



**GROWING AREA WS
Medomak River
Towns of Bristol, Bremen, Waldoboro and Friendship**

ANNUAL REVIEW for 2007

Report Date: July 17, 2008

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APPROVAL

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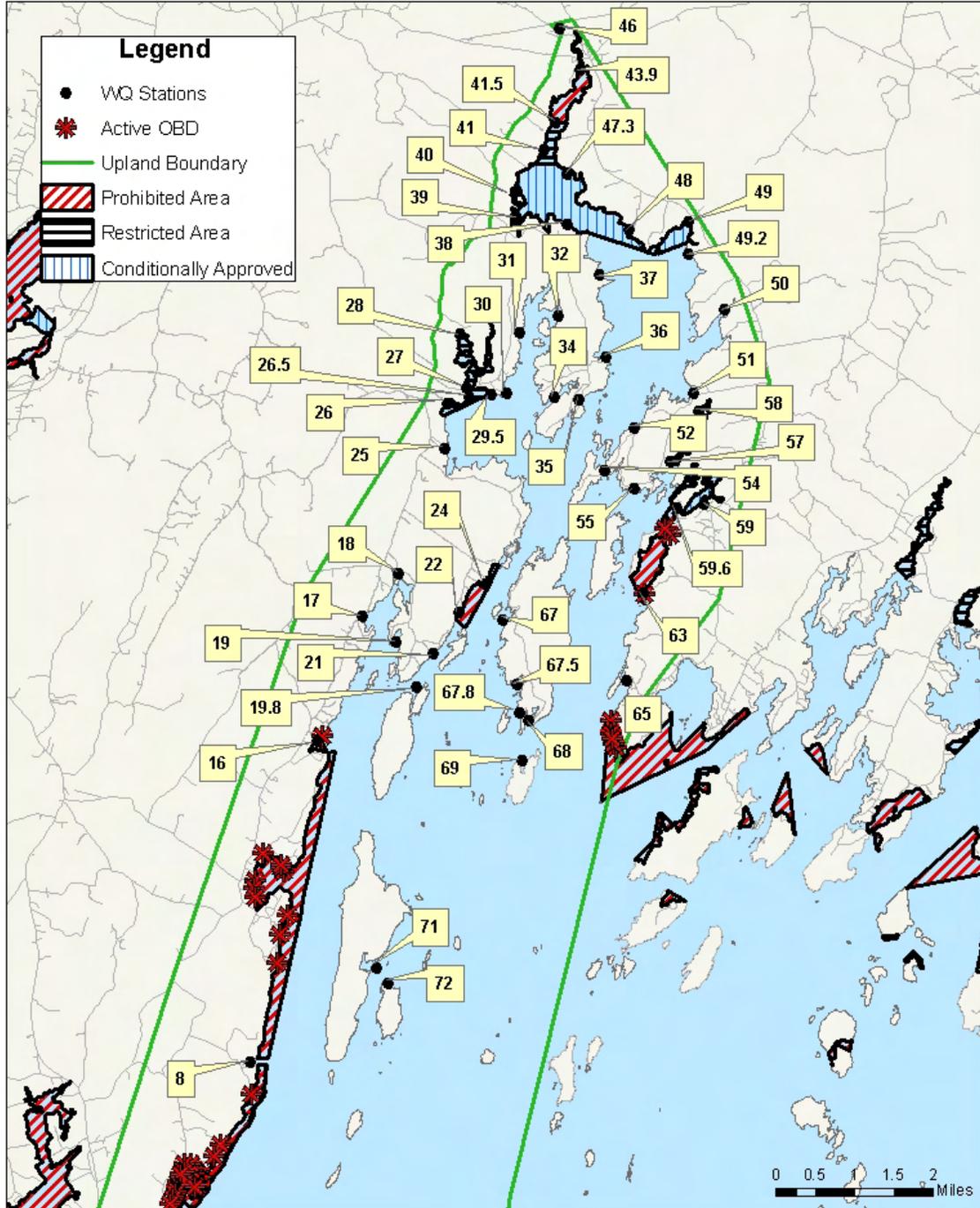
Figure 1. Growing Area WS with Active Sampling Stations, 2007



Maine Department of Marine Resources Growing Area WS - Medomak River



07/15/08





Executive Summary

This is an annual review of growing area WS- Muscongus Bay and Medomak River, written in compliance with the requirements of the 2005 NSSP model ordinance. During the 2007 review year, two sampling stations were created to monitor water quality in a restricted area; no stations were deactivated. In July 2007, several classification changes occurred: two areas were downgraded from approved to restricted classification, due to declining water quality scores; a portion of the upper Medomak River was upgraded from prohibited to restricted classification; and two small closures at Bartolett Point and Dutch Neck were removed. In 2007, there was a total of four rainfall closures in the two conditional areas located in area WS. No changes in pollution sources were observed. Based on the findings of the current review of water quality in growing area WS, two areas must be downgraded from approved to restricted classification, and the boundary line for the Broad Cove restricted area must be extended to the next stations meeting the approved standard.

The next triennial report for growing area WS is due in 2008; the next sanitary survey report is due in 2011.

Growing Area Description

Growing area WS is located in mid-coast Maine, and lies between Pemaquid Point, Bristol and Martin Point, Friendship (Figure 1). The area is comprised of the Medomak River and Muscongus Bay. The towns that fall within the boundary of this growing area include Waldoboro, Bristol, Bremen, and Friendship. There is one municipal treatment facility in this growing area, located in the town of Waldoboro. This facility is a lagoon system with no discharge points into the Medomak River. Additional potential pollution sources in area WS include 87 licensed over board discharge systems (OBDs) and numerous private in-ground systems. No OBDs were removed during the 2007 review year. There are also several outhouses, chemical toilets or composting toilets at seasonal properties. Area WS has no marinas; however, there are several piers which provide support to local lobstering and fishing activities. These are predominantly located in the prohibited areas of New Harbor, Round Pond and Muscongus Harbor. A detailed boundary description for growing area WS can be located in DMR central files.

Current Classifications

At the end of 2007, shellfish growing Area WS had shellfish areas classified as:

Approved (28 stations)

Conditionally Approved, based on 1 inch rainfall within 24 hours (7 stations)

- Maine DMR Pollution Area 26- Upper Medomak River, Waldoboro (6 stations)
- Maine DMR Pollution Area 26- Boot Neck, Friendship (1 station)

Restricted (6 stations)

- Maine DMR Pollution Area 26- Upper Medomak River, Waldoboro (1 stations)



- Maine DMR Pollution Area 26- Broad Cove, Waldoboro (3 stations)
- Maine DMR Pollution Area 26- Back River, Waldoboro (2 stations)

Prohibited (8 stations)

- Maine DMR Pollution Area 26- Upper Medomak, Waldoboro (3 stations)
- Maine DMR Pollution Area 26- Hochomock Channel, Bremen (2 stations)
- Maine DMR Pollution Area 26- East of Boot Neck, Friendship (2 stations)
- Maine DMR Pollution Area 25 D- Long Cove point to Muscongus Harbor, Bristol (due to presence of OBDs, no monitoring stations)
- Maine DMR Pollution Area 26 B- Friendship Harbor, Friendship (due to presence of OBDs, no monitoring stations)
- Maine DMR Pollution Area 25 I- Muscongus Harbor, Bristol-Bremen (due to presence of OBDs, 1 station)
- Maine DMR Pollution Area 25 C- Western Muscongus Bay, Bristol (due to presence of OBDs, no monitoring stations)

There are also 3 new monitoring stations; these stations have less than 30 data points and therefore do not have classifications.

For a complete list of Legal Notices, please visit Maine DMR website:

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

Activity during Review Period

Two stations, WS 26.5 and 29.5 were created on 7/11/07, in order to monitor water quality in the new restricted area in Broad Cove. The new stations were sampled three times in 2007.

7/20/2007: Broad Cove and Back River were reclassified from approved to restricted, due to declining water quality. A portion of the Upper Medomak prohibited area was upgraded to restricted status, due to water scores meeting the restricted standard. Two small closures on Bartolett Point and Dutch Neck were removed and stations WS 36 and WS55 were upgraded from prohibited to approved.

There were 4 rainfall closures in area WS during the 2007 review period:

- 1) Areas closed on 12/26/06, following 1.5' rain, and re-open on 4/3/07, following water samples meeting the approved standard.
- 2) Areas close on 4/17/07, following 3.51 inches of rain, and re-open on 5/1/07, following water samples meeting the approved standard.
- 3) Areas close on 5/21/07, following 1.29 inches of rain, and re-open on 6/19/07, following water samples meeting the approved standard.
- 4) Areas close on 6/12/07, following 1.12 inches of rain, and re-open 12/12/07, following water samples meeting the approved standard.



Current Management Plan(s)

There are two conditional areas in Growing Area WS; both areas are managed under the same plan. One area is located in the upper portion of the Medomak River and is monitored by 6 conditionally approved stations and 2 boundary stations. The second area is located at the mouth of what is referred to as "Goose River" on the Friendship - Waldoboro town line, and is monitored by 1 station. Both areas are conditional on ≥ 1 " of rainfall within 24 hours. The management plan for these two areas is located in the DMR central files.

Current Annual Review of Management Plan for Conditional Areas

In 2007, there were 4 rainfall closures in the two conditional areas located in growing area WS. Per management plan, Maine DMR was notified that rainfall exceeded 1' inch and the appropriate closures were made. Shellfish areas remained closed for a minimum of 2 weeks (14 days), and reopened following satisfactory water samples results.

For a complete review of the conditional areas management plan, please refer to appendix A.

Water Quality Data Review and Discussion

Table 1 lists all active approved, restricted and prohibited stations in Growing Area WS, with their respective Geomean and P90 calculations for 2007. Please refer to Appendix B for a key to interpreting the headers on the columns of Table 1. The approved and restricted standards for each station are also displayed in Table 1. These standards will fluctuate yearly as a result of the DMR transition from a most probable number (MPN) fecal coliform test method to a membrane filtration (MF) method and are dependent on the number of sample analyzed by MPN versus MF. The total number of data points used in the calculations is displayed in the Count column and includes both MPN and MF values. The number of data points analyzed by MF is displayed in the MFCNT column. This fluctuating standard will cease when all 30 data points have been analyzed by the MF method. A more detailed explanation of this transition can be found in Appendix C.

All approved stations, with the exception of station WS 36 and 50, met the approved standards. Stations WS 36 and 50 exceeded the approved standard, but meet the restricted standard, and should be downgraded to restricted classification. All restricted stations meet the restricted standard. Restricted station WS 57 meets the approved standard; this station serves as a boundary station between a restricted and an approved area and does not need to be reclassified. Stations WS 22 and 24 are meeting approved standard, but are classified as prohibited (highlighted in purple). These stations are located in an area that was closed to shellfish harvesting due to a septic system malfunction. The area will be resurveyed in 2008 and a classification upgrade will be considered in the 2008 triennial report.



Table 1. Growing Area WS Geomean and P90 Calculations

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WS008.00	A	30	9	3.8	0.41	93	12.6	43	250
WS016.00	P	30	9	4.4	0.51	240	19.6	43	250
WS017.00	A	30	9	4.8	0.58	1200	26.6	43	250
WS018.00	A	30	9	5.4	0.62	1100	34.1	43	250
WS019.00	A	30	10	3.6	0.40	93	11.6	42	245
WS019.80	A	30	9	2.6	0.09	3.6	3.4	43	250
WS021.00	A	30	9	4.8	0.46	75	18.9	43	250
WS022.00	P	30	9	5.8	0.60	460	34.2	43	250
WS024.00	P	30	9	4.1	0.52	460	19.3	43	250
WS025.00	A	30	9	6.2	0.59	460	35.1	43	250
WS026.00	R	30	9	5.8	0.71	1100	46.5	43	250
WS026.50	New	3	3	3.5	0.43	11	12.9		
WS027.00	R	30	9	6.8	0.69	1200	52.0	43	250
WS028.00	R	30	10	8.7	0.69	460	66.3	42	245
WS029.50	New	3	3	1.9	0.01	2	2.0		
WS030.00	A	30	9	5.1	0.62	460	31.4	43	250
WS031.00	A	30	9	4.1	0.45	93	15.2	43	250
WS032.00	A	30	9	4.0	0.52	240	18.0	43	250
WS034.00	A	30	9	4.3	0.48	93	17.5	43	250
WS035.00	A	30	9	4.5	0.49	156	19.0	43	250
WS036.00	A	30	9	7.4	0.61	300	44.7	43	250
WS037.00	A	30	9	6.3	0.53	134	30.5	43	250
WS041.00	R	30	15	12.3	0.61	240	74.2	39	221
WS041.50	P	30	12	19.5	0.71	620	158.9	41	235
WS043.90	P	30	10	58.9	0.75	1100	536.9	42	245
WS046.00	P	30	10	55.7	0.69	460	422.4	42	245
WS049.20	New	22	15	3.9	0.38	23	12.1		
WS050.00	A	30	11	7.8	0.59	260	44.2	41	240
WS051.00	A	30	9	5.7	0.47	93	22.8	43	250
WS052.00	A	30	9	5.2	0.64	1200	34.2	43	250
WS054.00	A	30	9	5.5	0.51	160	24.4	43	250
WS055.00	A	30	9	4.4	0.51	800	20.0	43	250
WS057.00	R	30	9	4.7	0.47	70	18.7	43	250
WS058.00	R	30	9	8.2	0.65	460	54.9	43	250
WS059.60	P	30	9	5.3	0.55	240	26.8	43	250
WS063.00	P	30	9	3.4	0.27	23	7.5	43	250
WS065.00	A	30	9	3.7	0.38	70	11.4	43	250
WS067.00	A	30	9	2.9	0.17	9.1	4.8	43	250
WS067.50	A	30	9	2.8	0.10	4	3.7	43	250
WS067.80	A	30	9	2.9	0.21	15	5.4	43	250
WS068.00	A	30	9	2.7	0.14	9.1	4.0	43	250
WS069.00	A	30	9	2.6	0.09	3.6	3.4	43	250
WS071.00	A	30	9	2.6	0.10	3.6	3.5	43	250
WS072.00	A	30	9	2.7	0.13	9.1	4.0	43	250

Table 2 lists all conditionally approved stations in growing Area WS, with their respective Geomean and P90 calculations for 2007. Data for conditionally approved stations reflects only the open status. All stations met the approved standard during open status.



Table 2. Geomean and P90 Calculations for Conditional Stations, Open Status

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WS038.00	CA	30	10	5.5	0.59	1100	31.8	42	245
WS039.00	CA	30	10	5.5	0.45	93	20.6	42	245
WS040.00	CA	30	11	5.9	0.47	93	23.8	41	240
WS047.30	CA	30	11	4.0	0.33	23	10.6	41	240
WS048.00	CA	30	10	4.0	0.45	150	15.0	42	245
WS049.00	CA	30	11	6.2	0.49	132	26.4	41	240
WS059.00	CA	30	11	6.7	0.49	74	28.1	41	240

All approved and restricted stations that were active at the beginning of 2007 were sampled 6 times following the systematic random sampling schedule. New stations WS 26.5 and 29.5 were sampled 3 times in 2007. Conditionally approved stations WS 49 and 59 were sampled 6 times in the open status; stations 38, 39, 40 and 48 were sampled five times in the open status.

Figure 2 shows the P90 trends over the past three years, for all stations classified as approved at the end of 2007. 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. Over the past 3 years, station WS 50 has shown an increase in P90 scores, and at the end of the current review period, this station no longer met the approved standard. This station is located in Long Cove, and is sampled near the mouth of a large stream, and is likely to be affected by up-stream pollution. This area will be re-surveyed in 2008 and the stream will be sampled under a variety of weather conditions, in order to evaluate its impact on water quality in Long Cove. In addition to station 50, station WS 36 is also surpassing the approved standard. This area will be re-surveyed in 2008 as well, and sources of point and non-point pollution will be evaluated during the survey. Both stations have been reclassified from approved to restricted status in February 2008. Other approved stations which have shown upward trends in P90 scores over the past 3 years and are currently at or over 50 percent of the approved standard include WS 17, 18, 25, 30, 51, 52, and 54. Pollution sources which may be impacting these areas will be discussed in the next triennial report, after the completion of the shoreline survey field work.

Figure 3 shows the P90 trends over the past three years, for all stations classified as conditionally approved; all P90 data shown is in the open status. Stations 38 and 49, located in the southern portion of the upper Medomak conditional area have shown increases in scores over the past three years. Station 49 is located near a mouth of Slaigo Brook; this fresh water source should be sampled during the 2008 review year in order to assess its impact on water quality. The potential cause for increased scores at station WS 38 is currently unknown and will be investigated as part of the upcoming shoreline survey work. The P90 scores at the remaining conditional stations have remained steady or shown a slight decrease.



Figure 2. Area WS P90 Scores for Approved Stations (expressed as the percent of the approved standard), 2005-2007

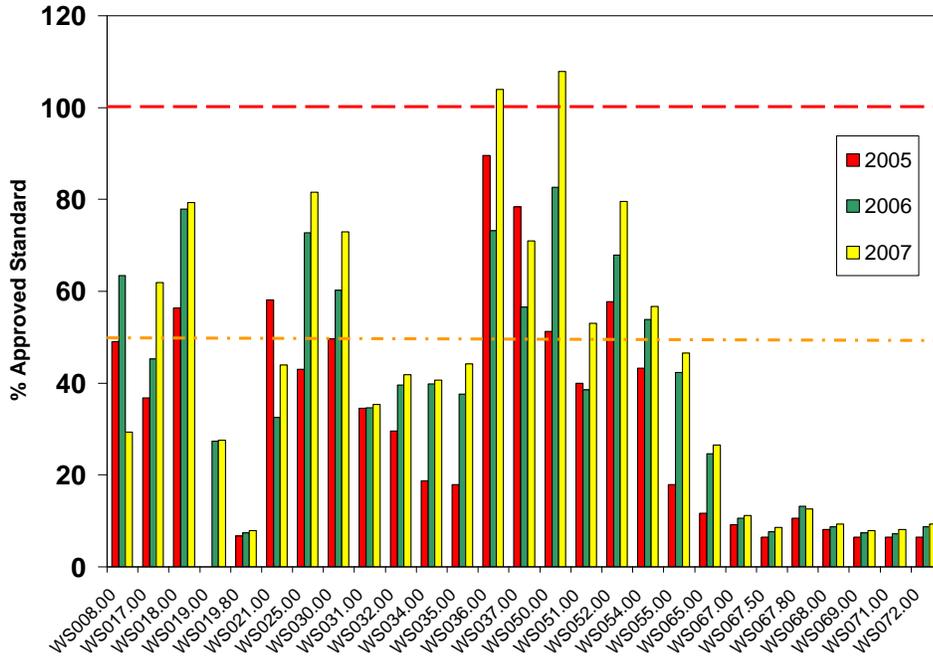
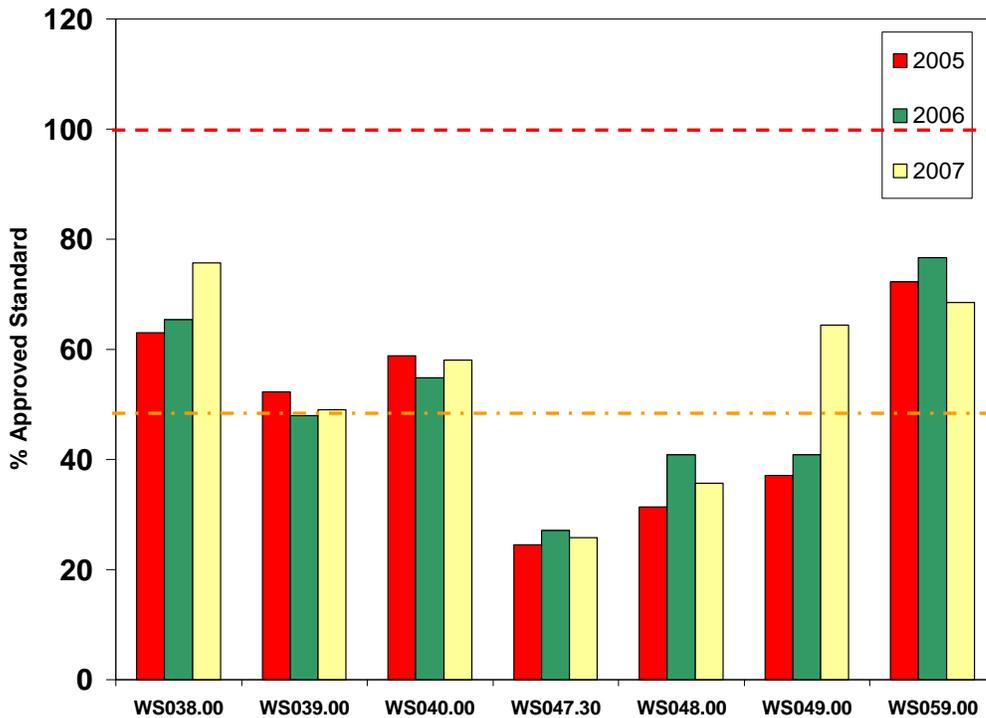


Figure 3. Area WS P90 Scores for Conditionally Approved Stations (Open status data, expressed as the percent of the approved standard), 2005-2007





Shoreline Survey Activity

Growing area WS has had no identified changes in pollution sources during the review period. Drive-through field observations were made during regularly scheduled random sampling runs throughout the review year. Most of growing area WS will be re-surveyed in 2008 and 2009.

Aquaculture/ Wet Storage Activity

There are no wet storage permits in the growing area. There was one shellfish aquaculture lease site in this growing area, which expired on 12/31/2007.

Changes in Classification Required/Requested

Please refer to Figure 2 for the following classification changes.

The Broad Cove restricted area needs to be extended to the next stations meeting approved standard, with stations WS 25 and WS 30 serving as boundary line monitoring stations. Both of these stations should be reclassified from approved to restricted.

Station WS 50, located in Long Cove, Waldoboro is no longer meeting the approved standard and must be reclassified as restricted. The classification change was completed on February 21, 2008.

Station WS 36 is no longer meeting the approved standard and must be reclassified as restricted. The classification change was completed on February 21, 2008.

Summary

With the exception of several coves, shellfish growing area WS continues to maintain good water quality scores. Areas which have shown a decline in water quality include Long Cove, Back Cove and Broad Cove; these areas are classified as restricted. The rainfall conditional areas continue to maintain good water quality during the open status, though two conditional stations have shown slight increases in P90 scores over the past 3 years. No changes in pollution sources have been identified as part of this water quality review.

In 2008 and 2009, all of growing area WS, with the exception of the northern-most section of the Medomak River, will be re-surveyed. As part of this survey work, stream samples in areas that have had fluctuating or increasing fecal coliform scores will be collected, and the impact of pollution transported by fresh water sources will be evaluated and discussed in the upcoming triennial and sanitary survey reports. Particular time and attention should be allotted to sampling non-point sources pollution sources in Sampson and Long Coves.



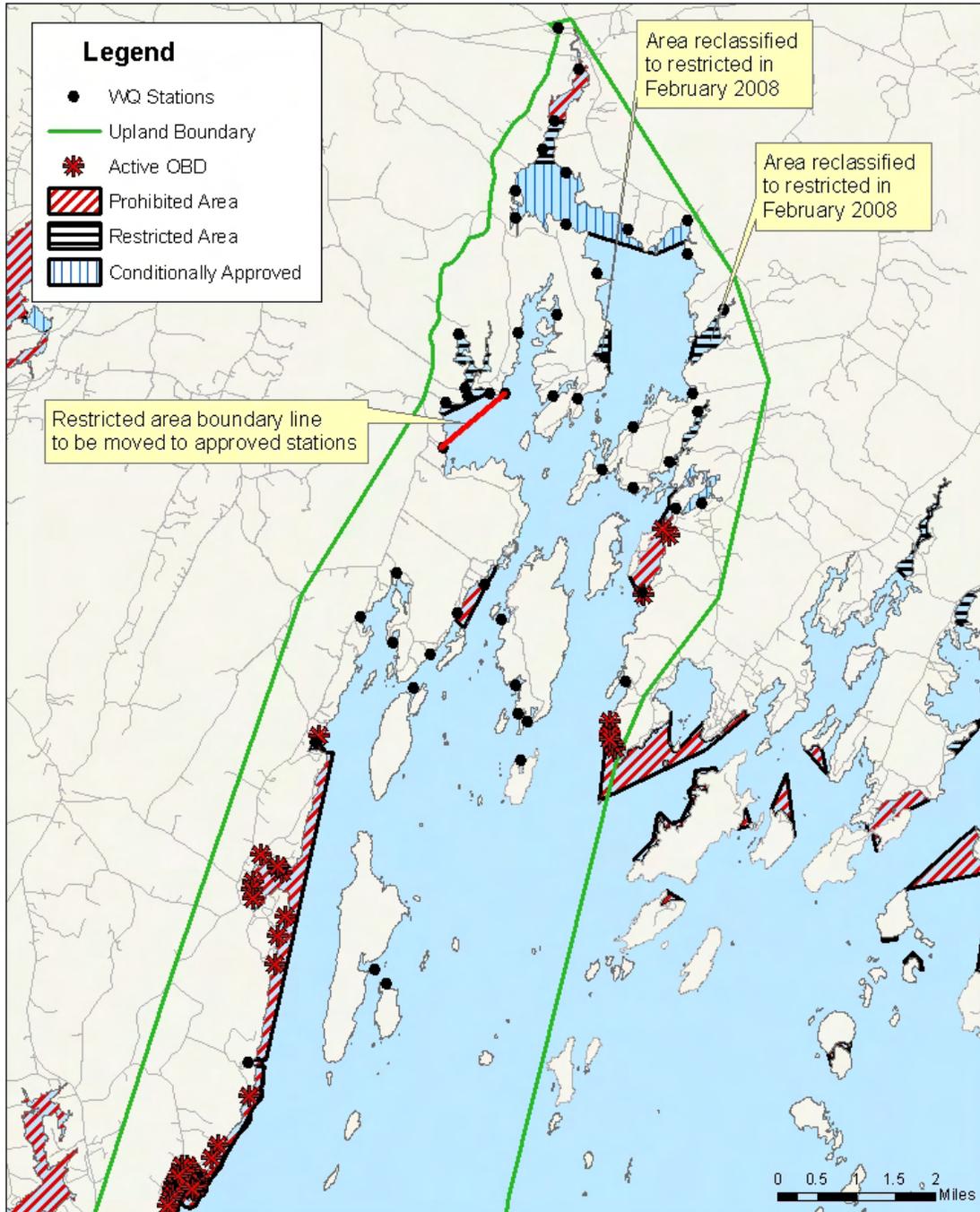
Figure 4. Classification Changes based on the 2007 Annual Water Quality Review



Maine Department of Marine Resources Growing Area WS - Medomak River



07/15/08





Appendix A. Annual Review of Conditional Area Management Plan

Medomak River Conditional Areas, C 26, Growing Area WS

Scope

Two portions of Growing Area WS are conditionally approved, based on rainfall. These areas shall be closed when rainfall meets or exceeds 1 inch in a 24 hour period. Water quality the upper Medomak rainfall conditional area is monitored by stations WS 38, 39, 40, 47.3, and 48, as well as boundary stations WS 41 (classified restricted), and WS 49.2 (classified approved). All conditionally approved stations must be sampled 6 times per year, in the open status. If the annual cumulative time in the open-status is 5 months or less, the areas are required to be sampled 5 times.

Compliance with management plan

In 2007, there were 4 rainfall closures in the two conditional areas located in growing area WS. Per management plan, Maine DMR was notified that rainfall exceeded 1' inch and the appropriate closure were made (Table 1).

Table 1. Rainfall closure/re-opening activity for 2007

Date Closed	Additional rainfall during closure? (≥1 inch in 24 hours)	Date water sample collected P=Pass	# Days closed	Date Opened	Open from (date-date)	# days open
12/27/06	Yes	1/7/07 1/23/07 4/1/07 P	98	4/3/07	4/3 - 4/17	15
4/17/07	No	4/29/07 P	14	5/1/07	5/1 - 5/21	21
5/21/07	Yes	5/28/07 5/30/07 6/17/07 P	29	6/19/07	6/19 - 9/12	85
9/12/07	No	9/25/07 P	14	9/26/07	9/26 -10/12	15
10/12/07	Yes	10/24/07 10/30/07 11/26/07 12/10/07 P	61	12/12/07	12/12 - 12/31	20

Adequacy of reporting and cooperation of involved persons

In the event that a conditional area closure must be implemented due to rainfall, the management plan for this conditional area requires reporting by Bill Bragg of Waldoboro Police



Department. In 2007, the cooperation between all involved parties was excellent and all necessary notifications were received at appropriate times.

Compliance with approved growing area criteria

The annual review of the water quality for all active stations in this conditional area met approved standards in the open status (Table 2).

Table 2. Geomean and P90 Calculations for Conditional Stations, Open status

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	SDV	MAX	P90	APPD_STD	RESTR_STD
WS038.00	CA	30	10	5.5	0.59	1100	31.8	42	245
WS039.00	CA	30	10	5.5	0.45	93	20.6	42	245
WS040.00	CA	30	11	5.9	0.47	93	23.8	41	240
WS047.30	CA	30	11	4.0	0.33	23	10.6	41	240
WS048.00	CA	30	10	4.0	0.45	150	15.0	42	245
WS049.00	CA	30	11	6.2	0.49	132	26.4	41	240
WS059.00	CA	30	11	6.7	0.49	74	28.1	41	240

Water sampling compliance history

Conditionally approved stations WS 49 and 59 were sampled 6 times in the open status; stations 38, 39, 40 and 48 were sampled five times in the open status. In 2007, the conditional areas were in open status for less than 6 months; therefore, 5, rather than 6 data points in the open status are required under the NSSP Model Ordinance.

Analysis-Recommendations

No recommendations for changes to the current management plan or conditional area classification status are needed at this time.



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 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. Growing Area WS 2007 data

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS008.00	02/20/07	ERS	HE	-1	33	R	-	O	A	<2.0	CL
WS008.00	04/10/07	FP	F	-2	28	R	-	O	A	4	CL
WS008.00	06/06/07	JB	LF	9	28	R	P	O	A	<2.0	CL
WS008.00	07/31/07	EXT	HE	20	30	R	-	O	A	<2.0	CL
WS008.00	09/18/07	MHE	HF	13	32	R	-	O	A	<2.0	SE
WS008.00	12/05/07	FP	E	5	31	R	-	O	A	<2.0	CL
WS016.00	01/23/07	EXT	F	1	32	R	-	C	P	<2.0	E
WS016.00	04/04/07	EXT	F	-2	16	R	-	C	P	2	E
WS016.00	05/09/07	FP	E	10	26	R	-	C	P	<2.0	CL
WS016.00	07/09/07	EXT	LF	13	31	R	-	C	P	4	SE
WS016.00	08/27/07	MHE	E	17	30	R	-	C	P	<2.0	NE
WS016.00	10/30/07	EXT	LF	8	32	R	-	C	P	<2.0	NW
WS017.00	01/23/07	EXT	F	-1	32	R	-	O	A	<2.0	E
WS017.00	04/04/07	EXT	F	-1	30	R	-	O	A	<2.0	E
WS017.00	05/16/07	LL	F	10	28	R	P	O	A	<2.0	NE
WS017.00	07/09/07	EXT	LF	18	32	R	-	O	A	8	CL
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WS018.00	01/23/07	EXT	F	-1	32	R	N	O	A	<2.0	CL
WS018.00	04/04/07	EXT	F	0	26	R	N	O	A	<2.0	CL
WS018.00	05/16/07	LL	F	10	28	R	P	O	A	10	NE
WS018.00	07/09/07	EXT	L	16	32	R	-	O	A	2	CL
WS018.00	08/27/07	MHE	E	18	30	R	-	O	A	2	NE
WS018.00	10/30/07	EXT	H	9	32	R	-	O	A	<2.0	CL
WS019.00	01/23/07	EXT	F	-1	32	R	-	O	A	<2.0	CL
WS019.00	04/04/07	EXT	F	-1	30	R	-	O	A	<2.0	E
WS019.00	05/09/07	FP	LE	6	29	R	-	O	A	<2.0	S
WS019.00	07/09/07	EXT	L	14	32	R	-	O	A	2	SE
WS019.00	08/27/07	MHE	E	15	30	R	-	O	A	<2.0	CL
WS019.00	10/30/07	EXT	F	6	32	R	-	O	A	2	NW
WS019.80	05/07/07	FP	F	4	28	R	-	O	A	<2.0	SW
WS019.80	06/11/07	FP	LE	15	30	R	-	O	A	2	NE
WS019.80	06/27/07	JB	E		30	R	-	O	A	<2.0	SW
WS019.80	07/30/07	EXT	HE	19	30	R	-	O	A	<2.0	SW
WS019.80	08/15/07	JB	E	15	32	R	B	O	A	<2.0	SW
WS019.80	09/24/07	AJS	L	14	30	R	-	O	A	<2.0	CL
WS021.00	01/23/07	EXT	F	1	32	R	-	O	A	<2.0	E



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS021.00	04/04/07	EXT	F	-1	30	R	-	O	A	<2.0	CL
WS021.00	05/09/07	FP	LE	10	30	R	-	O	A	2	CL
WS021.00	07/09/07	EXT	LF	13	32	R	-	O	A	40	CL
WS021.00	08/27/07	MHE	E	15	30	R	-	O	A	4	N
WS021.00	10/30/07	EXT	F	8	32	R	-	O	A	29	CL
WS022.00	01/23/07	EXT	F	0	32	R	-	C	P	<2.0	CL
WS022.00	04/04/07	EXT	F	-1	30	R	-	C	P	<2.0	E
WS022.00	05/09/07	FP	LE	10	30	R	-	C	P	2	CL
WS022.00	07/09/07	EXT	L	13	32	R	-	C	P	<2.0	E
WS022.00	08/27/07	MHE	E	15	30	R	-	C	P	<2.0	CL
WS022.00	10/30/07	EXT	F	8	32	R	-	C	P	<2.0	CL
WS024.00	01/23/07	EXT	F	-1	32	R	-	C	P	<2.0	E
WS024.00	04/04/07	EXT	F	-1	30	R	-	C	P	2	E
WS024.00	05/09/07	FP	L	10	25	R	-	C	P	<2.0	CL
WS024.00	07/09/07	EXT	LE	13	31	R	-	C	P	<2.0	E
WS024.00	08/27/07	MHE	E	15	32	R	-	C	P	<2.0	CL
WS024.00	10/30/07	EXT	F	8	31	R	-	C	P	2	NW
WS025.00	01/23/07	EXT	F	-2	22	R	N	O	A	<2.0	CL
WS025.00	04/04/07	EXT	F	-1	8	R	N	O	A	<2.0	E
WS025.00	05/16/07	LL	HF	9	12	R	P	O	A	26	NE
WS025.00	08/27/07	MHE	E	17	26	R	-	O	A	25	NE
WS025.00	10/30/07	EXT	F	9	29	R	-	O	A	<2.0	CL
WS025.00	12/05/07	FP	HE	1	28	R	-	O	A	<2.0	CL
WS026.00	01/23/07	EXT	F	-1	31	R	-	O	A	<2.0	E
WS026.00	04/04/07	EXT	HF	-1	26	R	-	O	A	<2.0	E
WS026.00	05/16/07	LL	HF	10	28	R	P	O	A	2	NE
WS026.00	07/09/07	EXT	E	15	30	R	-	O	A	8	CL
WS026.00	08/27/07	MHE	E	17	30	R	-	O	R	<2.0	N
WS026.00	10/30/07	EXT	F	9	30	R	-	O	R	4	NW
WS026.50	08/28/07	EXT	E	16	32	R	-	O	R	11	S
WS026.50	10/30/07	EXT	F	8	31	R	-	O	R	2	NW
WS026.50	12/05/07	FP	HE	0	30	R	-	O	R	<2.0	CL
WS027.00	01/23/07	EXT	F	0	31	R	-	O	A	<2.0	NE
WS027.00	04/04/07	EXT	HF	-1	28	R	-	O	A	<2.0	E
WS027.00	05/09/07	FP	L	14	26	R	-	O	A	2	CL
WS027.00	07/09/07	EXT	E	15	31	R	-	O	A	<2.0	CL
WS027.00	08/27/07	MHE	E	17	30	R	-	O	R	26	CL
WS027.00	10/30/07	EXT	F	8	30	R	-	O	R	<2.0	NW
WS028.00	01/23/07	EXT	HF	-2	24	R	-	O	A	<2.0	CL
WS028.00	04/04/07	EXT	HF	-2	5	R	-	O	A	44	CL



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS028.00	05/16/07	LL	HF	10	27	R	P	O	A	16	NE
WS028.00	07/09/07	EXT	E	15	30	R	-	O	A	6	CL
WS028.00	08/27/07	MHE	HE	15	30	R	-	O	R	33	CL
WS028.00	10/30/07	EXT	F	8	27	R	-	O	R	14	CL
WS029.50	08/28/07	EXT	E	17	32	R	-	O	R	<2.0	S
WS029.50	10/30/07	EXT	F	8	29	R	-	O	R	2	NW
WS029.50	12/05/07	FP	H	3	30	R	-	O	R	<2.0	CL
WS030.00	01/23/07	EXT	HF	-2	32	R	-	O	A	<2.0	CL
WS030.00	04/04/07	EXT	HF	-1	30	R	-	O	A	<2.0	E
WS030.00	05/16/07	LL	HF	10	26	R	P	O	A	<2.0	NE
WS030.00	08/27/07	MHE	HE	17	30	R	-	O	A	32	NE
WS030.00	10/30/07	EXT	F	9	30	R	-	O	A	<2.0	CL
WS030.00	12/05/07	FP	H	1	30	R	-	O	A	2	CL
WS031.00	01/23/07	EXT	HF	-1	32	R	-	O	A	<2.0	E
WS031.00	04/04/07	EXT	HF	-2	28	R	-	O	A	<2.0	E
WS031.00	05/16/07	LL	H	10	27	R	P	O	A	<2.0	NE
WS031.00	07/09/07	EXT	LE	15	32	R	-	O	A	<2.0	CL
WS031.00	08/27/07	MHE	HE	18	32	R	-	O	A	<2.0	CL
WS031.00	10/30/07	EXT	F	8	31	R	-	O	A	2	CL
WS032.00	01/23/07	EXT	H	-2	32	R	-	O	A	<2.0	CL
WS032.00	04/04/07	EXT	H	-1	28	R	-	O	A	<2.0	CL
WS032.00	05/30/07	JB	H	15	30	R	-	O	A	<2.0	CL
WS032.00	07/10/07	EXT	HE	15	31	R	-	O	A	6	CL
WS032.00	08/27/07	MHE	H	18	30	R	-	O	A	4	CL
WS032.00	10/30/07	EXT	HF	8	30	R	-	O	A	2	CL
WS034.00	01/23/07	EXT	H	0	31	R	-	O	A	<2.0	CL
WS034.00	04/04/07	EXT	H	0	28	R	-	O	A	<2.0	CL
WS034.00	05/30/07	JB	H	12	30	R	-	O	A	<2.0	CL
WS034.00	07/09/07	EXT	E	15	31	R	-	O	A	2	CL
WS034.00	08/27/07	MHE	HF	17	32	R	-	O	A	<2.0	E
WS034.00	10/30/07	EXT	HF	8	31	R	-	O	A	2	CL
WS035.00	01/23/07	EXT	H	0	31	R	-	O	A	6	CL
WS035.00	04/04/07	EXT	H	-1	25	R	-	O	A	<2.0	E
WS035.00	05/09/07	FP	F	13	28	R	-	O	A	<2.0	S
WS035.00	07/09/07	EXT	E	15	32	R	-	O	A	14	NE
WS035.00	08/27/07	MHE	HF	17	30	R	-	O	A	<2.0	E
WS035.00	10/30/07	EXT	HF	9	31	R	-	O	A	2	NW
WS036.00	01/23/07	EXT	HE	-1	30	R	-	C	P	<2.0	CL
WS036.00	04/04/07	EXT	HE	-1	24	R	-	C	P	<2.0	E
WS036.00	05/09/07	FP	F	13	28	R	-	C	P	4	S



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS036.00	07/09/07	EXT	E	15	32	R	-	C	P	10	NE
WS036.00	08/27/07	MHE	H	17	30	R	-	O	A	300	NE
WS036.00	10/30/07	EXT	HF	8	30	R	-	O	A	3.6	NW
WS037.00	01/23/07	EXT	HE	-1	25	R	-	O	A	82	CL
WS037.00	04/04/07	EXT	HE	-1	20	R	-	O	A	<2.0	E
WS037.00	05/09/07	FP	F	18	27	R	-	O	A	<2.0	S
WS037.00	07/09/07	EXT	E	16	31	R	-	O	A	13	CL
WS037.00	08/27/07	MHE	H	18	30	R	-	O	A	18	CL
WS037.00	10/30/07	EXT	HF	8	27	R	-	O	A	9.1	CL
WS038.00	01/07/07	WRB	F	0	30	A	P	C	CA	<2.0	NE
WS038.00	01/23/07	EXT	HE	-2	24	R	-	C	CA	84	CL
WS038.00	04/01/07	WRB	F	4	28	A	-	C	CA	<2.0	CL
WS038.00	04/04/07	EXT	HE	-1	26	R	-	O	CA	2	E
WS038.00	04/29/07	WRB	HF	6	28	A	P	C	CA	2	CL
WS038.00	05/16/07	WRB	HE	8	30	R	P	O	CA	2	SW
WS038.00	05/28/07	WRB	HF	10	26	A	-	C	CA	14	CL
WS038.00	05/30/07	WRB	E	-	30	A	-	C	CA	40	S
WS038.00	06/11/07	EXT	H	15	26	E	-	C	CA	10	NE
WS038.00	06/17/07	WRB	F	15	28	A	-	C	CA	13	W
WS038.00	07/09/07	EXT	E	16	30	R	-	O	CA	10	CL
WS038.00	08/07/07	EXT	HF	21	32	R	-	O	CA	6	S
WS038.00	08/27/07	MHE	H	18	32	R	-	O	CA	16	N
WS038.00	09/25/07	WRB	F	12	31	A	-	C	CA	<2.0	-
WS038.00	10/24/07	EXT	H	10	26	A	-	C	CA	16	NE
WS038.00	10/29/07	EXT	H	7	26	E	-	C	CA	29	N
WS038.00	10/30/07	EXT	H	7	27	R	-	C	CA	40	N
WS038.00	11/26/07	WRB	H	4	30	A	P	C	CA	2	N
WS038.00	12/10/07	WRB	F	-2	30	A	-	C	CA	<2.0	N
WS039.00	01/07/07	WRB	F	5	20	A	P	C	CA	20	NE
WS039.00	01/23/07	EXT	HE	-1	25	R	W	C	CA	11	CL
WS039.00	04/01/07	WRB	F	4	28	A	-	C	CA	<2.0	CL
WS039.00	04/04/07	EXT	HE	-2	10	R	-	O	CA	2	CL
WS039.00	04/29/07	WRB	HF	7	30	A	P	C	CA	<2.0	CL
WS039.00	05/16/07	WRB	HE	9	30	R	P	O	CA	12	SW
WS039.00	05/28/07	WRB	F	11	24	A	W	C	CA	4	CL
WS039.00	05/30/07	WRB	E	-	32	A	-	C	CA	26	S
WS039.00	06/11/07	EXT	H	14	22	E	-	C	CA	18	NE
WS039.00	06/17/07	WRB	F	18	28	A	-	C	CA	10	W
WS039.00	07/09/07	EXT	E	16	28	R	-	O	CA	<2.0	CL
WS039.00	08/07/07	EXT	F	22	30	R	-	O	CA	<2.0	CL
WS039.00	08/27/07	MHE	HE	18	30	R	-	O	CA	4	NE
WS039.00	09/25/07	WRB	F	14	30	A	-	C	CA	2	-
WS039.00	10/24/07	EXT	H	11	26	A	-	C	CA	20	NE
WS039.00	10/29/07	EXT	H	8	26	E	-	C	CA	35	N



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS039.00	10/30/07	EXT	H	8	26	R	-	C	CA	7.3	N
WS039.00	11/26/07	WRB	HF	6	30	A	P	C	CA	2	N
WS039.00	12/10/07	WRB	F	0	30	A	-	C	CA	<2.0	N
WS040.00	01/07/07	WRB	F	5	22	A	P	C	CA	31	NE
WS040.00	01/23/07	FP	H	-2	21	R	N	C	CA	7.3	CL
WS040.00	04/01/07	WRB	F	4	28	A	-	C	CA	<2.0	CL
WS040.00	04/29/07	WRB	HF	7	30	A	P	C	CA	<2.0	CL
WS040.00	05/14/07	EXT	E	12	26	R	-	O	CA	<2.0	E
WS040.00	05/28/07	WRB	F	11	25	A	-	C	CA	25	CL
WS040.00	05/30/07	WRB	E	-	31	A	-	C	CA	4	S
WS040.00	06/05/07	FP	HF	17	17	A	P	C	CA	320	S
WS040.00	06/11/07	EXT	HE	16	18	E	-	C	CA	22	NE
WS040.00	06/17/07	WRB	F	18	27	A	-	C	CA	10	W
WS040.00	07/10/07	JB	E	15	30	R	P	O	CA	4	CL
WS040.00	07/25/07	FP	HE	20	28	R	-	O	CA	<2.0	CL
WS040.00	08/07/07	EXT	F	24	32	R	-	O	CA	<2.0	CL
WS040.00	08/28/07	EXT	F	18	30	R	-	O	CA	2	CL
WS040.00	09/25/07	WRB	F	14	30	A	-	C	CA	<2.0	-
WS040.00	10/03/07	MHE	F	19	33	R	-	O	CA	<2.0	CL
WS040.00	10/24/07	EXT	H	10	24	A	W	C	CA	20	NE
WS040.00	10/29/07	EXT	H	8	26	R	-	C	CA	35	CL
WS040.00	11/26/07	WRB	HF	6	30	A	P	C	CA	<2.0	N
WS040.00	12/10/07	WRB	F	0	30	A	-	C	CA	<2.0	N
WS041.00	01/07/07	WRB	F	5	22	A	P	C	P	20	NE
WS041.00	01/23/07	FP	H	-3	30	R	-	C	P	38	CL
WS041.00	04/01/07	WRB	F	4	28	A	-	C	P	<2.0	CL
WS041.00	04/11/07	JB	E	2	10	R	N	C	P	4	NE
WS041.00	04/29/07	WRB	HF	6	30	A	P	C	P	<2.0	CL
WS041.00	05/14/07	EXT	HE	11	25	R	-	C	P	4	SE
WS041.00	05/28/07	WRB	F	10	25	A	-	C	P	12	CL
WS041.00	06/11/07	EXT	HE	17	18	E	-	C	P	100	NE
WS041.00	06/17/07	WRB	F	18	28	A	-	C	P	6	W
WS041.00	07/10/07	JB	E	15	27	R	P	C	P	24	CL
WS041.00	08/07/07	EXT	F	22	30	R	-	O	R	35	S
WS041.00	08/28/07	EXT	F	19	31	R	-	O	R	7.3	NW
WS041.00	09/25/07	WRB	F	13	30	A	-	O	R	<2.0	-
WS041.00	10/03/07	MHE	F	15	32	R	-	O	R	2	S
WS041.00	10/24/07	EXT	HE	10	27	A	-	O	R	25	CL
WS041.00	10/29/07	EXT	HE	8	12	R	-	O	R	100	N
WS041.00	11/26/07	WRB	HF	5	29	A	P	O	R	<2.0	N
WS041.00	12/10/07	WRB	F	-1	30	A	-	O	R	<2.0	N
WS041.50	01/07/07	WRB	F	4	22	A	P	C	P	5.5	NE
WS041.50	01/23/07	FP	H	-3	18	R	-	C	P	620	CL
WS041.50	04/01/07	WRB	F	4	28	A	-	C	P	<2.0	CL



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS041.50	04/29/07	WRB	F	6	30	A	P	C	P	<2.0	CL
WS041.50	05/14/07	EXT	HE	12	18	R	-	C	P	4	SE
WS041.50	05/28/07	WRB	F	10	25	A	-	C	P	16	CL
WS041.50	06/05/07	FP	H	18	1	A	P	C	P	1200	S
WS041.50	06/11/07	EXT	HE	17	14	E	-	C	P	35	NE
WS041.50	06/17/07	WRB	F	18	25	A	-	C	P	6	W
WS041.50	07/10/07	JB	E	15	26	R	P	C	P	16	CL
WS041.50	07/25/07	FP	E	17	28	R	-	O	P	22	CL
WS041.50	08/28/07	EXT	HF	19	32	R	-	C	P	9.1	CL
WS041.50	09/25/07	WRB	F	13	30	A	-	C	P	<2.0	-
WS041.50	10/29/07	EXT	HE	7	6	R	-	C	P	142	CL
WS041.50	11/26/07	WRB	HF	5	30	A	P	C	P	2	N
WS041.50	12/10/07	WRB	F	0	30	A	-	C	P	<2.0	N
WS043.90	01/23/07	FP	HE	-1	0	R	W	C	P	104	CL
WS043.90	04/11/07	JB	LE	1	0	R	N	C	P	4	NE
WS043.90	05/14/07	EXT	HE	14	4	R	-	C	P	76	CL
WS043.90	07/10/07	JB	E	17	26	R	P	C	P	26	CL
WS043.90	08/28/07	EXT	HF	19	29	R	-	C	P	40	CL
WS043.90	10/29/07	EXT	H	8	6	R	-	C	P	128	NW
WS046.00	01/23/07	FP	HE	-3	0	R	-	C	P	56	CL
WS046.00	04/11/07	JB	LE	1	0	R	N	C	P	6	CL
WS046.00	05/14/07	EXT	H	14	0	R	-	C	P	9.1	CL
WS046.00	07/10/07	JB	E	16	0	R	P	C	P	120	CL
WS046.00	08/28/07	EXT	F	19	0	R	-	C	P	15	CL
WS046.00	10/29/07	EXT	H	7	0	R	-	C	P	68	CL
WS047.30	01/07/07	WRB	F	5	22	A	P	C	CA	25	NE
WS047.30	01/23/07	FP	HF	-3	26	R	-	C	CA	20	CL
WS047.30	04/01/07	WRB	F	4	28	A	-	C	CA	<2.0	CL
WS047.30	04/29/07	WRB	H	8	30	A	P	C	CA	<2.0	CL
WS047.30	05/14/07	EXT	HE	14	26	R	-	O	CA	<2.0	CL
WS047.30	05/28/07	WRB	F	11	24	A	-	C	CA	4	CL
WS047.30	05/30/07	WRB	E	-	31	A	-	C	CA	<2.0	S
WS047.30	06/05/07	FP	HF	17	22	A	P	C	CA	112	S
WS047.30	06/11/07	EXT	E	16	26	E	-	C	CA	24	NE
WS047.30	06/17/07	WRB	F	20	28	A	-	C	CA	<2.0	W
WS047.30	07/11/07	EXT	H	17	28	R	-	O	CA	<2.0	CL
WS047.30	07/25/07	FP	E	20	30	R	-	O	CA	<2.0	CL
WS047.30	08/07/07	EXT	F	24	32	R	-	O	CA	<2.0	SW
WS047.30	08/28/07	EXT	HF	19	31	R	-	O	CA	4	CL
WS047.30	09/25/07	WRB	F	14	30	A	-	C	CA	2	-
WS047.30	10/03/07	MHE	F	15	32	R	-	O	CA	2	CL
WS047.30	10/24/07	EXT	HE	10	28	A	-	C	CA	104	CL
WS047.30	10/29/07	EXT	HF	8	22	R	-	C	CA	70	NW
WS047.30	11/26/07	WRB	F	5	31	A	P	C	CA	2	N



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS047.30	12/10/07	WRB	HF	0	30	A	-	C	CA	<2.0	N
WS048.00	01/07/07	WRB	F	2	30	A	P	C	CA	<2.0	NE
WS048.00	01/23/07	FP	HF	-2	30	R	-	C	CA	8	CL
WS048.00	04/01/07	WRB	F	5	28	A	-	C	CA	<2.0	CL
WS048.00	04/29/07	WRB	HF	6	30	A	P	C	CA	<2.0	CL
WS048.00	05/14/07	EXT	E	11	27	R	-	O	CA	<2.0	SE
WS048.00	05/28/07	WRB	HF	10	27	A	-	C	CA	<2.0	CL
WS048.00	05/30/07	WRB	E	-	30	A	-	C	CA	16	S
WS048.00	06/05/07	FP	HF	16	16	A	P	C	CA	200	CL
WS048.00	06/11/07	EXT	E	15	26	E	-	C	CA	20	CL
WS048.00	06/17/07	WRB	F	16	29	A	-	C	CA	10	W
WS048.00	07/10/07	JB	E	17	30	R	P	O	CA	4	SW
WS048.00	07/25/07	FP	E	20	30	R	-	O	CA	2	CL
WS048.00	08/07/07	EXT	F	21	32	R	-	O	CA	<2.0	SW
WS048.00	08/28/07	EXT	HF	19	32	R	-	O	CA	<2.0	CL
WS048.00	09/25/07	WRB	F	13	30	A	-	C	CA	<2.0	-
WS048.00	10/24/07	EXT	HE	10	30	A	-	C	CA	88	CL
WS048.00	10/29/07	EXT	HF	8	26	R	-	C	CA	78	W
WS048.00	11/26/07	WRB	F	6	31	A	P	C	CA	4	N
WS048.00	12/10/07	WRB	HF	-2	30	A	-	C	CA	2	N
WS049.00	01/07/07	WRB	F	0	30	A	P	C	CA	<2.0	NE
WS049.00	01/23/07	FP	HF	-1	2	R	N	C	CA	2	CL
WS049.00	04/01/07	WRB	F	5	28	A	-	C	CA	<2.0	CL
WS049.00	04/29/07	WRB	HF	8	30	A	P	C	CA	<2.0	CL
WS049.00	05/14/07	EXT	E	11	5	R	-	O	CA	4	SE
WS049.00	05/28/07	WRB	HF	11	27	A	-	C	CA	<2.0	CL
WS049.00	05/30/07	WRB	E	-	31	A	-	C	CA	<2.0	S
WS049.00	06/05/07	FP	F	17	0	A	P	C	CA	280	SW
WS049.00	06/11/07	EXT	E	14	28	E	-	C	CA	<2.0	CL
WS049.00	06/17/07	WRB	F	21	28	A	-	C	CA	2	W
WS049.00	07/11/07	EXT	H	17	30	R	-	O	CA	4	CL
WS049.00	07/25/07	FP	E	21	30	R	-	O	CA	<2.0	S
WS049.00	08/07/07	EXT	F	22	30	R	-	O	CA	132	SW
WS049.00	08/28/07	EXT	H	19	28	R	-	O	CA	12	CL
WS049.00	09/25/07	WRB	F	14	30	A	-	C	CA	<2.0	-
WS049.00	10/03/07	MHE	HF	17	28	R	-	O	CA	7.4	CL
WS049.00	10/24/07	EXT	HE	12	30	A	-	C	CA	76	CL
WS049.00	10/29/07	EXT	HF	7	20	R	-	C	CA	33	CL
WS049.00	11/26/07	WRB	F	6	30	A	P	C	CA	<2.0	N
WS049.00	12/10/07	WRB	HF	0	30	A	-	C	CA	<2.0	N
WS049.20	01/07/07	WRB	F	0	30	A	P	O	A	<2.0	NE
WS049.20	01/23/07	FP	HF	-4	28	R	-	O	A	<2.0	CL
WS049.20	04/01/07	WRB	F	4	28	A	-	C	A	<2.0	CL
WS049.20	04/11/07	JB	L	5	14	R	-	O	A	<2.0	W



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS049.20	04/29/07	WRB	HF	6	30	A	P	C	A	<2.0	CL
WS049.20	05/14/07	EXT	E	11	28	R	-	O	A	9.1	SW
WS049.20	05/28/07	WRB	HF	9	25	A	-	C	A	6	CL
WS049.20	05/30/07	WRB	E	-	31	A	-	C	A	13	S
WS049.20	06/11/07	EXT	E	13	28	E	-	O	A	2	NE
WS049.20	06/17/07	WRB	F	15	29	A	-	C	A	<2.0	W
WS049.20	07/10/07	JB	E	15	30	R	P	O	A	2	SW
WS049.20	08/07/07	EXT	F	22	32	R	-	O	A	<2.0	SW
WS049.20	08/28/07	EXT	H	18	31	R	-	O	A	<2.0	CL
WS049.20	09/25/07	WRB	F	12	30	A	-	C	A	<2.0	-
WS049.20	10/03/07	MHE	HF	15	32	R	-	O	A	<2.0	CL
WS049.20	10/24/07	EXT	E	11	31	A	-	C	A	58	CL
WS049.20	10/29/07	EXT	HF	7	26	R	-	O	A	18	CL
WS049.20	11/26/07	WRB	F	4	31	A	P	O	A	<2.0	N
WS049.20	12/10/07	WRB	HF	-4	30	A	-	C	A	<2.0	N
WS050.00	01/23/07	FP	F	-3	25	R	-	O	A	<2.0	NE
WS050.00	05/14/07	EXT	E	12	24	R	-	O	A	2	SW
WS050.00	06/05/07	FP	F	16	1	R	P	O	A	200	W
WS050.00	07/11/07	EXT	HE	17	30	R	-	O	A	4	SW
WS050.00	08/28/07	EXT	H	18	32	R	-	O	A	8	SW
WS050.00	10/29/07	EXT	F	7	16	R	W	O	A	29	CL
WS051.00	01/23/07	FP	F	-4	30	R	-	O	A	<2.0	NE
WS051.00	05/14/07	EXT	E	11	28	R	-	O	A	<2.0	SW
WS051.00	06/05/07	FP	F	16	28	R	P	O	A	14	NE
WS051.00	07/11/07	EXT	HE	16	30	R	-	O	A	<2.0	CL
WS051.00	08/28/07	EXT	H	18	32	R	-	O	A	3.6	CL
WS051.00	10/29/07	EXT	F	5	26	R	-	O	A	66	NW
WS052.00	01/23/07	FP	F	-4	30	R	-	O	A	<2.0	NE
WS052.00	04/11/07	JB	L	7	25	R	-	O	A	<2.0	W
WS052.00	05/14/07	EXT	E	12	28	R	-	O	A	<2.0	SW
WS052.00	07/10/07	JB	LE	16	30	R	P	O	A	2	SW
WS052.00	08/28/07	EXT	H	17	32	R	-	O	A	<2.0	CL
WS052.00	10/29/07	EXT	F	7	28	R	-	O	A	22	W
WS054.00	01/23/07	FP	F	-3	32	R	-	O	A	<2.0	NE
WS054.00	05/14/07	EXT	E	12	28	R	-	O	A	5.5	SW
WS054.00	06/05/07	FP	F	15	15	R	P	O	A	160	S
WS054.00	07/11/07	EXT	HE	15	30	R	-	O	A	6	SW
WS054.00	08/28/07	EXT	HE	17	32	R	-	O	A	80	CL
WS054.00	10/29/07	EXT	F	6	30	R	-	O	A	<2.0	W
WS055.00	01/23/07	FP	F	-1	32	R	-	C	P	<2.0	CL
WS055.00	04/11/07	JB	LF	5	30	R	-	C	P	<2.0	CL
WS055.00	05/14/07	EXT	E	12	29	R	-	C	P	<2.0	SW



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS055.00	07/10/07	JB	LE	15	30	R	P	C	P	2	CL
WS055.00	08/28/07	EXT	HE	16	32	R	-	O	A	<2.0	CL
WS055.00	10/29/07	EXT	F	8	30	R	-	O	A	7.3	CL
WS057.00	01/23/07	FP	F	-3	30	R	-	O	A	<2.0	CL
WS057.00	04/11/07	JB	LF	7	25	R	-	O	A	<2.0	CL
WS057.00	05/14/07	EXT	E	12	29	R	-	O	A	<2.0	SW
WS057.00	07/10/07	JB	L	18	30	R	P	O	A	<2.0	SW
WS057.00	08/28/07	EXT	HE	17	32	R	-	O	R	27	SW
WS057.00	10/29/07	EXT	F	7	30	R	-	O	R	2	NW
WS058.00	01/23/07	FP	F	-3	30	R	-	O	A	<2.0	CL
WS058.00	05/14/07	EXT	E	13	24	R	-	O	A	10	CL
WS058.00	06/05/07	FP	F	15	1	R	P	O	A	120	S
WS058.00	07/11/07	EXT	HE	16	32	R	-	O	A	9.1	SW
WS058.00	08/28/07	EXT	HE	17	32	R	-	O	R	<2.0	S
WS058.00	10/29/07	EXT	F	7	26	R	-	O	R	16	CL
WS059.00	01/07/07	WRB	HF	5	30	A	P	C	CA	<2.0	NE
WS059.00	01/23/07	FP	F	-4	21	R	-	C	CA	<2.0	CL
WS059.00	04/01/07	WRB	HF	5	28	A	-	C	CA	<2.0	CL
WS059.00	04/29/07	WRB	F	7	30	A	P	C	CA	<2.0	CL
WS059.00	05/15/07	EXT	E	8	26	R	-	O	CA	2	SW
WS059.00	05/28/07	WRB	F	11	24	A	W	C	CA	6	CL
WS059.00	05/30/07	WRB	E	-	30	A	-	C	CA	2.8	S
WS059.00	06/05/07	FP	F	16	0	A	P	C	CA	740	CL
WS059.00	06/11/07	EXT	E	15	25	E	-	C	CA	5.5	CL
WS059.00	06/17/07	WRB	F	18	29	A	-	C	CA	<2.0	W
WS059.00	07/11/07	EXT	HE	15	30	R	-	O	CA	6	CL
WS059.00	07/25/07	FP	E	16	26	R	-	O	CA	7.3	S
WS059.00	08/07/07	EXT	F	22	30	R	-	O	CA	2	CL
WS059.00	08/28/07	EXT	HE	17	31	R	-	O	CA	74	SW
WS059.00	09/25/07	WRB	F	15	30	A	-	C	CA	<2.0	-
WS059.00	10/03/07	MHE	HF	15	32	R	-	O	CA	33	CL
WS059.00	10/24/07	EXT	E	10	18	A	-	C	CA	18	CL
WS059.00	10/29/07	EXT	F	7	12	R	-	C	CA	108	W
WS059.00	11/26/07	WRB	F	4	31	A	P	C	CA	<2.0	N
WS059.00	12/10/07	WRB	H	0	30	A	-	C	CA	4	N
WS059.60	01/23/07	FP	F	-3	30	R	-	C	P	2	NE
WS059.60	04/11/07	JB	F	7	20	R	-	C	P	2	CL
WS059.60	05/14/07	EXT	LE	12	28	R	-	C	P	2	SW
WS059.60	07/10/07	JB	LF	20	30	R	P	C	P	<2.0	CL
WS059.60	08/28/07	EXT	E	16	32	R	-	C	P	<2.0	CL
WS059.60	10/29/07	EXT	F	6	25	R	-	C	P	104	W
WS063.00	01/23/07	FP	F	-3	32	R	-	C	P	<2.0	NE



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS063.00	04/11/07	JB	F	6	28	R	-	C	P	<2.0	W
WS063.00	05/14/07	EXT	LE	8	30	R	-	C	P	<2.0	SW
WS063.00	07/10/07	JB	LF	13	30	R	P	C	P	4	SW
WS063.00	08/28/07	EXT	E	16	32	R	-	C	P	<2.0	SW
WS063.00	10/29/07	EXT	F	7	30	R	-	C	P	6	W
WS065.00	01/23/07	FP	F	-4	32	R	-	O	A	<2.0	NE
WS065.00	04/11/07	JB	F	6	31	R	-	O	A	<2.0	W
WS065.00	05/14/07	EXT	LE	14	30	R	-	O	A	<2.0	SW
WS065.00	07/10/07	JB	LF	18	30	R	P	O	A	2	SW
WS065.00	08/28/07	EXT	E	17	32	R	-	O	A	<2.0	SW
WS065.00	10/29/07	EXT	F	7	30	R	-	O	A	<2.0	W
WS067.00	05/07/07	FP	F	3	30	R	-	O	A	<2.0	SW
WS067.00	06/11/07	FP	LE	15	30	R	-	O	A	<2.0	NE
WS067.00	06/27/07	JB	E	-	31	R	-	O	A	<2.0	SW
WS067.00	07/30/07	EXT	H	17	31	R	-	O	A	<2.0	W
WS067.00	08/15/07	JB	E	13	31	R	-	O	A	<2.0	SW
WS067.00	09/24/07	AJS	L	15	30	R	-	O	A	<2.0	W
WS067.50	05/07/07	FP	F	4	28	R	-	O	A	<2.0	SW
WS067.50	06/11/07	FP	E	15	30	R	-	O	A	<2.0	NE
WS067.50	06/27/07	JB	E	-	30	R	-	O	A	<2.0	SW
WS067.50	07/30/07	EXT	H	18	31	R	-	O	A	<2.0	SW
WS067.50	08/15/07	JB	E	15	31	R	-	O	A	<2.0	SW
WS067.50	09/24/07	AJS	L	16	30	R	-	O	A	<2.0	W
WS067.80	05/07/07	FP	F	4	29	R	-	O	A	<2.0	SW
WS067.80	06/11/07	FP	E	15	30	R	-	O	A	<2.0	NE
WS067.80	06/27/07	JB	E	-	31	R	-	O	A	<2.0	SW
WS067.80	07/30/07	EXT	H	18	32	R	-	O	A	<2.0	CL
WS067.80	08/15/07	JB	E	14	31	R	-	O	A	<2.0	SW
WS067.80	10/29/07	FP	HF	12	30	R	-	O	A	<2.0	NW
WS068.00	05/07/07	FP	F	3	28	R	-	O	A	<2.0	SW
WS068.00	06/11/07	FP	E	15	29	R	-	O	A	<2.0	NE
WS068.00	06/27/07	JB	E	-	30	R	-	O	A	<2.0	SW
WS068.00	07/30/07	EXT	H	18	31	R	-	O	A	<2.0	S
WS068.00	08/15/07	JB	E	14	30	R	-	O	A	<2.0	SW
WS068.00	09/24/07	AJS	LE	15	30	R	-	O	A	<2.0	CL
WS069.00	05/07/07	FP	F	4	29	R	-	O	A	<2.0	SW
WS069.00	06/11/07	FP	E	15	30	R	-	O	A	<2.0	NE
WS069.00	06/27/07	JB	E	-	31	R	-	O	A	<2.0	SW
WS069.00	07/30/07	EXT	H	18	31	R	-	O	A	<2.0	CL
WS069.00	08/15/07	JB	E	13	32	R	-	O	A	<2.0	SW
WS069.00	09/24/07	AJS	LE	14	30	R	-	O	A	<2.0	NW



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WS071.00	05/07/07	FP	F	3	28	R	-	O	A	<2.0	SW
WS071.00	06/11/07	FP	E	15	30	R	-	O	A	<2.0	NE
WS071.00	06/27/07	JB	E	-	32	R	-	O	A	<2.0	SW
WS071.00	07/30/07	EXT	HF	16	31	R	-	O	A	<2.0	CL
WS071.00	08/15/07	JB	E	14	32	R	-	O	A	<2.0	SW
WS071.00	09/24/07	AJS	LE	13	30	R	-	O	A	<2.0	SW
WS072.00	05/07/07	FP	F	2	30	R	-	O	A	<2.0	SW
WS072.00	06/11/07	FP	E	15	30	R	-	O	A	<2.0	NE
WS072.00	06/27/07	JB	E		32	R	-	O	A	<2.0	SW
WS072.00	07/30/07	EXT	HF	16	31	R	-	O	A	<2.0	CL
WS072.00	08/15/07	JB	E	13	32	R	-	O	A	<2.0	CL
WS072.00	09/24/07	AJS	E	12	30	R	-	O	A	<2.0	NW