



**GROWING AREA ES**  
**Cross Island-Cape Wash, Cutler to Mowry Point, Lubec**  
**ANNUAL REVIEW for 2010**

**Report Date: 03-29-2012**

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**APPROVAL**

Division Director:

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3/29/12

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Print name

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signature

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Figure 1. Growing Area ES overview, with active water quality stations.

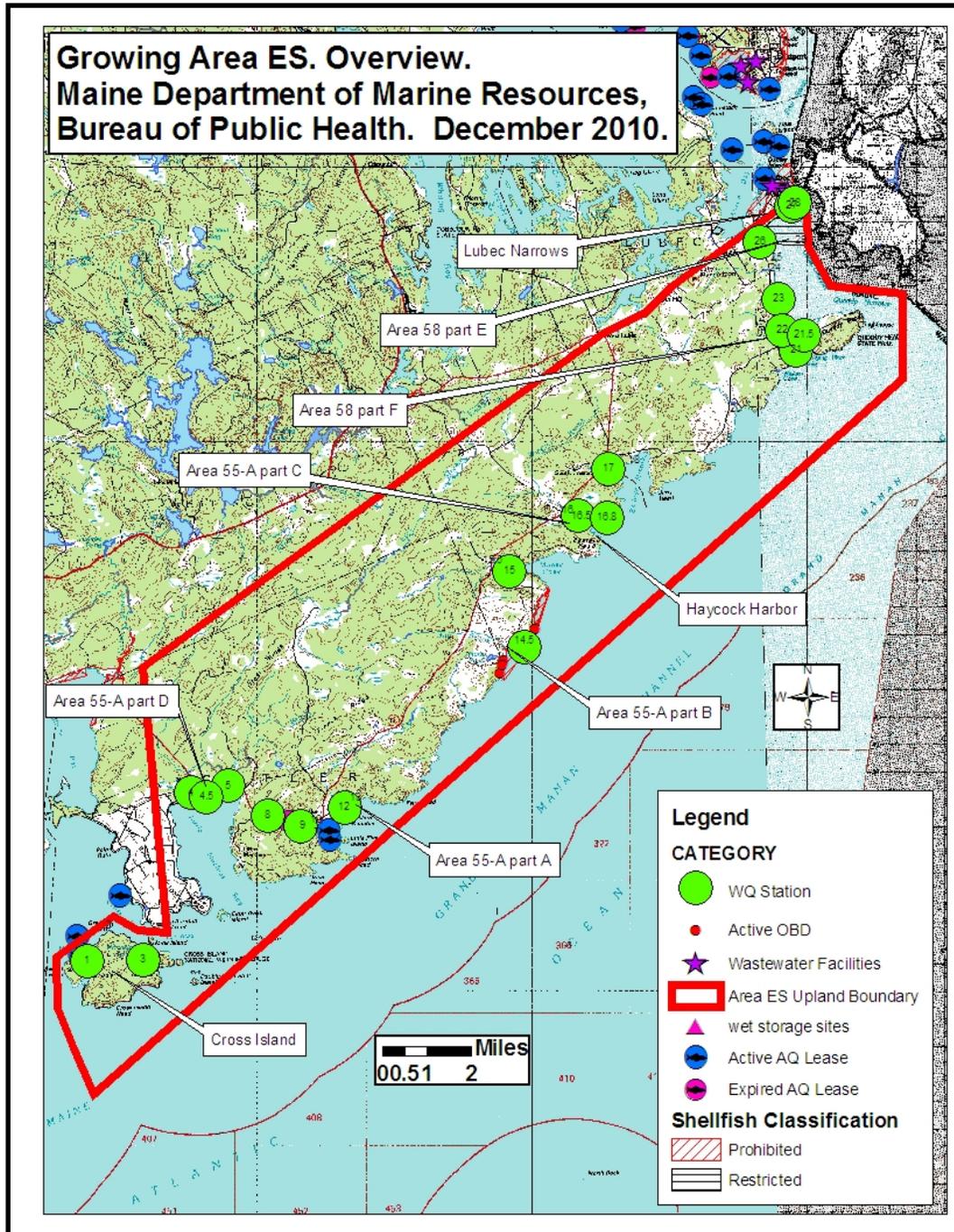




Figure 2. Growing Area ES, west, with active water quality stations.

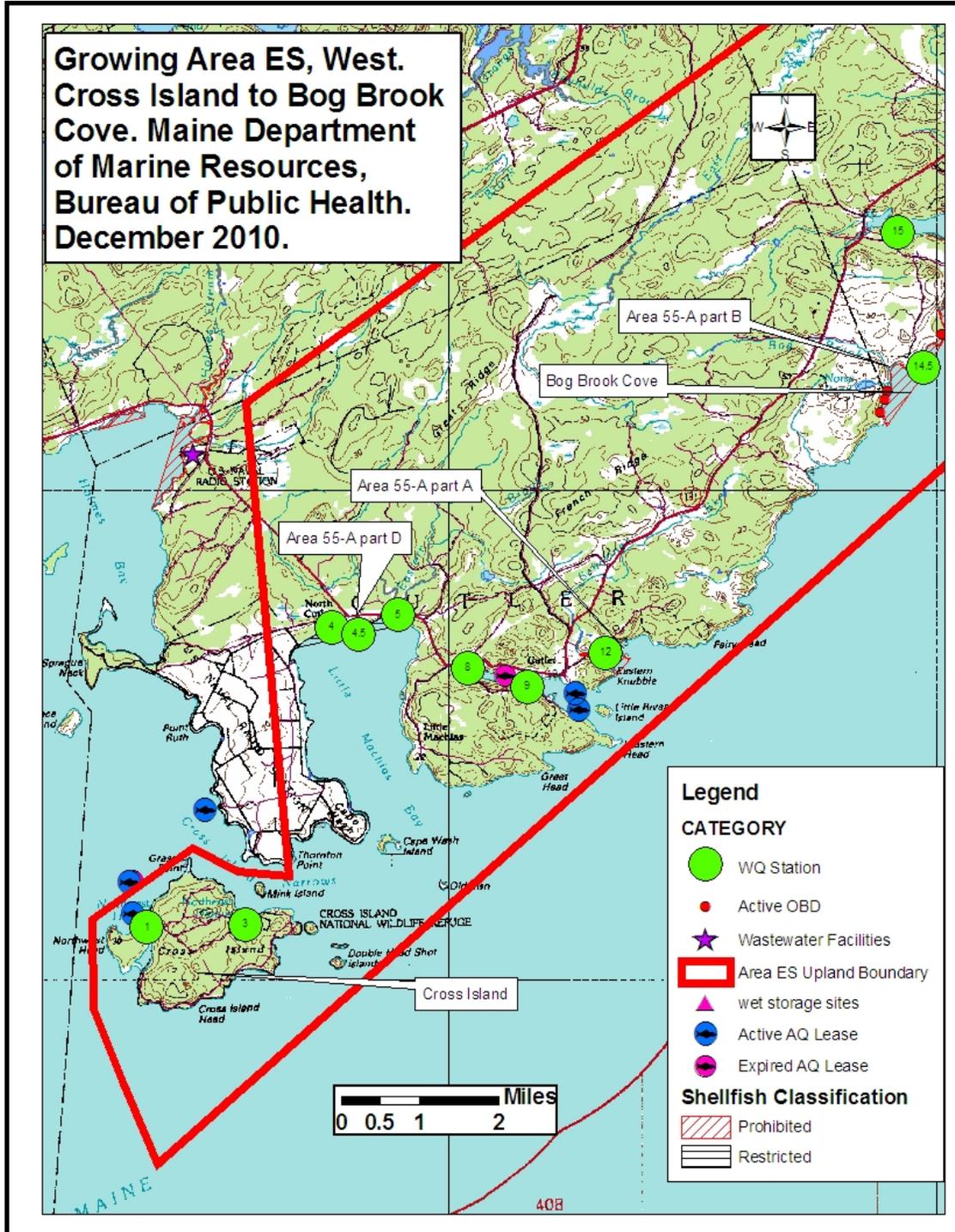
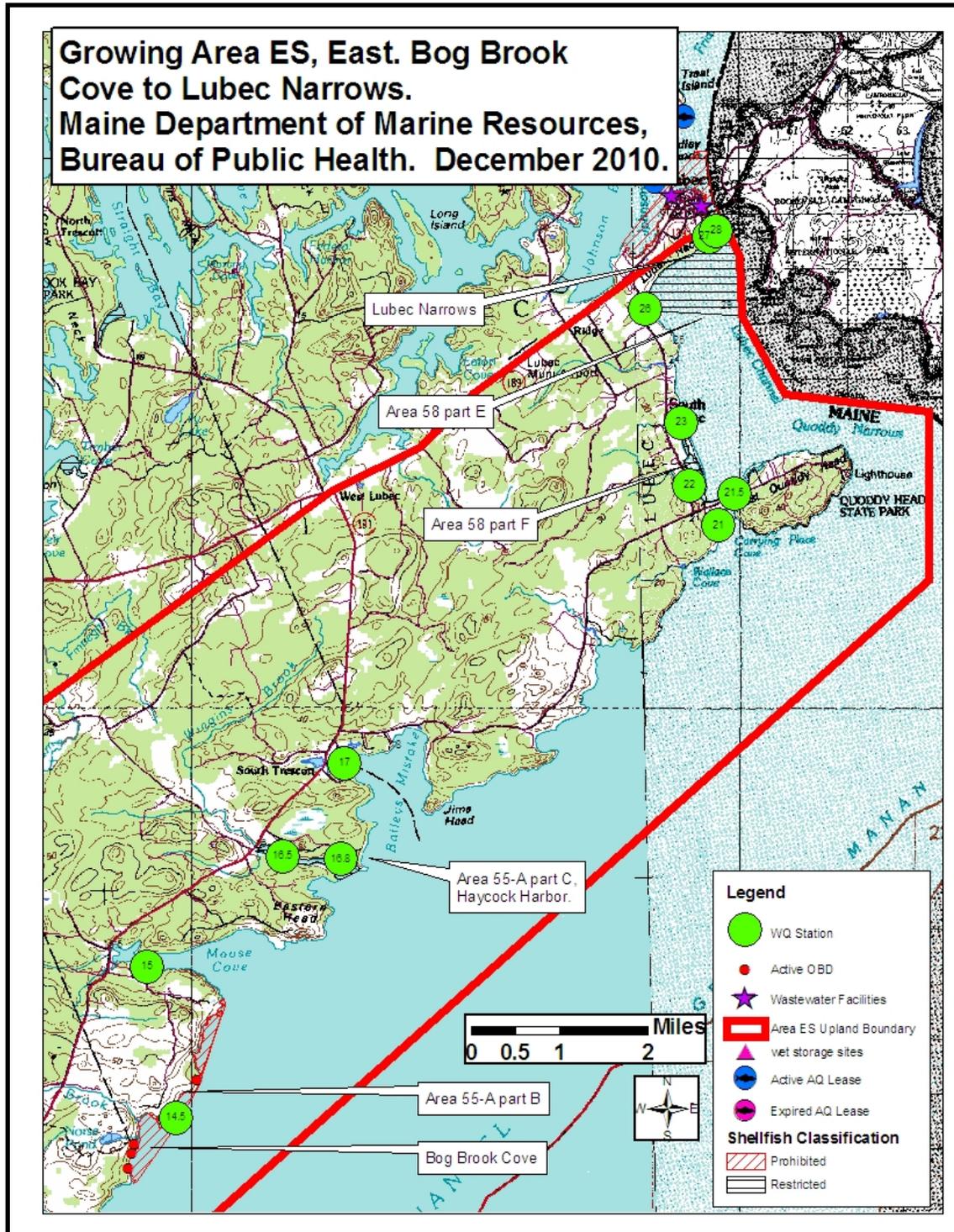




Figure 3. Area ES, East, with active water quality stations.





## Executive Summary

This is an annual report for growing area ES 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 2021. Growing area ES is the Downeast coast from Cutler to Lubec and some coastal islands.

The Growing area includes Approved, Restricted, and Prohibited sections. Area ES has three unique considerations for shellfish water quality management. The vast majority of area ES is bold coast directly exposed to open ocean in the Grand Manan Channel. A significant portion of ES is at the mouth of Cobscook Bay and is subject to very strong currents in Quoddy and Lubec Narrows caused by 20 foot tides in this region. The Lubec municipal waste water treatment plant (WWTP) is located about 250 feet from shore in this growing area; however the plant discharge is on the north side of Lubec in Growing area ET.

The Pollution Area No. 55A part D restricted area was expanded to close all of the northern shore of Little Machias Bay because water quality at station ES4 exceeded the approved standard. A new station ES4.5 was added to serve as a boundary station for this closure.

There are 3 aquaculture sites and no wet storage facilities in area ES.

## Growing Area Description

Growing area ES (Figures 1, 2 & 3) is located in the towns of Cutler (pop.574), Trescott (pop.300), and Lubec (pop. 1,523) in Washington County (Census 2000). Except for Lubec it is primarily a rural area of Maine with low population density and no municipal services such as water or sewer. There are about 26,480 acres of marine habitat with 3,460 acres of intertidal zone along 74 miles of coastline (including larger islands) in growing area ES.

Growing area ES extends from Cross Island – Cape Wash Cutler to Mowry Point, Lubec (Figures 1, 2 & 3). The shoreline is typical to the convoluted shoreline of this section of Maine, with a series of shallow harbors with mud, sand or gravel bottoms separated by rugged rock-bound points of land and bold shoreline. Water quality in growing area ES is monitored by 20 stations (Figures 1, 2 & 3, Table 3). Area ES has approved, restricted and prohibited areas. A complete growing area boundary description can be found in the central files.

The known pollution sources for this area consist of four OBDs near Bog Brook Cove (MeDEP 2010a) and non-point pollution sources. Many of the homes are seasonal, and are typically occupied between the months of June and September. Development along these shores is spotty with clusters of homes separated by undeveloped land. Agricultural operations are small “family farms” with less than 10 animals and one commercial beef feedlot/pasture operation. There is no heavy industry in the growing area. Work boat moorings are located in the Little River, Haycock Harbor and Baileys Mistake. No Marine Pump-Out stations are reported for these locations (Maine DEP 2010b).



There are aquaculture sites in Little River, Cutler, and two areas north of Cross Island (Table 4). All are for finfish, however, one of the Cross Island sites has shellfish listed on its permit (Maine DMR 2010). There are no wet storage facilities in area ES.

## Current Classifications

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

**Approved-** stations ES 1, 3, 8, 9, 15, 16.8\*, 17, 21, 21.5\*, 23, 26\*.

**Conditionally Approved-** No shores or waters of the growing area are conditionally approved.

### Restricted-

Area No. 55A, part C, Haycock Harbor, stations ES16.5, water quality not meeting approved standard.

Area No. 55A, part D, Little Machias Bay, stations ES4, 5, water quality not meeting approved standard

Area No. 58, part E, Lubec Channel Lubec, station ES 27 water quality not meeting approved standard.

Area No. 58, part F, Lubec Channel - West Quoddy Bar, station ES 22, water quality not meeting approved standard.

Area No. 58, part E, Lubec Channel Lubec, station ES 28\*, Lubec Wastewater Treatment Plant.

**Conditionally Restricted-** No shores or waters of the growing area are conditionally restricted.

### Prohibited-

Area No. 55A, part A, Money Cove, station ES12, water quality not meeting approved standard.

Area No. 55A, part B, Bog Brook Cove, station ES14.5, licensed overboard discharges.

### New Stations (less than 30 samples and not evaluated against a NSSP standard)

Station ES 4.5.

Asterisk \* denotes boundary station.

Please visit the DMR website to view legal notices:

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

## Activity during Review Period

- **Classification Changes:** The prohibited zone in the head of Little Machias Bay was expanded because water quality at the boundary station no longer met the "Approved" standard. A new water quality station (ES4.5) was established seaward of ES4.0 to serve as a boundary station.



- **OBD's Removed:** none (Me OGIS 2010, Maine DEP 2010a.).
- **OBD's Re-licensed:** Three (Table 1) (Me OGIS 2010, Maine DEP 2010a.). All OBDs are located within a prohibited area.
- **Aquaculture/Wet Storage:** Lease MAC CI2 (which includes mussels) issued 8/26/10 (Maine DMR. 2010).
- **MEPDES permits:** none (EPA NPDES 2010).
- **Enforcement Actions:** No MEDEP enforcement action during review period (Maine DEP MER. 2010).

**Table 1. Re-licensed OBDs.**

Water body and Municipality	OBD ATLASID	Permitted Flow gal/day	Permit Issue date	Permit Expiration date
Cutler	7824	300	5/11/2010	5/11/2015
Trescott	4466	300	6/1/2010	6/2/2015
Trescott	5199	300	1/22/2010	1/22/2015

### Conditionally Managed Areas

There are no conditionally managed areas in area ES.

### Water Quality Review and Discussion

Table 3 lists all active “Approved”, “Restricted” and “Prohibited” stations in Growing Area ES, with their respective Geo-mean and P90 calculations for 2010. Appendix A lists a key to interpreting the headers on the columns of Table 3. The approved and restricted standards for each station are also displayed in Table 3. 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.

One active station (ES4) failed to meet the water quality standards for approved classification and was reclassified on June 14, 2010 to restricted. All other stations in area ES met their NSSP classification standard in 2010.



**Table 2. Geomean and P90 Scores, Growing Area WS 2005-2010**

Station	Class	Count	MFCOUNT	GM	SDV	MAX	P90	Appd_Std	Restr_Std
ES001.00	A	30	26	2.1	0.14	10	3.2	32	176
ES003.00	A	30	26	2.2	0.21	18	4.2	32	176
ES004.00	R	30	28	4.3	0.74	1200	39.2	31	169
ES004.50	New	3	3	1.9	0	1.9	1.9	31	163
ES005.00	R	30	30	7.5	0.64	320	50.6	31	163
ES008.00	A	30	29	2.7	0.28	18	6.3	31	166
ES009.00	A	30	29	3.3	0.42	64	11.4	31	166
ES012.00	P	30	26	7	0.58	100	39.5	32	176
ES014.50	P	30	26	2.2	0.21	16	4.3	32	176
ES015.00	A	30	26	2.3	0.2	18	4.4	32	176
ES016.50	R	30	26	2.5	0.24	28	5.2	32	176
ES016.80	A	30	26	2	0.07	3.6	2.5	32	176
ES017.00	A	30	27	3.3	0.35	25	9.5	32	173
ES021.00	A	30	26	2.4	0.22	20	4.8	32	176
ES021.50	A	24	24	2.8	0.4	62	9.4	31	163
ES022.00	R	30	26	9.6	0.61	380	59.4	32	176
ES023.00	A	30	27	2.1	0.15	12	3.4	32	173
ES026.00	A	30	26	3	0.37	43	9	32	176
ES027.00	R	30	26	4	0.57	134	21.5	32	176
ES028.00	R	30	26	4.1	0.59	440	23.7	32	176

At the end of 2010 there were 20 active water sampling stations in Growing area ES (Figure 1, Figure 2, Figure 3). One new station established in 2010 was sampled 3 times; all other stations were sampled at least 6 times in the open status following a systematic random sampling (SRS) schedule. Area ES has 3 flood stations, ES4, ES9 and ES17, which were sampled 18, 11, and 7 times respectively during adverse (flood) conditions. The sample collection counts are displayed in Table 2.

**Table 3. Area ES Sample Counts**

Station	CLASS	Adverse		Extra Open	Random		Grand Total	COMMENTS
		Closed	Open		Closed	Open		
ES001.00	A					6	6	
ES003.00	A					6	6	
ES004.00	A	3	2			2	7	Re-class A to R 6-14-10 Flood Station.
	R	15		2		4	21	
ES004.50	New					3	3	New Station 7-1-10.
ES005.00	R			2		6	8	
ES008.00	A			1		6	7	
ES009.00	A	11	9	1		6	27	Flood Station
ES012.00	P				6		6	



Station	CLASS	Adverse		Extra	Random		Grand Total	COMMENTS
		Closed	Open	Open	Closed	Open		
ES014.50	P				6		6	
ES015.00	A					6	6	
ES016.50	R					6	6	
ES016.80	A					6	6	
ES017.00	A	7				6	13	Flood Station
ES021.00	A					6	6	
ES021.50	A					6	6	
ES022.00	R					6	6	
ES023.00	A					6	6	
ES026.00	A					6	6	
ES027.00	R					6	6	
ES028.00	R					6	6	

Figures 4 and 5 show the P90 trends over the past five years for all active stations in area ES as measured against the approved standard. During the transition from MPN to MF analysis method, the approved and restricted standards will decrease every year, until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90 scores are expressed as a percentage of the approved standard; any station showing the 2010 column on or above the 100 percent line does not meet the standard for approved classification.

The water quality in all of the approved stations has remained steady or improved over the five year period.

Stations ES4 and ES5 have steadily decreasing water quality and are in the same bay (Figure 4). The closure in north part of Little Machias Bay was expanded due to water quality at station ES4 no longer meeting the approved standard. Both stations are currently classified restricted and do meet the restricted standard. The stations have high scores on the same day suggesting a common pollution source.

The water quality scores at two stations in Haycock harbor (stations ES16.5 & ES16.8) have improved.



Figure 4. Area ES, Cross Island to Bog Brook Cove, P90 Trend

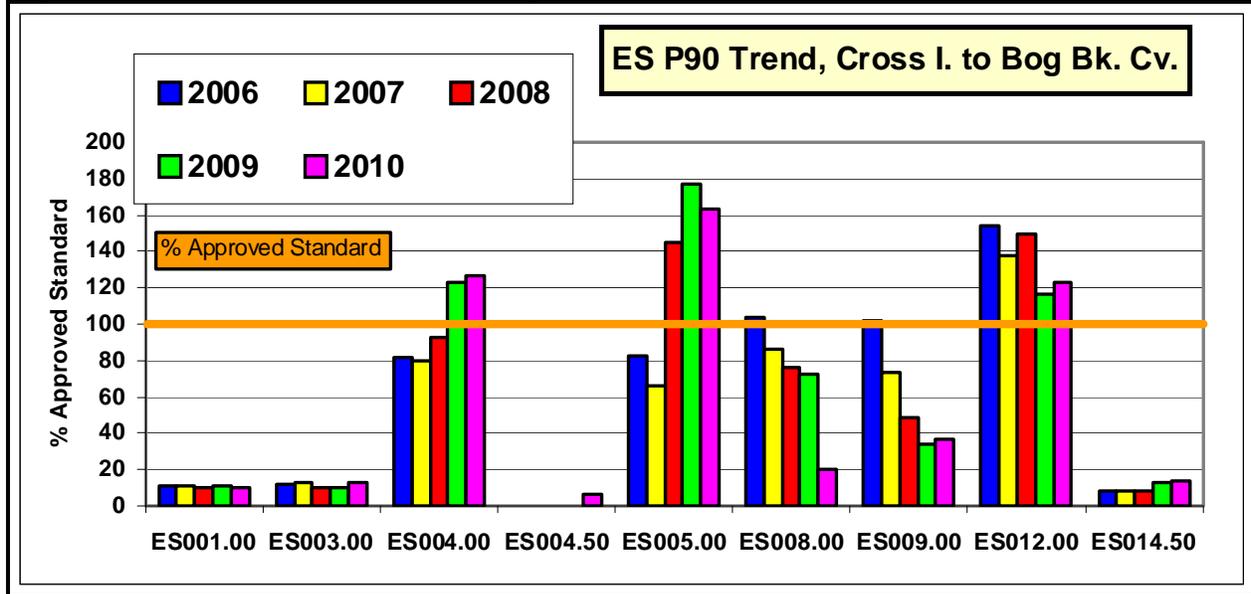
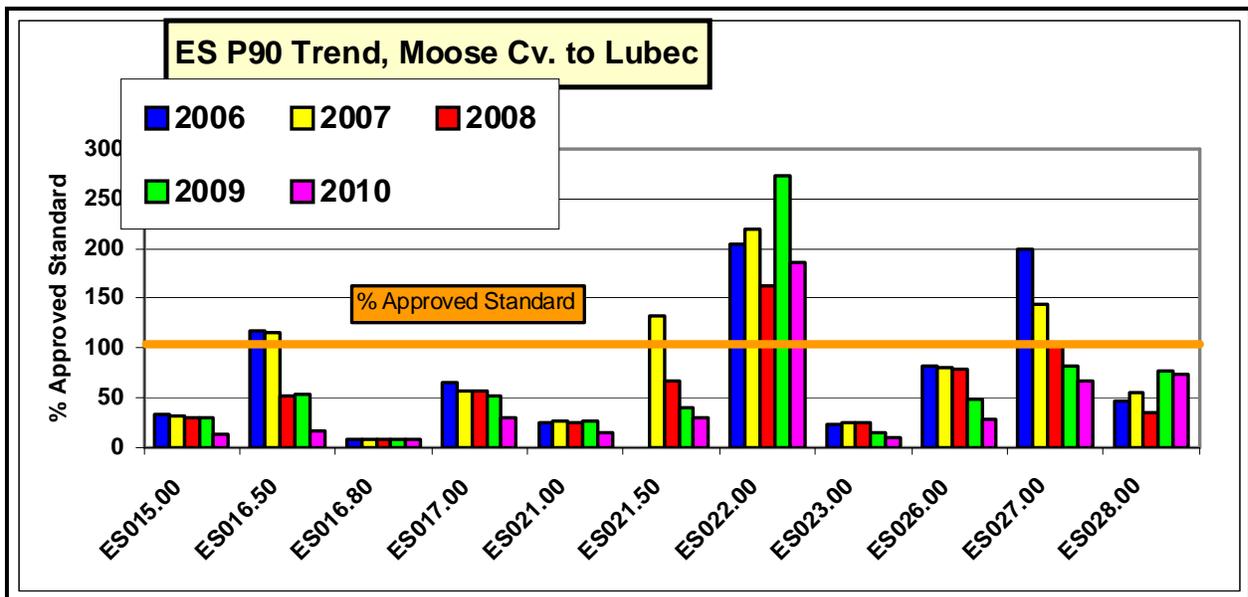


Figure 5. Area ES, Moose Cove to Lubec, P90 Trend



**Upward Classification Changes**



There are no recommendations for upward classification changes in area ES this year.

### Shoreline Survey Activity

Because of elevated scores observed at station ES4 and the expansion of closure 55A part D, the north shoreline along the new closure at Little Machias Bay was inspected for pollution sources. No obvious pollution sources were found.

### Aquaculture/Wet Storage Activity

There are finfish Aquaculture facilities at Cross island and Cutler Little River (Table 4). The oyster lease in Cutler Little River expired in 2008. There are no wet storage facilities in ES.

**Table 4. Area ES Aquaculture & Wet Storage.**

Area ES Aquaculture locations								
Site Identifier	Leaseholder	Receiving Water Body	Town	Acres	Common Name	Initial Liscence	Liscence Expire	Type
MACH CIN	Atlantic Salmon of Maine LLC. / Phoenix Salmon US, Inc	Machais Bay	Cutler	35	Cross Island North	9/5/2007	9/4/2017	Finfish
MACH CI2	Pheonix Salmon US, Inc.	Machais Bay	Cutler	44.7	Cross Island NorthWest	8/26/2010	8/25/2020	Finfish
LIT CH	Cates, Robert	Little River	Cutler	6.3	Cutler Harbor	5/12/1987	12/15/2017	Finfish
LIT CN	Cates, Robert	Little River	Cutler	6.9	Cutler North	9/29/1993	9/28/2013	Finfish

### Recommendation for Future Work

Because of decreased water quality observed at station ES4 in Little Machias Bay the area will continue to be examined to see if there is a pollution source which can be abated.

Cutler Harbor (station ES8.0) showed slow recovery following rainfall closures during 2010. The streams discharging into the harbor will be tested for bacterial contamination. A stream passing through a cattle pasture is suspected in the slow recovery of the water quality of the harbor following heavy rains.

The water quality scores at two stations in Haycock harbor (stations ES16.5 & ES16.8) have improved and the harbor area will be evaluated for an upward classification.

The water quality scores at three stations in Lubec at Mowry Beach (stations ES26, ES27 & ES28) have improved and the beach area will be evaluated for an upward classification.



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<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 = 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.