



**GROWING AREA EK
Dyer Neck to Petit Manan Point, including Dyer and Pinkham Bays**

ANNUAL REVIEW for 2010

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APPROVAL

Division Director:

A handwritten signature in blue ink, appearing to read "Kohl Kanwit", is written over a light blue rectangular background.

Kohl Kanwit

3/28/12

Print name

signature

Date: _____



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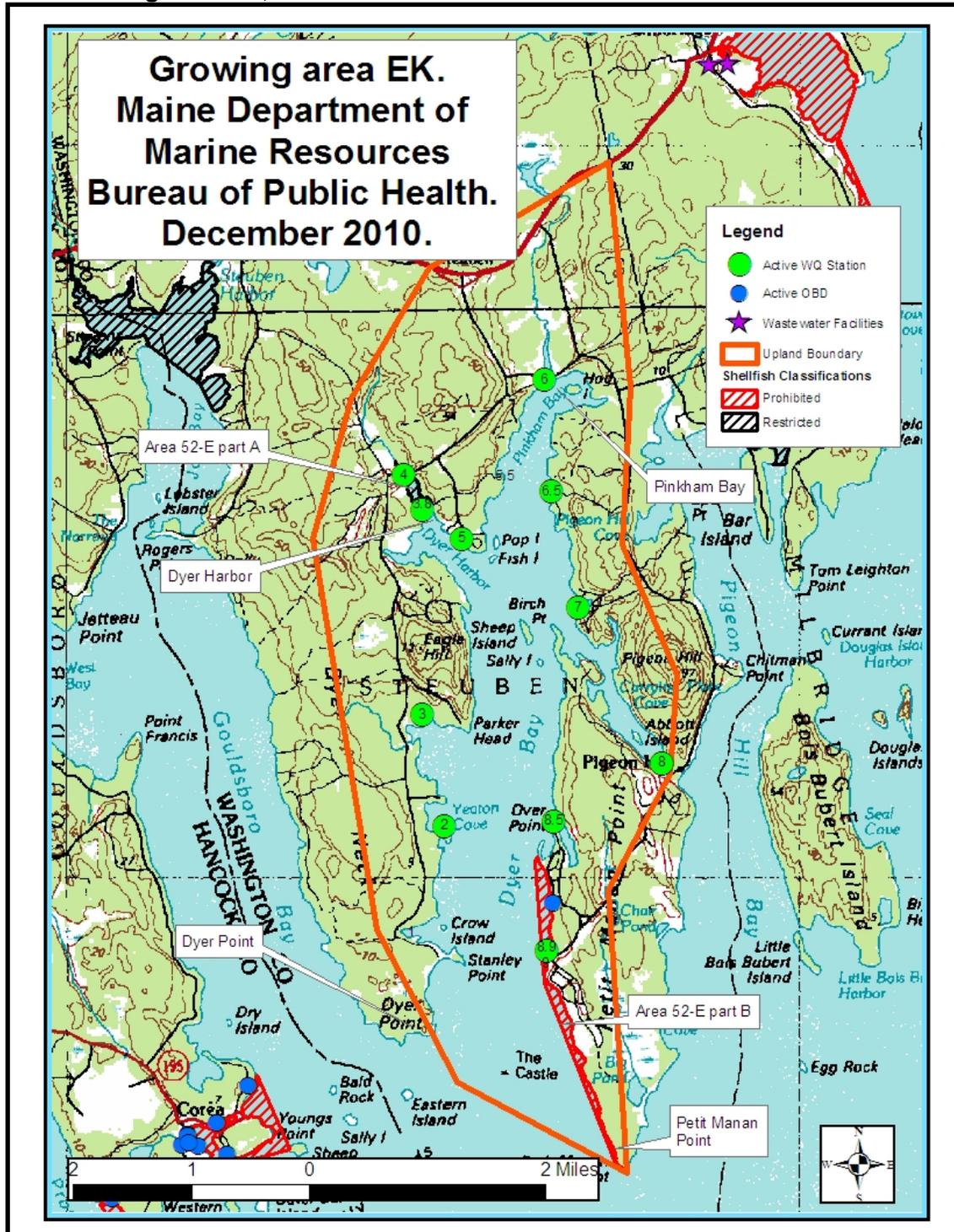
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Figure 1. Growing Area EK, with Active Water Stations.





Executive Summary

This is an annual report for growing area EK written in compliance with the requirements of the 2009 Model Ordinance and the National Shellfish Sanitation Program. The next triennial report is due in 2012; the next sanitary survey report is due in 2019. Growing area EK is essentially Dyer Bay in Steuben, Washington County Maine.

This info is repeated in next section – only needs to be noted once.

Growing Area Description

Growing area EK (Figure 1) encompasses Dyer Bay, Dyer Harbor, and Pinkham Bay in the Town of Steuben (pop. 1,131), Washington County, Maine (US Census 2010); and is primarily a rural area of Maine with a low population density and no municipal services such as water or sewer. There are about 4,000 acres of marine habitat with approximately 1,000 acres of intertidal zone along 29 miles of coastline in area EK. In growing area EK 92.6% of the area is classified as approved and harvestable without restrictions; 5.8% is classified prohibited and 1.6% is classified restricted.

The growing area begins at Dyer Point and goes around Dyer Bay, including Dyer Harbor and Pinkham Bay, to Petit Manan Point and includes Sheep and Hog Islands (Figure 1). The shoreline in this area is mostly bold ledge and extensive mud flats. Water quality is monitored by 11 stations (Figure 1, Table 1). A complete growing area boundary description can be found in the central files.

Area EK has approved, restricted and prohibited areas. Restricted area (Area No. 52E Part A) is in the Northeast portion of Dyer Harbor. Prohibited area (Area No. 52E Part B) extends from the Southwest tip of Petit Manan to the western prominence near Over Point (Figure 1).

Known pollution sources for this area are an OBD (MeDEP 2010a) and non-point source pollution. There are two drainages greater than 1 square mile (mi²) discharging into Dyer Bay. One stream, a 1.5 mi² drainage discharges into Dyer Harbor and a larger stream with a 3.5 mi² drainage discharges into Pinkham bay (3.5 mi²). There are no reported Marine Pump out facilities in the growing area (Maine DEP 2010b).

There is one aquaculture lease with two sites for American oysters in the growing area (Maine DMR 2010). There are no wet storage facilities in the area.

Current Classification(s)

At the end of the 2010 review year, shellfish growing area EK had areas classified as:



Approved- Stations EK2.0, EK3.0, EK3.8*, EK5.0, EK5.5, EK6.0, EK6.5, EK7.0, EK8.0 and EK8.5.

Restricted- Area No. 52E part A, station EK4.0, due to water quality not meeting approved standard.

Prohibited- Area No. 52E part B, station EK8.9, due to one OBD.

New Stations (less than 30 samples and not evaluated against a NSSP standard)
Station EK 8.9.

Asterisk * denotes boundary station.

Please visit the DMR website to view legal notices:

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

Activity during Review Period

- **Classification Changes:** none
- **OBD's Removed:** One, #1924 removal date 12/05/2010 (Maine DEP 2009a, Maine Office of GIS 2010).
- **OBD's Re-licensed:** none (Maine DEP 2009a, Maine Office of GIS 2010).
- **Aquaculture/Wet Storage:** lease DYER BP expired 8/21/2010 (Maine DMR 2010).
- **MEPDES permits:** no permits issued (EPA NPDES 2010).
- **Enforcement Actions:** No MEDEP enforcement action during review period (Maine DEP MER 2010).

Conditionally Managed Area(s): There are no conditionally managed areas in EK.

Water Quality Review and Discussion

At the end of 2010 there were 11 active water sampling stations in Growing are EK (Figure 1). Table 1 lists all active "Approved", "Restricted" and "Prohibited" stations in Growing Area EK, with their respective Geo-mean and P90 calculations for 2010. Appendix A lists 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 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.

All stations in area EK met the water quality standards of their NSSP classification standard in 2010. Station EK8.9 is a new station and does not have 30 samples yet. It was added in 2009 to replace EK9 which became unsafe to access due to erosion (Fendl 2009, Fendl & Loughlin 2010).

Table 1. Area EK P90s.

Area EG P90's									
Station	Class	Count	MFCOUNT	GM	SDV	MAX	P90	Appd_Std	Restr_Std
EK002.00	A	30	26	2.7	0.32	40	7.2	32	176
EK003.00	A	30	26	3.3	0.43	80	12	32	176
EK003.80	A	30	26	4.7	0.57	93	25.6	32	176
EK004.00	R	30	26	8	0.68	760	61.3	32	176
EK005.00	A	30	26	3.6	0.44	93	13.3	32	176
EK006.00	A	30	26	4.3	0.46	43	17.2	32	176
EK006.50	A	30	30	2.3	0.36	132	6.8	31	163
EK007.00	A	30	26	2.5	0.29	24	6	32	176
EK008.00	A	30	26	2.6	0.26	22	5.7	32	176
EK008.50	A	30	26	2.6	0.37	93	8.1	32	176
EK008.90	P	13	13	2.9	0.43	33	10.8	31	163

All "Approved" and "Restricted" stations were sampled at least 6 times in the open status during 2010 following a systematic random sampling (SRS) schedule. Area EK has 1 flood station, EK5 which was sampled 26 times, during adverse (flood) conditions. The fecal coliform scores from the flood stations under adverse conditions were not used for calculating the station's P90 scores. The sample collection counts are displayed in Table 2.

Table 2. Area EK Sample Count.

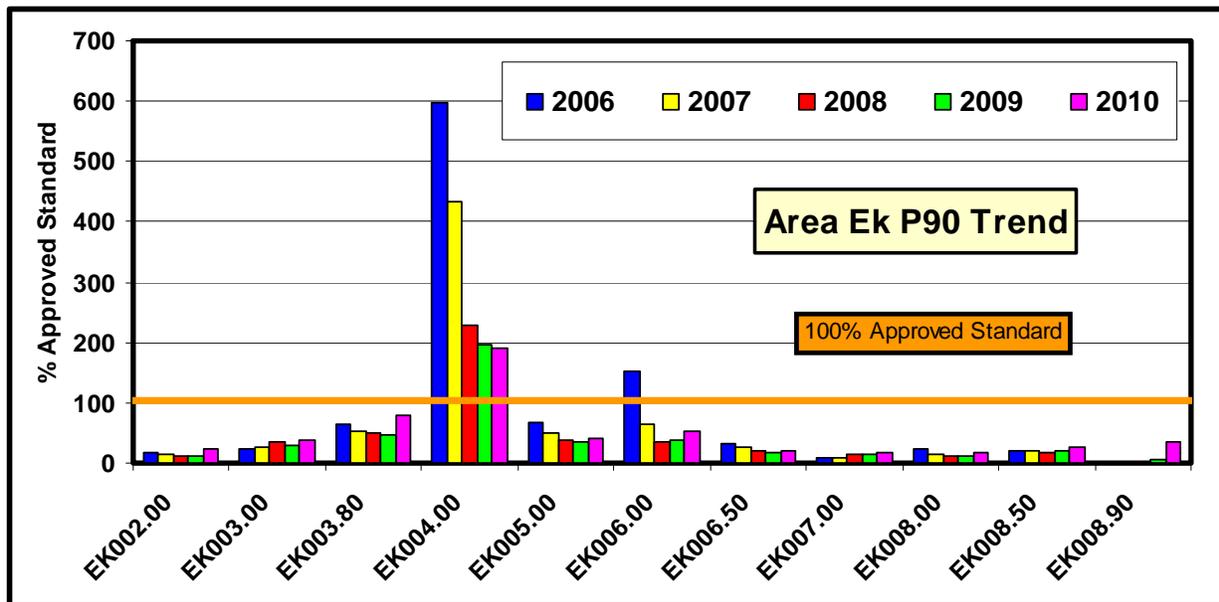
Station	CLASS	Adverse	Random	Total	COMMENTS
		Closed	Open		
EK002.00	A		6	6	
EK003.00	A		6	6	
EK003.80	A		6	6	
EK004.00	R		6	6	



Station	CLASS	Adverse	Random	Total	COMMENTS
		Closed	Open		
EK005.00	A	26	6	32	Flood Station
EK006.00	A		6	6	
EK006.50	A	1	6	7	
EK007.00	A	1	6	7	
EK008.00	A	1	6	7	
EK008.50	A	1	6	7	
EK008.90	P	1	6	7	

Figure 2 shows a trend graph of all stations in the growing area. Station P90 scores are expressed as percents of the approved standard. Approved sample stations that have met or exceeded 90% of the approved standard are at risk of being reclassified to a more restrictive classification. In Figure 2, the P90 trend is steady at 5 of the 11 active stations. Of the remaining 6, two showed slight decreases in water quality and four showed slight improvement.

Figure 2. Area Ek P90 Trend.



Upward Classification Changes - There were no upward classifications in 2010.

Shoreline Survey Activity - There was no shoreline survey activity in 2010.

Aquaculture/Wet Storage Activity



Area EK has one active shellfish lease and one lease which expired during 2010.

Table 3. Area EK Aquaculture sites.

Area EK Aquaculture locations								
Site Identifier	Leaseholder	Receiving Water Body	Town	Acres	Common Name	Initial Liscence	Liscence Expire	Type
PINK PS2	Petit Manan Seafood	Pinkham Bay	Steuben	2.13	Pinkham Stream	12/4/2007	12/3/2017	Standard Shellfish
DYER BP	Kief, Timothy	Dyer Bay	Steuben	20.99	Dyer Bay	-	8/21/2010	Standard Shellfish

Recommendation for Future Work

Because of the decreasing water quality observed at station EK3.8 the two major fresh water streams (and their tributaries) entering Dyer Harbor will be tested to see if non-point pollution from the streams might be the source of the elevated scores.

Pinkham stream (a registered aquaculture site) has shown 3 years of decreasing water quality. The water quality of the two major tributaries of Pinkham Stream will be tested to see if non-point pollution from the streams might be the source of the elevated scores.

References

EPA NPDES. 2010. United States Environmental Protection Agency NPDES (National Pollution Discharge Elimination System) Permits in New England – Maine.
<http://www.epa.gov/region01/npdes/index.html>

Fendl, J. 2009. Growing Area EK. Dyer Neck to Petit Manan Point, including Dyer and Pinkham Bays. Annual Report for 2008. Maine Department of Marine Resources.

Fendl, J., Loughlin, M. 2011. Growing Area EK. Dyer Neck to Petit Manan Point, including Dyer and Pinkham Bays. Triennial Report for 2009. Maine Department of Marine Resources.

Maine DEP 2009a. Status of Licensed Discharges and Combined Overflow Abatement Program. Maine Department of Environmental Protection.
http://www.maine.gov/dep/blwq/report/2009/licensed_discharges.pdf

Maine DEP 2010a. Status of Licensed Discharges and Combined Overflow Abatement Program. Maine Department of Environmental Protection.
http://www.maine.gov/dep/blwq/report/2009/licensed_discharges.pdf

Maine DEP 2010b. Maine Pump-out Station and No Discharge Area Guide.
<http://www.maine.gov/dep/blwq/topic/vessel/pumpout/pumpoutguide.pdf>



Maine DEP MER. 2010. DEP Monthly Enforcement Reports.

<http://www.maine.gov/dep/oc/mcar/>

Maine DMR. 2010. Aquaculture Lease Inventory.

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

Maine Office of GIS 2010.

NSSP 2003. National Shellfish Sanitation Program Model Ordinance, Guide for the Control of Molluscan Shellfish. 2003.

NSSP 2009. National Shellfish Sanitation Program Model Ordinance, Guide for the Control of Molluscan Shellfish. 2009.

US Census 2010. Maine –American Fact Finder.

<http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>



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.