



**GROWING AREA EL**

**Petit Manan Point to Ripley Neck, including Milbridge, The Narraguagus River, Back Bay, Harrington, Flat Bay, and The Harrington River.**

**Annual Report for 2009**

**Final Report Date: April 16, 2010**

**John C. Fendl, Scientist I**

**APPROVAL**

Division Director:

\_\_\_\_\_ Date: \_\_\_\_\_  
Print name signature



**TABLE OF CONTENTS**

Executive Summary .....4  
Growing Area Description .....4  
Current Classification(s).....5  
Activity during Review Period .....5  
Current Management Plan(s) for Conditional Area(s).....6  
Water Quality Review and Discussion .....6  
Recommendations for Upward Classification ..... 11  
Shoreline Survey Activity ..... 11  
Aquaculture/Wet Storage Activity ..... 12  
Classification Changes ..... 14  
Summary..... 14  
Recommendations for future work ..... 14  
References..... 14  
Appendix A. List of Active Licensed OBDs ..... 15  
Appendix B. Key to Water Quality Table Headers ..... 16  
Appendix C. Growing Area EL 2009 Data ..... 17

**LIST OF TABLES**

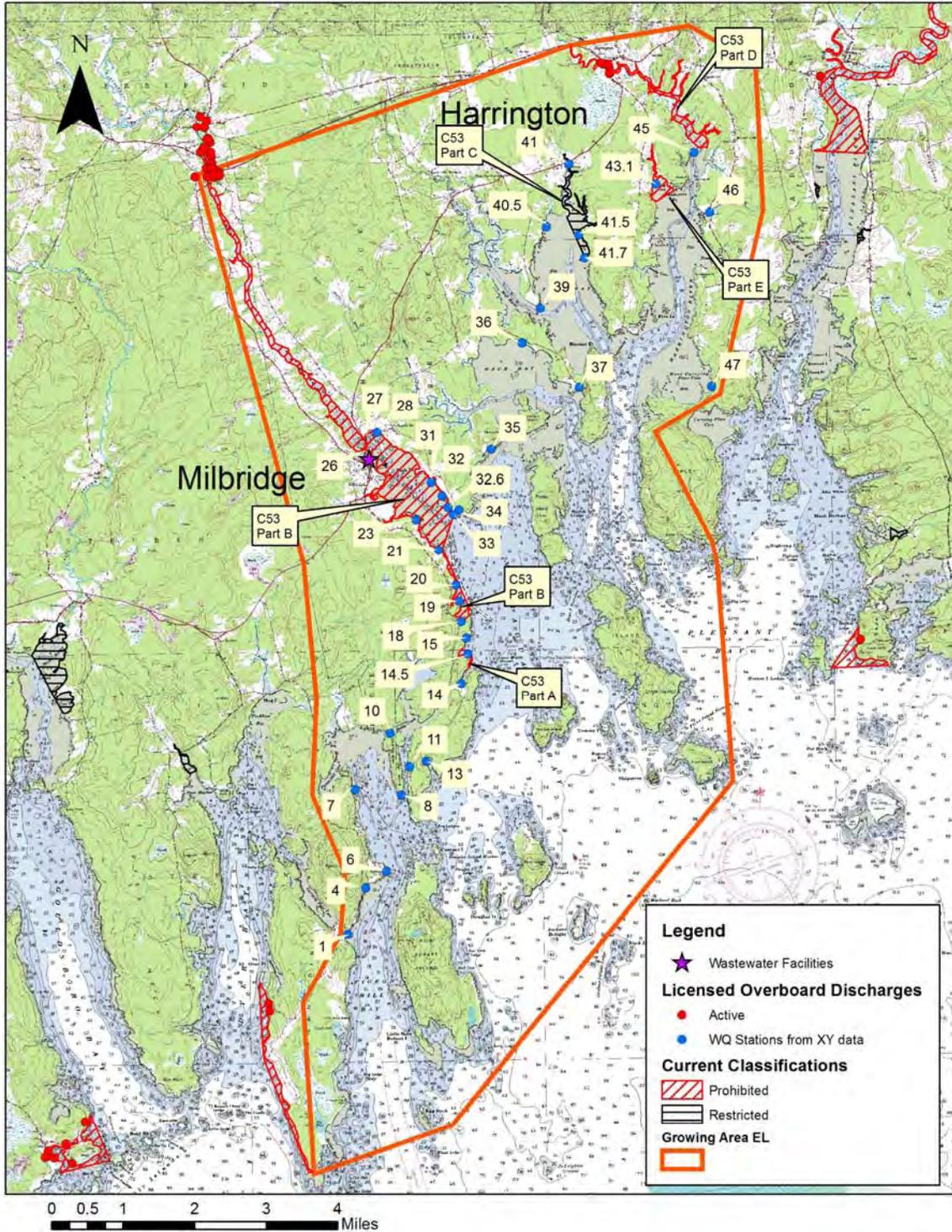
Table 1. Geomean and P90 Scores, Growing Area EL, 2004-2009 .....6  
Table 2. Area EL Samples Collected in 2009 (Strategy: R=Random, A=Adverse; E=Extra).....7  
Table 3. Effect of Rainfall on Geomean and P90 Scores .....9  
Table 4. Current aquaculture lease sites ..... 12

**LIST OF FIGURES**

-Figure 1. Growing Area EL, with Active Water Stations .....3  
Figure 2. Area EL P90 Scores for Approved Stations (expressed as the percent of the Approved standard), 2007-2009..... 10  
Figure 3. Area EL P90 Scores for Restricted Stations (expressed as the percent of the Approved standard), 2007-2009 ..... 10  
Figure 4. Area EL P90 Scores for Prohibited Stations in the Narraguagus River (expressed as the percent of the Approved standard), 2007-2009 ..... 11  
Figure 5. Aquaculture Lease Site in the Growing Area ..... 13



Figure 1. Growing Area EL, with Active Water Stations





## Executive Summary

This is an annual report for growing area EL written in compliance with the requirements of the 2007 Model Ordinance and the National Shellfish Sanitation Program. The next triennial report is due in 2010; the next sanitary survey report is due in 2019.

Growing area EL extends from the southern tip of Petit Manan Point, Steuben to Willard Point on the southeast side of Ripley Neck in Harrington. Water quality at all stations support their current NSSP classifications and no downward reclassifications are required. Water quality on the eastern shore of the mouth of the Narraguagus shows improvement over last year, however the fecal counts go up significantly with rainfall, making it imprudent to reclassify at this time. Close work with the local plumbing inspector in 2010 will monitor the abatement process of two malfunctioning septic systems located just north of station EL 20. Once corrected, the area from the Jordan Pier (station EL 20) up to Long Point (station EL 21) may also be assessed for an upward classification change from prohibited to approved. New station EL 17.8 was added to serve as a boundary station for the Turner Cove closure line. Sampling of this new station will begin with the 2010 calendar year.

## Growing Area Description

Growing area EL extends from the southern tip of Petit Manan Point, Steuben to Willard Point on the southeast side of Ripley Neck in Harrington (Figure 1). This area includes all of Pigeon Hill Bay, Narraguagus River and Bay, Back Bay, Flat Bay, the Harrington River, and numerous small harbors and streams in the towns of Steuben, Milbridge, and Harrington. This is a rural area with sparse population. Land use is predominantly residential with some light commercial use including a small downtown area with basic shopping, restaurants, healthcare center, a fish processing plant, etc. Outside the downtown area are boat building shops and fishing piers. A more complete description of this growing areas boundary is detailed in the 2007 Sanitary Survey report.

Growing area EL has one small waste water treatment plant (WWTP) located in the downtown Milbridge area and one industrial discharge (process water) also located in the downtown Milbridge area; both are within Pollution Area No. 53 Part B. There is one aquaculture lease site for growing American Oysters in the Mill River (Harrington), near sample station EL 39. The vicinity of this lease site maintains approved classification standards for 2009.

There are 40 licensed overboard discharges (OBDs) (Appendix A). No OBDs were removed in 2008; however there are three new OBDs that are listed as active. These OBDs are not new discharges, but have updated licenses with new expiration dates, and were not included in last year's list.



## Current Classification(s)

Shellfish growing area EL currently has areas classified as:

### Approved

- Sample stations associated with approved classification; EL 1, 4, 6, 7, 8, 10, 11, 13, 14, 15, 34, 35, 36, 37, 39, 40.5, 41.7, 45, 46, & 47.

### Restricted

- Area No. 53 Part C, Curtis Creek/N.E. Flat Bay (Harrington), Restricted due to non-point pollution. Sample stations associated with classification; EL 41 and 41.5.

### Prohibited

- Area No. 53 Part A, Smith Cove (Milbridge), Prohibited due to OBD#4213. Sample station associated with classification; EL 14.5.
- Area No. 53 Part B, Narraguagus River to Turner Cove (Cherryfield and Milbridge), Prohibited due to malfunctioning septic, municipal WWTP outfall, industrial discharge, and water quality exceeding approved standards. Sample stations associated with classification; EL 18, 19, 20, 21, 23, 26, 27, 28, 31, 32, 32.6, & 33.
- Area No. 53 Part E, Lily Cove (Harrington), prohibited due to malfunctioning septic and water quality exceeding the approved standard. Sample station associated with classification; EL 43.1.

Please visit the DMR website to view legal notices:

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

## Activity during Review Period

Area No. 53 Part B, Narraguagus River to Turner Cove (Cherryfield and Milbridge) was amended on January 2, 2009 to reclassify Sinclair's Cove from prohibited to approved due to an increase in the number of data points at reactivated station EL 34. The station, EL 34, is located at the head of Sinclair's Cove, and it was reactivated at the start of 2007 to establish a boundary station that was needed to move the closure line back and open Sinclair's Cove. EL 34 has a geomean of 2.9 and a P90 calculation of 10.2.

The town of Milbridge is continuing efforts to locate and correct problems with the municipal storm water collection system in the downtown area. With time, this may improve the fecal levels at the mouth of Sawyer Brook in the heart of the downtown area. The town WWTP has come under new management and should have a new plant review before any upward classification changes can be made in any areas that are impacted by this plant.



## Current Management Plan(s) for Conditional Area(s)

There are no conditional areas in Growing Area EL.

## Water Quality Review and Discussion

Table 1 lists all active approved, restricted, and prohibited stations in Growing Area EL, with their respective Geomean and P90 calculations for 2009. 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 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 MFCount column. This fluctuating standard will cease when all 30 data points have been analyzed by the MF method. A more detailed explanation of this transition can be found in central files.

All approved and restricted stations met their Nssp classification standard in 2009. Stations EL 20, 21, 23, 32, 32.6, & 33 which are currently classified as prohibited, now meet the approved standard. However, stations EL 20, 21, & 23 require an updated WWTP review and drogue study before they can be reclassified. Stations EL 32, 32.6, & 33 exceed the approved standard when sampled after a rainfall event, and can not be upwardly reclassified at this time. Water quality has also improved in the Northeast Flat Bay area, at station EL 41.5 and now meets approved standards but will not be reclassified until a more in depth rainfall study can be completed. A new station, EL 17.8, is being added just outside Turner Cove and down the shore to the south. This will serve as a closer boundary station than its current boundary station, EL 15.

**Table 1. Geomean and P90 Scores, Growing Area EL, 2004-2009**

Station	Class	Count	MFCOUNT	GeoMean	SDV	MAX	P90	Appd_Std	Restr_Std
EL001.00	A	30	20	3.1	0.46	340	12.2	36	199
EL004.00	A	30	20	2.8	0.28	50	6.5	36	199
EL006.00	A	30	20	3	0.36	43	8.8	36	199
EL007.00	A	30	20	4.3	0.64	1560	29.4	36	199
EL008.00	A	30	20	2.5	0.19	11	4.4	36	199
EL010.00	A	30	20	3.8	0.51	150	17.7	36	199
EL011.00	A	30	21	2.5	0.22	25	4.8	35	195
EL013.00	A	30	20	2.4	0.15	7.3	3.8	36	199
EL014.00	A	30	20	4.1	0.45	52	15.6	36	199
EL014.50	P	30	20	4.6	0.47	66	18.8	36	199
EL015.00	A	30	20	4.2	0.41	43	14.3	36	199



Station	Class	Count	MFCOUNT	GeoMean	SDV	MAX	P90	Appd_Std	Restr_Std
EL018.00	P	30	20	7.8	0.71	1700	63.4	36	199
EL019.00	P	30	19	9.1	0.65	240	63.7	36	203
EL020.00	P	30	20	5.5	0.6	240	33.2	36	199
EL021.00	P	30	20	3.8	0.44	43	14.4	36	199
EL023.00	P	30	20	4.7	0.46	43	18.6	36	199
EL028.00	new	27	21	8.1	0.5	93	36.1	34	186
EL031.00	P	30	20	6.4	0.62	150	40.8	36	199
EL032.00	P	30	20	5.2	0.6	240	31.6	36	199
EL032.60	P	30	20	4.7	0.44	43	17.6	36	199
EL033.00	P	30	20	5.4	0.54	93	27.2	36	199
EL034.00	new	19	19	2.9	0.41	70	10.2	30	163
EL035.00	A	30	20	3.8	0.42	43	13.3	36	199
EL036.00	A	30	21	2.8	0.32	34	7.3	35	195
EL037.00	A	30	20	2.9	0.3	31	7.3	36	199
EL039.00	A	30	20	2.6	0.2	12.7	4.8	36	199
EL040.50	A	30	20	2.3	0.15	9.1	3.7	36	199
EL041.00	R	30	20	7.9	0.72	460	66.9	36	199
EL041.50	R	30	20	3.1	0.35	64	8.7	36	199
EL041.70	A	30	20	3.1	0.37	94	9.6	36	199
EL043.10	P	30	20	4.5	0.62	1060	28.3	36	199
EL045.00	A	30	20	3	0.34	43	8.4	36	199
EL046.00	A	30	20	4	0.43	54	14.6	36	199
EL047.00	A	30	20	4.5	0.57	760	24.6	36	199

All approved and prohibited stations that were active at the beginning of 2009 were sampled at least 6 times following the systematic random sampling (SRS) schedule (Table 2 and Appendix C). At some stations, additional samples were collected under adverse conditions as noted with an "A" in the Strategy column. Stations EL 26 & 27 were deactivated in 2009 because they are within an area classified as prohibited due to impact from a municipal wastewater treatment plant.

**Table 2. Area EL Samples Collected in 2009 (Strategy: R=Random, A=Adverse; E=Extra)**

Station	Strategy	Status	Class	Sample Count	Total	Comments
EL001.00	A	C	A	10	16	Flood station
	R	O	A	6		
EL004.00	R	O	A	6	6	
EL006.00	R	O	A	6	6	
EL007.00	R	O	A	6	6	
EL008.00	R	O	A	6	6	
EL010.00	R	O	A	6	6	
EL011.00	R	O	A	6	6	
EL013.00	R	O	A	6	6	
EL014.00	A	C	A	12	18	Flood station



Station	Strategy	Status	Class	Sample Count	Total	Comments
	R	O	A	6		
EL014.50	R	C	P	6	6	
EL015.00	R	O	A	6	6	
EL018.00	R	C	P	6	6	
EL019.00	R	C	P	6	6	
EL020.00	R	C	P	6	6	
EL021.00	R	C	P	6	6	
EL023.00	R	C	P	6	6	
EL026.00	R	C	P	2	2	De-activated; embedded in Prohibited area; 4/2/09
EL027.00	R	C	P	2	2	De-activated; embedded in Prohibited area; 4/2/09
EL028.00	R	C	P	6	6	Reactivated 2006
EL031.00	R	C	P	6	6	
EL032.00	R	C	P	6	6	
EL032.60	R	C	P	6	6	
EL033.00	R	C	P	6	6	
EL034.00	R	O	A	6	6	Reactivated 1/18/07 after station 33 started failing. Reclass P to A on 1/22/09
EL035.00	R	O	A	6	6	
EL036.00	E	O	A	1	7	
	R	O	A	6		
EL037.00	A	C	A	7	13	Flood station
	R	O	A	6		
EL039.00	A	C	A	7	13	Flood station
	R	O	A	6		
EL040.50	R	O	A	6	6	
EL041.00	R	O	R	6	6	
EL041.50	R	O	R	6	6	
EL041.70	R	O	A	6	6	New Station 2005
EL043.10	R	C	P	6	6	
EL045.00	R	O	A	6	6	
EL046.00	R	O	A	6	6	
EL047.00	R	O	A	6	6	

Figures 2, 3, and 4 show the P90 trends over the past three years for all active stations in area EL. 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 standard; any station showing the 2009 column on or above the 100 percent line does not meet the standard for its NSSP classification. Of the approved stations, EL 7 has the highest P90 score. The scores had increased between 2007 and 2008 review years, and then decreased slightly between 2008 and 2009. There is no explanation for either the high levels or the fluctuation. This entire growing area was surveyed in 2007 with no pollution sources found in the vicinity of station EL 7. The station still meets approved standards and will retain its approved classification. Overall, stations EL 4, 6, 8 and 13 have shown



downward trends (improving water quality), while stations EL 10, 34 and 35 have shown upward trends (decreasing water quality). The remainder of approved stations in growing area EL have either shown little change in scores over the past 3 years, or inconclusive trends.

Figure 4 shows P90 trends for prohibited stations located in or near the mouth of the Narraguagus River. Stations EL 20, 21, 23, 32, 32.6, and 33 meet approved classification standards. However, stations EL 20, 21, and 23 will not be reclassified until a hydrographic study shows that any effluent from the Milbridge WWTP will not impact them. And stations 32, 32.6, and 33 do not meet approved standards under rainfall conditions and will not be reclassified as part of this annual review (Table 3).

**Table 3. Effect of Rainfall on Geomean and P90 Scores**

Station	Class	Count	MFCCount	GeoMean	SDV	MAX	P90	Appd_Std	Restr_Std
EL020.00	P	9	6	3.0	0.39	30.9	9.9	36	199
EL021.00	P	9	6	4.6	0.44	34.5	17.6	36	199
EL023.00	P	8	6	5.3	0.52	38.2	26.3	34	189
EL031.00	P	10	6	10.8	0.71	150	95.3	37	208
EL032.00	P	11	6	9.3	0.82	240	110.3	38	215
EL032.60	P	10	6	7.2	0.55	43	38.5	37	208
EL033.00	P	10	6	8.2	0.63	43	55.1	37	208



Figure 2. Area EL P90 Scores for Approved Stations (expressed as the percent of the Approved standard), 2007-2009

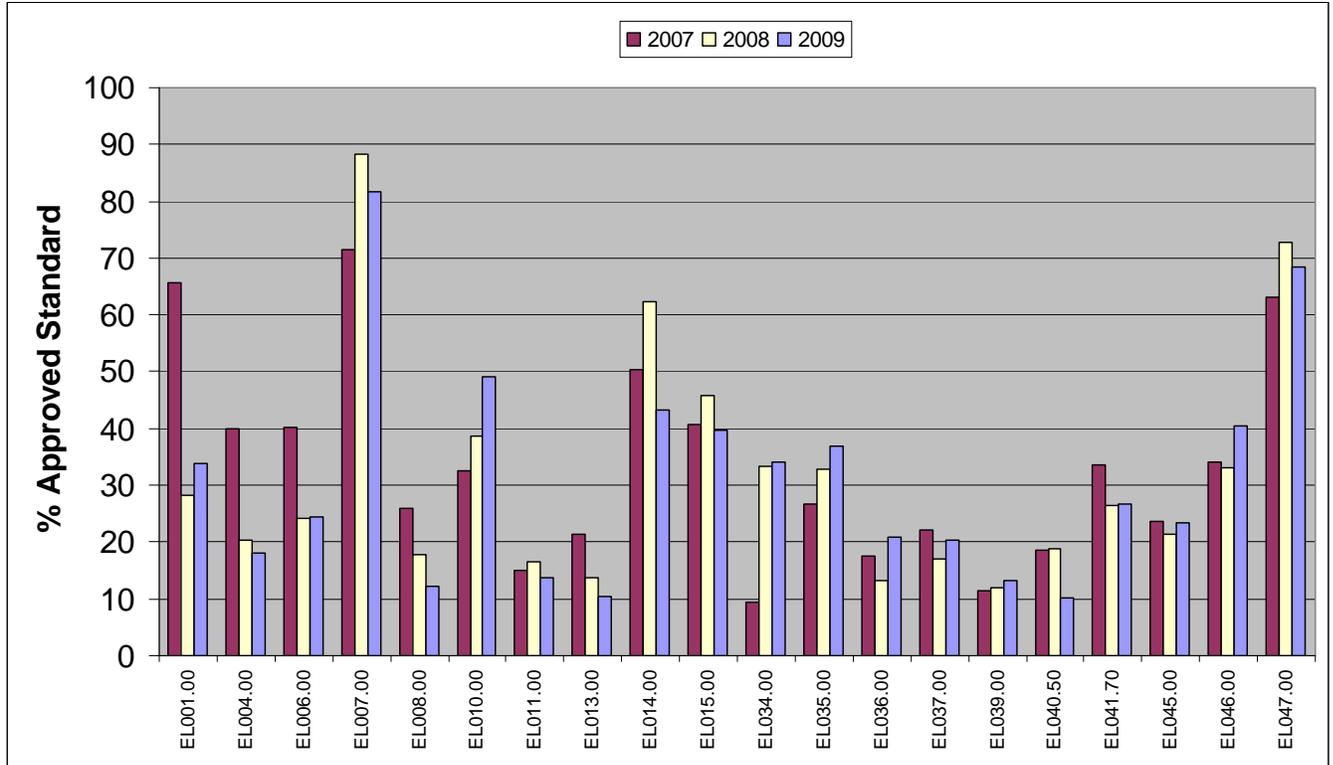


Figure 3. Area EL P90 Scores for Restricted Stations (expressed as the percent of the Approved standard), 2007-2009

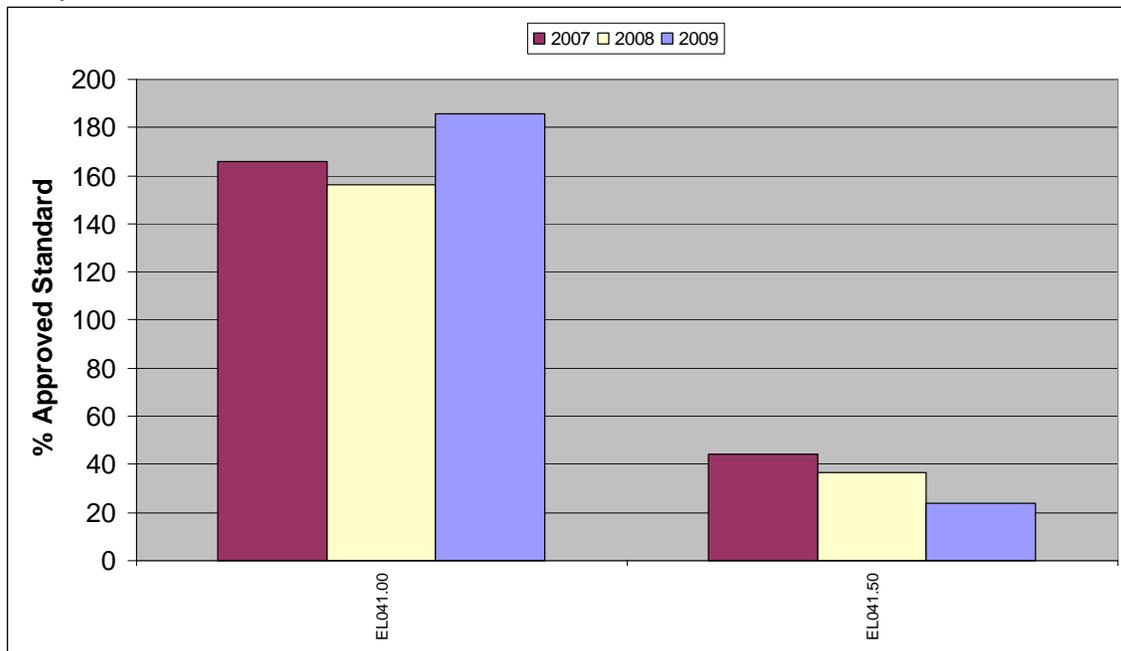
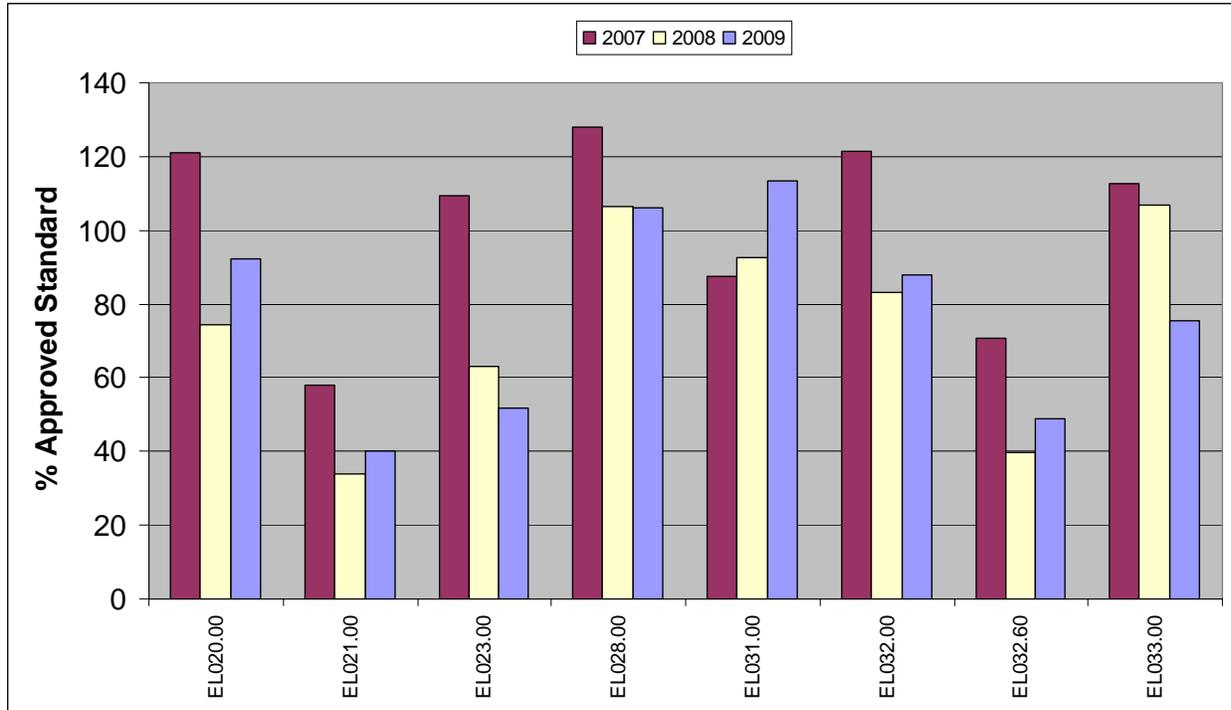




Figure 4. Area EL P90 Scores for Prohibited Stations in the Narraguagus River (expressed as the percent of the Approved standard), 2007-2009



### Recommendations for Upward Classification

There are no recommendations for upward classifications as a result of this annual review.

### Shoreline Survey Activity

Properties EL00149.30 and 149.40 were surveyed on September 18, 2009. These two side by side properties share a common septic overflow pipe that is in the abatement process. On this date, the cover for the tank was exposed as though ready for a pumping. No occupants were home at the time and there were no signs of problems in the vicinity of either house. This problem has been turned over to the DEP for corrective action.

EL 00165.50 was surveyed on September 18, 2009 and was noted to have a new septic system installed with fresh topsoil, grass seed, and hay scattered on top of the new installation. This corrects a septic overflow pipe formerly at this location. The correction of this overflow pipe was one prerequisite to the upgrade of the adjacent harvesting waters from prohibited to approved.

EL00202.80 was entered as a new survey location. The property is a small apartment complex (Saybrook Apartments) in downtown Milbridge. The property uses a pump up system with the leach bed located behind the complex. Some overflow in the leach bed was noted by the town



treatment plant operator in the summer of 2009. The design of the leach bed was reviewed and found to have some sections closed off due to incorrect valve positioning. All valves were opened allowing full access to the entire leach bed and the problem has not repeated itself.

EL00269.00 was also surveyed on September 18, 2009 and an unknown pipe in a gulley just to the north of the house was investigated. There was no sign of effluent upon arrival at the site and a garden hose was used to flush water down a gutter drain pipe. This process did not produce any flow from the unknown pipe. Origin of this pipe is still unknown.

Drive through surveys were completed on the same dates as random water sampling runs through the growing area. In 2009, drive through surveys on the western portion of growing area EL were completed on the following dates: February 25, April 14, June 9, July 20, September 16, and October 21; drive through surveys of the eastern portion of the growing area were completed on March 25, April 14, June 8, July 15, August 26, and October 20. No changes in pollution sources were noted at the time of drive through surveys.

### **Aquaculture/Wet Storage Activity**

There is one active aquaculture lease site in area EL (Table 4.and Figure 5). There were no changes in aquaculture activity in the in 2009.

**Table 4. Current aquaculture lease sites**

<b>Site ID</b>	<b>Name</b>	<b>Primary Species</b>	<b>Expiration Date</b>
MILL OP	James Anderson	American Oyster	8/6/2016



Figure 5. Aquaculture Lease Site in the Growing Area





## Classification Changes

No classification changes area required or recommended at this time.

## Summary

At the end of the 2009 review year water quality at all stations meets the current NSSP classifications and no downward reclassifications are required. Water quality at the mouth of the Narraguagus River continues to improve coincident to improvements made in the downtown Milbridge storm drain system. Close work with the local plumbing inspector in 2010 will monitor the abatement process of two malfunctioning systems (EL00158.20 and 158.3) just north of station EL 20. Once corrected, the area from the Jordan Pier (station EL 20) up to Long Point (station EL 21) may also be assessed for a classification change from prohibited to approved.

A new station, EL 17.8, was added to serve as a boundary station for the Turner Cove closure line. Sampling of this new station will begin with the 2010 calendar year.

## Recommendations for future work

- Accelerate samples at new station EL 17.8.
- Check abatement progress of malfunctioning septic (EL 00430.00) at station EL 43.1.
- Dye test the septic system of a house (EL 00269.00) at the end of Fickett Point Rd.
- Expedite removal of malfunctioning septic systems along western shore, near Jordan pier, through the new DHHS cooperative process.
- Sample streams for Triennial review.
- Review Milbridge WWTP.

## References

Licensed OBD data is queried from Maine DEP RESCOM Oracle database.



## Appendix A. List of Active Licensed OBDs

Numbers highlighted in yellow are new to the list this year because of license renewal. They are not new discharges, just new effective and expiration dates.

OBD #	Name	Exp. Date	GPD(License)
1624	MARY HAMLIN	2/6/2008	600
1971	NARRAGUAGUS ESTATES	12/29/2013	6600
2058	SMITH	2/20/1996	360
2810	VILLAGE GREEN APARTMENTS	3/26/2014	600
4611	ENDRE, SR	12/4/2014	300
4613	ENDRE JR	1/3/2008	315
4614	LIVINGSTONE	2/21/2013	315
4712	PORSIUS/MAURER	12/3/2013	420
4713	CAMPBELL	9/26/1994	315
4714	LARSEN	7/5/2010	300
4715	JONES	12/15/2014	210
5154	ESTATE OF BETTY TUCKER	11/29/1993	300
5200	TUCKER	11/21/2014	300
5211	KNAPP	4/16/2014	720
5331	ALOSA	10/2/2014	117
6092	WELLER	5/15/1994	756
6094	BRUNDAGE	12/17/2006	472
6095	DESIMONE	10/12/2010	300
6096	KEARNS	8/20/2014	300
6099	CHERRYFIELD FOODS INC ET AL	1/28/2010	760
6160	MATHEWS	4/27/2010	360
6180	CASON	11/7/2005	360
6237	IVES	5/11/2004	750
6238	KNEELAND	12/18/2006	360
6239	CHERRYFIELD BAPTIST CHURCH	2/2/2012	430
6240	GAGE	3/31/2008	540
6249	CURTIS SR	10/29/1994	720
6252	ROBINSON	8/20/2014	300
6432	FIRST CONGREGATIONAL CHURCH	1/27/2010	300
6560	MORRIS	4/11/1992	360
7110	GUILMAIN/TROPEA	6/19/2014	300
7159	BAXTER	11/16/2010	300
7203	VOSE	10/3/2010	300
7401	BABIARZ	11/10/2014	360
7407	MONTANA		360
7422	FONTAINE	5/4/2009	315
7507	HOFFMANN, JR	7/15/2014	360
7587	NARRAGUAGUS POST #8	11/30/2012	380
7948	TUCKER	12/18/2006	360
8084	JASPER WYMAN & SON, INC	8/28/2010	3000



## Appendix B. 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 C. Growing Area EL 2009 Data

Station	Date	Strategy	Open Closed	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
EL001.00	2/25/2009	R	O	A		0	32	HF	CL	<2
	4/14/2009	R	O	A	T	5	30	F	N	<2
	6/9/2009	R	O	A		12	30	H	SE	<2
	7/20/2009	R	O	A	O	15	30	HE	SE	2
	9/16/2009	R	O	A	P	13	32	E	NW	18
10/21/2009	R	O	O	A	O	5	31	F	CL	<2
EL004.00	2/25/2009	R	O	A		0	31	HF	CL	<2
	4/14/2009	R	O	A	T	5	30	F	N	<2
	6/9/2009	R	O	A		13	30	H	SE	4
	7/20/2009	R	O	A	O	14	30	HE	SE	3.6
	9/16/2009	R	O	A	P	13	32	HE	NW	<2
10/21/2009	R	O	O	A	O	5	31	F	CL	<2
EL006.00	2/25/2009	R	O	A		0	30	HF	CL	<2
	4/14/2009	R	O	A	T	5	30	F	N	<2
	6/9/2009	R	O	A		13	31	H	SE	<2
	7/20/2009	R	O	A	O	14	30	E	SE	2
	9/16/2009	R	O	A	P	13	32	HE	NW	<2
10/21/2009	R	O	O	A	O	5	32	F	CL	<2
EL007.00	4/1/2009	R	O	A	T	3	26	H	W	<2
	4/14/2009	R	O	A	T	4	30	F	N	<2
	6/9/2009	R	O	A		12	30	H	SE	<2
	7/20/2009	R	O	A	O	15	30	E	SE	20
	9/16/2009	R	O	A	P	14	32	HE	NW	4
10/21/2009	R	O	O	A	O	5	30	HF	CL	<2
EL008.00	2/25/2009	R	O	A		-1	30	HF	CL	<2
	4/14/2009	R	O	A	T	5	30	HF	W	<2
	6/9/2009	R	O	A		13	30	HE	SE	<2
	7/20/2009	R	O	A	O	12	30	E	S	11
	9/16/2009	R	O	A	P	14	32	HE	NW	<2
10/21/2009	R	O	O	A	O	5	31	HF	W	<2
EL010.00	2/25/2009	R	O	A		-1	30	HF	CL	<2
	4/14/2009	R	O	A	T	6	30	HF	W	<2
	6/9/2009	R	O	A		15	30	HE	SE	6
	7/20/2009	R	O	A	O	15	30	E	S	2
	9/16/2009	R	O	A	P	14	32	HE	NW	68
10/21/2009	R	O	O	A	O	6	31	HF	CL	<2
EL011.00	2/25/2009	R	O	A		-1	21	H	CL	2
	4/14/2009	R	O	A	T	5	30	HF	NW	<2
	6/9/2009	R	O	A		13	30	HE	SE	<2
	7/20/2009	R	O	A	O	16	30	E	S	<2
	9/16/2009	R	O	A	P	14	32	HE	NW	<2
10/21/2009	R	O	O	A	O	5	31	HF	NW	<2
EL013.00	2/25/2009	R	O	A		-1	29	H	CL	<2
	4/14/2009	R	O	A	T	4	30	HF	CL	<2
	6/9/2009	R	O	A		12	30	HE	SE	<2
	7/20/2009	R	O	A	O	16	30	E	S	<2
	9/16/2009	R	O	A	P	13	32	HE	NW	2
10/21/2009	R	O	O	A	O	5	31	H	CL	<2
EL014.00	2/25/2009	R	O	A		-1	30	H	CL	<2
	4/14/2009	R	O	A	T	9	26	HF	N	<2
	6/9/2009	R	O	A		13	30	HE	SE	<2
	8/4/2009	R	O	A	O	19	30	E	SW	<2
	9/16/2009	R	O	A	P	14	30	H	NW	9.1
10/21/2009	R	O	O	A	O	5	30	H	CL	2
EL014.50	2/25/2009	R	C	P		0	30	H	CL	<2
	4/14/2009	R	C	P	T	5	28	H	N	<2



Station	Date	Strategy	Open Closed	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
	6/9/2009	R	C	P		10	31	HE	SE	<2
	7/20/2009	R	C	P	O	15	30	E	SW	<2
	9/16/2009	R	C	P	P	14	30	H	NW	12
	10/21/2009	R	C	P	O	5	30	H	CL	<2
EL015.00	2/25/2009	R	O	A		1	30	H	CL	<2
	4/14/2009	R	O	A	T	5	28	H	N	<2
	6/9/2009	R	O	A		13	29	HE	SE	<2
	7/20/2009	R	O	A	O	15	30	E	SW	<2
	9/16/2009	R	O	A	P	14	32	H	NW	3.6
	10/21/2009	R	O	A	O	5	30	H	CL	<2
EL018.00	2/25/2009	R	C	P		-1	30	H	CL	<2
	4/14/2009	R	C	P	T	10	20	H	N	<2
	6/9/2009	R	C	P		11	20	E	SE	<2
	7/20/2009	R	C	P	O	14	30	E	SW	4
	9/16/2009	R	C	P	P	14	28	H	NW	>1600
	10/21/2009	R	C	P	O	6	23	H	N	9.1
EL019.00	2/25/2009	R	C	P		1	30	H	CL	<2
	4/14/2009	R	C	P	T	4	25	H	N	22
	6/9/2009	R	C	P		10	30	E	SE	<2
	7/20/2009	R	C	P	O	15	29	E	SW	2
	9/16/2009	R	C	P	P	13	30	H	NW	9.1
	10/21/2009	R	C	P	O	5	28	H	N	2
EL020.00	2/25/2009	R	C	P		1	30	H	CL	<2
	4/14/2009	R	C	P	T	4	28	H	N	<2
	6/9/2009	R	C	P		10	30	E	SE	<2
	7/20/2009	R	C	P	O	16	30	E	S	6
	9/16/2009	R	C	P	P	13	31	H	NW	56
	10/21/2009	R	C	P	O	5	30	H	NW	2
EL021.00	2/25/2009	R	C	P		1	27	H	CL	<2
	4/14/2009	R	C	P	T	4	24	H	N	<2
	6/9/2009	R	C	P		11	30	E	SE	<2
	7/20/2009	R	C	P	O	16	28	E	S	2
	9/16/2009	R	C	P	P	12	26	H	NW	20
	10/21/2009	R	C	P	O	5	26	H	NW	<2
EL023.00	2/25/2009	R	C	P		1	22	HE	CL	2
	4/14/2009	R	C	P	T	8	14	H	N	<2
	6/9/2009	R	C	P		12	30	E	SE	<2
	7/20/2009	R	C	P	O	16	28	E	S	<2
	9/16/2009	R	C	P	P	15	26	H	NW	22
	10/21/2009	R	C	P	O	5	20	H	NW	2
EL026.00	2/25/2009	R	C	P		1	2	HE	CL	6
	4/14/2009	R	C	P	T	4	24	H	N	<2
EL027.00	2/25/2009	R	C	P		1	2	HE	CL	5.4
	4/14/2009	R	C	P	T	4	25	H	N	<2
EL028.00	2/25/2009	R	C	P		1	2	HE	CL	<2
	4/14/2009	R	C	P	T	4	24	H	N	<2
	6/9/2009	R	C	P		13	26	E	SE	14
	7/20/2009	R	C	P	O	15	17	E	SE	31
	9/16/2009	R	C	P	P	15	28	HF	NW	8
	10/21/2009	R	C	P	O	5	29	HE	NW	<2
EL031.00	2/25/2009	R	C	P		1	28	HE	CL	<2
	4/14/2009	R	C	P	T	5	26	HE	N	<2
	6/9/2009	R	C	P		10	28	E	SE	2
	7/20/2009	R	C	P	O	16	24	E	S	22
	9/16/2009	R	C	P	P	15	30	HF	NW	14
	10/21/2009	R	C	P	O	5	29	HE	NW	4
EL032.00	2/25/2009	R	C	P		1	25	HE	CL	<2
	4/14/2009	R	C	P	T	5	24	HE	N	<2



Station	Date	Strategy	Open Closed	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
	6/9/2009	R	C	P		11	28	E	SE	<2
	7/20/2009	R	C	P	O	15	24	E	S	9.1
	9/16/2009	R	C	P	P	15	30	HF	NW	6
	10/21/2009	R	C	P	O	5	28	HE	NW	<2
EL032.60	2/25/2009	R	C	P		1	25	HE	CL	<2
	4/14/2009	R	C	P	T	5	24	HE	N	<2
	6/9/2009	R	C	P		11	30	E	SE	4
	7/20/2009	R	C	P	O	16	25	E	S	15
	9/16/2009	R	C	P	P	15	30	HF	NW	14
	10/21/2009	R	C	P	O	5	28	HE	NW	<2
EL033.00	2/25/2009	R	C	P		-1	28	HE	CL	<2
	4/14/2009	R	C	P	T	5	24	HE	N	<2
	6/9/2009	R	C	P		13	30	E	SE	<2
	7/20/2009	R	C	P	O	16	24	LE	S	18
	9/16/2009	R	C	P	P	14	30	HF	NW	2
	10/21/2009	R	C	P	O	6	28	HE	NW	2
EL034.00	2/25/2009	R	O	A		1	28	HE	CL	<2
	4/14/2009	R	O	A	T	4	30	HE	CL	<2
	6/9/2009	R	O	A		13	29	E	SE	6
	8/4/2009	R	O	A	O	18	21	E	SW	18
	9/16/2009	R	O	A	P	15	30	HF	NW	2
	10/21/2009	R	O	A	O	5	30	HE	CL	<2
EL035.00	5/11/2009	R	O	A	P	8	28	HF	CL	2
	6/3/2009	R	O	A		10	28	HE	CL	2
	6/9/2009	R	O	A		12	31	E	SE	<2
	8/4/2009	R	O	A	O	18	22	E	SW	16
	9/16/2009	R	O	A	P	15	30	HF	NW	<2
	10/21/2009	R	O	A	O	5	32	E	CL	<2
EL036.00	3/25/2009	R	O	A		2	30	F	N	<2
	4/1/2009	E	O	A	T	5	26	H	W	12
	4/14/2009	R	O	A		9	29	F	NW	<2
	6/8/2009	R	O	A		15	30	HE	SW	<2
	7/15/2009	R	O	A	O	17	30	H	NW	<2
	8/26/2009	R	O	A	P	16	29	E	SW	34
	10/20/2009	R	O	A	P	7	29	H	SW	5.4
EL037.00	4/1/2009	R	O	A	T	5	24	H	W	2
	4/14/2009	R	O	A		8	30	HF	NW	<2
	6/8/2009	R	O	A		14	30	HE	SW	<2
	7/15/2009	R	O	A	O	17	30	H	NW	2
	8/26/2009	R	O	A	P	16	31	E	SW	31
	10/20/2009	R	O	A	P	7	29	H	SW	2
EL039.00	4/14/2009	R	O	A		8	28	F	NW	<2
	5/18/2009	R	O	A	P	10	28	E	N	6
	6/8/2009	R	O	A		13	30	H	SW	2
	7/15/2009	R	O	A	O	18	28	LF	W	<2
	8/26/2009	R	O	A	P	16	30	E	SW	2
10/20/2009	R	O	A	P	7	32	H	SW	<2	
EL040.50	3/25/2009	R	O	A		2	27	F	N	<2
	4/14/2009	R	O	A		8	28	F	NW	<2
	6/8/2009	R	O	A		14	30	H	SW	<2
	7/15/2009	R	O	A	O	21	29	HF	NW	<2
	8/26/2009	R	O	A	P	16	30	E	SW	<2
10/20/2009	R	O	A	P	7	31	H	SW	<2	
EL041.00	3/25/2009	R	O	R		-1	2	F	N	2
	4/14/2009	R	O	R		8	1	F	NW	<2
	6/8/2009	R	O	R		14	30	H	SW	<2
	7/15/2009	R	O	R	O	20	25	HF	NW	6
8/26/2009	R	O	R	P	17	16	E	SW	160	



Station	Date	Strategy	Open Closed	Class	Adversity	Temp	Salinity	Tide	Wind	Col Score
	10/20/2009	R	O	R	P	8	30	H	SW	4
EL041.50	3/25/2009	R	O	R		2	28	F	N	<2
	4/14/2009	R	O	R		9	22	F	NW	<2
	6/8/2009	R	O	R		14	30	H	SW	<2
	7/15/2009	R	O	R	O	18	28	HF	NW	2
	8/26/2009	R	O	R	P	16	30	E	SW	14
	10/20/2009	R	O	R	P	8	30	H	SW	<2
EL041.70	3/25/2009	R	O	A		2	28	F	N	<2
	4/14/2009	R	O	A		9	22	F	NW	2
	6/8/2009	R	O	A		14	30	H	SW	<2
	7/15/2009	R	O	A	O	10	26	HF	NW	2
	8/26/2009	R	O	A	P	16	30	E	SW	12
	10/20/2009	R	O	A	P	7	30	H	SW	6
EL043.10	3/25/2009	R	C	P		2	28	F	N	<2
	4/14/2009	R	C	P		8	28	F	NW	<2
	6/8/2009	R	C	P		14	30	H	SW	<2
	7/15/2009	R	C	P	O	18	28	HF	NW	<2
	8/26/2009	R	C	P	P	16	24	E	SW	48
	10/20/2009	R	C	P	P	8	28	HF	SW	<2
EL045.00	4/1/2009	R	O	A	T	5	20	F	W	2
	4/14/2009	R	O	A		8	16	F	NW	<2
	6/8/2009	R	O	A		14	30	H	SW	<2
	7/15/2009	R	O	A	O	16	28	HF	NW	<2
	8/26/2009	R	O	A	P	16	25	E	SW	27
	10/20/2009	R	O	A	P	8	30	HF	SW	<2
EL046.00	3/25/2009	R	O	A		2	30	HF	N	2
	4/14/2009	R	O	A		8	22	F	NW	<2
	6/8/2009	R	O	A		14	28	H	SW	2
	7/15/2009	R	O	A	O	18	12	LF	CL	14
	8/26/2009	R	O	A	P	17	26	E	SW	29
	10/20/2009	R	O	A	P	8	25	HF	SW	4
EL047.00	3/25/2009	R	O	A		1	26	HF	N	<2
	4/14/2009	R	O	A		8	18	F	NW	<2
	6/8/2009	R	O	A		15	30	HF	SW	<2
	7/15/2009	R	O	A	O	22	28	F	NW	6
	9/21/2009	R	O	A	O	15	31	H	NW	2
	10/20/2009	R	O	A	P	8	28	HF	SW	2