



GROWING AREA WV
Marshall Point, Port Clyde to Owls Head Light, Owls Head

**Triennial Report for
(2005– 2007)**

Final Report Date: June 16, 2008

Fran Pierce

APPROVAL

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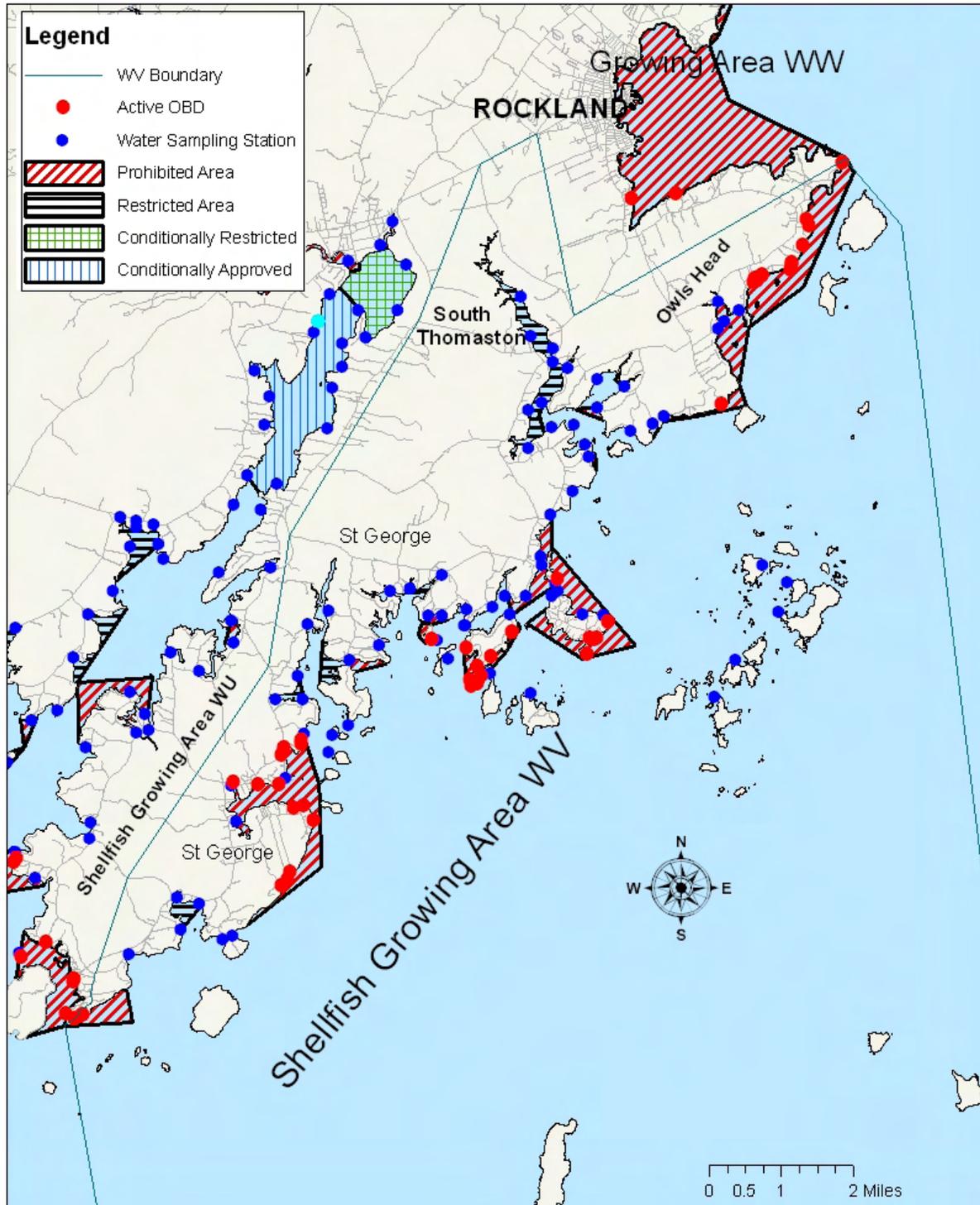
Figure 1. Shellfish Growing Area WV



Maine Department of Marine Resources 2007 Triennial Review of Shellfish Growing Area WV Towns of St George, South Thomaston and Owls Head



4/22/08





Executive Summary

Please refer to Figure 1 on page 4 for a comprehensive map of Shellfish Growing Area WV; detailed maps (Figure 2 and 3) of the eastern and western portion of the growing area WV can be found on pages 9 and 10.

Shellfish Growing Area WV covers the area from Marshall Point in the township of Port Clyde to the northeastern most point of Owls Head at Owls Head Light House. There are also numerous small islands in this growing area. Shellfish growing Area WV includes portions of the shoreline in the towns of St George, South Thomaston and Owls Head. This area includes the following townships within the towns of St George, South Thomaston and Owls Head: Port Clyde, Tenants Harbor, and Spruce Head. The shore in this growing area is quite variable and consists of bold shore, sandy beach areas, large mud flats and numerous ledges. All of the towns in shellfish growing area WV are small and residential. All of these towns grow in size during the summer months. There are no industries, marinas or large tourist areas in this growing area. Main sources of income include lobstering, construction and self employment businesses.

The southern half of this growing area was surveyed during the late summer and fall of 2003 and 2004. The shoreline survey work extended from Drift In Beach, St George to just north of the Spruce Island causeway. The Sanitary Survey Report of this portion of the growing area was completed in 2005. The shoreline survey was conducted to update previous surveys and to compile several of the smaller surveys into one report. The section of shore south of Drift In Beach was not surveyed due to the bold shore and lack of resources in this area. The outer portion of Tenants Harbor was also not surveyed. Tenants Harbor contains several licensed overboard discharges, and is a popular anchorage for cruising boats during the summer season. Both of these areas will remain classified as prohibited for shellfish harvest.

The shoreline survey of the northern half of this growing area will be completed in 2008. This survey will include the area from Waterman's Beach, South Thomaston to Birch Point State Park in the town of Owls Head. The survey area will extend beyond Birch Point State Park if time permits. The sanitary survey of this section of the growing area will be completed in 2009.

During the review period, three stations were reclassified from prohibited to approved, and three stations were reclassified from approved to restricted. Four new stations were added to monitor the ends of new closure lines and one new station was added to monitor a new potential pollution source. Thirteen stations were deactivated. All of these changes are discussed in greater detail later in the document.

Several older Sanitary Survey reports have been written for the following areas; these reports are located in DMR's central files:

Weskeag River, 1996
Muscle Ridge Islands, 2001
Waterman Beach to Thorndike Point, 2001
Dyer Point to Birch Point, 1996



Current Classifications

The shores of shellfish growing area WV are classified as approved, restricted and prohibited. There are no conditional areas in growing area WV. The area is classified as follows:

Approved

- Thirty seven (37) stations are classified as approved.

Restricted

- Nineteen (15) stations are classified as Restricted

Area No. 28; 4 stations, due to non-point pollution

Area No. 27A; 4 stations, due to non-point pollution

Area No. 28I; 8 stations, due to non-point pollution

Prohibited

- Twentyfive stations are classified as Prohibited.

Area No. 28; 5 stations, due to non-point pollution

Area No. 27A; 2 stations, due to non-point pollution

Area No. 28B; 9 stations, due to non-point pollution and licensed overboard discharges

Area No. 28E; 1 stations, due to non-point pollution and licensed overboard discharges

Area No. 28I; 3 stations, due to non-point pollution

Area No. 29A; 4 stations, due to non-point pollution and licensed overboard discharges

New Stations

- Six new stations were established during the current review period. They have been sampled less than 30 times and include stations that were established to monitor the ends of new closure lines or were placed at the site of a potential malfunction.

The following legal notices describe the shellfish classification boundaries in Shellfish Growing Area WV:

27-A Eastern Wheeler Bay, St George

28 Marshall Point to Long Cove St George

28-B Patten Point, St George to Thorndike Point, South Thomaston

28-C Rackliff Island, St George

28-E Ash Point to Birch Point, Owls Head

28-I Weskeag River, South Thomaston and Owls Head

29-A Owls Head

The legal notices for growing area WV can be found at DMR's website:

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

Activity During Review Period (2005-2007)

May 1, 2007- Legal Notice 28 Drift In Beach, at sampling station WV 1 was reclassified to approved. A malfunctioning system that bordered on the stream was identified and replaced and the water quality has improved. Mosquito Harbor was reclassified to restricted due to elevated fecal coliform scores.



May 4, 2006- Area No. 28-B Seal Harbor in the vicinity of stations WV 40 and WV 41 was reclassified to approved. This area has seen improvements in the water quality in recent years. Two previously malfunctioning septic systems were replaced with new raised bed systems in 2005. No new pollution sources were identified.

May 4, 2007 – Area No. 28 Southern Island was reclassified to approved. A licensed overboard discharge on the island was replaced with a raised bed system in 2005.

August 20, 2007 – Area No. 28 Seavey Cove was reclassified to restricted. Water quality deteriorated at station WV17.

August 20, 2007 – Area No. 28 Long Cove, in the vicinity of station WV 22, was reclassified to restricted due to deteriorating water quality at station WV22. A new sampling station, WV20.8, was established to monitor the northern end of the new closure line. There is no monitoring station on the southern end of the boundary line, as the area is currently inaccessible.

August 20, 2007 – Area No. 28-B, Baum Bay was reclassified to prohibited, due to elevated fecal coliform scores at station WV38.

August 20, 2007 – Area No. 27-A Eastern Wheeler Bay was reclassified to restricted due to elevated water quality scores at station WV27. New sampling stations WV26.5 and WV28.5 were established to monitor the boundaries of the new closure line.

March 24, 2008 – Area No. 28 Long Cove, in the vicinity of station WV24, was reclassified to prohibited after a survey review with the local licensed plumbing inspector (LPI) revealed the presence of two malfunctioning septic systems. Both of these systems are expected to be replaced during the 2008 season, therefore no new sampling stations will be established at the ends of the new closure line.

All of the stations in each growing area were reevaluated in 2005 to determine if any stations should be added or deactivated. The following stations were deactivated in 2005: 5, 7, 12, 20, 43, 61.5, 62, 66, 67, 68, 69, 76, and 82. Two new stations were created in 2005; station 36.5 and station 47.5. No stations were added or deactivated in 2006. Three new stations were added in 2007 to monitor the ends of new closure lines. These stations are: WV 20.8, WV 26.5, and WV 28.5.

Table 1 summarizes all classification and status changes which occurred in area WV during the current review period.

Table 1. Water Quality Station Changes During the 2005-2007 Review Period

Station	Classification Change P=prohibited A=approved R=restricted	Reason
WV 1	Reclass P to A	Malfunction fixed, improved water quality
WV 3	Reclass A to R	Poor water quality
WV 5		Station deactivated in 2005
WV 7		Station deactivated in 2005
WV 12		Station deactivated in 2005
WV 17	Reclass A to R	Poor water quality
WV 20		Station deactivated in 2005
WV 20.8		Poor water quality, new station monitors closure line
WV 22	Reclass A to R	Poor water quality



Station	Classification Change P=prohibited A=approved R=restricted	Reason
WV 24	Reclass A to P	Two malfunctioning systems
WV 26.5		Poor water quality, new station monitors closure line
WV 28.5		Poor water quality, new station monitors closure line
WV 36.5		New Station – suspect system
WV 38	Reclass A to P	Poor water quality
WV 40	Reclass P to A	Water quality improved
WV 41	Reclass P to A	Water quality improved
WV 43		Station deactivated in 2005
WV 47.5		New Station – closure line
WV 61.5		Station deactivated in 2005
WV 62		Station deactivated in 2005
WV 66		Station deactivated in 2005
WV 67		Station deactivated in 2005
WV 68		Station deactivated in 2005
WV 69		Station deactivated in 2005
WV 76		Station deactivated in 2005
WV 82		Station deactivated in 2005



Figure 2. Sampling Stations Western Portion Shellfish Growing Area WV



Maine Department of Marine Resources
2007 Triennial Review Shellfish Growing Area WV Western Portion
Water Sampling Stations

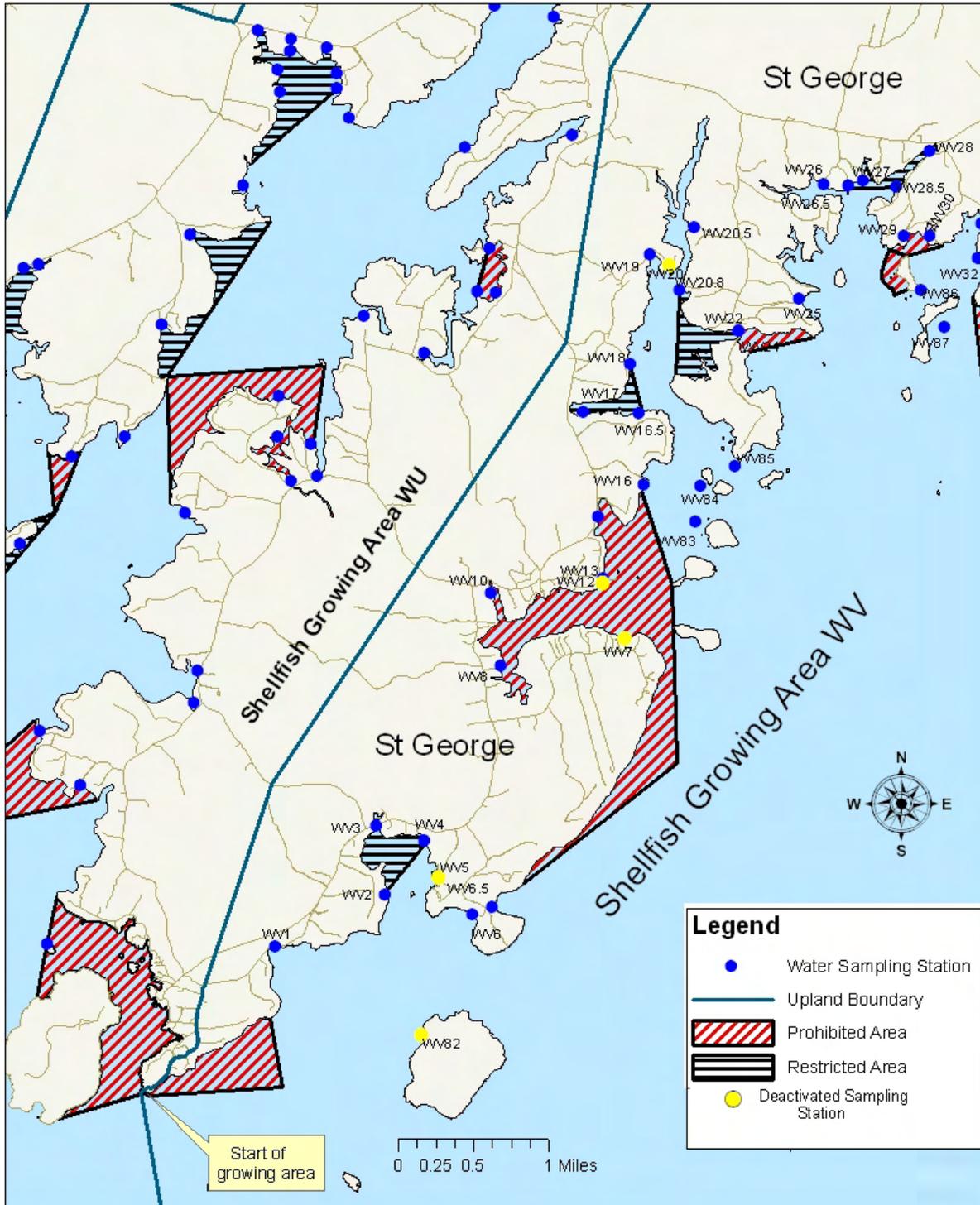
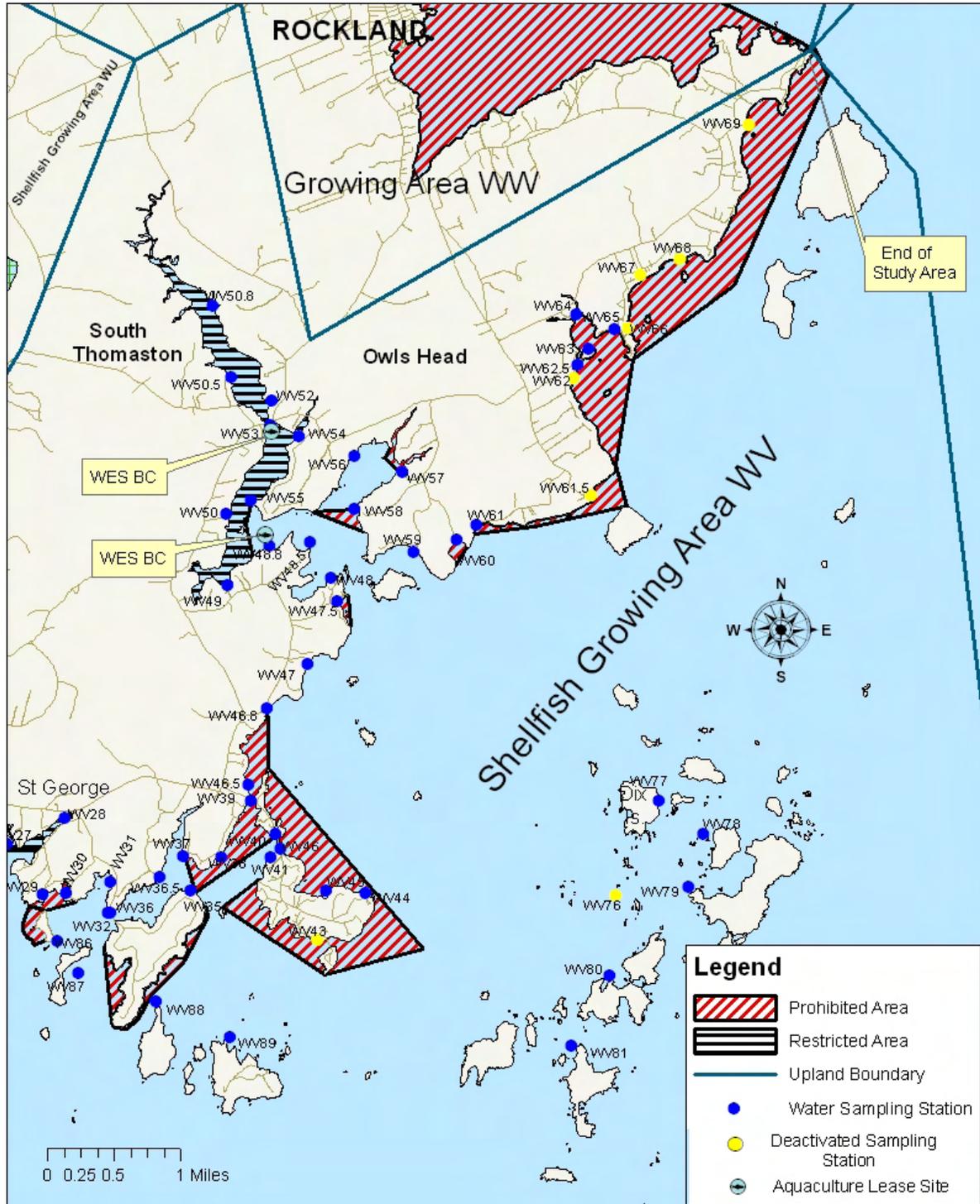




Figure 3. Sampling Stations Eastern Portion Shellfish Growing Area WV



Maine Department of Marine Resources
2007 Triennial Review Shellfish Growing Area WV Eastern Portion
Water Sampling Stations and Aquaculture Lease Sites





Review of Water Quality

Table 2 displays the geometric mean and P90 data for the 30 most recent samples for the years 2003 through 2007 for all active stations in area WV; a guide for interpreting table headers is in appendix A. Stations WV 20.8, WV 26.5 and WV 28.5 are new stations, established in 2007, and have been sampled three times. Stations WV 36.5 and WV 47.5 were established in 2005 and have been sampled 13 and 18 times, respectively. Station WV 48.8 was established in 2004 and has been sampled 25 times. None of the stations in Shellfish Growing Area WV have water quality scores that exceed their current classification criteria. 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 B.

Table 2. Water Quality Scores for Growing Area WV, 2003-2007

STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WV001.00	A	30	9	5.4	0.46	43	21.1	43	250
WV002.00	A	30	9	3.0	0.21	23	5.6	43	250
WV003.00	R	30	11	6.4	0.57	620	34.7	41	240
WV004.00	A	30	9	4.0	0.38	43	12.4	43	250
WV006.00	A	30	9	4.7	0.54	240	22.6	43	250
WV006.50	A	30	9	4.4	0.38	43	13.5	43	250
WV008.00	P	30	11	9.2	0.64	240	61.1	41	240
WV010.00	P	30	11	10.9	0.54	136	53.9	41	240
WV013.00	P	30	9	4.7	0.40	58	15.5	43	250
WV014.00	P	30	9	6.1	0.52	220	28.1	43	250
WV016.00	A	30	9	3.2	0.30	72	7.8	43	250
WV016.50	A	30	9	3.9	0.51	1200	17.7	43	250
WV017.00	R	30	9	7.0	0.87	1700	89.9	43	250
WV018.00	A	30	9	3.7	0.47	740	15.0	43	250
WV019.00	A	30	9	4.6	0.41	70	15.1	43	250
WV020.50	A	30	9	5.3	0.45	72	19.7	43	250
WV020.80	New	3	3	1.9	0.01	2	2.0		
WV022.00	R	30	9	5.9	0.57	440	31.5	43	250
WV024.00	P	30	9	5.7	0.53	340	27.1	43	250
WV025.00	A	30	9	5.1	0.52	102	23.9	43	250
WV026.00	A	30	9	6.1	0.51	150	27.4	43	250
WV026.50	New	3	3	3.4	0.40	10	11.6		
WV027.00	R	30	9	7.5	0.47	75	29.8	43	250
WV028.00	P	30	10	8.5	0.57	240	46.2	42	245
WV028.50	New	3	3	2.8	0.28	6	6.6		
WV029.00	P	29	8	10.3	0.81	1700	111.9	43	254
WV030.00	P	30	9	11.8	0.96	1700	198.1	43	250
WV031.00	A	30	9	4.9	0.58	1700	26.7	43	250
WV032.00	A	30	9	4.8	0.49	240	20.5	43	250



STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WV035.00	A	30	9	3.8	0.34	23	10.2	43	250
WV036.00	A	30	9	5.1	0.57	1100	27.3	43	250
WV036.50	New	13	9	3.1	0.35	23	9.0		
WV037.00	A	30	9	4.0	0.44	93	14.8	43	250
WV038.00	P	30	9	5.7	0.65	1200	39.1	43	250
WV039.00	P	30	10	5.9	0.48	93	24.5	42	245
WV040.00	P	30	9	3.9	0.34	43	10.8	43	250
WV041.00	P	30	10	5.0	0.49	43	21.0	42	245
WV044.00	P	30	9	5.3	0.62	1100	33.1	43	250
WV045.00	P	30	9	5.0	0.65	460	33.3	43	250
WV046.00	P	30	9	3.7	0.34	43	10.0	43	250
WV046.50	P	30	10	5.2	0.53	102	25.2	42	245
WV046.80	A	30	9	4.8	0.56	240	24.5	43	250
WV047.00	A	30	9	4.5	0.51	240	19.9	43	250
WV047.50	New	18	9	3.2	0.32	35	8.2		
WV048.00	A	30	10	5.4	0.38	23	16.4	42	245
WV048.50	A	30	9	4.0	0.27	43	9.0	43	250
WV048.80	New	25	10	4.4	0.36	43	12.7		
WV049.00	R	30	10	6.9	0.51	240	30.9	42	245
WV050.00	R	30	10	6.3	0.52	240	29.2	42	245
WV050.50	R	30	9	8.3	0.59	240	46.8	43	250
WV050.80	R	30	9	9.7	0.67	1100	70.0	43	250
WV052.00	R	30	9	8.6	0.55	150	44.1	43	250
WV053.00	R	30	9	5.5	0.52	93	25.7	43	250
WV054.00	R	30	9	8.4	0.62	460	52.3	43	250
WV055.00	R	30	9	5.6	0.55	1200	27.8	43	250
WV056.00	A	30	10	7.7	0.50	93	33.2	42	245
WV057.00	P	30	10	12.4	0.79	460	126.6	42	245
WV058.00	P	30	9	4.9	0.40	62	15.9	43	250
WV059.00	A	30	9	3.6	0.30	23	8.7	43	250
WV060.00	P	30	9	6.9	0.64	1200	45.8	43	250
WV061.00	P	30	9	3.5	0.27	43	7.9	43	250
WV062.50	P	30	9	6.6	0.57	440	35.7	43	250
WV063.00	P	30	10	6.7	0.59	240	38.2	42	245
WV064.00	P	30	10	10.9	0.82	1440	122.0	42	245
WV065.00	P	30	9	4.8	0.49	240	20.4	43	250
WV077.00	A	30	9	3.0	0.16	10	4.7	43	250
WV078.00	A	30	9	2.8	0.17	15	4.6	43	250
WV079.00	A	30	9	3.1	0.21	9.1	5.7	43	250
WV080.00	A	30	9	2.8	0.17	15	4.6	43	250
WV081.00	A	30	9	2.9	0.16	9.1	4.5	43	250
WV083.00	A	30	9	2.6	0.09	3.6	3.4	43	250
WV084.00	A	30	9	2.8	0.24	43	5.7	43	250
WV085.00	A	30	9	2.7	0.12	7.3	3.8	43	250
WV086.00	A	30	9	3.8	0.43	240	13.5	43	250
WV087.00	A	30	9	3.3	0.31	43	8.2	43	250
WV088.00	A	30	9	2.6	0.09	3.6	3.4	43	250
WV089.00	A	30	9	2.6	0.09	3.6	3.4	43	250



The trends in P90 scores over the past five years are shown in Figures 4-7. 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 trends 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 the 100 percent line no longer meet approved standards. While water quality at most stations in area WV has remained steady or improved over the past 5 years, seven stations have shown upward trends, indicating a decline in water quality. A complete list of P90 scores for the past 5 years can be found in appendix C.

Station WV 17 had a dramatic increase in its P90 scores and was reclassified from approved to restricted. While the cause of the high fecal coliform scores is unknown, this monitoring station is located near a horse farm and further investigation will be conducted in the future to assess the potential impact of the farm on water quality. Station WV 8 has showed a steady increase in fecal coliform scores over the past 5 years; this station is located near a straight pipe and is currently classified as prohibited. Additional stations that have shown upward trends in fecal coliform scores include WV14, WV29, WV30, WV57, and WV64. All of these stations are located in prohibited areas, and the causes of pollution are currently unknown. Further survey work and pollution source sampling work will need to be completed in the future. In addition to the seven sampling stations that have shown sharp increase in P90 scores, stations WV18 and WV20.5, which currently meet the approved standard have shown slight increases in their scores over the past five years. While there are no documented pollution sources near these stations, further survey work and stream water sample collection should be completed in the future.

Figure 4. Water quality P90 trends (expressed as percent of approved standard), stations WV1-WV25, 2003-2007

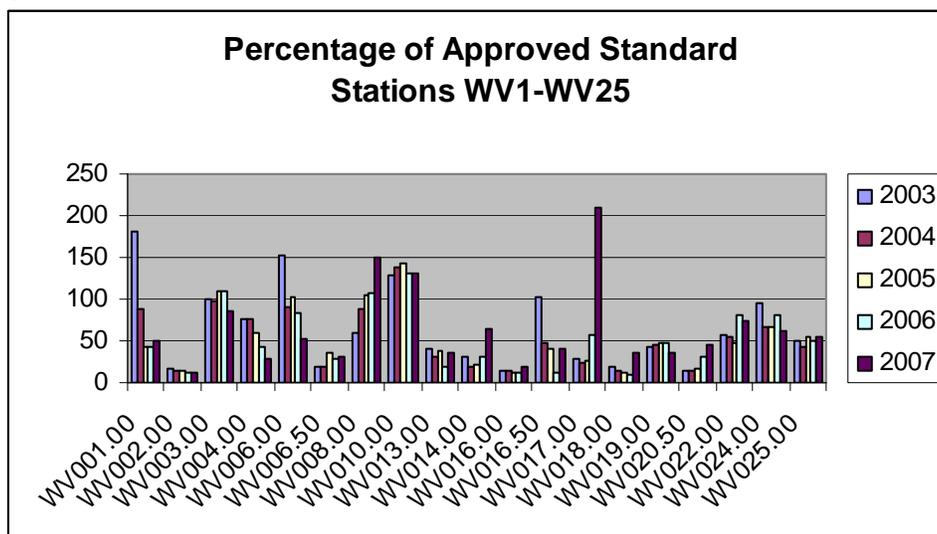




Figure 5. Water quality P90 trends (expressed as percent of approved standard), stations WV26-WV46.80, 2003-2007

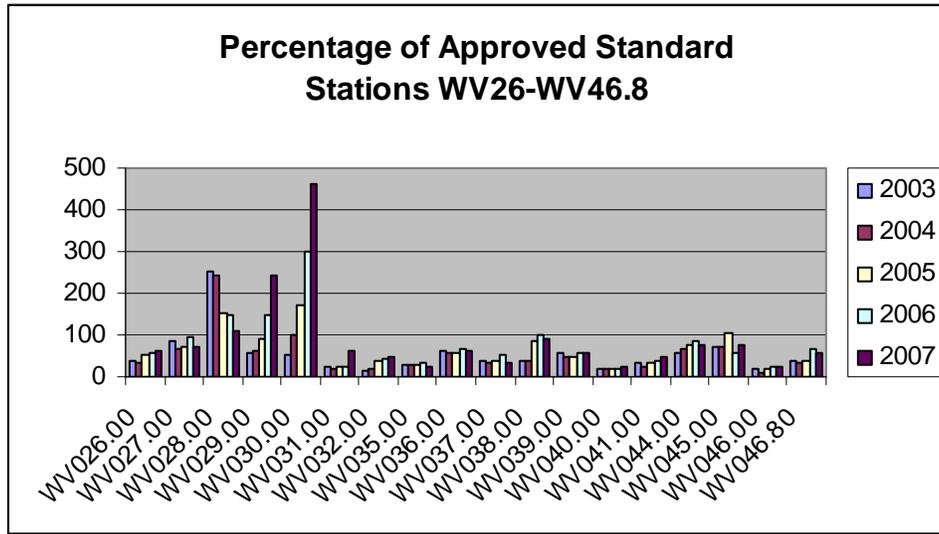


Figure 6. Water quality P90 trends (expressed as percent of approved standard), stations WV47-WV 62.50, 2003-2007

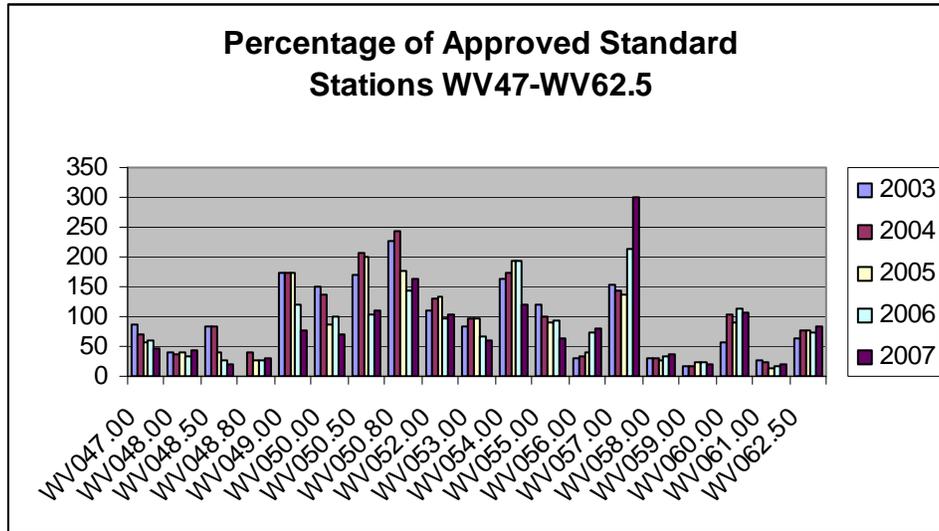
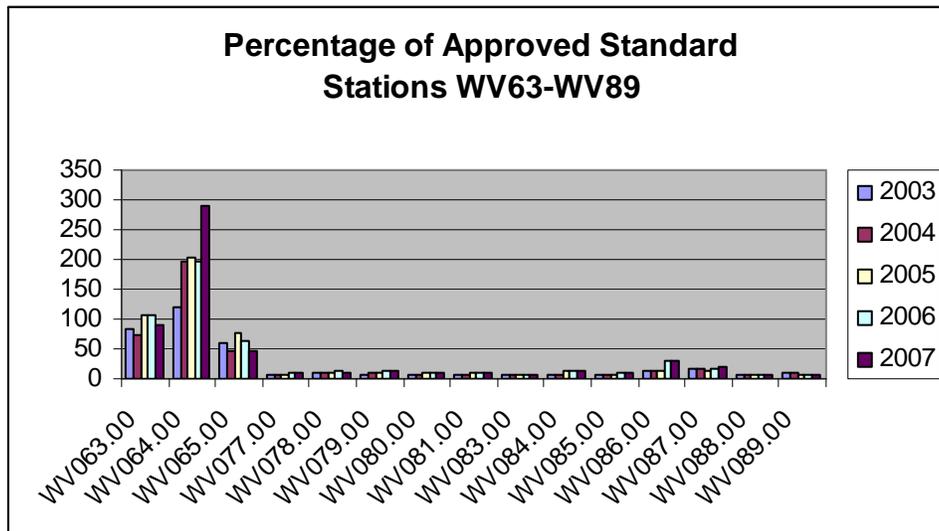




Figure 7. Water quality P90 trends (expressed as percent of approved standard), stations WV63-WV89, 2003-2007





All approved, restricted and prohibited stations that were active at the start of 2007 were sampled 6 times, using the systematic random sampling technique (Table 3, appendix D). New stations that were created in 2007 were sampled three times.

Table 3. Sample collection count for 2007

LOCATION_ID	Status		Current Class	Grand Total	Comments
	closed	open			
WV001.00		6	A	6	
WV002.00		6	A	6	
WV003.00		6	R	6	
WV004.00		6	A	6	
WV006.00	1	5	A	6	changed classification in 2007
WV006.50		6	A	6	
WV008.00	6		P	6	
WV010.00	6		P	6	
WV013.00	6		P	6	
WV014.00	6		P	6	
WV016.00		6	A	6	
WV016.50		6	A	6	
WV017.00		6	R	6	
WV018.00		6	A	6	
WV019.00		6	A	6	
WV020.50		6	A	6	
WV020.80		3		3	new station, monitors closure line
WV022.00		6	R	6	
WV024.00		6	P	6	area closed after sampling season ended
WV025.00		6	A	6	
WV026.00		6	A	6	
WV026.50		3		3	new station, monitors closure line
WV027.00		6	R	6	
WV028.00	6		P	6	
WV028.50		3		3	new station, monitors closure line
WV029.00	6		P	6	
WV030.00	6		P	6	
WV031.00		6	A	6	
WV032.00		6	A	6	
WV035.00		6	A	6	
WV036.00		6	A	6	
WV036.50		6	A	6	
WV037.00		6	A	6	
WV038.00	1	5	P	6	Changed classification in 2007
WV039.00	6		P	6	
WV040.00	6		P	6	
WV041.00	6		P	6	
WV044.00	6		P	6	
WV045.00	6		P	6	
WV046.00	6		P	6	
WV046.50	6		P	6	
WV046.80		6	A	6	
WV047.00		6	A	6	
WV047.50	6		P	6	



LOCATION_ID	Status		Current Class	Grand Total	Comments
	closed	open			
WV048.00		6	A	6	
WV048.50		6	A	6	
WV048.80		6	A	6	
WV049.00		6	R	6	
WV050.00		6	R	6	
WV050.50		6	R	6	
WV050.80		6	R	6	
WV052.00		6	R	6	
WV053.00		6	R	6	
WV054.00		6	R	6	
WV055.00		6	R	6	
WV056.00		6	A	6	
WV057.00	6		P	6	
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WV059.00		6	A	6	
WV060.00	6		P	6	
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WV062.50	6		P	6	
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WV083.00		6	A	6	
WV084.00		6	A	6	
WV085.00		6	A	6	
WV086.00		6	A	6	
WV087.00		6	A	6	
WV088.00		6	A	6	
WV089.00		6	A	6	

Documentation of Pollution Sources

Tables 4-7 show all new and pre-existing pollution sources for each town located in growing area WV; the pollution sources are noted as actual or potential pollution sources. Actual pollution sources are those with a known malfunction and have been reported to the local plumbing inspector. Potential pollution sources include old or uncertain systems that were not found to be malfunctioning at the time of the inspection but should be visited with greater frequency to ensure proper functioning in the future. The locations of both actual and potential pollution sources are illustrated in Figure 8. The location of active overboard discharges (OBDs) in area WV are shown in Figures 9 and 10.



Table 4. Actual pollution sources located in St. George

Pollution Source #	Tax Map#	Lot#	Pollution Source	Fixed? Y/N	Class	Comments
PS1	32	12	septic malfunction	N	prohibited	
PS2	29	29	bucket used as toilet	?	prohibited	seasonal
PS3	29	28	septic malfunction	N	prohibited	
PS4	29	25	septic malfunction	N	prohibited	
PS5	29	8	straight pipe, unoccupied	N	prohibited	
PS6	28	37	septic malfunction	N	prohibited	
PS7	28	57	wash machine drain	N	prohibited	
PS8	1	23	septic malfunction	N	prohibited	
PS9	1	37	septic malfunction	N	prohibited	

Table 5. Actual pollution sources located in South Thomaston

Pollution source #	Tax Map#	Lot#	Pollution Source	Fixed? Y/N	Class	Comments
PS10	6	22-1	wash mach drain	?	approved	Seasonal, revisit in 2008
PS11	14	18&21	septic malfunction	N	restricted	shared system, 1 house fixed*
PS12	14	37	septic malfunction	Y	restricted	
PS13	14	39	wash mach drain	?	restricted	revisit 2008
PS14	15	30	wash mach drain	?	restricted	revisit 2008

* Actual pollution source number 11 borders on a restricted area. The original system at this site bordered on the shore and was shared with the dwelling across the street. The dwelling located on the shore has a new system; the dwelling across the street is presently in the process of being fixed.

Table 6. Potential pollution sources located in St. George

Pollution Source#	Tax Map#	Lot#	Pollution Source	Fixed Y/N	Class	Comments
PP1	35	25	tank only – was full	?	approved	reported to LPI
PP2	35	20	old, small system, located too close to shore	Y	approved	
PP3	34	61	old, small system, located too close to shore	N	approved	no odor or sign of breakouts
PP4	34	18	overgrown system	N	approved	no odor or sign of breakouts
PP5	33	45	potential malfunction	Y	prohibited	new system



Pollution Source#	Tax Map#	Lot#	Pollution Source	Fixed Y/N	Class	Comments
PP6	32	9	3 old systems	N	approved	no odor or sign of breakouts

Table 7. Potential pollution sources located in South Thomaston

Pollution Source#	Tax Map#	Lot#	Pollution Source	Fixed Y/N	Class	Comments
PP7	5	17	wet system	N	approved	Slight odor; revisit in 2008
PP8	6	5	possible septic overflow	N	prohibited	
PP9	6	6	old cess pool?	N	prohibited	
PP10	6	7	old cess pool or septic tank overflow	N	prohibited	
PP11	6	8	tank old	N	prohibited	
PP12	17	16	wet system	N	restricted	No odor or dye
PP13	18	1-3	wet system	N	restricted	No odor or dye
PP14	14	70	old system – unused? flagged for replacement	N	restricted	Revisit in 2008



Figure 8. Potential and Actual Pollution Sources in Growing Area WV



Maine Department of Marine Resources Pollution Sources 2007 Triennial Review Shellfish Growing Area WV



Potential and Actual Pollution Sources

3/22/08

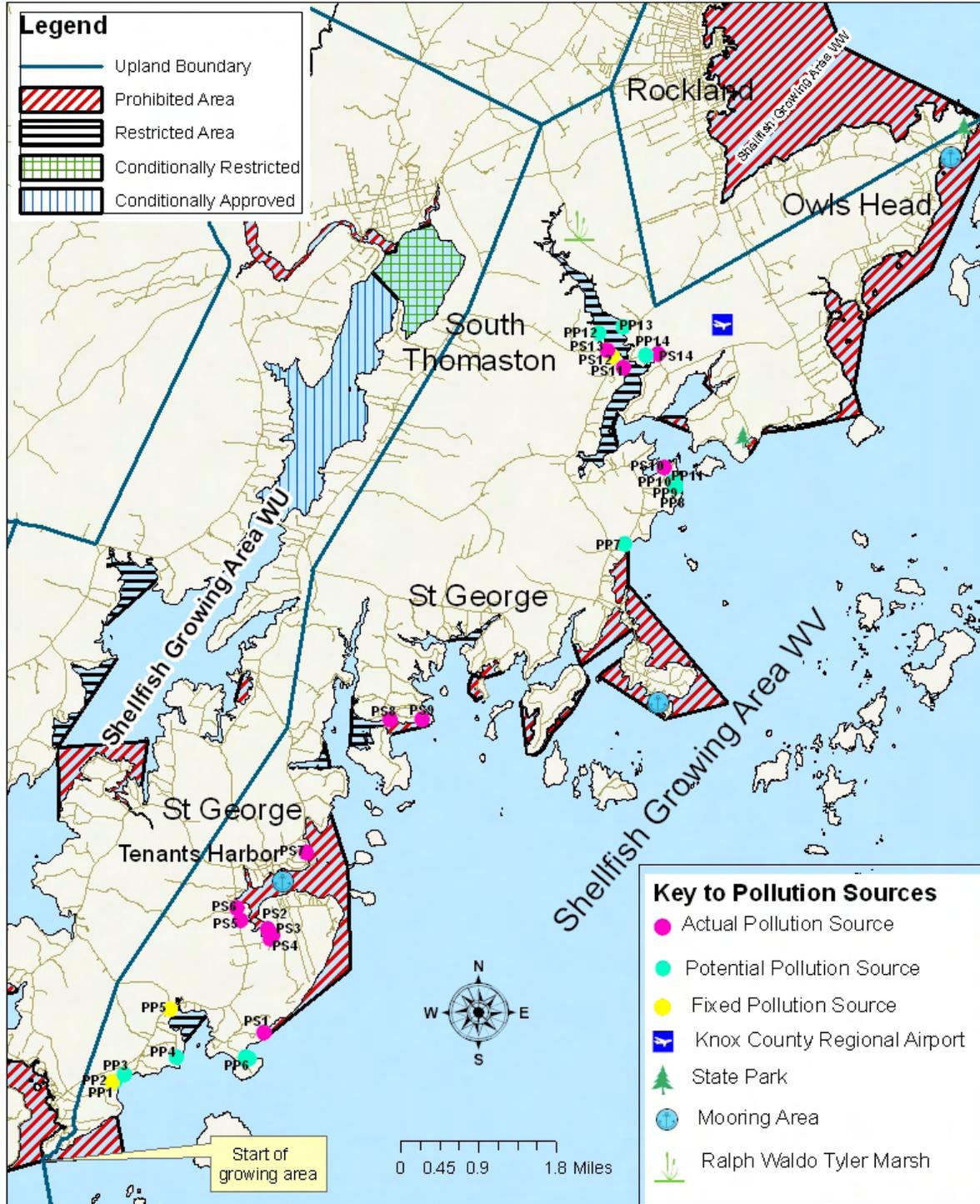




Figure 9. Licensed Overboard Discharges Western Portion Shellfish Growing Area WV



Maine Department of Marine Resources 2007 Triennial Review Shellfish Growing Area WV

Active Licensed Overboard Discharges Western Portion

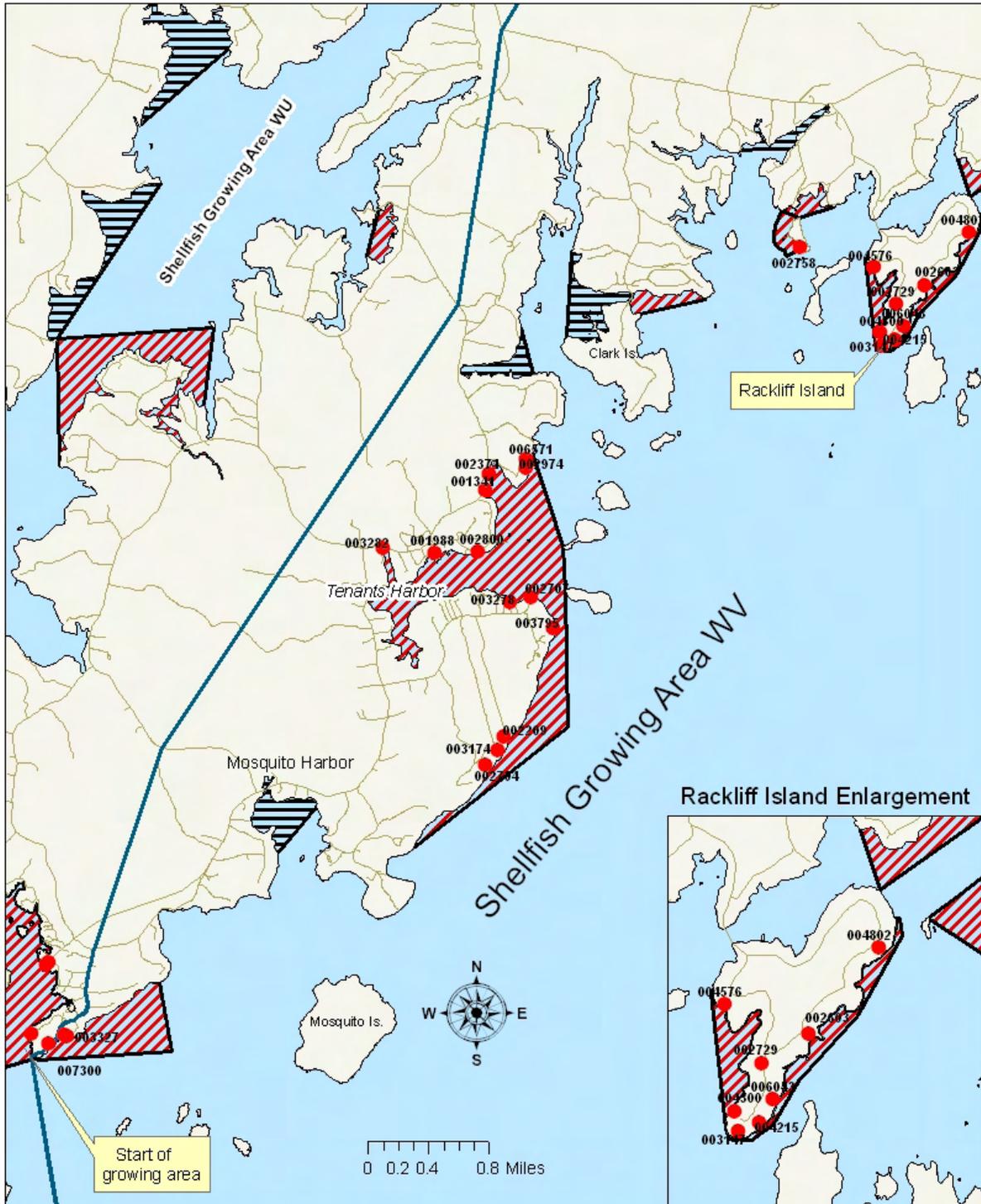




Figure 10. Licensed Overboard Discharges Eastern Portion Shellfish Growing Area WV

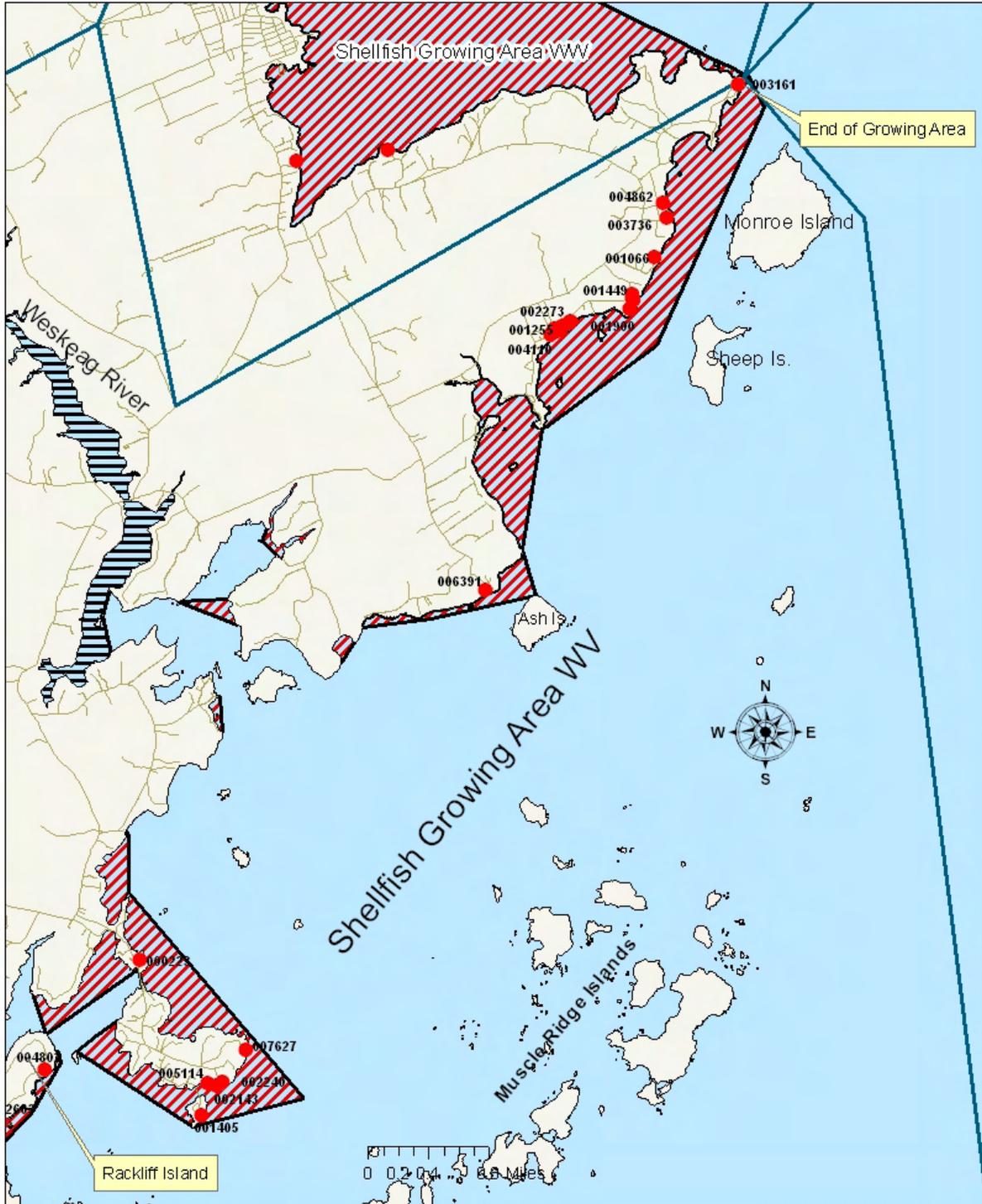


Maine Department of Marine Resources

2007 Triennial Review Shellfish Growing Area WV
Active Licensed Overboard Discharges Eastern Portion



4/22/08





Animal Impact

The majority of the animal farms in Shellfish Growing Area WV are small backyard paddocks consisting of a few horses or sheep (Table 9, Figure11). There is a cow farm (AF#10) that at one time contained 16 cows which grazed in a field and stream that bordered on the Weskeag River. A field agent from Department of Agriculture was contacted in 2004 to inspect the fencing around the pasture. He recommended that a new fence be installed along the drainage into the Weskeag River. The fence was installed and the water quality data at station WV 49 has shown improvement with a current P90 score of 30.9. Additionally, the farm has reduced the number of animals on site to four cows.

Table 8. Farms in Shellfish Growing Area WV

Site#	Town	Tax Map #	Lot#	Animal	# On Site	Distance from shore or stream	Comments
AF1	St George	33	17	Horses	2	15' from stream	Near WV3
AF2	St George	33	31	Horse	2	30'	Near WV4
AF3	St George	31	17	Horses	3	100'	Near WV4
AF4	St George	28	17	Horses	2	150'	
AF5	St George	26	13	Horses	2	8' to pond	
AF6	St George	1	77	Horses	5	1000'	miniature horses
AF7	St George	17	13&10	Horse Cows Chickens Dogs	1 4 13 2	50'	Near WV 29, wet site
AF8	S. Thomaston	5	20-2 & 22-2	Horses Donkey	2 1	400'	Near WV47
AF9	S. Thomaston			Sheep	?	100	seasonal
AF10	S. Thomaston	10	14	Cows	4	30' from stream	Near WV49
AF11	S. Thomaston	9?	27?	Horses	5	100' to stream	
AF12	S. Thomaston	15	7	Horses	2	150'	Near WV52
AF13	S. Thomaston	15	34	Horses Ducks	2 12	500'	
AF14	Undeclared territory-State			Sheep	Approx. 6	100'	Dix Is.
AF15	St George	10	1	Sheep	12?	graze entire island	Mosquito Is.

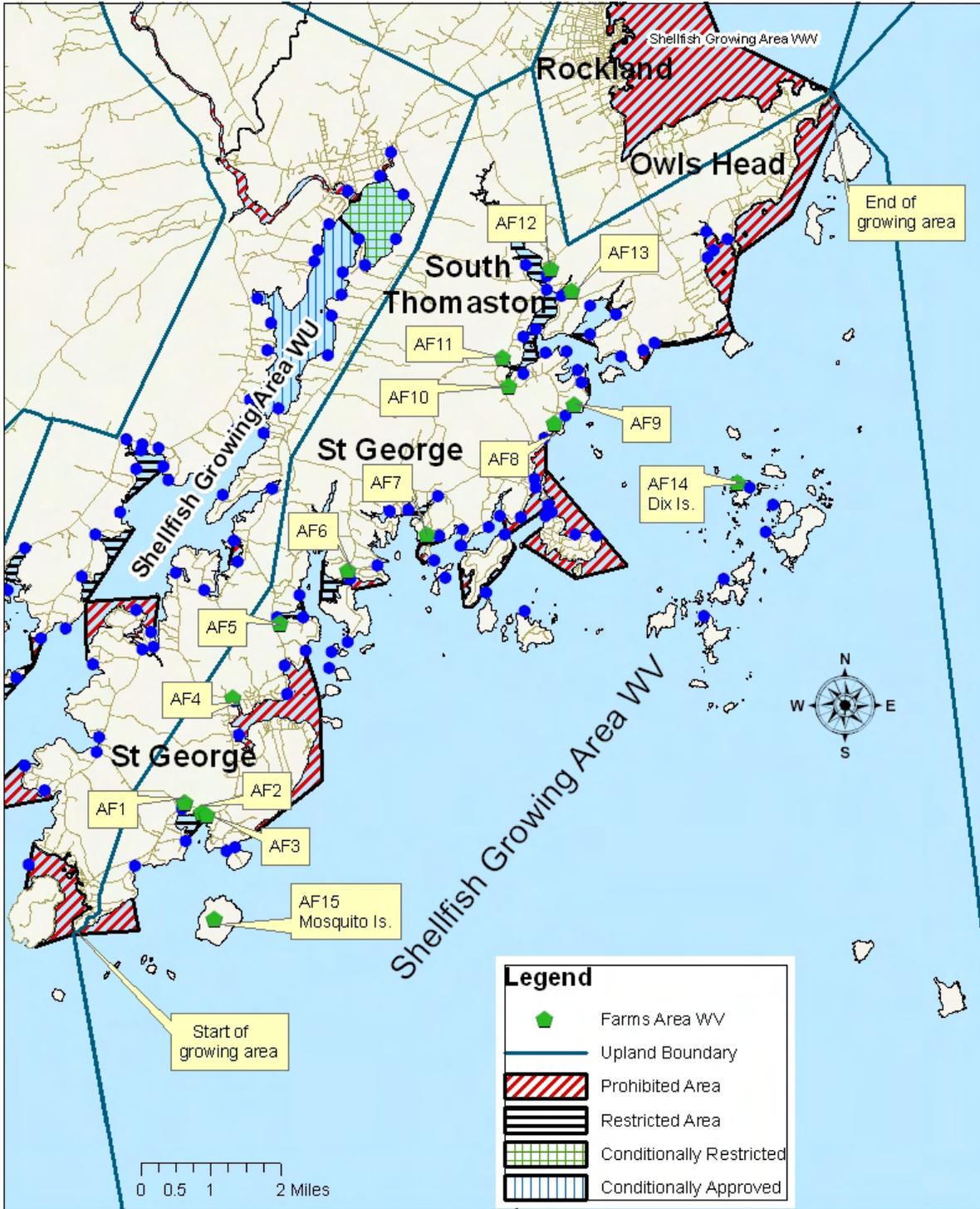


Figure 11. Farming Operations Shellfish Growing Area WV



Maine Department of Marine Resources 2007 Triennial Review Shellfish Growing Area WV Farming Operations and Water Sampling Stations

3/22/08





Municipal Treatment

There are no municipal Treatment Facilities in Shellfish Growing Area WV. The closest treatment facility to this growing area is located in the town of Rockland in shellfish growing area WW. This facility is more than three miles away from any of the waters in shellfish growing area WV.

Industry

The town of Owls Head has a small municipal airport. The Knox County Regional Airport property borders on a drainage to Ballyhac Cove on the Weskeag River. The airport came under intense public scrutiny in recent years due to their plans to enlarge their aircraft parking area. Residents and environmentalists were concerned that an increase in the airport's capacity would allow an increased amount of airport by-product contaminants to reach the drainages that flow into the Weskeag River. Knox County Regional Airport follows guideline standards outlined in the EPA and DEP Spill Prevention Encounter Measures Control Plan. They have a groundwater well monitoring plan in place for monitoring five wells around the property. The wells are tested four times a year for gasoline, diesel, lead and an array of organic contaminants. To date, the tests have confirmed that the levels of the noted contaminants are low. The use of De-icing fluid was specifically addressed in the Airport's license agreement. The use of this fluid is restricted to the inside of the airplane hangars and on one location of the parking area where control measures are in place to contain potential spills. The use of de-icing fluid is allowed only under extreme weather conditions.

Marine Businesses

In Sprucehead, Tenants Harbor, and Owls Head, there are several lobster buying stations. Nearby the lobster buying stations there are often mooring areas for the many lobster boats that fish in surrounding waters. The mooring areas are illustrated on the pollution source map in Figure 8. All of the mooring areas are located in areas classified as prohibited.

Tenants Harbor has a new marine facility, managed by Lyman Morse of Thomaston that serves the cruising boats that come to the harbor. This facility provides fuel, water and limited dock space with electricity. They also have five moorings available for rent. Just south of this facility is the Cod End restaurant. Cod End is a restaurant that also buys and sells fish and has fuel and 20 moorings available for cruising boats. Although Tenants Harbor is considered a "no discharge" harbor, it is not strictly enforced. Tenants Harbor is currently in a closure zone of 621.4 acres.

Parks and Recreational Areas

Owls Head Light State Park and Birch Point State Park are both located in Shellfish Growing Area WV. The Owls Head Light State Park is located at the northern tip of the growing area in the town of Owls Head. This park consists of small hiking trails, beaches, and a lighthouse that is open to the public for daytime use only. State maintained outhouses are located nearby the public parking areas.

Birch Point State Park is located in the town of South Thomaston. This park consists of small trails along the shore and a sandy beach, and is open for daytime use only. State maintained outhouses are located nearby the public parking areas. This park has become a popular spot for people to walk their dogs. A sign at the entrance to the beach area states that dogs must be on a leash and dog owners must clean up after their dogs. The park does not have a full time park ranger on duty. There is no enforcement of the dog rules at the beach. Dog waste can be seen all along the beach and along the approach to the beach. Before this area was opened as a state



park the water quality met approved standards. The area now has intermittently elevated scores and no longer meets approved standards.

The Ralf Waldo Tyler Wildlife Management Area is a large marsh consisting of 618 acres that is owned and managed by the Maine Department of Inland Fisheries and Wildlife (IF&W). This management area is located in the upper most portion of the Weskeag River in the town of South Thomaston and includes most of the upstream section of the Weskeag River Marsh. The downstream section of the Weskeag estuary includes an additional 740 acres of salt marsh. The Weskeag Marsh ranks as the most productive shorebird site in the Muscongus Bay Region. IF&W is presently in the process of conducting marsh restoration work, including the plugging of 33 old, man-made ditches, in order to prevent excessive drainage and allow the reestablishment of pool habitat on the marsh surface. IF&W have also enlarged an undersized culvert under Buttermilk Lane to allow for more natural flow of seawater in the upper marsh, and will be conducting pre- and post-restoration monitoring of the marsh. The marsh is open to the public for daytime use and is a popular spot for bird enthusiasts.

The locations of state parks and the Ralf Waldo Tyler Wildlife Management Area are illustrated in Figure 8.

Streams

Streams were sampled in the western part of the growing area during the 2004 shoreline survey of the area. During the triennial review of the area, streams were sampled at four sites that were suspected of being problematic due to either nearby animal activity or a suspected septic malfunction in the area (Table 10). Additional stream data will be collected in the eastern part of the growing area as part of the shoreline survey assessment for the 2008 Sanitary Survey of this portion of the growing area. While three of the sampled streams had low fecal coliforms, stream 3S2 had high scores. This stream abuts a horse farm that borders on the head of Mosquito Harbor, and the high score suggests that it may be impacted by run-off from the horse farm. The head of Mosquito Harbor is currently classified as restricted for shellfish harvest and water quality is monitored by station WV3, located near the stream. Currently, water quality at WV3 meets approved standards, with a P90 score of 34.7, however, the area is classified as restricted, due to recent high fecal scores. This area will remain classified as restricted until it can be shown that the water quality scores have stabilized. Further stream sampling, under a variety of meteorological conditions should be completed in 2008, to further investigate the impact of the stream on Mosquito Harbor.

Table 9. Streams fecal coliform scores, 2007

Location	Date	Fecal	Stream dimension W=width inches D=depth inches S=seconds over 10' section	Remarks	Current Classification
1S1	12/11/07	7.3	19Wx3Dx6S	24" culvert	approved
1S2	12/11/07	6	23Wx2.5Dx10S		approved
3S1	12/11/07	4	21Wx4Dx9S		restricted
3S2	12/11/07	900	33Wx3Dx10	Horses near stream	restricted



Hydrographic and Meteorological Characteristics

There have been no hydrographic studies conducted in this area. The coastline in this portion of shellfish growing area WV borders on large coves or open ocean, and the Weskeag River estuary is the only large drainage in this growing area. While the Weskeag River is called a "river" it is largely tidal and a large portion of the estuary flats out at low tide. There are no municipal treatment facilities, or large businesses in the Weskeag River estuary. Only a few lobstermen fish from the Weskeag because there is limited space for moorings due to the depth of the water.

Tidal Impacts

Area WV is subject to a semidiurnal tidal cycle with two high tides and two low tides per day. In Tenants Harbor, which is located in the middle of the study area, the elevation of the mean high tide is 9.3 feet and the mean spring tide is 10.6 feet. Water movement along the immediate shore in this section of the coast is largely tidal. There are no river systems in the area of study. A tidal impact assessment will be done as part of the sanitary survey report of the eastern portion of the growing area in 2008.

Rainfall

Each region in the state is assigned a rainfall reporting station that is responsible for reporting on a monthly basis, the rainfall amounts for that geographic region. In area WV, the rainfall amounts are monitored at the Port Clyde reporting station (stations WV1-WV47.5) and at Thomaston Treatment Facility (stations WV48-WV89). All rainfall is entered monthly into the DMR database. The database is capable of showing both the rainfall amount for a period of up to four days prior to and including the sampling date.

For this review, regression analysis was used to determine the impact of rainfall on fecal coliform scores at seven water quality monitoring stations. Cumulative rainfall amounts within 48 and 72 hours of collection were used for these analyses. Stronger relationships were established using the cumulative rainfall data within 72 hours of sample collection; therefore, only results using the 72 hours of rainfall are presented in this report. The seven stations that were selected for regression analyses were chosen based on the fluctuation of water quality scores over the past four years (30 most recent data points).

Regression analysis showed a significant, but very weak relationship ($r^2=0.10$, Figure 12) between rainfall and fecal coliform scores at station WV 3, located in the restricted area of Mosquito Cove. This result suggests that rainfall has only a minor impact on the variation in fecal coliform scores at site WV3, explaining only 10 percent of the data variability. All six sampling stations located on the Weskeag River showed significant relationships between rainfall and fecal coliform scores, however, the strength of these relationships varied by site (Figure 13). Station WV 50.8, located in the upper section of the river showed significant, but weak relationship between rainfall and fecal coliform scores ($r^2=0.35$). The two stations located on the western shore of the river also showed significant but weak relationships, with r^2 values of 0.40 and 0.10 for stations WV 50 and 50.5, respectively. Similarly, stations WV 49, located in the lower portion of the Weskeag River restricted area, and station WV 54, located in the mid section of the eastern shore of the river had significant, but weak relationships, with r^2 values of 0.13 and 0.38, respectively. However, station WV52, located slightly north of station WV 54 showed a strong relationship between rainfall and fecal coliform scores, with rainfall explaining over 93 percent of the variability in fecal coliform scores ($r^2=0.931$). These results suggest that since rainfall has only a minor impact of the variation of fecal coliform scores at most sites in the Weskeag, the single



strong relationship at station WV 52 is driven by a local source, rather than upstream run-off. Site WV 52 is located near a stream that flows through the east side of the Weskeag village area, and this area is one of the more developed sections of shore along the River. The strong rainfall relationship at this site indicates that run-off from the village, which is transported to the river via the stream, has a significant impact on water quality, however this impact is limited to the area near the mouth of the stream, and does not appear to impact water quality at any of the near-by sampling stations. In the future, more stream sampling, under a variety of rainfall conditions, needs to be completed. Stream flow should also be determined.

Figure 12. Relationship between rainfall (72 hours prior to sample collection) and fecal coliform scores, Mosquito Cove

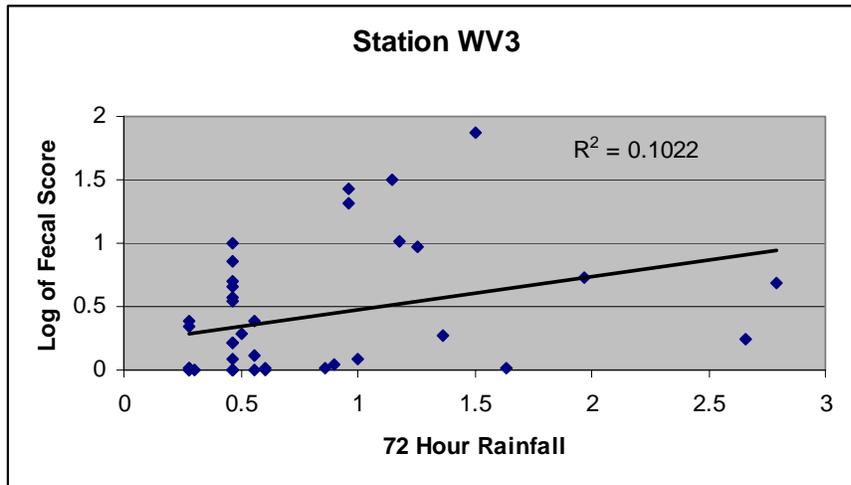
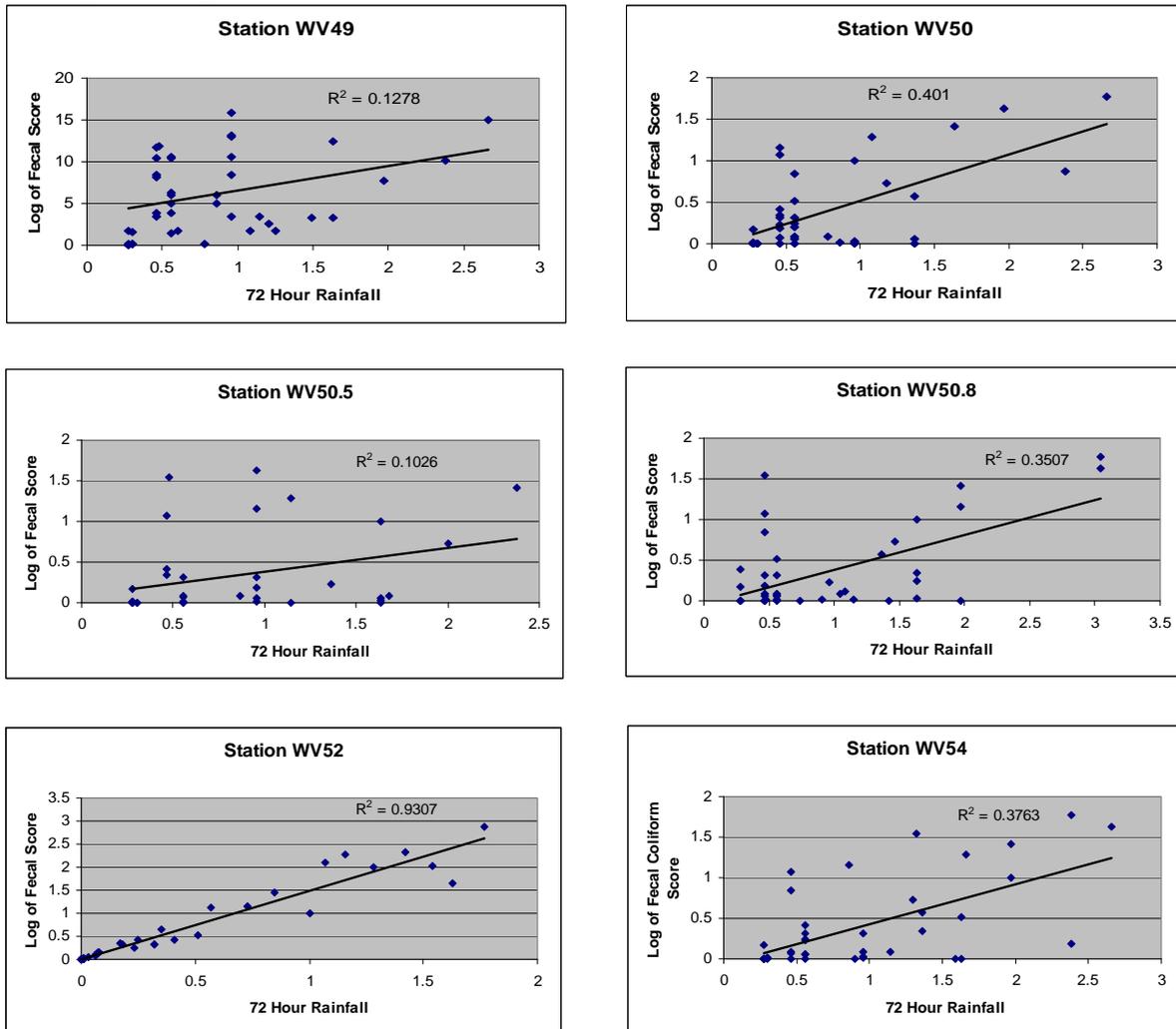




Figure 13. Relationship between rainfall (72 hours prior to sample collection) and fecal coliform scores, Weskeag River





Aquaculture/ Wet Storage Activity

Currently, there are five active aquaculture leases in area WV. All aquaculture activity is located in the Weskeag River.

Summary

Review of the survey and water quality data support the present classifications within this growing area. Three sites that were reclassified to restricted half way through the 2007 sampling season once again have water quality scores that meet approved standards, however, the area should remain classified as restricted until steady fecal coliform scores are obtained year round. No changes in classification are being recommended at this time

The water quality at the head of Mosquito Harbor (near station WV3) is being impacted by runoff from the horse enclosure that borders on streams flowing into the harbor. Additional stream data needs to be collected to determine the extent of the impact. After more stream data has been collected, a dilution calculation should be completed to determine the necessary size of the shellfish closure.

The shoreline survey of the area from Watermans Beach to Birch Point State Park will be completed in 2008. The survey area will be extended beyond Birch Point State Park if time permits. Streams identified during the survey will be sampled multiple times, to assess their potential impact on water quality under both wet and dry conditions.



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 chosen to switch to a fecal coliform method that was approved for use in the National Shellfish Sanitation Program (NSSP) at the Interstate Shellfish Sanitation Conference in 2003. This method is the Membrane Filtration (MF) 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. The FDA has determined that the best way to handle the data is to perform the calculations as always for the data set, but to compare the data set to a hybrid weighted 90th percentile. This hybrid standard is calculated by weighting the relative contributions of each method to the database. This will mean that as the number of MPN data points reduce and the number of MF data points increase the 90th percentile standard that the sample site is compared to will change over time.

Once all 30 data points are analyzed using MF, the 90th percentile for approved classification will be 31 and for restricted (for depuration) will be 163. The geomean approved standard of 14 fecal coliforms per 100 ml and geomean restricted standard of 88 fecal coliforms per 100 ml will remain the same for both methods.

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



Appendix C. P90 scores (expressed as percent of approved standard) for 2003-2007

Station ID	2003	2004	2005	2006	2007
WV001.00	181.43	89.18	42.45	41.91	49.07
WV002.00	16.94	15.10	14.08	12.13	13.02
WV003.00	99.80	97.76	110.00	110.00	84.63
WV004.00	77.35	77.14	58.98	42.98	28.84
WV006.00	153.27	90.82	102.65	82.55	52.56
WV006.50	20.00	19.80	35.31	27.87	31.40
WV008.00	58.57	88.37	105.10	108.00	149.02
WV010.00	128.16	138.16	143.88	130.22	131.46
WV013.00	39.59	31.22	39.18	18.94	36.05
WV014.00	29.80	18.37	20.82	31.91	65.35
WV016.00	13.67	13.88	12.65	12.34	18.14
WV016.50	103.47	48.57	40.82	11.28	41.16
WV017.00	27.55	24.08	26.33	58.09	209.07
WV018.00	18.98	14.90	12.65	9.79	34.88
WV019.00	43.88	44.90	46.94	48.30	35.12
WV020.50	14.08	15.10	15.71	30.21	45.81
WV022.00	56.53	55.71	48.16	80.00	73.26
WV024.00	94.69	66.12	66.94	81.70	63.02
WV025.00	51.02	43.88	54.08	48.94	55.58
WV026.00	36.33	35.31	50.61	56.81	63.72
WV027.00	83.88	67.35	71.22	94.04	69.30
WV028.00	251.22	240.61	154.08	147.61	110.00
WV029.00	58.57	62.65	91.84	147.08	244.19
WV030.00	54.49	102.04	171.22	301.06	460.70
WV031.00	21.63	20.41	22.86	24.04	62.09
WV032.00	16.53	18.57	40.20	44.04	47.67
WV035.00	30.20	30.00	28.78	31.70	23.72
WV036.00	63.27	58.98	56.12	66.81	63.49
WV037.00	38.98	33.47	38.37	50.64	34.42
WV038.00	39.59	36.53	84.69	101.28	90.93
WV039.00	58.98	47.14	47.14	55.22	58.33
WV040.00	16.73	17.76	19.59	20.43	25.12
WV041.00	32.65	25.31	35.10	40.43	50.00
WV044.00	58.16	65.71	74.69	84.89	76.98
WV045.00	70.82	70.82	104.49	58.70	77.44
WV046.00	19.80	11.84	18.78	21.70	23.26
WV046.50	82.86	48.98	57.55	90.00	60.00
WV046.80	36.12	33.06	40.20	64.47	56.98
WV047.00	85.31	70.00	56.53	60.00	46.28
WV048.00	40.61	37.76	38.98	34.78	41.79
WV048.50	82.45	84.90	41.02	25.11	20.93
WV048.80	0.00	40.82	25.71	27.73	29.53
WV049.00	171.84	173.88	174.08	118.91	75.37
WV050.00	149.80	136.73	85.92	101.09	69.52
WV050.50	169.39	205.51	200.00	102.13	111.43



Station ID	2003	2004	2005	2006	2007
WV050.80	226.53	243.88	178.16	143.40	162.79
WV052.00	110.61	129.80	133.06	95.74	102.56
WV053.00	84.08	95.51	98.16	66.60	59.77
WV054.00	162.24	172.86	193.27	192.34	121.63
WV055.00	119.18	101.22	89.18	92.77	64.65
WV056.00	28.78	32.45	41.63	75.00	79.05
WV057.00	153.47	144.08	135.71	212.17	301.43
WV058.00	30.20	30.00	27.76	34.26	36.98
WV059.00	17.14	18.16	22.65	23.62	20.23
WV060.00	57.35	104.69	91.43	112.55	106.51
WV061.00	27.55	22.65	14.29	16.17	18.37
WV062.50	63.27	77.96	75.92	74.47	83.02
WV063.00	84.49	72.04	106.33	105.43	90.95
WV064.00	120.61	195.92	202.24	195.87	290.48
WV065.00	59.39	46.73	76.12	64.26	47.44
WV077.00	6.53	6.73	7.96	8.72	10.93
WV078.00	10.61	10.61	10.82	13.40	10.70
WV079.00	6.53	9.59	11.63	12.34	13.26
WV080.00	6.53	6.53	9.59	10.00	10.70
WV081.00	6.53	6.53	8.37	9.57	10.47
WV083.00	6.53	6.53	6.73	7.23	7.91
WV084.00	6.33	6.53	12.45	12.77	13.26
WV085.00	7.76	7.55	7.76	9.15	8.84
WV086.00	12.86	13.67	14.69	29.36	31.40
WV087.00	15.10	15.92	14.29	17.87	19.07
WV088.00	5.92	6.53	6.53	7.23	7.91
WV089.00	10.41	10.41	6.53	7.23	7.91



Appendix D. Water quality data for 2007

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV001.00	02/21/07	LL	F	1	32	R	-	O	A	<2.0
WV001.00	05/23/07	FP	E	10	29	R	-	O	A	<2.0
WV001.00	06/12/07	MHE	HE	11	29	R	-	O	A	<2.0
WV001.00	08/08/07	EXT	E	13	30	R	P	O	A	10
WV001.00	09/25/07	EXT	HF	11	32	R	-	O	A	<2.0
WV001.00	12/10/07	FP	HF	5	31	R	-	O	A	29
WV002.00	02/21/07	LL	F	1	32	R	-	O	A	<2.0
WV002.00	05/23/07	FP	LE	10	30	R	-	O	A	3.6
WV002.00	06/12/07	MHE	HE	11	29	R	-	O	A	2
WV002.00	08/08/07	EXT	E	13	31	R	P	O	A	<2.0
WV002.00	09/25/07	EXT	HF	11	32	R	-	O	A	<2.0
WV002.00	12/10/07	FP	HF	5	31	R	-	O	A	<2.0
WV003.00	02/21/07	LL	F	1	30	R	-	O	A	<2.0
WV003.00	05/23/07	FP	E	11	22	R	-	O	R	10
WV003.00	06/12/07	MHE	HE	12	29	R	-	O	R	8
WV003.00	08/08/07	EXT	E	15	29	R	P	O	R	32
WV003.00	09/25/07	EXT	H	12	32	R	-	O	R	4
WV003.00	12/10/07	FP	HF	5	30	R	-	O	R	<2.0
WV004.00	02/21/07	LL	F	1	32	R	-	O	A	<2.0
WV004.00	05/23/07	FP	E	10	30	R	-	O	A	<2.0
WV004.00	06/12/07	MHE	HE	11	28	R	-	O	A	<2.0
WV004.00	08/08/07	EXT	E	13	31	R	P	O	A	4
WV004.00	09/25/07	EXT	H	12	32	R	-	O	A	40
WV004.00	12/10/07	FP	HF	2	31	R	-	O	A	2
WV006.00	02/21/07	LL	F	1	32	R	-	C	P	<2.0
WV006.00	05/23/07	FP	LE	9	30	R	-	O	A	<2.0
WV006.00	06/12/07	MHE	HE	12	29	R	-	O	A	<2.0
WV006.00	08/08/07	EXT	E	9	31	R	P	O	A	2
WV006.00	09/25/07	EXT	H	11	32	R	-	O	A	2
WV006.00	12/10/07	FP	HF	5	32	R	-	O	A	<2.0
WV006.50	02/21/07	LL	F	1	32	R	-	O	A	<2.0
WV006.50	05/23/07	FP	LE	11	28	R	-	O	A	2
WV006.50	06/12/07	MHE	HE	13	28	R	-	O	A	6
WV006.50	08/08/07	EXT	E	12	31	R	P	O	A	11
WV006.50	09/25/07	EXT	H	11	32	R	-	O	A	<2.0
WV006.50	12/10/07	FP	H	5	31	R	-	O	A	<2.0
WV008.00	02/21/07	LL	F	1	32	R	-	C	P	<2.0
WV008.00	05/29/07	FP	H	10	30	R	-	C	P	<2.0
WV008.00	06/12/07	MHE	E	13	28	R	-	C	P	10
WV008.00	08/08/07	EXT	E	14	30	R	P	C	P	88
WV008.00	09/25/07	EXT	H	11	32	R	-	C	P	15
WV008.00	12/10/07	FP	HF	3	30	R	W	C	P	2



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV010.00	02/21/07	LL	F	1	30	R	-	C	P	<2.0
WV010.00	05/29/07	FP	H	11	30	R	-	C	P	6
WV010.00	06/12/07	MHE	E	13	28	R	-	C	P	34
WV010.00	08/08/07	EXT	E	15	29	R	P	C	P	136
WV010.00	09/25/07	EXT	H	11	32	R	-	C	P	25
WV010.00	12/10/07	FP	H	2	30	R	W	C	P	2
WV013.00	02/21/07	LL	F	1	32	R	-	C	P	<2.0
WV013.00	05/23/07	FP	LE	15	26	R	-	C	P	18
WV013.00	06/12/07	MHE	E	13	28	R	-	C	P	58
WV013.00	08/08/07	EXT	E	13	31	R	P	C	P	15
WV013.00	09/25/07	EXT	H	11	32	R	-	C	P	10
WV013.00	12/10/07	FP	H	5	30	R	-	C	P	2
WV014.00	02/21/07	LL	F	1	32	R	-	C	P	<2.0
WV014.00	05/23/07	FP	L	15	25	R	-	C	P	13
WV014.00	06/12/07	MHE	E	12	28	R	-	C	P	80
WV014.00	08/08/07	EXT	E	14	31	R	P	C	P	14
WV014.00	09/25/07	EXT	HE	13	32	R	-	C	P	220
WV014.00	12/10/07	FP	H	3	30	R	-	C	P	<2.0
WV016.00	02/21/07	LL	F	1	32	R	-	O	A	<2.0
WV016.00	05/23/07	FP	L	9	29	R	-	O	A	<2.0
WV016.00	06/12/07	MHE	E	13	28	R	-	O	A	<2.0
WV016.00	08/08/07	EXT	E	13	31	R	P	O	A	72
WV016.00	09/25/07	EXT	HE	10	32	R	-	O	A	<2.0
WV016.00	12/10/07	FP	H	3	32	R	-	O	A	<2.0
WV016.50	02/21/07	LL	F	1	30	R	-	O	A	<2.0
WV016.50	05/23/07	FP	L	15	29	R	-	O	A	<2.0
WV016.50	06/12/07	MHE	E	12	29	R	-	O	A	10
WV016.50	08/08/07	EXT	E	15	28	R	P	O	A	1200
WV016.50	09/25/07	EXT	HE	12	32	R	-	O	A	<2.0
WV016.50	12/10/07	FP	H	2	30	R	-	O	A	<2.0
WV017.00	02/21/07	LL	F	-1	30	R	-	O	A	<2.0
WV017.00	06/12/07	MHE	E	14	28	R	-	O	A	>1600
WV017.00	08/08/07	EXT	LE	15	24	R	P	O	A	>1600
WV017.00	09/25/07	EXT	HE	12	32	R	-	O	A	<2.0
WV017.00	11/26/07	FP	H	6	32	R	-	O	R	3.6
WV017.00	12/10/07	FP	H	3	30	R	-	O	R	<2.0
WV018.00	02/21/07	LL	F	1	32	R	-	O	A	<2.0
WV018.00	03/19/07	FP	H	0	30	A	F	C	A	<2.0
WV018.00	03/20/07	LL	F	2	32	A	F	C	A	<2.0
WV018.00	03/21/07	LL	F	1	31	A	F	C	A	<2.0
WV018.00	04/19/07	FP	F	-2	29	A	F	C	A	2
WV018.00	04/20/07	FP	F	1	28	A	F	C	A	<2.0
WV018.00	05/23/07	FP	L	10	27	R	-	O	A	<2.0



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV018.00	06/12/07	MHE	E	14	28	R	-	O	A	13
WV018.00	08/08/07	EXT	LE	15	31	R	P	O	A	740
WV018.00	09/25/07	EXT	HE	12	32	R	-	O	A	<2.0
WV018.00	10/15/07	FP	F	13	30	A	F	C	A	<2.0
WV018.00	10/16/07	FP	F	12	32	A	F	C	A	2
WV018.00	11/05/07	EXT	E	7	25	A	F	C	A	136
WV018.00	11/06/07	EXT	E	7	31	A	FP	C	A	13
WV018.00	11/07/07	EXT	HE	7	32	A	F	C	A	2
WV018.00	12/10/07	FP	H	4	32	R	-	O	A	2
WV019.00	02/21/07	LL	F	-1	30	R	-	O	A	<2.0
WV019.00	05/29/07	FP	H	14	30	R	-	O	A	2
WV019.00	06/12/07	MHE	E	13	28	R	-	O	A	3.6
WV019.00	08/15/07	EXT	H	18	32	R	-	O	A	<2.0
WV019.00	09/25/07	EXT	HE	19	32	R	-	O	A	8
WV019.00	12/10/07	FP	HE	3	30	R	-	O	A	<2.0
WV020.50	02/21/07	LL	HF	-1	30	R	-	O	A	<2.0
WV020.50	05/29/07	FP	HE	13	29	R	-	O	A	6
WV020.50	06/12/07	MHE	E	15	27	R	-	O	A	16
WV020.50	08/08/07	EXT	L	15	29	R	P	O	A	70
WV020.50	09/25/07	EXT	E	14	32	R	-	O	A	4
WV020.50	12/10/07	FP	HE	2	30	R	-	O	A	<2.0
WV020.80	09/25/07	EXT	E	13	32	R	-	O	R	<2.0
WV020.80	11/26/07	FP	H	6	32	R	-	O	R	2
WV020.80	12/10/07	FP	HE	2	30	R	-	O	R	<2.0
WV022.00	02/21/07	LL	HF	-1	26	R	-	O	A	<2.0
WV022.00	05/29/07	FP	HE	11	28	R	-	O	A	440
WV022.00	06/12/07	MHE	E	15	30	R	-	O	A	4
WV022.00	08/15/07	EXT	H	19	32	R	-	O	A	5.5
WV022.00	09/25/07	EXT	E	15	32	R	-	O	A	4
WV022.00	12/10/07	FP	HE	2	30	R	-	O	R	2
WV024.00	02/21/07	LL	HF	1	30	R	-	O	A	<2.0
WV024.00	05/29/07	FP	HE	11	32	R	-	O	A	<2.0
WV024.00	06/14/07	EXT	HF	13	30	R	-	O	A	4
WV024.00	08/15/07	EXT	H	14	32	R	-	O	A	9.1
WV024.00	09/25/07	EXT	E	13	32	R	-	O	A	6
WV024.00	12/10/07	FP	HE	2	32	R	-	O	A	2
WV025.00	05/23/07	FP	LF	15	25	R	-	O	A	<2.0
WV025.00	06/12/07	MHE	E	13	28	R	-	O	A	9.1
WV025.00	07/16/07	EXT	F	19	30	R	P	O	A	2
WV025.00	08/08/07	EXT	L	15	29	R	P	O	A	102
WV025.00	09/25/07	EXT	E	14	32	R	-	O	A	<2.0
WV025.00	12/10/07	FP	HE	3	30	R	-	O	A	<2.0
WV026.00	01/29/07	EXT	E	-2	31	R	-	O	A	6



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV026.00	03/26/07	EXT	E	-1	20	R	-	O	A	120
WV026.00	05/15/07	FP	F	10	26	R	P	O	A	8
WV026.00	07/16/07	EXT	F	17	30	R	P	O	A	33
WV026.00	09/05/07	MHE	E	14	32	R	-	O	A	2
WV026.00	10/31/07	MHE	L	6	26	R	P	O	A	20
WV026.50	09/05/07	MHE	E	14	32	R	-	O	R	2
WV026.50	10/31/07	MHE	L	7	32	R	P	O	R	10
WV026.50	11/26/07	FP	HE	6	32	R	-	O	R	2
WV027.00	01/29/07	EXT	E	-2	31	R	-	O	A	<2.0
WV027.00	03/26/07	EXT	LE	1	18	R	-	O	A	8
WV027.00	05/15/07	FP	F	9	26	R	P	O	A	12
WV027.00	07/16/07	EXT	F	17	30	R	P	O	A	24
WV027.00	09/05/07	MHE	E	14	32	R	-	O	R	24
WV027.00	10/31/07	MHE	LF	8	31	R	P	O	A	7.3
WV028.00	01/29/07	EXT	E	-2	31	R	-	C	P	<2.0
WV028.00	03/26/07	EXT	E	-2	8	R	N	C	P	10
WV028.00	05/15/07	FP	F	10	28	R	P	C	P	<2.0
WV028.00	07/16/07	EXT	F	19	28	R	P	C	P	46
WV028.00	09/06/07	MHE	HE	12	32	R	-	C	P	2
WV028.00	10/31/07	MHE	F	9	28	R	P	C	P	10
WV028.50	09/05/07	MHE	E	14	32	R	-	O	R	<2.0
WV028.50	10/31/07	MHE	F	10	32	R	PW	O	R	6
WV028.50	11/07/07	FP	HF	10	32	A	F	C	R	4
WV028.50	11/26/07	FP	HE	6	32	R	-	O	R	2
WV029.00	01/29/07	EXT	E	-2	31	R	-	C	P	<2.0
WV029.00	05/15/07	FP	F	10	26	R	PW	C	P	>1600
WV029.00	05/29/07	FP	HE	11	30	R	-	C	P	<2.0
WV029.00	07/16/07	EXT	F	17	30	R	P	C	P	136
WV029.00	09/05/07	MHE	E	14	32	R	-	C	P	2
WV029.00	10/31/07	MHE	F	10	32	R	P	C	P	<2.0
WV030.00	01/29/07	EXT	E	-2	31	R	-	C	P	<2.0
WV030.00	05/15/07	FP	HF	10	26	R	P	C	P	>1600
WV030.00	05/29/07	FP	HE	14	28	R	-	C	P	6
WV030.00	07/16/07	EXT	F	17	30	R	P	C	P	138
WV030.00	09/06/07	MHE	HE	12	34	R	-	C	P	<2.0
WV030.00	10/31/07	MHE	F	9	35	R	P	C	P	<2.0
WV031.00	01/29/07	EXT	E	-2	31	R	-	O	A	<2.0
WV031.00	05/15/07	FP	HF	10	26	R	P	O	A	>1600
WV031.00	05/29/07	FP	HE	14	28	R	-	O	A	<2.0
WV031.00	07/16/07	EXT	F	17	30	R	P	O	A	18
WV031.00	09/05/07	MHE	E	15	32	R	-	O	A	<2.0
WV031.00	10/31/07	MHE	F	10	33	R	P	O	A	6



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV032.00	01/29/07	EXT	E	0	32	R	-	O	A	<2.0
WV032.00	03/19/07	FP	H	-1	30	A	F	C	A	<2.0
WV032.00	03/20/07	FP	H	0	30	A	F	C	A	<2.0
WV032.00	03/21/07	FP	F	-3	32	A	F	C	A	<2.0
WV032.00	03/26/07	EXT	LE	1	31	R	-	O	A	<2.0
WV032.00	04/19/07	FP	F	-1	29	A	F	C	A	<2.0
WV032.00	04/20/07	FP	F	0	27	A	F	C	A	<2.0
WV032.00	05/15/07	FP	HF	10	26	R	P	O	A	2
WV032.00	07/16/07	EXT	F	17	30	R	P	O	A	6
WV032.00	09/05/07	MHE	E	14	32	R	-	O	A	<2.0
WV032.00	10/15/07	FP	F	12	30	A	F	C	A	<2.0
WV032.00	10/16/07	FP	F	12	32	A	F	C	A	18
WV032.00	10/31/07	MHE	LF	10	32	R	P	O	A	6
WV032.00	11/05/07	EXT	E	C	A	F	C	A	-	CL
WV032.00	11/06/07	EXT	E	7	32	A	FP	C	A	9.1
WV032.00	11/07/07	EXT	HE	6	32	A	F	C	A	<2.0
WV035.00	01/29/07	EXT	E	-1	30	R	-	O	A	<2.0
WV035.00	03/26/07	EXT	LE	2	30	R	-	O	A	2
WV035.00	05/15/07	FP	HF	10	28	R	P	O	A	<2.0
WV035.00	07/16/07	EXT	F	17	30	R	P	O	A	<2.0
WV035.00	09/05/07	MHE	E	14	32	R	-	O	A	<2.0
WV035.00	10/31/07	MHE	LF	9	32	R	P	O	A	2
WV036.00	01/29/07	EXT	E	0	32	R	-	O	A	<2.0
WV036.00	05/15/07	FP	HF	10	26	R	P	O	A	2
WV036.00	05/29/07	FP	HE	13	30	R	-	O	A	2
WV036.00	07/16/07	EXT	F	17	30	R	P	O	A	6
WV036.00	09/05/07	MHE	E	15	32	R	-	O	A	4
WV036.00	10/31/07	MHE	F	10	34	R	P	O	A	<2.0
WV036.50	01/29/07	EXT	E	-1	31	R	-	O	A	<2.0
WV036.50	03/26/07	EXT	LE	1	30	R	-	O	A	<2.0
WV036.50	05/15/07	FP	HF	9	28	R	P	O	A	2
WV036.50	07/16/07	EXT	F	13	30	R	P	O	A	<2.0
WV036.50	09/05/07	MHE	E	13	32	R	-	O	A	<2.0
WV036.50	10/31/07	MHE	F	7	33	R	P	O	A	<2.0
WV037.00	01/29/07	EXT	E	-1	31	R	-	O	A	2
WV037.00	03/19/07	FP	H	-1	31	A	F	C	A	<2.0
WV037.00	03/20/07	FP	H	0	32	A	F	C	A	<2.0
WV037.00	03/21/07	FP	F	-2	31	A	F	C	A	<2.0
WV037.00	04/19/07	FP	F	0	30	A	F	C	A	2
WV037.00	04/20/07	FP	F	0	28	A	F	C	A	<2.0
WV037.00	05/15/07	FP	HF	9	27	R	P	O	A	<2.0
WV037.00	05/29/07	FP	HE	13	30	R	-	O	A	<2.0
WV037.00	07/16/07	EXT	F	14	30	R	P	O	A	<2.0
WV037.00	09/05/07	MHE	LE	14	32	R	-	O	A	<2.0
WV037.00	10/15/07	FP	F	12	30	A	F	C	A	4
WV037.00	10/16/07	FP	F	11	31	A	F	C	A	2



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV037.00	10/17/07	FP	LF	-	A	F	C	A	-	<2.0
WV037.00	10/31/07	MHE	F	9	32	R	P	O	A	<2.0
WV037.00	11/05/07	FP	HE	10	30	A	F	C	A	11
WV037.00	11/06/07	FP	HF	10	32	A	F	C	A	24
WV037.00	11/07/07	FP	HF	10	32	A	F	C	A	24
WV038.00	01/29/07	EXT	E	0	30	R	-	O	A	<2.0
WV038.00	03/26/07	EXT	L	0	30	R	-	O	A	<2.0
WV038.00	05/15/07	FP	HF	9	28	R	P	O	A	<2.0
WV038.00	07/16/07	EXT	F	14	30	R	P	O	A	4
WV038.00	09/05/07	MHE	LE	15	32	R	-	C	P	<2.0
WV038.00	10/31/07	MHE	F	10	33	R	P	O	A	2
WV039.00	01/29/07	EXT	E	-2	31	R	-	C	P	<2.0
WV039.00	03/26/07	EXT	E	1	30	R	-	C	P	<2.0
WV039.00	05/15/07	FP	HF	10	27	R	P	C	P	15
WV039.00	07/16/07	EXT	HF	22	30	R	P	C	P	5.5
WV039.00	09/06/07	MHE	HE	12	34	R	-	C	P	2
WV039.00	10/31/07	MHE	F	8	32	R	P	C	P	60
WV040.00	01/29/07	EXT	E	-1	30	R	-	C	P	<2.0
WV040.00	03/26/07	EXT	E	-1	30	R	-	C	P	<2.0
WV040.00	05/15/07	FP	HF	9	26	R	P	C	P	4
WV040.00	07/16/07	EXT	HF	16	30	R	P	C	P	24
WV040.00	09/05/07	MHE	LE	15	32	R	-	C	P	2
WV040.00	10/31/07	MHE	F	11	32	R	P	C	P	4
WV041.00	03/26/07	EXT	E	0	30	R	-	C	P	<2.0
WV041.00	05/15/07	FP	H	9	27	R	P	C	P	<2.0
WV041.00	05/29/07	FP	E	14	30	R	-	C	P	<2.0
WV041.00	07/16/07	EXT	HF	13	30	R	P	C	P	4
WV041.00	09/06/07	MHE	E	11	32	R	-	C	P	<2.0
WV041.00	11/26/07	FP	HE	7	32	R	-	C	P	27
WV044.00	01/29/07	EXT	LE	0	30	R	-	C	P	<2.0
WV044.00	03/26/07	EXT	E	-1	30	R	-	C	P	<2.0
WV044.00	05/15/07	FP	H	6	29	R	PW	C	P	2
WV044.00	07/16/07	EXT	HF	14	30	R	P	C	P	<2.0
WV044.00	09/05/07	MHE	LE	14	32	R	-	C	P	4
WV044.00	10/31/07	MHE	F	10	32	R	PW	C	P	2
WV045.00	01/29/07	EXT	LE	0	32	R	-	C	P	<2.0
WV045.00	03/26/07	EXT	E	-1	28	R	-	C	P	<2.0
WV045.00	05/15/07	FP	H	8	28	R	P	C	P	<2.0
WV045.00	07/16/07	EXT	HF	13	30	R	P	C	P	148
WV045.00	09/05/07	MHE	LE	14	32	R	-	C	P	2
WV045.00	10/31/07	MHE	F	8	32	R	P	C	P	<2.0
WV046.00	01/29/07	EXT	LE	0	30	R	-	C	P	<2.0
WV046.00	03/26/07	EXT	E	-2	30	R	-	C	P	<2.0



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV046.00	05/15/07	FP	H	6	30	R	P	C	P	<2.0
WV046.00	07/16/07	EXT	HF	16	30	R	P	C	P	2
WV046.00	09/05/07	MHE	LE	14	32	R	-	C	P	2
WV046.00	10/31/07	MHE	F	8	33	R	P	C	P	<2.0
WV046.50	03/26/07	EXT	E	1	30	R	-	C	P	<2.0
WV046.50	05/15/07	FP	H	8	28	R	P	C	P	2
WV046.50	05/29/07	FP	E	11	30	R	-	C	P	2
WV046.50	07/16/07	EXT	HF	15	30	R	P	C	P	<2.0
WV046.50	09/06/07	MHE	E	12	33	R	-	C	P	<2.0
WV046.50	10/31/07	MHE	F	8	32	R	P	C	P	88
WV046.80	01/29/07	EXT	LE	1	30	R	-	O	A	<2.0
WV046.80	03/26/07	EXT	L	1	30	R	-	O	A	<2.0
WV046.80	05/15/07	FP	H	6	28	R	P	O	A	<2.0
WV046.80	07/16/07	EXT	HF	14	30	R	P	O	A	<2.0
WV046.80	09/05/07	MHE	L	15	32	R	-	O	A	<2.0
WV046.80	10/31/07	MHE	F	9	32	R	P	O	A	<2.0
WV047.00	01/29/07	EXT	L	0	30	R	-	O	A	<2.0
WV047.00	03/26/07	EXT	L	1	30	R	-	O	A	<2.0
WV047.00	05/15/07	FP	H	6	30	R	P	O	A	22
WV047.00	07/16/07	EXT	H	15	30	R	P	O	A	6
WV047.00	09/05/07	MHE	L	15	32	R	-	O	A	<2.0
WV047.00	10/31/07	MHE	F	9	32	R	P	O	A	2
WV047.50	01/29/07	EXT	L	0	30	R	-	C	P	<2.0
WV047.50	03/26/07	EXT	L	1	28	R	-	C	P	<2.0
WV047.50	05/15/07	FP	H	6	28	R	P	C	P	2
WV047.50	07/16/07	EXT	H	17	30	R	P	C	P	2
WV047.50	09/05/07	MHE	L	15	32	R	-	C	P	<2.0
WV047.50	10/31/07	MHE	F	10	32	R	P	C	P	4
WV047.50	11/14/07	FP	E	9	30	E	-	C	P	<2.0
WV048.00	02/26/07	FP	E	-3	31	R	-	O	A	13
WV048.00	04/23/07	FP	F	C	R	-	O	A	-	<2.0
WV048.00	06/12/07	EXT	E	14	29	R	-	O	A	2
WV048.00	08/08/07	LL	E	15	30	R	P	O	A	13
WV048.00	09/26/07	FP	F	14	31	R	-	O	A	9.1
WV048.00	12/12/07	LL	H	3	28	R	-	O	A	<2.0
WV048.50	02/26/07	FP	E	-	R	-	O	A	-	<2.0
WV048.50	03/19/07	FP	HE	-1	30	A	F	C	A	<2.0
WV048.50	03/20/07	FP	HF	0	31	A	F	C	A	<2.0
WV048.50	03/21/07	FP	F	-2	30	A	F	C	A	<2.0
WV048.50	04/19/07	FP	F	0	28	A	F	C	A	<2.0
WV048.50	04/20/07	FP	F	1	26	A	F	C	A	<2.0
WV048.50	04/23/07	FP	LF	C	R	-	O	A	-	<2.0
WV048.50	06/12/07	EXT	E	12	29	R	-	O	A	2
WV048.50	08/08/07	LL	E	15	30	R	P	O	A	4



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV048.50	09/26/07	FP	HF	12	30	R	-	O	A	6
WV048.50	10/15/07	FP	F	12	30	A	F	C	A	6
WV048.50	10/16/07	FP	LF	10	30	A	F	C	A	4
WV048.50	10/17/07	FP	LF	13	30	A	F	C	A	2
WV048.50	11/05/07	FP	E	10	30	A	F	C	A	31
WV048.50	11/06/07	FP	HF	10	31	A	F	C	A	13
WV048.50	12/10/07	EXT	HF	-3	30	R	P	O	A	4
WV048.80	02/26/07	FP	E	-	R	-	O	A	-	<2.0
WV048.80	04/23/07	FP	LF	C	R	N	O	A	-	2
WV048.80	06/12/07	EXT	LE	16	29	R	-	O	A	2
WV048.80	08/08/07	LL	E	15	30	R	P	O	A	18
WV048.80	09/26/07	FP	HF	14	31	R	-	O	A	13
WV048.80	12/10/07	EXT	HF	-1	30	R	P	O	A	<2.0
WV049.00	04/23/07	FP	F	2	26	R	-	O	R	<2.0
WV049.00	05/15/07	FP	HE	9	26	R	P	O	R	4
WV049.00	06/14/07	EXT	F	12	29	R	-	O	R	2
WV049.00	08/08/07	LL	E	16	30	R	P	O	R	3.6
WV049.00	09/26/07	FP	HF	13	30	R	-	O	R	6
WV049.00	12/10/07	EXT	H	-4	26	R	-	O	R	<2.0
WV050.00	02/26/07	FP	E	-2	31	R	N	O	R	2
WV050.00	04/23/07	FP	F	C	R	N	O	R	-	<2.0
WV050.00	06/12/07	EXT	E	14	29	R	-	O	R	6
WV050.00	08/08/07	LL	E	15	30	R	P	O	R	12
WV050.00	09/26/07	FP	HF	14	30	R	-	O	R	7.3
WV050.00	12/10/07	EXT	H	-1	30	R	-	O	R	2
WV050.50	02/26/07	FP	E	-4	30	R	-	O	R	<2.0
WV050.50	04/23/07	FP	LF	C	R	-	O	R	-	<2.0
WV050.50	06/12/07	EXT	HE	12	27	R	-	O	R	48
WV050.50	08/08/07	LL	E	17	30	R	P	O	R	14
WV050.50	09/26/07	FP	H	13	30	R	-	O	R	<2.0
WV050.50	12/10/07	EXT	H	0	30	R	-	O	R	2
WV050.80	02/26/07	FP	E	-4	24	R	-	O	R	<2.0
WV050.80	05/15/07	FP	HE	10	25	R	P	O	R	12
WV050.80	06/12/07	EXT	HE	15	28	R	-	O	R	11
WV050.80	08/15/07	EXT	HE	19	32	R	-	O	R	<2.0
WV050.80	09/26/07	FP	H	16	30	R	-	O	R	14
WV050.80	12/10/07	EXT	H	-1	28	R	P	O	R	5.5
WV052.00	02/26/07	FP	E	-4	32	R	WN	O	R	<2.0
WV052.00	04/23/07	FP	L	C	R	N	O	R	-	<2.0
WV052.00	06/12/07	EXT	HE	13	29	R	-	O	R	9.1
WV052.00	08/08/07	LL	E	16	29	R	P	O	R	84
WV052.00	09/26/07	FP	H	15	30	R	-	O	R	9.1
WV052.00	12/10/07	EXT	H	0	30	R	P	O	R	<2.0



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV053.00	02/26/07	FP	L	-	R	-	O	R	-	<2.0
WV053.00	04/23/07	FP	LF	C	R	-	O	R	-	<2.0
WV053.00	06/12/07	EXT	H	12	29	R	-	O	R	4
WV053.00	08/08/07	LL	E	17	30	R	P	O	R	46
WV053.00	09/26/07	FP	H	14	30	R	-	O	R	<2.0
WV053.00	12/10/07	EXT	HF	0	30	R	P	O	R	4
WV054.00	02/26/07	FP	E	-	R	N	O	R	-	<2.0
WV054.00	04/23/07	FP	F	C	R	N	O	R	-	<2.0
WV054.00	06/12/07	EXT	HE	15	28	R	-	O	R	14
WV054.00	08/08/07	LL	E	18	28	R	P	O	R	46
WV054.00	09/26/07	FP	HE	15	30	R	-	O	R	2
WV054.00	12/10/07	EXT	HE	-4	27	R	-	O	R	<2.0
WV055.00	02/26/07	FP	E	-	R	-	O	R	-	2
WV055.00	04/23/07	FP	LF	C	R	-	O	R	-	<2.0
WV055.00	06/12/07	EXT	E	15	29	R	P	O	R	8
WV055.00	08/08/07	LL	E	15	29	R	P	O	R	4
WV055.00	09/26/07	FP	HE	14	30	R	-	O	R	<2.0
WV055.00	12/10/07	EXT	HE	1	30	R	-	O	R	<2.0
WV056.00	02/26/07	FP	E	-3	31	R	-	O	A	<2.0
WV056.00	04/23/07	FP	F	C	R	-	O	A	-	<2.0
WV056.00	06/12/07	EXT	E	13	29	R	-	O	A	10
WV056.00	08/15/07	EXT	HE	15	32	R	-	O	A	4
WV056.00	09/26/07	FP	HE	15	30	R	-	O	A	26
WV056.00	12/10/07	EXT	HE	1	30	R	-	O	A	2
WV057.00	02/26/07	FP	E	-4	30	R	-	C	P	<2.0
WV057.00	04/23/07	FP	F	C	R	N	C	P	-	<2.0
WV057.00	06/12/07	EXT	E	14	28	R	-	C	P	142
WV057.00	08/15/07	EXT	HE	16	34	R	-	C	P	108
WV057.00	09/26/07	FP	HE	16	30	R	-	C	P	460
WV057.00	12/10/07	EXT	HE	-3	30	R	-	C	P	2
WV058.00	02/26/07	FP	E	-3	32	R	-	C	P	<2.0
WV058.00	04/23/07	FP	F	C	R	-	C	P	-	<2.0
WV058.00	06/12/07	EXT	E	14	29	R	-	C	P	11
WV058.00	08/08/07	LL	LE	15	29	R	P	C	P	14
WV058.00	09/26/07	FP	HE	15	30	R	-	C	P	62
WV058.00	12/10/07	EXT	HE	-1	30	R	-	C	P	<2.0
WV059.00	02/26/07	FP	LE	-1	31	R	-	O	A	<2.0
WV059.00	04/23/07	FP	F	C	R	-	O	A	-	<2.0
WV059.00	06/12/07	EXT	E	11	30	R	-	O	A	<2.0
WV059.00	08/08/07	LL	LE	14	29	R	P	O	A	16
WV059.00	09/26/07	FP	HE	15	30	R	-	O	A	22
WV059.00	12/10/07	EXT	E	-1	30	R	-	O	A	4
WV060.00	02/26/07	FP	LE	0	31	R	-	C	P	<2.0



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV060.00	04/23/07	FP	F	C	R	-	C	P	-	<2.0
WV060.00	06/12/07	EXT	E	12	29	R	-	C	P	10
WV060.00	08/08/07	LL	LE	14	29	R	P	C	P	36
WV060.00	09/26/07	FP	E	14	30	R	-	C	P	62
WV060.00	12/10/07	EXT	E	0	30	R	-	C	P	<2.0
WV061.00	02/26/07	FP	LE	0	30	R	-	C	P	<2.0
WV061.00	04/23/07	FP	F	C	R	-	C	P	-	<2.0
WV061.00	06/12/07	EXT	E	12	29	R	-	C	P	3.6
WV061.00	08/08/07	LL	LE	14	30	R	P	C	P	6
WV061.00	09/26/07	FP	E	14	30	R	-	C	P	<2.0
WV061.00	12/10/07	EXT	E	2	30	R	-	C	P	4
WV062.50	02/26/07	FP	LE	1	31	R	-	C	P	<2.0
WV062.50	04/23/07	FP	F	C	R	-	C	P	-	22
WV062.50	06/12/07	EXT	E	12	28	R	-	C	P	<2.0
WV062.50	08/08/07	LL	LE	14	28	R	P	C	P	11
WV062.50	09/26/07	FP	E	15	30	R	-	C	P	12
WV062.50	12/10/07	EXT	E	1	30	R	-	C	P	<2.0
WV063.00	04/23/07	FP	F	C	R	-	C	P	-	<2.0
WV063.00	05/15/07	FP	HE	7	28	R	P	C	P	2
WV063.00	06/12/07	EXT	E	14	28	R	-	C	P	2
WV063.00	08/15/07	EXT	E	15	32	R	-	C	P	<2.0
WV063.00	09/26/07	FP	E	15	30	R	-	C	P	4
WV063.00	12/10/07	EXT	E	1	30	R	-	C	P	<2.0
WV064.00	02/26/07	FP	E	-	R	N	C	P	-	<2.0
WV064.00	04/23/07	FP	F	C	R	N	C	P	-	1440
WV064.00	06/12/07	EXT	E	15	28	R	-	C	P	4
WV064.00	08/15/07	EXT	E	16	32	R	-	C	P	2
WV064.00	09/26/07	FP	E	15	30	R	-	C	P	33
WV064.00	12/10/07	EXT	E	-1	28	R	W	C	P	<2.0
WV065.00	04/23/07	FP	F	C	R	-	C	P	-	<2.0
WV065.00	05/15/07	FP	HE	9	25	R	P	C	P	27
WV065.00	06/12/07	EXT	E	14	29	R	-	C	P	<2.0
WV065.00	08/08/07	LL	L	15	28	R	P	C	P	4
WV065.00	09/26/07	FP	E	16	30	R	-	C	P	<2.0
WV065.00	12/10/07	EXT	E	2	30	R	-	C	P	2
WV077.00	03/26/07	FP	F	3	32	R	-	O	A	<2.0
WV077.00	05/21/07	FP	F	7	28	R	-	O	A	<2.0
WV077.00	07/16/07	FP	F	13	32	R	P	O	A	<2.0
WV077.00	08/15/07	JB	HF	12	32	R	B	O	A	10
WV077.00	09/04/07	FP	L	C	R	-	O	A	-	<2.0
WV077.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV078.00	03/26/07	FP	F	3	32	R	-	O	A	<2.0
WV078.00	05/21/07	FP	F	5	28	R	-	O	A	<2.0



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV078.00	07/16/07	FP	F	13	30	R	P	O	A	<2.0
WV078.00	08/15/07	JB	HF	11	32	R	B	O	A	<2.0
WV078.00	09/04/07	FP	L	C	R	-	O	A	-	<2.0
WV078.00	10/01/07	FP	F	O	R	-	O	A	-	2
WV079.00	03/26/07	FP	F	3	32	R	-	O	A	<2.0
WV079.00	05/21/07	FP	F	5	29	R	-	O	A	<2.0
WV079.00	07/16/07	FP	F	13	30	R	P	O	A	<2.0
WV079.00	08/15/07	JB	HF	12	32	R	B	O	A	<2.0
WV079.00	09/04/07	FP	L	C	R	-	O	A	-	<2.0
WV079.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV080.00	03/26/07	FP	F	3	32	R	-	O	A	<2.0
WV080.00	05/21/07	FP	F	5	28	R	-	O	A	<2.0
WV080.00	07/16/07	FP	F	13	30	R	P	O	A	<2.0
WV080.00	08/15/07	JB	HF	12	32	R	B	O	A	<2.0
WV080.00	09/04/07	FP	LF	C	R	-	O	A	-	<2.0
WV080.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV081.00	03/26/07	FP	F	3	32	R	-	O	A	<2.0
WV081.00	05/21/07	FP	F	5	29	R	-	O	A	<2.0
WV081.00	07/16/07	FP	F	12	30	R	P	O	A	2
WV081.00	08/15/07	JB	H	12	32	R	B	O	A	<2.0
WV081.00	09/04/07	FP	LF	C	R	-	O	A	-	<2.0
WV081.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV083.00	03/26/07	FP	F	3	32	R	-	O	A	<2.0
WV083.00	05/21/07	FP	F	7	28	R	-	O	A	2
WV083.00	07/16/07	FP	F	15	30	R	P	O	A	2
WV083.00	08/15/07	JB	HE	13	32	R	B	O	A	<2.0
WV083.00	09/04/07	FP	F	C	R	-	O	A	-	<2.0
WV083.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV084.00	03/26/07	FP	LF	4	32	R	-	O	A	<2.0
WV084.00	05/21/07	FP	F	7	28	R	-	O	A	<2.0
WV084.00	07/16/07	FP	F	15	30	R	P	O	A	<2.0
WV084.00	08/15/07	JB	HE	13	32	R	B	O	A	<2.0
WV084.00	09/04/07	FP	F	C	R	-	O	A	-	<2.0
WV084.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV085.00	03/26/07	FP	LF	4	32	R	-	O	A	<2.0
WV085.00	05/21/07	FP	F	5	28	R	-	O	A	<2.0
WV085.00	07/16/07	FP	F	14	30	R	P	O	A	<2.0
WV085.00	08/15/07	JB	HE	12	32	R	B	O	A	<2.0
WV085.00	09/04/07	FP	F	C	R	-	O	A	-	<2.0
WV085.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV086.00	03/26/07	FP	LF	4	32	R	-	O	A	<2.0
WV086.00	05/21/07	FP	F	5	29	R	-	O	A	<2.0
WV086.00	07/16/07	FP	F	16	30	R	P	O	A	4



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL
WV086.00	08/15/07	JB	H	13	32	R	B	O	A	<2.0
WV086.00	09/04/07	FP	F	C	R	-	O	A	-	<2.0
WV086.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV087.00	03/26/07	FP	LF	3	32	R	-	O	A	<2.0
WV087.00	05/21/07	FP	F	5	29	R	-	O	A	<2.0
WV087.00	07/16/07	FP	F	15	30	R	P	O	A	<2.0
WV087.00	08/15/07	JB	H	12	32	R	B	O	A	<2.0
WV087.00	09/04/07	FP	LF	C	R	-	O	A	-	<2.0
WV087.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV088.00	03/26/07	FP	LF	3	32	R	-	O	A	<2.0
WV088.00	05/21/07	FP	F	5	29	R	-	O	A	<2.0
WV088.00	07/16/07	FP	F	13	30	R	P	O	A	<2.0
WV088.00	08/15/07	JB	H	11	32	R	B	O	A	2
WV088.00	09/04/07	FP	LF	C	R	-	O	A	-	<2.0
WV088.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0
WV089.00	03/26/07	FP	LF	3	32	R	-	O	A	<2.0
WV089.00	05/21/07	FP	F	6	29	R	-	O	A	<2.0
WV089.00	07/16/07	FP	F	13	30	R	P	O	A	<2.0
WV089.00	08/15/07	JB	H	13	32	R	B	O	A	<2.0
WV089.00	09/04/07	FP	LF	C	R	-	O	A	-	<2.0
WV089.00	10/01/07	FP	F	O	R	-	O	A	-	<2.0