



**Addendum to  
Sanitary Survey for Growing Area WJ  
Basin Cove, Harpswell**

**November 26, 2007**

**Laura Livingston**

***APPROVAL***

Division Director:

\_\_\_\_\_ Date: \_\_\_\_\_  
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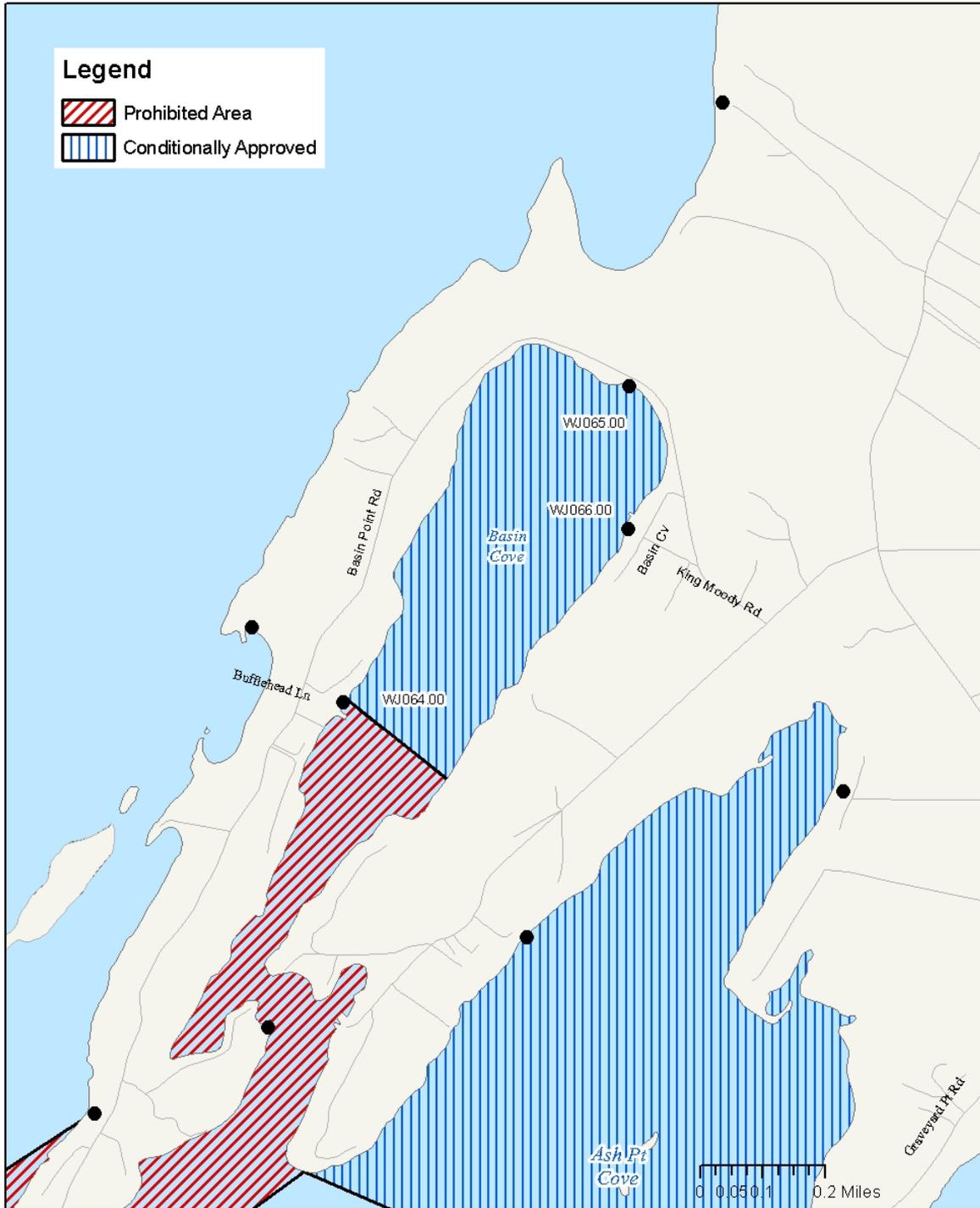
# Maine Department of Marine Resources

## Pollution Closed Area No. 17-B

Harpswell Neck (Harpswell)



11/20/07





**History:**

On September 27, 2007, DMR regulation 95.03 Y, Closed Area No. 17-B, Harpswell Neck, Harpswell was promulgated to delay the seasonal opening of the Basin Cove conditionally approved area because the annual review revealed that station WJ 66 did not meet approved standards for the open season (10/1 – 4/30). An analysis of the data, including data collected up through September 2007, revealed that this station still did not meet approved standards during the open season. It was determined that the area should remain closed for further evaluation to determine if this area can continue to be managed as a conditional area.

In December 2000, Basin Cove was classified conditionally approved based on season with an open status from October 1 through April 30, because water quality during the summer did not meet approved standards. Many of the houses were only occupied during the summer creating a substantial increase in shore usage from May through September. Also, many of the seasonal dwellings had older septic systems. In July 2005, the shoreline survey identified two questionable septic situations on Basin Cove Road. The house located on the north side of the right of way, leading down to station WJ 66, had a septic system that was overloaded, but not breaking out. The fourth house south of the right of way had a holding tank, which may not have been pumped out as frequently as required, but this could not be documented. It wasn't until the P90 score at Station WJ66 no longer met approved standards for the open season that it became apparent that these potential pollution sources were having an impact on water quality in the area. A third potential source of pollution was the right of way itself, since it was steeply sloped, eroded, and conveyed storm water from King Moody Road and Basin Cove Road directly down to station WJ66.

A follow-up shoreline survey of the area in October 2007, noted that the overloaded septic system at 44 Basin Cove Road was replaced with a new system in August 2006. In August 2007, the right of way was filled in and seeded with grass to slow down and channel the storm water runoff along a hedgerow for filtration. As of November 2007, the house with the holding tank is no longer occupied and is scheduled to be demolished.

**Data Analysis**

Basin Cove conditional area is monitored by stations WJ 64, 65 & 66. The locations are displayed on the map on page 2. As seen below in Table 1, the P90 score at station WJ 66, for the October 1 through April 30 season, does not meet approved standards. A key to water quality table headers can be found on page 10 of this document.

**Table 1 Fecal Coliform Report 2000-07 for Basin Cove Stations for the Open Season October 1 to April 30**

STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WJ064.00	CA	30	6	4.7	0.50	460	20.0	45	266
WJ065.00	CA	30	6	4.6	0.47	150	18.5	45	266
WJ066.00	CA	30	6	6.6	0.70	680	51.6	45	266

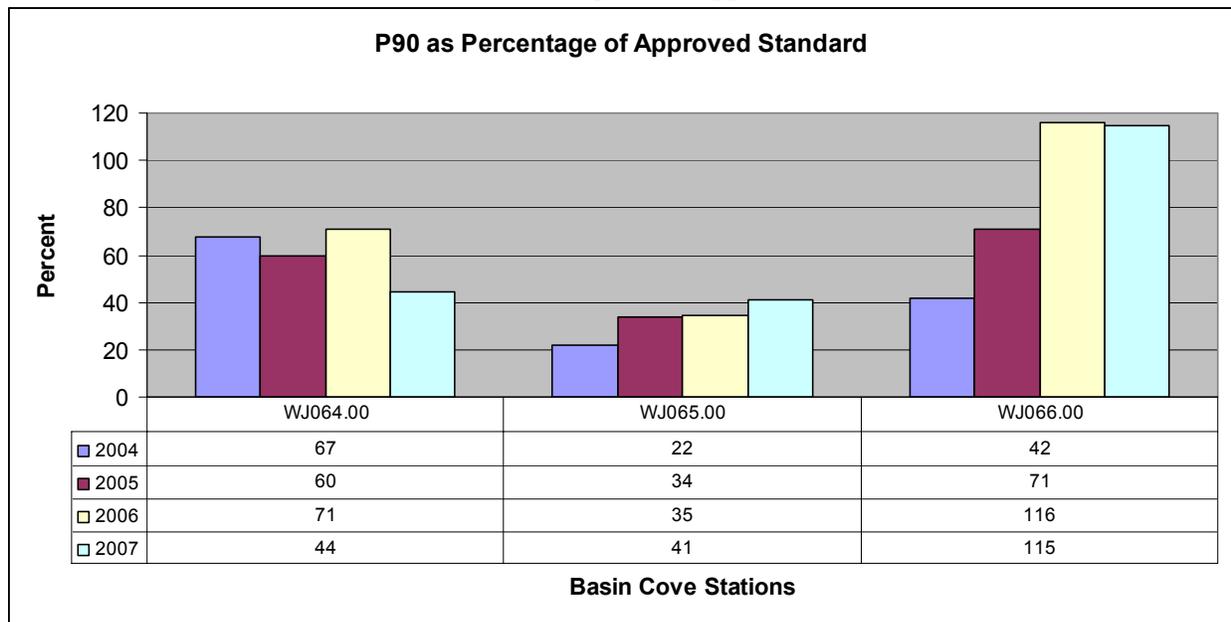


The P90 and applicable P90 standard for the open season for 2004 through 2007 is displayed in Table 2. Station WJ 66 has been increasing over the past three years. This can be seen in Table 3 which shows the P90 as a percentage of the approved standard for each year's data set. DMR has switched from MPN fecal coliform test method to a membrane filtration (MF) fecal coliform test method. The precision of the MF method far exceeds that of MPN with a resulting lower P90 approved standard (MPN P90 49 versus MF P90 31). 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 over the years, the calculated P90s are expressed as a percentage of the approved standard. Station WJ 64 has remained relatively stable, WJ 65 has steadily increased but stays well below the standard at this point, and WJ 66 has had a steady increase and exceeds the approved standard.

**Table 2 P90 and Approved P90 Standard 2004 - 2005**

	2004		2005		2006		2007	
	P90	APPD. STD						
<b>WJ064.00</b>	33.0	49	29.3	49	34.1	48	20.0	45
<b>WJ065.00</b>	10.8	49	16.7	49	16.7	48	18.5	45
<b>WJ066.00</b>	20.6	49	34.6	49	55.6	48	51.6	45

**Table 3 P90 Trend for WJ 64, 65 & 66 as a Percentage of the Approved Standard**



The maximum fecal coliform scores that occurred each month from 2001 to 2007 are shown in Table 4. All months had only 1 data point for that month with the exception of March 2007 when two samples were collected, the highest of which was 14. This Table shows that the high scores of 460, 240 and 680 (the scores that have caused this station to exceed the P90 standard) occurred in October and November.



**Table 4 Maximum Fecal Coliform Scores by Month and Year for Station WJ 66**

Max of FC	Year							
Month	2001	2002	2003	2004	2005	2006	2007	Grand Total
January				2.9	2.9	2.9	1.9	2.9
February	7.3	2.9			2.9	3.6		7.3
March	2.9	2.9	2.9	9.1	15.0		14.0	15.0
April	3.6	9.1	2.9	2.9	23.0	2.9	2.0	23.0
May	2.9						1.9	2.9
June						3.6		3.6
August						2.9	1.9	2.9
September	9.1		23.0	2.9		13.0	1.9	23.0
October	3.6	2.9	460.0	3.6		680.0	1.9	680.0
November	11.0	2.9	3.6	3.6	240.0			240.0
December	23.0	2.9	3.6	43.0	2.9			43.0
Grand Total	23.0	9.1	460.0	43.0	240.0	680.0	14.0	680.0

The fecal scores for station WJ 66 were plotted by year against rainfall amounts. Table 5 displays the maximum value that year at different amounts of rain that occurred 72 hours prior to collection. The total number of data points in those rainfall amounts are noted. The 0 – 0.5 inches of rain category has the greatest number of data points, since it includes all data when no rain had occurred. It shows that the 460 and 680 scores occurred after significant rainfall events. The 240 score occurred during a quick downpour of half an inch of rain, after a period of no rain in 2005. October and November are typically wet months in Maine. The fall rain occurs after several months of dry summer weather, after seasonal homes and septic systems have been heavily used, and after animal waste has collected on land surfaces.

**Table 5 Maximum Fecal Scores at WJ66 verses Rain up to 72 hours Prior to Sample Collection**

72hr accum rain	Data	Year							Grand Total
		2001	2002	2003	2004	2005	2006	2007	
0-0.5"	Maximum score	11	9.1	3.6	9.1	15	13	14	15
	Number of samples	5	4	4	5	4	4	5	31
0.5"-1"	Maximum score	23	2.9	23	2.9	240		1.9	240
	Number of samples	2	1	1	1	1		2	8
1"-1.5"	Maximum score	9.1	2.9		43			1.9	43
	Number of samples	1	1		1			1	4
1.5"-2"	Maximum score						3.6		3.6
	Number of samples						2		2
2"-2.5"	Maximum score						680		680
	Number of samples						1		1
2.5"-3"	Maximum score					23			23
	Number of samples					1			1
3"-3.5"	Maximum score			460					460
	Number of samples			1					1



Table 4 indicates that the fecal scores in 2007 have been low. The conditions that occurred during sample collections are shown in Table 6. Rain had occurred January, March, May and August.

**Table 6 Station WJ66 Sample Collection in 2007 through October**

COLLECT_DATE	STRAT	TIDE	ADV	SAL%	WIND	COLIFORM	Sample Day	1 Day Prior	2 Day Prior	3 Day Prior	48hr accum	72hr accum
1/10/2007	R	F	P	30	NW	1.9	0	0	0.75	0	0.75	0.75
3/12/2007	R	HF	-	30	-	14.0	0	0.28	0.02	0	0.30	0.30
3/27/2007	R	F	-	30	-	1.9	0.01	0.08	0.02	0.04	0.11	0.15
4/11/2007	R	E	-	28	CL	2.0	0	0	0	0	0.00	0.00
5/2/2007	R	HF	-	28	S	1.9	0	0	0.34	1.02	0.34	1.36
8/15/2007	R	H	-	30	E	1.9	0.28	0	0.4	0	0.68	0.68
9/24/2007	R	E	-	32	-	1.9	0	0	0	0	0.00	0.00
10/10/2007	R	E	-	32	CL	1.9	0	0	0	0	0.00	0.00

The data from 2007 indicates there may be some improvements in water quality in months when the area has been in the closed status. However, when the water quality data at station WJ66 was plotted out by months, as seen in Table 7 below, it shows that no samples were collected during the summer months of June, July and August from 2001 through 2005. Since the area was only open from October through April, it was only sampled from October through April. In 2006, following the systematic random sampling strategy, sampling was scheduled randomly from January through December. At this time, there are not enough data points to analyze to determine if the water quality has improved in the time period when it was historically poor, the closed season.

**Table 7 Number of Samples Collected by Month for WJ66 2001 through Oct. 2007**

Count of FC	Year							
Month	2001	2002	2003	2004	2005	2006	2007	Grand Total
January				1	1	1	1	4
February	1	1			1	1		4
March	1	1	1	1	1		2	7
April	1	1	1	1	1	1	1	7
May	1						1	2
June						1		1
August						1	1	2
September	1		1	1		1	1	5
October	1	1	1	1		1	1	6
November	1	1	1	1	1			5
December	1	1	1	1	1			5
Grand Total	8	6	6	7	6	7	8	48

Until enough data has been collected throughout more months of the year, WJ 64, 65 and 66 were analyzed for the months where there is sufficient data. October and November are the



months when fecal score have been high and rain is an issue. The time period December through April was analyzed. Table 8 shows that all three stations meet approved standards during this time period.

**Table 8 Fecal Coliform Report December 1 - April 30 2000 - 2007**

STATION	CLASS	CNT	MFCNT	GM	SDV	MAX	P90	APPD_STD	RESTR_STD
WJ064.00	CA	30	4	3.8	0.31	43	9.3	46	277
WJ065.00	CA	30	4	3.4	0.28	43	7.7	46	277
WJ066.00	CA	30	4	4.4	0.36	43	12.7	46	277

**Conclusion:**

Water quality does not meet approved standards from October through April, because of the high scores collected in October and November in past years. Shoreline survey results confirm that there are no longer any known actual or potential pollution sources in Basin Cove. The potential problems that were identified in 2005 have been eliminated. The high fall scores, collected after heavy rainfalls, may have been associated with the potential pollution problems. Fecal coliform scores in 2007 indicate that conditions may be improving at WJ66. However, insufficient data points exist during the closed status period to analyze beyond the present open status time period. Water quality does meet approved standards from December through April.

This report recommends that Basin Cove be reclassified as conditionally approved and in the open status from December through April, when there is sufficient data to assure compliance with approved standards. This report also recommends that more samples be collected during the summer months and in the fall months after rainfall. Water quality should be reviewed, again, prior to the reopening in December 2008.

**Proposed Change:**

**TEXT OF RULE:** DMR Regulation 95.03 Y, Closed Area No. 17-B, Harpswell Neck (Harpswell)

- A. Effective immediately, because of pollution, it shall be unlawful to dig, take or possess any clams, quahogs, oysters or mussels taken from the shores, flats and waters of the following areas:
  1. Harpswell Sound: extending 200 feet offshore, between the southeast tip of High Head, and a red painted post located on the point of land north of the High Head Yacht Club dock.
  2. Middle Bay: inside and shoreward of a line beginning at the north tip of Whites Point, then running southwest to a red painted post, located approximately 1400 feet south of the U.S. Navy Harpswell Fuel Depot pier.



3. Harpswell Sound: inside and shoreward of a line beginning at the northeast point of Clark Cove, then running southwest to navigational buoy C"15" at Merriman Ledges, then northwest to the end of Thompson Road.
  4. Basin Point and Ash Point: south of a line beginning at the end of Bufflehead Lane, then running southeast to the marina landing on the opposite shore; AND north of a line beginning at the south tip of Ash Point, then running southwest to the south tip of Basin Point; AND inside and shoreward of a line beginning at the south tip of Basin Point, then running northwest to a prominent ledge, then continuing northeast to the beginning of Juniper Lane.
  5. Potts Point: inside and shoreward of a line beginning at the end of Graveyard Point Road, then running south to the north tip of Pinkham Island, then running southwest to the tip of Potts Point, then running northwest to navigational buoy "C13", then running northeast to the south end of the causeway on Harpswell Neck Road.
- B. Effective immediately, because of pollution, the shores, flats and waters of Basin Cove: north of a line beginning at the end of Bufflehead Lane, then running southeast to the marina landing on the opposite shore are classified as "Conditionally Approved," and shall be closed to the harvest of clams, quahogs, oysters and mussels from May 1 through November 30.
- C. Effective immediately, because of pollution, the shores, flats and waters of Ash Point Cove: north of a line beginning at the south end of the causeway on Harpswell Neck Road, then running northwest to the south tip of Ash Point; AND Harpswell Harbor: inside and shoreward of a line beginning at the end of Thompson Road, then running southwest to the northeast tip of Stover Pt., are all classified as "Conditionally Approved," and shall be closed to the harvest of clams, quahogs, oysters and mussels from May 1 through September 30.

EFFECTIVE DATE: ??

EFFECTIVE TIME: \_\_\_\_\_

AGENCY CONTACT PERSON: Amy M. Fitzpatrick  
Department of Marine Resources  
194 McKown Point Road  
W. Boothbay Harbor, Maine 04575  
[http://www.maine.gov/dmr/rm/public\\_health/closures/closedarea.htm](http://www.maine.gov/dmr/rm/public_health/closures/closedarea.htm)

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#### STATEMENT OF FACT AND POLICY

The Commissioner of the Maine Department of Marine Resources repeals the emergency DMR Regulation 95.03 Y, Closed Area No. 17-B, Harpswell Neck (Harpswell), promulgated on



Sanitary Survey for Growing Area WJ – Basin Cove, Harpswell Addendum  
Effective Date: November 26, 2007  
Revision No.: 2

September 27, 2007, and replaces it with a new rule. This new rule reclassifies the Basin Cove seasonal conditional area to be in the open status from December 1 through April 30.



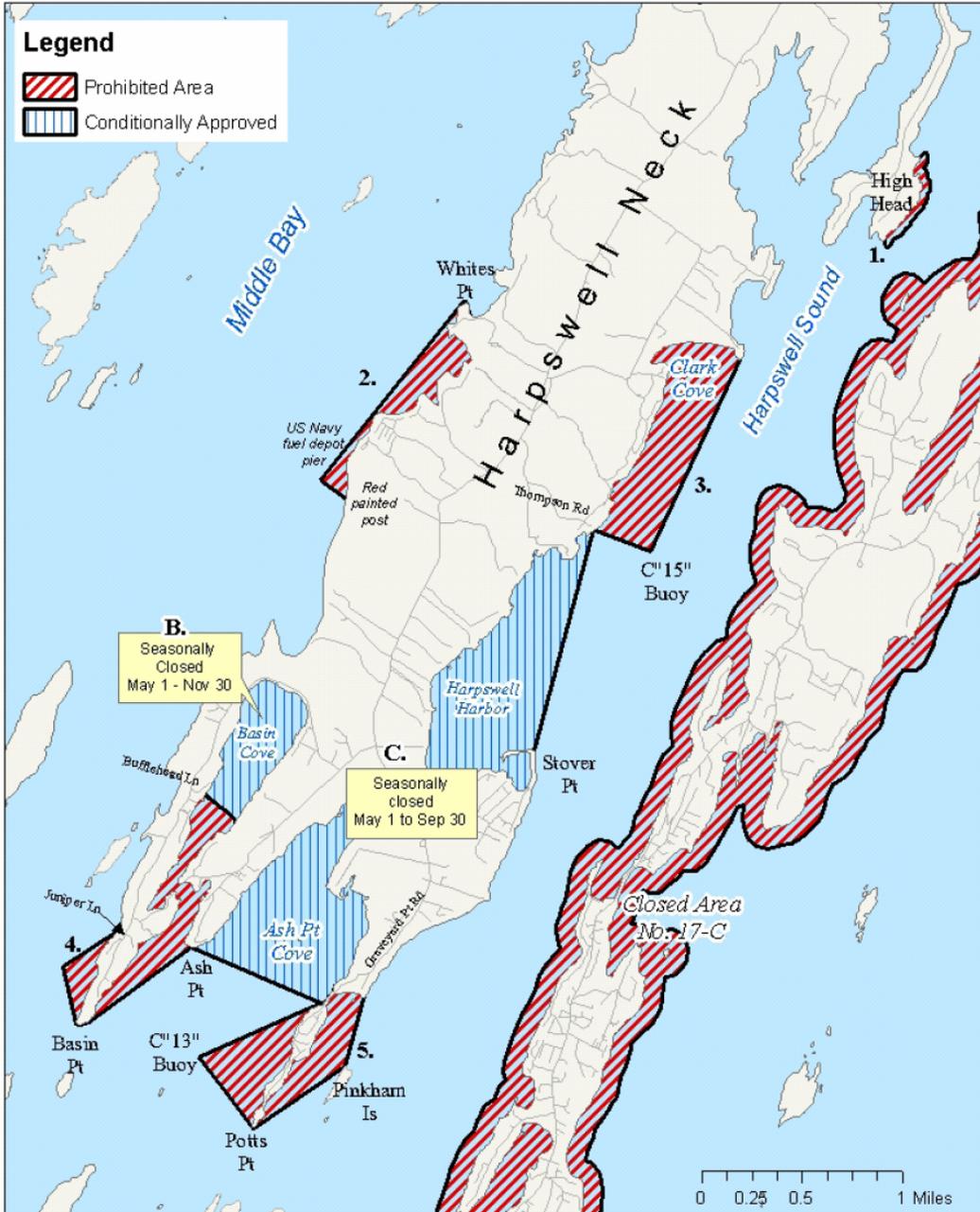
**Proposed Legal Notice Map:**



**Maine Department of Marine Resources**  
**Pollution Closed Area No. 17-B**  
 Harpswell Neck (Harpswell)



11/21/07





## 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.