

*Oceanography Branch CTD Data Report*  
*CTD\_REPORT\_2011005HB*

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DATE: Revised: January 30, 2012

# Oceanography Branch CTD Data Report

## CTD\_REPORT\_2011005HB

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

HB 11-05  
Fall Bottom Trawl Survey  
Data Coverage: Sept 10 – Nov 14, 2011

This report presents a summary of surface and bottom temperature and salinity data collected during the Northeast Fisheries Science Center's 2011 Spring Bottom Trawl survey aboard the NOAA FSV *Henry B. Bigelow*. All data was obtained with Seabird Electronics SBE Model 19 profiling CTD (s/n 2879) and an SBE Model 19+ CTD (s/n 4759). Salinity samples for calibration purposes were taken throughout the cruise, unfortunately they were unusable, and no correction was applied to the salinity data.

An SBE Model 43 Dissolved oxygen sensor was attached to CTD 4759 on casts 001-012 and 021-199. The oxygen data is not included in this report, it has been processed, however no calibration samples were taken.

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/hb1105.dat>

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

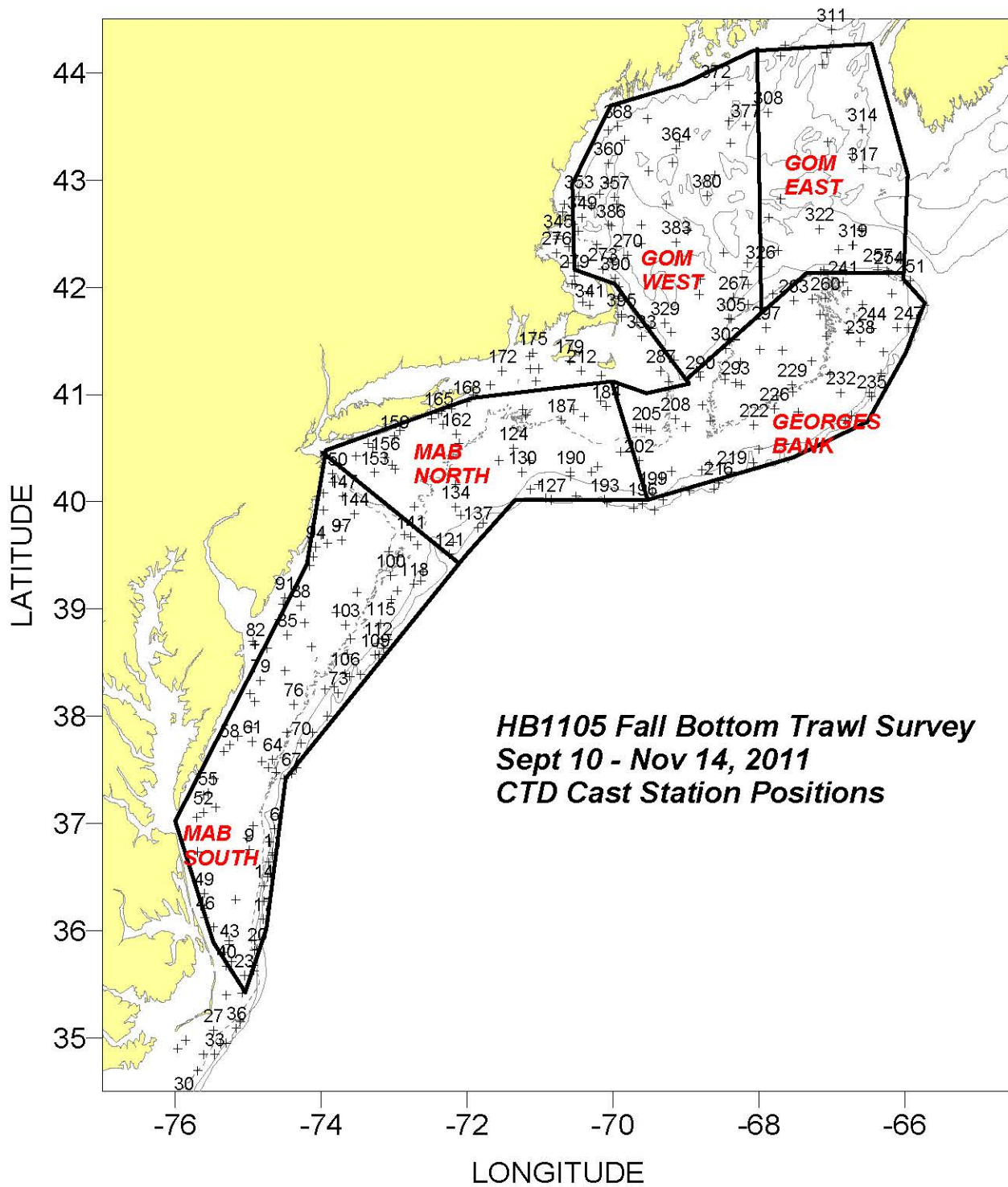
<http://www.nefsc.noaa.gov/HydroAtlas/>

choose: **2011 Cruises**

**SEP\_TRAWL\_HB1105**

**CTD\_REPORT\_2011005HB.pdf**

Revised: January 30, 2012



Areal average surface and bottom temperature/salinity and temperature/salinity anomalies for the 2011 Fall Bottom Trawl Survey HB1105

CRUISE	CD	SURFACE						BOTTOM						Purpose
		#obs	T/S	Anomaly	SDV1	SDV2	Flag	#obs	T/S	Anomaly	SDV1	SDV2	Flag	
Gulf of Maine West														
HB1105	310	53	11.76	0.98	0.16	0.93	0	53	8.68	1.33	0.13	0.99	0	10
HB1105	310	53	32.16	-0.51	0.10	0.26	0	53	33.61	-0.01	0.08	0.38	0	10
Gulf of Maine East														
HB1105	303	21	11.40	-0.06	0.22	1.38	0	20	9.20	0.42	0.23	1.33	0	10
HB1105	303	21	32.33	-0.38	0.16	0.19	0	20	34.12	-0.09	0.13	0.32	0	10
Georges Bank														
HB1105	289	58	16.10	1.37	0.15	1.90	0	44	13.61	1.14	0.17	1.64	0	10
HB1105	289	58	32.45	-0.30	0.09	0.67	0	44	32.64	-0.33	0.10	0.52	0	10
Mid Atlantic Bight North														
HB1105	273	49	20.40	2.54	0.18	1.74	0	42	13.48	1.02	0.22	2.16	0	10
HB1105	273	49	32.09	-0.58	0.12	1.36	0	42	32.90	-0.53	0.13	0.67	0	10
Mid Atlantic Bight South														
HB1105	261	90	22.08	0.40	0.14	1.56	0	73	14.02	-0.02	0.18	2.29	0	10
HB1105	261	90	31.30	-1.01	0.11	1.48	0	73	32.10	-1.04	0.11	0.65	0	10

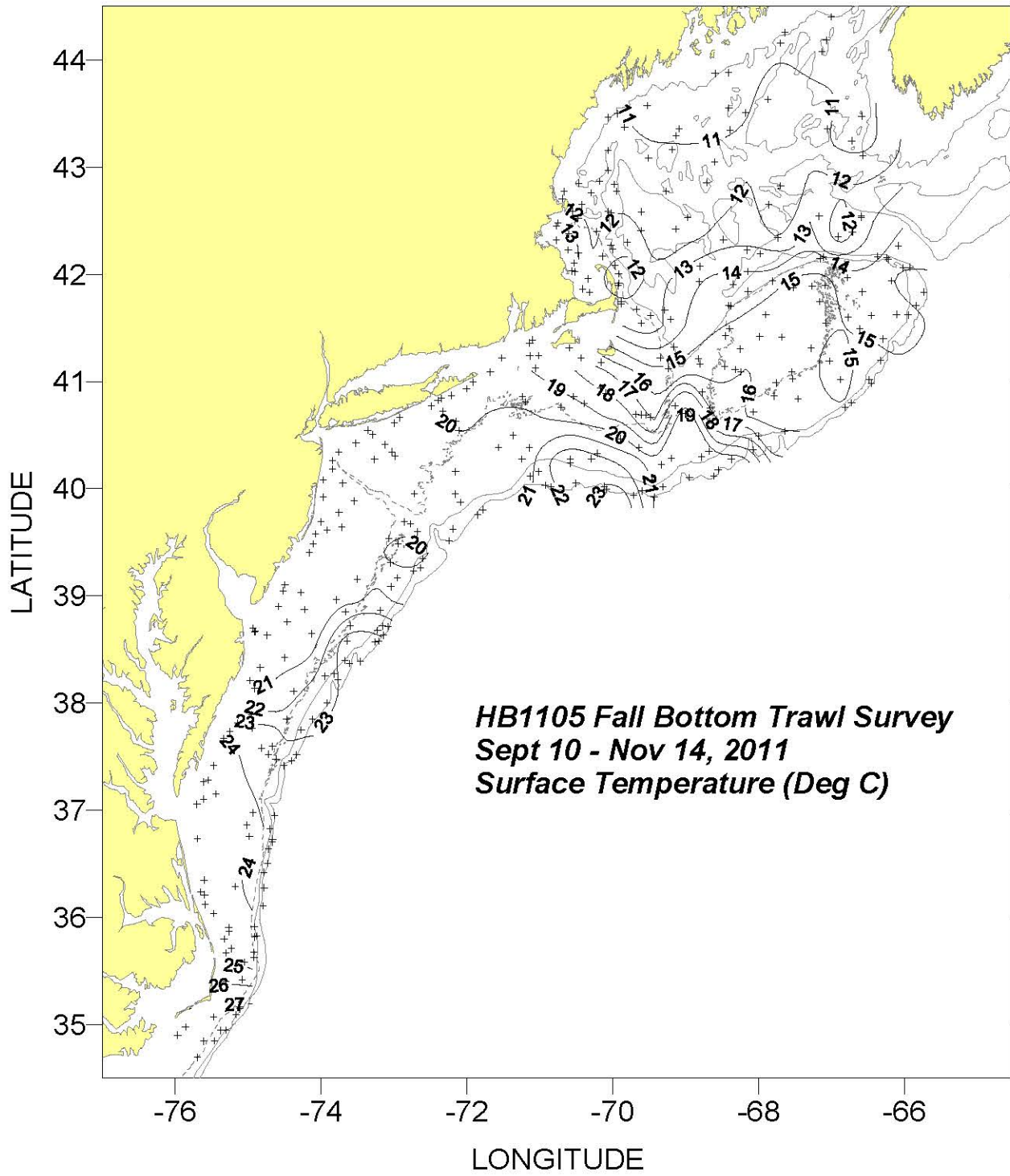
"CRUISE", the code name for a cruise: "CD", the calendar mid-date of all the stations within a region for a cruise:

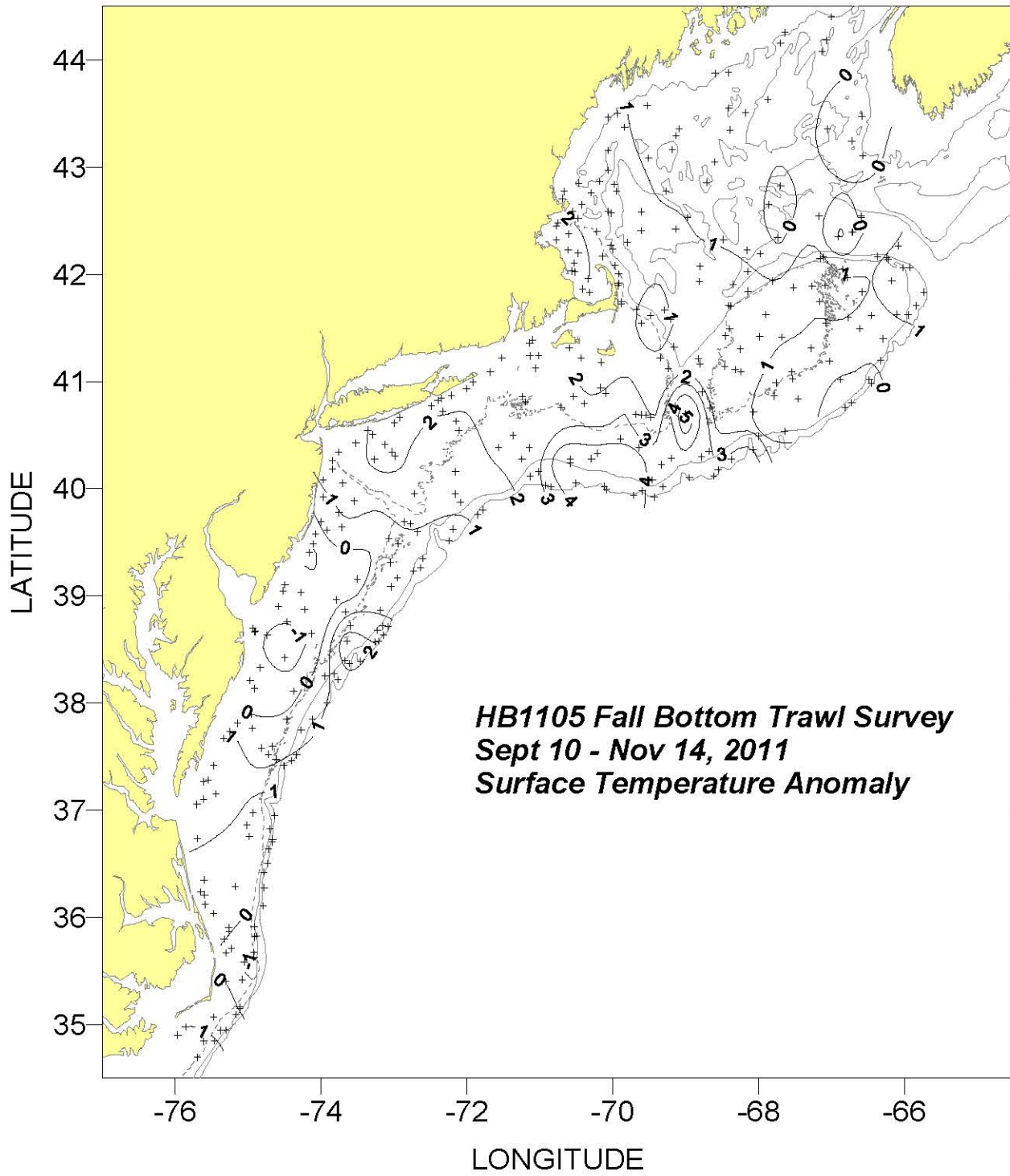
"#obs", the number of observations included in each average: "T/S", the areal average temp/salt: "Anomaly", the areal average temp/salt anomaly:

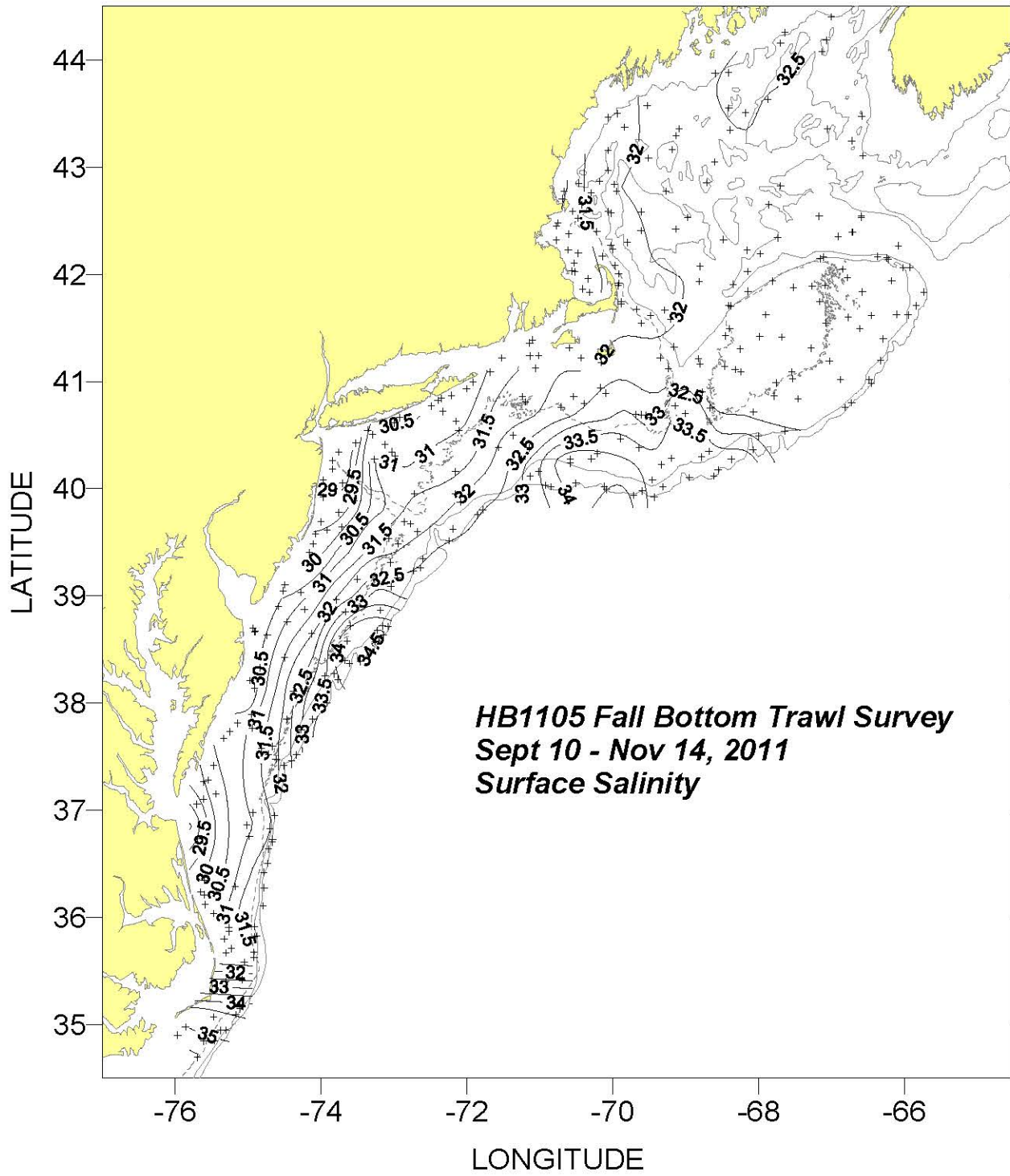
"SDV1", the standard deviation associated with the average temp/salt anomaly: "SDV2", the standard deviation of the individual anomalies from which the average anomaly was derived

"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.

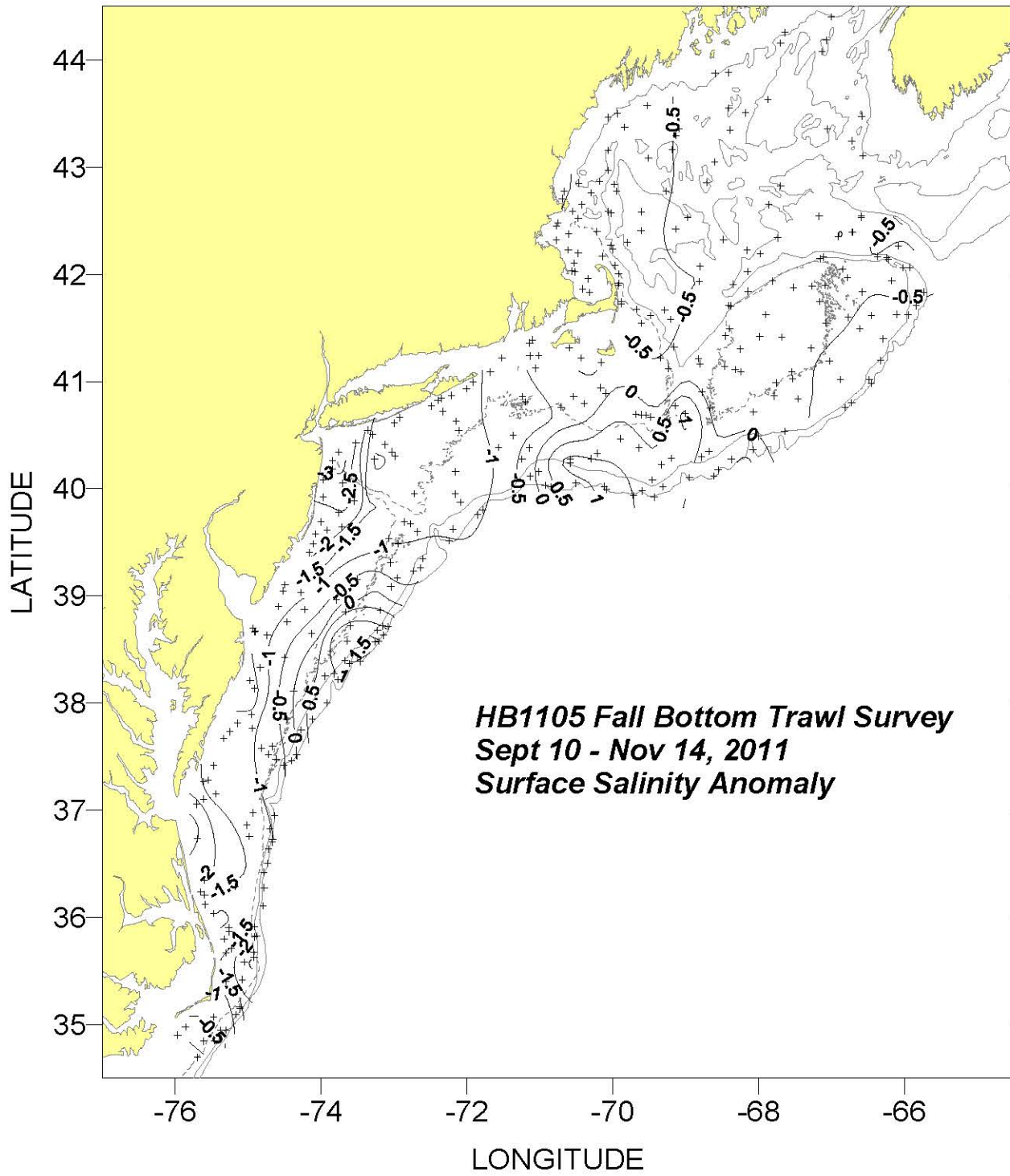
"Purpose", 2 digit code assigned by DMS to identify a unique NEFSC program survey.



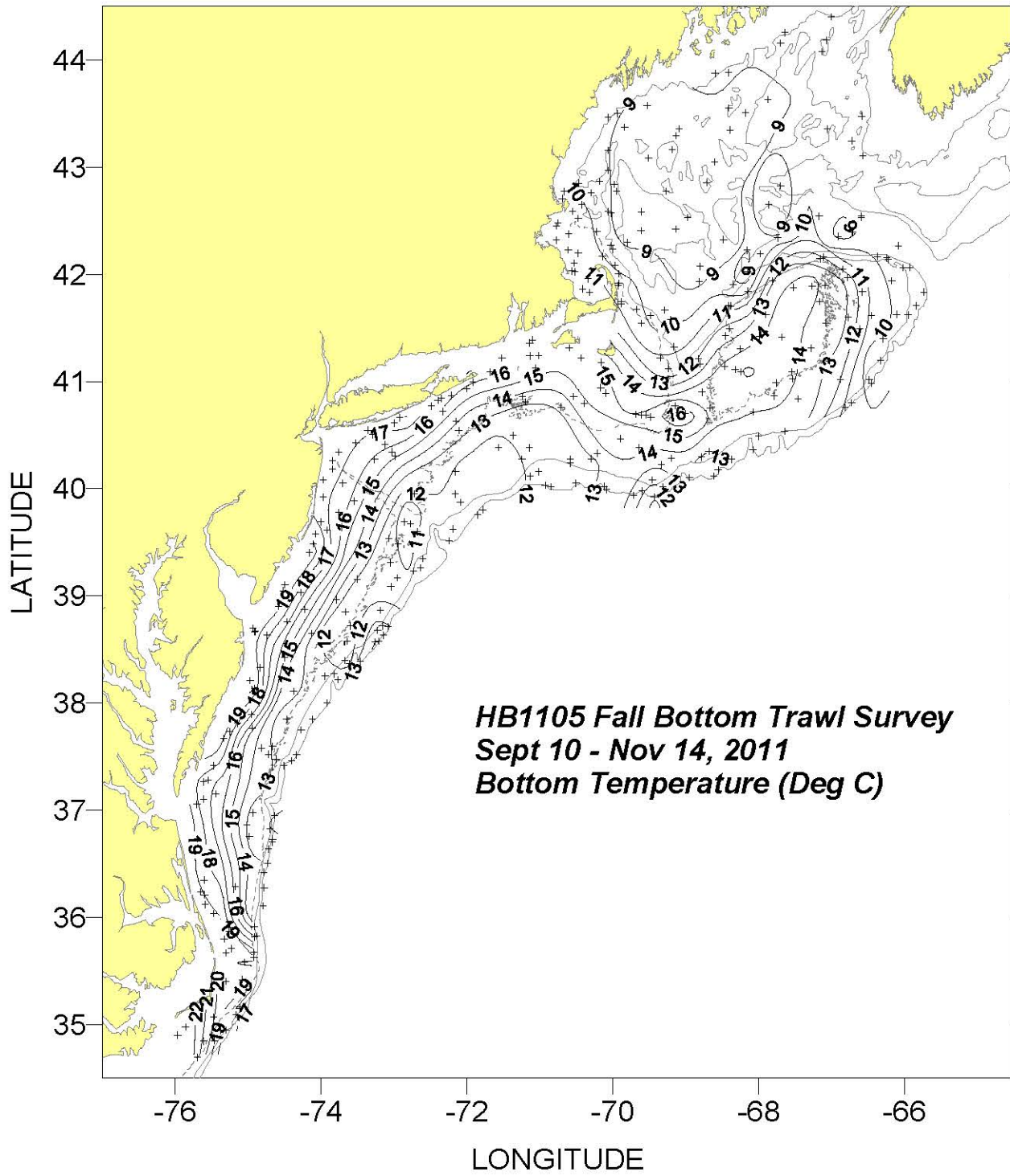


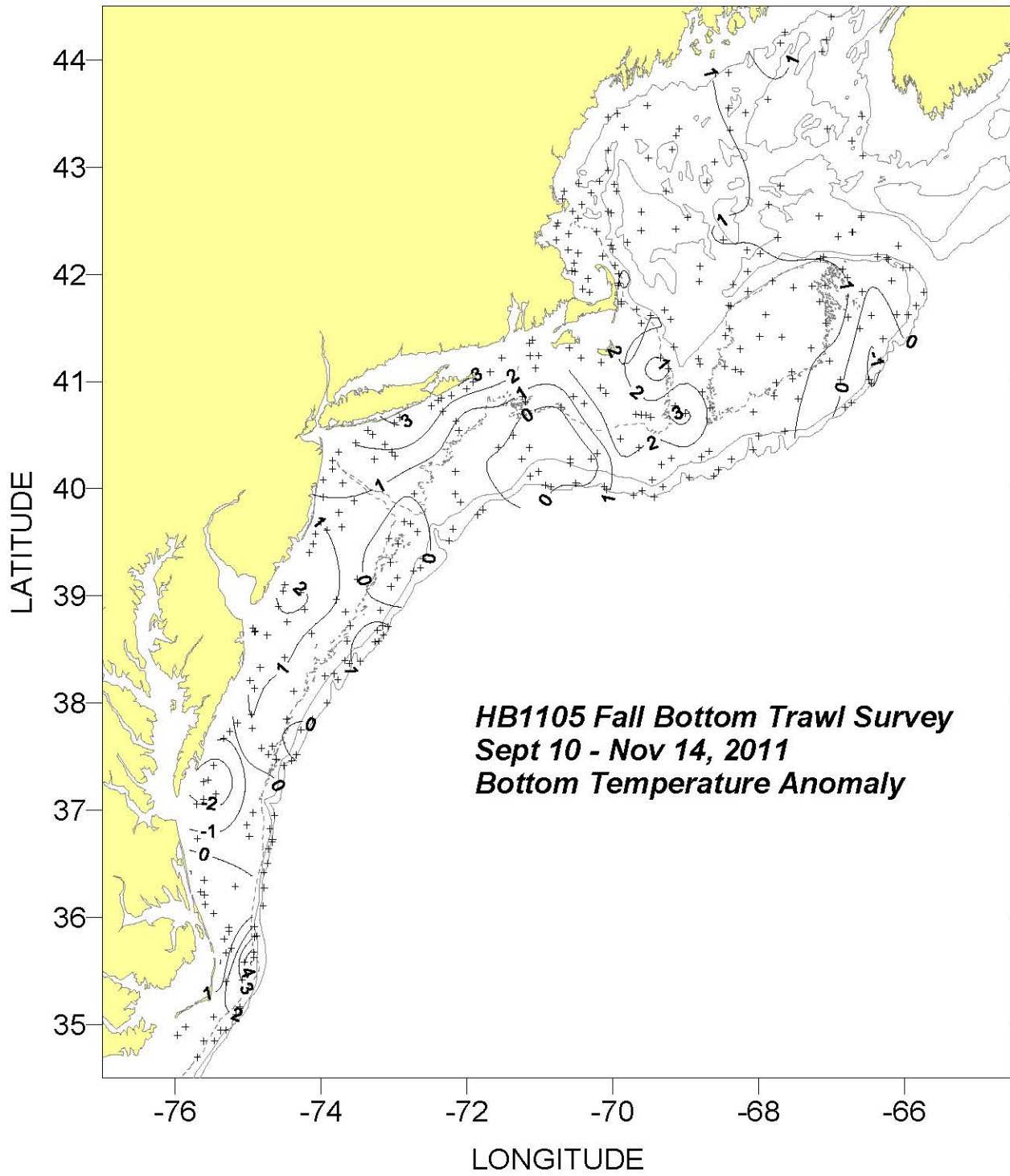


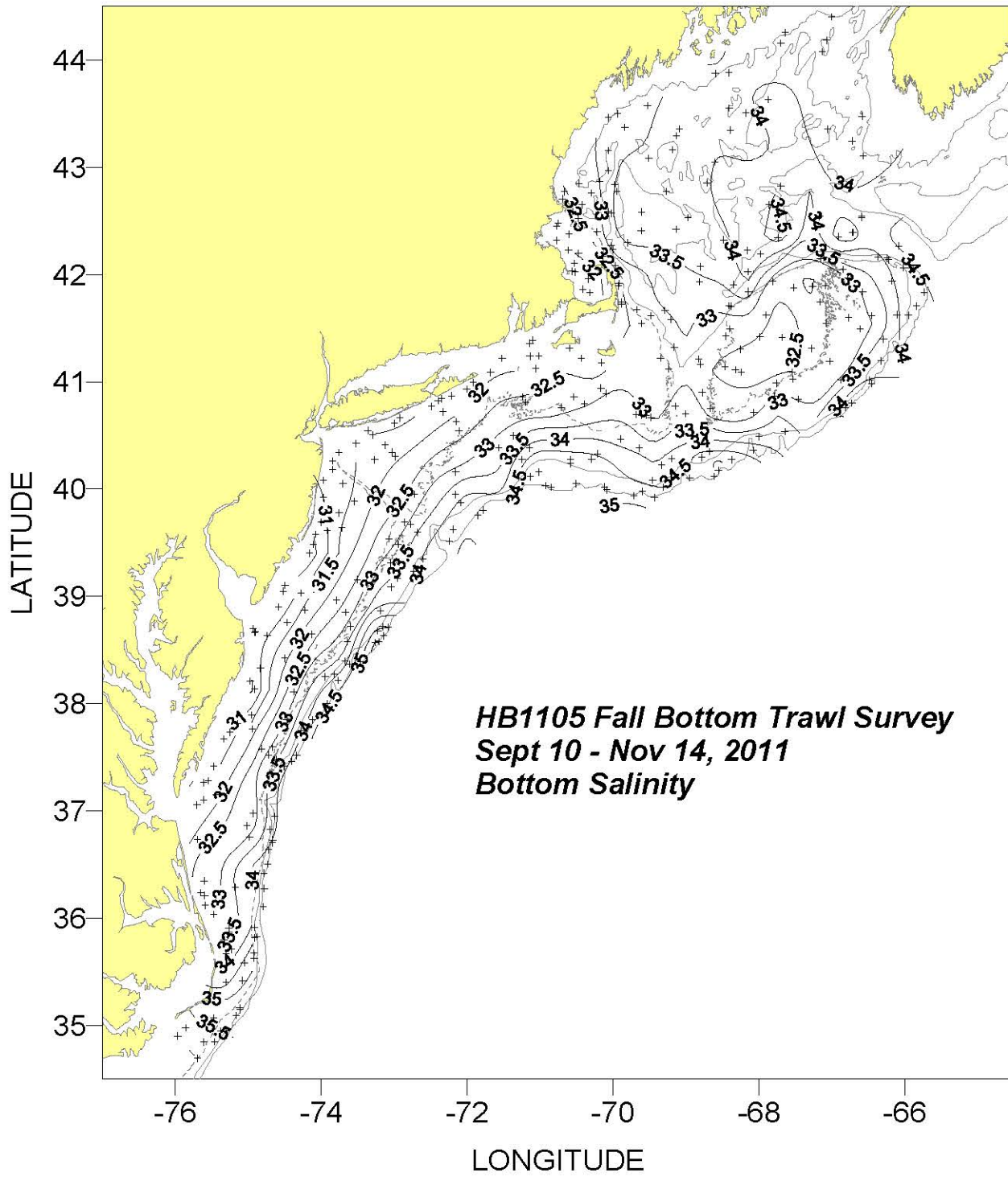


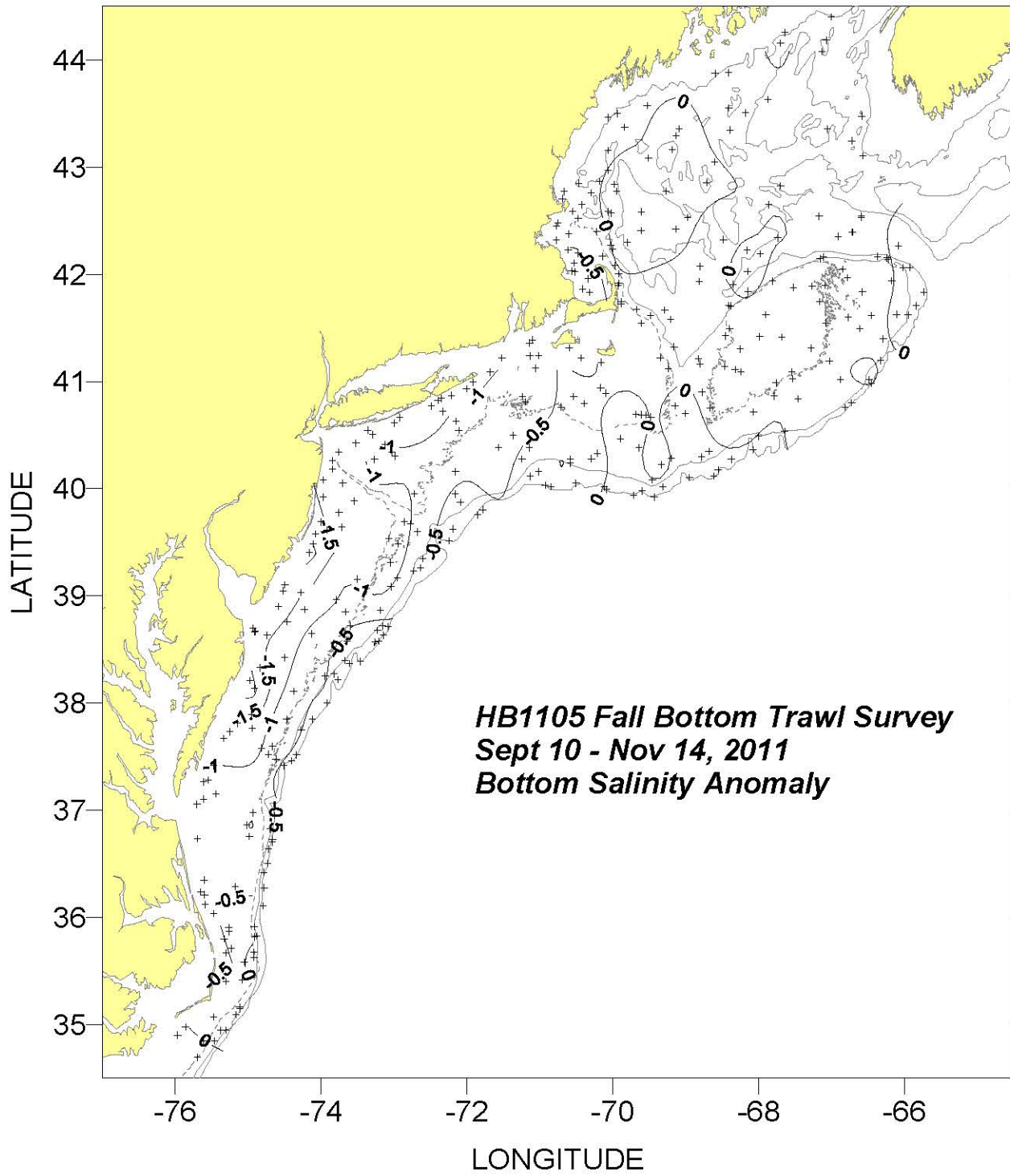












**HB1105****Fall Bottom Trawl Survey****September 10 - November 14, 2011**

CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
1	6	3657.0	7438.2	10	9	2011	21:37	146	23.58	32.19	12.40	35.53	3
2	7	3658.6	7455.9	11	9	2011	0:24	48	24.42	31.39	11.42	32.59	3
3	8	3651.7	7501.0	11	9	2011	2:20	39	24.50	30.81	11.47	32.53	2
4	9	3645.3	7458.9	11	9	2011	3:46	31	24.55	30.55	13.31	32.78	6
5	10	3649.5	7442.1	11	9	2011	5:46	92	22.90	31.89	10.64	33.53	3
6	11	3643.8	7439.8	11	9	2011	9:40	245	23.45	31.76	10.98	35.40	43
7	11	3642.2	7440.0	11	9	2011	10:28	237	23.44	31.76	8.84	35.18	3
8	12	3638.3	7443.1	11	9	2011	11:38	111	23.80	31.54	12.13	34.35	4
9	13	3630.2	7444.0	11	9	2011	14:52	216	23.23	31.54	10.88	35.38	3
10	14	3625.2	7447.2	11	9	2011	18:36	131	23.23	32.24	12.69	34.89	2
11	15	3617.4	7510.4	11	9	2011	22:40	35	24.84	31.05	14.47	33.36	2
12	16	3616.6	7446.8	12	9	2011	3:19	238	23.09	32.19	9.94	35.27	5
13	17	3606.5	7447.8	12	9	2011	6:46	165	23.55	32.19	12.37	35.60	2
14	18	3554.8	7454.9	12	9	2011	8:04	85	24.01	32.39	10.21	33.21	4
15	19	3549.1	7454.7	12	9	2011	9:25	84	23.84	32.39	12.54	33.83	7
16	20	3549.7	7452.7	12	9	2011	11:31	113	22.85	32.40	12.11	34.01	4
17	21	3540.4	7455.5	12	9	2011	13:19	60	24.43	31.12	19.38	34.96	6
18	22	3537.7	7455.1	12	9	2011	14:53	54	24.63	31.06	21.56	35.45	3
19	23	3535.0	7503.2	12	9	2011	16:28	37	24.51	31.00	21.94	34.73	1
20	24	3525.2	7505.0	12	9	2011	18:07	33	25.39	30.39	25.73	35.51	5
21	25	3510.0	7507.0	12	9	2011	20:10	114	28.58	35.87	18.25	36.22	1
22	27	3504.2	7528.5	12	9	2011	22:43	25	26.62	34.63	27.20	35.68	3
23	28	3458.7	7551.5	13	9	2011	1:15	24	26.99	35.21	26.50	35.90	4
24	29	3454.1	7557.9	13	9	2011	3:12	27	27.03	35.53	25.57	36.07	3
25	30	3426.3	7552.8	13	9	2011	6:19	111	28.20	35.96	16.64	36.16	3
26	31	3441.7	7541.5	13	9	2011	8:37	64	28.37	35.91	23.74	36.29	4
27	32	3450.7	7536.7	13	9	2011	10:13	47	28.42	35.87	25.00	36.24	4

**HB1105****Fall Bottom Trawl Survey****September 10 - November 14, 2011**

CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
28	33	3450.9	7527.7	13	9	2011	12:21	139	28.27	35.90	13.97	35.78	5
29	34	3456.8	7522.4	13	9	2011	14:10	116	28.34	35.91	16.73	36.15	5
30	35	3457.0	7518.1	13	9	2011	17:00	231	28.52	35.85	11.09	35.39	4
31	36	3505.5	7509.8	13	9	2011	19:43	216	28.93	35.87	11.25	35.41	4
32	38	3508.9	7506.7	13	9	2011	23:13	181	28.80	35.89	12.11	35.51	2
33	39	3524.1	7518.1	14	9	2011	0:58	27	24.79	30.93	22.32	33.45	3
34	40	3540.2	7518.1	14	9	2011	3:07	26	24.73	30.56	20.58	32.77	5
35	41	3542.5	7513.6	14	9	2011	4:22	38	24.35	31.28	19.98	33.05	4
36	42	3547.9	7519.7	14	9	2011	5:55	32	23.78	31.22	18.28	33.17	5
37	43	3552.0	7515.6	14	9	2011	7:28	31	24.57	31.10	18.10	33.09	5
38	44	3554.5	7515.9	14	9	2011	8:28	27	24.39	31.18	17.93	33.07	3
39	45	3602.1	7528.4	14	9	2011	10:23	25	24.56	31.04	21.06	32.58	5
40	46	3607.2	7535.4	14	9	2011	11:55	24	24.63	26.86	21.23	32.52	5
41	47	3612.7	7535.7	14	9	2011	13:10	27	24.42	28.00	20.89	32.27	5
42	48	3614.2	7539.1	14	9	2011	14:23	25	24.85	29.51	21.69	32.20	6
43	49	3620.9	7536.2	14	9	2011	15:43	25	24.65	30.15	20.08	32.22	5
44	50	3644.1	7541.7	14	9	2011	18:25	22	25.08	26.52	21.86	31.46	4
45	51	3703.4	7542.1	14	9	2011	20:47	16	25.63	27.43	19.95	31.24	2
46	52	3706.3	7536.7	14	9	2011	22:34	21	25.01	29.70	19.07	31.28	4
47	53	3709.1	7526.6	15	9	2011	0:04	29	24.63	30.87	14.63	31.79	6
48	54	3715.9	7536.5	15	9	2011	2:05	21	24.74	29.65	19.29	31.14	5
49	55	3716.9	7533.0	15	9	2011	3:19	19	24.82	29.78	19.19	31.16	4
50	56	3724.9	7528.3	15	9	2011	4:50	23	24.50	30.74	17.69	31.32	4
51	57	3740.3	7519.9	15	9	2011	7:11	19	24.23	30.78	20.48	30.91	5
52	58	3743.9	7515.2	15	9	2011	8:28	23	23.85	30.74	18.93	31.11	4
53	59	3748.7	7508.6	15	9	2011	9:52	21	23.39	30.51	19.67	30.96	5
54	60	3753.6	7457.1	15	9	2011	11:37	26	23.54	30.19	14.80	31.96	4



**HB1105****Fall Bottom Trawl Survey****September 10 - November 14, 2011**

CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
55	61	3745.9	7456.6	15	9	2011	13:40	31	23.82	31.16	14.41	31.82	5
56	62	3734.8	7448.9	15	9	2011	15:55	42	24.33	31.02	11.68	32.24	4
57	63	3731.3	7443.3	15	9	2011	17:16	48	24.62	31.07	11.27	32.40	4
58	64	3735.7	7439.8	15	9	2011	18:37	60	24.51	30.99	10.36	32.62	4
59	65	3728.7	7437.2	15	9	2011	20:19	61	23.88	31.29	10.73	32.87	5
60	66	3724.9	7430.5	15	9	2011	21:55	117	23.23	31.90	13.29	35.54	4
61	67	3727.8	7424.3	16	9	2011	15:15	190	23.61	34.36	12.09	35.55	1
62	68	3731.0	7420.1	16	9	2011	17:04	220	23.43	34.49	10.71	35.37	1
63	69	3750.9	7428.3	16	9	2011	19:30	62	20.86	32.50	9.34	32.56	2
64	70	3744.9	7416.3	16	9	2011	21:55	106	22.20	33.86	13.14	35.09	3
65	71	3750.9	7407.0	17	9	2011	1:36	190	23.75	34.59	11.41	35.46	3
66	72	3800.1	7354.9	17	9	2011	4:07	186	24.09	34.65	11.79	35.51	1
67	73	3813.0	7346.0	17	9	2011	5:49	120	23.56	34.23	13.17	35.54	5
68	74	3816.4	7349.4	17	9	2011	7:09	106	22.93	33.73	12.51	35.05	5
69	75	3815.0	7356.6	17	9	2011	8:37	72	22.42	33.34	9.64	33.02	2
70	76	3806.6	7422.5	17	9	2011	11:48	44	19.27	32.29	10.91	32.36	2
71	77	3808.1	7454.5	17	9	2011	14:40	24	20.61	30.22	20.59	30.38	4
72	78	3812.6	7458.2	17	9	2011	16:01	23	20.99	29.69	21.03	29.73	6
73	79	3819.8	7450.0	17	9	2011	18:57	18	20.45	30.13	20.49	30.19	4
74	80	3825.5	7429.7	17	9	2011	21:38	38	20.18	31.50	13.20	31.87	4
75	81	3838.0	7444.3	18	9	2011	0:13	25	19.87	30.83	19.88	30.86	6
76	82	3840.1	7454.1	18	9	2011	2:22	25	20.73	29.26	20.27	30.53	4
77	83	3840.0	7454.8	18	9	2011	3:45	22	20.57	29.79	20.47	30.35	7
78	84	3841.9	7456.0	18	9	2011	5:10	19	20.63	29.92	20.68	30.12	5
79	85	3845.5	7427.7	18	9	2011	9:31	31	20.07	31.13	19.93	31.18	3
80	86	3838.8	7407.7	18	9	2011	13:41	51	19.61	32.04	9.70	32.31	6
81	87	3852.3	7413.6	18	9	2011	17:52	45	19.41	30.77	13.73	31.77	7

**HB1105****Fall Bottom Trawl Survey****September 10 - November 14, 2011**

CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
82	88	3901.9	7416.6	18	9	2011	20:28	29	20.41	30.09	19.18	30.70	2
83	89	3854.1	7434.8	18	9	2011	23:01	18	20.46	30.17	20.46	30.17	2
84	90	3902.9	7431.3	19	9	2011	0:55	20	19.94	30.55	19.94	30.55	3
85	91	3906.2	7429.6	19	9	2011	2:07	22	19.96	30.54	19.98	30.54	4
86	92	3924.2	7409.4	19	9	2011	5:28	21	19.99	29.47	20.14	30.15	4
87	93	3929.2	7406.5	19	9	2011	6:49	22	19.87	29.38	19.97	30.18	3
88	94	3934.7	7404.3	19	9	2011	8:13	21	19.75	29.45	19.81	29.96	2
89	95	3941.4	7400.1	19	9	2011	9:52	23	19.67	29.63	19.69	29.75	4
90	96	3936.8	7354.8	19	9	2011	11:34	28	19.39	30.16	17.03	30.88	4
91	97	3938.5	7343.0	19	9	2011	13:13	28	19.23	30.79	15.96	31.39	3
92	98	3932.2	7304.3	19	9	2011	17:16	63	19.18	31.68	9.18	32.36	2
93	99	3929.2	7256.5	19	9	2011	19:01	63	19.02	31.66	8.88	32.57	3
94	100	3918.6	7302.8	19	9	2011	21:37	72	18.69	32.16	8.96	32.63	3
95	101	3909.4	7330.3	20	9	2011	0:49	53	19.31	31.05	11.42	32.03	4
96	102	3857.8	7347.5	20	9	2011	3:16	44	18.93	31.19	11.58	32.03	2
97	103	3851.1	7340.0	20	9	2011	5:07	47	20.76	33.34	9.49	32.39	1
98	104	3843.2	7335.8	20	9	2011	6:45	65	23.43	34.93	8.74	32.57	3
99	105	3834.6	7338.4	20	9	2011	8:23	67	23.75	34.85	10.05	33.00	1
100	106	3823.8	7340.2	20	9	2011	10:15	107	24.11	34.89	14.85	35.41	3
101	107	3822.2	7336.4	20	9	2011	11:48	126	24.40	35.06	14.91	35.76	3
102	108	3823.3	7327.6	20	9	2011	15:01	165	23.47	34.96	14.08	35.79	22
103	109	3834.3	7315.7	20	9	2011	17:53	137	23.63	35.22	14.66	35.76	1
104	110	3834.6	7312.3	20	9	2011	19:34	260	23.20	34.64	12.29	35.57	1
105	111	3837.9	7308.6	20	9	2011	22:04	346	22.80	34.40	9.84	35.25	2
106	112	3840.7	7313.4	21	9	2011	0:04	115	23.33	34.94	15.58	35.46	7
107	113	3843.2	7309.5	21	9	2011	1:40	124	23.28	34.94	15.37	35.69	4
108	114	3842.9	7304.9	21	9	2011	3:28	151	23.24	34.77	14.40	35.77	5

**HB1105****Fall Bottom Trawl Survey****September 10 - November 14, 2011**

CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
109	115	3851.9	7311.3	21	9	2011	6:01	77	20.71	33.22	10.59	33.27	3
110	116	3905.2	7302.5	21	9	2011	8:16	81	21.37	33.77	8.87	32.67	2
111	117	3910.2	7257.3	21	9	2011	9:37	84	18.54	32.13	8.88	32.68	4
112	118	3914.1	7243.8	21	9	2011	11:36	121	18.95	32.01	12.55	34.97	5
113	119	3915.8	7237.9	21	9	2011	13:19	135	18.36	32.39	13.16	35.53	2
114	120	3920.9	7236.4	21	9	2011	14:51	129	19.74	33.37	13.13	35.34	3
115	121	3930.8	7214.4	21	9	2011	18:28	188	20.69	33.67	12.03	35.53	3
116	122	4051.6	7114.1	26	9	2011	22:25	59	19.96	31.20	10.75	32.26	5
117	123	4048.6	7111.6	26	9	2011	23:53	63	20.06	31.16	9.88	32.35	5
118	124	4029.8	7121.7	27	9	2011	2:32	70	20.68	31.92	8.82	32.53	2
119	125	4023.0	7108.6	27	9	2011	4:37	87	20.93	33.74	11.76	34.42	3
120	126	4009.5	7101.0	27	9	2011	6:49	143	22.01	34.14	12.86	35.59	2
121	127	4001.1	7050.7	27	9	2011	9:03	236	21.79	33.81	11.50	35.47	2
122	128	4002.0	7055.5	27	9	2011	10:31	233	21.09	33.64	12.47	35.57	3
123	129	4006.9	7107.8	27	9	2011	13:38	159	20.17	32.47	12.77	35.59	2
124	130	4016.6	7114.6	27	9	2011	15:55	93	19.99	32.66	12.30	34.76	6
125	132	4023.1	7133.9	27	9	2011	18:17	81	20.03	31.97	8.74	32.89	3
126	133	4009.6	7209.2	27	9	2011	23:16	70	20.47	30.82	8.84	32.49	2
127	134	3957.0	7209.4	28	9	2011	1:13	86	20.73	31.05	11.21	33.89	5
128	135	3952.5	7205.3	28	9	2011	2:54	92	20.07	31.58	11.94	34.27	1
129	136	3948.3	7146.9	28	9	2011	5:40	310	21.14	33.08	8.90	35.17	2
130	137	3945.3	7151.0	28	9	2011	8:04	268	22.00	33.79	10.15	35.30	1
131	138	3937.5	7211.5	28	9	2011	12:31	130	20.06	32.27	13.38	35.52	3
132	139	3935.9	7240.7	28	9	2011	15:46	74	20.29	31.68	9.36	33.07	4
133	141	3940.4	7246.3	28	9	2011	17:22	72	21.25	31.58	8.89	32.79	5
134	142	3941.5	7251.3	28	9	2011	19:43	72	20.70	31.49	8.93	32.58	2
135	143	3957.3	7243.3	28	9	2011	22:02	58	20.67	31.80	9.15	32.39	3

**HB1105****Fall Bottom Trawl Survey****September 10 - November 14, 2011**

CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
136	144	3953.1	7332.7	29	9	2011	1:55	36	21.22	29.57	14.83	31.71	4
137	145	3946.6	7345.2	29	9	2011	4:19	28	21.52	28.63	16.87	31.42	4
138	146	3955.3	7358.0	29	9	2011	6:45	21	20.76	28.65	16.94	30.81	4
139	147	4003.1	7342.0	29	9	2011	8:45	32	21.43	28.50	16.37	31.51	4
140	148	4004.9	7358.0	29	9	2011	10:37	23	21.17	26.97	18.13	30.89	5
141	149	4011.1	7350.5	29	9	2011	12:37	28	21.26	28.66	17.26	31.19	5
142	150	4015.7	7350.6	29	9	2011	13:49	29	20.19	26.55	17.34	31.21	4
143	151	4020.6	7345.3	29	9	2011	15:13	27	19.83	27.40	17.75	31.43	2
144	152	4025.5	7331.2	29	9	2011	17:00	25	20.69	30.36	18.93	31.25	4
145	153	4016.4	7316.0	29	9	2011	19:06	38	20.76	31.11	15.74	31.71	6
146	154	4018.2	7259.2	29	9	2011	21:40	42	20.80	30.95	14.63	32.14	5
147	155	4020.7	7301.6	29	9	2011	23:10	41	20.58	30.91	12.56	31.95	1
148	156	4024.6	7307.4	30	9	2011	0:48	36	20.48	31.00	15.20	31.78	1
149	157	4030.3	7317.6	30	9	2011	2:32	25	20.55	30.80	19.07	31.26	1
150	158	4032.8	7321.6	30	9	2011	3:55	21	20.92	29.75	19.47	31.02	4
151	159	4036.7	7259.9	30	9	2011	6:20	24	20.03	30.40	19.11	31.10	4
152	160	4039.8	7255.1	30	9	2011	7:40	23	20.16	30.07	19.89	31.08	3
153	161	4032.7	7206.6	30	9	2011	11:37	57	19.31	30.53	10.01	32.29	3
154	162	4037.9	7208.7	30	9	2011	13:28	51	19.75	31.02	11.40	32.18	4
155	163	4043.3	7219.6	30	9	2011	15:23	41	19.96	30.97	14.62	31.96	3
156	164	4046.3	7229.2	30	9	2011	17:04	30	20.04	30.14	17.26	31.38	1
157	165	4049.4	7223.7	30	9	2011	18:15	25	19.95	30.28	18.35	31.25	2
158	166	4050.6	7221.0	30	9	2011	22:01	23	19.93	30.29	18.63	31.09	3
159	167	4052.2	7212.9	30	9	2011	23:46	30	20.00	30.30	17.32	31.63	1
160	168	4055.9	7200.3	1	10	2011	1:31	28	19.74	30.39	18.10	31.48	2
161	170	4059.7	7154.8	1	10	2011	2:46	20	19.80	30.38	18.69	30.92	1
162	171	4105.3	7140.7	1	10	2011	6:33	33	19.30	31.32	16.83	32.07	4

**HB1105****Fall Bottom Trawl Survey****September 10 - November 14, 2011**

CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
163	172	4113.2	7131.1	1	10	2011	8:34	40	19.03	30.85	18.19	31.38	4
164	173	4114.3	7108.2	1	10	2011	11:34	47	19.33	31.22	14.33	32.00	3
165	174	4121.6	7108.3	1	10	2011	13:46	32	19.31	31.56	18.28	31.73	4
166	175	4123.3	7105.8	1	10	2011	15:19	28	19.18	31.59	18.81	31.67	4
167	176	4114.5	7101.1	1	10	2011	17:06	41	18.87	31.75	16.83	31.92	4
168	178	4107.4	7103.4	1	10	2011	18:52	34	18.83	31.79	16.21	31.99	1
169	179	4118.9	7035.8	2	10	2011	1:07	20	18.63	31.61	18.55	31.62	6
170	182	4110.8	7009.6	2	10	2011	4:22	23	17.75	31.50	17.70	31.51	4
171	183	4056.5	7009.8	2	10	2011	6:52	26	16.80	32.09	16.82	32.09	3
172	184	4053.5	7005.6	2	10	2011	9:07	27	16.62	31.99	16.62	32.02	2
173	185	4047.7	7023.5	2	10	2011	11:43	51	19.46	32.62	16.56	33.20	4
174	186	4051.6	7032.1	2	10	2011	13:41	56	19.00	32.19	14.30	32.95	4
175	187	4045.7	7042.4	2	10	2011	16:13	62	19.50	32.08	12.01	32.72	1
176	188	4019.8	7012.6	2	10	2011	19:52	88	20.24	33.13	12.44	34.24	4
177	189	4016.8	7017.4	2	10	2011	21:42	96	22.87	34.55	12.79	34.82	3
178	190	4016.6	7035.0	3	10	2011	0:13	111	23.16	34.66	12.67	35.34	5
179	191	4014.3	7035.0	3	10	2011	1:37	118	24.93	35.32	12.83	35.45	3
181	193	4001.2	7006.8	3	10	2011	7:39	175	25.85	35.60	13.24	35.68	4
182	194	3959.6	7004.8	3	10	2011	9:36	179	25.91	35.67	13.54	35.71	3
183	195	3956.4	6942.9	3	10	2011	12:53	161	26.08	35.74	13.52	35.69	8
184	196	3958.8	6935.7	3	10	2011	17:01	247	26.11	35.74	9.93	35.29	1
185	197	3955.3	6925.9	3	10	2011	19:16	321	19.89	33.29	8.36	35.15	9
186	198	4001.1	6918.7	3	10	2011	22:25	115	20.46	33.60	13.26	35.29	3
187	199	4005.0	6927.3	4	10	2011	0:30	101	19.67	33.26	13.63	34.58	3
188	200	4013.5	6919.8	4	10	2011	2:32	90	20.13	33.64	13.25	33.52	2
189	201	4017.1	6911.7	4	10	2011	4:25	93	21.64	34.06	13.08	33.66	4
190	202	4022.9	6938.4	4	10	2011	7:40	70	25.77	35.67	14.53	33.75	2

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CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
191	203	4028.0	6953.6	4	10	2011	9:41	74	21.12	33.66	15.94	34.35	3
192	204	4041.6	6940.8	4	10	2011	12:19	49	17.02	32.92	17.19	33.04	4
193	205	4041.2	6932.4	4	10	2011	13:40	49	16.29	32.65	16.28	32.69	5
194	206	4041.4	6936.6	4	10	2011	19:21	50	16.39	32.66	16.87	32.99	1
195	207	4040.1	6928.5	4	10	2011	21:37	51	16.18	32.68	16.20	32.74	1
196	208	4046.4	6908.7	5	10	2011	1:08	70	17.53	33.24	17.47	33.31	5
197	209	4042.1	6900.1	5	10	2011	3:40	73	21.33	34.05	16.83	33.41	5
198	210	4045.2	6839.8	5	10	2011	9:21	63	15.41	32.02	15.32	32.05	3
199	212	4113.3	7026.1	5	10	2011	22:57	35	17.51	31.74	17.51	32.57	5
200	214	4006.2	6856.8	12	10	2011	7:07	163	20.62	34.20	12.24	35.56	5
201	215	4007.2	6836.9	12	10	2011	10:28	207	22.36	34.51	12.05	35.55	4
202	216	4010.6	6833.2	12	10	2011	13:40	192	22.55	34.38	12.01	35.54	3
203	217	4017.8	6846.7	12	10	2011	16:40	98	21.13	34.57	13.71	34.74	2
204	218	4021.0	6840.8	12	10	2011	18:52	93	14.73	32.21	12.73	33.99	3
205	219	4016.5	6822.3	12	10	2011	22:00	157	22.35	34.44	13.98	35.74	1
206	220	4021.9	6804.6	13	10	2011	1:55	154	22.37	34.51	12.92	35.42	4
207	221	4029.4	6759.9	13	10	2011	4:13	124	17.06	32.88	13.30	35.17	2
208	222	4043.0	6804.0	13	10	2011	7:11	78	14.70	32.20	14.07	32.22	1
209	224	4032.2	6738.5	13	10	2011	12:11	131	14.41	32.24	14.15	35.34	2
210	225	4050.3	6727.6	13	10	2011	15:13	84	14.56	32.25	10.90	32.57	1
211	226	4051.9	6747.0	13	10	2011	17:55	65	14.92	32.23	14.09	32.30	5
212	227	4059.3	6745.5	13	10	2011	19:58	57	14.98	32.15	14.82	32.19	3
213	228	4101.6	6731.9	13	10	2011	22:04	66	14.94	32.20	14.85	32.22	8
214	229	4105.3	6732.7	13	10	2011	23:58	60	15.01	32.17	14.95	32.19	6
215	230	4118.7	6716.6	14	10	2011	3:34	47	14.84	32.28	14.87	32.28	3
216	231	4111.6	6701.7	14	10	2011	6:41	67	14.92	32.23	13.54	32.39	4
217	232	4101.1	6652.7	14	10	2011	9:03	74	14.25	32.16	12.13	32.53	1



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CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
218	233	4045.6	6648.8	14	10	2011	12:31	194	15.09	32.15	10.49	35.16	6
219	234	4048.2	6643.4	14	10	2011	16:07	201	14.82	32.11	9.92	35.17	2
220	235	4059.0	6627.3	14	10	2011	19:31	307	15.74	32.21	7.71	35.05	8
221	236	4101.1	6628.7	14	10	2011	22:04	127	15.63	32.24	8.86	33.50	8
222	237	4111.8	6619.3	15	10	2011	1:51	124	16.04	32.08	9.11	34.66	5
223	238	4129.6	6636.6	15	10	2011	8:49	82	14.63	32.17	12.90	32.42	1
224	239	4136.0	6646.3	15	10	2011	13:48	72	15.09	32.25	14.41	32.32	2
225	240	4132.8	6704.4	15	10	2011	17:43	62	15.84	32.13	15.57	32.15	6
226	241	4203.0	6650.5	15	10	2011	22:13	73	15.41	32.27	13.55	32.42	6
227	242	4158.1	6647.0	16	10	2011	0:19	66	15.01	32.20	13.92	32.38	6
228	243	4150.2	6634.5	16	10	2011	3:40	79	14.18	32.28	12.47	32.45	1
229	244	4137.1	6626.9	16	10	2011	7:07	83	14.70	32.04	9.93	32.59	4
230	245	4123.9	6617.3	16	10	2011	10:33	100	14.33	32.06	8.21	33.54	3
231	246	4137.6	6606.4	16	10	2011	14:22	101	14.57	32.05	7.87	33.15	10
232	247	4137.2	6556.9	16	10	2011	16:43	121	14.23	32.01	10.19	35.15	5
233	248	4142.5	6550.4	16	10	2011	18:47	132	15.63	32.09	9.88	34.89	4
234	250	4150.1	6543.8	16	10	2011	22:00	226	15.66	32.13	9.96	35.14	22
235	251	4203.9	6555.6	17	10	2011	3:16	212	16.70	32.42	8.50	35.11	7
236	252	4203.7	6600.8	17	10	2011	6:31	153	15.47	32.14	9.67	34.69	2
237	253	4156.5	6610.3	17	10	2011	9:48	90	14.78	32.12	8.91	32.69	4
238	254	4208.4	6613.3	17	10	2011	12:55	120	15.05	32.08	7.99	33.96	4
239	255	4216.0	6604.9	17	10	2011	15:34	266	13.82	32.05	9.02	35.11	4
240	256	4209.2	6614.3	17	10	2011	18:57	171	14.76	32.04	8.62	35.00	7
241	257	4210.0	6622.2	17	10	2011	21:52	180	14.31	32.14	8.40	34.50	4
242	258	4209.7	6706.4	18	10	2011	2:10	95	15.10	32.14	7.74	32.81	6
243	259	4208.8	6709.3	18	10	2011	4:25	90	15.33	32.15	11.65	32.50	5
244	260	4153.9	6705.4	18	10	2011	7:45	60	15.79	32.17	15.81	32.18	5

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CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
245	261	4144.8	6709.5	18	10	2011	11:37	55	15.86	32.15	15.83	32.15	5
246	262	4153.4	6715.7	18	10	2011	15:03	52	15.60	32.19	15.61	32.22	1
247	263	4152.7	6731.1	18	10	2011	17:28	48	15.60	32.13	15.49	32.11	4
248	265	4156.2	6748.4	18	10	2011	20:43	59	15.33	32.08	14.98	32.10	1
249	266	4150.5	6808.5	18	10	2011	23:25	107	15.33	31.99	7.32	33.09	9
250	267	4154.4	6820.8	19	10	2011	3:00	200	14.90	31.99	8.18	34.60	8
251	268	4204.4	6848.1	19	10	2011	6:37	159	14.68	31.98	7.23	33.46	1
252	269	4156.0	6848.9	19	10	2011	8:41	137	15.15	31.92	7.21	33.33	4
253	270	4217.9	6948.0	19	10	2011	13:52	232	13.48	31.71	8.21	34.32	1
254	271	4213.9	6959.8	19	10	2011	16:19	123	14.58	31.32	7.98	33.29	6
255	272	4216.1	7001.5	19	10	2011	18:45	189	14.48	31.19	8.00	33.98	8
256	273	4210.1	7008.4	19	10	2011	21:40	53	14.82	31.25	10.10	32.16	6
257	274	4222.6	7036.3	20	10	2011	1:36	80	14.96	31.08	9.14	32.25	6
258	275	4227.2	7046.2	20	10	2011	3:54	47	14.55	31.17	10.14	32.09	2
259	276	4219.1	7046.3	20	10	2011	8:13	36	14.31	31.21	11.43	31.89	6
260	277	4213.7	7036.5	20	10	2011	11:34	36	15.00	31.06	11.30	31.87	1
261	278	4211.8	7028.2	20	10	2011	13:46	63	14.63	30.96	9.53	32.16	1
262	279	4206.4	7031.7	20	10	2011	15:56	37	15.35	31.09	12.30	31.71	8
263	280	4201.5	7030.9	20	10	2011	18:10	39	15.36	31.10	10.51	31.89	7
264	286	4107.3	6914.1	26	10	2011	6:11	53	14.06	31.94	9.91	32.47	7
265	287	4113.2	6920.8	26	10	2011	9:38	53	14.41	31.67	9.96	32.39	7
266	288	4119.4	6909.5	26	10	2011	12:10	139	14.22	31.64	7.85	32.96	5
267	289	4112.8	6849.2	26	10	2011	16:13	92	14.56	32.16	10.12	32.55	2
268	290	4109.9	6848.2	26	10	2011	18:32	81	14.30	32.20	11.13	32.47	3
269	291	4054.0	6846.5	26	10	2011	22:04	68	15.87	31.97	15.83	31.98	3
270	292	4108.4	6828.0	27	10	2011	2:10	59	16.05	31.96	16.07	31.96	2
271	293	4106.7	6819.2	27	10	2011	4:26	46	16.16	31.94	16.16	31.94	4

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CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
272	294	4105.5	6814.6	27	10	2011	6:13	44	16.25	31.93	16.23	31.93	1
273	296	4124.8	6740.7	27	10	2011	12:52	34	16.31	31.97	16.30	31.97	5
274	297	4137.4	6753.9	27	10	2011	15:16	37	15.87	31.98	15.93	31.98	6
275	298	4125.1	6758.9	27	10	2011	17:58	38	16.23	31.94	16.28	31.94	4
276	300	4118.2	6815.2	27	10	2011	20:43	47	16.00	31.97	16.01	31.97	3
277	302	4125.6	6827.0	28	10	2011	10:53	76	14.36	32.12	11.84	32.40	5
278	303	4129.7	6823.7	28	10	2011	13:40	48	15.12	32.06	13.25	32.19	6
279	304	4142.7	6824.8	28	10	2011	17:10	151	15.39	32.02	7.53	34.08	3
280	305	4142.3	6822.8	28	10	2011	19:13	75	15.22	32.04	9.07	32.84	2
281	306	4201.7	6809.0	28	10	2011	22:52	230	13.99	31.95	8.26	34.97	2
282	307	4239.0	6751.8	29	10	2011	4:11	197	12.69	32.24	8.88	34.86	4
283	308	4337.9	6752.3	29	10	2011	11:31	240	12.17	32.40	8.38	34.39	5
284	309	4409.4	6741.8	29	10	2011	15:58	210	10.75	32.73	9.50	33.75	8
285	310	4415.4	6738.4	31	10	2011	12:18	107	10.57	32.69	10.32	33.13	6
286	311	4424.2	6700.0	31	10	2011	15:55	116	10.61	32.61	9.36	33.80	1
287	312	4411.1	6704.2	31	10	2011	18:36	145	10.68	32.40	9.27	33.86	7
288	313	4404.8	6707.7	31	10	2011	20:40	87	10.74	32.39	10.08	33.28	3
289	314	4328.6	6635.0	1	11	2011	0:55	105	9.96	32.38	9.60	33.53	8
290	315	4321.3	6703.2	1	11	2011	4:28	204	10.63	32.47	8.61	34.35	9
291	316	4314.8	6643.3	1	11	2011	7:52	114	9.79	32.33	9.64	33.69	8
292	317	4306.5	6634.3	1	11	2011	10:38	107	10.26	32.61	9.85	33.23	4
293	318	4232.5	6635.5	1	11	2011	14:26	238	11.40	31.53	9.32	35.12	5
294	318	4232.0	6635.4	1	11	2011	14:56	246	11.36	31.53	9.76	35.14	46
295	319	4223.6	6642.7	1	11	2011	17:42	339	11.64	32.07	8.22	35.04	1
296	319	4223.7	6642.5	1	11	2011	18:13	340	12.26	32.14	8.73	35.10	139
297	320	4221.2	6654.4	1	11	2011	20:32	329	10.85	32.36	8.15	35.03	1
298	322	4232.6	6710.0	2	11	2011	0:20	319	11.08	32.44	8.55	35.03	3

**HB1105****Fall Bottom Trawl Survey****September 10 - November 14, 2011**

CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
299	324	4249.6	6741.8	2	11	2011	4:31	222	10.81	32.45	8.38	34.48	7
300	325	4220.5	6744.2	2	11	2011	9:58	217	11.70	32.27	8.77	34.98	5
301	326	4211.6	6758.6	2	11	2011	13:01	229	11.51	32.20	8.63	34.93	8
302	327	4213.5	6809.3	2	11	2011	16:34	179	11.63	32.27	8.06	34.39	7
303	328	4219.5	6828.8	2	11	2011	20:00	192	11.86	32.19	8.00	34.07	2
304	329	4140.0	6917.1	3	11	2011	3:24	188	11.89	31.86	7.86	33.84	5
305	330	4134.9	6912.1	3	11	2011	6:09	168	12.47	31.93	7.73	33.68	3
306	331	4137.1	6928.6	3	11	2011	8:58	92	11.59	31.84	8.90	32.73	4
307	333	4132.6	6936.4	3	11	2011	11:04	40	11.33	31.82	11.38	31.92	5
308	334	4140.5	6940.3	3	11	2011	16:25	81	11.67	31.86	8.92	32.72	2
309	339	4151.8	7024.9	7	11	2011	19:46	28	11.80	31.17	11.76	31.26	3
310	341	4150.0	7019.1	7	11	2011	21:22	27	11.60	31.21	11.05	31.28	3
311	342	4157.6	7020.1	8	11	2011	0:45	44	11.87	31.30	11.82	31.49	5
313	344	4201.8	7033.3	8	11	2011	5:15	31	11.47	31.21	11.76	31.50	3
314	345	4228.9	7045.2	8	11	2011	8:49	47	11.28	31.29	9.94	32.26	2
315	347	4231.5	7028.2	8	11	2011	11:37	96	11.53	31.39	9.74	32.57	4
316	348	4235.3	7032.8	8	11	2011	16:32	69	11.58	31.41	9.98	32.56	6
317	349	4239.0	7025.4	8	11	2011	17:21	48	10.96	30.97	10.81	32.40	4
318	351	4242.4	7041.5	8	11	2011	19:42	25	10.33	29.52	10.47	32.41	2
319	352	4246.3	7040.1	9	11	2011	0:28	57	11.03	31.02	10.16	32.46	2
320	353	4251.0	7028.0	9	11	2011	1:34	118	11.12	31.10	7.75	32.88	2
321	354	4245.6	7017.9	9	11	2011	4:52	59	10.81	31.82	9.90	32.66	2
322	356	4252.2	7010.9	9	11	2011	8:01	59	11.11	31.88	10.48	32.66	3
323	357	4250.5	6958.6	9	11	2011	12:58	207	11.14	32.27	8.17	34.28	4
324	358	4246.5	6956.8	9	11	2011	15:23	227	11.08	32.06	8.17	34.30	1
325	359	4258.3	7003.8	9	11	2011	18:12	95	11.18	31.81	8.12	32.91	4
326	360	4309.4	7003.6	9	11	2011	20:30	78	11.39	31.91	10.26	32.63	3

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CTD Cast #	Station #	Lat Deg N	Long Deg W	Day	Month	Year	Time GMT	Bottom Depth (m)	Surface Temp. Deg C	Surface Salinity PSU	Deepest Observed Temp Deg C	Deepest Observed Salinity PSU	Meters From Bottom
327	362	4305.1	6930.4	10	11	2011	3:55	154	10.90	31.70	8.05	33.56	6
328	363	4309.9	6910.8	10	11	2011	6:49	202	10.88	32.48	8.03	33.79	3
329	364	4317.6	6907.9	10	11	2011	9:43	156	11.01	32.54	8.91	33.69	3
330	365	4321.5	6905.2	10	11	2011	12:37	159	10.81	32.59	9.05	33.65	2
331	367	4322.5	6950.1	10	11	2011	17:46	149	10.97	31.90	7.77	33.54	3
332	368	4330.0	6955.9	10	11	2011	20:30	116	10.85	31.46	9.79	33.11	8
333	369	4327.9	7003.8	10	11	2011	22:43	114	11.25	31.94	9.04	32.99	2
334	370	4334.4	6931.6	11	11	2011	2:27	163	10.78	32.20	8.96	33.33	7
335	372	4352.5	6835.7	11	11	2011	8:19	93	10.72	32.43	10.42	33.00	2
336	375	4352.9	6824.5	11	11	2011	16:04	122	10.56	32.53	9.90	33.35	1
337	376	4333.1	6824.4	11	11	2011	18:46	188	10.82	32.57	8.16	34.04	1
338	377	4330.4	6810.6	11	11	2011	21:22	180	10.31	32.68	8.06	34.06	2
339	378	4320.8	6823.3	12	11	2011	13:48	179	10.85	32.53	8.09	34.07	4
340	379	4302.9	6835.9	12	11	2011	18:37	188	10.62	32.61	8.11	34.10	2
341	380	4251.3	6842.7	12	11	2011	21:55	202	10.60	32.59	8.12	34.30	2
342	381	4246.5	6915.9	13	11	2011	4:46	75	10.64	32.49	9.53	32.88	1
343	382	4231.8	6858.5	13	11	2011	7:40	177	10.72	32.54	8.11	34.10	3
344	383	4225.3	6908.1	13	11	2011	10:18	225	10.69	32.56	8.09	34.28	2
345	384	4224.5	6936.7	13	11	2011	13:33	239	10.88	32.35	8.21	34.32	4
346	385	4235.0	6936.5	13	11	2011	16:17	276	10.78	32.40	8.18	34.44	3
347	386	4234.3	7001.5	13	11	2011	19:49	150	10.79	32.14	7.99	33.62	6
348	387	4235.2	7003.6	13	11	2011	22:47	123	10.75	31.97	8.13	33.45	4
349	388	4224.0	7013.0	14	11	2011	1:25	69	11.03	31.67	10.29	32.63	4
350	390	4204.9	6958.2	14	11	2011	4:49	82	11.07	31.63	9.14	32.93	4
351	391	4200.4	6955.1	14	11	2011	9:38	59	11.02	31.73	9.28	32.93	2
352	394	4153.7	6955.3	14	11	2011	11:25	27	10.78	31.92	10.56	32.34	2
353	395	4144.7	6953.0	14	11	2011	16:43	23	11.15	31.84	10.67	32.13	5

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354	395	4143.5	6952.8	14	11	2011	17:45	23	11.15	31.86	11.08	31.88	6
355	396	4155.2	6955.1	14	11	2011	19:58	36	10.81	31.97	10.58	32.23	4