



GROWING AREA WR – John’s Bay
Bristol and South Bristol

Sanitary Survey Report for 2006

Final Report Date:

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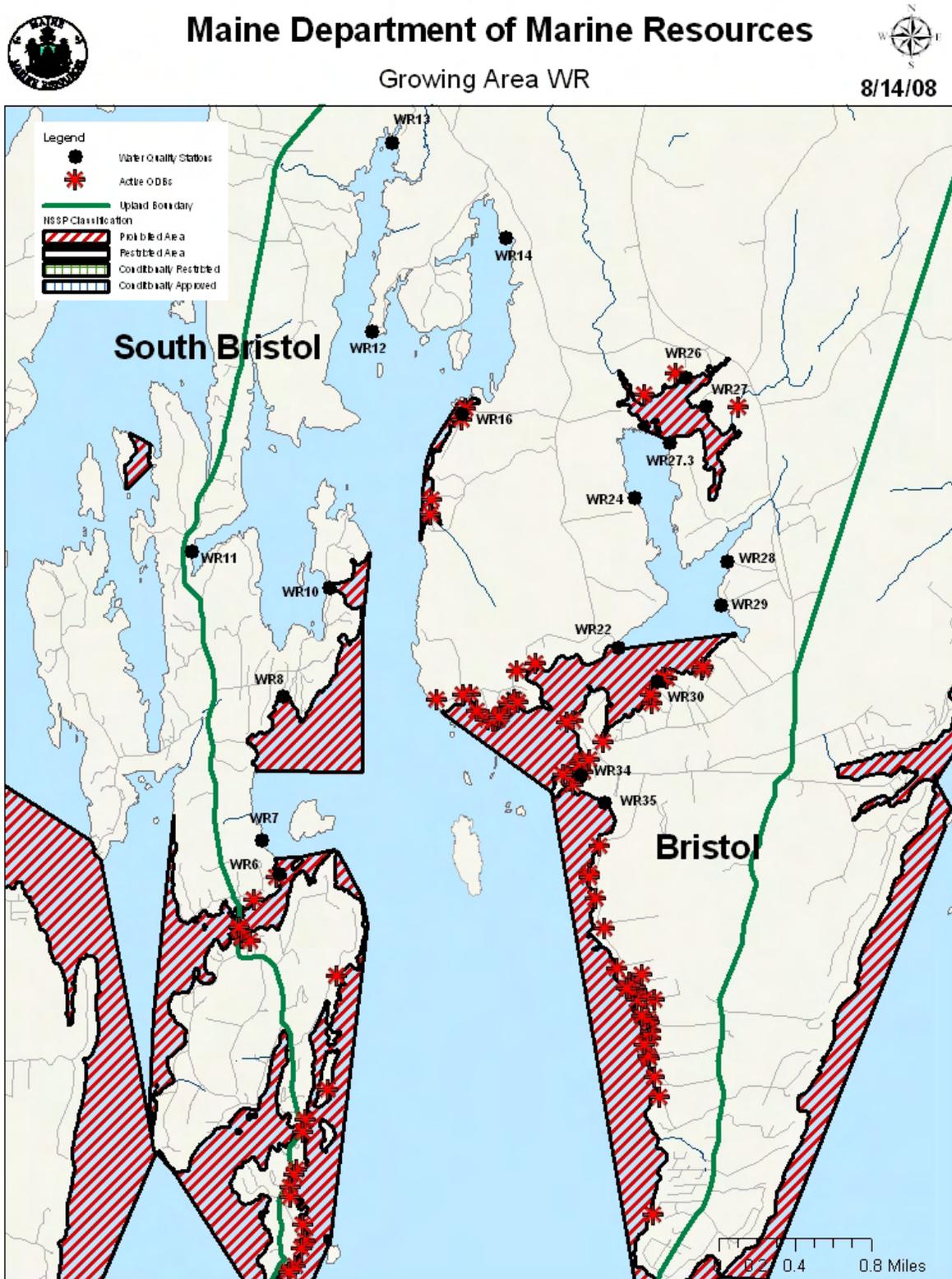
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Figure 1. Growing Area WR with Active Stations





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Introduction

This is a sanitary survey report for growing area WR- John's Bay. This report was prepared by the Maine Department of Marine Resources (DMR) Public Health Division and conforms to the requirements for a sanitary survey report in accordance with the current edition of the National Shellfish Sanitation Program's (NSSP) Guide for the Control of Molluscan Shellfish Model Ordinance (MO) (<http://www.cfsan.fda.gov/~ear/nss2-toc.html>).

Authority to conduct this examination is granted to the commissioner of the Department of Marine Resources under the Maine State Revised Statutes Title 12 Chapter 607 §6172.1: Commissioner's powers, which states:

"The commissioner may examine the coastal waters and the intertidal zone and adopt rules to close coastal waters or inter-tidal zone areas if the commissioner determines that any marine organisms are or may become contaminated or polluted. The commissioner may adopt or amend rules as the commissioner determines necessary, setting forth standards for closure of contaminated or polluted areas, giving consideration to established state water quality standards, the most recently adopted federal sanitation standards, or other state or federal public health standards, the most recent generally accepted research data and known sources of pollution in any area, in a manner to protect the public health and safety while allowing reasonable use of the State's marine organisms."

Growing Area Description

Growing Area WR (Johns Bay) is located in Lincoln County, mid-coast Maine, approximately 60 miles north of Portland (Figure 1). The growing area lies between the Damariscotta River and



Muscongus Bay, and includes coastal areas of the towns of Bristol and South Bristol. A complete boundary description for this growing area can be found in DMR central files.

The shoreline is typical of mid-coast Maine, with rockbound points and shoreline separating shallow coves and harbors. The muddy and gravel bottoms in these coves frequently provide excellent habitat for soft shell clams. Within Area WR, the coves most likely to support significant populations of soft shell clams include MacFarlands Cove, Poorhouse Cove, Bradstreet Cove, the North Branch, the Eastern Branch, the upper Pemaquid River, Coombs Cove and Fossetts Cove. Fresh water influence is minimal in this growing area, with no major river drainages, although small brooks and streams, many of which are intermittent, can be found throughout the growing area.

Based on the results of the 2000 Census, the town of Bristol had 1203 households and a year-round population of 2844¹. South Bristol had 410 households, with a year-round population of 897¹. The population of the towns has increased 6% and 2% respectively since 2000. Primary sources of employment in both towns are retail, construction, fishing, and manufacturing. The town of Bristol has 15 commercial shellfish license holders, while the town of South Bristol has 27 commercial shellfish licenses holders.

Land use in the study area is dominated by a mix of seasonal and year-round residential properties. Sections of dense shoreline development are punctuated by large tracts of undeveloped land. Seasonal properties are being converted to year-round use throughout the area. Heaviest development is found near the Bristol Gut, along MacFarlands Cove, Bradstreet Cove, Soldiers Trail, Pemaquid Harbor and from Pemaquid Beach to Pemaquid Point. Rutherford Island and Pemaquid Point both have large summer populations with numerous groupings of old cottages built on very small lots.

The northern side of the Bristol Gut is an area of heavy marine/fishing activity. It has several docks with lobster buying businesses, some of which offer support services for fishermen (ex: fuel, bait, gear). Pemaquid Harbor has a fisherman's co-op, two seasonal restaurants, a small boat building facility, and the historic site of Fort Pemaquid. A building supply company operates at the upper end of the Pemaquid River.

History of Growing Area Classification (1994-2006)

December 24, 1994; Area No. 25-P closes the rainfall conditional area in the North Branch of Johns River; area reopens on March 20, 1995, following satisfactory water samples.

June 15, 1995; (Area No. 25-P); closes the rainfall conditional area in the North Branch of Johns River; area reopens in June 22, 1995, following satisfactory water samples.

July 12, 1995; (Area No. 25-P); closes the rainfall conditional area in the North Branch of Johns River; area reopens in July 27, 1995, following satisfactory water samples

October 6, 1995; (Area No. 25-P); closes the rainfall conditional area in the North Branch of Johns River; area reopens in October 13, 1995, following satisfactory water samples



October 23, 1995; (Area No. 25-P); closes the rainfall conditional area in the North Branch of Johns River; area reopens in November 29, 1995, following satisfactory water samples

December 11, 1995- (Area No. 25-P); closes the rainfall conditional area in the North Branch of Johns River.

June 12, 1996- (Area No 25-P); repeal of the rainfall conditional area in the North Branch of Johns River.

August 27, 1999- (Area No. 25-B); administrative change to clarify the description of the boundaries of the closed area in the Pemaquid River, Bristol.

October 24, 2005- 7 stations, including WR 3, 9, 15, 19, 23, 31 and 32 were deactivated; stations WR 27.3 was created to monitor a closure line for pollution area 25B.

Current Classifications

This growing area has areas classified as approved and prohibited.

Please visit the DMR website to view legal notices:

- Area No. 25-A – South Bristol
- Area No. 25-B, John's River, Pemaquid River and Pemaquid Neck, Bristol
- Area No. 25-F
- Area No. 25-G
- Area No. 25N, High Island to MacFarlands Cove, South Bristol.

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

Pollution Source Survey

Summary of Pollution Sources

There are no municipal wastewater treatment facilities or storm water collection systems located in Growing Area WR. All buildings have private waste disposal systems; either Maine Department of Environmental Protection (ME DEP) licensed overboard discharges, inground septic systems, or in several cases, outhouses. Several new potential or actual pollution sources were identified as a result of the shoreline survey inspections, and are presented in the pollution source table and map.

The eastern shoreline of Rutherford Island is bold, rocky terrain, and there are numerous OBDs that prevent this area from being upwardly classified. For this reason, the shoreline survey began on the northern shore of the Bristol Gut at the South Bristol Co-op. The shoreline survey continued along the internal shoreline of Area WR, north towards McFarlands Cove, along Poor House Cove to Bradstreet Cove, along the North and Eastern Branch of John's River, along Riverview and Soldier's Cove, around Thurston's Point, along the mouth of the Pemaquid River



(including Coombs Cove); up to, and including, Pemaquid Harbor. The survey ended on the eastern side of Pemaquid Harbor. From the eastern side of Pemaquid Harbor to the tip of Pemaquid Point there are 48 licensed OBDs that prevent the area from being upwardly classified. Area WR has a total of 93 active OBDs (Figure 1).

Most of the actual and potential pollution sources identified in the shoreline survey are in prohibited areas. Closure lines will be adjusted to encompass newly identified actual pollution sources. Potential pollution sources identified during the shoreline survey will continue to be monitored through sampling, reconnaissance during sample runs, and follow-up with the Maine DEP and the towns of Bristol and South Bristol. The ME DEP was contacted following the completion of the shoreline survey activity and accompanied ME DMR staff to a list of sites identified as actual or potential pollution sources. The site visits confirmed several pollution sources and helped to verify others as either actual or potential pollution sources. A total of 4 potential (P) and 2 actual (A) pollution sources were identified during the current survey are (Table 1 and Figure 1).

Table 1. Potential and Actual Pollution Sources, Area WR

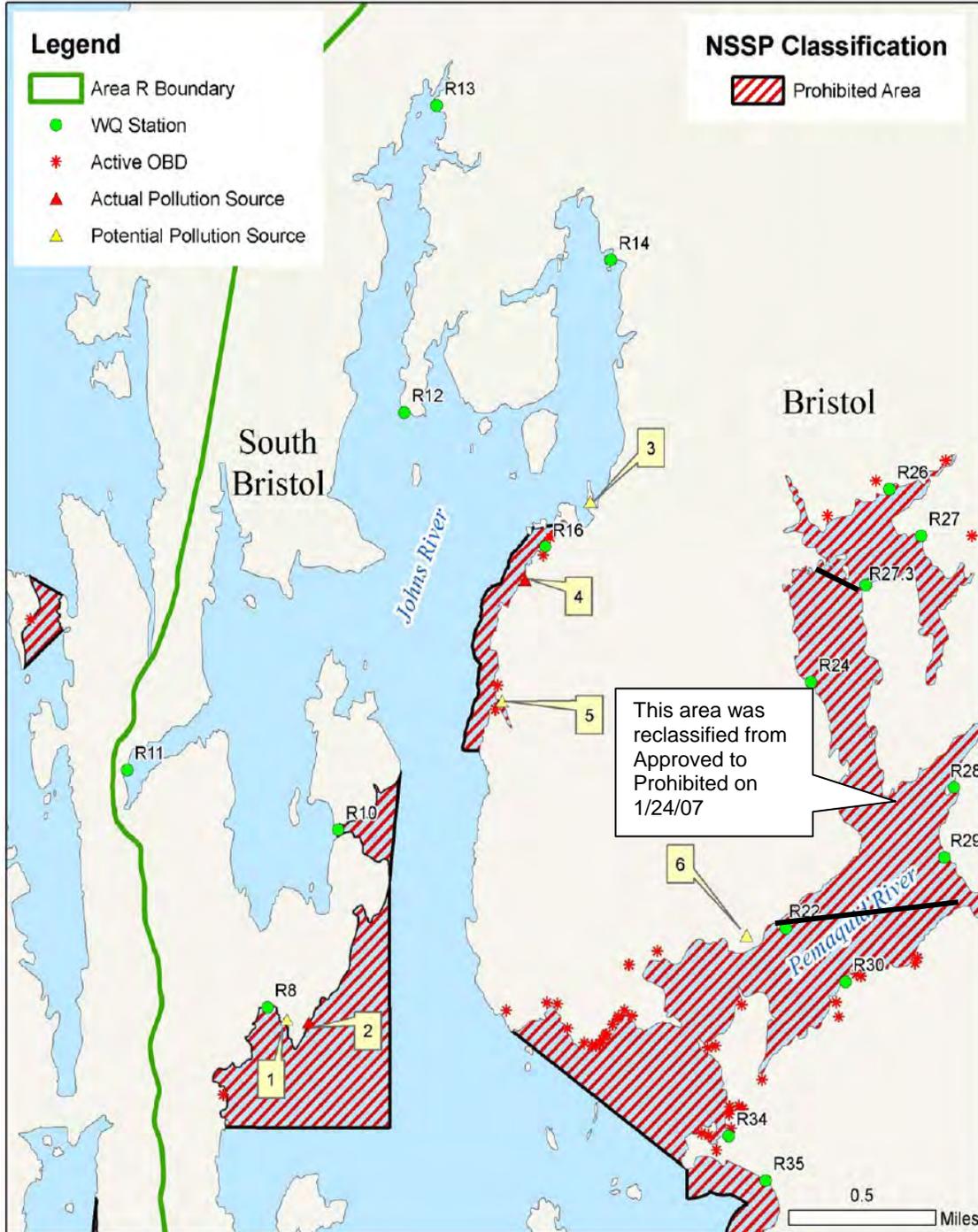
Pollution Source number	Pollution Description
PS 1 (P)	Pump at summer cottage malfunctioning – corrected same day (map 22 lot 28)
PS 2 (A)	Malfunctioning septic system (map 22 lot 50); correction confirmed 8.6.08 by DEP
PS 3 (P)	Tank on shore, concealed under porch, with overflow pipe; site for new system flagged along driveway (map 4 lot 132A), but not yet installed.
PS 4 (A)	Failing septic w/ porta-potty (map 4A lot7)- dwelling no longer used
PS 5 (P)	Clay pipe toward shore, unidentified source. Town confirms this (uninhabited) dwelling has no inground system.
PS 6 (P)	Unknown septic (map 4 lot 54) undergoing renovation fall 2006, will check for new system spring 2007



Figure 2. Growing Area WR Pollution Source Locations and Downward Classification Change in Pemaquid River



Maine Department of Marine Resources Growing Area WR - Bristol and South Bristol Pollution Sources





Identification and Evaluation of Pollution Sources

Industrial Wastes

There is one MEPDES permit (ME0023272), located in South Bristol within the bounds of the closure at the Bristol Gut. Thomas Massey Ltd., formerly, Maine Mariculture, Inc. operated a shellfish processing facility at 2 Hill Rd., South Bristol. The facility had a non – Publicly Owned Treatment Works (POTW) license (license # W-007095) for the discharge of 22,500 GPD of washing and cooking water. In the first quarter of 2005, Thomas Massey Ltd. was found to be in significant non-compliance of the license criteria, due to five instances of discharge flow exceedance. The facility has since shut down, as reported by the Maine DEP. The facility's outfall, while in operation, was located in a large prohibited area.

Treatment Plants

There are no municipal sewage treatment plants or storm water collection systems in the study area. Both adjacent growing areas have sewage treatment plants, located at the heads of rivers and separated from WR by large points of land (WQ \geq 12 mi to the west and WS \geq 15mi to the east).

Marinas

There are no true marinas in this growing area. Fuel docks are located at the south Bristol Co-op and the Pemaquid Co-op. There is a seasonal mooring field in the Bristol Gut (west of Witch Island) that has numerous work boats and more than 10 boats large enough to have heads. The boats belong to summer and year-round residents that sail on weekends and during vacations; none of the boats are live-aboard. The area is classified as prohibited.

Pemaquid Harbor is a prohibited area that houses numerous moorings, mostly for working boats, small skiffs and whalers. There are up to 15 sailboats and pleasure boats moored in the area, several of which fall outside the closure line. However, rarely have any of them been observed (during sampling and surveying activities) to be occupied.

Recreational Areas

Pemaquid Beach is located at the mouth of the Pemaquid River, on the southeast edge of Pemaquid Harbor. It has public restroom facilities, including showers, which operate through a licensed OBD. Two of these showers were equipped with hot water in 2006. Fort William Henry State Park is a day tourist location at the southeastern edge of Pemaquid Point. It houses a small museum, but does not offer camping or public restroom facilities. A gravel boat launch frequented by many salt water fishing enthusiasts is located just outside Fort William Henry State Park. All of these recreational areas fall within a large prohibited area.

Stormwater

There are no structural stormwater management systems in the study area. Stormwater flows off the land via natural drainageways and streams.



Streams

Sixteen intermittent and steady streams were sampled; most were dry at the time the shoreline survey was initially conducted in the summer of 2003. As a result, most streams were sampled in the spring of 2004, when runoff conditions were high due to the spring melt and more frequent rainfalls. All but one stream had score of ≤ 3.6 mpn/100ml. The failing stream had a score of 460mpn/100ml, and was located under a driveway just south of station WR24.0. Despite the potential influence of this stream, station WR24.0 meets approved criteria.

Agricultural Waste

There are no agricultural operations in the study area.

Wildlife and Domestic Animals

There are no significant concentrations of animals anywhere in the study area. Seabirds are observed in the study area, but never in large enough numbers to indicate migration or overwintering.

Meteorological Data

Tides

This area is subject to a semidiurnal tidal cycle with two high tides and two low tides per day. Tide state calculations for WR are based on measurements taken at Pemaquid Harbor, located in the study area. At Pemaquid Harbor, the elevation of the mean high tide is 8.8 feet and the mean spring tide is 10.1 feet.

Precipitation

Rainfall is monitored at the NOAA station in Newcastle, located approximately 10 miles northwest of the growing area. Years 2005 and 2006 were among the wettest on record (Table 3). The excessive rainfall in these years resulted in six flood closures that included all of area WR in 2005 and two in 2006. Stations 11, 14 and 22 are the flood stations for this area. After flood closures, area WR is not re-opened until each of their scores meet approved criteria; ≤ 31 fc/100ml.

Table 2. Annual Precipitation at NOAA Rainfall Reporting Station, Newcastle, Maine

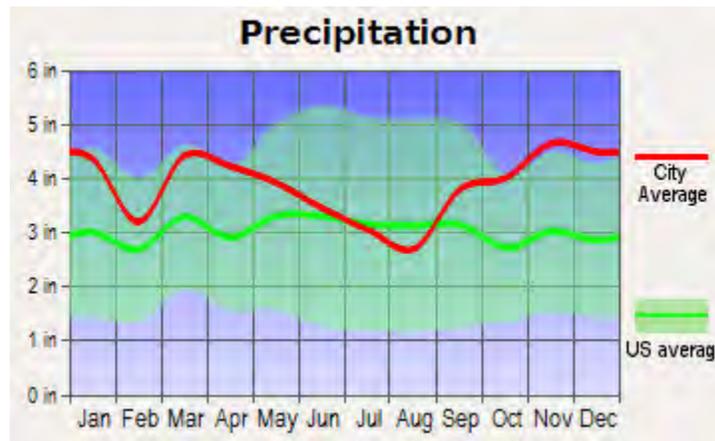
Year	Total Precipitation (inch)
2002	49.31"
2003	42.86"
2004	34.89"
2005	73.73"
2006	55.18"



The most frequent rain events occur during the periods of late April to June and late September through November. July and August are typically dry periods, with little rainfall except for thunderstorm activity. Much of the precipitation from December through mid-April comes as snow, which may affect runoff rates in spring depending on the depth of the snow pack.

A comprehensive rainfall/tide/salinity assessment will be completed as part of the next triennial review.

Figure 3. Average Monthly Rainfall for Bristol and South Bristol, Maine

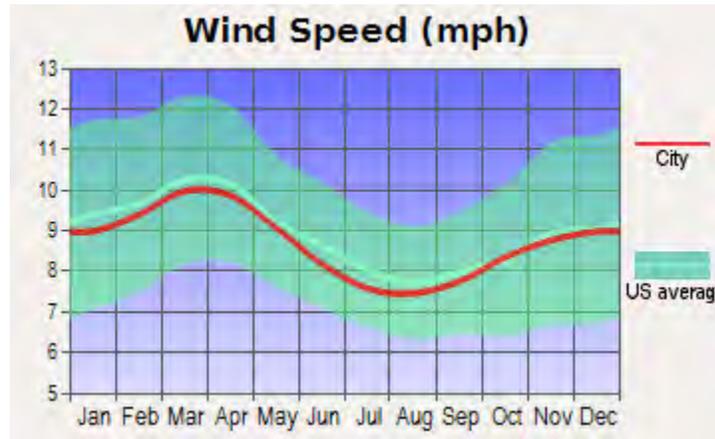


Winds

Prevailing winds are from the southwest from June through September. Periods of wind from the northwest are common during the colder months from November through April. Wind data specific to each sampling site has been collected since the spring of 2005. While the database now has two years of data, it is not yet adequate to determine whether wind has an impact on sample scores.



Figure 4. Average Wind Speed for towns of Bristol and South Bristol, Maine



Rivers

The closest true river is the Damariscotta River, which is located to the west of Rutherford Island. The Pemaquid River which empties into the growing area near station WR26 (prohibited status), is more of a moderate stream than a river. Its source is Pemaquid Lake, located approximately 10 miles north of Johns Bay. The only other significant source of freshwater is Little Falls Brook, which originates in a boggy area in the middle of the Bristol peninsula and enters the growing area near station WR25. There are no river gauging stations on either of these streams.

Water Quality Review

Transitioning to Membrane Filtration for Seawater and Pollution Source Samples

The Maine Department of Marine Resources has chosen to switch to a fecal coliform method that was approved for use in the National Shellfish Sanitation Program (NSSP) at the Interstate Shellfish Sanitation Conference in 2003. This method is the Membrane Filtration (MF) for Fecal Coliforms using mTEC agar with a two hour resuscitation step. The geometric mean and the 90th percentile are calculated on 30 data points extending over a five year period.

During the transition from MPN to MF, DMR will be accumulating MF data points. The statistical calculations will be a combination of MPN and MF data points. The FDA has determined that the best way to handle the data is to perform the calculations as always for the data set, but to compare the data set to a hybrid weighted 90th percentile. This hybrid standard is calculated by weighting the relative contributions of each method to the database. This will mean that as the number of MPN data points reduce and the number of MF data points increase the 90th percentile standard that the sample site is compared to will change over time.

Once all 30 data points are analyzed using MF, the 90th percentile for approved classification will be 31 and for restricted (for depuration) will be 163. The geomean approved standard of 14



fecal coliforms per 100 ml and geomean restricted standard of 88 fecal coliforms per 100 ml will remain the same for both methods.

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

This was the first 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.

Review of Water Quality Data

Table 1 lists all active stations in Growing Area WR, with their respective geomean and P90 calculations. 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 verses 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. A more detailed explanation of this transition can be found in above. Based on the current review of water quality data, all approved stations, except WR 28 and 29 are meeting their NSSP classification; stations WR 28 and 29 (highlighted in yellow) are exceeding the approved standard and should be re-classified to prohibited. Station 8, is meeting the approved standard but is located in a closed area, due to a malfunctioning septic system. This area can be re-classified to approved, once the necessary remediation of the malfunction is completed.

Table 3. Geomean and P90 Scores for Growing Area WR, 2001-2006

STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WR006.00	P	30	3	5.2	0.54	240	25.7	47	282
WR007.00	A	30	3	3.7	0.27	43	8.1	47	282
WR008.00	P	30	3	5.7	0.53	240	27.3	47	282
WR010.00	A	30	3	4.4	0.47	240	17.4	47	282
WR011.00	A	30	3	6.4	0.60	240	37.4	47	282
WR012.00	A	30	3	5.4	0.48	180	21.9	47	282
WR013.00	A	30	3	6.5	0.50	240	28.2	47	282
WR014.00	A	30	3	4.8	0.46	240	18.7	47	282



STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WR016.00	P	30	3	4.2	0.51	460	18.7	47	282
WR022.00	A	30	3	4.1	0.39	73	13.1	47	282
WR024.00	A	30	3	5.7	0.44	93	20.9	47	282
WR025.00	P	30	2	7.8	0.55	93	38.7	48	288
WR026.00	P	30	3	13.1	0.71	1200	107.2	47	282
WR027.00	P	30	4	18.9	0.83	1200	219.7	46	277
WR027.30	New	6	3	7.8	0.64	93	53.8	39	221
WR028.00	A	30	3	8.7	0.72	460	72.5	47	282
WR029.00	A	30	3	8.6	0.65	500	58.5	47	282
WR030.00	P	30	3	5.3	0.41	93	18.1	47	282
WR034.00	P	30	3	7.4	0.72	1100	61.5	47	282
WR035.00	P	30	3	7.0	0.64	460	46.7	47	282

All stations active at the beginning of the year were sampled at least 6 times in 2006, following the systematic random sampling standard. Station WR 25 was sampled 3 times as it was inactive in the first half of the year; station WR 27.3 is a new station and was only sampled once. Table 2 shows the number of random samples taken during the 2006 sampling year; appendix B shows all data collected during randomly scheduled sample runs 2006 for all active stations in growing area WR.

Table 4. Sample Collection Count for 2006, Growing Area WR

Station	Class	Strategy	Status	# of Samples
WR006.00	P	R	C	6
WR007.00	A	R	O	6
WR008.00	P	R	C	6
WR010.00	A	R	O	6
WR011.00	A	R	O	6
WR012.00	A	R	O	7
WR013.00	A	R	O	6
WR014.00	A	R	O	6
WR016.00	P	R	C	6
WR022.00	A	R	O	6
WR024.00	A	R	O	6
WR025.00	P	R	C	3
WR026.00	P	R	C	6
WR027.00	P	R	C	6
WR027.30	A	R	C	6
WR028.00	A	R	O	6
WR029.00	A	R	O	6
WR030.00	P	R	C	6



Station	Class	Strategy	Status	# of Samples
WR034.00	P	R	C	6
WR035.00	P	R	C	6

Shoreline Survey Activity

The Growing Area WR shoreline survey was conducted by the DMR Public Health Shellfish Program during the late summer of 2003 into the spring of 2004. Parcel-based tax maps from the towns of Bristol and South Bristol were used to assign a unique identifier to each lot in the survey area. Basic information on each property (land use, ownership, address, seasonality, etc.) was documented from town information. Vacant lots were recorded for entry into the database in case of future development. In early 2007, DMR staff members followed up with the South Bristol and Bristol codes enforcement offices to confirm that identified pollution sources have been repaired, are the same or any new systems installed since 2004.

Due to the bold nature of the shoreline and the presence of numerous licensed overboard discharges (OBD), the northern and eastern sides of Rutherford Island from the Bristol Gut south. The area from just below Fossetts Cove in Pemaquid Harbor to Pemaquid Point (including all of the Pemaquid Beach area), was not included in the shoreline survey because it is classified prohibited due to the presence of numerous OBDs. All other properties within 500 feet of the shore or other water conduits were surveyed.

Each shoreline property underwent an on-site inspection, including an evaluation of shore-side development, steady or intermittent streams, and any other issues that might be of concern. Owners, if present, were asked to provide information about their septic system including age, routine maintenance details and description of any problems they had experienced. Information was recorded in the inspector's notes, and will be presented in this report if indicative of an actual or potential problem.

All potential bacterial pollution sources (pipes, standing or flowing water sources) were documented and sampled as part of the shoreline survey. Dwellings within 500 feet of the growing area were visually evaluated for malfunctioning septic systems, discharging pipes, outhouses and other potential pollution sources. Water samples were collected in sterile "Whirl-Pak" bags and maintained in a cooler at <10 degrees Celsius until delivery to the Boothbay Harbor Water Quality Laboratory for fecal coliform and E. coli analysis. The results of these analyses are presented later in this report.

Current Management Plan for Conditional Area

There are no conditionally managed areas in growing areas WR.

Aquaculture/ Wet Storage Activity

There are 3 active aquaculture lease sites in area WR (two limited and one experimental). There are no wet storage shellfish activities in area WR.



For more information on aquaculture lease sites, please visit the DMR website:

<http://www.maine.gov/dmr/aquaculture/leaseinventory/index.htm>

Summary

Based on the results of this sanitary survey report and water quality review, the mid-portion of the Pemaquid River was downgraded in classification from approved to prohibited, due to water quality scores not meeting the approved standard. The remaining approved areas in WR continue to maintain good water quality.

In the future, growing area WR will need updated survey field work in order to maintain its classification status. In addition to survey work, pollution sources sampling should be conducted in the mid-portion of the Pemaquid River, where water quality scores have declined over the past year.



Appendix A. Key to water quality table headers.

Station = water quality monitoring station

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

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

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

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

SDV = standard deviation

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

P90 = 90th percentile

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

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



Appendix B. Water quality data for 2006

Station	Date	Collect	Tide	Temp	Sal	Strat	ADV	Stat	CL	A1COL	MFCOL	WIND
WR006.00	4/19/2006	JB	L	4	32	R	-	C	P	<3.0	-	N
WR006.00	7/10/2006	FP	F	19	31	R	-	C	P	<3.0	-	SW
WR006.00	8/8/2006	JB	H	16	30	R	B	C	P	<3.0	-	N
WR006.00	8/21/2006	JML	HF	15	30	R	PB	C	P	-	<2.0	NW
WR006.00	10/2/2006	JB	E	13	30	R	P	C	P	-	<2.0	NW
WR006.00	11/6/2006	LL	HF	9	32	R	-	C	P	-	<2.0	CL
WR007.00	4/19/2006	JB	L	4	32	R	-	O	A	<3.0	-	N
WR007.00	5/15/2006	JB	F	7	30	R	-	O	A	<3.0	-	NE
WR007.00	7/10/2006	FP	F	19	31	R	-	O	A	<3.0	-	SW
WR007.00	8/21/2006	JML	H	15	30	R	P	O	A	-	<2.0	NW
WR007.00	10/2/2006	JB	E	13	30	R	P	O	A	-	4	NW
WR007.00	11/6/2006	LL	HF	9	31	R	-	O	A	-	<2.0	CL
WR008.00	4/19/2006	JB	L	4	32	R	-	C	P	<3.0	-	N
WR008.00	7/10/2006	FP	F	19	30	R	-	C	P	43	-	SW
WR008.00	8/8/2006	JB	HE	16	30	R	-	C	P	<3.0	-	N
WR008.00	8/21/2006	JML	H	14	30	R	P	C	P	-	<2.0	CL
WR008.00	10/2/2006	JB	E	13	30	R	P	C	P	-	<2.0	NW
WR008.00	11/6/2006	LL	HF	9	28	R	-	C	P	-	2	CL
WR010.00	5/15/2006	JB	F	7	30	R	-	O	A	7.3	-	CL
WR010.00	7/10/2006	FP	F	19	31	R	-	O	A	23	-	SW
WR010.00	8/8/2006	JB	HE	18	30	R	-	O	A	<3.0	-	N
WR010.00	8/21/2006	JML	H	15	30	R	P	O	A	-	4	CL
WR010.00	10/2/2006	JB	E	14	30	R	P	O	A	-	<2.0	NW
WR010.00	11/6/2006	LL	HF	9	32	R	-	O	A	-	<2.0	CL
WR011.00	5/15/2006	JB	F	8	25	R	N	O	A	<3.0	-	E
WR011.00	7/10/2006	FP	F	19	30	R	N	O	A	43	-	SW
WR011.00	8/8/2006	JB	HE	19	30	R	N	O	A	9.1	-	N
WR011.00	8/21/2006	JML	H	15	30	R	PN	O	A	-	2	CL
WR011.00	10/2/2006	JB	E	14	20	R	P	O	A	-	44	CL
WR011.00	11/6/2006	LL	H	9	28	R	-	O	A	-	<2.0	CL
WR012.00	4/19/2006	JB	LF	4	32	R	W	O	A	<3.0	-	N
WR012.00	5/15/2006	JB	F	8	30	R	-	O	A	<3.0	-	E
WR012.00	7/10/2006	FP	HE	18	31	R	-	O	A	43	-	SW
WR012.00	8/8/2006	JB	HE	16	30	R	-	O	A	43	-	NW
WR012.00	8/21/2006	JML	HE	16	30	R	P	O	A	-	180	NW



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WR012.00	10/2/2006	JB	LE	13	30	R	P	O	A	-	5.5	N
WR012.00	11/6/2006	LL	H	9	32	R	-	O	A	-	<2.0	CL
WR013.00	5/15/2006	JB	F	8	28	R	N	O	A	<3.0	-	CL
WR013.00	7/10/2006	FP	F	20	30	R	-	O	A	23	-	SW
WR013.00	8/8/2006	JB	HE	18	30	R	N	O	A	23	-	N
WR013.00	8/21/2006	JML	H	16	28	R	P	O	A	-	12	CL
WR013.00	10/2/2006	JB	E	13	30	R	P	O	A	-	18	NW
WR013.00	11/6/2006	LL	H	9	26	R	-	O	A	-	<2.0	CL
WR014.00	4/19/2006	JB	LF	8	30	R	-	O	A	<3.0	-	N
WR014.00	5/15/2006	JB	HF	8	30	R	-	O	A	<3.0	-	E
WR014.00	7/10/2006	FP	F	21	30	R	-	O	A	23	-	SW
WR014.00	8/21/2006	JML	HE	15	30	R	P	O	A	-	4	NW
WR014.00	10/2/2006	JB	LE	14	30	R	P	O	A	-	38	N
WR014.00	11/6/2006	LL	H	9	32	R	-	O	A	-	8	CL
WR016.00	4/19/2006	JB	LF	5	32	R	-	C	P	<3.0	-	N
WR016.00	7/10/2006	FP	F	20	30	R	-	C	P	7.3	-	SW
WR016.00	8/8/2006	JB	E	18	30	R	-	C	P	3.6	-	N
WR016.00	8/21/2006	JML	HE	14	31	R	P	C	P	-	2	NW
WR016.00	10/2/2006	JB	LE	14	30	R	P	C	P	-	2	NW
WR016.00	11/6/2006	LL	H	9	30	R	-	C	P	-	<2.0	CL
WR022.00	4/19/2006	JB	F	4	30	R	B	O	A	<3.0	-	N
WR022.00	5/15/2006	JB	HF	6	29	R	B	O	A	<3.0	-	NE
WR022.00	7/10/2006	FP	HF	18	30	R	-	O	A	7.3	-	SW
WR022.00	8/21/2006	JML	HE	12	30	R	P	O	A	-	8	NW
WR022.00	10/2/2006	JB	LE	15	30	R	P	O	A	-	<2.0	NW
WR022.00	11/6/2006	LL	H	9	32	R	-	O	A	-	<2.0	CL
WR024.00	4/19/2006	JB	F	6	26	R	N	O	A	<3.0	-	N
WR024.00	5/15/2006	JB	HF	9	15	R	N	O	A	11	-	NE
WR024.00	7/10/2006	FP	HF	20	28	R	-	O	A	23	-	SW
WR024.00	8/21/2006	JML	HE	14	28	R	P	O	A	-	6	NW
WR024.00	10/2/2006	JB	LE	14	28	R	P	O	A	-	<2.0	NW
WR024.00	11/6/2006	LL	HE	9	22	R	-	O	A	-	2	CL
WR025.00	7/10/2006	FP	HF	21	10	R	-	C	P	93	-	SW
WR025.00	10/2/2006	JB	E	12	28	R	PN	C	P	-	20	NW
WR025.00	11/6/2006	LL	HE	9	14	R	-	C	P	-	34	CL
WR026.00	4/19/2006	JB	F	5	0	R	N	C	P	3.6	-	N



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WR026.00	7/10/2006	FP	HF	21	3	R	-	C	P	150	-	SW
WR026.00	8/8/2006	JB	E	18	26	R	N	C	P	9.1	-	N
WR026.00	8/21/2006	JML	E	16	28	R	P	C	P	-	22	N
WR026.00	10/2/2006	JB	E	12	26	R	PN	C	P	-	16	NW
WR026.00	11/6/2006	LL	HE	9	2	R	-	C	P	-	12	CL
WR027.00	7/10/2006	FP	H	21	19	R	-	C	P	460	-	SW
WR027.00	8/8/2006	JB	E	16	25	R	-	C	P	23	-	N
WR027.00	8/21/2006	JML	E	15	25	R	P	C	P	-	2	CL
WR027.00	9/20/2006	JB	E	15	23	R	P	C	P	-	102	W
WR027.00	10/2/2006	JB	E	12	24	R	P	C	P	-	6	NW
WR027.00	11/6/2006	LL	HE	9	10	R	-	C	P	-	16	CL
WR027.30	4/19/2006	JB	F	4	29	R	-	O	A	<3.0	-	N
WR027.30	5/15/2006	JB	H			R	N	O	A	<3.0	-	CL
WR027.30	7/10/2006	FP	H	21	27	R	-	O	A	93	-	SW
WR027.30	8/21/2006	JML	E	15	25	R	P	O	A	-	20	N
WR027.30	10/2/2006	JB	L	14	26	R	P	O	A	-	7.3	NW
WR027.30	11/27/2006	JB	H	7	20	R	-	O	A	-	2	CL
WR028.00	4/19/2006	JB	F	4	26	R	N	O	A	<3.0	-	N
WR028.00	5/15/2006	JB	HF	9	22	R	N	O	A	3	-	CL
WR028.00	7/10/2006	FP	H	21	25	R	-	O	A	93	-	SW
WR028.00	8/21/2006	JML	E	13	30	R	P	O	A	-	2	N
WR028.00	10/2/2006	JB	E	12	30	R	P	O	A	-	8	NW
WR028.00	11/6/2006	LL	HE	9	20	R	-	O	A	-	<2.0	CL
WR029.00	4/19/2006	JB	F	5	30	R	-	O	A	<3.0	-	N
WR029.00	5/15/2006	JB	HF	7	29	R	-	O	A	<3.0	-	E
WR029.00	7/10/2006	FP	H	12	25	R	-	O	A	43	-	SW
WR029.00	8/21/2006	JML	E	15	30	R	P	O	A	-	8	CL
WR029.00	10/2/2006	JB	L	14	30	R	P	O	A	-	500	NW
WR029.00	11/6/2006	LL	E	9	14	R	-	O	A	-	140	CL
WR030.00	4/19/2006	JB	F	5	29	R	-	C	P	<3.0	-	N
WR030.00	5/15/2006	JB	HF	6	31	R	-	C	P	<3.0	-	NE
WR030.00	7/10/2006	FP	H	11	31	R	-	C	P	3.6	-	SW
WR030.00	8/21/2006	JML	E	14	30	R	PB	C	P	-	4	NE
WR030.00	10/2/2006	JB	L	14	30	R	P	C	P	-	8	NW
WR030.00	11/6/2006	LL	E	9	28	R	-	C	P	-	6	N
WR034.00	4/19/2006	JB	F	5	29	R	-	C	P	<3.0	-	N
WR034.00	7/10/2006	FP	HE	8	31	R	-	C	P	<3.0	-	SW



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WR034.00	8/8/2006	JB	E	18	30	R	-	C	P	9.1	-	N
WR034.00	8/21/2006	JML	E	17	30	R	PB	C	P	-	9.1	NE
WR034.00	10/2/2006	JB	L	15	24	R	P	C	P	-	27	NW
WR034.00	11/6/2006	LL	E	9	32	R	-	C	P	-	<2.0	N
WR035.00	4/19/2006	JB	F	4	32	R	-	C	P	<3.0	-	N
WR035.00	7/10/2006	FP	HE	8	30	R	-	C	P	28	-	SW
WR035.00	8/8/2006	JB	E	11	31	R	H	C	P	9.1	-	N
WR035.00	8/21/2006	JML	E	13	30	R	P	C	P	-	2	CL
WR035.00	10/2/2006	JB	L	14	30	R	P	C	P	-	<2.0	NW
WR035.00	11/6/2006	LL	E	9	30	R	-	C	P	-	9.1	N