



# GROWING AREA WY

Islesboro

Triennial Report for  
(2005– 2007)

Final Report Date:  
07/22/08

Fran Pierce

## APPROVAL

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Figure 1. Shellfish Growing Area WY

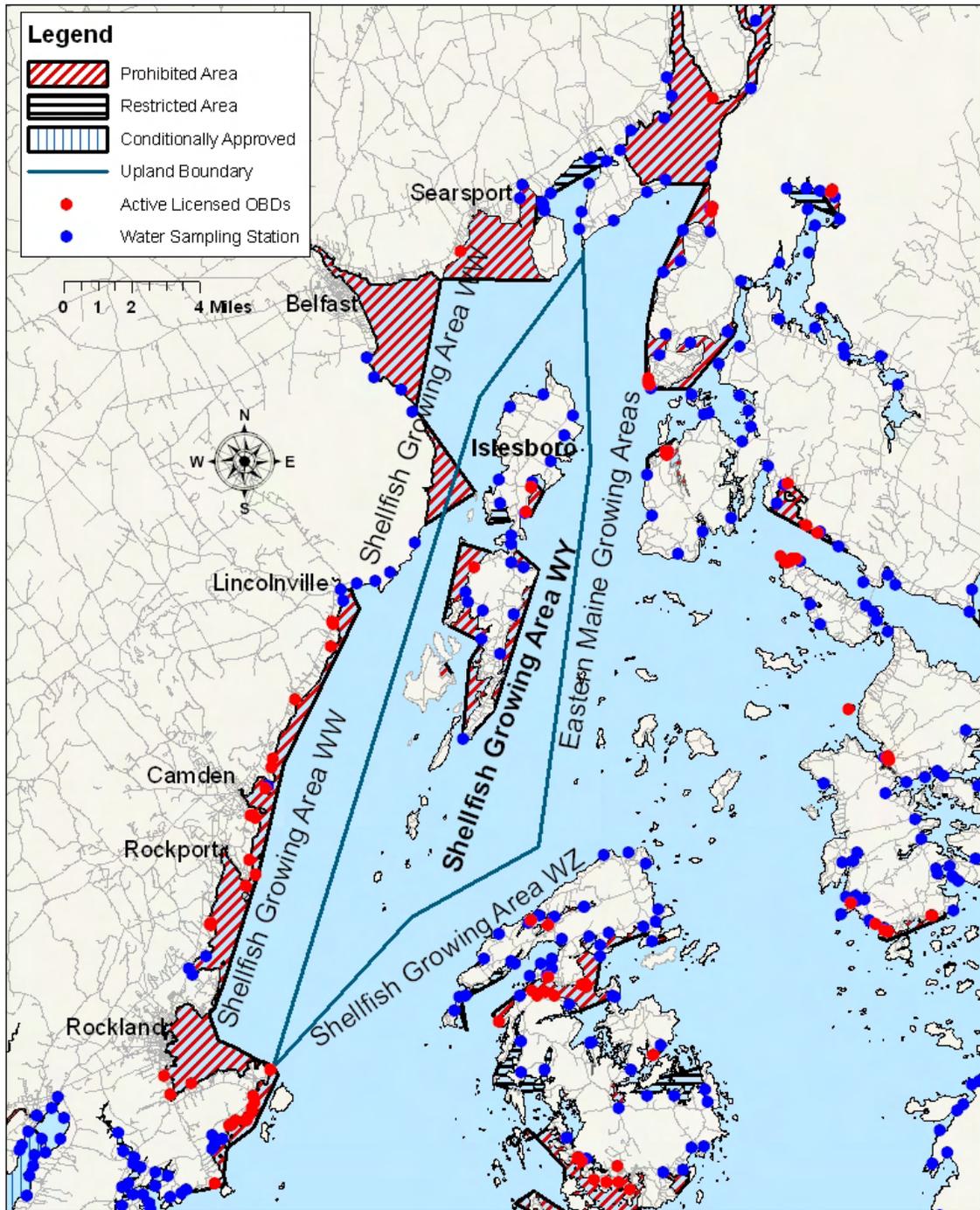


### Maine Department of Marine Resources 2007 Triennial Review of Shellfish Growing Area WY

Town of Islesboro



2/22/08





## Executive Summary

This is a triennial report of Shellfish Growing Area WY for the years of 2005 – 2007. This report is written in compliance with the requirements of the 2005 Model Ordinance and the Shellfish Sanitation Program. No changes in classification are being recommended as part of this report. Several stations were reclassified following the 2006 annual review of this area (June 13, 2007). All of the classification changes were due to deteriorating water quality scores.

The next sanitary survey of Islesboro is due in 2012. The sanitary survey of the islands south of Islesboro will be due in 2010. The shoreline survey of Islesboro and the islands will be conducted as one shoreline survey which will begin in 2009.

## Site Description

Shellfish growing area WY includes the shoreline on the island of Islesboro and several adjacent smaller islands (Figure 1). Islesboro is a long narrow island, approximately 10 miles long by 2.5 miles wide at its widest point, located in the upper Penobscot Bay. The shoreline of Islesboro consists of sand and cobble beaches, with few actual mud flat areas. A detailed boundary description of Shellfish Growing Area WY can be found in the Public Health Division growing area files in Boothbay Harbor, Maine.

The island of Islesboro has a year round population of 663 (2005 figures). The population more than doubles during the summer months. Islesboro is very rural; there are no marinas, or large businesses along the shore. There is a small municipal treatment facility that serves a total population of 140 residents in the vicinity of Dark Harbor, on the southeast side of the island. All of the remaining systems on the island are private in ground systems, licensed overboard discharge systems or out house and composting toilet systems. The entire shore along the southern half of the island is classified as prohibited, and most of this area has not been surveyed. The eastern side of the southern half of the island contains few shellfish resources and the western side is frequented by cruising boats during the summer months. A comprehensive map of growing area WY with active sampling stations is included in Figures 2.

The north shore of Islesboro was surveyed in the spring and summer of 2000. The islands adjacent to the southwestern portion of the island were surveyed in 1998.

## Current Classifications

The shores of Islesboro are classified as approved, restricted and prohibited. There are no conditional areas in shellfish growing area WY.

**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. The area around these stations will be surveyed when the shoreline survey is updated beginning in 2009.

All of the current classifications for this growing area are shown on legal notice 36-F Islesboro.

Please visit the DMR website for legal notice 36-F:

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

## Current Management Plan for Conditional Areas

There are no areas classified as conditional in WY.

## Activity during Review Period (2005-2007)

2005- 36-F Dated July 22, 2005, Opened Parker Cove for shellfish harvest and closed Ryder Cove due to possible straight pipe at the mouth of Ryder Cove.

2006- There were no changes in classification in 2006.

2007 – 36-F Dated June 13, 2007, Reopened Ryder Cove to shellfish harvest. Holding tank installed to replace straight pipe. Broad Cove reclassified to prohibited due to poor water quality (stations WY1 and WY15). Reclassified cove at station WY3 to restricted due to poor water quality. Reclassified shore at station WY1.5 to prohibited due to poor water quality.

Stations that have been affected by the above classification changes and other sample station changes that were enacted during the review period are shown in Table 1.

On October 17, 2005 station WY7 was deactivated and station WY 16 was created to better monitor the end of a closure line. Station WY 16 was not sampled until the 2006 sampling season.

**Table 1. Classification Changes during Current Review Period (2005-2007)**

Station	Classification Change P=prohibited A=approved R=restricted	Reason
WY 9	Reclass P to A 7/22/05	Dwelling removed – pipe removed
WY 10	Reclass A to P 7/22/05	Pipe present
WY 10	Reclass P to A 6/15/07	Pipe removed, holding tank installed
WY 3	Reclass A to R 6/15/07	Poor water quality
WY 1	Reclass A to P 6/15/07	Poor water quality
WY 1.5	Reclass A to P 6/15/07	Poor water quality
WY 15	Reclass A to P 6/15/07	Poor water quality



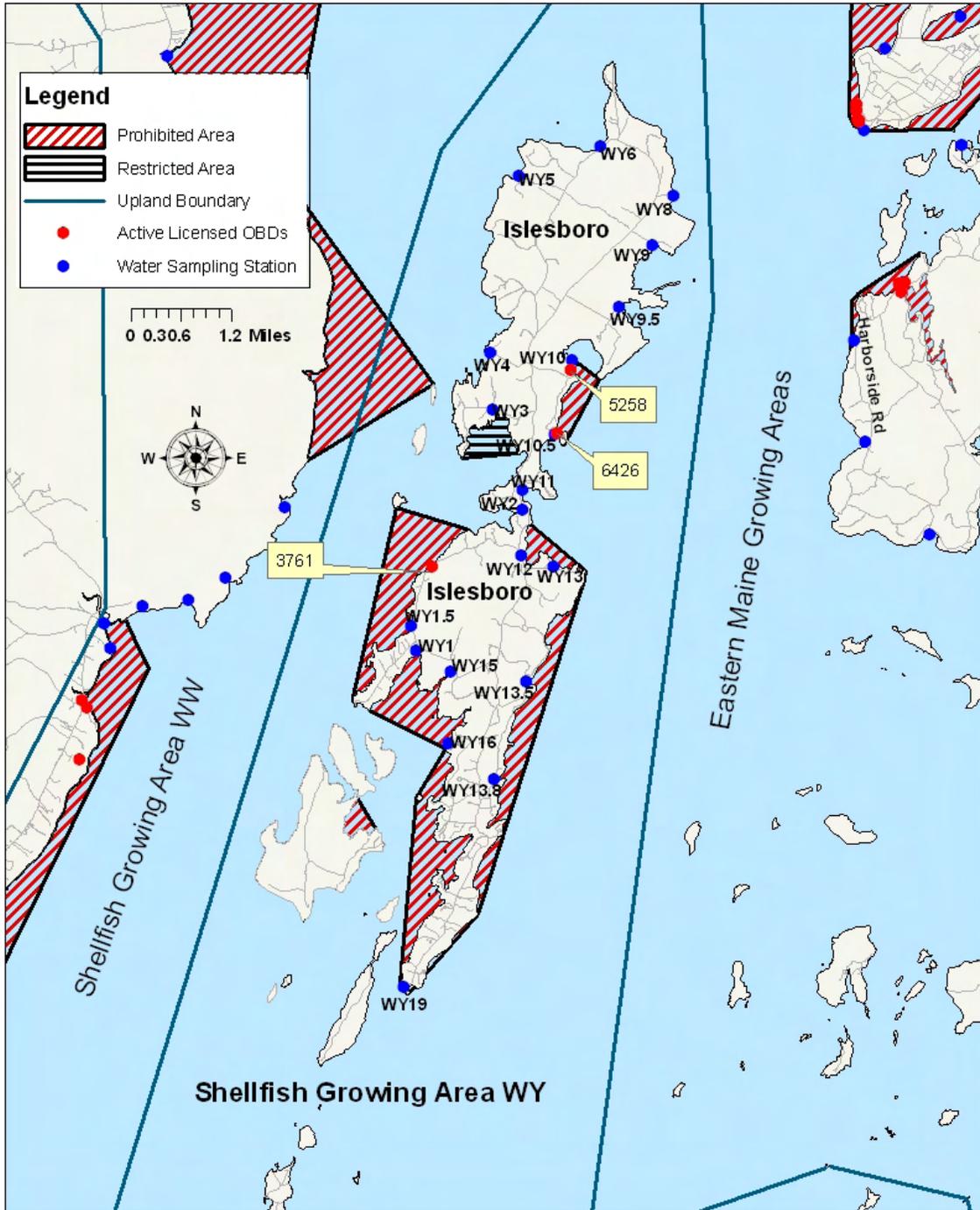
Figure 2. Sampling Stations Growing Area WY



### Maine Department of Marine Resources

2/22/08

Water Sampling Stations and Licensed Overboard Discharges Town of Islesboro





## Water Quality Review and Discussion

Table 2 below lists all active stations in Growing Area WY, with their respective Geomean and P90 calculations for 2007; a key to interpreting table headers is in appendix A. The approved and restricted standards for each station are also displayed in Table 2. These standards will fluctuate yearly as a result of the DMR transition from an MPN fecal coliform test method to a membrane filtration (MF) method and are dependent on the number of samples analyzed by MPN versus MF. The total number of data points used in the calculations is displayed in the COUNT column and includes both MPN and MF values. The number of data points analyzed by MF is displayed in the 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. All approved and restricted stations met the appropriate standard for their NSSP classification. All active stations were sampled six times in 2007, following a systematic random sampling schedule (Table 3).

**Table 2. Geomean and P90 scores in Growing Area WY**

STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WY001.00	P	30	8	6.7	0.65	320	45.1	43	255
WY001.50	P	30	8	8.2	0.66	460	58.0	43	255
WY002.00	A	30	8	4.3	0.41	43	14.5	43	255
WY003.00	R	30	8	8.0	0.66	240	55.7	43	255
WY004.00	A	30	8	4.1	0.39	93	12.9	43	255
WY005.00	A	30	8	6.0	0.52	93	27.4	43	255
WY006.00	A	30	8	6.2	0.61	240	37.0	43	255
WY008.00	A	30	8	4.2	0.44	240	15.6	43	255
WY009.00	A	30	8	5.4	0.44	43	19.6	43	255
WY009.50	A	30	8	4.8	0.42	43	16.3	43	255
WY010.00	A	30	8	4.7	0.39	43	14.7	43	255
WY010.50	A	30	8	4.8	0.56	240	24.6	43	255
WY011.00	A	30	8	3.7	0.34	43	10.0	43	255
WY012.00	P	30	8	6.2	0.66	240	42.8	43	255
WY013.00	P	30	8	7.0	0.66	240	48.1	43	255
WY013.50	P	30	8	5.1	0.62	1200	32.0	43	255
WY013.80	P	30	8	4.4	0.51	240	19.3	43	255
WY015.00	P	30	8	6.2	0.70	460	48.4	43	255
WY016.00	new	12	9	2.8	0.35	23	7.9		
WY019.00	P	30	8	3.7	0.35	30	10.5	43	255



**Table 3. Sample Count for 2007**

Station	Class	Strategy	Status	# Samples	Comments
WY001.00	A	R	O	3	reclassified to prohibited 6/13/07
	P	R	C	3	
WY001.50	A	R	O	3	reclassified to prohibited 6/13/07
	P	R	C	3	
WY002.00	A	R	O	6	
WY003.00	A	R	O	3	reclassified restricted 6/13/07
	R	R	O	3	
WY004.00	A	R	O	6	
WY005.00	A	R	O	6	
WY006.00	A	R	O	6	
WY008.00	A	R	O	6	
WY009.00	A	R	O	6	reclassified as approved 7/22/05
WY009.50	A	R	O	6	
WY010.00	A	R	O	6	
WY010.50	A	R	O	6	
WY011.00	A	R	O	6	
WY012.00	P	R	C	6	
WY013.00	P	R	C	6	
WY013.50	P	R	C	6	Added to monitor water quality @ AQ site
WY013.80	P	R	C	6	
WY015.00	A	R	O	3	reclassified prohibited 6/13/07
	P	R	C	3	
WY016.00	P	R	C	6	added in 2006
WY019.00	P	R	C	6	

Strategy (Sampling): **R** – systematic random  
 Status: **O** – opened, **C** – closed  
 Class: **A** – approved, **R** – restricted, **P** – Prohibited

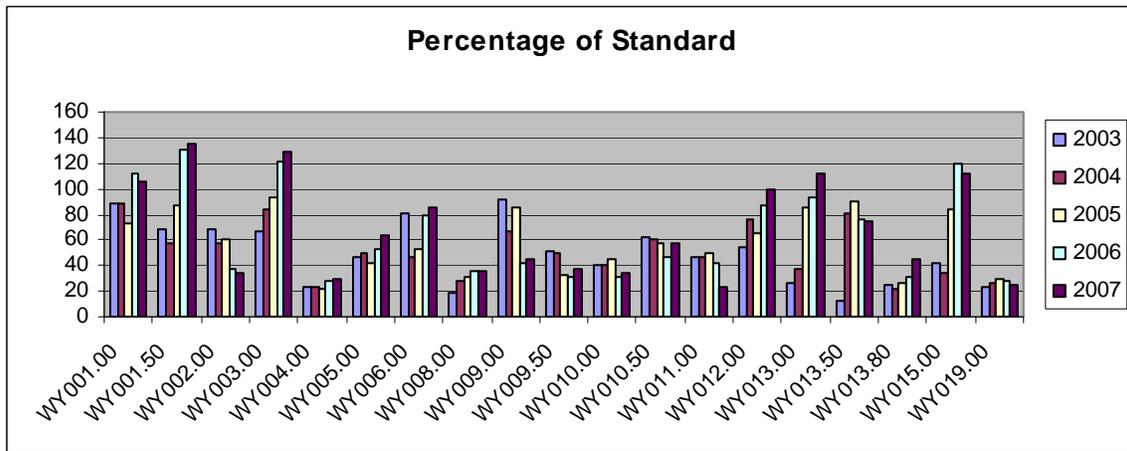
Figure 3 shows P90 scores for all sites in WY for the past five years. During the transition from MPN to MF data points, each year the approved standard will be lower than the previous year until all samples have been analyzed by the MF method. In order to show the trend of the P90 scores over the years, they are expressed as a percentage of the approved standard. The data shown in Figure 3 can be found in appendix D. Over the past several years, water quality has deteriorated at multiple sites. Stations WY1, 1.5, 3, and 15 were all downgraded in classification due to poor water quality. North of station WY1.5, land was cleared for a new farm. The farm has 20 sheep, one donkey, and approximately 20 chickens. The sheep frequently graze in a small pasture that abuts a stream that flows onto the shore north of station WY1.5. There is also an outhouse within 30 feet of the shore where the station (WY1.5) is sampled. When the outhouse was inspected (fall of 2007), it was observed to be quite full. The property owner was in residence at the time of the inspection. DMR recommended that the outhouse be



rebuilt at a new site away from the shore, and constructed in a manner that could be maintained. There is no explanation for the elevated scores at any of the other sampling sites and further survey work is needed to aid in determining the sources of pollution at these sites.

Stations that show the 2007 column at or above the 100 percent line no longer meet approved standards. The P90 trend chart for the years 2003 - 2007, indicates that fecal scores at station WY 1, WY1.5, WY3, WY13 and WY15 do not meet approved standards. The scores at station WY5 and WY6, appear to be on the rise but have continued to meet approved standards.

**Figure 3. P90 Scores (expressed as percent of approved standard) 2003-2007**



### Documentation of Pollution Sources

Please refer to the pollution source map in Figure 4 to view the locations of these pollution sources.

### Evaluation of New Pollution Sources

No new pollution sources were identified during the review period.

### Reevaluation of All Pollution Sources

#### Residential Dwellings/ New Development

An eroded road in the vicinity of station WY 3 was noted during the review. The road had fallen away and construction was done to stabilize the banking.

A discussion with the property caretaker revealed that a new development consisting of 12 building lots is being proposed for the small cove area in the vicinity of sampling station WY11. However, no construction was observed at this site during the 2007 sampling season.



A small seasonal cottage that formerly had a straight pipe system in Ryders Cove has replaced the straight pipe with a holding tank. The water quality at sampling station WY 10 met the approved standard and the area was reclassified to approved for shellfish harvest on June 13, 2007.

*Farm Activity*

In 2006, a large road was put in it on the west side of the island and in the vicinity of station WY1.5. Additionally, an area consisting of many acres had been cleared. A discussion with the caretaker for the property revealed that this large parcel of land was going to be used by grazing animals. At the time of the inspection, twenty sheep, one donkey and several chickens were contained in an enclosure approximately 300 feet from the shore. Water quality at station WY1.5 has deteriorated to the point that it no longer meets approved standards.

**Table 4. Animal Farms located in Area WY**

Animal Farm Site	Animal	# of Animals	Distance to Shore	Comments
AF1	sheep	20	20 ft to stream stream flows to shore at site# 1.5S2	sheep are not always this close to stream
	chickens	20		
	donkey	1		
AF2	sheep	12	300 ft	
	horses	2		
AF3	chickens	12	>1000 ft	
AF4	horses	4	>500 ft	
AF5	horses	5	>1000 ft	

*Over Board Discharges (OBDs)*

There are three licensed overboard discharges on Islesboro. Dilution calculation results are shown in Table 5. These calculations are based on a fecal load of 10,000 fc/100ml. All of the closure acreage areas are larger than the required dilution area due to either elevated water quality scores at a nearby sampling station or additional known pollution source(s) in the immediate area.

**Table 5. Active Licensed Overboard Discharges Located in Area WY**

License No.	System-Flow gpd	Required dilution area	Acres Closed
3761	Sand Filter-500	.08 acres	610 acres
5258	Sand Filter-608	.07 acres	132 acres
6426	Sand Filter-300	.04 acres	132 acres



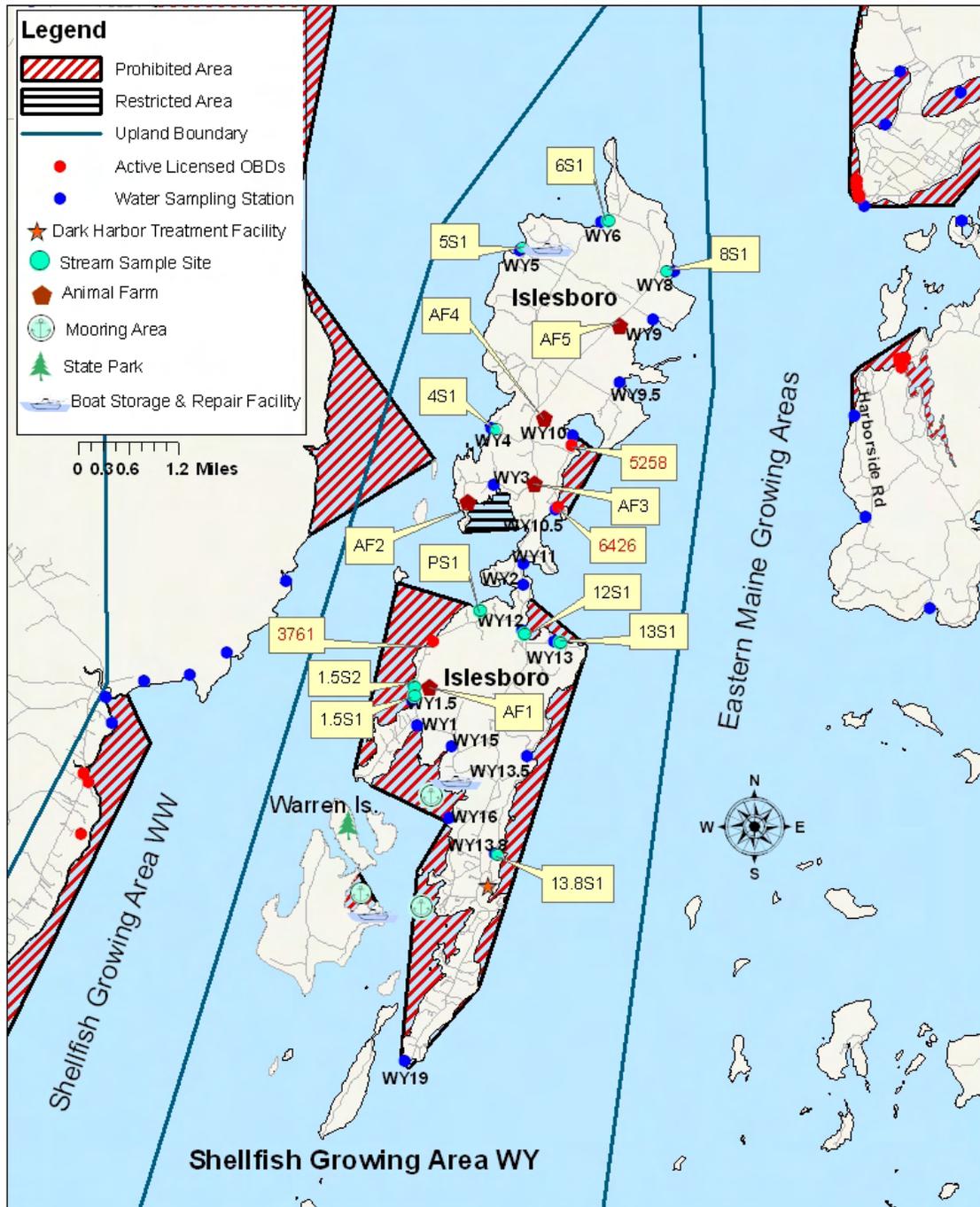
Figure 4. Streams and Pollution Sources in Shellfish Growing Area WY



### Maine Department of Marine Resources

2/22/08

#### Streams and Pollution Sources Shellfish Growing Area WY





### *Sewage Treatment*

The Dark Harbor Treatment Plant is located on the east side of Islesboro on Pendleton Point Road. The collection system was installed in 1908 and consists of approximately 3,400 feet of 6 and 8 inch clay pipe. Approximately 2,800 feet of the collection system serves Main Street and the remaining 600 feet serves Derby Road. The collection system does not have any combined sewer overflow points, however there is considerable inflow and infiltration which flows to the waste water treatment facility. The treatment facility commenced operations in 1980. The facility provides a secondary level of treatment via three sand filters, each 70 feet wide and 100 feet long. The sand filters are covered with a 24-30 inch thick layer of clay. There are three series of septic tanks, each having a 5,000 gallon capacity, a pump station having two 100 gallons per minute submersible pumps, a force main, a splitter box and a 1,000 gallon chlorine contact chamber for disinfection.

The treatment facility presently serves 24 residential dwellings, and 3 commercial facilities for a total population of 140 people, with fifty percent of this population being seasonal. The original outfall design called for the outfall to be located beyond the stone breakwater in "the old swimming hole" known as Dark Harbor Pool. Due to the many breaks in the discharge pipe, the "outfall" now ends inside the Dark Harbor Pool area. This has been brought to the attention of the town manager.

There is continuous chlorination only during the summer months, from May 15<sup>th</sup> -September 30<sup>th</sup>. Sludge is pumped every year and spread on Islesboro's sludge site in the center of the north end of the island (tax map 3L, lot #3; license # S-05751-53-C-R). The treatment facility has no overflow points as the sewers were sealed in 1994. Dilution calculations based on the treatment facility's license agreement figure of 63,700 GPD discharge, requires a closure zone of six acres around the outfall. There is currently a 23 acre closure zone around the outfall.

Additional information regarding the current operations at the Dark Harbor Treatment Plant can be found in the treatment plant review form and the 2005 license agreement which are filed in the Area WY, Sewage Treatment Plant File in the Public Health Division's Offices in Boothbay Harbor, Maine.

### *Industries*

There are no industries in Shellfish Growing Area Y. There are three small boatyards in this growing area that are "storage and repair" yards, and none of these facilities have marinas. Two of the yards have a few (6-8) moorings that are used primarily for seasonal day-sailors. There are large closures around both of these mooring areas. The third yard, which is located away from the shore, only has a launching railway on the shore. The water quality in the vicinity of this boatyard is classified as approved and water quality is monitored by sampling station WY5.

### *Parks and Public Lands*

Warren Island State Park is located south of the Islesboro ferry terminal. The island is 70.4 acres in size and contains 9 campsites and two lean-tos. The park is open from Memorial Day to September 15th and can only be accessed by boat. The state does not provide transport to the island; therefore all visitors must access the island in their own boat. State maintained outhouse facilities are located within easy access to the campsites. The park employs an on-site



warden during the open season. There are no other public campsites in shellfish growing area WY.

The northern and southern tips of the island of Islesboro have public areas with walking trails. The public area on the southern end of the island has outhouse facilities available that are located in a wooded area more than 200 feet from the shore. Dogs are allowed in these public areas, but have never been observed in great numbers. The northern end of the island is classified as approved. This area was monitored by sampling station WY7 prior to 2005 when this station was made inactive. There is no development in this area and the water quality scores were always quite low. The southern end of the island is classified as prohibited. This area is monitored by sampling station WY19. This end of the island has not been surveyed due to the relative lack of shellfish resources in the area.

*Streams*

Growing area streams were sampled in 2007. Stream sample results are shown in table 8. The locations of the streams can be seen on the pollution source map on page 13 (Figure 4). Streams 1.5S2, PS1, 5S1, 8S1 and 12S1 all received elevated water quality scores.

Across the street from stream 1.5S2 twenty sheep, one donkey and several chickens were contained in an enclosure approximately 300 feet from the shore. At nearby stream site 1.5S1 an outhouse which is 30 feet from the shore was observed to be quite full of waste. It is likely that the combination of the farm animals with the full outhouse has caused the water quality at water sampling station WY1.5 to deteriorate to the point that it no longer meets approved standards. There is no explanation for the elevated score at stream site PS1. There are no dwellings or sample stations nearby stream PS1. At stream 5S1 the stream drains from a wooded area that may contain wildlife. Streams PS1 and 5S1 are small intermittent streams that dry up over the course of the summer. Sampling station WY5 is sampled straight out from where stream 5S1 enters the shore. Because these streams are frequently dry, there is little historical information available for either stream. Stream 8S1 may also be elevated due to wildlife. There are several dwellings nearby stream 12S1 that may be contributing to the elevated score in this area. This area will be surveyed in 2009 or 2010.

**Table 6. Streams and Pollution Source Samples**

Location	Date	Fecal	Stream dimension W=width inches D=depth inches S=seconds over 10' section	Remarks	Flow gpm	Current Classification
1.5S1	10/22/07	82	14Wx1.75Dx10S	24" culvert	79	prohibited
1.5S2	10/22/07	560	21Wx1.4Dx10S	sheep present	94	prohibited
1.5S2	12/7/07	120		no sheep in residence		prohibited
4S1	10/22/07	13	33Wx1.7Dx6S		113	approved
PS1	10/22/07	200	7Wx.4Dx13S	24" culvert	11	approved
5S1	10/22/07	240	17.6Wx1.16Dx12S		77	approved
6S1	10/22/07	20	20Wx2.5Dx10S	48" culvert	162	approved
8S1	10/22/07	90	35Wx1.25Dx9S		128	approved
12S1	10/22/07	110	12Wx.5Dx13S	24" culvert	25	prohibited



Location	Date	Fecal	Stream dimension W=width inches D=depth inches S=seconds over 10' section	Remarks	Flow gpm	Current Classification
13S1	10/22/07	35	7.8Wx.8Dx13S		25	prohibited
13.8S1	10/22/07	27	12Wx1Dx13S	32" culvert	51	prohibited

### Shoreline Survey Activity

The north shore of Islesboro was surveyed in the spring and summer of 2000. Portions of the southern shore were surveyed in 1997. The islands adjacent to the southwestern portion of the island were surveyed in 1998. A new shoreline survey of shellfish growing area WY will be started in 2009.

### Aquaculture/Wet Storage Activity

There is an aquaculture lease site for green sea urchins located between Job and Lime Islands which is south of Islesboro. The original date of this lease site is 3/31/06 and the expiration date of this lease site is 3/30/09. There are no shellfish lease sites nearby the shores of Islesboro. There is no wet storage activity in growing area WY.

### Changes in classification required/requested

No changes in classification are recommended at this time.

### Summary and Recommendations

The water quality around the island of Islesboro has been deteriorating in recent years and eight sampling sites presently show an upward trend in their P90 values. A new shoreline survey of shellfish growing area WY will be started in 2009. At least two individuals from the town of Islesboro have expressed interest in attending DMR's new shoreline survey training course in order to assist with the future survey of the island. Survey work will be focused on areas of greatest shellfish resource potential. Areas with known pollution sources and little or no shellfish resources will not be surveyed. Additional stream samples will be collected during the 2008 sampling season to help identify areas with the greatest pollution impact.

All of the approved stations meet the approved standard, and no classification changes are being recommended.



## 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 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 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. 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 and "other" which usually 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 but the time 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. Water Quality Data Collected in 2007**

Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WY001.00	01/30/07	FP	HE	-3	30	R	-	O	A	<2.0	CL
WY001.00	03/27/07	LL	E	3	16	R	P	O	A	<2.0	CL
WY001.00	05/16/07	EXT	E	8	25	R	P	O	A	<2.0	NE
WY001.00	07/17/07	LL	HF	17	30	R	-	C	P	<2.0	CL
WY001.00	09/05/07	EXT	E	13	32	R	-	C	P	<2.0	NE
WY001.00	11/13/07	FP	HF	10	30	R	P	C	P	12	CL
WY001.50	01/30/07	FP	HE	-3	29	R	N	O	A	<2.0	NW
WY001.50	03/27/07	LL	E	3	26	R	P	O	A	<2.0	CL
WY001.50	05/16/07	EXT	HF	8	22	R	PW	O	A	20	CL
WY001.50	07/17/07	LL	F	18	30	R	-	C	P	<2.0	CL
WY001.50	09/05/07	EXT	E	12	30	R	-	C	P	<2.0	NE
WY001.50	11/13/07	FP	F	8	24	R	P	C	P	38	W
WY002.00	01/30/07	FP	HE	-3	30	R	-	O	A	<2.0	NW
WY002.00	03/27/07	LL	E	3	22	R	P	O	A	<2.0	CL
WY002.00	05/16/07	EXT	HF	8	24	R	P	O	A	<2.0	SE
WY002.00	07/17/07	LL	F	20	28	R	-	O	A	<2.0	CL
WY002.00	09/05/07	EXT	E	15	31	R	-	O	A	<2.0	NE
WY002.00	11/13/07	FP	F	9	28	R	P	O	A	25	W
WY003.00	01/30/07	FP	HE	-2	30	R	-	O	A	<2.0	CL
WY003.00	03/27/07	LL	E	3	22	R	P	O	A	<2.0	CL
WY003.00	05/16/07	EXT	HF	8	22	R	PW	O	A	<2.0	SE
WY003.00	07/17/07	LL	F	17	29	R	-	O	R	<2.0	CL
WY003.00	09/05/07	EXT	E	16	30	R	-	O	R	<2.0	CL
WY003.00	11/13/07	FP	F	7	30	R	P	O	R	5.5	CL
WY004.00	01/30/07	FP	E	-5	28	R	-	O	A	<2.0	NW
WY004.00	03/27/07	LL	E	3	20	R	P	O	A	<2.0	CL
WY004.00	05/16/07	EXT	HF	8	23	R	P	O	A	4	CL
WY004.00	07/17/07	LL	F	17	28	R	-	O	A	2	CL
WY004.00	09/05/07	EXT	E	13	30	R	-	O	A	<2.0	NE
WY004.00	11/13/07	FP	F	7	28	R	P	O	A	4	CL
WY005.00	01/30/07	FP	E	-4	28	R	N	O	A	<2.0	NW
WY005.00	03/27/07	LL	E	3	16	R	P	O	A	4	CL
WY005.00	05/16/07	EXT	H	8	22	R	P	O	A	7.3	CL
WY005.00	07/17/07	LL	F	16	28	R	-	O	A	<2.0	CL
WY005.00	09/05/07	EXT	LE	12	30	R	-	O	A	2	NE
WY005.00	11/13/07	FP	F	8	28	R	P	O	A	12	NW
WY006.00	03/27/07	LL	E	3	22	R	P	O	A	4	CL



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WY006.00	05/16/07	EXT	H	8	22	R	P	O	A	<2.0	NE
WY006.00	07/17/07	LL	F	20	27	R	-	O	A	<2.0	CL
WY006.00	09/05/07	EXT	LE	13	29	R	-	O	A	<2.0	NE
WY006.00	10/22/07	FP	E	15	26	R	-	O	A	<2.0	CL
WY006.00	11/13/07	FP	F	8	26	R	P	O	A	8	NW
WY008.00	01/30/07	FP	E	0	30	R	-	O	A	<2.0	NW
WY008.00	03/27/07	LL	E	3	20	R	P	O	A	<2.0	CL
WY008.00	05/16/07	EXT	H	8	20	R	P	O	A	6	NE
WY008.00	07/17/07	LL	F	17	26	R	-	O	A	<2.0	CL
WY008.00	09/05/07	EXT	LE	12	29	R	-	O	A	<2.0	NE
WY008.00	11/13/07	FP	F	10	31	R	P	O	A	2	CL
WY009.00	01/30/07	FP	E	-2	30	R	-	O	A	<2.0	CL
WY009.00	03/27/07	LL	E	3	23	R	P	O	A	<2.0	CL
WY009.00	05/16/07	EXT	H	8	22	R	P	O	A	4	CL
WY009.00	07/17/07	LL	F	17	28	R	-	O	A	<2.0	CL
WY009.00	10/22/07	FP	E	15	28	R	-	O	A	2	CL
WY009.00	11/13/07	FP	F	10	30	R	P	O	A	6	CL
WY009.50	01/30/07	FP	E	-4	30	R	-	O	A	<2.0	CL
WY009.50	03/27/07	LL	E	3	22	R	P	O	A	2	CL
WY009.50	05/16/07	EXT	H	8	21	R	P	O	A	14	E
WY009.50	07/17/07	LL	F	19	28	R	-	O	A	<2.0	CL
WY009.50	10/22/07	FP	E	15	28	R	-	O	A	<2.0	CL
WY009.50	11/13/07	FP	F	8	28	R	P	O	A	<2.0	CL
WY010.00	01/30/07	FP	E	-3	30	R	-	O	A	<2.0	NW
WY010.00	03/27/07	LL	E	3	18	R	P	O	A	<2.0	CL
WY010.00	05/16/07	EXT	H	7	22	R	P	O	A	13	CL
WY010.00	07/17/07	LL	F	16	28	R	-	O	A	<2.0	CL
WY010.00	09/05/07	EXT	L	15	30	R	-	O	A	<2.0	NE
WY010.00	11/13/07	FP	F	10	28	R	P	O	A	9.1	CL
WY010.50	01/30/07	FP	E	-2	30	R	-	O	A	<2.0	CL
WY010.50	03/27/07	LL	E	3	22	R	P	O	A	2	CL
WY010.50	05/16/07	EXT	HE	7	22	R	P	O	A	52	E
WY010.50	07/17/07	LL	F	16	27	R	-	O	A	<2.0	CL
WY010.50	09/05/07	EXT	L	14	30	R	-	O	A	<2.0	NE
WY010.50	11/13/07	FP	F	11	32	R	P	O	A	<2.0	CL
WY011.00	01/30/07	FP	E	0	30	R	-	O	A	<2.0	CL
WY011.00	03/27/07	LL	E	3	22	R	P	O	A	<2.0	CL
WY011.00	05/16/07	EXT	HE	7	21	R	P	O	A	<2.0	E
WY011.00	07/17/07	LL	F	15	28	R	-	O	A	<2.0	CL
WY011.00	09/05/07	EXT	L	13	30	R	-	O	A	<2.0	NE
WY011.00	11/13/07	FP	F	13	32	R	P	O	A	<2.0	CL



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WY012.00	01/30/07	FP	E	-1	30	R	-	C	P	<2.0	CL
WY012.00	03/27/07	LL	E	3	8	R	P	C	P	4	CL
WY012.00	05/16/07	EXT	HE	7	20	R	P	C	P	16	E
WY012.00	07/17/07	LL	F	18	27	R	-	C	P	<2.0	CL
WY012.00	09/05/07	EXT	F	18	31	R	-	C	P	<2.0	NE
WY012.00	11/13/07	FP	F	11	32	R	P	C	P	2	CL
WY013.00	01/30/07	FP	E	-2	30	R	-	C	P	<2.0	NW
WY013.00	03/27/07	LL	E	3	10	R	P	C	P	50	CL
WY013.00	05/16/07	EXT	HE	7	20	R	P	C	P	12	NE
WY013.00	07/17/07	LL	F	16	27	R	-	C	P	<2.0	CL
WY013.00	09/05/07	EXT	LF	14	30	R	-	C	P	<2.0	NE
WY013.00	11/13/07	FP	F	10	32	R	P	C	P	2	CL
WY013.50	01/30/07	FP	E	1	28	R	-	C	P	<2.0	CL
WY013.50	03/27/07	LL	LE	3	16	R	P	C	P	<2.0	CL
WY013.50	05/16/07	EXT	HE	8	20	R	P	C	P	10	NW
WY013.50	07/17/07	LL	F	16	28	R	-	C	P	<2.0	CL
WY013.50	09/05/07	EXT	LF	13	30	R	-	C	P	<2.0	NE
WY013.50	11/13/07	FP	F	10	32	R	P	C	P	<2.0	CL
WY013.80	01/30/07	FP	E	-1	30	R	-	C	P	<2.0	CL
WY013.80	03/27/07	LL	LE	3	10	R	P	C	P	<2.0	CL
WY013.80	05/16/07	EXT	E	8	20	R	P	C	P	94	NE
WY013.80	07/17/07	LL	F	18	29	R	-	C	P	<2.0	CL
WY013.80	10/22/07	FP	E	15	32	R	-	C	P	<2.0	CL
WY013.80	11/13/07	FP	HF	11	32	R	P	C	P	<2.0	CL
WY015.00	01/30/07	FP	HE	-3	30	R	-	O	A	<2.0	CL
WY015.00	03/27/07	LL	E	3	18	R	P	O	A	<2.0	CL
WY015.00	05/16/07	EXT	F	8	25	R	P	O	A	<2.0	CL
WY015.00	07/17/07	LL	F	16	30	R	-	C	P	<2.0	CL
WY015.00	11/13/07	FP	HF	10	30	R	P	C	P	<2.0	CL
WY015.00	12/06/07	FP	HE	1	30	R	-	C	P	<2.0	CL
WY016.00	01/30/07	FP	E	-4	30	R	-	C	P	<2.0	NW
WY016.00	03/27/07	LL	LE	3	28	R	P	C	P	<2.0	CL
WY016.00	05/16/07	EXT	E	8	25	R	P	C	P	<2.0	CL
WY016.00	07/17/07	LL	F	16	30	R	-	C	P	<2.0	CL
WY016.00	09/05/07	EXT	F	14	32	R	-	C	P	<2.0	NE
WY016.00	11/13/07	FP	HF	10	30	R	P	C	P	<2.0	NW
WY019.00	01/30/07	FP	E	-3	30	R	-	C	P	2	CL
WY019.00	03/27/07	LL	LE	3	28	R	P	C	P	<2.0	CL
WY019.00	05/16/07	EXT	E	8	23	R	P	C	P	<2.0	NE
WY019.00	07/17/07	LL	F	16	29	R	-	C	P	<2.0	CL
WY019.00	09/05/07	EXT	LF	14	32	R	-	C	P	<2.0	CL



Station	Date	Collector	Tide	Temp	Sal	Strat	ADV	Stat	CL	MFCOL	WIND
WY019.00	11/13/07	FP	HF	10	30	R	P	C	P	<2.0	NW



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

Station	2003	2004	2005	2006	2007
WY001.00	88.97959	88.97959	72.44898	111.4583	104.8837
WY001.50	68.57143	57.95918	87.14286	130.625	134.8837
WY002.00	68.97959	57.55102	61.22449	36.875	33.72093
WY003.00	67.14286	83.26531	92.65306	121.875	129.5349
WY004.00	23.46939	23.46939	22.04082	28.125	30
WY005.00	47.14286	50.40816	42.65306	53.125	63.72093
WY006.00	80.81633	46.32653	52.2449	79.79167	86.04651
WY008.00	17.95918	28.57143	31.02041	35	36.27907
WY009.00	91.42857	66.93878	85.30612	42.29167	45.5814
WY009.50	50.81633	49.38776	32.85714	31.66667	37.90698
WY010.00	40.61224	40.61224	44.69388	31.04167	34.18605
WY010.50	62.65306	60.81633	57.55102	46.45833	57.2093
WY011.00	46.93878	46.73469	49.59184	41.875	23.25581
WY012.00	53.87755	76.53061	64.4898	87.5	99.53488
WY013.00	26.32653	37.34694	85.71429	93.125	111.8605
WY013.50	11.83673	80.20408	90	76.80851	74.4186
WY013.80	25.5102	22.2449	26.32653	31.66667	44.88372
WY015.00	41.22449	34.28571	84.28571	118.9583	112.5581
WY019.00	23.06122	26.53061	30	27.91667	24.4186