

*Oceanography Branch CTD Data Report*  
*CTD\_REPORT\_2009002DE*

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DATE Revised: September 15, 2009

# Oceanography Branch CTD Data Report

CTD\_REPORT\_2009002DE

NOAA Fisheries Service  
Northeast Fisheries Science Center  
Woods Hole, MA 02543

DE 09-02  
Ecosystem Monitoring (ECOMON) Survey  
Data Coverage: January 26 – February 12, 2009  
Northeast Shelf

This report presents a summary of surface and bottom temperature and salinity data collected during the Northeast Fisheries Science Center's 2009 Northeast Shelf Ecosystem Monitoring survey aboard the NOAA FSV *Delaware II*. All data was obtained with a Seabird Electronics SBE Model 19 profiling CTD (s/n's 4477, 2879, and 1447).

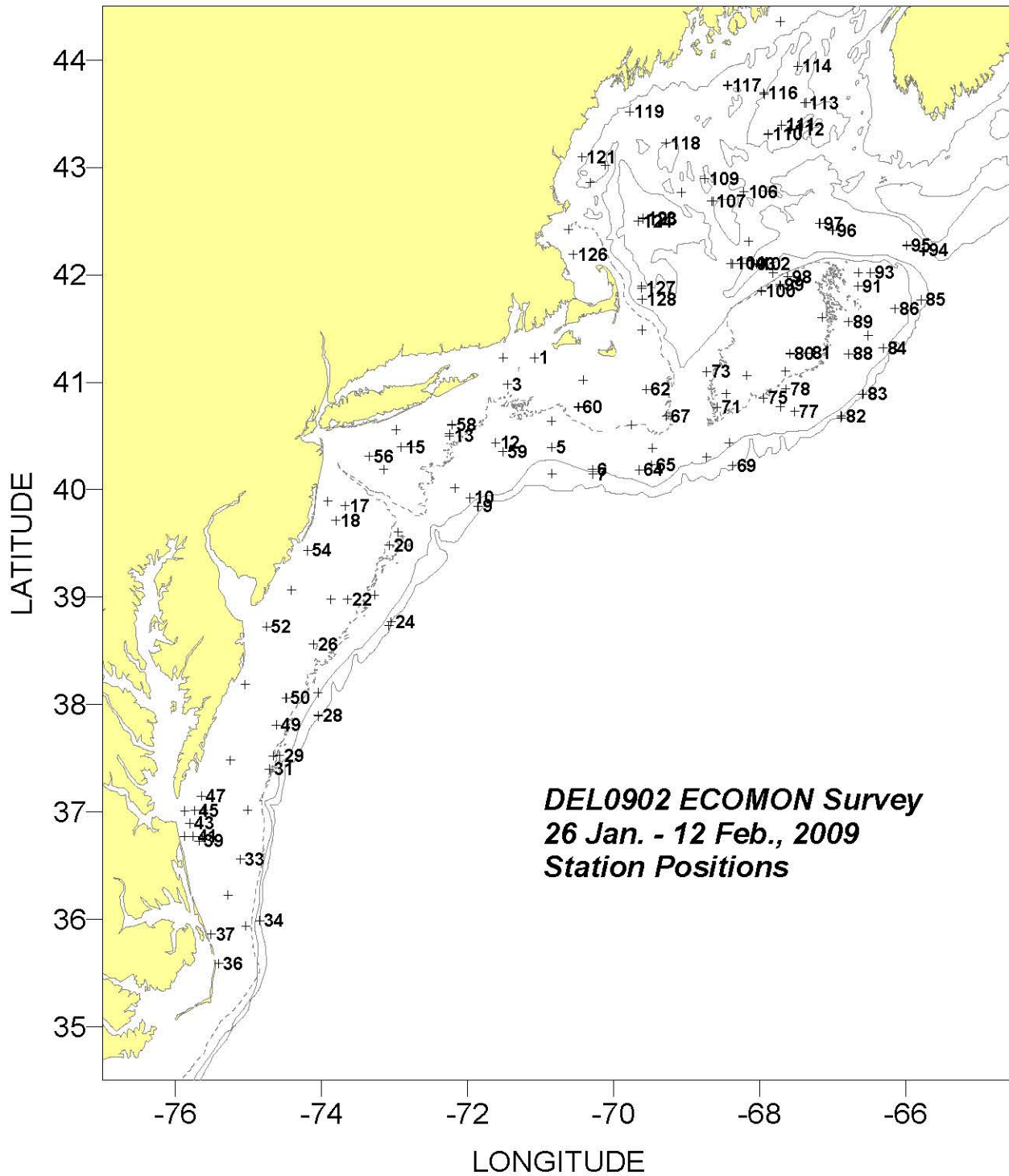
Data presented here have been audited, however, corrections and/or updates may be applied at a later time. The most recent and complete station data can be found in an NODC formatted ASCII file at:  
<ftp://ftp.nefsc.noaa.gov/pub/hydro/del0902.dat>

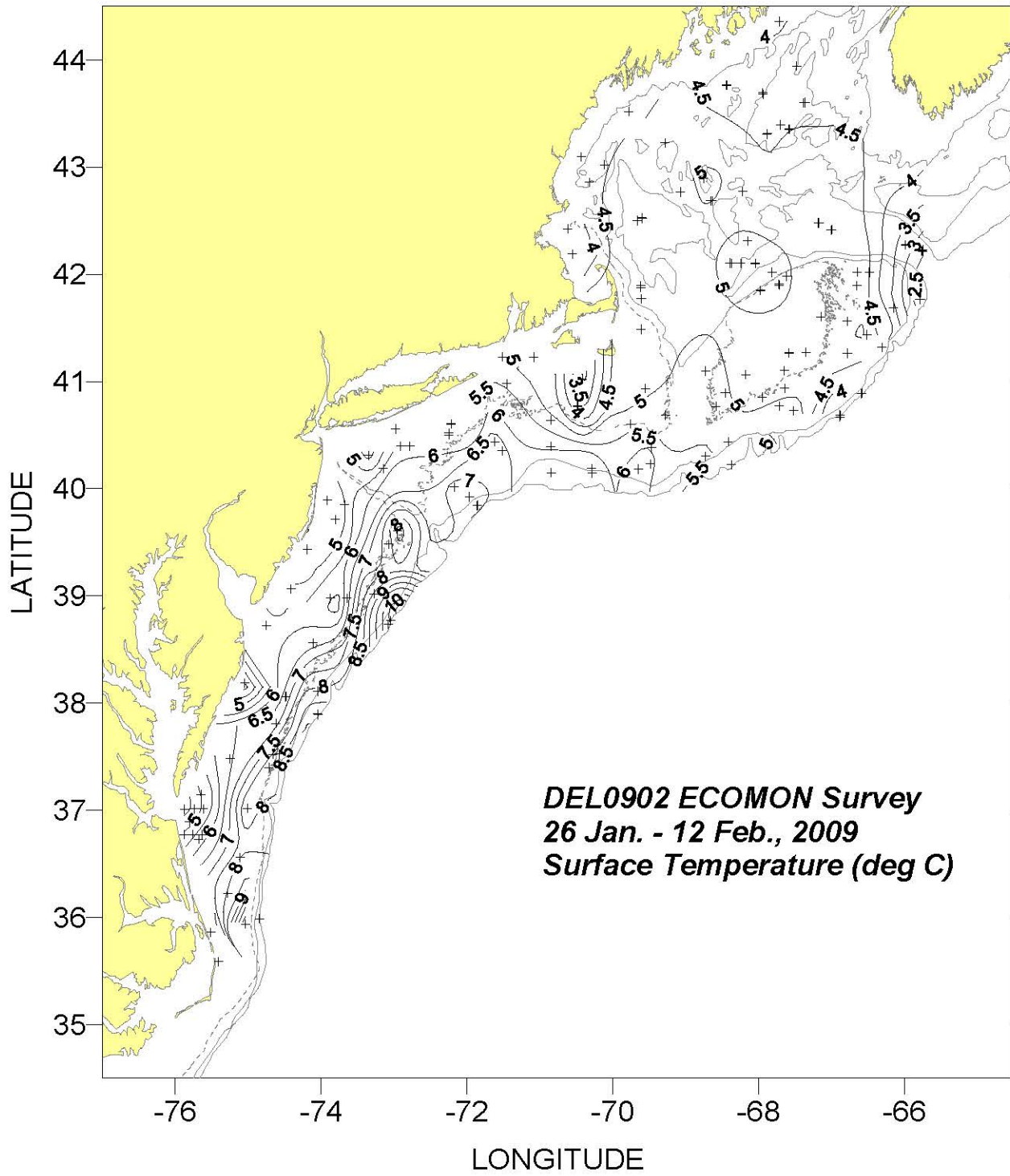
This report may be viewed on the Oceanography Branch website at:

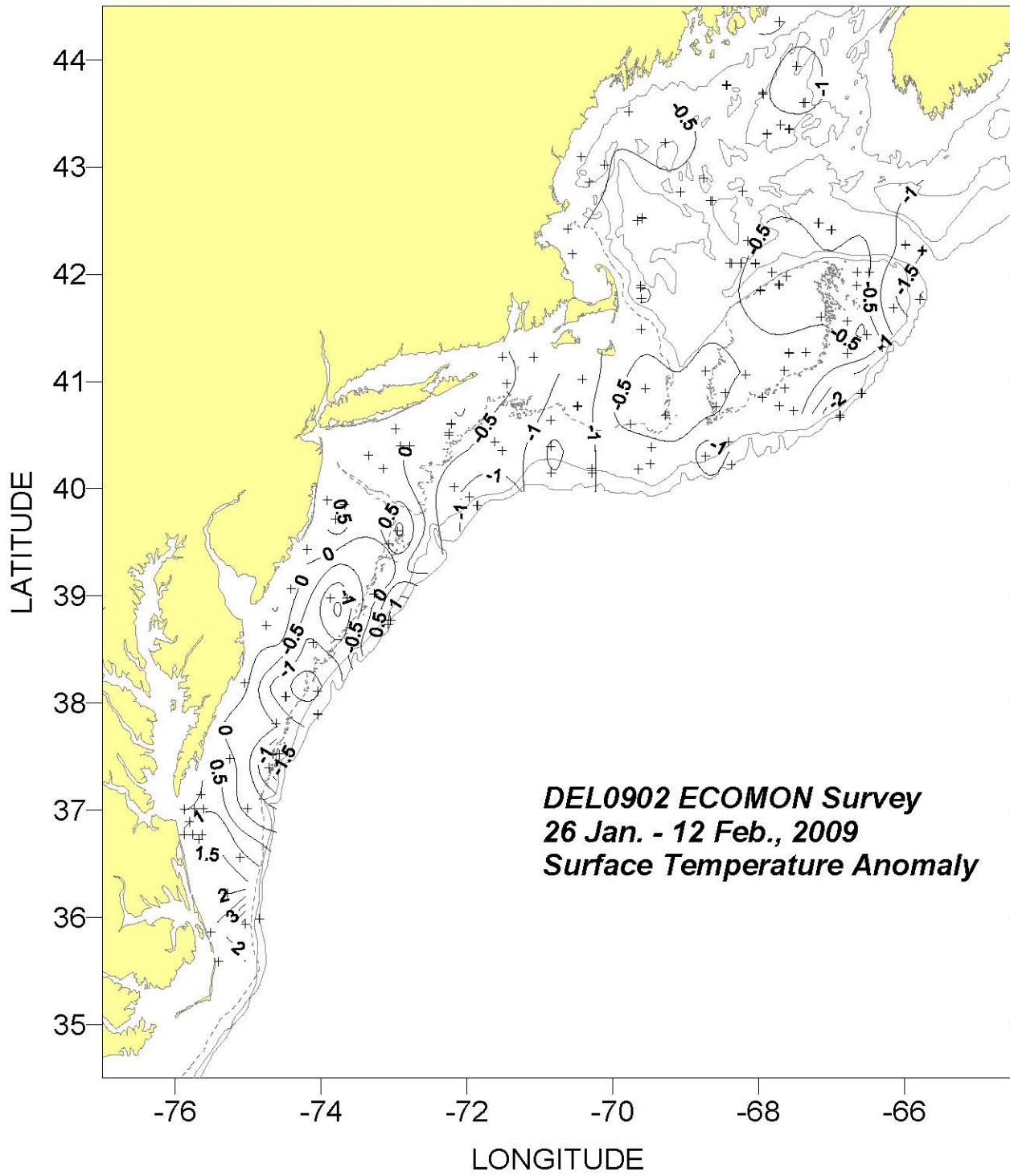
<http://www.nefsc.noaa.gov/HydroAtlas/>

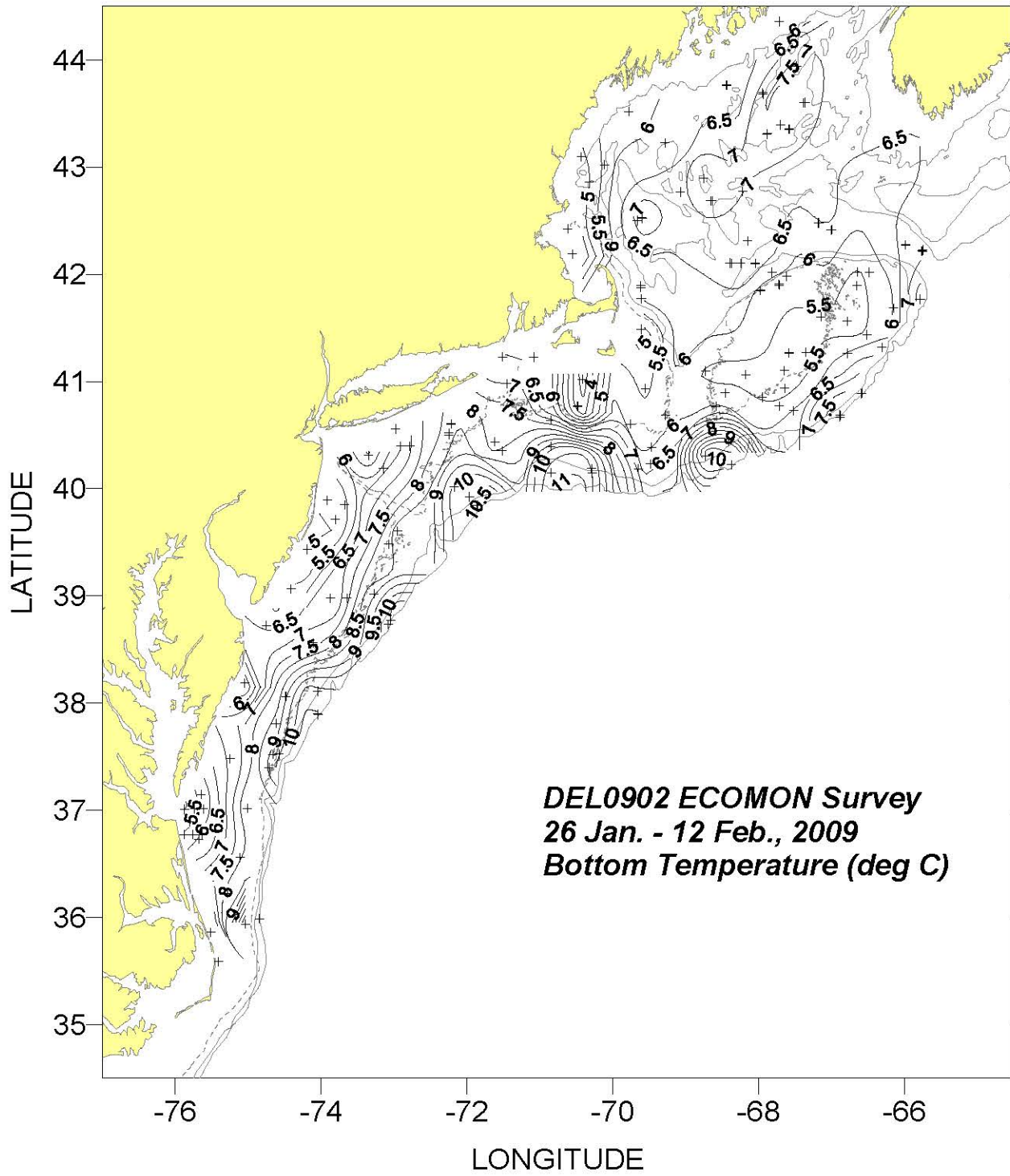
choose: **2009 Cruises**  
**JAN\_ECOMON\_DEL0902**  
**CTD\_REPORT\_2009002DE.pdf**

Revised: September 15, 2009

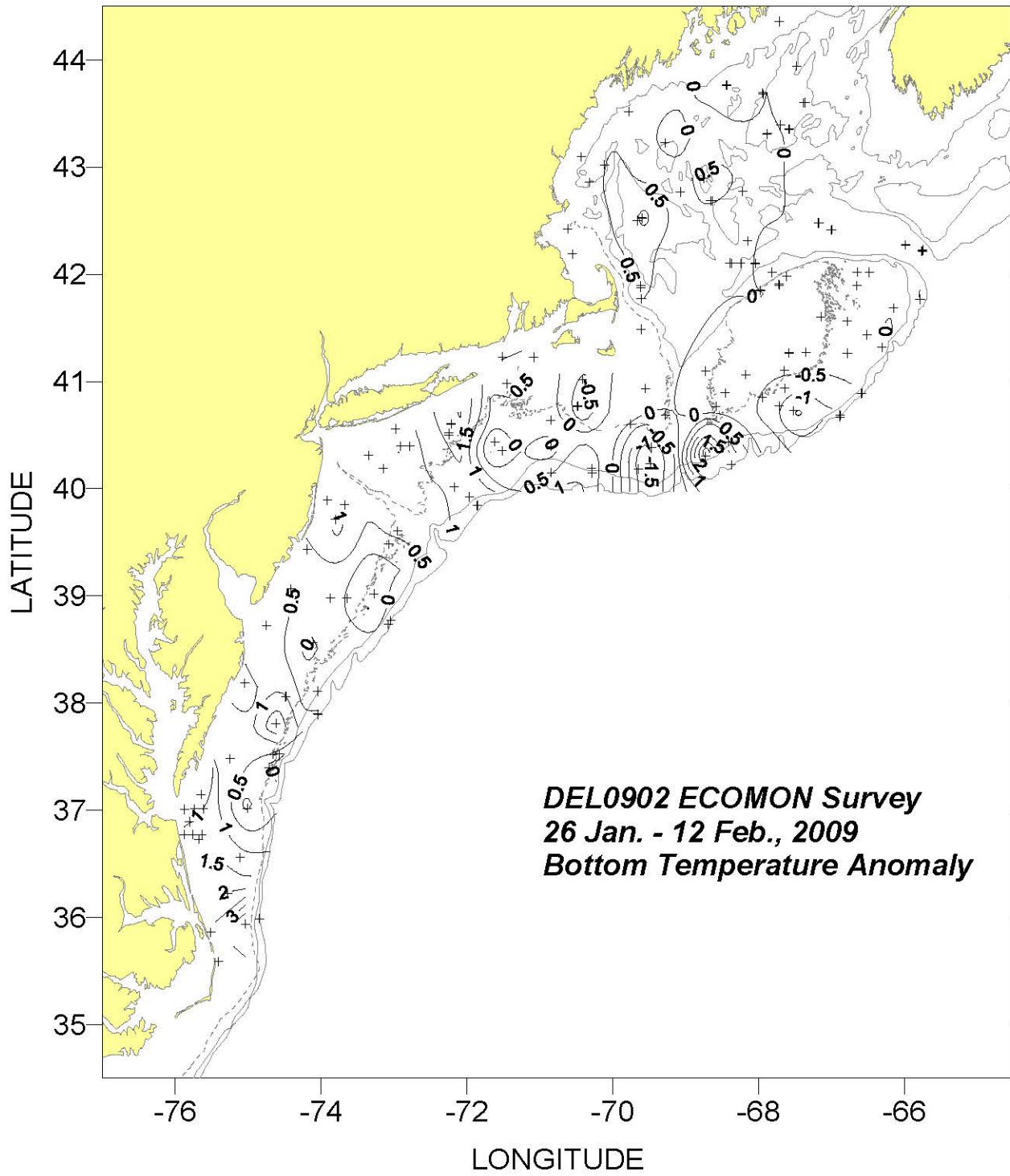


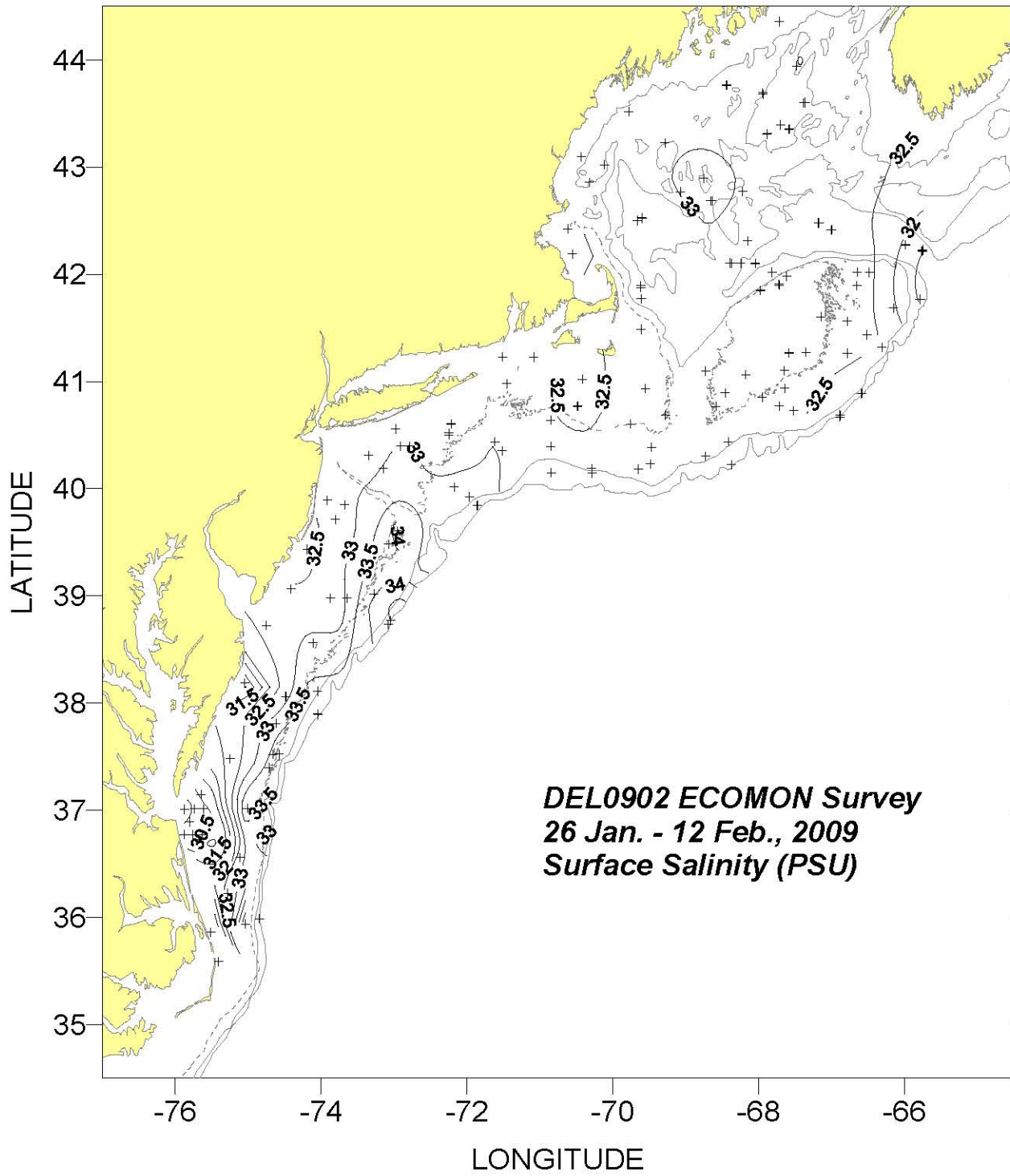




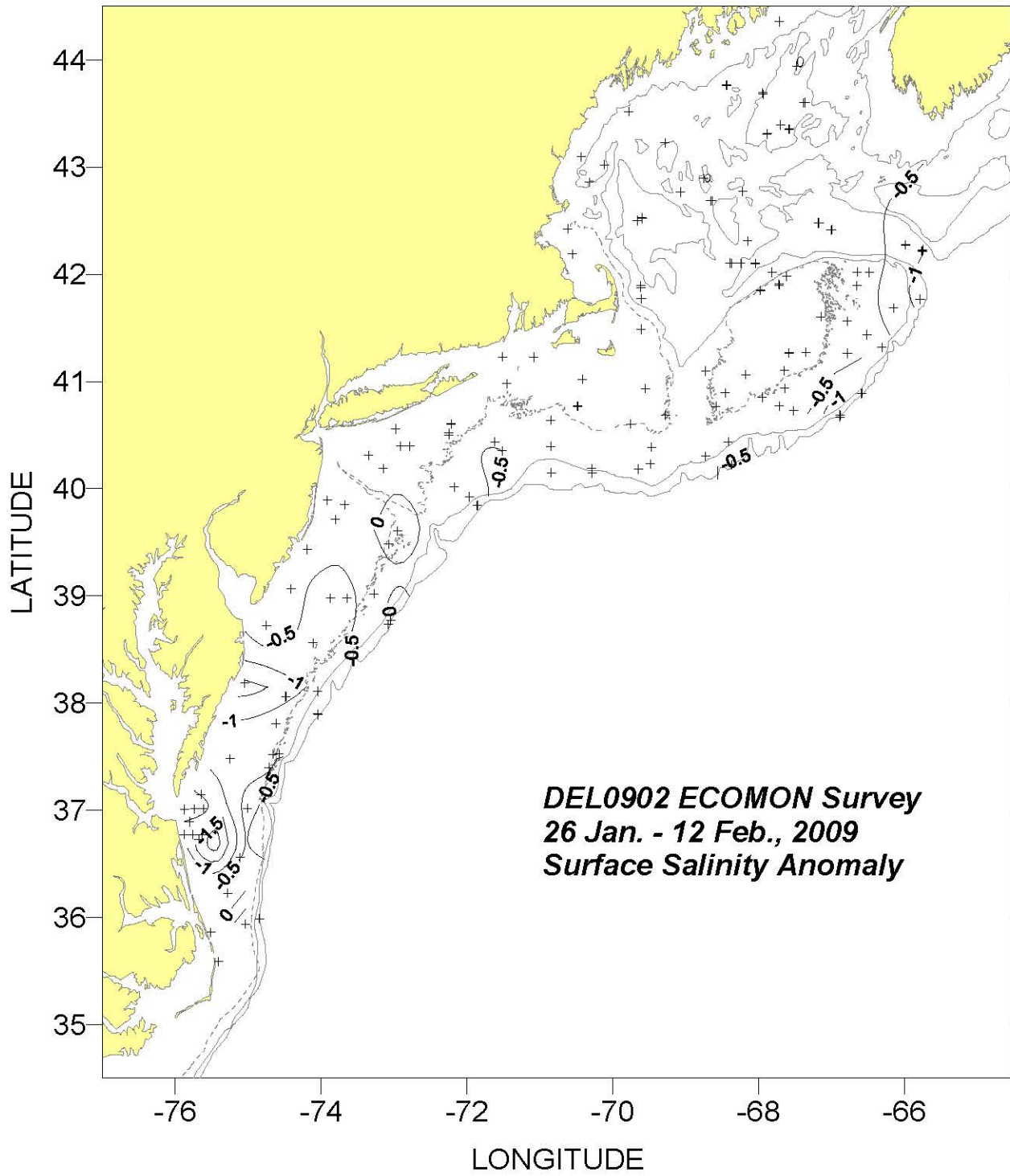


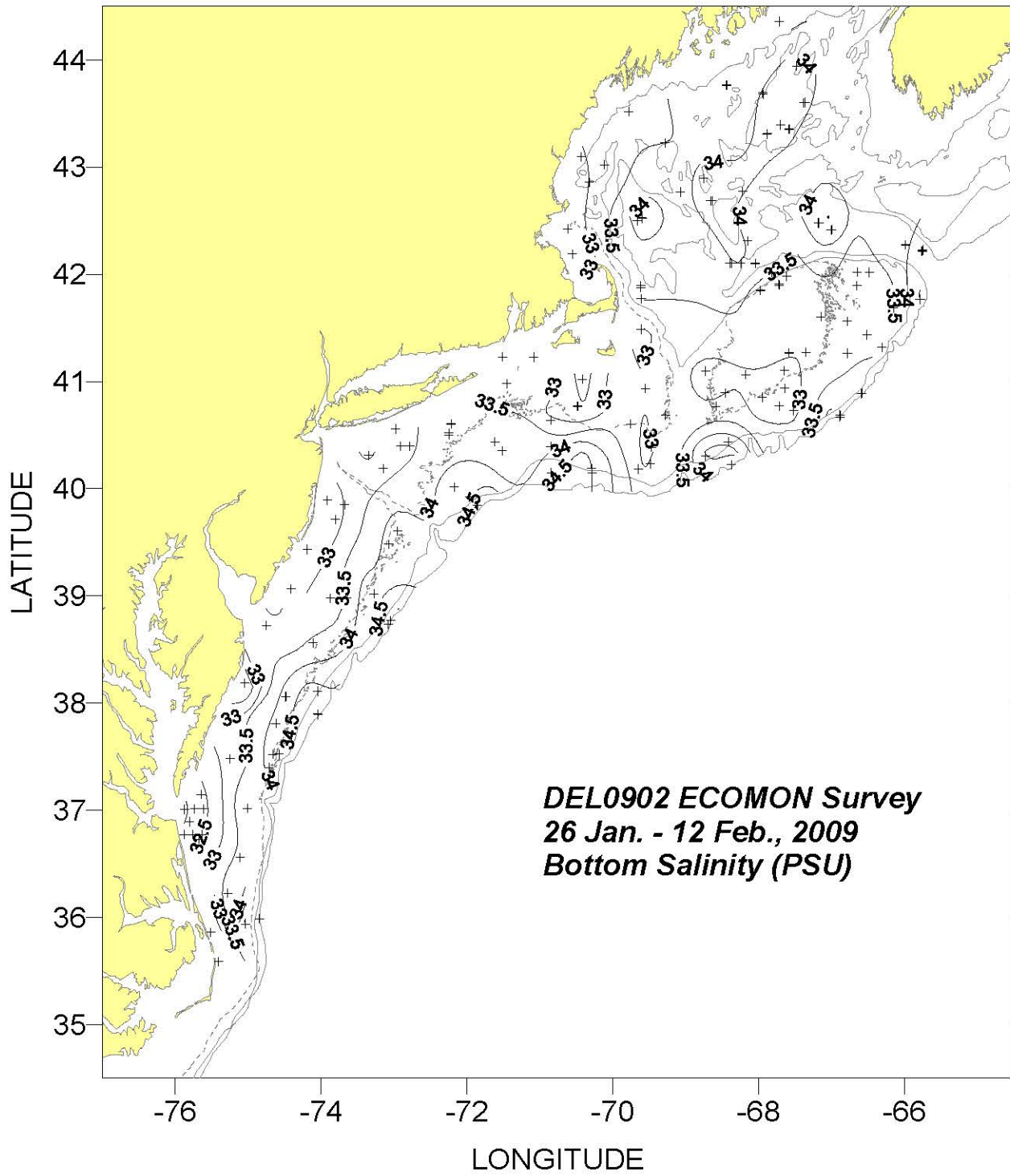


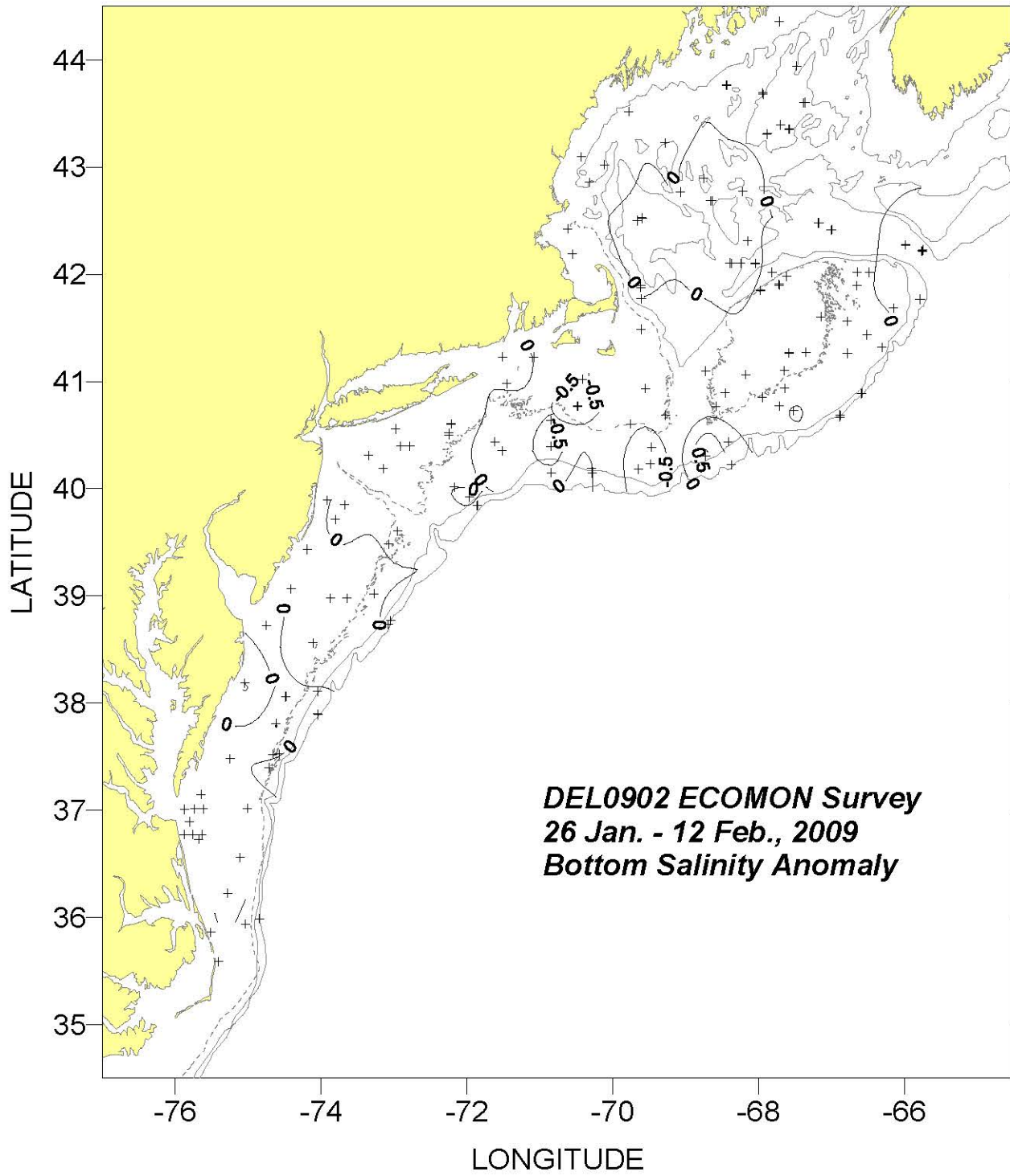












Areal average surface and bottom temperature/salinity and temperature/salinity anomalies for the 2009 Winter ECOMON Survey

CRUISE	CD	SURFACE						BOTTOM						Purpose
		#obs	T/S	Anomaly	SDV1	SDV2	Flag	#obs	T/S	Anomaly	SDV1	SDV2	Flag	
Gulf of Maine West														
del0902	42	29	4.64	-0.58	0.19	0.45	0	20	6.26	0.32	0.2	0.58	0	22
del0902	42	29	32.92	-0.1	0.13	0.17	0	20	33.68	0.08	0.12	0.26	0	22
Gulf of Maine East														
del0902	41	19	4.67	-0.82	0.22	1.05	1	12	6.89	-0.07	0.28	1.29	1	22
del0902	41	19	32.89	-0.16	0.15	0.43	1	12	34.05	-0.14	0.15	0.58	1	22
Georges Bank														
del0902	37	38	4.89	-0.61	0.18	0.95	0	28	5.59	-0.25	0.2	1.17	0	22
del0902	37	38	32.65	-0.3	0.1	0.51	0	28	32.98	-0.11	0.12	0.46	0	22
Mid Atlantic Bight North														
del0902	31	28	5.83	-0.6	0.24	1	0	21	7.19	0.3	0.29	1.69	0	22
del0902	31	27	32.81	-0.34	0.16	0.33	0	21	33.31	-0.27	0.17	0.61	0	22
Mid Atlantic Bight South														
del0902	32	39	7.2	0.19	0.22	1.78	0	35	7.54	0.52	0.26	1.21	0	22
del0902	32	39	33.07	-0.43	0.17	1.29	0	35	33.58	0.02	0.16	0.45	0	22

"CRUISE", the code name for a cruise: "CD", the calendar mid-date of all the stations within a region for a cruise:

"#obs", the number of observations include in each average: "T/S", the areal average temp/salt: "Anomaly", the areal average temp/salt anomaly:

"SDV1", the standard deviation associated with the average temp/salt anomaly: "SDV2", the standard deviation of the individual anomalies from which the average anomaly was derived

"Flag", a value of "1" indicates that a true areal average could not be calculated due to poor station coverage. The areal averages listed were derived from a simple average of the observations within the region.

"Purpose", 2 digit code assigned by DMS to identify a unique NEFSC program survey.

**DEL0902 Ecomon Survey**  
**26 January - 12 February, 2009**

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
1	1	4113.7	7104.9	26	1	2009	22:22	41	3.80	32.43	5.49	32.86	5
2	2	4113.8	7130.7	27	1	2009	0:25	36	4.50	32.18	4.58	32.54	5
3	3	4058.9	7127.0	27	1	2009	2:04	50	5.86	32.75	8.03	33.48	5
4	4	4038.4	7050.8	27	1	2009	5:34	68	4.89	32.47	6.13	32.71	7
5	5	4023.7	7050.8	27	1	2009	7:13	88	6.11	32.75	10.45	33.93	7
6	6	4011.3	7017.1	27	1	2009	10:25	108	6.83	99.99	14.52	35.63	5
7	7	4008.7	7016.8	27	1	2009	11:28	118	7.36	32.94	14.55	35.64	5
8	8	4008.9	7050.7	27	1	2009	14:19	135	7.29	32.96	14.39	35.70	4
10	9	3950.7	7151.3	27	1	2009	19:43	158	7.54	33.13	13.56	35.61	6
11	9	3950.5	7151.7	27	1	2009	20:02	158	7.58	33.10	13.57	35.61	7
12	10	3955.5	7157.9	27	1	2009	21:01	96	8.15	33.30	12.28	34.76	6
13	11	4000.9	7210.2	27	1	2009	22:16	80	7.50	33.31	10.04	34.13	5
14	12	4026.2	7136.8	30	1	2009	3:16	78	7.55	33.16	7.84	33.52	4
15	13	4031.1	7214.7	30	1	2009	7:07	54	5.43	32.53	9.01	33.85	3
16	13	4030.1	7214.8	30	1	2009	7:16	55	5.43	32.53	8.93	33.80	2
17	14	4023.8	7246.7	30	1	2009	10:07	46	6.31	33.27	6.55	33.36	6
18	15	4023.8	7254.5	30	1	2009	10:52	41	5.82	33.11	6.39	33.30	5
19	16	4011.2	7308.9	30	1	2009	12:40	43	6.85	33.65	7.29	33.77	4
20	17	3951.1	7340.6	30	1	2009	15:51	34	4.91	32.85	5.26	32.97	4
21	18	3942.8	7348.2	30	1	2009	17:02	23	4.50	32.61	4.70	32.84	2
22	18	3942.7	7348.1	30	1	2009	17:16	22	4.47	32.58	4.69	32.83	6
23	19	3936.3	7257.0	30	1	2009	21:19	62	8.82	34.28	8.81	34.30	6
24	20	3929.0	7304.4	30	1	2009	22:23	67	7.60	33.98	8.55	34.23	6
25	21	3858.7	7352.3	31	1	2009	3:19	41	4.27	32.22	5.82	32.83	4
26	22	3858.7	7338.6	31	1	2009	4:34	52	5.10	32.71	7.54	33.72	7
27	23	3901.2	7316.4	31	1	2009	6:40	71	8.80	34.29	8.91	34.37	5
28	24	3846.2	7302.8	31	1	2009	8:41	181	13.33	35.49	12.20	35.54	4
29	25	3844.1	7304.6	31	1	2009	9:36	147	14.98	35.83	12.94	35.65	3
30	26	3833.6	7406.4	31	1	2009	16:08	54	6.26	33.19	6.99	33.43	6

**DEL0902 Ecomon Survey**  
**26 January - 12 February, 2009**

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
31	27	3806.6	7402.6	31	1	2009	18:55	83	8.63	34.03	11.70	35.05	5
32	28	3753.9	7402.7	31	1	2009	20:22	158	11.11	34.89	13.34	35.63	6
33	28	3753.6	7402.5	31	1	2009	20:42	166	10.93	34.84	12.66	35.57	11
34	29	3731.4	7434.5	1	2	2009	0:28	65	8.92	34.11	11.20	34.83	1
35	30	3731.3	7439.7	1	2	2009	1:02	57	8.92	34.14	8.95	34.14	4
36	31	3723.9	7442.7	1	2	2009	1:58	56	9.03	34.21	9.27	34.28	5
37	32	3701.0	7500.7	1	2	2009	4:54	45	8.42	33.98	8.41	33.99	5
38	33	3633.6	7506.7	1	2	2009	7:55	30	8.34	34.03	8.37	34.05	4
39	34	3559.3	7450.7	1	2	2009	11:58	97	12.38	35.04	12.47	35.09	78
40	34	3559.3	7450.7	1	2	2009	12:04	97	12.58	35.07	12.89	35.33	5
41	35	3556.3	7502.1	1	2	2009	13:22	42	10.83	34.90	11.47	35.09	4
42	36	3535.3	7524.4	1	2	2009	16:23	17	6.57	31.38	6.57	31.53	4
43	37	3551.6	7530.8	1	2	2009	18:13	21	6.58	30.27	6.45	31.62	3
44	37	3551.7	7530.6	1	2	2009	18:25	20	6.54	30.09	6.50	31.74	4
45	38	3613.5	7516.9	1	2	2009	20:51	30	8.48	34.06	8.48	34.07	4
46	39	3643.7	7540.6	2	2	2009	0:38	20	4.76	28.93	6.04	32.55	4
47	40	3646.4	7538.0	2	2	2009	1:13	18	8.40	26.61	6.32	32.78	4
48	41	3646.4	7545.2	2	2	2009	2:00	20	4.78	28.97	5.97	32.58	5
49	42	3646.4	7552.6	2	2	2009	2:46	13	5.41	31.40	5.40	31.53	5
50	43	3653.6	7548.3	2	2	2009	3:45	16	4.11	26.43	5.72	32.46	4
51	44	3700.5	7552.3	2	2	2009	4:48	11	3.91	29.72	4.60	31.77	4
52	45	3700.8	7544.1	2	2	2009	5:37	15	4.38	30.41	5.36	32.29	4
53	46	3700.8	7536.9	2	2	2009	6:20	24	4.73	30.82	5.92	32.53	4
54	47	3708.8	7538.7	2	2	2009	7:22	15	5.53	32.27	5.51	32.27	5
55	48	3728.8	7514.8	2	2	2009	20:22	31	5.59	32.19	6.17	32.82	5
56	49	3748.6	7437.0	3	2	2009	0:07	52	6.97	33.30	8.71	34.16	5
57	50	3803.7	7428.9	3	2	2009	2:01	43	5.24	32.07	7.93	33.91	6
58	50	3803.6	7429.0	3	2	2009	2:09	43	5.15	31.97	7.93	33.90	4
59	51	3811.2	7502.9	3	2	2009	5:04	21	3.66	30.31	4.83	31.96	6



**DEL0902 Ecomon Survey**  
**26 January - 12 February, 2009**

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
60	52	3843.4	7445.0	3	2	2009	9:16	16	5.01	32.62	5.02	32.62	5
61	53	3904.0	7424.8	3	2	2009	12:45	29	4.25	32.27	4.27	32.29	3
62	54	3926.1	7411.4	3	2	2009	16:31	17	3.30	31.89	3.28	31.89	3
63	55	3953.7	7354.9	3	2	2009	20:40	25	4.15	32.50	4.19	32.53	6
64	56	4018.7	7320.9	4	2	2009	1:25	33	4.15	32.65	4.83	32.87	5
65	57	4033.5	7258.6	4	2	2009	4:16	30	4.42	32.67	4.45	32.68	4
66	58	4036.3	7212.7	4	2	2009	8:07	51	5.35	32.51	5.24	32.52	39
67	58	4036.2	7212.7	4	2	2009	8:13	50	5.24	32.50	8.11	33.51	6
68	59	4021.2	7131.0	4	2	2009	11:56	82	6.69	32.96	7.15	33.14	4
69	60	4046.2	7028.8	4	2	2009	17:49	54	3.16	32.20	2.93	32.18	3
70	60	4046.1	7029.0	4	2	2009	18:02	54	3.08	32.18	2.86	32.20	5
71	61	4101.3	7024.7	4	2	2009	19:46	42	2.54	32.08	2.75	32.14	4
72	62	4056.1	6933.2	5	2	2009	0:01	40	4.59	32.74	4.62	32.79	3
73	63	4036.2	6945.0	5	2	2009	2:17	60	4.52	32.68	4.64	32.71	5
74	64	4011.1	6938.7	5	2	2009	4:58	89	6.52	32.71	6.53	32.71	74
75	64	4011.0	6938.7	5	2	2009	5:05	90	6.53	32.71	6.57	32.87	6
76	65	4013.9	6928.8	5	2	2009	6:25	80	6.71	32.77	6.77	32.80	4
77	66	4023.3	6928.1	5	2	2009	8:10	70	6.04	32.71	5.03	32.72	5
78	67	4041.1	6916.6	5	2	2009	10:52	57	5.18	32.79	5.25	32.80	3
79	68	4018.2	6843.4	5	2	2009	14:31	99	5.61	32.63	10.89	34.60	7
80	69	4013.5	6822.4	5	2	2009	17:07	169	5.21	32.32	13.41	35.44	10
81	70	4026.3	6824.9	5	2	2009	19:42	100	5.17	32.45	7.29	33.23	10
82	71	4046.1	6834.9	5	2	2009	22:34	62	5.32	32.70	5.32	32.70	4
83	72	4053.6	6827.2	5	2	2009	23:52	52	4.87	32.69	4.88	32.69	9
84	73	4105.9	6843.4	6	2	2009	3:07	58	5.36	32.77	5.38	32.79	3
85	74	4103.8	6810.5	6	2	2009	6:24	45	4.63	32.72	4.67	32.73	4
86	75	4051.2	6756.7	6	2	2009	8:28	65	5.00	32.65	4.99	32.65	2
87	76	4046.2	6743.0	6	2	2009	10:18	70	5.32	32.65	5.34	32.65	5
88	77	4043.8	6731.2	6	2	2009	11:31	89	5.28	32.67	5.33	32.69	61

**DEL0902 Ecomon Survey**  
**26 January - 12 February, 2009**

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
89	77	4043.7	6731.2	6	2	2009	11:38	88	5.27	32.66	6.27	32.96	2
90	78	4056.2	6738.5	6	2	2009	13:55	69	5.07	32.64	5.10	32.64	5
91	79	4106.1	6738.7	6	2	2009	15:31	54	4.54	32.80	4.57	32.81	6
92	80	4116.1	6735.0	6	2	2009	17:04	43	4.45	32.81	4.46	32.81	2
93	80	4115.9	6735.0	6	2	2009	17:13	43	4.45	32.80	4.46	32.81	6
94	81	4116.3	6720.8	6	2	2009	18:52	47	4.57	32.82	4.58	32.83	8
95	82	4041.3	6652.9	6	2	2009	23:27	195	3.25	31.82	9.39	34.93	1
96	82	4041.2	6652.7	7	2	2009	0:03	208	3.26	31.83	9.32	34.96	9
97	82	4040.1	6653.1	7	2	2009	0:34	237	3.25	31.82	12.97	35.14	135
98	83	4053.4	6634.9	7	2	2009	3:04	226	3.75	31.93	10.46	35.19	6
99	83	4053.2	6635.1	7	2	2009	3:25	225	3.69	31.91	11.12	35.25	24
100	84	4119.2	6618.5	7	2	2009	7:07	102	4.11	32.34	5.63	33.03	9
101	85	4146.1	6547.3	7	2	2009	11:11	138	1.89	31.28	7.74	34.54	13
102	85	4146.2	6547.0	7	2	2009	11:31	138	1.84	31.29	7.84	34.60	7
103	86	4141.2	6608.7	7	2	2009	13:31	94	3.11	31.86	5.52	33.00	29
104	86	4141.2	6608.7	7	2	2009	13:40	93	3.34	31.95	5.52	33.00	5
105	87	4126.2	6630.6	7	2	2009	16:16	93	5.41	32.86	5.35	32.86	6
106	88	4116.0	6646.9	7	2	2009	18:04	75	5.18	32.82	5.05	32.83	7
107	88	4115.8	6646.7	7	2	2009	18:16	74	5.06	32.79	5.05	32.83	9
108	89	4133.9	6646.9	7	2	2009	20:28	75	4.91	32.87	4.92	32.87	6
109	90	4136.2	6708.5	7	2	2009	22:06	58	4.76	32.88	4.77	32.88	6
110	91	4153.8	6638.9	8	2	2009	0:53	76	5.08	32.95	5.10	32.96	6
111	92	4201.3	6638.7	8	2	2009	1:49	78	5.16	32.98	5.18	32.98	6
112	93	4201.2	6628.8	8	2	2009	2:42	83	5.28	33.00	5.31	33.01	7
114	94	4213.7	6544.6	8	2	2009	7:01	228	2.36	31.40	8.76	35.04	29
115	94	4213.0	6545.0	8	2	2009	7:25	228	2.40	31.41	8.61	34.64	76
116	95	4216.4	6558.9	8	2	2009	8:51	239	2.90	31.79	7.35	34.84	1
117	95	4216.6	6558.9	8	2	2009	9:15	240	2.85	31.77	7.38	34.84	37
118	96	4224.8	6700.2	8	2	2009	15:01	363	5.02	32.94	6.71	34.91	8

**DEL0902 Ecomon Survey**  
**26 January - 12 February, 2009**

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
119	96	4225.0	6659.7	8	2	2009	15:26	363	4.99	32.91	7.32	34.86	163
120	97	4228.8	6710.8	8	2	2009	17:02	345	5.19	33.06	6.69	34.90	5
121	97	4228.8	6710.2	8	2	2009	17:28	344	5.16	33.02	7.07	34.91	143
122	98	4158.8	6736.7	8	2	2009	22:31	44	5.22	33.03	5.23	33.04	5
123	99	4153.9	6742.7	8	2	2009	23:25	38	5.19	32.98	5.20	32.97	1
124	99	4154.5	6743.3	8	2	2009	23:55	39	5.22	32.98	5.22	32.98	8
125	100	4151.0	6758.3	9	2	2009	16:34	63	5.18	32.98	5.18	32.98	34
126	100	4150.9	6758.4	9	2	2009	16:40	63	5.19	32.98	5.19	32.98	9
127	101	4201.2	6748.9	9	2	2009	18:43	173	5.13	33.07	6.65	33.70	8
128	102	4206.2	6802.6	9	2	2009	20:49	225	5.10	33.04	7.34	34.83	3
129	102	4206.0	6802.4	9	2	2009	21:08	218	5.15	33.07	7.36	34.83	8
130	103	4206.2	6814.7	9	2	2009	22:57	192	5.05	33.02	7.17	34.24	10
131	104	4206.2	6822.0	10	2	2009	0:03	179	5.14	33.00	6.98	34.06	7
132	104	4206.4	6823.4	10	2	2009	0:31	183	5.15	33.00	5.21	33.03	80
133	105	4218.8	6808.8	10	2	2009	2:34	194	5.13	33.11	7.10	34.26	6
134	106	4246.3	6812.9	10	2	2009	6:49	184	5.01	33.10	7.61	34.43	8
135	107	4241.3	6838.1	10	2	2009	9:19	187	4.95	33.11	7.52	34.47	6
136	107	4241.3	6839.3	10	2	2009	9:45	180	5.01	33.13	6.26	33.56	80
137	108	4246.1	6904.1	10	2	2009	11:45	171	4.94	33.15	6.80	33.76	6
138	109	4253.8	6845.1	10	2	2009	13:49	196	5.13	33.20	5.12	33.21	170
139	109	4253.8	6845.2	10	2	2009	13:55	184	5.11	33.20	7.53	34.21	6
140	110	4318.7	6752.8	10	2	2009	18:58	230	4.39	32.93	7.50	34.19	3
141	110	4318.4	6752.9	10	2	2009	19:15	228	4.33	32.91	7.25	34.08	27
142	111	4323.7	6742.0	10	2	2009	20:46	247	4.22	32.78	7.37	34.16	2
143	111	4323.6	6741.9	10	2	2009	21:01	246	4.24	32.81	7.28	34.11	47
144	112	4321.3	6735.0	10	2	2009	21:58	220	5.05	33.24	7.20	34.01	6
145	112	4321.2	6734.7	10	2	2009	22:13	219	5.12	33.24	7.20	34.00	18
146	113	4336.0	6723.0	11	2	2009	0:13	218	4.04	32.66	7.45	34.19	9
147	113	4336.2	6721.5	11	2	2009	0:37	219	3.94	32.63	6.63	33.61	117

**DEL0902 Ecomon Survey**  
**26 January - 12 February, 2009**

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
148	114	4356.6	6728.7	11	2	2009	2:45	198	3.99	32.42	7.69	34.20	8
149	115	4421.6	6742.9	11	2	2009	5:43	63	3.42	32.68	3.57	32.72	6
150	116	4341.7	6756.5	11	2	2009	9:40	205	4.15	32.68	7.83	34.30	7
151	116	4340.8	6756.3	11	2	2009	10:06	211	4.17	32.68	6.47	33.52	110
152	117	4346.1	6826.2	11	2	2009	12:34	172	3.89	32.90	4.08	32.95	138
153	117	4345.9	6826.4	11	2	2009	12:43	160	4.01	32.93	5.09	33.17	4
154	118	4313.7	6916.9	11	2	2009	17:49	173	4.85	33.12	5.87	33.41	7
155	119	4331.2	6946.8	11	2	2009	20:57	127	4.01	32.56	4.31	32.80	64
156	119	4331.2	6946.7	11	2	2009	21:07	112	4.00	32.58	4.92	32.97	3
157	120	4301.3	7006.7	12	2	2009	0:37	130	4.50	32.80	6.38	33.35	6
158	121	4305.8	7025.9	12	2	2009	2:28	77	3.85	32.66	4.41	32.81	7
159	122	4251.5	7019.1	12	2	2009	4:07	59	4.30	32.80	4.35	32.84	6
160	123	4231.7	6936.0	12	2	2009	7:49	260	4.99	32.99	5.06	33.15	159
161	123	4231.4	6935.5	12	2	2009	8:06	260	5.01	32.99	7.46	34.42	5
162	123	4231.4	6935.5	12	2	2009	8:25	260	5.05	33.02	7.00	34.15	59
163	124	4230.1	6939.8	12	2	2009	9:10	250	4.85	32.94	7.43	34.39	6
164	124	4230.1	6939.6	12	2	2009	9:31	248	4.85	32.94	6.98	34.17	46
165	125	4225.5	7036.8	12	2	2009	14:16	87	3.14	32.29	3.63	32.54	4
166	126	4211.4	7033.0	12	2	2009	15:55	44	2.22	32.01	2.86	32.23	8
167	127	4153.8	6936.8	12	2	2009	20:21	200	4.96	32.94	6.45	33.84	7
168	127	4152.7	6936.9	12	2	2009	20:49	184	4.95	32.95	6.44	33.82	6
169	128	4146.3	6936.5	12	2	2009	21:46	155	4.44	32.81	4.89	32.98	93
170	128	4146.3	6936.4	12	2	2009	21:55	153	4.45	32.80	6.10	33.52	7
171	129	4129.2	6936.7	12	2	2009	23:58	31	4.35	32.80	4.36	32.80	8