



**GROWING AREA WY  
Town of Islesboro  
ANNUAL REVIEW for 2008**

**Report Date: January 19, 2010**

**Lorraine Morris**

**APPROVAL**

Division Director:

\_\_\_\_\_ Date: \_\_\_\_\_  
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**TABLE OF CONTENTS**

Executive Summary .....5  
Growing Area Description .....5  
Current Classification(s).....5  
Activity during Review Period .....6  
Current Management Plan(s) for Conditional Area(s).....6  
Water Quality Review and Discussion .....6  
Recommendations for Upward Classification .....8  
Shoreline Survey Activity .....9  
Aquaculture/Wet Storage Activity .....9  
There are no aquaculture or wet storage sites in area WY.....9  
Summary.....9  
Appendix A. Key to water quality table headers. ....10  
Appendix B. Transitioning to Membrane Filtration for Seawater and Pollution Source Samples 11  
Appendix C. Growing Area WY 2008 Data .....12

**LIST OF TABLES**

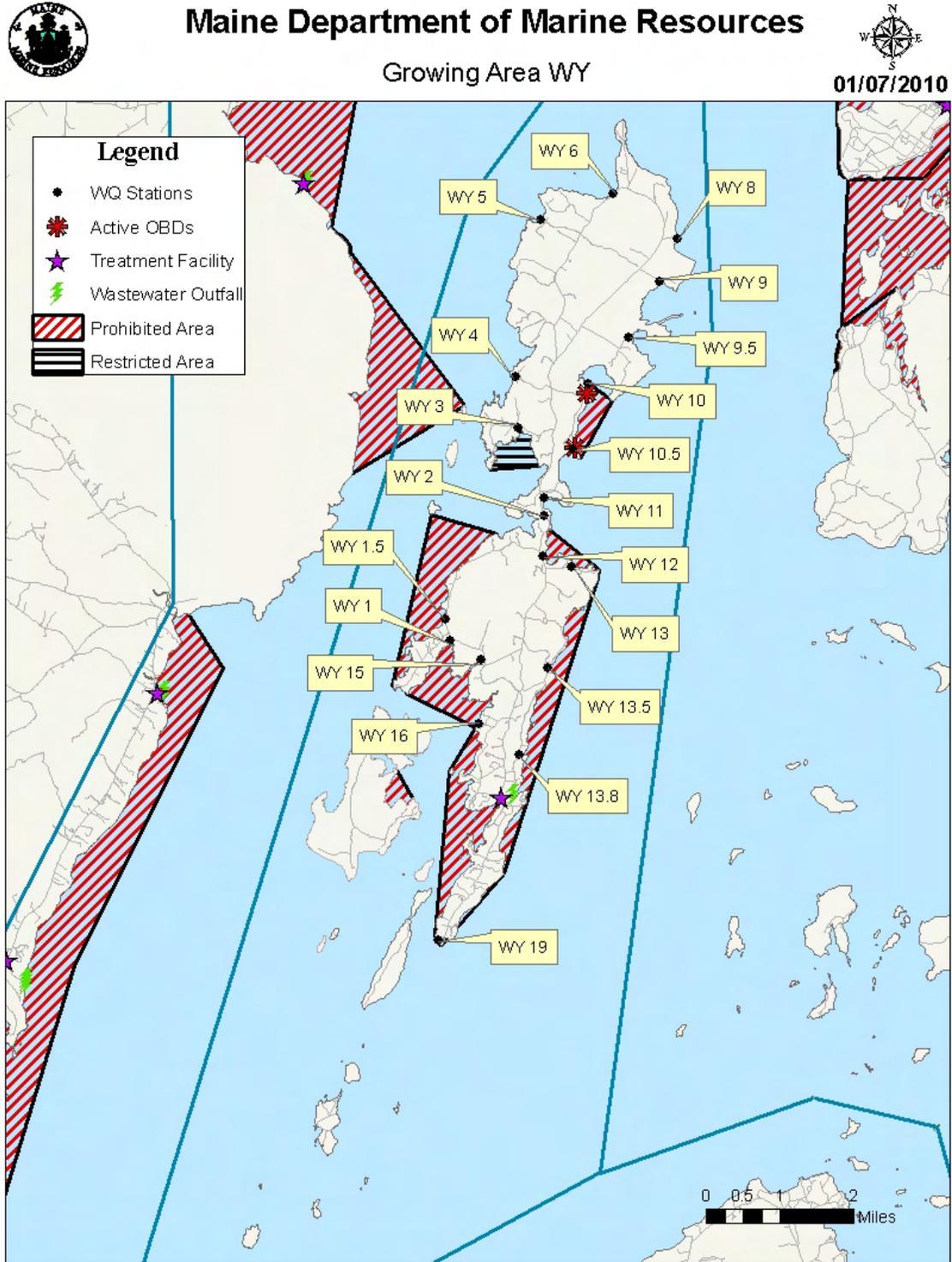
Table 1. Geomean and P90 Scores, Growing Area WY, 2004-2008.....6

**LIST OF FIGURES**

Figure 1. Growing Area WY, with Active Water Stations .....4  
Figure 2. Area WY P90 Scores for Approved Stations (expressed as the percent of the approved standard), 2006-2008.....8



Figure 1. Growing Area WY, with Active Water Stations





## Executive Summary

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

Growing Area WY includes the island of Islesboro and several smaller islands located in upper Penobscot Bay. There were no changes in pollution sources identified during the 2008 review year. A drive through survey was completed on November 18<sup>th</sup>, 2008. Several streams were also sampled at this time. There were no classification changes in growing area WY in 2008; no classification changes are being proposed as part of this annual review.

There were no stations added or deactivated from the growing area in 2008.

The next sanitary survey report is due in 2010.

## Growing Area Description

Growing Area WY includes the island of Islesboro and several smaller islands located in upper Penobscot Bay (Figure 1). Islesboro is approximately 10 miles long by 2.5 miles wide at its widest point. The shores of Islesboro consist of sand and cobble beaches with few actual mud flat areas. A complete growing area description can be found in DMR central files.

Islesboro has a year round population of 663 (2005 figures) that more than doubles during the summer months. Islesboro is very rural island with no marinas. There is a small municipal treatment facility on the southeast side of the island that serves a total population of 140 residents. All of the remaining residents have either a private in ground system, a licensed overboard discharge system, outhouses, or composting toilets. The entire shore along the southern half of the island is classified as prohibited. Most of this area has not been surveyed. The eastern side contains few shellfish resources and the western side is frequented by cruising boats during the summer months.

## Current Classification(s)

Shellfish growing area WY currently has areas classified as:

### Approved

- 10 Stations

### Restricted

- 1 Station (due to non point pollution)

### Prohibited

- 9 Stations (seven stations are prohibited due to non-point pollution; two stations are prohibited due to lack of shoreline survey.)



Please visit the DMR website to view legal notices:

[http://www.maine.gov/dmr/rm/public\\_health/closures/closedarea.htm#Y](http://www.maine.gov/dmr/rm/public_health/closures/closedarea.htm#Y)

## Activity during Review Period

There were no classification changes to area WY during the 2008 annual review period.

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

There are currently no conditional areas in area WY.

## Water Quality Review and Discussion

Table 1 lists all active approved, restricted, and prohibited stations in Growing Area WY, with their respective Geomean and P90 calculations for 2008. Please refer to Appendix A 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 central files. All approved and restricted stations met their appropriate NSSP classification standard in 2008.

**Table 1. Geomean and P90 Scores, Growing Area WY, 2004-2008**

Station	Class	Count	MFCnt	GM	SDV	MAX	P90	Appd_Std	Restr_Std
WY001.00	P	30	14	6.4	0.65	320	44.1	39	225
WY001.50	P	30	14	7.9	0.66	460	56.5	39	225
WY002.00	A	30	14	4.1	0.42	43	14.6	39	225
WY003.00	R	30	14	6.1	0.62	240	38.6	39	225
WY004.00	A	30	14	3.3	0.36	92	9.6	39	225
WY005.00	A	30	14	4.4	0.43	93	16.1	39	225
WY006.00	A	30	14	5.2	0.56	240	28.1	39	225
WY008.00	A	30	14	4.8	0.54	240	24.1	39	225
WY009.00	A	30	14	4.8	0.47	100	19.2	39	225
WY009.50	A	30	14	3.7	0.38	43	11.6	39	225
WY010.00	A	30	14	3.8	0.3	23	9.4	39	225
WY010.50	A	30	14	3.4	0.37	52	10.3	39	225



Station	Class	Count	MFCCount	GM	SDV	MAX	P90	Appd_Std	Restr_Std
WY011.00	A	30	14	3	0.26	23	6.7	39	225
WY012.00	P	30	14	5	0.64	240	33.3	39	225
WY013.00	P	30	14	6.5	0.69	240	50.4	39	225
WY013.50	P	30	14	4.4	0.64	1200	29.6	39	225
WY013.80	P	30	14	4.1	0.51	240	19.1	39	225
WY015.00	P	30	14	6.2	0.68	460	47	39	225
WY016.00	P	18	15	2.5	0.3	23	6.4	33	180
WY019.00	P	30	14	3.2	0.34	30	8.8	39	225

All approved, restricted, and prohibited stations that were active at the beginning of 2008 were sampled at least 6 times following the systematic random sampling (SRS) schedule. Table 2 shows the number of random samples taking during the 2008 sampling year; Appendix C shows all SRS data collected in 2008 for all active stations in area WY.

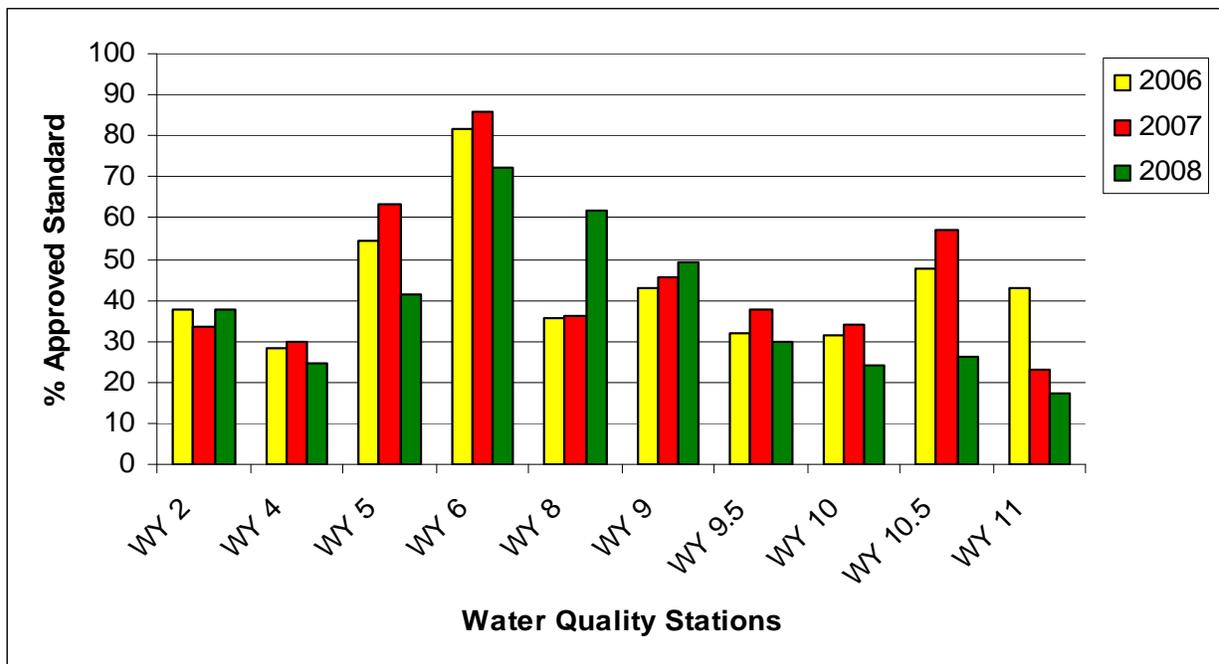
Table 2. WY Sampling Effort for 2008

Station	Class	Random		Grand Total
		Closed	Open	
WY001.00	P	6		6
WY001.50	P	6		6
WY002.00	A		6	6
WY003.00	R		6	6
WY004.00	A		6	6
WY005.00	A		6	6
WY006.00	A		6	6
WY008.00	A		6	6
WY009.00	A		6	6
WY009.50	A		6	6
WY010.00	A		6	6
WY010.50	A		6	6
WY011.00	A		6	6
WY012.00	P	6		6
WY013.00	P	6		6
WY013.50	P	6		6
WY013.80	P	6		6
WY015.00	P	6		6
WY016.00	P	6		6
WY019.00	P	6		6



Figure 2 shows the P90 trends over the past three years for all active approved stations in area WY. 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 2008 column on or above the 100 percent line does not meet the standard for approved classification. With the exception of stations WY 6 and WY 8, all approved stations are currently under 50 percent of the approved standard. Stations WY 6 is within 30 percent of the standard, and has shown a decrease in P90 scores over the past review year. Station WY 8 has shown a significant increase in its P90 score for 2008 (decreasing water quality). The area surrounding this station is recommended for shoreline survey in the coming review year. The remainder of the stations have shown an improvement in water quality scores over the past three years, or have shown little change in scores (less than 10% change over the past three years).

**Figure 2. Area WY P90 Scores for Approved Stations (expressed as the percent of the approved standard), 2006-2008**



### Recommendations for Upward Classification

Based on the 2008 Annual review, there are currently no upward classification recommendations for growing area WY.



## Shoreline Survey Activity

A drive through survey of the island of Islesboro was conducted on November 18, 2008. The survey started at station WY 1.5 and continued north and then around the east side of the island. The drive through survey was conducted to document any new pollution sources and any improvements that may have taken place over the course of the year. Two sites that were mentioned in the 2007 triennial review of the island were revisited to see if there had been a change in the potential pollution impact.

### Site # 1

At sample station WY 1.5 an outhouse was noted (in 2007) as being very full and too close to the shore. The owner was notified and asked to empty and relocate the outhouse away from the shore. During the 2008 drive through survey the outhouse was inspected. It was found to be in working order and had been moved. The outhouse is still close to the shore (40 feet). There is very limited space available on the lot. A stream flows past the outhouse (within 25 feet). The stream was sampled and received a score of 16 CFU/100ml. The shore in this area is classified as prohibited.

### Site #2

Just north of station WY 1.5, there is a farm that borders on a small stream. The farm consists of 15 sheep, two donkeys, several chickens and some geese. The sheep are occasionally kept in a small enclosure that borders on the stream. This site was revisited to see if the sheep were in the enclosure and if manure was present near the stream. At the time of inspection no sheep were in the enclosure and manure was not visible near the stream. The stream was sampled and received a score of 1140 CFU/100ml. The shore in this area is classified as prohibited.

No additional potential or actual pollution sources were identified during the drive through survey.

## Aquaculture/Wet Storage Activity

There are no aquaculture or wet storage sites in area WY.

## Summary

Based on the current review of water quality data for 2008 all stations in area WY meet the appropriate NSSP classification standard. Some prohibited stations met the approved NSSP standard, however these stations will remain classified as prohibited until future shoreline survey work and water quality assessment can be completed. It is recommended that the entire island be re-surveyed within the next two years.



## 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 = 90<sup>th</sup> percentile

APPD\_STD = the 90<sup>th</sup> 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 90<sup>th</sup> percentile, at or below which the station would meet restricted criteria.



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

The Maine Department of Marine Resources has switched to a Membrane Filtration (MF) method for Fecal Coliforms using mTEC agar with a two hour resuscitation step. The geometric mean and the 90<sup>th</sup> 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 90<sup>th</sup> 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 90<sup>th</sup> percentile standard that the sample site is compared to will change over time. Once all 30 data points are analyzed using MF, the 90<sup>th</sup> 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 90<sup>th</sup> percentiles will show the number of data points derived from MF analysis and will show the appropriate 90<sup>th</sup> 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 90<sup>th</sup> percentile standard is 31 fecal coliforms per 100 ml.

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



**Appendix C. Growing Area WY 2008 Data**

Station	Date	Collect	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WY001.00	01/28/08	LL	F	0	30	R	-	C	P	<2.0	CL
	05/21/08	EXT	H	16	26	R	-	C	P	<2.0	S
	06/17/08	EXT	HE	14	26	R	-	C	P	16	CL
	07/15/08	FP	F	16	26	R	-	C	P	2	S
	09/15/08	FP	HF	15	27	R	P	C	P	85	SW
	10/29/08	MLP	HE	5	30	R	-	C	P	41	SW
WY001.50	01/28/08	LL	L	0	30	R	-	C	P	<2.0	N
	03/24/08	EXT	F	0	30	R	-	C	P	<2.0	S
	05/21/08	EXT	F	10	26	R	-	C	P	<2.0	CL
	07/15/08	FP	HF	16	26	R	-	C	P	16	CL
	09/15/08	FP	HF	13	29	R	P	C	P	6	SW
	10/29/08	MLP	F	6	28	R	-	C	P	62	SW
WY002.00	01/28/08	LL	F	0	28	R	-	O	A	<2.0	CL
	03/24/08	EXT	F	2	30	R	-	O	A	<2.0	S
	05/21/08	EXT	F	11	25	R	-	O	A	<2.0	CL
	07/15/08	FP	HF	16	26	R	-	O	A	4	CL
	09/15/08	FP	HF	15	28	R	PW	O	A	24	SW
	10/29/08	MLP	F	7	999	R	-	O	A	-	-
	11/18/08	FP	F	5	26	R	-	O	A	4	CL
WY003.00	01/28/08	LL	F	-1	30	R	-	O	R	2	N
	03/24/08	EXT	F	2	26	R	-	O	R	<2.0	S
	05/21/08	EXT	F	13	25	R	-	O	R	<2.0	CL
	07/15/08	FP	HF	17	26	R	-	O	R	<2.0	CL
	09/15/08	FP	HF	15	22	R	P	O	R	70	SW
	10/29/08	MLP	F	6	29	R	-	O	R	20	SW
WY004.00	01/28/08	LL	LF	0	29	R	-	O	A	<2.0	N
	03/24/08	EXT	F	-1	22	R	-	O	A	<2.0	CL
	05/21/08	EXT	F	12	25	R	-	O	A	<2.0	CL
	07/15/08	FP	HF	17	24	R	-	O	A	<2.0	CL
	09/15/08	FP	H	14	26	R	PW	O	A	92	SW
	10/29/08	MLP	F	8	31	R	-	O	A	<2.0	SW
WY005.00	03/24/08	EXT	F	1	28	R	-	O	A	<2.0	CL
	05/21/08	EXT	F	11	24	R	-	O	A	<2.0	CL
	06/17/08	EXT	H	13	26	R	-	O	A	2	NE
	07/15/08	FP	HF	16	24	R	-	O	A	8	CL
	09/15/08	FP	H	13	29	R	P	O	A	<2.0	CL
	10/29/08	MLP	F	8	29	R	-	O	A	4	SW
WY006.00	01/28/08	LL	LF	0	28	R	-	O	A	2	N
	03/24/08	EXT	F	1	25	R	-	O	A	<2.0	S
	05/21/08	EXT	F	12	22	R	-	O	A	<2.0	W
	07/15/08	FP	H	16	22	R	-	O	A	12	CL
	09/15/08	FP	H	13	28	R	P	O	A	4	SW
	10/29/08	MLP	HF	8	28	R	-	O	A	4	SW



Station	Date	Collect	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WY008.00	01/28/08	LL	LF	0	28	R	-	O	A	<2.0	NE
	03/24/08	EXT	F	0	25	R	-	O	A	<2.0	S
	05/21/08	EXT	F	12	22	R	-	O	A	2	S
	07/15/08	FP	H	15	22	R	-	O	A	14	S
	09/15/08	FP	H	13	30	R	P	O	A	36	SW
	10/29/08	MLP	HF	8	31	R	-	O	A	102	SW
WY009.00	01/28/08	LL	LF	-1	30	R	-	O	A	<2.0	CL
	03/24/08	EXT	F	1	22	R	-	O	A	<2.0	S
	05/21/08	EXT	F	13	25	R	-	O	A	<2.0	SE
	07/15/08	FP	H	15	26	R	-	O	A	<2.0	CL
	09/15/08	FP	H	14	29	R	P	O	A	100	SW
	10/29/08	MLP	HF	7	30	R	-	O	A	6	SW
WY009.50	01/28/08	LL	LF	0	30	R	-	O	A	2	NE
	03/24/08	EXT	F	1	26	R	-	O	A	<2.0	CL
	05/21/08	EXT	F	14	25	R	-	O	A	<2.0	SE
	07/15/08	FP	H	16	26	R	-	O	A	<2.0	CL
	09/15/08	FP	HE	14	29	R	P	O	A	42	CL
	10/29/08	MLP	HF	8	31	R	-	O	A	2	CL
WY010.00	01/28/08	LL	F	0	30	R	-	O	A	2	NE
	03/24/08	EXT	F	0	28	R	-	O	A	<2.0	CL
	05/21/08	EXT	F	11	25	R	-	O	A	<2.0	CL
	07/15/08	FP	H	16	26	R	-	O	A	<2.0	CL
	09/15/08	FP	HE	13	28	R	P	O	A	8	CL
	10/29/08	MLP	HF	8	31	R	-	O	A	7.3	SW
WY010.50	01/28/08	LL	F	0	30	R	-	O	A	<2.0	CL
	03/24/08	EXT	F	1	26	R	-	O	A	<2.0	S
	05/21/08	EXT	F	12	25	R	-	O	A	<2.0	CL
	07/15/08	FP	H	16	26	R	-	O	A	<2.0	CL
	09/15/08	FP	HE	14	28	R	P	O	A	50	CL
	10/29/08	MLP	HF	8	31	R	-	O	A	2	SW
WY011.00	01/28/08	LL	F	0	30	R	-	O	A	<2.0	CL
	03/24/08	EXT	F	2	26	R	-	O	A	<2.0	S
	05/21/08	EXT	HF	11	25	R	-	O	A	<2.0	CL
	07/15/08	FP	H	16	26	R	-	O	A	<2.0	CL
	09/15/08	FP	HE	13	30	R	P	O	A	8	CL
	10/29/08	MLP	HF	9	31	R	-	O	A	<2.0	SW
WY012.00	01/28/08	LL	F	0	28	R	-	C	P	<2.0	NE
	03/24/08	EXT	F	2	26	R	-	C	P	<2.0	CL
	05/21/08	EXT	HF	13	25	R	-	C	P	<2.0	CL
	07/15/08	FP	HE	16	25	R	-	C	P	<2.0	S
	09/15/08	FP	HE	13	30	R	P	C	P	<2.0	CL
	10/29/08	MLP	H	9	31	R	-	C	P	2	CL
WY013.00	01/28/08	LL	F	0	28	R	-	C	P	2	NE
	03/24/08	EXT	F	1	26	R	-	C	P	<2.0	CL
	05/21/08	EXT	HF	11	25	R	-	C	P	<2.0	SE



Station	Date	Collect	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
	07/15/08	FP	HE	17	26	R	-	C	P	36	S
	09/15/08	FP	HE	12	30	R	P	C	P	<2.0	CL
	10/29/08	MLP	H	9	32	R	-	C	P	<2.0	CL
WY013.50	01/28/08	LL	F	0	30	R	-	C	P	<2.0	NE
	05/21/08	EXT	HF	13	25	R	-	C	P	<2.0	SE
	06/17/08	EXT	H	13	26	R	-	C	P	<2.0	CL
	07/15/08	FP	HE	16	26	R	-	C	P	<2.0	CL
	09/15/08	FP	E	12	31	R	P	C	P	<2.0	CL
	10/29/08	MLP	H	9	31	R	-	C	P	2	CL
WY013.80	01/28/08	LL	F	0	28	R	-	C	P	<2.0	NE
	05/21/08	EXT	HF	12	25	R	-	C	P	<2.0	CL
	06/17/08	EXT	HE	12	26	R	-	C	P	4	CL
	07/15/08	FP	HE	17	25	R	-	C	P	<2.0	CL
	09/15/08	FP	E	13	30	R	P	C	P	10	CL
	10/29/08	MLP	H	9	31	R	-	C	P	<2.0	CL
WY015.00	01/28/08	LL	F	0	30	R	-	C	P	<2.0	CL
	05/21/08	EXT	H	12	26	R	-	C	P	<2.0	SE
	06/17/08	EXT	HE	13	25	R	-	C	P	62	CL
	07/15/08	FP	F	15	26	R	-	C	P	<2.0	CL
	09/15/08	FP	HF	15	29	R	P	C	P	20	SW
	10/29/08	MLP	HE	7	31	R	-	C	P	4	SW
WY016.00	01/28/08	LL	F	0	30	R	-	C	P	<2.0	NE
	05/21/08	EXT	H	12	28	R	-	C	P	<2.0	SE
	06/17/08	EXT	HE	13	26	R	-	C	P	<2.0	CL
	07/15/08	FP	E	17	25	R	-	C	P	<2.0	S
	09/15/08	FP	E	13	30	R	P	C	P	6	W
	10/29/08	MLP	H	8	31	R	-	C	P	<2.0	SW
WY019.00	01/28/08	LL	F	0	29	R	-	C	P	<2.0	NE
	05/21/08	EXT	HF	12	28	R	-	C	P	<2.0	SE
	06/17/08	EXT	HE	13	26	R	-	C	P	<2.0	CL
	07/15/08	FP	E	16	28	R	-	C	P	<2.0	S
	09/15/08	FP	E	13	31	R	P	C	P	13	W
	10/29/08	MLP	H	8	32	R	-	C	P	<2.0	SW