	6	
WL015.00	A				6	6	
WL018.00	A				6	6	
WL019.00	A				6	6	Deactivated – OBD that cannot be removed
WL020.00	A				6	6	
WL021.00	A		1		6	7	
WL022.00	A				6	6	
WL023.00	A	4			6	10	
WL025.00	A				4	4	
	R				2	2	
WL026.00	A				4	4	
	R				2	2	

Station	Class	Adverse	Extra	Random		Grand Total	Comments
		Closed	Open	Closed	Open		
WL027.00	A				4	4	
	R				2	2	
WL028.00	A				6	6	
WL030.00	A				6	6	
WL031.00	A				6	6	
WL033.00	A				6	6	
WL034.50	P			6		6	
WL035.00	CA			3	7	10	
WL036.00	CA	4		3	6	13	
WL036.10	CA			3	6	9	Deactivated – restricted access and water quality monitored by station WL36.0
WL036.50	A				6	6	
WL036.70	R				6	6	
WL036.90	P			6		6	
WL037.00	R				6	6	Deactivated-water quality monitored by WL34.5
WL037.50	R				6	6	
WL038.00	A				6	6	
WL040.00	P			6		6	
WL042.00	A				6	6	
WL044.00	A				6	6	
WL044.50	P			6		6	
WL045.00	A				6	6	
WL046.00	A				6	6	
WL047.00	R				6	6	
WL048.00	A				6	6	
WL048.50	A				6	6	
WL049.00	A	4			6	10	
WL051.00	A				6	6	
WL052.00	P			6		6	
WL053.00	P			6		6	
WL054.00	P			6		6	
WL057.00	P			6		6	
WL060.00	P			6		6	
WL063.00	A				6	6	
WL066.00	A				5	5	
WL068.00	A				5	5	
	P			1		1	
WL070.00	A				6	6	
WL071.00	P			6		6	
WL073.00	P			6		6	
WL075.00	A				6	6	
WL076.00	A				6	6	
WL077.00	A				6	6	

Station	Class	Adverse	Extra	Random		Grand Total	Comments
		Closed	Open	Closed	Open		
WL079.00	A				6	6	
WL081.00	P			6		6	
WL085.00	P			6		6	
WL087.00	A				6	6	
WL089.00	P			6		6	
WL095.50	P			6		6	
WL096.00	R				6	6	
WL097.00	A				6	6	
WL098.00	P			6		6	
WL099.00	A				6	6	
WL101.00	A				6	6	
WL102.00	A				6	6	
WL103.00	A				6	6	

Figures 4 and 5 show the P90 trends over the past three years, for all stations in growing area WL. 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 2007 column on or above the 100 percent line does not meet the standard for approved classification. Station WL 51 has shown an upward trend in scores over the past three years, and in 2007, surpassed the approved standard; this station will be downgraded to restricted. Approved stations that have shown a significant improvement in water quality over the past three year s include WL 6, 10, 15, 28, 42, 48, 70 and 75. Approved stations that have shown large (greater than 15 percent change over the past three years) upward trends include WL 11, 20, 22, 33, and 77. These stations should be monitored closely in the coming years, and survey work and pollution source sampling (if appropriate) should be conducted to determine the source contributing to these increasing scores. Restricted and prohibited stations that have shown an improvement in water quality include WL 5, 37.5, 44.5, 53, 81 and 96. Stations that have shown a decline in water quality include WL 26, 37, 73, 85, 87 and 102.

Several classification changes are being requested based on the current water quality review. Station WL 68.0 is classified prohibited and meets restricted standards. Station WL 66.0 is a new station with 20 data points and was re-activated to act as a boundary station for the closure. This station was deactivated after 3 samples had been collected in 2005, and reactivated in 2006. Currently, it has 30 data points that meet approved standards with a geometric mean of 5.3 and a P90 score of 27.6, using a data set from 2001-2007. Stations WL 70.0 and 71.0 are both classified prohibited but meet approved standards. This area has been reviewed and a change in classification is being proposed. The discussion of this proposed change can be found in the Classification Changes Required or Requested section.

Stations WL 44.5, 53.0, 54.0, 57.0 and 60.0 are classified as prohibited, but at the end of 2007, all stations met approved standards. Stations WL 47.0 and 96.0 are classified restricted but meets approved standards. Station WL 73.0 is classified prohibited but meets restricted standards. Station 102.0 meets restricted standards but meets approved for a segment of the year. These areas have been reviewed and changes in classification are being proposed. The

discussion of these proposed changes can be found in the Classification Changes Required or Requested section.

Figure 4. P90 trends for approved and conditionally approved stations (as percent of approved standard) for 2005-2007

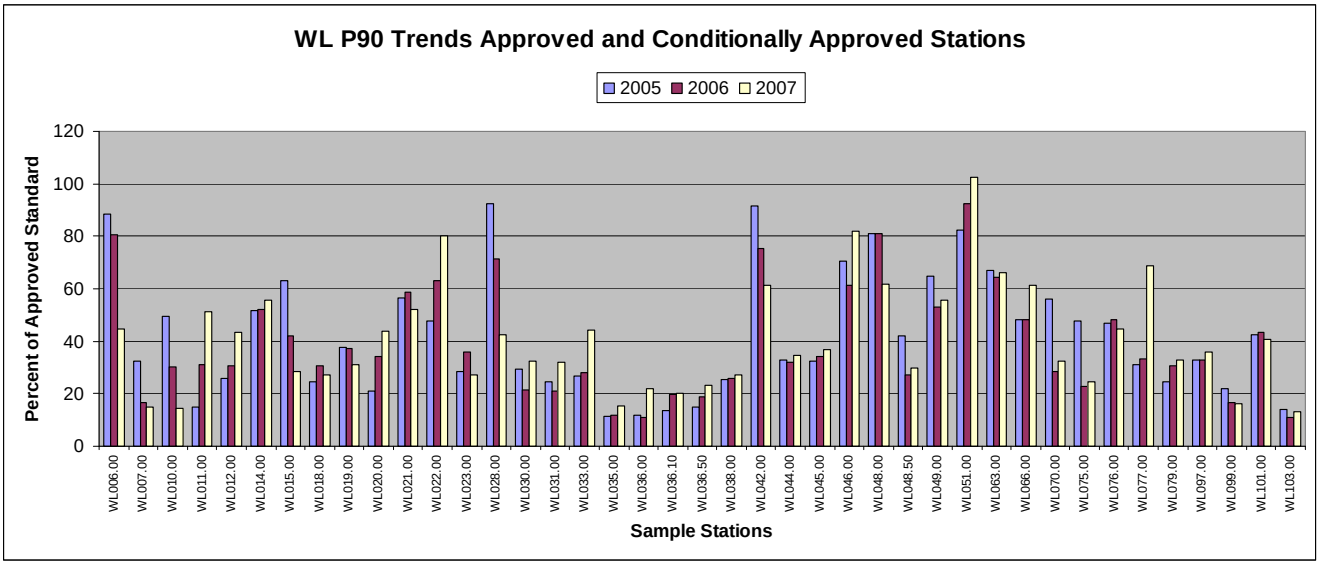
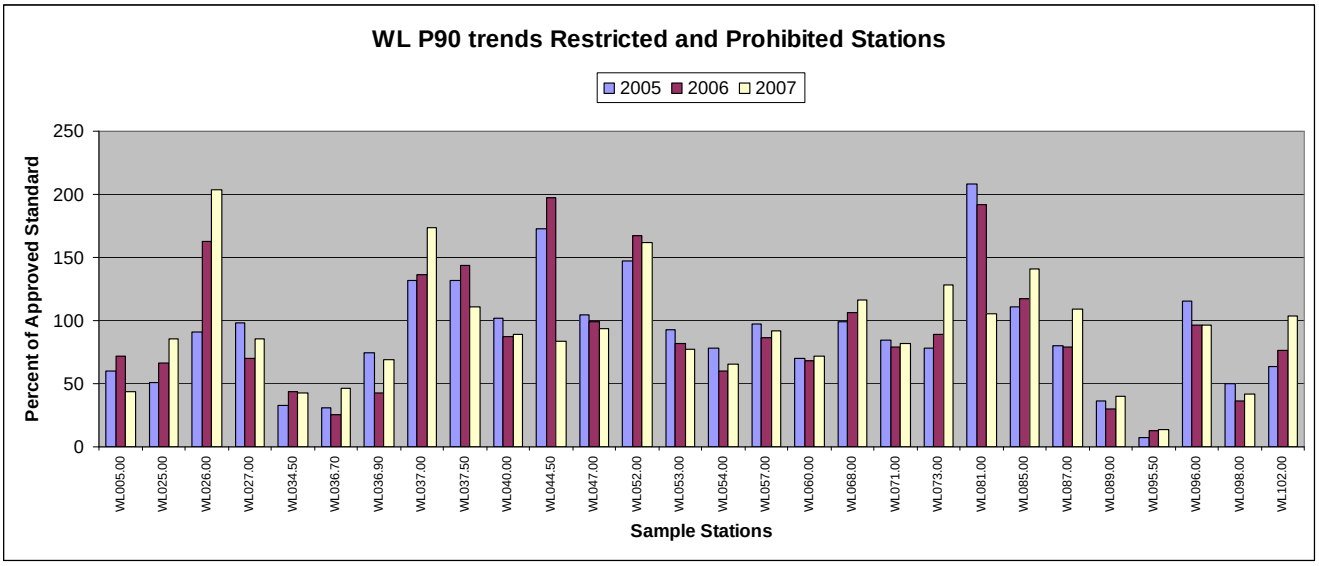


Figure 5. P90 trends for restricted and prohibited stations (as percent of approved standard) for 2005-2007



Shoreline Survey Activity

A shoreline survey of 79 properties was completed by DMR with assistance from the local shellfish warden or local CEO from the tip of Sabino south to the tip of Birch Point, West Bath. The shoreline survey of this area was conducted on 10/2, 10/3, 10/9, 10/10, 10/15, 10/16 and 10/17 of 2007 as a result of the removal of 22 licensed overboard discharges (OBDs) (Table 4).

A removal of OBD on Bombazine Island, Harpswell on January 5, 2007, was confirmed by the ME DEP and the Harpswell Codes Enforcement Officer. The prohibited area around that discharge was repealed in on August 21, 2007.

Table 4. OBD Removals in Sabino/Birch Point area and Bombazine Island, New Meadows River

TOWN	OBD #	RECEIVING WATER	REMOVED
West Bath	3335	Sabino area, NMR	2001
	8006	New Meadows River	2000
	3078	New Meadows River	2000
	4017	Sabino area, NMR	2002
	2185	Sabino area, NMR	2001
	1164	Sabino area, NMR	2001
	1662	New Meadows River	2000
	4190	New Meadows River	2000
	3303	New Meadows River	2004
	3703	New Meadows River	1999
	2336	New Meadows River	2000
	6064	New Meadows River	2000
	4657	New Meadows River	2000
	1563	New Meadows River	2000
	5334	New Meadows River	2000
	3762	New Meadows River	2000
	6440	Merry Cove, NMR	2000
	6167	New Meadows River	2005
	1640	New Meadows River	2004
	1489	Winnegance Bay, NMR	2004
	1254	New Meadows River	2004
	1864	Winnegance Bay, NMR	2005
	2383	New Meadows River	2004
	1865	New Meadows River	1994
	1828	New Meadows River	1994
	6255	New Meadows River	2004
	2289	New Meadows River	2004
Harpswell	1731	New Meadows River, Bombazine	2007

A straight pipe removal on Long Island, Harpswell on March 3, 2008, was confirmed by the Harpswell Codes Enforcement Officer. The prohibited area around that discharge can be repealed.

Growing Area WL has had no significant changes in pollution sources during the review period. Field observations were made during regularly scheduled random sampling runs, as well as

during volunteer site certifications, new staff training runs, and flood sampling. A drive through survey was conducted by DMR on February 12, 2008 and the following items of interest were noted:

There are many horses, cows and buffalos in the headwaters of the New Meadows River.

There are two new houses on Ridge Rd., North Bath.

An addition is being built at the head of the cove at station WL37.00. A new house is being built in place of a mobile home.

A new 11 lot subdivision off Foster's Point Road, West Bath is called Juniper Woods. The site plan includes a waterfront common area on the New Meadows River with a dock planned and nature trails that meander down to the water's edge. Two roads currently make up the subdivision, Checkerberry Lane and Indian Keep Lane. There are currently 2 houses built in this subdivision. The topography of the land would allow runoff to drain towards the New Meadows to the restricted area section in the Middle Grounds of legal notice 19A. Any impact from this subdivision would be monitored by station WL 37.0. This are should be monitored when all the homes are built and a determination of whether an additional station should be added made at that time.

A new subdivision is going in on Mountain Road up on ledges that overlook the upper west shore of Mill Cove, West Bath. Any overland runoff will drain towards Mill Cove. The roads were not accessible and there were no signs to give more information regarding the subdivision.

Beaver Brook Country Estates is a subdivision off from Hill Rd, West Bath. The new road is Beaver Brook Rd. There are 9 lots with 5 houses currently in the subdivision. Overland runoff flows towards Beaver Brook which flows into the prohibited area in the north end of Mill Cove, West Bath. Any impact from this subdivision would be monitored by station WL 44.5. This are should be monitored when all the homes are built and a determination of whether an additional station should be added made at that time.

Shellfish Aquaculture/Wet Storage

There are no wet storage permits in the growing area. There are currently two shellfish lease sites in this growing area. One is located in the upper New Meadows River, north of the train tracks in the approved area. The second lease site is located in Mill Cove, West Bath, off the peninsula that is flanked by WL 45.0 and WL 46.0. Maps and details about the lease sites can be found on the following website:

http://www.maine.gov/dmr/aquaculture/leaseinventory2006/newmeadowsriver.htm

Classification Changes Required or Requested

Stations WL 52.0, 53.0, 54.0, 57.0 and 60.0 are all classified prohibited, due to the presence of OBDs along the Sabino to Birch Point shoreline in West Bath. Currently, station WL 52.0 meets restricted standards. Station WL 52.0 is located at the Sabino boat launch which is a localized pollution problem. A restricted area is proposed for the area around WL 52.0. The remaining stations all meet approved standards. A shoreline survey of 79 properties was completed by area biologist Don Card, with assistance from the local shellfish warden and/or the local CEO

from the tip of Sabino south to the tip of Birch Point, West Bath. As a result of the removal of 22 licensed overboard discharges (OBDs) and the presence of an updated shoreline survey, the are around sample stations WL53, 54, 57 and 60 can be upgraded to approved. Station WL52.00, located at the Sabino boat landing meets the restricted standard and will be upgraded to restricted classification. A more detailed data analysis and classification recommendation is presented in Appendix E.

A second upward classification proposal is for Long Cove, West Bath. In October 2003, a malfunctioning septic system was reported by the town codes enforcement officer. Water quality meets approved standards at stations WL 44.5 and WL 45.0. A new system was installed and inspected in 2004 and confirmed to the DMR on 2/28/07 by the codes enforcement officer. A data analysis and recommendation are in Appendix E.

Station WL 47.0 was downgraded from approved to restricted on September 8, 2006 due to non-point pollution. No pollution source was identified during surveillance in the area and the shoreline survey is up to date (last completed in 2001). The p90's for the station have been dropping as evidenced by the trend chart on page 30. The p90 score at the end of 2006 was 47.4 with an approved standard of 48. The current p90 is 40.4 with an approved standard of 43. It is recommended that this area be re-classified as approved. A data analysis and recommendation are in Appendix F.

A reduction in the size of the prohibited area and reclassification to restricted in the eastern portion of Brigham's Cove, West Bath and Phippsburg is recommended. Currently, station WL 68.0 is classified prohibited and meets restricted standards. It was classified prohibited as a result of the data analysis in the annual review of 2006. The prohibited classification was recommended at that time because the elevated fecal scores to occur during the summer when several older septic systems at seasonal cottages are in use. The shoreline survey is up to date; the last one completed in 2003. Station WL 66.0 which was deactivated after 3 samples had been collected in 2005; it was reactivated in 2007 to act a boundary station for the new prohibited area. Stations WL 70.0 and 71.0 are classified prohibited but meet approved standards. A reduction in the size of the prohibited area and an upgrade to restricted classification is recommended. Station WL66.0 which can be sampled at all tide stages, should be the boundary station for a new closure line which will go due east of WL 66.0. The remaining prohibited area south of WL 66.0 which encompasses WL 70.0 and 71.0 are recommended to be classified approved. A data analysis and recommendation are in Appendix G.

In March 2008, a straight pipe removal on Long Island, Harpswell was confirmed. The prohibited area can be repealed.

Sample station WL73.0 no longer meets approved standards and the area must be reclassified as restricted. The shoreline survey for that area was completed in 2003. A drive-through survey to confirm the removal of OBDs was conducted on March 30, 2006. The area was prohibited until September 8, 2006 when it was classified approved. Elevated fecal coliform scores in 2007 have made the P90 score exceed approved criteria.

Summary

Overall, shellfish growing area WL continues to have good water quality scores. The area consists of tracts of undeveloped woodland and fields between sections with newer year-round homes and older seasonal dwellings. There are no industries or large businesses along the shore. There are two clusters of OBDs; one in Cundys Harbor, Harpswell and another at West

Point, Phippsburg. Along the rest of the growing area the most likely threat to the water quality would be private septic systems that border on the shore. Drive through surveys have also identified increased subdivisions within the watershed area which may impact water quality via non-point source runoff due to increased impervious surfaces and less buffer materials.

Due to the recent removal of 22 OBDs in the Sabino/Birch Point area, a change in classification from prohibited to approved is recommended for that portion of the shoreline. Station WL52.00 (at the Sabino boat landing) meets restricted standards and with the absence of point sources, it is recommended that the area be classified restricted.

A removal of a straight pipe, a malfunctioning septic system, more in depth data analysis and general improvement in water quality in several areas has resulted in the recommendation to upgrade the classification in several areas. Water quality at two stations exceeds the approved criteria and the classifications will need to be downgraded. Based on improved water quality over the recent years, a recommendation to reduce the sizes of the prohibited areas in Long Cove, Mill Cove, Brigham's Cove, Tottman Cove, and The Branch is also provided.

The shoreline survey on the western shore of the New Meadows (Brunswick and Harpswell) and the upper New Meadows Lake (Brunswick, Bath and West Bath) area was last completed in 1997 and the area must be resurveyed by 2009. Efforts are currently underway to complete this survey, and multiple streams are being routinely sampled to monitor potential non-point source pollution loading to growing area WL.

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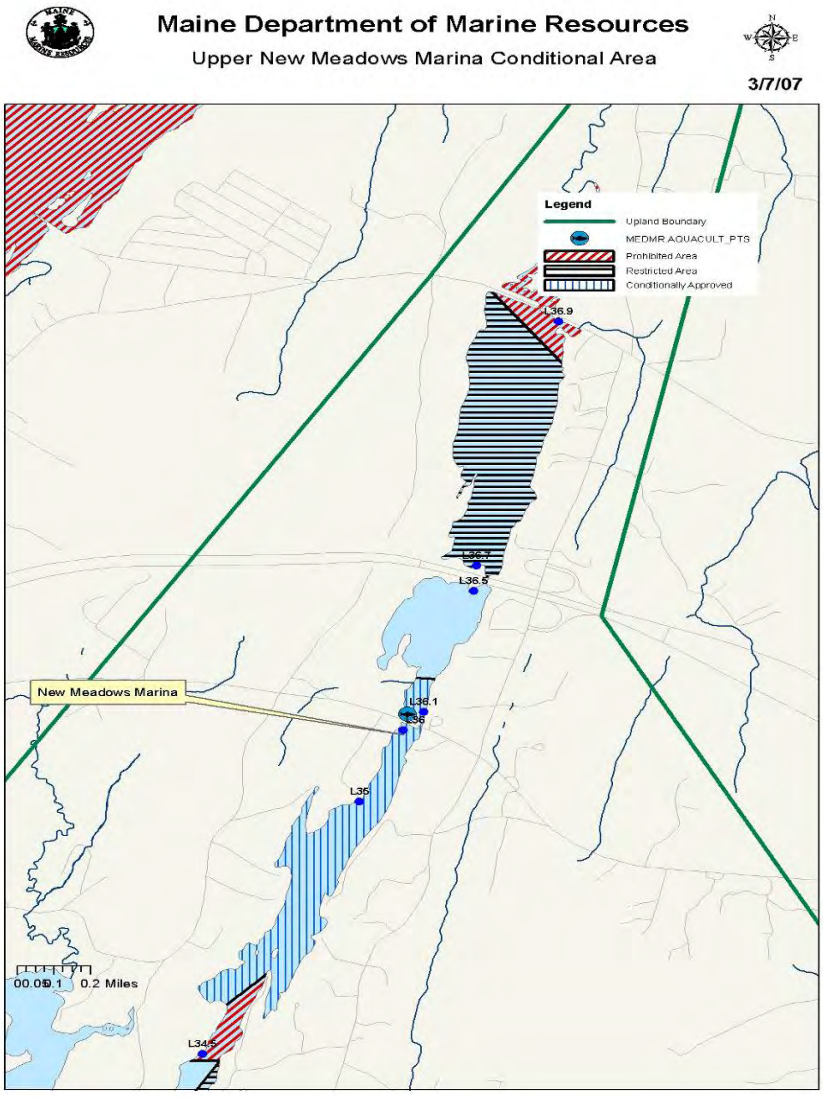
Appendix A. 2007 Annual Review of Management Plan-New Meadows River Conditional Area



This is a seasonal conditional area based on the presence or absence of boats at the New Meadows Marina. Visual observations made in the spring of 2007 served as verification that there were no boats of a size able to have a head in the marina prior to the established closing date of 5/1. At the time of the observation marina personnel had just begun returning boats to the water. Visual observations made on 11/17/07, established that only 1 boat was still in the water and the marina was closed to the public at that time. Water samples were collected 9 times at stations WL36.00 and 36.10 with 6 being collected in the open status. Water samples were collected 10 times at station WL35.00 with 7 collected in the open status. An annual review of the data was completed and it verified that the area is in compliance with the management plan.

Table 1. Fecal Coliform Report for Conditional Area Stations for 30 Data Points 2002-2007

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD
WL035.00	CA	30	7	3.3	0.23	23	6.7	44
WL036.00	CA	30	7	3.4	0.35	128	9.6	44
WL036.10	CA	30	7	3.3	0.33	54	8.7	44

Based on analysis of the data, the conditions of the Management Plan, the cooperation between the towns of Brunswick, West Bath, and MDMR, as well as the presence of well trained and reliable shellfish wardens, the seasonal conditional area of the New Meadows River is currently properly classified according to NSSP criteria.

Appendix B. Key to water quality table headers.

Station = water quality monitoring station

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

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

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

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

SDV = standard deviation

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

P90 = 90th percentile

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

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

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

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

During the transition the P90 standard for approved and restricted classification DMR 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 D. Data collected in 2007, Growing Area WL

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL005.00	1/16/2007	LL	E	4	30	R	-	C	P	<2.0	CL
WL005.00	3/27/2007	GBR	HE	4	30	R	-	C	P	<2.0	-
WL005.00	5/1/2007	RMC	H	9	24	R	-	C	P	<2.0	NW
WL005.00	6/25/2007	GBR	LE	17	30	R	-	C	P	<2.0	CL
WL005.00	8/20/2007	JB	F	22	32	R	-	C	P	<2.0	S
WL005.00	10/30/2007	LLB	HF	10	32	R	-	C	P	<2.0	N
WL006.00	1/16/2007	LL	E	4	30	R	-	O	A	<2.0	CL
WL006.00	3/27/2007	GBR	HE	4	30	R	-	O	A	<2.0	-
WL006.00	5/1/2007	RMC	HE	9	25	R	-	O	A	<2.0	NW
WL006.00	7/24/2007	JB	E	15	31	R	-	O	A	<2.0	CL
WL006.00	8/20/2007	JB	F	23	32	R	-	O	A	<2.0	SW
WL006.00	10/30/2007	LLB	F	10	32	R	-	O	A	<2.0	NE
WL007.00	1/16/2007	LL	E	4	30	R	-	O	A	<2.0	CL
WL007.00	3/12/2007	JB	LF	1	32	R	-	O	A	<2.0	SW
WL007.00	5/1/2007	RMC	HE	7	25	R	-	O	A	<2.0	NE
WL007.00	6/25/2007	GBR	LE	15	30	R	-	O	A	4	CL
WL007.00	8/20/2007	JB	F	16	32	R	-	O	A	<2.0	SW
WL007.00	10/22/2007	LLB	LE	14	31	R	-	O	A	<2.0	S
WL010.00	1/16/2007	LL	E	4	30	R	-	O	A	<2.0	CL
WL010.00	3/12/2007	JB	LF	2	32	R	N	O	A	<2.0	CL
WL010.00	5/1/2007	RMC	HE	9	25	R	-	O	A	<2.0	N
WL010.00	6/25/2007	GBR	LE	14	31	R	-	O	A	2	CL
WL010.00	8/20/2007	JB	F	16	32	R	-	O	A	<2.0	S
WL010.00	10/22/2007	LLB	LE	15	32	R	-	O	A	<2.0	S
WL011.00	1/16/2007	LL	E	4	30	R	-	O	A	<2.0	CL
WL011.00	3/12/2007	JB	F	4	32	R	-	O	A	<2.0	SW
WL011.00	5/1/2007	RMC	HE	9	26	R	-	O	A	<2.0	N
WL011.00	6/25/2007	GBR	L	14	30	R	-	O	A	22	CL
WL011.00	8/20/2007	JB	F	17	32	R	-	O	A	2	S
WL011.00	10/22/2007	LLB	LE	15	33	R	-	O	A	148	S
WL012.00	3/27/2007	GBR	H	4	29	R	-	O	A	6	-
WL012.00	5/1/2007	RMC	HE	9	25	R	-	O	A	<2.0	S
WL012.00	6/6/2007	GBR	F	18	30	R	-	O	A	<2.0	CL
WL012.00	7/24/2007	JB	E	15	30	R	-	O	A	16	CL
WL012.00	8/20/2007	JB	F	20	32	R	-	O	A	40	W
WL012.00	10/30/2007	LLB	F	10	32	R	-	O	A	<2.0	NE
WL014.00	3/27/2007	GBR	H	4	30	R	-	O	A	36	-
WL014.00	5/1/2007	RMC	HE	9	25	R	-	O	A	<2.0	N
WL014.00	6/6/2007	GBR	F	22	30	R	-	O	A	2	CL

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL014.00	7/24/2007	JB	E	15	31	R	-	O	A	<2.0	CL
WL014.00	8/20/2007	JB	F	18	31	R	-	O	A	<2.0	CL
WL014.00	10/30/2007	LLB	F	11	31	R	-	O	A	<2.0	N
WL015.00	3/27/2007	GBR	H	4	28	R	-	O	A	<2.0	-
WL015.00	5/1/2007	RMC	HE	9	25	R	-	O	A	<2.0	N
WL015.00	6/6/2007	GBR	F	22	30	R	-	O	A	2	CL
WL015.00	7/24/2007	JB	E	15	31	R	-	O	A	4	CL
WL015.00	8/20/2007	JB	F	20	32	R	-	O	A	<2.0	SW
WL015.00	10/30/2007	LLB	F	11	31	R	-	O	A	10	NE
WL018.00	3/27/2007	GBR	H	4	28	R	-	O	A	<2.0	-
WL018.00	5/1/2007	RMC	E	9	25	R	-	O	A	<2.0	N
WL018.00	6/6/2007	GBR	F	20	30	R	-	O	A	<2.0	CL
WL018.00	7/25/2007	JB	E	16	30	R	-	O	A	4	CL
WL018.00	8/20/2007	JB	HF	17	32	R	-	O	A	2	CL
WL018.00	10/30/2007	LLB	F	10	29	R	-	O	A	8	NE
WL019.00	1/16/2007	LL	E	4	30	R	-	O	A	<2.0	NW
WL019.00	3/27/2007	GBR	H	4	30	R	-	O	A	2	-
WL019.00	5/1/2007	RMC	E	9	28	R	-	O	A	<2.0	N
WL019.00	7/24/2007	JB	E	15	31	R	-	O	A	10	CL
WL019.00	8/20/2007	JB	HF	16	32	R	-	O	A	10	SW
WL019.00	10/22/2007	LLB	L	15	32	R	-	O	A	<2.0	SW
WL020.00	3/27/2007	GBR	H	4	28	R	-	O	A	5.5	-
WL020.00	5/1/2007	RMC	E	9	16	R	-	O	A	<2.0	N
WL020.00	6/6/2007	GBR	E	10	22	R	-	O	A	40	CL
WL020.00	7/24/2007	JB	E	15	29	R	-	O	A	22	CL
WL020.00	8/20/2007	JB	F	17	31	R	-	O	A	<2.0	CL
WL020.00	10/30/2007	LLB	F	9	22	R	-	O	A	16	N
WL021.00	2/12/2007	LL	E	-3	32	R	-	O	A	<2.0	CL
WL021.00	4/9/2007	DD	L	6	18	R	T	O	A	2.8	E
WL021.00	6/4/2007	DD	F	17	26	R	P	O	A	36	NE
WL021.00	7/25/2007	DD	E	20	30	R	-	O	A	5.5	-
WL021.00	9/12/2007	MHE	HF	14	30	E	-	O	A	140	SE
WL021.00	9/12/2007	DD	F	18	29	R	P	O	A	140	W
WL021.00	11/26/2007	DD	H	5	30	R	P	O	A	2	SW
WL022.00	4/23/2007	LL	F	13	26	R	-	O	A	<2.0	S
WL022.00	5/16/2007	DD	HF	11	29	R	P	O	A	6	NE
WL022.00	6/4/2007	DD	F	17	30	R	P	O	A	26	NE
WL022.00	7/25/2007	DD	E	21	30	R	-	O	A	6	-
WL022.00	9/12/2007	DD	F	19	28	R	P	O	A	146	W
WL022.00	11/26/2007	DD	H	6	30	R	P	O	A	2	SW

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL023.00	4/9/2007	DD	L	7	28	R	T	O	A	2	E
WL023.00	5/16/2007	DD	HF	10	30	R	P	O	A	2	NE
WL023.00	6/4/2007	DD	F	15	30	R	P	O	A	16	NE
WL023.00	7/25/2007	DD	E	18	31	R	-	O	A	<2.0	-
WL023.00	9/12/2007	DD	HF	17	30	R	P	O	A	18	W
WL023.00	11/26/2007	DD	H	5	30	R	P	O	A	<2.0	SW
WL025.00	4/23/2007	LL	HF	13	27	R	-	O	A	<2.0	S
WL025.00	5/16/2007	DD	HF	10	29	R	P	O	A	12	NE
WL025.00	6/4/2007	DD	F	15	30	R	P	O	A	4	NE
WL025.00	7/25/2007	DD	E	19	31	R	-	O	A	2	-
WL025.00	9/12/2007	DD	HF	17	30	R	P	O	R	25	W
WL025.00	11/26/2007	DD	H	4	30	R	P	O	R	<2.0	SW
WL026.00	4/23/2007	LL	F	13	26	R	-	O	A	<2.0	S
WL026.00	5/16/2007	DD	HF	11	29	R	P	O	A	11	NE
WL026.00	6/4/2007	DD	F	15	28	R	P	O	A	56	NE
WL026.00	7/25/2007	DD	E	20	31	R	-	O	A	8	-
WL026.00	9/12/2007	DD	HF	18	30	R	P	O	R	22	W
WL026.00	11/26/2007	DD	HE	5	30	R	P	O	R	10	SW
WL027.00	4/23/2007	LL	HF	13	25	R	-	O	A	<2.0	S
WL027.00	5/16/2007	DD	HF	11	29	R	P	O	A	4	NE
WL027.00	6/4/2007	DD	F	16	30	R	P	O	A	9.1	NE
WL027.00	7/25/2007	DD	HE	20	31	R	-	O	A	3.6	-
WL027.00	9/12/2007	DD	HF	18	30	R	P	O	R	16	W
WL027.00	11/26/2007	DD	HE	5	30	R	P	O	R	4	SW
WL028.00	4/9/2007	DD	L	6	28	R	T	O	A	<2.0	NE
WL028.00	5/16/2007	DD	HF	11	29	R	P	O	A	2	NE
WL028.00	6/4/2007	DD	F	15	30	R	P	O	A	12	NE
WL028.00	7/25/2007	DD	E	21	32	R	-	O	A	<2.0	-
WL028.00	9/12/2007	DD	HF	17	30	R	P	O	A	8	W
WL028.00	11/26/2007	DD	HE	5	30	R	P	O	A	<2.0	SW
WL030.00	4/9/2007	DD	L	5	30	R	T	O	A	<2.0	NE
WL030.00	5/16/2007	DD	HF	11	30	R	P	O	A	2	NE
WL030.00	6/4/2007	DD	F	15	28	R	P	O	A	29	NE
WL030.00	7/25/2007	DD	E	20	31	R	-	O	A	14	-
WL030.00	9/12/2007	DD	HF	18	30	R	P	O	A	15	W
WL030.00	11/26/2007	DD	HE	4	30	R	P	O	A	<2.0	SW
WL031.00	4/9/2007	DD	L	5	30	R	T	O	A	<2.0	NE
WL031.00	5/16/2007	DD	HF	11	29	R	P	O	A	5.5	NE
WL031.00	6/4/2007	DD	F	15	29	R	P	O	A	40	NE
WL031.00	7/25/2007	DD	E	21.5	30	R	-	O	A	2	-
WL031.00	9/12/2007	DD	H	18	30	R	P	O	A	13	W

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL031.00	11/26/2007	DD	HE	5	30	R	P	O	A	<2.0	SW
WL033.00	4/9/2007	DD	L	6	10	R	T	O	A	16	NE
WL033.00	5/16/2007	DD	F	12	29	R	P	O	A	4	NE
WL033.00	6/4/2007	DD	F	16	30	R	P	O	A	13	NE
WL033.00	7/25/2007	DD	E	20	30	R	-	O	A	2	-
WL033.00	9/12/2007	DD	H	18	30	R	P	O	A	42	W
WL033.00	11/26/2007	DD	E	5	30	R	P	O	A	<2.0	SW
WL034.50	4/9/2007	DD	L	6	26	R	T	C	P	<2.0	E
WL034.50	5/16/2007	DD	F	12	29	R	PW	C	P	<2.0	NE
WL034.50	6/4/2007	DD	F	15	30	R	P	C	P	16	NE
WL034.50	7/25/2007	DD	E	20	30	R	-	C	P	2	-
WL034.50	9/12/2007	DD	H	19	30	R	P	C	P	50	W
WL034.50	11/26/2007	DD	E	5	29	R	P	C	P	<2.0	SW
WL035.00	1/9/2007	EXT	F	3	27	R	-	O	CA	6	SW
WL035.00	3/28/2007	EXT	E	-1	26	R	-	O	CA	<2.0	CL
WL035.00	4/9/2007	DD	LF	6	25	R	T	O	CA	2	NE
WL035.00	4/23/2007	LL	L	12	26	R	-	O	CA	<2.0	S
WL035.00	6/4/2007	DD	F	15	27	R	P	C	CA	40	NE
WL035.00	6/25/2007	JB	E	14	30	R	-	C	CA	<2.0	CL
WL035.00	7/25/2007	DD	E	21	30	R	-	C	CA	2	-
WL035.00	9/12/2007	DD	H	18	30	R	P	C	CA	72	W
WL035.00	11/26/2007	DD	E	5	28	R	P	O	CA	13	SW
WL035.00	12/10/2007	LL	H	-2	30	R	-	O	CA	<2.0	CL
WL036.00	1/9/2007	EXT	F	3	26	R	-	O	CA	128	CL
WL036.00	3/6/2007	LL	F	-2	30	R	-	O	CA	<2.0	NW
WL036.00	3/28/2007	EXT	E	3	28	R	-	O	CA	<2.0	CL
WL036.00	4/9/2007	DD	LF	8	24	R	T	O	CA	<2.0	NE
WL036.00	6/4/2007	DD	F	15	26	R	P	C	CA	36	NE
WL036.00	7/25/2007	DD	E	22.5	30	R	-	C	CA	<2.0	-
WL036.00	9/12/2007	DD	H	18	29	R	PB	C	CA	44	W
WL036.00	11/26/2007	DD	E	4	27	R	P	O	CA	<2.0	SW
WL036.00	12/10/2007	LL	H	-1	30	R	-	O	CA	<2.0	CL
WL036.10	1/9/2007	EXT	F	3	25	R	-	O	CA	2	CL
WL036.10	3/28/2007	EXT	E	1	15	R	-	O	CA	<2.0	CL
WL036.10	4/9/2007	DD	F	8	18	R	T	O	CA	<2.0	E
WL036.10	4/23/2007	LL	L	12	22	R	-	O	CA	<2.0	S
WL036.10	6/4/2007	DD	F	15	22	R	P	C	CA	68	N
WL036.10	7/25/2007	DD	E	25	29	R	-	C	CA	<2.0	-
WL036.10	9/12/2007	DD	E	20	30	R	P	C	CA	29	W
WL036.10	11/26/2007	DD	E	4	28	R	P	O	CA	<2.0	SW
WL036.10	12/10/2007	LL	H	-2	26	R	-	O	CA	<2.0	CL

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL036.50	4/9/2007	DD	F	9	14	R	T	O	A	<2.0	E
WL036.50	4/23/2007	LL	L	11	20	R	-	O	A	<2.0	S
WL036.50	6/4/2007	DD	F	16	24	R	P	O	A	18	N
WL036.50	7/25/2007	DD	E	26	29	R	-	O	A	<2.0	-
WL036.50	9/12/2007	DD	E	20	30	R	P	O	A	11	W
WL036.50	11/26/2007	DD	E	4	26	R	P	O	A	<2.0	SW
WL036.70	4/9/2007	DD	F	8	10	R	T	O	R	<2.0	E
WL036.70	4/23/2007	LL	L	11	18	R	-	O	R	<2.0	S
WL036.70	6/4/2007	DD	F	18	12	R	P	O	R	98	NE
WL036.70	7/25/2007	DD	E	28	29	R	-	O	R	<2.0	-
WL036.70	9/12/2007	DD	E	21	20	R	P	O	R	78	W
WL036.70	11/26/2007	DD	E	4	26	R	P	O	R	2	SW
WL036.90	4/9/2007	DD	F	8	6	R	T	C	P	<2.0	E
WL036.90	4/23/2007	LL	L	13	15	R	-	C	P	<2.0	S
WL036.90	6/4/2007	DD	F	18	16	R	P	C	P	98	NE
WL036.90	7/25/2007	DD	E	28	29	R	-	C	P	<2.0	-
WL036.90	9/12/2007	DD	E	22	26	R	P	C	P	72	W
WL036.90	11/26/2007	DD	E	3	22	R	P	C	P	<2.0	SW
WL037.00	1/16/2007	EXT	E	0	32	R	-	O	R	78	CL
WL037.00	3/28/2007	EXT	H	0	28	R	-	O	R	2	NW
WL037.00	5/2/2007	TDAV	F	9	27	R	-	O	R	<2.0	CL
WL037.00	6/25/2007	WARS	H	12	30	R	-	O	R	2	CL
WL037.00	8/20/2007	WARS	HE	14	32	R	-	O	R	<2.0	CL
WL037.00	10/23/2007	EXT	H	12	30	R	-	O	R	8	SW
WL037.50	1/16/2007	EXT	E	-1	25	R	-	O	R	<2.0	NW
WL037.50	3/13/2007	LL	E	0	0	R	-	O	R	39	CL
WL037.50	5/2/2007	TDAV	F	9	28	R	-	O	R	<2.0	W
WL037.50	6/25/2007	WARS	H	12	32	R	-	O	R	<2.0	S
WL037.50	8/20/2007	WARS	HE	14	32	R	-	O	R	<2.0	CL
WL037.50	10/23/2007	EXT	HE	12	30	R	-	O	R	2	SW
WL038.00	1/16/2007	EXT	E	1	31	R	-	O	A	2	NE
WL038.00	3/13/2007	LL	E	1	30	R	-	O	A	<2.0	CL
WL038.00	5/2/2007	TDAV	F	8	29	R	-	O	A	<2.0	W
WL038.00	6/25/2007	WARS	HE	12	32	R	-	O	A	<2.0	CL
WL038.00	8/20/2007	WARS	E	12	32	R	-	O	A	<2.0	CL
WL038.00	10/23/2007	EXT	HE	12	30	R	-	O	A	2	SW
WL040.00	1/16/2007	EXT	E	2	32	R	-	C	P	<2.0	CL
WL040.00	3/13/2007	LL	E	1	29	R	-	C	P	6	CL
WL040.00	5/2/2007	TDAV	HF	9	28	R	-	C	P	<2.0	CL
WL040.00	6/25/2007	WARS	HE	12	31	R	-	C	P	<2.0	CL
WL040.00	8/20/2007	WARS	E	11	30	R	-	C	P	<2.0	CL

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL040.00	10/23/2007	EXT	HE	12	31	R	-	C	P	10	SW
WL042.00	1/16/2007	EXT	E	-2	30	R	-	O	A	<2.0	CL
WL042.00	3/28/2007	EXT	HE	0	26	R	-	O	A	<2.0	CL
WL042.00	5/2/2007	TDAV	HF	9	27	R	-	O	A	<2.0	SW
WL042.00	6/25/2007	WARS	HE	13	32	R	-	O	A	<2.0	CL
WL042.00	8/20/2007	WARS	E	12	32	R	-	O	A	<2.0	CL
WL042.00	10/23/2007	EXT	HE	12	31	R	-	O	A	<2.0	SW
WL044.00	1/16/2007	EXT	E	2	32	R	-	O	A	<2.0	N
WL044.00	3/13/2007	LL	E	1	28	R	-	O	A	<2.0	CL
WL044.00	5/2/2007	TDAV	HF	8	28	R	-	O	A	<2.0	SW
WL044.00	6/25/2007	WARS	HE	12	32	R	-	O	A	<2.0	CL
WL044.00	8/20/2007	WARS	E	12	32	R	-	O	A	<2.0	CL
WL044.00	10/31/2007	EXT	LF	8	31	R	-	O	A	<2.0	SW
WL044.50	1/16/2007	EXT	E	-1	18	R	N	C	P	<2.0	CL
WL044.50	3/28/2007	EXT	HE	0	25	R	N	C	P	2	CL
WL044.50	5/2/2007	TDAV	HF	9	13	R	-	C	P	<2.0	CL
WL044.50	6/25/2007	WARS	HE	13	30	R	-	C	P	2	CL
WL044.50	8/20/2007	WARS	E	9	30	R	-	C	P	<2.0	CL
WL044.50	10/23/2007	EXT	E	12	12	R	-	C	P	18	SW
WL045.00	3/28/2007	EXT	HE	0	24	R	-	O	A	<2.0	NW
WL045.00	5/2/2007	TDAV	H	9	26	R	-	O	A	<2.0	S
WL045.00	6/4/2007	FP	H	11	30	R	P	O	A	70	NE
WL045.00	6/25/2007	WARS	HE	13	31	R	-	O	A	<2.0	CL
WL045.00	8/20/2007	WARS	E	14	30	R	-	O	A	<2.0	CL
WL045.00	10/23/2007	EXT	E	12	30	R	-	O	A	2	SW
WL046.00	1/16/2007	EXT	E	0	31	R	-	O	A	<2.0	N
WL046.00	3/28/2007	EXT	HE	0	30	R	-	O	A	<2.0	NW
WL046.00	5/2/2007	TDAV	H	10	27	R	-	O	A	<2.0	S
WL046.00	6/25/2007	WARS	HE	13	30	R	-	O	A	2	CL
WL046.00	8/20/2007	WARS	E	14	31	R	-	O	A	<2.0	CL
WL046.00	10/23/2007	EXT	HE	12	30	R	-	O	A	340	SW
WL047.00	1/16/2007	EXT	E	-1	31	R	-	O	R	<2.0	NE
WL047.00	3/28/2007	EXT	E	0	28	R	-	O	R	<2.0	NW
WL047.00	5/2/2007	TDAV	H	9	25	R	-	O	R	<2.0	S
WL047.00	6/25/2007	WARS	HE	14	30	R	-	O	R	2	CL
WL047.00	8/20/2007	WARS	E	14	31	R	-	O	R	<2.0	CL
WL047.00	10/23/2007	EXT	E	12	31	R	-	O	R	<2.0	S
WL048.00	3/28/2007	EXT	E	1	6	R	-	O	A	<2.0	CL
WL048.00	5/2/2007	TDAV	H	10	22	R	-	O	A	<2.0	S
WL048.00	6/4/2007	FP	HF	12	29	R	P	O	A	24	NE

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL048.00	6/25/2007	WARS	HE	14	32	R	-	O	A	<2.0	CL
WL048.00	8/20/2007	WARS	E	13	30	R	-	O	A	<2.0	CL
WL048.00	10/23/2007	EXT	E	13	30	R	-	O	A	12	S
WL048.50	1/16/2007	EXT	E	2	32	R	-	O	A	<2.0	NW
WL048.50	3/28/2007	EXT	E	0	28	R	-	O	A	<2.0	NW
WL048.50	5/2/2007	TDAV	H	9	26	R	-	O	A	6	S
WL048.50	6/25/2007	WARS	HE	14	32	R	-	O	A	<2.0	CL
WL048.50	8/20/2007	WARS	E	15	30	R	-	O	A	2	CL
WL048.50	10/23/2007	EXT	E	12	31	R	-	O	A	<2.0	SW
WL049.00	1/16/2007	EXT	E	2	30	R	-	O	A	<2.0	N
WL049.00	3/13/2007	LL	E	1	26	R	-	O	A	<2.0	CL
WL049.00	5/2/2007	TDAV	H	8	28	R	-	O	A	<2.0	S
WL049.00	6/25/2007	WARS	E	13	32	R	-	O	A	2	CL
WL049.00	8/20/2007	WARS	E	14	30	R	-	O	A	<2.0	CL
WL049.00	10/23/2007	EXT	E	11	31	R	-	O	A	<2.0	SW
WL051.00	1/16/2007	EXT	LE	-2	25	R	-	O	A	2	N
WL051.00	3/13/2007	LL	LE	1	20	R	-	O	A	<2.0	CL
WL051.00	5/2/2007	TDAV	H	9	28	R	-	O	A	<2.0	S
WL051.00	6/25/2007	WARS	E	13	31	R	-	O	A	<2.0	CL
WL051.00	8/20/2007	WARS	E	15	30	R	-	O	A	<2.0	CL
WL051.00	10/31/2007	EXT	F	8	31	R	-	O	A	<2.0	CL
WL052.00	1/16/2007	EXT	LE	1	31	R	-	C	P	<2.0	NW
WL052.00	3/13/2007	LL	LE	1	18	R	-	C	P	<2.0	CL
WL052.00	5/2/2007	TDAV	E	9	28	R	-	C	P	<2.0	S
WL052.00	6/25/2007	WARS	E	14	32	R	-	C	P	<2.0	CL
WL052.00	8/20/2007	WARS	E	15	31	R	-	C	P	<2.0	CL
WL052.00	10/31/2007	EXT	F	8	31	R	-	C	P	4	CL
WL053.00	1/16/2007	EXT	LE	1	28	R	-	C	P	16	NW
WL053.00	3/28/2007	EXT	E	1	30	R	-	C	P	<2.0	NW
WL053.00	5/2/2007	TDAV	HE	8	26	R	-	C	P	<2.0	SW
WL053.00	6/25/2007	WARS	E	13	32	R	-	C	P	<2.0	CL
WL053.00	8/20/2007	WARS	E	14	30	R	-	C	P	<2.0	CL
WL053.00	10/31/2007	EXT	F	8	32	R	-	C	P	<2.0	SW
WL054.00	1/16/2007	EXT	LE	-1	22	R	-	C	P	<2.0	N
WL054.00	3/28/2007	EXT	E	-1	22	R	-	C	P	<2.0	NW
WL054.00	5/2/2007	TDAV	HE	8	28	R	-	C	P	<2.0	S
WL054.00	6/25/2007	WARS	E	13	32	R	-	C	P	<2.0	CL
WL054.00	8/20/2007	WARS	E	13	32	R	-	C	P	2	CL
WL054.00	10/31/2007	EXT	F	7	32	R	-	C	P	<2.0	CL
WL057.00	1/16/2007	EXT	LE	0	10	R	-	C	P	<2.0	NW

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL057.00	3/28/2007	EXT	E	-1	25	R	-	C	P	<2.0	NW
WL057.00	5/2/2007	TDAV	HE	8	29	R	-	C	P	<2.0	S
WL057.00	6/25/2007	WARS	E	13	32	R	-	C	P	<2.0	CL
WL057.00	8/20/2007	WARS	E	12	30	R	-	C	P	<2.0	CL
WL057.00	10/31/2007	EXT	F	7	32	R	-	C	P	4	SW
WL060.00	1/16/2007	EXT	L	2	32	R	-	C	P	<2.0	E
WL060.00	3/13/2007	LL	LE	1	28	R	-	C	P	<2.0	CL
WL060.00	5/2/2007	TDAV	HE	10	28	R	-	C	P	<2.0	S
WL060.00	6/25/2007	WARS	E	12	32	R	-	C	P	<2.0	CL
WL060.00	8/20/2007	WARS	E	15	32	R	-	C	P	<2.0	CL
WL060.00	10/31/2007	EXT	F	9	32	R	-	C	P	2	SW
WL063.00	1/16/2007	EXT	L	2	32	R	-	O	A	10	E
WL063.00	3/13/2007	LL	L	1	26	R	-	O	A	<2.0	CL
WL063.00	5/2/2007	TDAV	E	9	26	R	-	O	A	<2.0	S
WL063.00	6/25/2007	WARS	E	13	32	R	-	O	A	<2.0	CL
WL063.00	8/20/2007	WARS	E	14	31	R	-	O	A	<2.0	CL
WL063.00	10/31/2007	EXT	F	10	32	R	-	O	A	<2.0	SW
WL066.00	5/2/2007	TDAV	E	9	26	R	-	O	A	2	S
WL066.00	6/25/2007	WARS	E	14	31	R	-	O	A	2	CL
WL066.00	8/20/2007	WARS	E	15	32	R	-	O	A	<2.0	CL
WL066.00	10/31/2007	EXT	F	12	32	R	-	O	A	<2.0	SW
WL066.00	11/27/2007	LLB	F	6	26	R	P	O	A	44	CL
WL068.00	3/28/2007	EXT	E	-1	26	R	-	O	A	<2.0	NW
WL068.00	5/2/2007	TDAV	E	10	26	R	-	O	A	<2.0	S
WL068.00	6/4/2007	FP	HF	11	30	R	P	O	A	48	CL
WL068.00	6/25/2007	WARS	E	13	31	R	-	O	A	2.8	CL
WL068.00	8/20/2007	WARS	E	15	30	R	-	O	A	<2.0	CL
WL068.00	10/31/2007	EXT	F	8	32	R	-	C	P	<2.0	SW
WL070.00	3/7/2007	EXT	F	-4	32	R	-	O	A	<2.0	NW
WL070.00	4/9/2007	EXT	L	-2	28	R	-	O	A	<2.0	W
WL070.00	6/4/2007	FP	LF	11	30	R	P	O	A	10	N
WL070.00	7/23/2007	JB	LE	15	30	R	-	O	A	4	N
WL070.00	9/17/2007	MHE	LF	11	30	R	-	C	P	<2.0	CL
WL070.00	11/27/2007	LLB	F	6	26	R	P	C	P	29	N
WL071.00	3/7/2007	EXT	F	-4	9	R	-	C	P	<2.0	CL
WL071.00	4/9/2007	EXT	L	-2	8	R	N	C	P	<2.0	W
WL071.00	6/4/2007	FP	LF	11	29	R	P	C	P	24	N
WL071.00	7/23/2007	JB	LE	15	30	R	-	C	P	6	CL
WL071.00	9/17/2007	MHE	LF	12	30	R	-	C	P	<2.0	CL
WL071.00	11/27/2007	LLB	F	5	8	R	P	C	P	118	N

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL073.00	3/7/2007	EXT	F	-4	32	R	-	O	A	<2.0	NW
WL073.00	4/9/2007	EXT	L	-1	30	R	-	O	A	<2.0	W
WL073.00	6/4/2007	FP	LF	11	30	R	P	O	A	<2.0	N
WL073.00	7/23/2007	JB	F	14	30	R	P	O	A	2	CL
WL073.00	9/17/2007	MHE	LF	13	30	R	-	O	A	<2.0	W
WL073.00	11/27/2007	LLB	F	6	22	R	P	O	A	>1600	N
WL075.00	3/7/2007	EXT	F	-4	32	R	-	O	A	<2.0	CL
WL075.00	4/9/2007	EXT	HF	2	28	R	-	O	A	<2.0	CL
WL075.00	6/4/2007	FP	LF	12	28	R	P	O	A	2	N
WL075.00	7/23/2007	JB	F	18	30	R	P	O	A	<2.0	CL
WL075.00	9/17/2007	MHE	HF	15	30	R	-	O	A	2	SW
WL075.00	11/27/2007	LLB	F	6	30	R	P	O	A	14	CL
WL076.00	3/7/2007	EXT	HF	-4	32	R	-	O	A	<2.0	CL
WL076.00	4/9/2007	EXT	HF	1	28	R	-	O	A	<2.0	CL
WL076.00	6/25/2007	FP	E	17	30	R	-	O	A	2	CL
WL076.00	7/23/2007	JB	F	17	30	R	P	O	A	<2.0	N
WL076.00	9/17/2007	MHE	F	14	29	R	-	O	A	4	W
WL076.00	11/27/2007	LLB	F	7	30	R	P	O	A	29	CL
WL077.00	3/7/2007	EXT	HF	-4	32	R	-	O	A	<2.0	CL
WL077.00	4/9/2007	EXT	F	0	25	R	-	O	A	<2.0	NW
WL077.00	6/4/2007	FP	F	12	25	R	P	O	A	240	N
WL077.00	7/23/2007	JB	LE	16	30	R	-	O	A	<2.0	N
WL077.00	9/17/2007	MHE	F	13	30	R	-	O	A	<2.0	W
WL077.00	11/27/2007	LLB	F	5	16	R	P	O	A	116	CL
WL079.00	2/13/2007	LL	E	-2	32	R	-	O	A	<2.0	NW
WL079.00	4/9/2007	EXT	LF	-1	30	R	-	O	A	<2.0	NW
WL079.00	6/4/2007	FP	F	12	30	R	P	O	A	<2.0	NE
WL079.00	7/23/2007	JB	LE	15	31	R	-	O	A	2	E
WL079.00	9/17/2007	MHE	F	11	30	R	-	O	A	<2.0	NW
WL079.00	11/27/2007	LLB	F	7	32	R	P	O	A	2	CL
WL081.00	2/13/2007	LL	E	-2	32	R	-	C	P	<2.0	NW
WL081.00	4/9/2007	EXT	LF	-1	30	R	-	C	P	<2.0	NW
WL081.00	6/4/2007	FP	F	11	30	R	P	C	P	<2.0	NE
WL081.00	7/23/2007	JB	L	15	30	R	-	C	P	8	N
WL081.00	9/17/2007	MHE	F	13	30	R	-	C	P	<2.0	NW
WL081.00	11/27/2007	LLB	HF	7	32	R	P	C	P	98	CL
WL085.00	3/7/2007	EXT	HF	-5	21	R	WN	C	P	<2.0	W
WL085.00	4/9/2007	EXT	LF	-1	2	R	N	C	P	2	NW
WL085.00	6/4/2007	FP	F	11	30	R	P	C	P	3.6	NE
WL085.00	7/23/2007	JB	F	15	30	R	P	C	P	2	NE
WL085.00	9/17/2007	MHE	F	14	30	R	-	C	P	<2.0	CL

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL085.00	11/27/2007	LLB	HF	6	22	R	P	C	P	44	CL
WL087.00	3/7/2007	EXT	H	-4	32	R	W	O	A	<2.0	W
WL087.00	4/9/2007	EXT	F	1	28	R	-	O	A	<2.0	CL
WL087.00	6/4/2007	FP	F	12	30	R	P	O	A	3.6	NE
WL087.00	7/23/2007	JB	F	15	30	R	P	O	A	4	CL
WL087.00	9/17/2007	MHE	F	15	30	R	-	O	A	<2.0	NE
WL087.00	11/27/2007	LLB	HF	7	30	R	P	O	A	116	CL
WL089.00	2/13/2007	LL	E	-2	31	R	-	C	P	<2.0	NW
WL089.00	4/9/2007	EXT	F	-1	30	R	-	C	P	2	NW
WL089.00	6/4/2007	FP	F	11	27	R	P	C	P	48	NE
WL089.00	7/23/2007	JB	L	16	30	R	-	C	P	<2.0	N
WL089.00	9/17/2007	MHE	F	14	30	R	-	C	P	<2.0	CL
WL089.00	11/27/2007	LLB	HF	7	30	R	P	C	P	24	N
WL095.50	2/13/2007	LL	E	-2	32	R	-	C	P	<2.0	NW
WL095.50	4/9/2007	EXT	F	-1	30	R	-	C	P	<2.0	NW
WL095.50	6/4/2007	FP	F	11	30	R	P	C	P	2	CL
WL095.50	7/23/2007	JB	L	15	30	R	-	C	P	<2.0	N
WL095.50	9/17/2007	MHE	F	13	30	R	-	C	P	<2.0	W
WL095.50	11/27/2007	LLB	HF	7	28	R	P	C	P	6	CL
WL096.00	3/7/2007	EXT	H	-4	32	R	-	O	R	<2.0	CL
WL096.00	4/9/2007	EXT	F	1	14	R	-	O	R	<2.0	CL
WL096.00	6/4/2007	FP	F	12	28	R	P	O	R	2	NE
WL096.00	7/23/2007	JB	F	17	30	R	P	O	R	2	NE
WL096.00	9/17/2007	MHE	F	13	30	R	-	O	R	<2.0	SW
WL096.00	11/27/2007	LLB	H	7	28	R	P	O	R	16	CL
WL097.00	3/7/2007	EXT	H	-3	32	R	-	O	A	<2.0	CL
WL097.00	4/9/2007	EXT	F	0	28	R	-	O	A	<2.0	NW
WL097.00	6/4/2007	FP	F	11	31	R	P	O	A	2	NE
WL097.00	7/23/2007	JB	L	15	30	R	-	O	A	<2.0	NE
WL097.00	9/17/2007	MHE	F	12	30	R	-	O	A	<2.0	SW
WL097.00	11/27/2007	LLB	H	7	28	R	P	O	A	2	CL
WL098.00	3/7/2007	EXT	HE	-4	32	R	N	C	P	<2.0	CL
WL098.00	4/9/2007	EXT	F	1	16	R	N	C	P	2	NW
WL098.00	6/4/2007	FP	F	12	26	R	P	C	P	50	N
WL098.00	7/23/2007	JB	F	14	30	R	P	C	P	<2.0	NE
WL098.00	9/17/2007	MHE	F	14	30	R	-	C	P	<2.0	SW
WL098.00	11/27/2007	LLB	H	7	28	R	P	C	P	15	CL
WL099.00	3/7/2007	EXT	HE	-4	32	R	-	O	A	<2.0	CL
WL099.00	4/9/2007	EXT	F	-1	28	R	-	O	A	<2.0	NW
WL099.00	6/4/2007	FP	F	11	30	R	P	O	A	<2.0	N

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MF	Wind
WL099.00	7/23/2007	JB	L	15	30	R	-	O	A	34	SW
WL099.00	9/17/2007	MHE	F	12	30	R	-	O	A	<2.0	SW
WL099.00	11/27/2007	LLB	H	7	28	R	P	O	A	8	CL
WL101.00	3/7/2007	EXT	HE	-5	32	R	-	O	A	<2.0	W
WL101.00	4/9/2007	EXT	F	2	26	R	-	O	A	<2.0	NW
WL101.00	6/4/2007	FP	F	11	30	R	P	O	A	6	CL
WL101.00	7/23/2007	JB	F	17	30	R	P	O	A	<2.0	W
WL101.00	9/17/2007	MHE	F	13	30	R	-	O	A	<2.0	SW
WL101.00	11/27/2007	LLB	H	7	30	R	P	O	A	6	N
WL102.00	3/7/2007	EXT	HE	-5	33	R	-	O	A	<2.0	W
WL102.00	4/9/2007	EXT	F	1	28	R	-	O	A	<2.0	NW
WL102.00	6/4/2007	FP	F	11	24	R	P	O	A	400	NE
WL102.00	7/23/2007	JB	F	17	26	R	P	O	A	<2.0	NE
WL102.00	9/17/2007	MHE	F	14	30	R	-	O	A	2	SW
WL102.00	11/27/2007	LLB	H	7	32	R	P	O	A	<2.0	CL
WL103.00	2/13/2007	LL	E	-2	31	R	-	O	A	<2.0	NW
WL103.00	4/9/2007	EXT	F	0	30	R	-	O	A	<2.0	NW
WL103.00	6/4/2007	FP	F	12	30	R	P	O	A	4	NE
WL103.00	7/23/2007	JB	LF	13	30	R	P	O	A	<2.0	E
WL103.00	9/17/2007	MHE	F	14	30	R	-	O	A	<2.0	SW
WL103.00	11/27/2007	LLB	HE	7	30	R	P	O	A	6	NW

Appendix E. Addendum to Sanitary Survey WL - Sabino Area

A reclassification in the middle New Meadows River, locally known as the Sabino area of West Bath is being considered due to the removal of 22 OBDs. The area is currently prohibited due to the OBDs and the lack of a shoreline survey; water quality meets approved standards. A shoreline survey of 79 properties was completed by DMR with assistance from the local shellfish warden and the local codes enforcement officer from the tip of Sabino south to the tip of Birch Point, West Bath. The shoreline survey of this area was conducted on 10/2, 10/3, 10/9, 10/10, 10/15, 10/16 and 10/17 of 2007 as a result of the removal of 22 licensed overboard discharges (OBDs). No actual or potential problems were noted during the shoreline survey.

The Sabino to Birch Point area is monitored by water quality sampling stations WL 52.0, 53.0, 54.0, 57.0 and 60.0. Station WL 52.0 has a history of water quality problems attributed to non-point pollution associated with a local boat landing. A restricted area will be placed around station WL 52, with stations WL 49 and 53 serving as boundary stations. The area above the new boundary stations has no history of water quality problems, and the remaining sample stations; WL 53.0, 54.0, 57.0 and 60.0 all meet approved standards (Table 1).

Table 1. Fecal Coliform Report for WL- Sabino Area

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WL052.00	P	30	8	8	0.74	1200	69.4	43	255
WL053.00	P	30	8	5.9	0.59	240	33.4	43	255
WL054.00	P	30	8	4.8	0.6	1100	28	43	255
WL057.00	P	30	8	5.3	0.68	1200	39.3	43	255
WL060.00	P	30	8	4.9	0.62	1200	30.8	43	255

Table 2 shows the P90 scores as a percentage of the approved standard for data from 2005-2007. During the transition from MPN to MF data points, each year the approved standard will be lower than the previous year until all samples have been analyzed by the MF method. In order to show the trend of the P90 scores over the years, the calculated values are expressed as a percentage of the approved standard. Stations that show the 2007 column at or above 100 percent no longer meet approved standards. The P90 trends for the past 3 years illustrate that fecal scores at station WL 52.0 continue to be elevated, and do not meet the approved standard. Stations WL 53.0, 54.0, 57.0 and 60.0 have fecal coliform scores that are steady or improving.

Table 2. P90 Scores (expressed as Percent of Approved Standard) for Sabino Area of New Meadows River, 2005-2007

STATION	CLASS	2005	2006	2007
WL052.00	P	148	167	161
WL053.00	P	93	82	78
WL054.00	P	78	60	65
WL057.00	P	97	86	91
WL060.00	P	70	68	72

At this time, the prohibited area from just south of Sabino Landing to Birch Point on the New Meadows River in West Bath can be reclassified as approved, since there are no longer direct pollution sources located in the area. Sabino Landing area can be classified as restricted. Station WL 49.0 and WL 53.0 meet approved standards and will be the boundary stations for the new restricted area.

Appendix F. Addendum to Sanitary Survey WL- Long Cove, West Bath

Long Cove, located in West Bath, was classified prohibited on October 20, 2003 as Chapter 95.07 H, Closed Area No. 19-F after malfunctioning septic system was reported to the DMR by the town codes enforcement officer. Water quality in Long Cove is monitored by sample stations WL 44.5 and 45.0 (Figure 1 on page 4). The P90 scores at station WL 44.5 had increased from a 46.6 at the end of 2002 to a 53.2 when the prohibited classification was enacted in October 2003. The West Bath Codes Enforcement Officer provided site plans and confirmation that the malfunctioning system was replaced and inspected in 2004. A recent review of bacterial data indicates that water quality at stations WL 44.5 and 45 now meets the approved standards (Table 1).

Table 1. Fecal Coliform Geomean and P90 scores at Long Cove

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WL044.50	P	30	8	6.1	0.6	1100	35.9	43	255
WL045.00	A	30	8	4.3	0.45	93	15.9	43	255

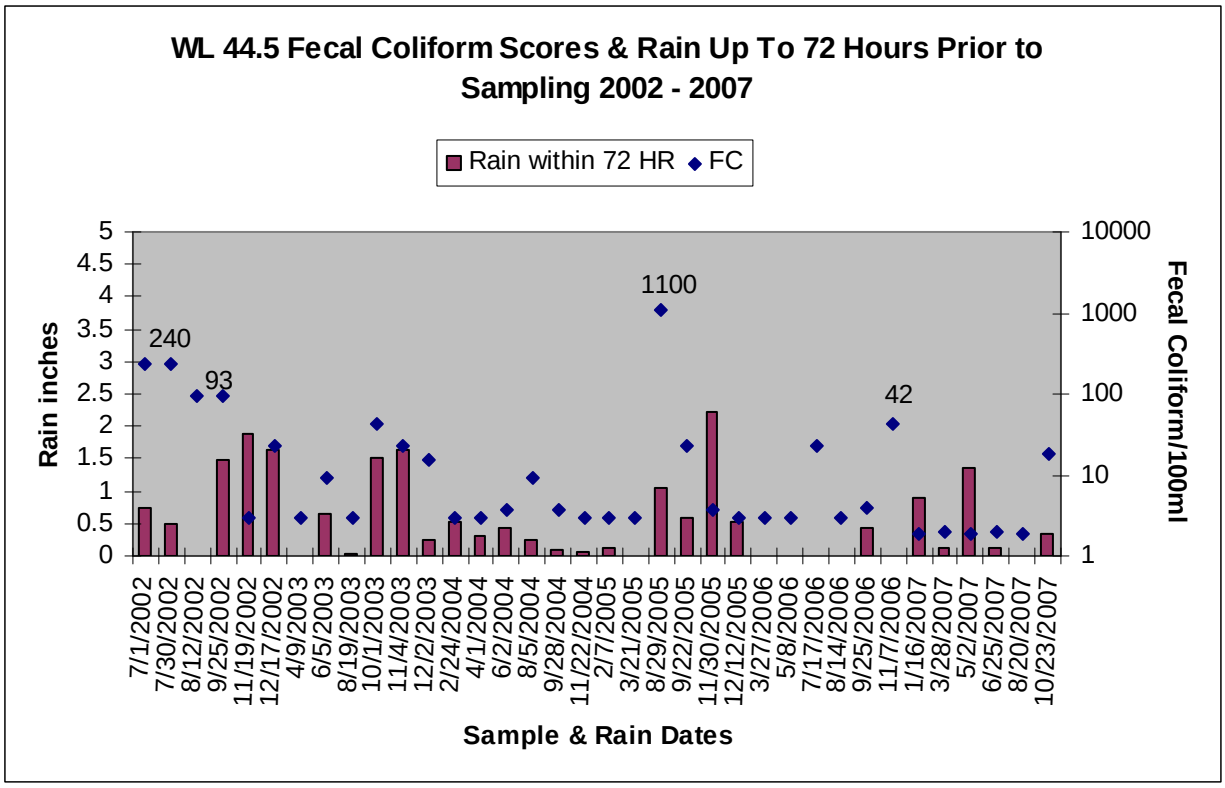
Trends in water quality scores (expressed as a percent of the approved standard) over the past three years are shown in Table 3. During the transition from MPN to MF data points, each year the approved standard will be lower than the previous year until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90s are expressed as a percentage of the approved standard; stations that show the 2007 column at or above 100 percent no longer meet approved standards. Over the past three years, P90 scores at station WL44.5, have declined, indicating an improvement of water quality, while P90 scores at station WL 45 have remained relatively unchanged, and the station continues to meet approved standards.

Table 2. **P90 Scores (as Percent of Approved Standard) for Long Cove, New Meadows River**

STATION	CLASS	2005	2006	2007
WL044.5	P	172	198	83
WL045.0	A	32	34	37

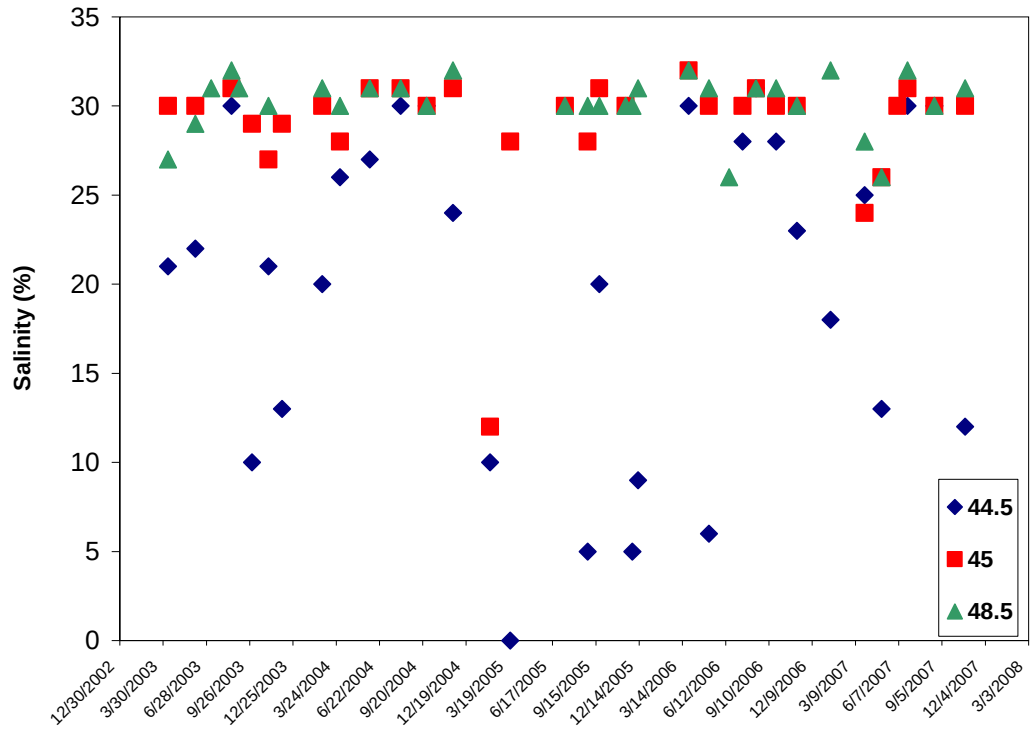
A comprehensive water quality data assessment of the area has been done to determine if there is justification to reclassify this area. Figure 1 shows the fecal coliform scores over time since 2002, as well as the cumulative rainfall received within 72 hours of collection. During the summer and fall of 2002 there were four successive samples that exceeded the P90 standard of 49. Since the septic system was replaced in 2004, there have been two fecal coliform scores that exceed the standard, occurring on August 29, 2005 and November 7, 2006. A score of 1100 fecal coliform/100 ml occurred after 1.06 inches of rain within 24 hours of sample collection.

Figure 1. Station WL 44.5 Fecal Coliform Scores and Rain Within 72 Hours of Sample Collection, 2002 - 2007



In addition to an analysis of the effect of rainfall, the effect of salinity on fecal coliform scores was also examined. The upper New Meadows River diverts off into a series of coves in West Bath, Back Cove and Mill Cove. Long Cove emanates from the westernmost branch of Mill Cove. A stream runs into the head of Long Cove. Long Cove is monitored by two stations WL 44.5 and WL 45; station 44.5 is located at the head of the cove and station 45 is located halfway down the cove. The New Meadows River is an embayment; the potential fresh water influences in the New Meadows is from the Kennebec River. The fresh water influences in Long Cove could come from the stream at the head of the cove, runoff from precipitation in the area, or the New Meadow River. To determine the extent of fresh water influence and the potential source of the fresh water the range of salinities for the period 2002 to 2007 was examined for stations WL 44.5, and 45, as well as station 48.5, which is located south of Long Cove in the main channel of the New Meadows River. Stations WL 44.5 and 45 flat out during lower tides. The average salinities for stations WL 44.5, 45 and 48.5 were 21, 29 and 30%, with standard deviations of 44.8, 12.8 and 5.8 for the three stations, respectively. Over the past five years, the greatest amount of variation in salinity values was seen at station WL 44.5, with less variation at station WL 45, located halfway up Long Cove and the least amount of variation at station WL 48.5 which lies in the main channel of Mill Cove, outside Long Cove (Figure 2). This pattern indicates that the fresh water influence at station WL 44.5 is most likely from a local source, specifically due to the stream located at the head of the cove. If fresh water was coming from the New Meadows River, then station WL48.5 would display similar variability in salinity values as station 44.5.

Figure 2. Salinity values for stations WL 44.5, 45 and 48.5, 2003-2007



If poor water quality at station WL 44.5 was a result of poor water quality coming from the New Meadows River, rather than a localized source, it is likely that that stations 44.5, 45 and 48.5 would have equally poor P90 scores, and similar P90 trends over time. The P90 values for the three stations, expressed as a percentage of the approved standard, over the past three years show differing trends between the stations. Scores at station WL 44.5 were high in 2005, increased slightly in 2006 and then decreased sharply in 2007, with the station meeting the approved standard in 2007. In contrast, stations WL 45 and 48.5 show steady scores over time, with both stations having P90 scores well below the approved standard over the past three years. The differences in trends between these stations further supports that high fecal coliform scores at station WL 44.5 are a local problem, and the source of the pollution was coming from the upper reaches of Long Cove or beyond, rather than from the New Meadows River.

Table 3. P90 scores (as a percent of the approved standard) for station WL 44.5, 45 and 48.5, 2005 through 2007

Station	2005	2006	2007
WL044.50	172	198	83
WL045.00	32	34	37
WL048.50	42	27	30

Furthermore, station WL 44.5 was assessed for a seasonal water quality component (Table 4). Elevated fecal coliform scores have occurred from July through November; with the highest scores occurring during the months of July, August and September. As seen from this data, the station has generally had good water quality since the replacement of the malfunctioning septic system in 2004. However, the two elevated scores which have occurred after the repairs were completed suggest that the may still be an intermittent pollution condition at this station.

Table 4. Fecal coliform scores for station WL 44.5, by sample year and month. Scores above the approved standard are highlighted in yellow.

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2002							240 240	93	93		2.9	23
2003				2.9		9.1		2.9		43	23	15
2004		2.9		2.9		3.6		9.1	3.6		2.9	
2005		2.9	2.9					1100	23		3.6	3
2006			2.9		2.9		23	2.9	4		42	
2007	1.9		2		1.9	2		1.9		18		

In order to determine the effect of tidal stages on water quality in Long Cove, differences between fecal coliform scores were compared between data collected on a flooding tide vs. an ebbing tide. Out of the 36 samples were collected between 2002 and 2007 at station WL 44.5, 19 samples were collected on ebbing tide, and 17 samples were collected on a flooding tide (Table 5). Overall, 17 percent of the samples collected between 2002 and 2007 exceeded the approved standard; 29 percent of the samples collected at on flooding tide exceeded the approved standard, while only 5 percent of the samples collected on an ebbing tide exceeded of the approved standard.

Table 5. Tide Stages Associated with Samples Collected at WL 44.5 from 2002-2007

Tide	Tide Stage	N	# samples exceeding approved standard*	% exceeding approved standard
Ebb	E	14	1	7
	HE	5	0	0
Flood	F	9	1	22
	H	2	0	0
	HF	6	4	67

*Note: Due to a laboratory analysis method change in 2006, the approved standard for samples has been reduced from 49 to 31.

Figure 3 displays fecal coliform data at station WL 44.5, compared to the salinities of the samples. The red squares and triangles are ebbing tides and the purple squares and triangle are flooding tides. The greatest range of salinities occurred on ebbing tides and with the exception of one high score, the fecal coliform values were generally lower for sampled collected on an ebbing tide, in comparison to those that were collected on flooding tides. By comparison, Figure 4 shows the same data for station WL 45. Overall, this station has better water quality than station WL 44.5 and exhibits a lower salinity range over all tides. The difference in water quality score patterns between the two stations suggests that fecal pollution associated with the stream at the head of Long Cove (WL44.5) is pooling on the ebbing and low tides and being carried back towards the shore on the incoming tides.

Figure 3. Fecal Coliform Scores vs. Salinity Values, Station WL 44.5

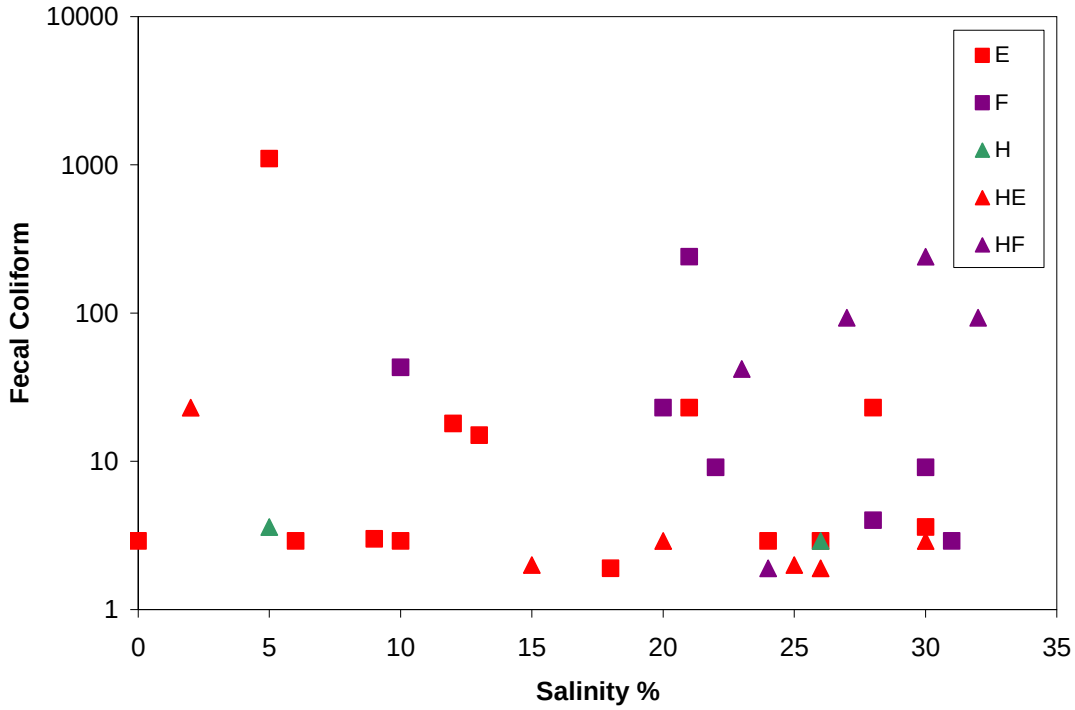
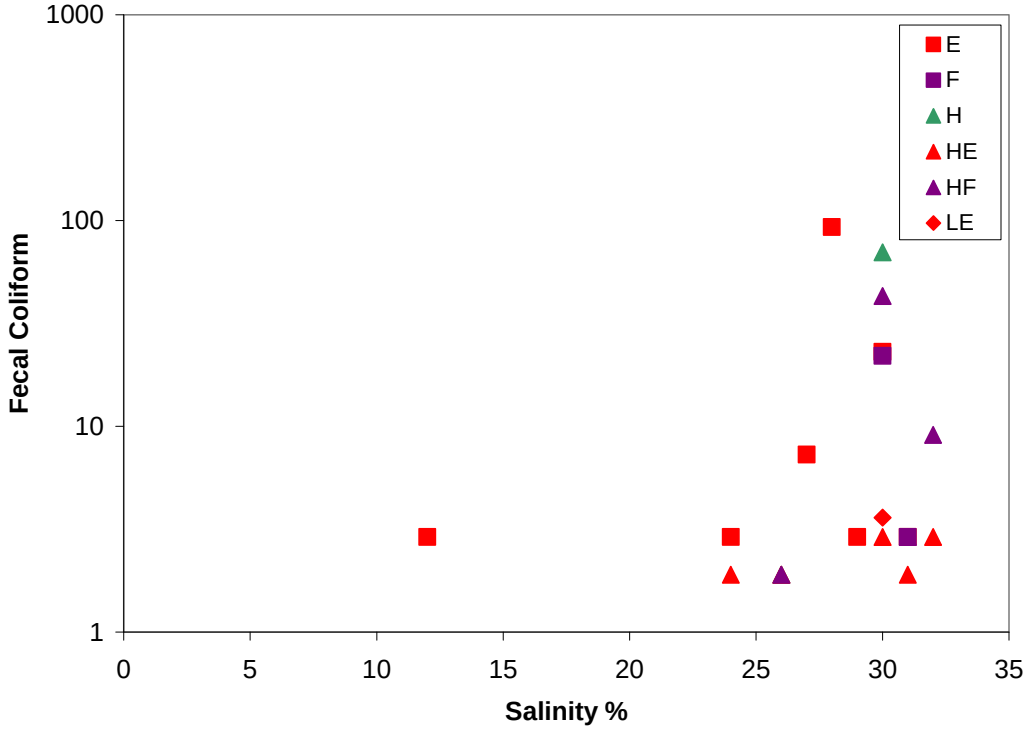


Figure 4. Fecal Coliform Scores vs. Salinity Values, Station WL 45



At this time, the prohibited area in Long Cove can be classified as approved since there are no direct pollution sources. The malfunctioning septic system that was identified in 2003 was replaced in 2004, as confirmed by the West Bath codes enforcement officer on February 24,

2008. The water quality at station WL 44.5 has substantially improved and now meets the approved standard. However, the current P90 score is within 83% of the approved standard and two of the data points that exceeded the P90 standard have occurred since the septic system replaced, which indicates that there may be continuing intermittent pollution problems in the upper reaches of Long Cove. The data indicates the area has a strong impact from a fresh water source, likely from the stream at the head of the cove. To date, no samples or discharge data has been collected on the stream. Additionally, there appears to be a seasonal component with the highest fecal coliform scores occurring July through September. It is unknown whether this impact comes from seasonal habitation and/or increased seasonal use by people or animals. There is not enough data following rainfall to fully evaluate the impact rain has either directly on the area from runoff or by way of the stream. In the future, the stream at the head of Long Cove needs to be evaluated and additional data should be collected especially after rainfall and during the summer and fall seasons.

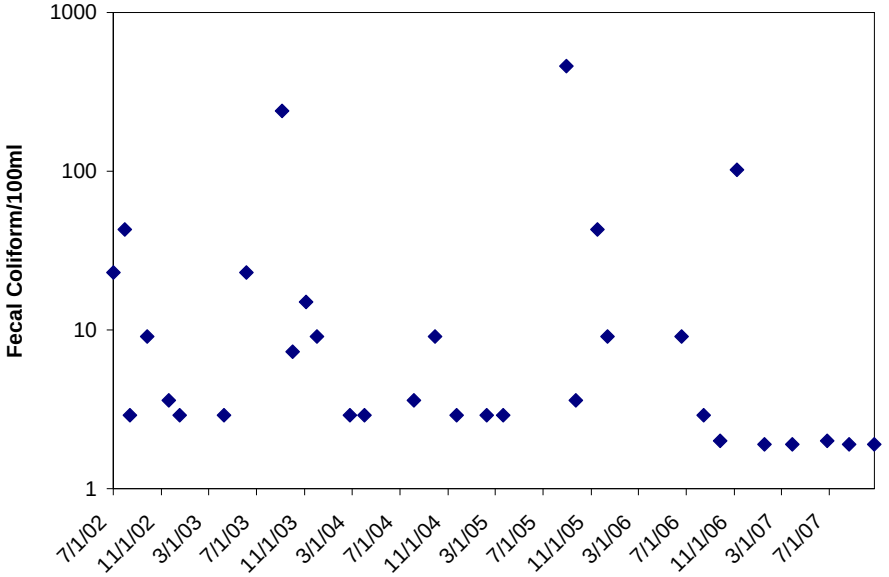
Appendix G. Addendum to Sanitary Survey WL- The upper eastern portion of Mill Cove (locally known as Belanger's Cover or the Men's Club), West Bath

Station WL 47.0, located in the upper eastern portion of Mill Cove, was downgraded in classification from approved to restricted on September 8, 2006, due to non-point pollution. A stream discharges into the head of Belanger's Cove and is monitored by station WL 47, located about 600 feet from the head of the cove. No pollution source was identified during the most recent survey in the area. Over the past two years, the P90 scores for station WL 47 have been decreasing and water quality at this station now meets approved criteria, with a geometric mean of 6.2 and a P90 score of 40.4 (approved standard is 43).

During the transition from MPN to MF data points, each year the approved standard will be lower than the previous year until all samples have been analyzed by the MF method, and in order to show the trend of the P90 value over the years, the calculated P90s are expressed as a percentage of the approved standard. Scores above 100 percent do not meet the approved standard. The P90 scores at station WL 47.0 have shown an improvement in water quality over the past three years: in 2005, the scores were at 105 percent of the approved standard, however, the scores have declined to 99 percent in 2006, and 94 percent in 2007.

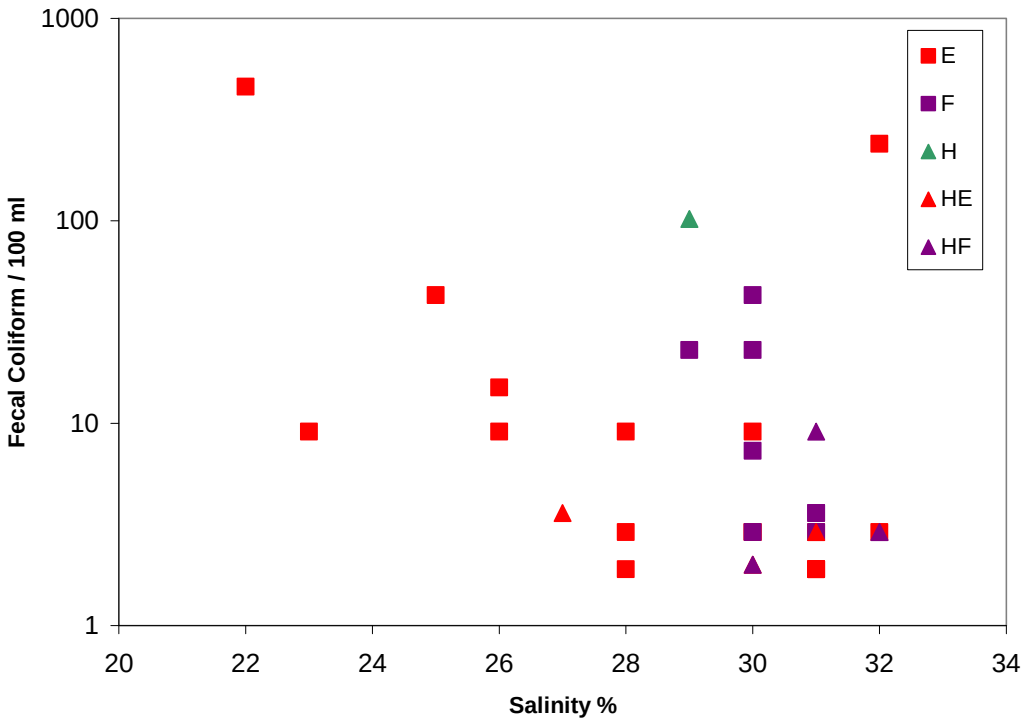
A review of data for station WL 47 was completed in order to determine what conditions may have impacted the area's water quality. While the geometric average for this station is well below the approved standard, the station has exceeded the approved P90 standard in the past. This indicates that the area generally has acceptable water quality but is impacted by intermittent pollution, resulting in occasional high scores. A review of the data from 2002 through 2007 shows that the high fecal coliform scores that have caused station WL 47 to surpass the approved P90 standard have been distributed fairly evenly throughout the past 5 years (Figure 1).

Figure 1. Station WL 47 Fecal Coliform Scores from 2002 to 2007



Fecal coliform and salinity data were compared and sorted by tidal stages (Figure 3). Salinity values at station WL 47 ranged from 22 to 32%; fecal coliform concentrations varied across all salinities. The lower salinities were associated with ebbing tides; this is likely to be associated with the stream that drains into Mill Cove. The two highest fecal coliform scores occurred during ebbing tides; the next highest score occurred during high tide.

Figure 2. WL 47 Fecal Coliforms vs. Salinity, by Tidal Stage



In addition to a salinity assessment, fecal coliform scores at station WL 47 were compared to rainfall that occurred within 72 hours of sample collection, and sorted by tidal stage (Figure 3). The two highest scores that occurred on the ebbing tide occurred after an inch of rain in 72 hours; the next highest score occurred on a high tide and with no rainfall. Other than the two highest scores, the scatter plot does not indicate a strong influence from rain on fecal coliform concentrations. However, if the rain data is separated by day the rain occurred in relation to the sample collection, an interesting pattern emerges. In Table 1, the data is sorted by fecal coliform score from highest to lowest score. This table indicates that the highest scores, with the exception of one data point (November 7, 2006), occurred when rain was recorded on the day of sampling (Rain- 0 Hours). While the exact amount of rain that had occurred at the time the sample was collected is not known, for most of the dates that precipitation was noted in the "Adversity" column of the data sheet, rain was or had been occurring at the time of sample collection. Similar amounts of rain occurring between 24 and 72 hours of collection did not exhibit the same higher fecal coliform levels. This indicates that rain may have an immediate impact on water quality, but does not have an extended impact over successive days. It should be noted that in 2006 and 2007, there were no samples collected during rain events on the sampling day.

Figure 3. WL 47 Fecal Coliform vs. Rainfall within 72 hours of Sample Collection, by Tidal Stage

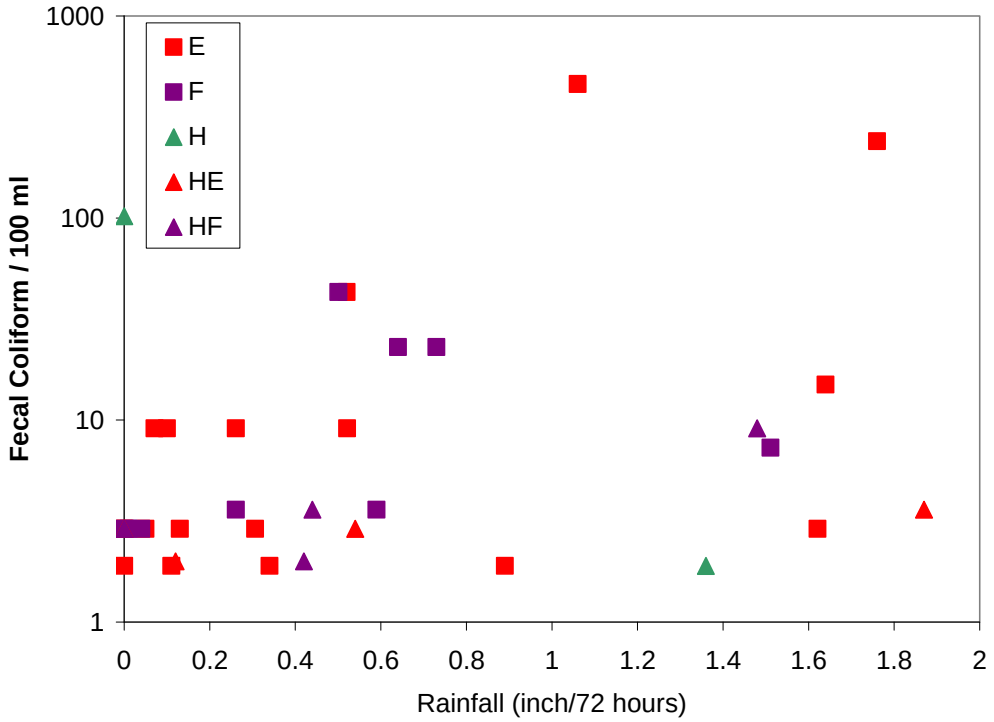


Table 1. Fecal Coliform Scores and Rainfall Amounts before Sample Collection, WL 47

Date	FC	Rainfall			
		0 Hours	24 Hours	48 Hours	72 Hours
1/16/2007	1.9	0.01	0.84	0.02	0.02
3/28/2007	1.9	0	0.01	0.08	0.02
5/2/2007	1.9	0	0	0.34	1.02
8/20/2007	1.9	0	0	0	0
10/23/2007	1.9	0	0	0	0.34
9/25/2006	2	0	0.07	0.35	0
6/25/2007	2	0	0	0	0.12
8/12/2002	2.9	0	0	0	0
12/17/2002	2.9	0	0	0.01	1.61
4/9/2003	2.9	0	0.01	0	0
8/19/2003	2.9	0	0	0	0.04
2/24/2004	2.9	0	0	0.27	0.27
4/1/2004	2.9	0.04	0.27	0	0
11/22/2004	2.9	0	0.05	0	0
2/7/2005	2.9	0	0	0	0.13
3/21/2005	2.9	0	0	0	0
3/27/2006	2.9	0	0	0	0
5/8/2006	2.9	0	0	0	0
8/14/2006	2.9	0	0	0	0
11/19/2002	3.6	0.05	0.28	1.52	0.02

Date	FC	Rainfall			
		0 Hours	24 Hours	48 Hours	72 Hours
6/2/2004	3.6	0.17	0.27	0	0
8/5/2004	3.6	0	0	0	0.26
9/22/2005	3.6	0	0	0.59	0
10/1/2003	7.3	0.11	0	0	1.40
9/25/2002	9.1	0	0	1.48	0
12/2/2003	9.1	0	0	0	0.26
9/28/2004	9.1	0.10	0	0	0
12/12/2005	9.1	0	0	0	0.52
6/19/2006	9.1	0	0	0	0.07
11/4/2003	15	0.17	0.47	1.00	0
7/1/2002	23	0.63	0	0	0.10
6/5/2003	23	0.64	0	0	0
7/30/2002	43	0.34	0	0.16	0
11/16/2005	43	0.52	0	0	0
11/7/2006	102	0	0	0	0
9/4/2003	240	1.72	0.02	0	0.02
8/29/2005	460	1.03	0.03	0	0

At this time, the restricted area in the upper eastern portion of Mill Cove can be upgraded to approved classification, as there are no direct pollution sources and the geo mean and P90 scores at station WL 47 are meeting the approved standards. The reason for the area not meeting approved standards in past years have not been fully determined. The current analysis of data suggests that rainfall occurring on the day of sample collection may be impacting water quality either through immediate over-land runoff or through stream run-off. Over the past three years, the number of samples collected on days that significant precipitation was occurring has decreased. In the future, it is recommended samples be taken from both the from the stream that is located at the head of the cove and the sampling station, under a variety of weather conditions, especially on days when it is raining, in order to further determine the impact of the fresh water sources on water quality in Mill Cove.

Appendix H. Addendum to Sanitary Survey WL, Brigham's Cove, West Bath and Phippsburg.

Based on the current water quality review, a reduction in the size of the prohibited area and reclassification to restricted in the eastern portion of Brigham's Cove, West Bath and Phippsburg is recommended. Currently, station WL 68.0 is classified prohibited and meets restricted standards (Table 1). It was classified prohibited as a result of the data analysis in the annual review of 2006. The prohibited classification was recommended at that time because the elevated fecal coliform scores occur during the summer when several older septic systems at seasonal cottages are in use. The shoreline survey is up to date; the last survey was completed in 2003. Station WL 66.0, which was deactivated in 2005 and after only 3 samples were collected, was reactivated in 2007 to act a boundary station for the new prohibited area. At the end of 2007, stations WL 70 and 71.0 were classified prohibited, but met the approved standards. A reduction in the size of the prohibited area and an upgrade to restricted classification is recommended.

Table 1. Fecal Coliform P90 Scores, Brigham Cove Stations

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WL066.00	new	20	5	5.4	0.59	240	30.8	44	258
WL068.00	P	30	8	6.7	0.68	1100	49.9	43	255
WL070.00	P	30	8	4.1	0.41	93	13.9	43	255
WL071.00	P	30	8	7.3	0.53	118	35	43	255

Trends in P90 scores over the past three years are shown in Table 2. The scores are shown as a percentage of the approved standard for each year's data set. During the transition from MPN to MF data points, each year the approved standard will be lower than the previous year until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90s are expressed as a percentage of the approved standard. Stations that show the 2007 column at or above 100 percent no longer meet approved standards. The P90 trends for the past three years indicate that fecal coliform scores at station WL 70.0 and 71.0 continue to remain steady, while scores at station WL 68.0 no longer meet approved standard and have been increasing. Scores at the recently established station, WL 66.0 have also been steady.

Table 2. P90 Scores (as Percent of Approved Standard) for Brigham Cove Stations, 2005-2007

STATION	CLASS	2005	2006	2007
WL066.00	new	48	48	61
WL068.00	P	99	106	116
WL070.00	P	56	28	32
WL071.00	P	85	79	81

Fecal coliform levels were analyzed for station WL 66.0, 68.0, 70.0 and 71.0 in context of tidal stage in order to determine if tidal stage has an impact on elevated fecal coliform levels. Overall, over the past five years, a total of 136 samples were collected from the four stations; 42 percent of samples were collected on a flooding tide and 54 percent were collected on an ebbing tide (Table 3). Among the four stations examined, 6 samples collected on an ebbing tide exceeded the approved standard (8 percent of total samples collected on an ebb tide), in

comparison to 7 samples collected on a flood tide (11 percent of total samples collected on a flood tide). The similarity in the number of samples exceeding approved standard between the two tidal stages suggests that tide does not have a significant effect on fecal coliform scores at Brigham's Cove.

Table 3. Tide stages associated with samples collected at Brigham Cove stations from 2002-2007

Tide	Tide Stage	WL 66.0		WL68.0		WL70.0		WL71.0	
		N	# samples exceeding approved standard	N	# samples exceeding approved standard	N	# samples exceeding approved standard	N	# samples exceeding approved standard
Ebb	L	2	1	0	0	5	0	3	0
	LE	2	0	0	0	1	0	3	0
	E	9	0	18	2	9	0	9	0
	HE	3	0	3	2	3	0	4	1
Flood	F	8	1	8	1	6	1	6	0
	H	0	0	2	0	4	0	3	0
	HF	1	0	4	1	5	1	5	0
	LF	1	1	1	0	4	0	4	1

Conclusion:

At this time, the prohibited area in the upper portion of Brigham's Cove can be classified as restricted with WL 66.0 as a boundary station. Water quality at stations WL 70.0 and 71.0 meets approved criteria and since there are no direct pollution sources, it is recommended that the area be classified approved. It is recommended that additional testing from the stream at the head of the cove (under varying conditions) and after rainfall be done to determine if the stream or rainfall have an impact on Brigham's Cove.

Appendix I. Addendum to Sanitary Survey WL, Tottman Cove, Phippsburg

Tottman Cove in Phippsburg was reclassified from approved to restricted on September 8, 2006 due to non-point source pollution. The shoreline survey in that area was completed in 2000. Trends in P90 scores at station WL96.0 indicate that water quality has improved and has met the approved standard for the past two review years. However, the current P90 score is within 3 percent of the approved standard limit. The current data analysis shows that the highest scores at this station have followed a seasonal trend. This provides evidence to support a recommendation that the area can be upgraded to conditionally approved classification, based on season.

Water quality at station WL 96.0 in Tottman Cove meets approved standards with a geometric mean of 6.5 and a P90 of 41.6 (approved standard is 43). During the transition from MPN to MF data points, each year the approved standard will be lower than the previous year until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90s are expressed as a percentage of the approved standard. Stations that result in a P90 score in 2007 at or above 100 percent no longer meet approved standards. The P90 scores as a percentage of the approved standard for station WL 96.0 were 116 percent for 2005, 96 percent in 2006, and 97 percent in 2007. This downward trend indicates that fecal coliform concentrations have dropped to an approved level by 2006.

Since the New Meadows River is an embayment, the potential fresh water influences in Tottman Cove would come from the stream at the head of the cove, via precipitation in the area or the effluent plume from the Kennebec River on a flooding tide. In order to assess the impact of rainfall on water quality at station WL 96, fecal coliform scores were compared to rainfall amounts within 72 hours prior to sample collection; seasonality of water quality scores was also assessed (Table 1). While fecal coliform scores were not related to rainfall, the elevated scores at station WL 96.0 showed a seasonal component, with the three highest scores being limited to the months of July, August and September. Interestingly, these three scores were obtained from samples collected after less than 0.25 inches of rainfall within the 72 hours prior to collection. Additionally, the three elevated scores were related to non-point pollution sources, as noted in the comments section on the sample collection field data sheet (Table 2).

Table 1. Fecal Coliform Scores as a Result of Precipitation and Season, Tottman Cove, Phippsburg. Elevated scores are highlighted in yellow.

Rainfall w/in 72 hours	Month											
	Year	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0”-0.25”	2002					15						
	2002									2.9		
	2003				2.9							
	2003						93					
	2003							3.6				
	2003								240			
	2004		2.9									
	2004					9.1						
	2004							11				
	2004								15			
	2005		2.9									

Rainfall w/in 72 hours	Month											
	Year	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
	2005							460				
	2005										3.6	
	2005											3
	2006		2.9									
	2006				3.6							
	2006						3.6					
	2006							23				
	2006										2	
	2007		1.9									
	2007			1.9								
0.25”-0.5”	2002								15			
	2004	2.9										
	2005						2.9					
	2006								6			
	2006											2
0.5”-0.75”	2004						9.1					
	2005								3.6			
	2007								1.9			
0.75”-1”	2002						23					
	2003									3.6		
	2007						2					
1”-1.5”	2004									43		
	2007										16	
	2002			2.9								
1.5”-2.5”	2003		3.6									
	2002								3.6			
	2007					2						

*Note: Due to a laboratory analysis method change in 2006, the approved standard for samples has been reduced from 49 to 31.

Table 2. Fecal Coliform Scores as a Result of Adversity (as noted on Sample Collection Sheet) for Station WL 96.0 from 2002 – 2007. Scores above the approved standard are highlighted in yellow.

Rainfall w/in 72 hours	Collection date	ADVERSITY				
		No Notation	Non-Point Source	Non-Point Source/Wildlife	Precipitation	Precipitation/Non-point Source
0-0.25	6/5/2002		15			
	10/21/2002		2.9			
	5/20/2003		2.9			
	7/21/2003		93			
	8/5/2003		3.6			
	9/8/2003		240			
	3/22/2004		2.9			
	6/14/2004		9.1			
	8/30/2004		11			

Rainfall w/in 72 hours	Collection date	ADVERSITY				
		No Notation	Non-Point Source	Non-Point Source/Wildlife	Precipitation	Precipitation/Non-point Source
	9/30/2004		15			
	3/22/2005		2.9			
	8/22/2005		460			
	11/21/2005		3.6			
	12/6/2005		3			
	3/27/2006	2.9				
	5/8/2006			3.6		
	7/17/2006	3.6				
	8/14/2006	23				
	11/7/2006	2				
	3/7/2007	1.9				
	4/9/2007	1.9				
0.25-0.5	9/4/2002					15
	2/9/2004		2.9			
	7/5/2005		2.9			
	9/25/2006		6			
	12/11/2006		2			
0.5-0.75	7/28/2004				9.1	
	9/27/2005					3.6
	9/17/2007	1.9				
0.75-1	7/24/2002		23			
	10/6/2003					3.6
	7/23/2007				2	
1-1.25	10/19/2004		43			
	11/27/2007				16	
1.25-2	4/3/2002		2.9			
	3/31/2003					3.6
2-2.5	9/17/2002					3.6
	6/4/2007				2	

*Note: Due to a laboratory analysis method change in 2006, the approved standard for samples has been reduced from 49 to 31.

Fecal coliform levels at station WL 96 were analyzed in the context of tidal stage in order to determine if tide has an impact on fecal coliform levels. Overall, a total of 38 samples were collected between 2002 and 2007; 58% of samples were collected on a flooding tide and 42% were collected on an ebbing tide (Table 3). Interestingly, the three most elevated scores came from samples that were collected on an ebbing tide. One potential explanation for this trend is the adverse effect of the fresh water stream, located at the head of the cove. While no water samples have been collected from this stream in order to assess its pollution load to Tottman Cove, it is interesting to note that the three of the highest scores were not associated with lower salinities.

Table 3. Tide stages associated with samples collected at WL 96.0 from 2002-2007

Tide	Tide Stage	N	# samples exceeding approved standard	% exceeding approved standard
Flood	F	12	0	0
	HF	2	0	0
	H	8	0	0
Ebb	HE	2	1	50
	E	13	1	8
	LE	1	1	100

Based on this water quality assessment, the restricted area in Tottman Cove can be classified as conditionally approved, with an open status running from November 1 through June 30. The closed status, running from July 1 to September 30, will cover the three months when high fecal coliform scores have been detected. There are no direct pollution sources that were identified in the last shoreline survey. Collection of stream samples at the head of the cove, both during open and closed status, is recommended in order to determine any potential adverse impact of this fresh water source. Additional shoreline survey reconnaissance, as well as establishing a new sample station at the end of Tidewater Drive or Periwinkle Lane to assess water quality in Tottman Cove proper is also recommended.

Appendix J. Addendum to Sanitary Survey WL, The Branch, Hermit Island, Phippsburg

The Branch, Hermit Island in Phippsburg was reclassified from approved to restricted on December 21, 2007, due to water quality not meeting approved standards. The most recent shoreline survey in that area was completed in 2000. Currently, water quality at monitoring station WL102 does not meet the approved standard, however, a comprehensive data analysis showed a seasonal pattern to elevated fecal coliform scores in this area, and a recommendation for a reclassification to conditionally approved status, based on season, is provided.

Water quality at station WL 102, located in The Branch, does not meet approved standards, when considering year round data. While the area has a low year-round geometric mean score of 6.2, the current P90 score of 44.4 surpasses the approved standard. During the transition from MPN to MF data points, each year the approved standard will be lower than the previous year until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90 scores are expressed as a percentage of the approved standard. Stations that result in a P90 score in 2007 at or above 100 percent no longer meet approved standards. The trends in the P90 scores at station WL 102 over the past three years show a steady decline in water quality, with P90 scores of 64%, 76% and 103% of the approved standard, for 2005, 2006 and 2007, respectively. Station WL 101.8, which was activated as a boundary station only has been sample two times in 2008; therefore there are not enough data to make any assessment about water quality at station 101.8.

Since “The Branch” is a protected cove between Hermit Island and the mainland, water quality may be impacted by local insults, the New Meadows River, or overland runoff as a result of precipitation in the area. In order to investigate the relationship between precipitation and water quality, fecal coliform scores over the past five years were grouped by ranges of rainfall within 72 hours of sample collection; the data was further sorted by month to observe any potential seasonal trends. The four elevated scores were limited to the months of June, July, August and October. Interestingly, these four elevated scores have occurred annually, since 2004. Such an annual repeat in high scores during the summer and early fall suggests a presence of a seasonal and localized insult, such as a malfunctioning septic system. Thus, future survey work will be necessary in order to further investigate this pollution issue.

Table 1. Rainfall and fecal coliform scores for station WL 102, 2002 – 2007. Scores above the approved standard are highlighted in yellow.

Rainfall w/in 72 hours	Year	Month										
		Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0-0.25	2002					15						
	2002									2.9		
	2003				2.9							
	2003						9.1					
	2003							2.9				
	2003								2.9			
	2004		2.9									
	2004					2.9						
	2004							2.9				

Rainfall w/in 72 hours	Year	Month										
		Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
	2004								3			
	2005							93				
	2005										2.9	
	2005											43
	2005											3.6
	2006		2.9									
	2006						23					
	2006							2.9				
	2006										2	
	2007		1.9									
	2007			1.9								
0.25-0.5	2002								3.6			
	2004	2.9										
	2005						2.9					
	2006								4			
0.5-0.75	2004						240					
	2005								23			
	2007								2			
0.75-1	2002						43					
	2003									3.6		
	2007						1.9					
1-1.5	2004									3.6		
	2007										1.9	
	2002			2.9								
1.5-2.5	2003		2.9									
	2002								3.6			
	2006									90		
	2007					400						

*Note: Due to a laboratory analysis method change in 2006, the approved standard for samples has been reduced from 49 to 31

In order to determine the effect of tide on water quality at The Branch, fecal coliform levels were analyzed in the context of tidal stage. Out a total of 37 samples collected from 2002 – 2007, 54 percent were collected on a flooding tide and 46% were collected on an ebbing tide (Table 3). Both ebb and flood tide stages had 2 samples which were above the approved standard, thus tide is not likely to affect fecal coliform scores. Furthermore, sample stations adjacent to station WL 102 have low P90 scores, and support good water quality (Table 4). This further suggests that tides do not affect fecal coliform scores, and water with high counts is coming from a localized source.

Table 3. Tide Stages Associated with Samples Collected at WL 102.0 from 2002-2007

Tide	Tide Stage	N	# samples exceeding approved standard	% exceeding approved standard
Flood	F	14	1	21
	HF	3	1	33
	H	3	0	0
Ebb	HE	5	1	20
	E	12	1	8

Table 4. P90 Scores (as Percent of Approved Standard) for New Meadows River Stations WL 98.0 – 101.0, 2005- 2007

STATION	CLASS	2005	2006	2007
WL098.00	P	50	36	42
WL099.00	A	22	16	16
WL101.00	A	42	44	41

At this time, the restricted area in The Branch, Hermit Island, Phippsburg can be classified as conditionally approved with an open status from November 16 – May 31. The closed status would run from June 1 – November 15, which will cover the period when the high fecal coliform scores have been detected. There are no direct pollution sources that were identified in the last shoreline survey. Additional shoreline survey reconnaissance is recommended. Additional sampling after 0.5" of rainfall in 24 hours is recommended to further investigate the impact of rainfall on the area.