



Growing Area EG – Union River

Annual Report for 2006

Final Report Date: 09-12-2007

ORIGINATOR NAME

Erick Schaefer

APPROVAL

Division Director:

_____ Date: _____
Print name signature

DISTRIBUTION:

- () Commercial Monitoring and Assessment Division.....By:_____ Date:_____
- () Habitat/Aquaculture Division..... By:_____ Date:_____
- () Education Division.....By:_____ Date:_____
- () Stock Enhancement Divison.....By:_____ Date:_____
- () Bureau of Resource Management Director.....By:_____ Date:_____
- () Office of the Commissioner.....By:_____ Date:_____



TABLE OF CONTENTS

Executive Summary 4
Current Classification(s) 4
Current Management plan(s)?..... 4
Current Annual Review of Management Plan (s)..... 4
Review of Water Quality 4
Shoreline Survey Activity 7
Are there shellfish aquaculture or wet storage activities in the area? Map? List of current lease/LPA/wet storage permit holders. 9
Are there any changes in classification required/requested at this time? Discuss. Explain. 9
Discussion and summary, tie it all together. 11
Appendix 1 13
Bibliography 16

Table of Tables

Table 1 2006 Area EG P90 12/15/06 5
Table 2 CA samples for 2006 6
Table 3 CA Samples 2006 Season 14
Table 4 2006 CA P90 During Open Period 15

Table of Figures

Figure 1 Area EG P90 Trend 6
Figure 2 C48A Current Closure 8
Figure 3 Aquaculture Lease Sight..... 9
Figure 4 Map of Proposed New Closure..... 10
Figure 5 Area EG Part 1 2006 Class and WQ Stations..... 12
Figure 6 Growing Area EG Part 2 2006 Annual Map 13



Executive Summary

This report covers growing area EG which extends from the tip of Newbury Neck, Surry to Bass Harbor, Tremont. There were no classification changes during 2006 but as a result of the year end data analysis the closure 40A will be expanded to now include all of Patten Bay. No new pollution sources were identified and no overboard discharges were removed. In 2006 one new station EG 16.5 was added as a boundary station. WQ station EG 4 has had the P90 increase from a 16.8 to a 40. This is a significant change and is a cause for concern. An immediate survey of the area did not find any problems but the area will continue to be looked at to try and find the reason for this increase. The scores at EG 4 as of June 2007 have dropped down to a P90 of 25.

Current Classification(s)

Prohibited: C40A Union River, Patten Bay, and Heath Brook, Towns of Ellsworth, Surry and Trenton (WWTP outfall)

C42 Bass Harbor and the eastern shore of Duck Cove, Tremont (OBD's)

Conditional Approved: C40 based on operation of Ellsworth WWTP 6 sample sights

Restricted: C48A Goose Cove Trenton (non point) 3 sample sights
C48B Pretty marsh Harbor, Mount Desert (non point) 3 sample sights
C48C Northwest Cove, Bar Harbor (non point) 1 sample sight

You may view the legal notices at the following web address:

www.maine.gov/dmr/rm/public_health/closures/closedarea.htm

Current Management plan (s)

Yes, C40 based on Ellsworth WWTP

Current Annual Review of Management Plan (s)

Yes, C40 completed on 12/15/06 included in Appendix 1

Review of Water Quality

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, 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 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.

Six random samples were collected for growing area EG during the 2006 sampling season. The current P90 is shown in table 1. The only stations that do not meet approved standards are highlighted in yellow. These stations are all located in current prohibited or restricted areas. The conditionally approved (CA) was open for 10 months in 2006 and the WWTP CA sample stations (highlighted in green) were sampled monthly while in the open status as well as being sampled as part of the regular systematic random sampling (SRS) runs. (Table 2) Station EG 5 was not able to be sampled every month because of access problems so was not added to the CA sampling run. After a discussion with the FDA inspector during the year end review it was decided that EG 5 will be added to the CA sampling run and sampled whenever possible. The newly activated station EG 16.5 will also be added to the CA sampling run. The current conditional area management plan (CAMP) will be updated to reflect these changes.

Table 1 2006 Area EG P90 12/15/06

| Station | Class | Count | MFCnt | Geomean | SDV | Max | P90 | Appr. Std | Restr. Std |
|----------|---------------|-------|-------|---------|------|------|-------|-----------|------------|
| EG002.00 | CA | 30 | 4 | 4.0 | 0.38 | 43 | 12.2 | 46 | 277 |
| EG004.00 | CA | 30 | 4 | 6.5 | 0.61 | 240 | 40.0 | 46 | 277 |
| EG005.00 | CA | 30 | 3 | 5.2 | 0.58 | 1200 | 29.3 | 47 | 282 |
| EG007.00 | CA | 30 | 4 | 6.6 | 0.62 | 460 | 40.9 | 46 | 277 |
| EG008.00 | P | 30 | 2 | 17.2 | 0.75 | 1200 | 158.4 | 48 | 288 |
| EG009.00 | P | 30 | 2 | 7.7 | 0.66 | 1200 | 53.4 | 48 | 288 |
| EG011.00 | P | 30 | 2 | 4.7 | 0.33 | 43 | 12.7 | 48 | 288 |
| EG013.00 | P | 30 | 2 | 6.5 | 0.58 | 240 | 35.4 | 48 | 288 |
| EG014.00 | CA | 30 | 4 | 6.4 | 0.61 | 260 | 38.9 | 46 | 277 |
| EG016.00 | P | 30 | 3 | 11.9 | 0.78 | 1100 | 118.8 | 47 | 282 |
| EG016.50 | * New station | 7 | 3 | 4.1 | 0.39 | 22 | 13.3 | 40 | 231 |
| EG017.00 | CA | 30 | 4 | 4.6 | 0.54 | 240 | 22.2 | 46 | 277 |
| EG019.00 | A | 30 | 2 | 5.7 | 0.57 | 240 | 30.0 | 48 | 288 |
| EG020.00 | P | 30 | 2 | 12.2 | 0.74 | 1100 | 107.3 | 48 | 288 |
| EG020.50 | New station | 13 | 2 | 5.7 | 0.56 | 93 | 30.8 | 46 | 273 |
| EG021.00 | A | 30 | 2 | 4.3 | 0.33 | 23 | 11.2 | 48 | 288 |
| EG023.00 | A | 30 | 2 | 4.5 | 0.41 | 93 | 15.2 | 48 | 288 |
| EG024.00 | A | 30 | 2 | 5.2 | 0.53 | 460 | 25.1 | 48 | 288 |
| EG025.00 | P | 30 | 2 | 7.2 | 0.64 | 1100 | 48.2 | 48 | 288 |
| EG026.00 | A | 30 | 2 | 3.6 | 0.32 | 93 | 9.3 | 48 | 288 |
| EG027.00 | A | 30 | 2 | 5.6 | 0.61 | 1200 | 34.3 | 48 | 288 |
| EG028.00 | A | 30 | 2 | 4.6 | 0.60 | 1200 | 26.7 | 48 | 288 |
| EG029.00 | A | 30 | 2 | 5.2 | 0.49 | 93 | 22.2 | 48 | 288 |
| EG029.50 | New station | 12 | 2 | 5.3 | 0.56 | 122 | 28.4 | 45 | 271 |
| EG030.00 | R | 30 | 2 | 6.9 | 0.74 | 1200 | 61.5 | 48 | 288 |
| EG031.00 | R | 30 | 2 | 6.2 | 0.65 | 1200 | 41.5 | 48 | 288 |



| | | | | | | | | | |
|----------|-------------|----|---|------|------|------|-------|----|-----|
| EG032.00 | A | 30 | 2 | 3.5 | 0.32 | 93 | 8.9 | 48 | 288 |
| EG033.00 | A | 30 | 2 | 4.9 | 0.55 | 240 | 25.0 | 48 | 288 |
| EG034.00 | A | 30 | 2 | 5.5 | 0.44 | 94 | 19.8 | 48 | 288 |
| EG035.00 | A | 30 | 2 | 3.6 | 0.36 | 240 | 10.2 | 48 | 288 |
| EG036.00 | A | 30 | 2 | 4.1 | 0.60 | 1600 | 24.3 | 48 | 288 |
| EG036.06 | New station | 12 | 2 | 3.2 | 0.16 | 9.1 | 5.2 | 45 | 271 |
| EG037.00 | P | 30 | 2 | 14.9 | 0.76 | 1100 | 140.0 | 48 | 288 |
| EG038.00 | A | 30 | 2 | 3.9 | 0.32 | 43 | 9.8 | 48 | 288 |
| EG040.00 | A | 30 | 1 | 3.2 | 0.13 | 9.1 | 4.7 | 48 | 294 |
| EG041.00 | A | 30 | 1 | 4.2 | 0.37 | 75 | 12.3 | 48 | 294 |
| EG043.00 | A | 30 | 2 | 3.3 | 0.18 | 15 | 5.6 | 48 | 288 |

Table 2 CA samples for 2006

| Station | Open or Closed | Sample Count |
|----------|----------------|--------------|
| EG002.00 | C | 2 |
| EG002.00 | O | 10 |
| EG004.00 | C | 2 |
| EG004.00 | O | 10 |
| EG007.00 | C | 2 |
| EG007.00 | O | 10 |
| EG014.00 | O | 9 |
| EG017.00 | C | 1 |
| EG017.00 | O | 10 |

The following figure shows the P90 trend for this growing area for the years 2005 and 2006.

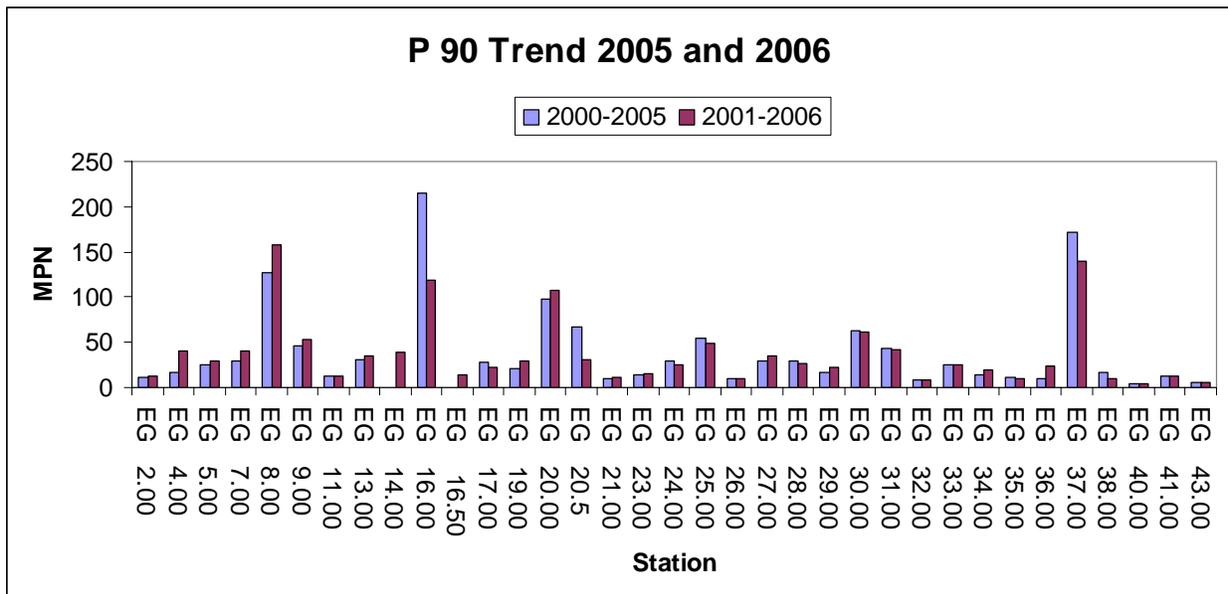


Figure 1 Area EG P90 Trend



The only station with any significant increase was EG 4 the P90 at this station increased from a 17 to a 40. The area around this station will be surveyed immediately to try and determine what the cause of the increase may be.

There was only one station added during the 2006 season, EG 16.5. This station was added to verify the margin of a current closure in C40A.

Shoreline Survey Activity

There areas around stations EG 16, 20, 25 and 30 were surveyed during routine random sampling. No problems were identified. There were no stream samples taken during the 2006 season. A new station EG 20.5 added in 2005 to defend a proposed line change based on a stream dilution calculation now has 13 samples. Increased sampling frequency of this station will be attempted during the 2007 season to try and get enough samples to make this line change. (Figure 2)

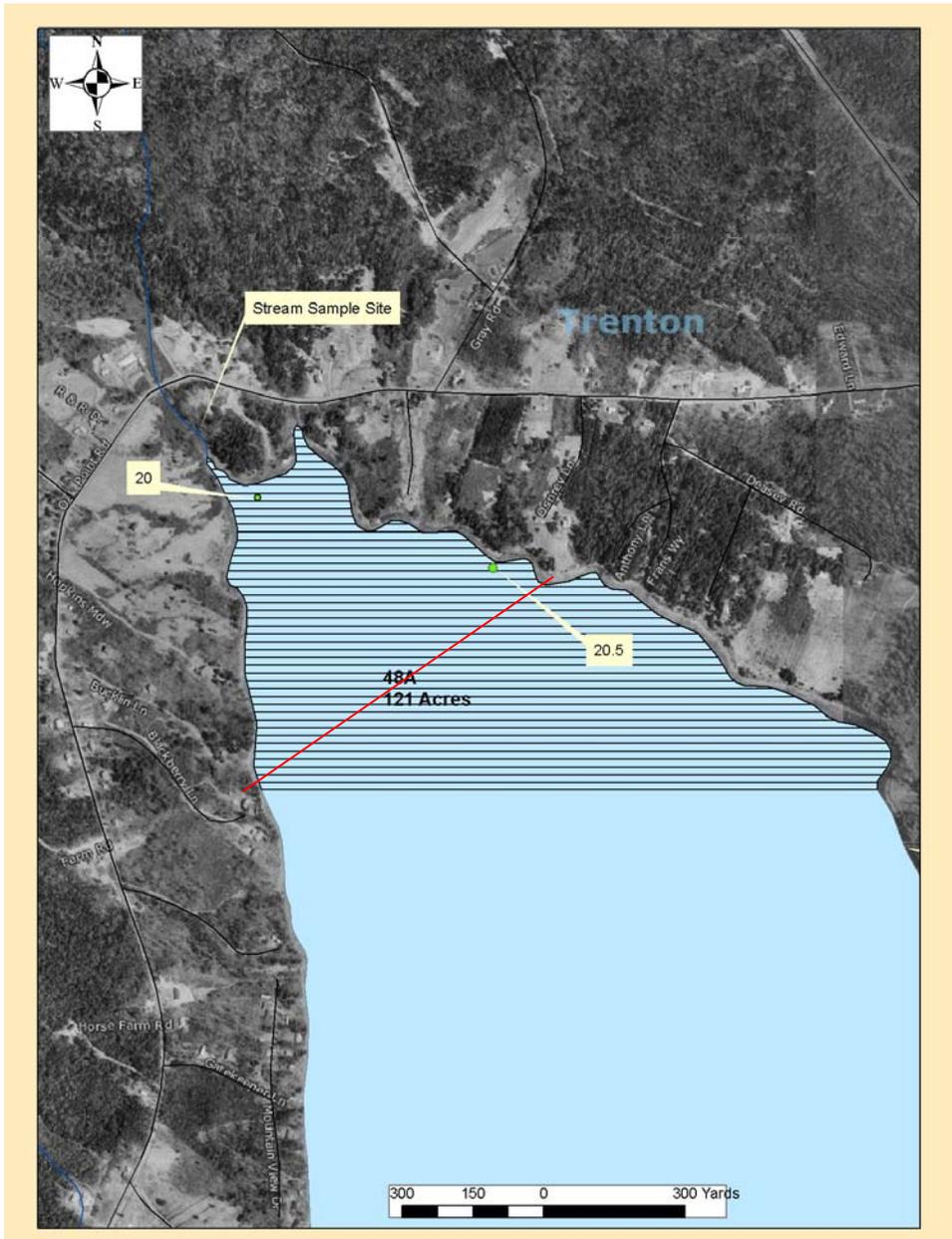


Figure 2 C48A Current Closure

Closure 48A is a closure based on failing water quality from non point runoff. A stream calculation was performed based on a fecal loading of 460 FC/100ml and a flow rate of 1.5 cfs into receiving waters with a depth of 2 feet. This calculation results in a closure size of 7 acres. The P90 of station 20 is 97.5. This closure is believed to be oversized and a new station 20.5 was established over a year ago, we now have 12 samples and a P90 of 23.7. If this station remains clean then the line will be adjusted to reflect this. (Red line on map)



Shellfish aquaculture and/or wet storage activities

There is one aquaculture lease site in this growing area it is the Trumpet Island Salmon Farm operated by Eric Swanson and Jody Patterson. The site is located East of Hardwood Island, in Blue Hill Bay, Tremont in Hancock County. The site is a net pen culture with the cultivated species including Atlantic Salmon, Rainbow Trout and Blue Mussels.



Figure 3 Aquaculture Lease Sight

Proposed Classification Changes

The Prohibited area in C40 in the Patten Bay area will be expanded. This expansion is the result of the data analysis that shows deteriorating WQ at station EG 8 and OBD's located all along the northern shore of Patten Bay. Figure 4 shows the new proposed closure lines in yellow.



The old closure used EG 8 as a corner point between a prohibited area and an approved area. In order to keep with the established policy of using dilution calculations or clean stations to determine closure boundaries the line was moved to use 2 passing stations EG 7 and EG 11 as the new closure line.

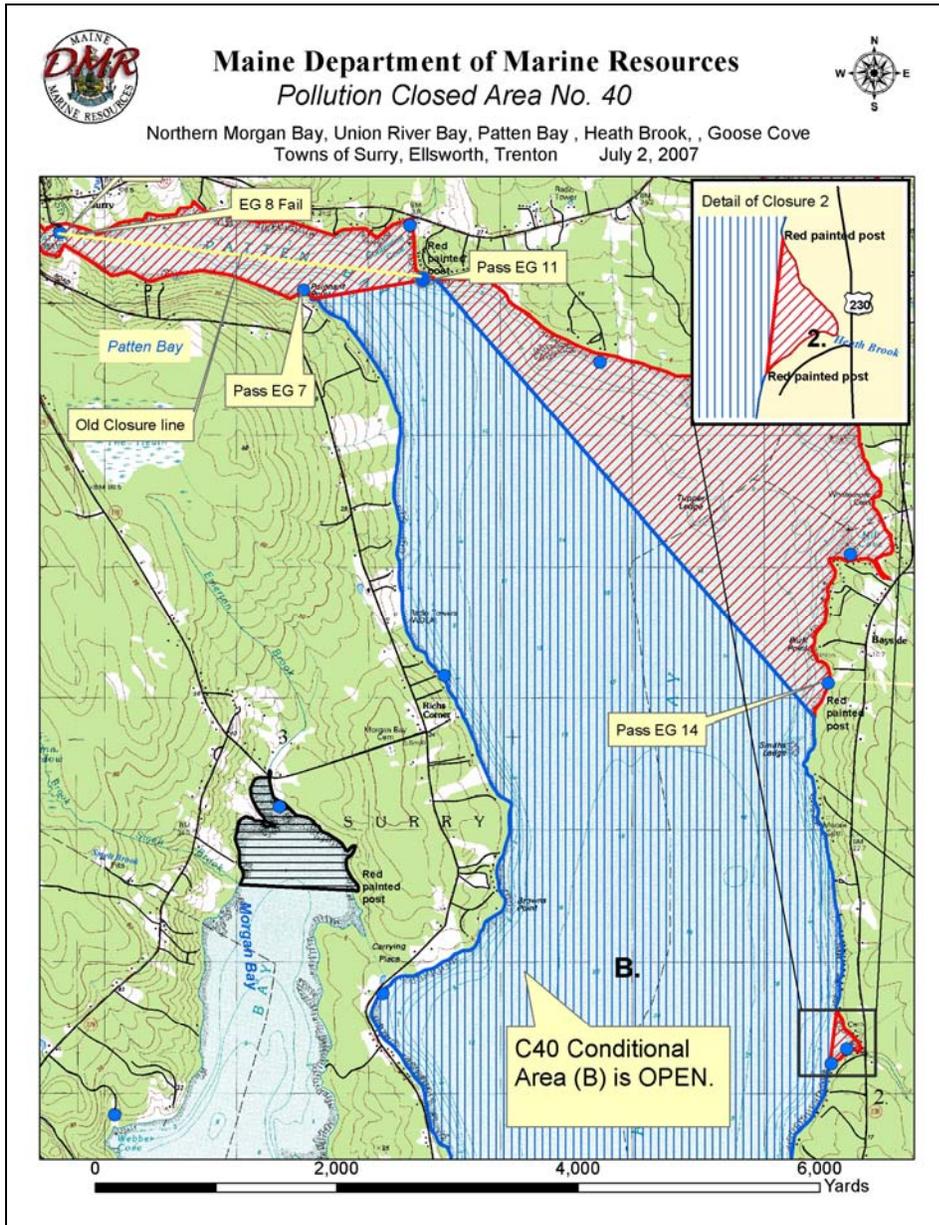


Figure 4 Map of Proposed New Closure

Closures were combined into one legal notice. The changes that were made are as follows:

95.04 P, Area No. 40, Union River Bay and Patten Bay, Towns of Surry and Trenton, promulgated on November 15, 2006:

95.04 A3, Closed Area No. 40-A, Union River, Patten Bay and Heath Brook, Towns of Ellsworth, Surry and Trenton, promulgated on July 15, 2005:



95.04 X, Closed Area No. 48-A, Goose Cove, Trenton, promulgated on October 2, 2003:

95.04 M3, Closed Area No. 48-C, Northwest Cove, Bar Harbor, promulgated on May 11, 2005:

95.04 ZZ Closed Area No. 39-H, Northern Morgan Bay, Surry, promulgated on January 13, 2004:

Have been repealed and replaced with the following rule: DMR Regulation 95.04 P, Area No. 40, Northern Morgan Bay, Surry, Union River Bay, Patten Bay and Heath Brook, Towns of Surry, Ellsworth and Trenton, Goose Cove, Trenton, and Northwest Cove, Bar Harbor

Current map in file/online/in map book

Yes

Legal notices updated in file/closure binder/online

Yes

Discussion and Summary

There were no new pollution sources found in this growing area during the 2006 sampling season. The only change made during this review period was the expansion of C40 to include all of Patten Bay. A new station EG 20.5 was added in 2005 to better define a closure line for C48A. At this time EG 20.5 has 13 samples and a P90 score of 30. WQ station EG 4 has had the P90 increase from a 16.8 to a 40. This is a significant change and is a cause for concern. An immediate survey of the area did not find any problems but the area will continue to be looked at to try and find the reason for this increase.

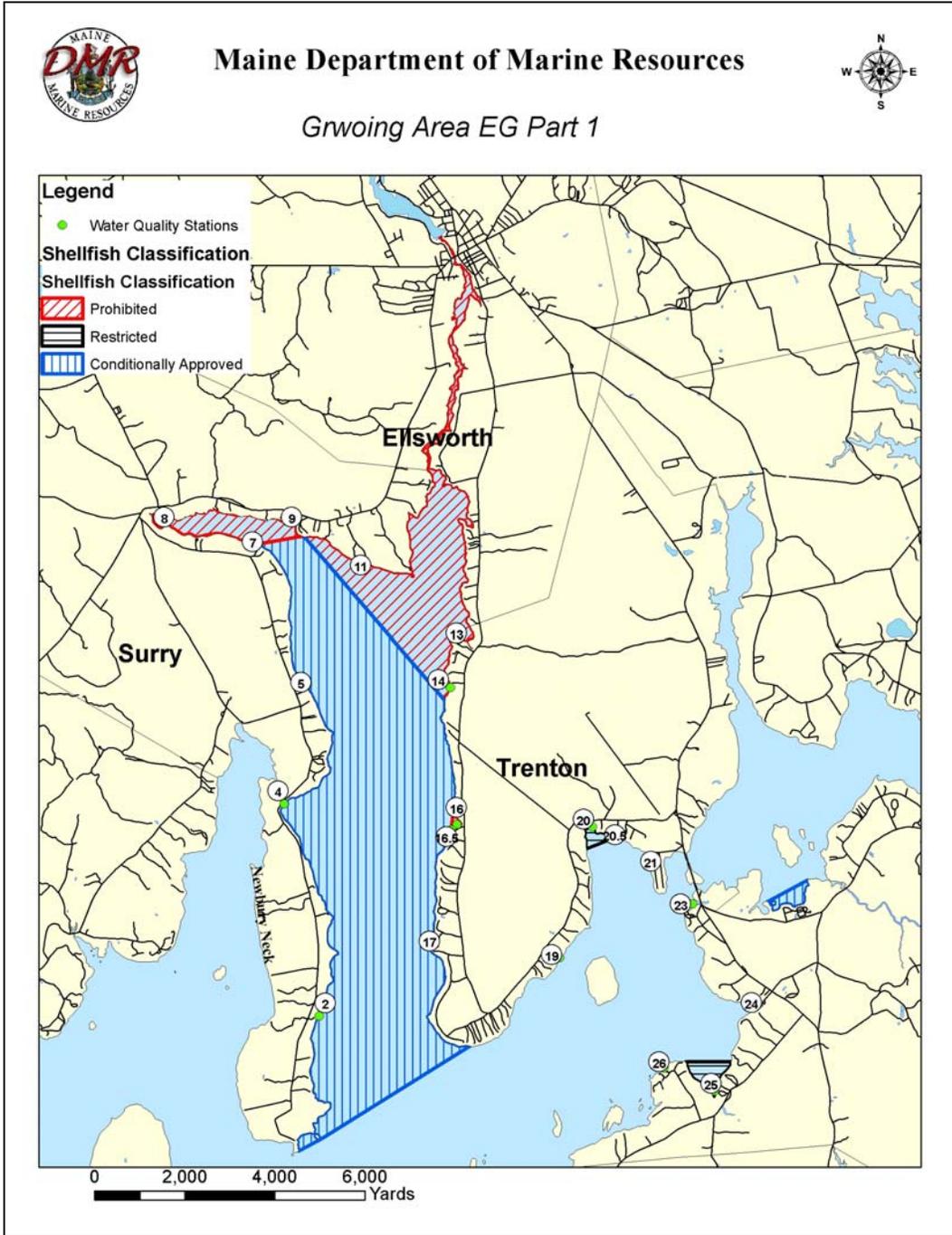


Figure 5 Area EG Part 1 2006 Class and WQ Stations

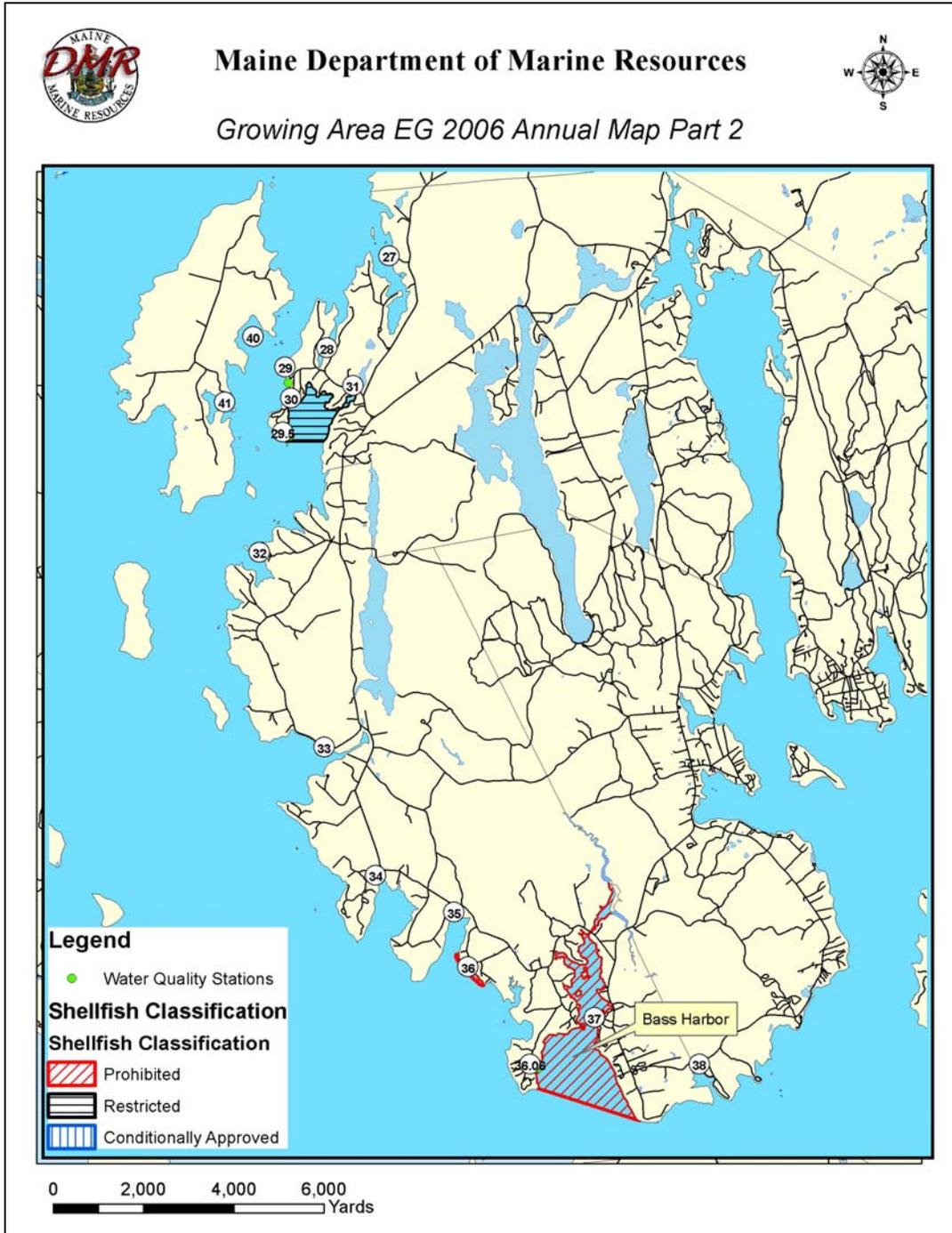


Figure 6 Growing Area EG Part 2 2006 Annual Map



Appendix 1

Conditional Area Management Plan- 2006 Annual Review Growing Area EG C40 Union River Bay

Scope

This area is conditionally approved because of the Ellsworth Wastewater Treatment Facility which discharges treated, seasonally chlorinated effluent into the Union River. The conditional closure lies upstream of a line beginning at the most southeastern tip of Burnt Point on Newbury Neck, Surrey and running northeasterly to a red painted post at the most southern prominence of Oak Point, Trenton. It includes the general areas of Patten Bay, Contention Cove, Carrying Place Cove, Union River Bay and the Union River.

Compliance with management plan-

The wastewater treatment facility met compliance criteria that included peak effluent flow, fecal coliform levels, physical and chemical effluent quality, lack of mechanical failures and effective sewage treatment during conditionally open and approved periods. Reporting of noncompliance events were in accordance with the management plan with closures enacted immediately upon DMR notification. So far in 2006 all known events have been reported to DMR. For the year 2006 there were 4 bypass events. This resulted in the closure of the CA for the months of February, March, and most of December. All events were reported as per the MOU. Samples were taken from the CA sites during the open months.

Table 3 CA Samples 2006 Season

| Location | Open or Closed | Count of Samples |
|----------|----------------|------------------|
| EG002.00 | C | 2 |
| EG002.00 | O | 10 |
| EG004.00 | C | 2 |
| EG004.00 | O | 10 |
| EG007.00 | C | 2 |
| EG007.00 | O | 10 |
| EG014.00 | O | 9 |
| EG017.00 | C | 1 |
| EG017.00 | O | 10 |

Adequacy of reporting and cooperation of involved persons-

Review of the WWTP and DMR records show management plan violations have been adequately reported by the municipal treatment plant staff to the Department of Marine Resources public health laboratory staff within acceptable time limits and with adequate detail to initiate action. All known bypasses were reported.

No anecdotal evidence (failing water testing criteria, shoreline survey, and reported illness) suggests that a public health risk exists when the treatment plant is operating correctly.



Compliance with approved growing area criteria-

All stations within the conditional area (excluding closed\prohibited areas near licensed overboard discharges) meet open\approved status based on geomeans, P90 values and shoreline surveys. The entire Growing Area EG had a completed sanitary survey in 1995. A Triennial report was produced for the 2004 season.

Table 4 2006 CA P90 During Open Period

| Station | Class | Count | MF Cnt | Geomean | SDV | Max | P90 | Appd Std. | Restr Std. |
|----------|-------|-------|--------|---------|------|-----|------|-----------|------------|
| EG002.00 | CA | 30 | 11 | 3.1 | 0.29 | 43 | 7.4 | 41 | 240 |
| EG004.00 | CA | 30 | 10 | 4.6 | 0.52 | 140 | 21.6 | 42 | 245 |
| EG005.00 | CA | 30 | 9 | 3.2 | 0.3 | 36 | 7.8 | 43 | 250 |
| EG007.00 | CA | 30 | 10 | 4.9 | 0.57 | 460 | 26.8 | 42 | 245 |
| EG014.00 | CA | 16 | 9 | 5 | 0.61 | 260 | 30.7 | 38 | 213 |
| EG017.00 | CA | 30 | 9 | 5.2 | 0.58 | 240 | 28.8 | 43 | 250 |

Field inspection of critical pollution sources-

The pollution source influencing the conditional area is the effluent outfall pipe from the Ellsworth Wastewater Treatment Facility. The status of the outfall pipe, to include the volume or composition of the plant effluent, has not changed during this review period. Annual sewage treatment plant and licensed overboard discharge operation standards are reviewed by the Maine Department of Environmental Protection. There is an ongoing review of the Treatment plant operation by the Department of Marine Resources based on the Maine Department of Environmental Protection (DEP) annual inspection documents and violation logs.

Water sampling compliance history-

Conditional area sampling was completed monthly during open status. Monitoring stations are part of a randomly scheduled water sampling run. Samples from stations 2, 4, 7, 14 and 17 are taken during and after any treatment facility noncompliance event, monitoring the public health risk until the conditional area was restored to open and approved status. It is also necessary to collect shellfish samples in the conditional area before the closure can be lifted and restored to Conditionally Approved.

Analysis-Recommendations-

Water quality scores from sampling within the conditional area (lower Union River estuary and the southern part of Patten Bay) do not indicate any public health impact from the Ellsworth Wastewater Treatment Plant when it is operating effectively. Sampling of monitoring sample stations was done monthly when in the open status as well as sampled as part of the regular random run. The town of Ellsworth is in the process of permitting and building a new WWTP facility and when this new plant comes on line the CAMP will be reviewed and updated to reflect this change until that time no changes are required to the current CAMP.

At the year end of review 3 additional stations will be added to the CA sampling run; EG 5 and 16.5.



BIBLIOGRAPHY

Data from the Maine Department of Marine Resources Public Health Division Lamoine Water Quality Lab.