

*Oceanography Branch CTD Data Report
Spring Bottom Trawl Survey – AL 08-01*

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DATE: March 7 – May 3, 2008

Oceanography Branch CTD Data Report

CTD_REPORT_2008001AL

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

AL 08-01
Spring Bottom Trawl Survey
Data Coverage: March 7 – May 3, 2008
Northeast Shelf

This report presents a summary of surface and bottom temperature and salinity data collected during the Northeast Fisheries Science Center's 2008 Spring Bottom Trawl Survey aboard the NOAA FRV *Albatross IV*. All data was obtained with Seabird Electronics SBE Model 19 profiling CTD's (s/n's 1447, 1468, and 4501). Data from the NEFSC 2008 Spring Bottom Trawl Survey Calibration aboard the NOAA FRV *Henry B. Bigelow* has been included in this report.

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/alb0801.dat>

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

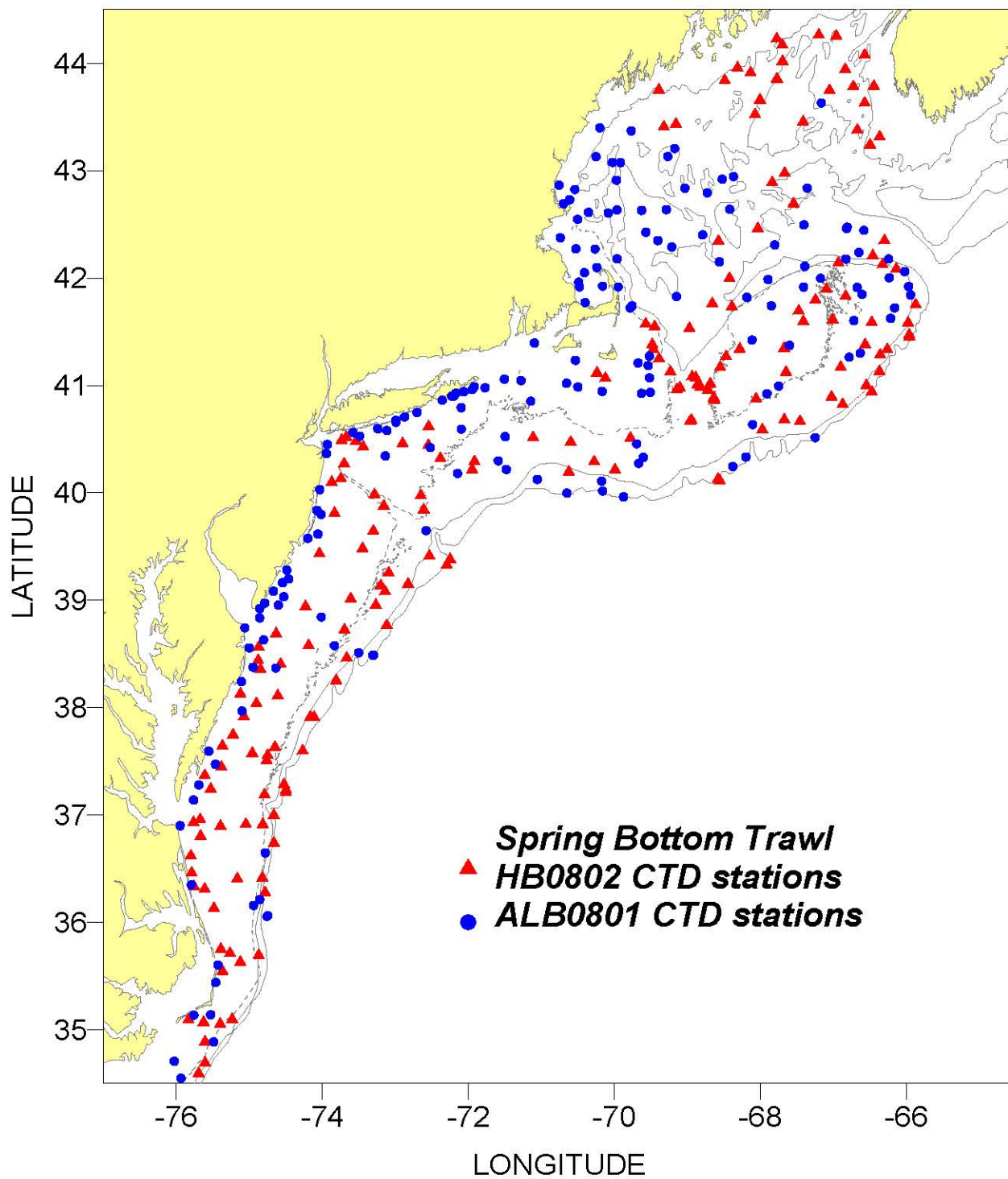
<http://www.nefsc.noaa.gov/HydroAtlas/>

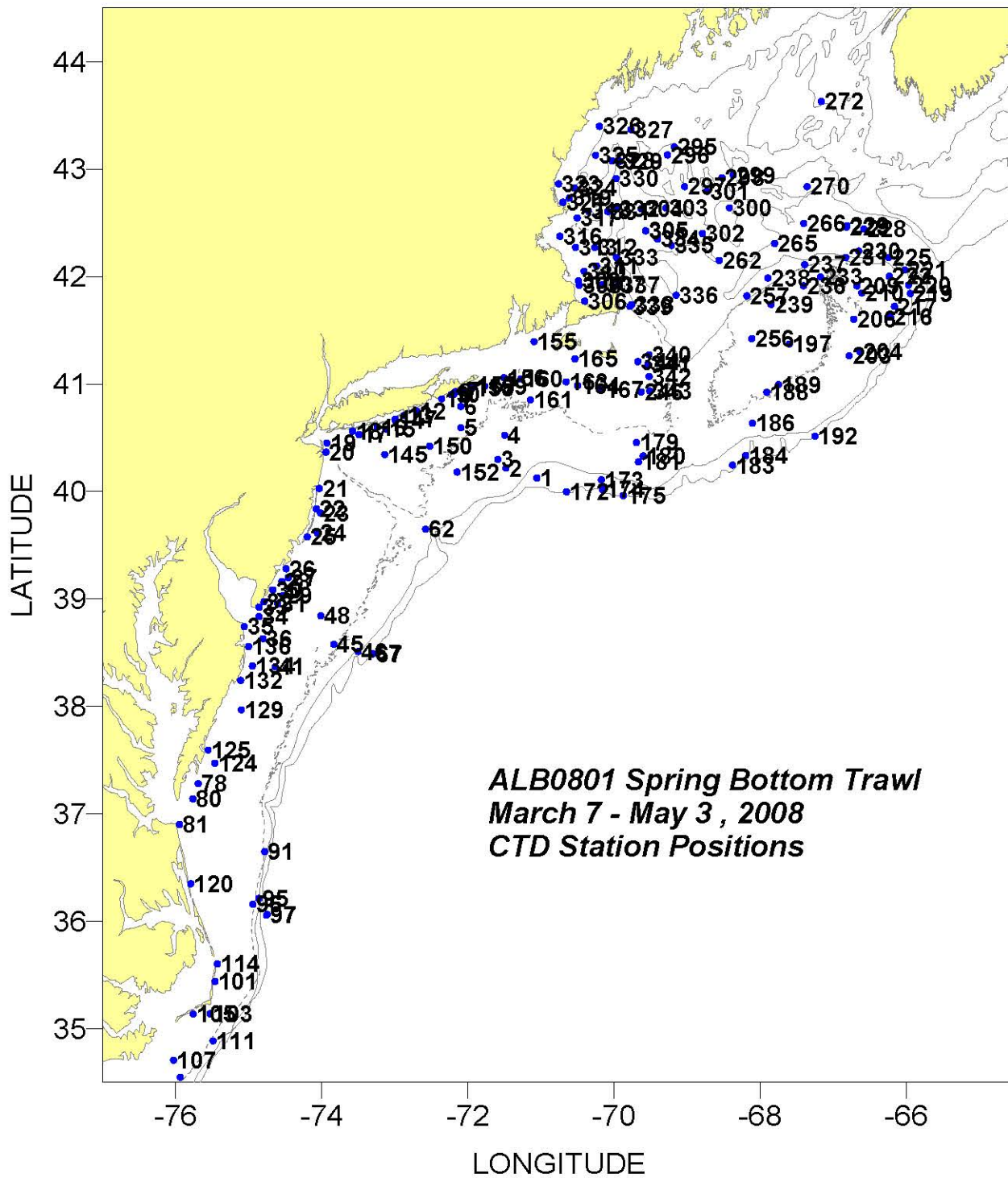
choose: **2008 Cruises**

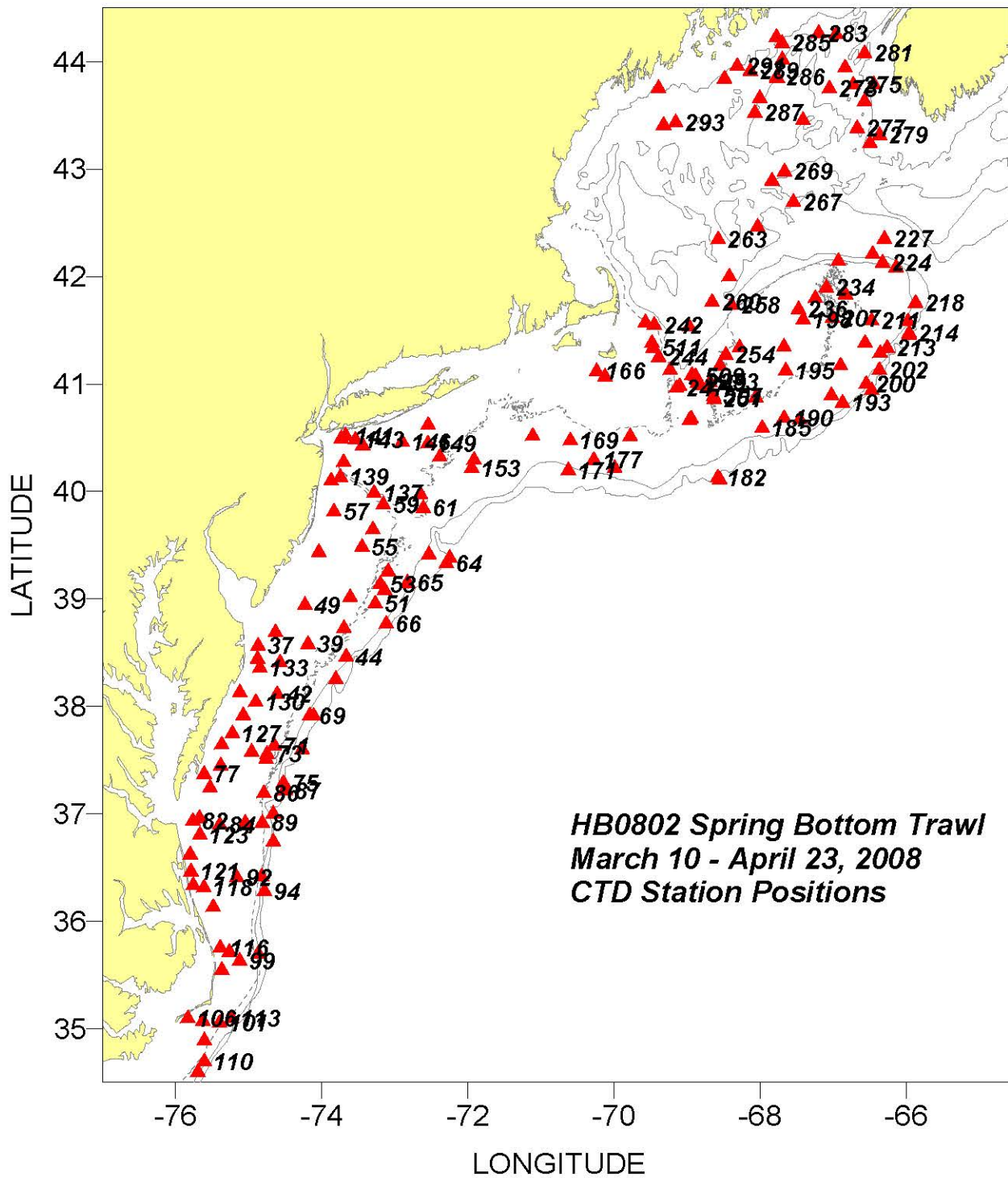
MAR_TRAWL_ALB0801

CTD_REPORT_2008001AL.pdf

Revised: July 24, 2009







Areal average surface and bottom temperature/salinity and temperature/salinity anomalies
for the combined 2008 Spring Bottom Trawl Survey
including data from ALB0801 and HB0802

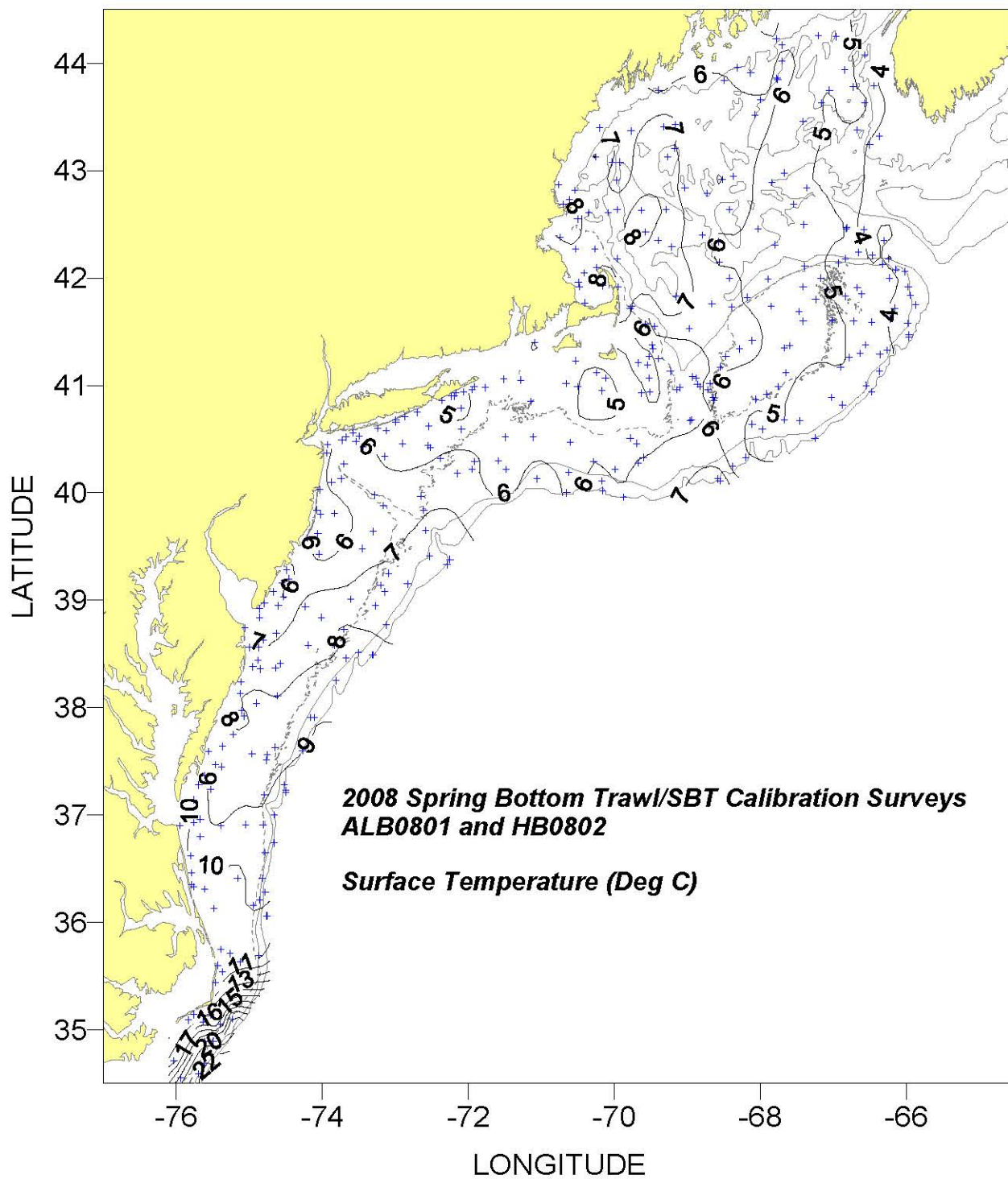
		SURFACE						BOTTOM						
CRUISE	CD	#obs	T/S	Anomaly	SDV1	SDV2	Flag	#obs	T/S	Anomaly	SDV1	SDV2	Flag	
Gulf of Maine West														
ALB0801/HB0802	115	45	6.82	1.16	0.15	0.65	0	44	5.75	0.54	0.13	0.60	0	
ALB0801/HB0802	115	45	32.30	-0.18	0.10	0.52	0	44	33.39	0.01	0.08	0.25	0	
Gulf of Maine East														
ALB0801/HB0802	108	32	5.01	0.24	0.18	0.74	0	31	6.06	-0.41	0.18	0.84	0	
ALB0801/HB0802	108	32	32.41	-0.04	0.13	0.22	0	31	33.74	-0.14	0.11	0.31	0	
Georges Bank														
ALB0801/HB0802	100	56	5.24	0.07	0.14	0.80	0	49	5.60	0.10	0.17	0.90	0	
ALB0801/HB0802	100	56	32.83	-0.14	0.08	0.25	0	49	33.06	-0.19	0.10	0.31	0	
MAB North														
ALB0801/HB0802	85	58	5.72	0.98	0.19	0.93	0	55	6.86	1.17	0.22	1.49	0	
ALB0801/HB0802	85	58	32.26	-0.62	0.12	0.87	0	54	32.98	-0.49	0.13	0.55	0	
MAB South														
ALB0801/HB0802	77	80	8.03	2.00	0.15	1.13	0	73	8.84	2.89	0.18	1.37	0	
ALB0801/HB0802	77	80	32.39	-0.61	0.11	1.37	0	73	32.94	-0.51	0.11	1.51	0	

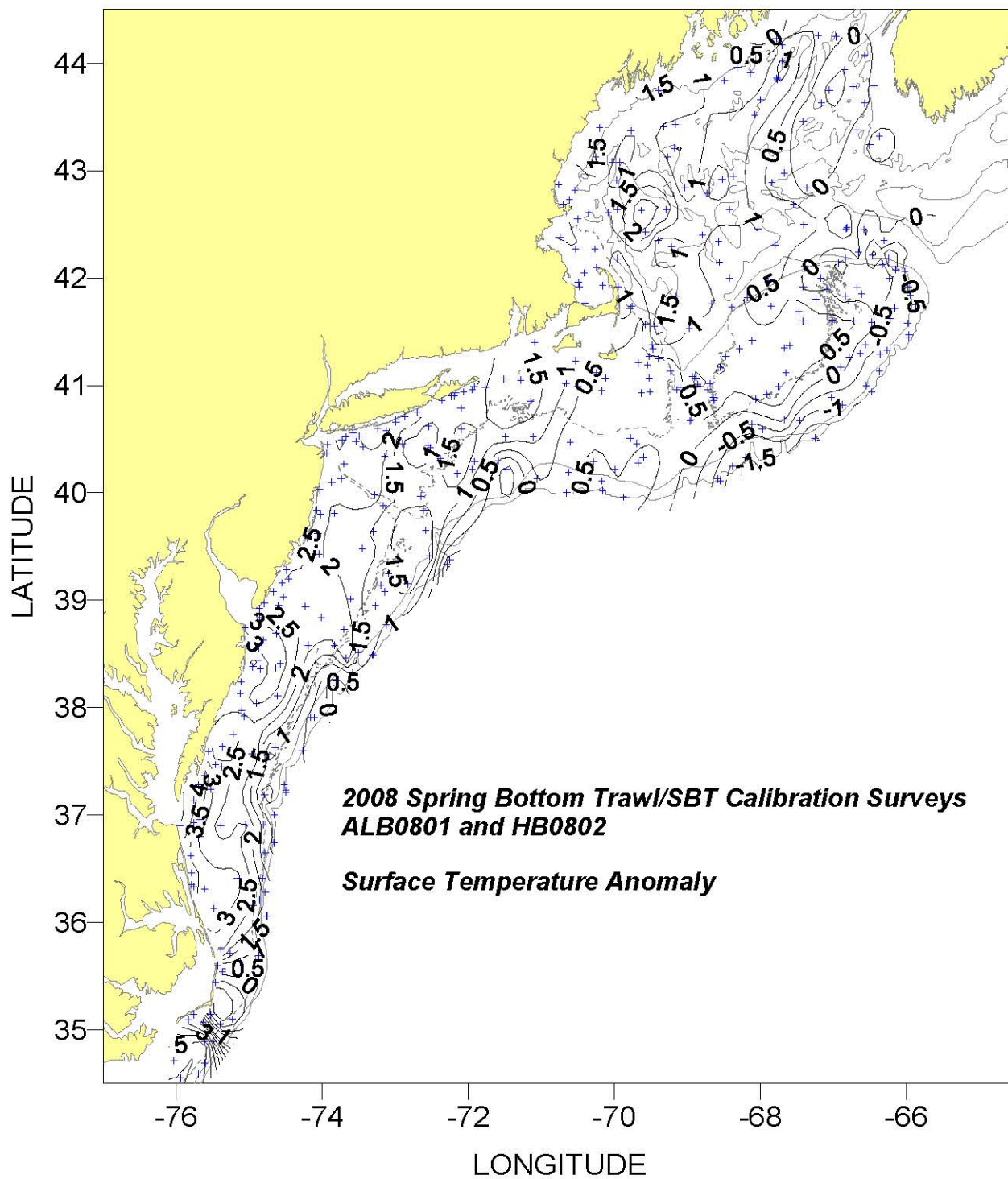
"CRUISE", the code name for a cruise: "CD", the calendar mid-date of all the stations within a region for a cruise:

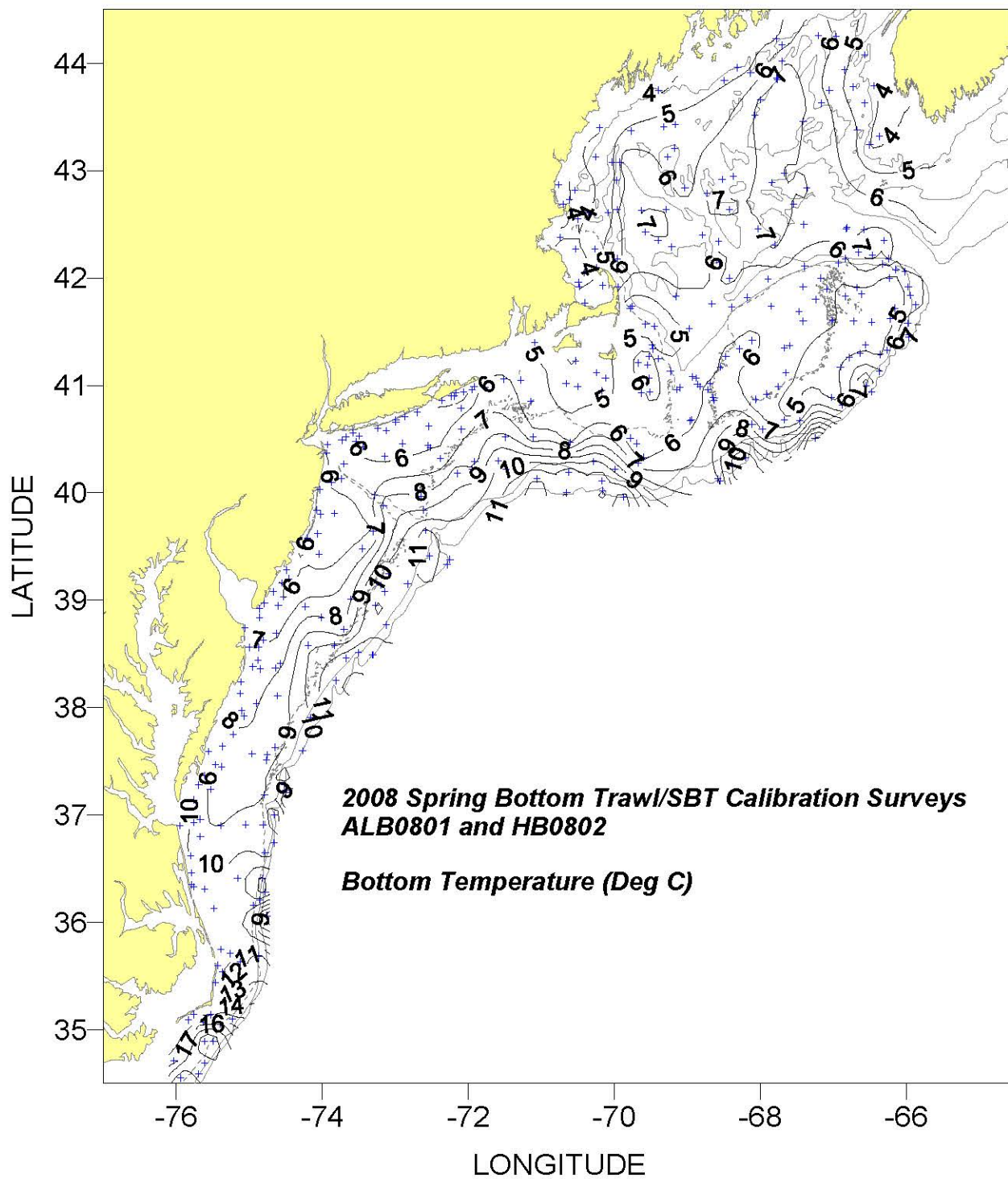
"#obs", the number of observations include in each average: "T/S", the areal average temp/salt: "Anomaly", the areal average temp/salt anomaly:

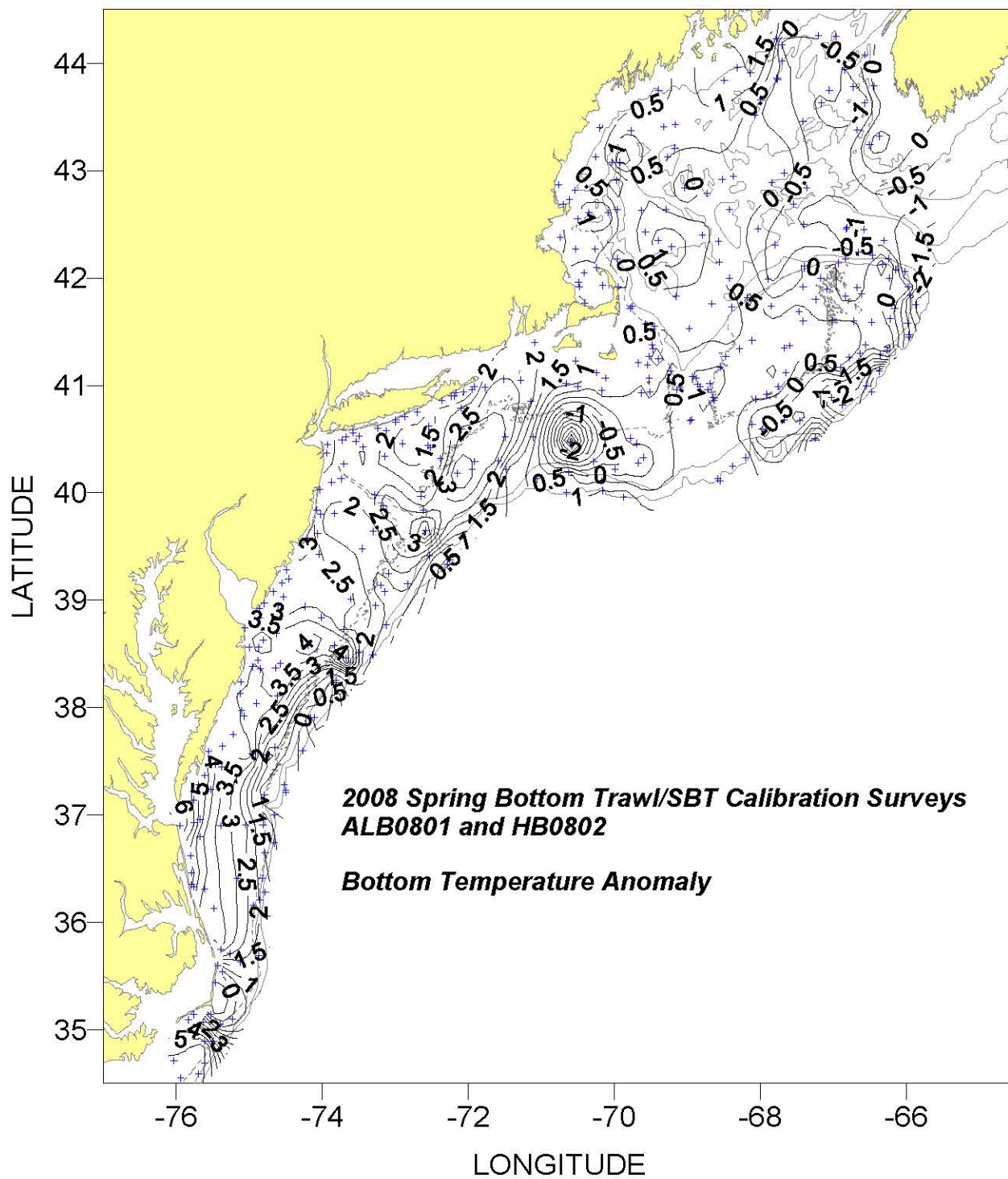
"SDV1", the standard deviation associated with the average temp/salt anomaly: "SDV2", the standard deviation of the individual anomalies from which the average anomaly was derived

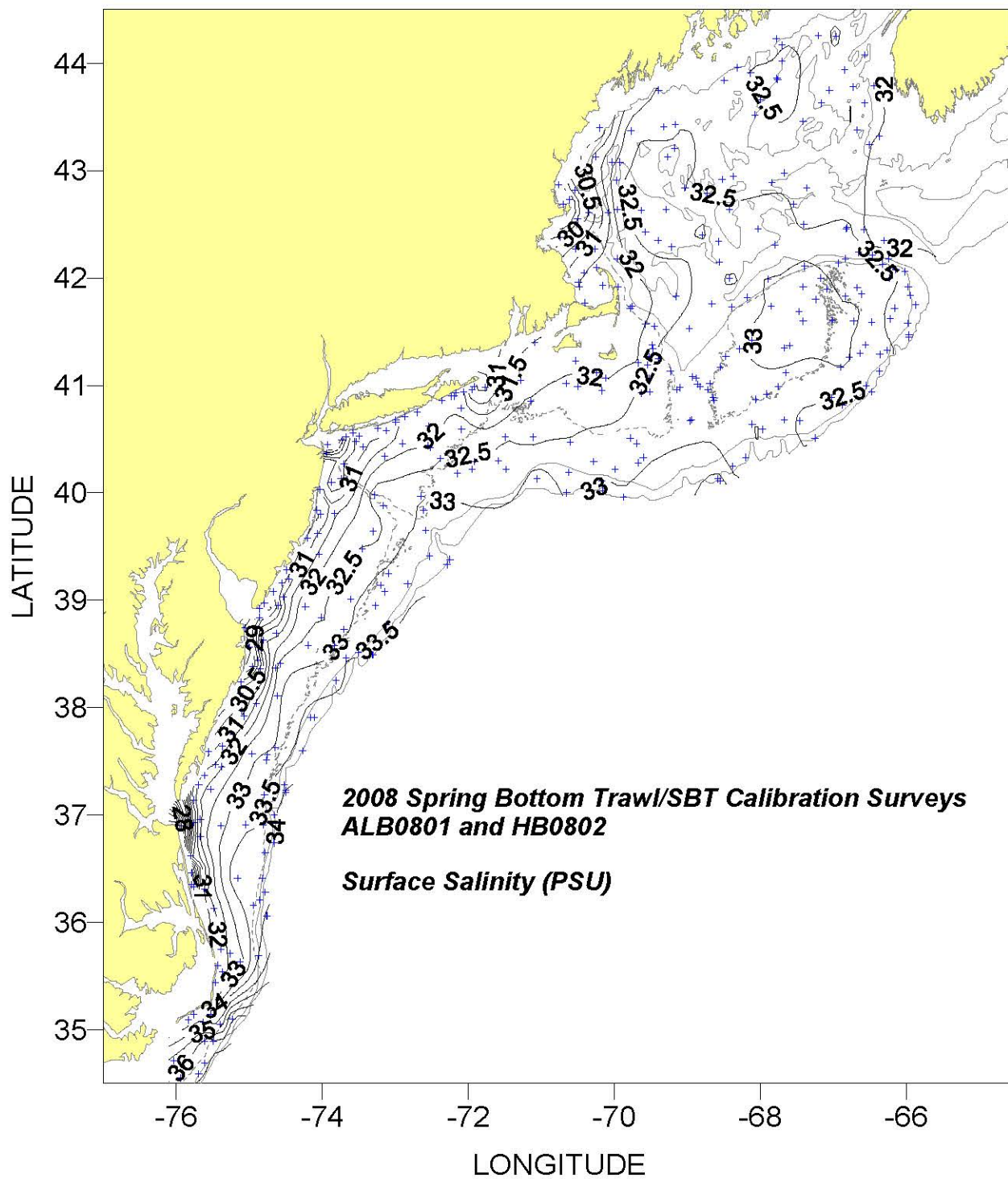
"Flag", a value of "1" indicates that a true areal average could not be calculated due to poor station coverage. The areal averages listed were derived from a simple average of the observations within the region.

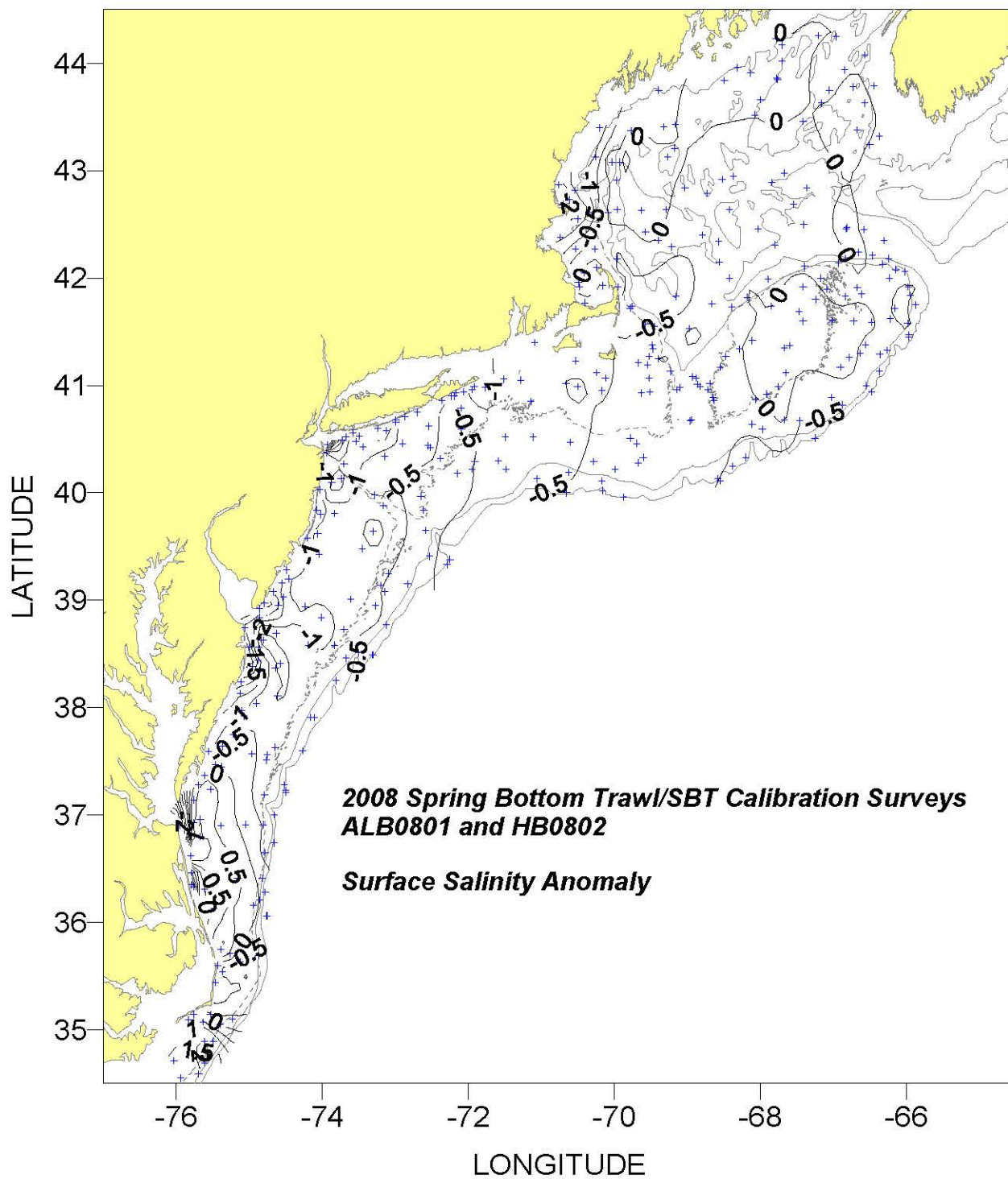


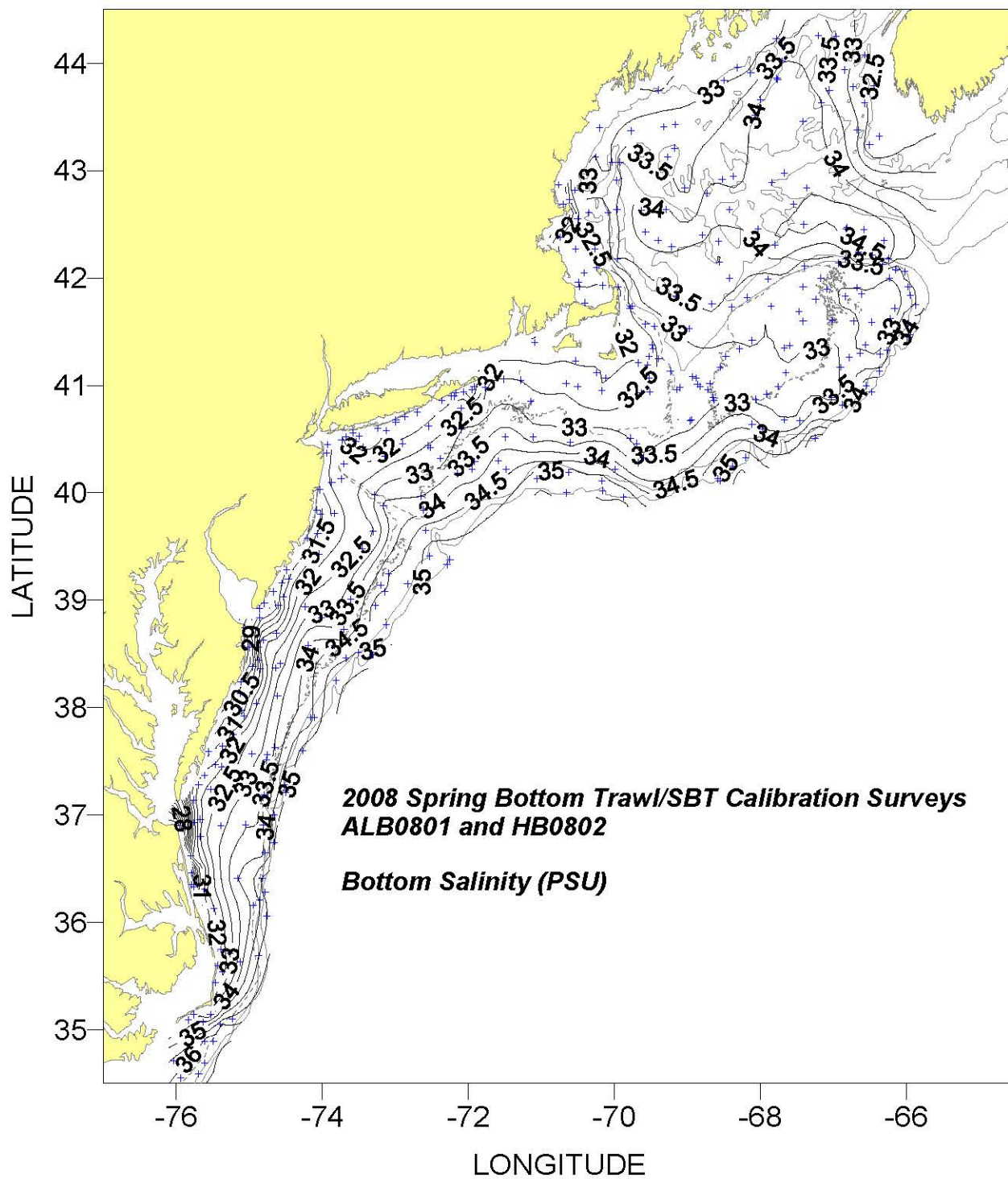


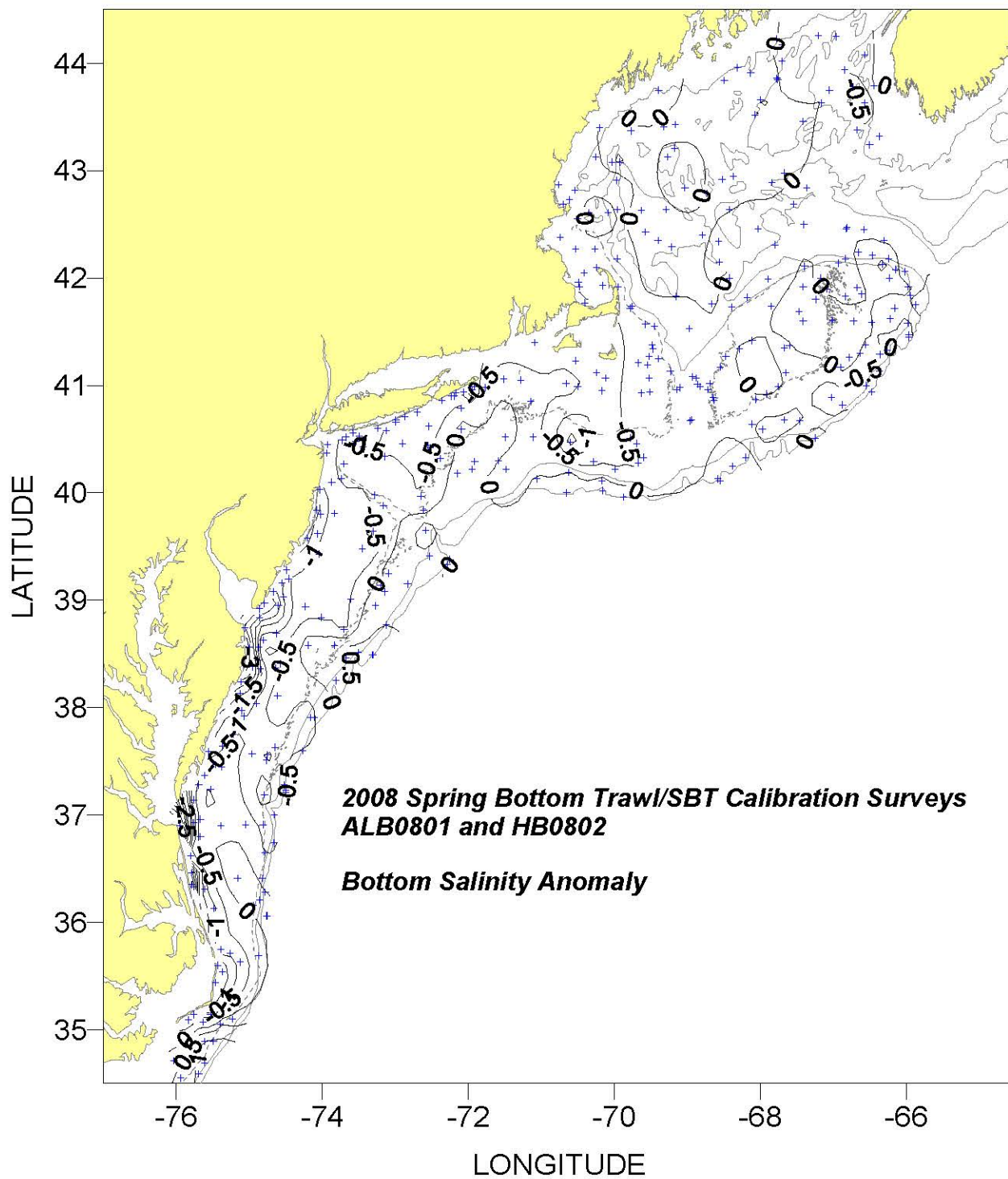












ALB0801 Spring Bottom Trawl Survey
7 March - 3 May 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
1	1	4007.5	7103.3	7	3	2008	7:33	152	6.86	33.22	12.30	35.39	6
2	2	4013.0	7128.7	7	3	2008	10:40	87	4.99	32.52	10.35	34.33	5
3	3	4017.9	7135.4	7	3	2008	12:22	84	5.21	32.63	10.03	34.18	5
4	4	4031.4	7129.6	7	3	2008	14:25	71	5.73	32.49	8.16	33.80	3
5	5	4035.6	7205.6	7	3	2008	18:00	53	5.38	32.38	6.76	33.02	4
6	6	4047.5	7205.8	7	3	2008	19:58	42	4.49	31.81	5.57	32.55	3
7	7	4056.4	7203.6	7	3	2008	21:40	25	4.38	31.62	4.34	31.64	4
8	8	4055.7	7210.1	7	3	2008	23:25	16	4.71	31.66	4.72	31.66	2
9	9	4054.1	7211.6	8	3	2008	0:56	24	4.47	31.73	4.47	31.73	4
10	10	4054.1	7213.6	8	3	2008	2:22	19	4.58	31.68	4.57	31.71	3
11	11	4051.7	7221.4	8	3	2008	3:43	15	4.85	31.73	4.83	31.74	1
12	12	4044.9	7242.1	8	3	2008	7:31	20	5.14	31.49	5.12	31.51	4
13	13	4042.4	7252.3	8	3	2008	9:10	19	5.13	31.48	5.12	31.48	4
14	14	4039.5	7259.4	8	3	2008	10:31	18	4.97	31.51	4.91	31.55	4
15	15	4034.8	7306.9	8	3	2008	12:00	26	5.59	30.68	5.11	31.67	6
16	16	4035.8	7314.4	8	3	2008	13:34	20	5.65	30.68	5.71	30.85	4
17	17	4031.7	7329.3	8	3	2008	15:37	19	5.41	30.88	5.50	30.97	5
18	18	4033.7	7334.7	8	3	2008	19:19	9	6.05	30.75	6.04	30.77	2
19	19	4027.0	7355.8	9	3	2008	8:23	14	5.79	24.13	6.16	31.92	4
20	20	4022.0	7356.5	9	3	2008	10:04	14	5.84	31.48	5.95	31.71	2
21	21	4001.7	7402.0	9	3	2008	12:56	19	5.30	31.49	5.33	31.49	4
22	22	3950.2	7404.3	9	3	2008	14:53	13	5.44	30.40	5.43	30.40	5
23	23	3947.9	7400.9	9	3	2008	16:16	19	5.39	30.35	5.03	30.92	4
24	24	3936.9	7403.6	9	3	2008	18:13	18	5.22	31.06	5.18	31.06	5
25	25	3934.6	7411.9	9	3	2008	19:37	10	6.40	30.53	6.37	30.56	1
26	26	3916.8	7429.2	9	3	2008	23:08	13	5.92	30.07	5.73	30.50	2
27	27	3911.8	7427.5	10	3	2008	0:33	18	5.80	30.69	5.78	31.12	2
28	28	3909.7	7432.7	10	3	2008	1:55	20	6.11	30.17	6.09	30.30	2
29	29	3901.9	7431.7	10	3	2008	3:24	14	5.89	31.07	5.90	31.07	2
30	30	3905.0	7440.1	10	3	2008	5:10	14	6.12	30.03	6.17	30.09	5
31	31	3857.2	7436.1	10	3	2008	6:58	13	6.24	29.99	6.24	29.99	5

ALB0801 Spring Bottom Trawl Survey
7 March - 3 May 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
32	32	3858.4	7447.3	10	3	2008	8:38	11	6.05	28.55	6.09	28.67	5
33	33	3855.3	7451.5	10	3	2008	9:52	12	6.02	25.75	6.09	27.34	4
34	34	3850.1	7451.4	10	3	2008	12:04	13	6.20	29.84	6.21	29.84	5
35	35	3844.5	7503.6	10	3	2008	14:19	12	6.40	28.76	6.36	28.76	4
36	36	3837.8	7448.3	10	3	2008	16:31	27	6.88	31.47	7.01	31.82	5
37	41	3822.1	7438.1	11	3	2008	4:13	36	7.48	32.44	7.85	32.81	3
38	45	3834.6	7350.0	11	3	2008	15:52	62	7.82	32.84	10.22	34.33	5
39	46	3830.6	7330.1	11	3	2008	18:07	91	8.21	33.42	11.71	35.12	4
40	48	3850.5	7400.7	11	3	2008	22:46	44	7.84	32.44	7.98	33.15	5
41	62	3938.9	7234.7	13	3	2008	12:21	75	7.04	32.99	11.25	34.77	3
42	67	3829.3	7317.7	19	3	2008	9:36	299	8.76	33.79	11.83	35.28	97
43	67	3829.3	7318.5	19	3	2008	9:58	245	8.75	33.79	11.64	35.30	8
44	78	3716.8	7541.4	21	3	2008	3:24	11	9.73	31.65	9.73	31.67	5
45	80	3708.3	7545.8	21	3	2008	6:50	11	9.85	31.51	9.85	31.50	4
46	81	3654.0	7556.9	21	3	2008	9:16	11	10.61	24.15	10.61	24.66	5
47	81	3653.9	7556.9	21	3	2008	9:21	10	10.63	24.34	10.63	24.65	4
48	91	3638.8	7446.8	22	3	2008	6:22	62	9.12	33.54	9.47	33.83	4
49	95	3612.7	7451.4	22	3	2008	16:02	83	9.67	33.71	11.00	34.47	5
50	96	3609.4	7456.5	22	3	2008	17:27	45	9.94	33.77	10.35	34.05	4
51	97	3603.7	7444.8	22	3	2008	19:34	619	10.50	34.07	12.25	35.45	416
52	97	3603.3	7445.3	22	3	2008	20:00	572	10.47	34.06	5.51	34.97	6
53	101	3526.3	7527.6	23	3	2008	5:13	13	11.40	32.06	11.40	99.99	5
54	103	3508.3	7531.7	23	3	2008	10:52	14	14.41	33.44	14.42	33.45	5
55	105	3508.1	7545.4	23	3	2008	13:34	17	14.70	33.82	14.69	33.81	5
56	107	3442.3	7601.6	23	3	2008	17:43	33	16.29	35.65	16.29	35.64	8
57	108	3432.8	7556.1	23	3	2008	19:25	48	20.64	36.25	20.13	36.20	6
58	111	3453.1	7529.3	24	3	2008	2:58	76	20.33	36.20	19.70	36.15	7
59	114	3536.1	7525.6	24	3	2008	9:43	16	10.73	31.77	10.71	31.83	4
60	120	3620.9	7547.6	24	3	2008	21:19	12	10.61	26.96	10.61	26.93	5
61	124	3728.2	7527.8	25	3	2008	7:40	15	8.48	31.51	8.52	31.52	5
62	125	3735.6	7533.3	25	3	2008	9:52	11	8.47	30.85	8.48	30.85	3
63	129	3758.0	7506.0	25	3	2008	17:17	16	8.01	30.58	7.92	30.60	5

ALB0801 Spring Bottom Trawl Survey
7 March - 3 May 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
64	132	3814.5	7506.5	25	3	2008	22:16	13	7.88	29.59	7.87	29.59	5
65	134	3822.5	7456.9	26	3	2008	1:25	22	7.48	28.85	7.47	29.06	5
66	136	3833.3	7500.0	26	3	2008	4:16	13	7.60	27.92	7.59	27.93	5
67	145	4020.6	7308.2	27	3	2008	6:33	37	5.71	31.85	5.73	32.16	5
68	147	4040.5	7259.5	27	3	2008	10:48	12	6.04	31.00	6.06	31.44	5
69	150	4025.3	7231.3	27	3	2008	16:17	47	5.54	31.87	6.03	32.62	6
70	152	4010.8	7208.8	27	3	2008	20:06	67	6.79	32.81	8.60	33.79	3
71	155	4123.7	7105.6	31	3	2008	21:19	23	4.86	31.52	4.86	31.52	5
72	156	4103.5	7130.3	1	4	2008	0:31	38	5.52	31.55	6.11	32.54	6
73	157	4059.3	7155.2	1	4	2008	2:52	19	5.42	30.55	5.42	99.99	5
74	158	4057.7	7156.7	1	4	2008	4:15	27	5.44	30.44	5.46	30.69	6
75	159	4058.7	7146.2	1	4	2008	6:22	37	5.52	30.21	6.33	32.59	4
76	160	4102.7	7116.6	1	4	2008	9:43	43	5.63	31.94	5.74	32.50	1
77	161	4051.2	7108.6	1	4	2008	11:43	63	5.51	32.00	5.33	32.68	6
79	163	4101.2	7039.3	1	4	2008	16:07	46	5.45	32.06	4.96	32.44	5
80	164	4059.1	7029.8	1	4	2008	17:46	45	5.02	32.11	4.73	32.29	6
81	165	4114.0	7032.0	1	4	2008	20:23	33	5.13	31.90	5.08	31.92	3
82	167	4056.7	7009.9	2	4	2008	12:55	25	4.63	31.99	4.63	31.99	4
83	172	3959.8	7038.9	3	4	2008	1:07	249	5.84	32.94	10.67	35.27	6
84	173	4006.5	7010.4	3	4	2008	4:24	144	6.24	33.05	11.85	35.33	3
85	174	4001.0	7009.5	3	4	2008	6:46	207	6.17	33.02	10.48	35.30	5
86	175	3957.7	6952.4	3	4	2008	9:15	148	6.00	33.04	12.65	35.50	6
87	179	4027.3	6941.5	3	4	2008	19:06	71	5.31	32.72	5.45	32.92	6
88	180	4019.8	6936.0	3	4	2008	20:40	73	6.03	32.93	5.79	33.03	5
89	181	4016.5	6939.9	3	4	2008	21:47	78	6.14	32.93	6.13	33.18	5
90	183	4014.7	6822.6	4	4	2008	6:25	166	5.62	32.80	11.66	35.39	7
91	184	4020.0	6811.8	4	4	2008	8:19	157	5.06	32.61	11.87	35.36	5
92	186	4038.1	6806.3	4	4	2008	12:37	89	4.77	32.48	7.61	33.78	4
93	188	4055.4	6754.5	4	4	2008	17:00	59	5.30	32.90	5.30	32.91	5
94	189	4059.6	6744.9	4	4	2008	18:43	57	5.33	32.94	5.31	32.96	5
95	192	4030.8	6714.9	5	4	2008	3:10	159	4.81	32.49	12.95	35.43	5
96	197	4122.4	6736.0	5	4	2008	17:37	40	5.37	33.09	5.34	33.09	7

ALB0801 Spring Bottom Trawl Survey
7 March - 3 May 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
97	203	4115.8	6646.8	6	4	2008	11:11	75	4.95	33.06	4.96	33.08	6
98	204	4118.0	6637.9	6	4	2008	13:03	82	4.49	32.64	4.91	33.01	4
99	206	4136.2	6643.0	6	4	2008	16:27	74	4.94	33.10	4.94	33.10	5
100	209	4154.8	6640.4	7	4	2008	19:02	74	4.91	33.01	4.90	32.93	8
101	210	4150.9	6636.4	7	4	2008	23:01	72	4.72	32.94	4.74	32.92	5
102	216	4137.4	6612.9	8	4	2008	19:37	96	3.92	32.32	4.34	32.65	4
103	217	4143.3	6609.6	8	4	2008	21:31	90	3.69	32.21	4.11	32.62	7
104	219	4150.5	6556.4	9	4	2008	1:10	102	3.62	32.20	5.17	33.24	5
105	220	4155.3	6558.0	9	4	2008	2:27	100	3.55	32.26	5.44	33.42	2
106	221	4203.6	6601.2	9	4	2008	4:01	142	3.83	32.37	6.08	33.82	2
107	222	4200.2	6613.9	9	4	2008	5:50	82	4.50	32.76	4.82	33.01	3
108	225	4210.7	6614.4	9	4	2008	10:43	202	2.80	32.03	7.16	34.58	6
109	228	4226.7	6634.8	9	4	2008	18:01	296	3.38	31.97	6.97	34.84	7
110	229	4228.4	6648.7	9	4	2008	20:38	321	4.91	32.64	7.51	34.64	121
111	229	4227.7	6649.0	9	4	2008	21:07	326	5.14	32.57	6.66	34.83	7
112	230	4214.3	6638.9	9	4	2008	23:34	242	4.87	32.88	7.25	34.67	4
113	231	4210.6	6649.6	10	4	2008	1:21	181	4.52	32.63	5.90	33.70	5
114	233	4159.9	6710.4	10	4	2008	5:22	52	5.16	33.09	5.17	33.09	7
115	236	4154.9	6724.3	10	4	2008	13:52	50	5.35	33.12	5.34	33.13	7
116	237	4206.6	6723.4	10	4	2008	15:36	82	5.18	33.09	5.23	33.21	5
117	238	4159.2	6753.5	10	4	2008	18:46	179	5.67	33.01	5.38	33.29	4
118	239	4144.5	6750.9	10	4	2008	21:16	34	5.62	33.00	5.61	33.01	1
119	246	4055.5	6937.6	17	4	2008	8:04	38	5.38	32.63	5.39	32.64	5
120	256	4125.3	6806.8	18	4	2008	15:10	40	6.35	33.04	6.32	33.03	4
121	257	4149.2	6810.9	18	4	2008	19:01	94	5.93	32.91	5.19	33.14	4
122	262	4209.0	6833.6	19	4	2008	7:55	178	5.89	32.90	5.65	33.40	6
123	265	4218.5	6748.0	19	4	2008	15:49	213	5.94	32.75	7.23	34.59	9
124	266	4229.7	6724.1	19	4	2008	19:02	311	5.91	32.41	6.86	34.82	2
125	270	4250.2	6721.4	20	4	2008	5:48	206	5.05	32.19	7.06	34.44	6
126	272	4337.8	6709.7	20	4	2008	13:25	182	4.95	32.39	6.72	34.11	3
127	295	4312.4	6910.3	23	4	2008	13:30	185	6.84	32.53	5.73	33.40	4
128	296	4307.9	6916.0	23	4	2008	17:12	181	7.82	32.85	5.68	33.38	5

ALB0801 Spring Bottom Trawl Survey
7 March - 3 May 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
129	297	4250.2	6902.0	23	4	2008	21:07	176	6.51	32.45	5.43	33.31	3
130	298	4255.2	6831.2	24	4	2008	0:38	183	7.16	32.33	6.79	33.96	6
131	299	4256.7	6822.0	24	4	2008	3:43	184	6.55	32.34	6.49	33.81	6
132	300	4238.4	6825.1	24	4	2008	6:49	205	6.93	32.55	7.12	34.20	5
133	301	4247.6	6843.6	24	4	2008	10:30	202	6.57	32.54	7.10	34.13	4
134	302	4224.1	6847.3	24	4	2008	13:34	203	6.62	32.44	6.95	34.10	5
135	303	4238.3	6917.2	24	4	2008	17:23	218	7.94	32.75	6.96	34.07	6
136	304	4237.8	6937.5	24	4	2008	19:58	279	8.43	32.75	7.00	34.17	4
137	305	4225.6	6933.9	24	4	2008	22:07	259	8.45	32.76	7.01	34.17	1
138	305	4225.6	6934.0	24	4	2008	22:23	256	8.76	32.77	6.93	34.02	54
139	306	4146.3	7024.0	29	4	2008	0:18	20	6.97	31.51	4.96	31.74	9
140	307	4155.5	7009.6	29	4	2008	2:22	25	8.76	31.56	4.42	31.94	2
141	308	4155.1	7028.6	29	4	2008	5:00	29	7.41	31.51	3.78	31.98	5
142	309	4157.7	7029.2	29	4	2008	6:34	37	7.55	31.49	3.77	32.04	5
143	310	4203.0	7024.5	29	4	2008	7:56	55	7.63	31.50	3.67	32.36	5
144	311	4205.9	7014.3	29	4	2008	9:28	64	7.87	31.61	3.93	32.21	4
145	312	4216.2	7015.7	29	4	2008	13:07	32	7.71	31.27	4.79	31.92	4
146	313	4216.3	7031.5	29	4	2008	15:06	68	7.97	30.69	3.89	32.48	5
149	316	4222.5	7044.3	30	4	2008	3:15	36	8.03	29.77	3.82	32.09	6
150	317	4232.8	7030.1	30	4	2008	6:20	80	8.03	29.58	3.84	32.54	3
151	318	4236.7	7021.1	30	4	2008	8:40	89	7.93	29.94	4.18	32.82	7
152	319	4243.8	7036.6	30	4	2008	14:45	61	8.29	28.36	3.76	32.32	3
153	321	4241.5	7041.8	30	4	2008	17:01	15	9.03	26.42	8.91	26.54	8
154	323	4251.9	7045.4	30	4	2008	19:01	33	7.16	29.58	4.17	31.89	3
155	324	4249.4	7032.4	30	4	2008	21:55	114	7.34	30.03	3.97	32.71	13
156	325	4307.8	7015.0	1	5	2008	1:15	138	8.11	31.19	4.64	33.02	5
157	326	4323.9	7011.9	1	5	2008	3:52	103	6.99	29.91	3.80	32.46	6
158	327	4322.2	6946.0	1	5	2008	7:15	159	6.83	32.36	5.20	33.20	4
159	328	4304.6	7001.5	1	5	2008	10:04	109	7.06	31.96	4.18	32.86	4
160	329	4304.5	6954.9	1	5	2008	12:04	192	6.62	32.07	6.60	33.88	7
161	330	4254.7	6958.3	1	5	2008	13:58	173	6.34	32.32	5.07	33.20	5
162	331	4236.3	7004.9	1	5	2008	16:47	113	7.95	31.31	4.19	32.85	3

ALB0801 Spring Bottom Trawl Survey
7 March - 3 May 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
163	332	4238.1	6957.8	1	5	2008	18:58	179	7.59	32.44	6.04	33.63	7
164	333	4210.7	6957.8	2	5	2008	0:04	198	7.65	31.77	5.81	33.52	4
165	334	4221.0	6924.2	2	5	2008	3:28	229	7.37	32.74	6.97	34.11	7
166	335	4217.4	6912.7	2	5	2008	5:25	222	7.07	32.65	6.92	34.05	6
167	336	4149.7	6908.8	2	5	2008	8:53	200	7.83	32.00	5.83	33.51	6
168	337	4155.1	6956.7	2	5	2008	13:21	24	8.00	31.60	6.43	31.73	4
169	338	4144.4	6945.4	2	5	2008	15:16	87	6.91	31.66	4.33	32.80	5
170	339	4143.3	6946.8	2	5	2008	19:55	65	7.67	31.65	4.32	32.49	3
171	340	4116.3	6931.2	2	5	2008	23:28	26	6.72	32.20	6.72	32.20	4
172	341	4111.1	6932.1	3	5	2008	0:45	27	6.90	32.19	6.90	32.19	3
173	342	4104.2	6931.1	3	5	2008	2:19	33	6.49	32.42	6.49	32.42	3
174	343	4056.1	6930.4	3	5	2008	4:10	45	6.55	32.45	6.57	32.45	5
175	344	4112.5	6940.4	3	5	2008	7:31	23	6.42	31.98	6.42	31.98	6

HB0802 Spring Bottom Trawl Calibration Survey
10 March - 23 April 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
1	37	3833.7	7452.2	10	3	2008	19:01	23	6.74	30.82	6.96	31.67	4
2	38	3841.2	7437.9	10	3	2008	21:04	29	6.83	31.28	6.78	31.64	5
3	39	3834.6	7411.2	11	3	2008	0:01	53	7.72	32.60	9.93	34.11	4
4	40	3824.3	7434.2	11	3	2008	3:01	31	7.65	32.63	7.71	32.71	4
5	42	3806.7	7436.5	11	3	2008	6:46	34	7.97	32.88	8.54	33.26	6
6	43	3815.0	7348.4	11	3	2008	11:22	109	8.28	33.30	11.89	35.37	7
7	44	3827.6	7339.9	11	3	2008	14:13	74	8.36	33.53	11.52	34.94	3
8	47	3843.5	7341.7	11	3	2008	20:32	56	8.15	32.84	7.95	33.24	5
9	49	3856.4	7413.8	12	3	2008	0:43	34	7.37	32.44	7.47	32.81	5
10	50	3900.8	7336.6	12	3	2008	4:13	52	7.28	32.95	7.82	33.25	3
11	51	3857.2	7316.0	12	3	2008	6:43	79	7.72	33.10	11.36	34.80	4
12	52	3904.8	7308.3	12	3	2008	8:26	71	7.97	33.30	10.55	34.47	3
13	53	3908.1	7311.8	12	3	2008	9:49	64	7.61	33.16	10.28	34.34	3
14	54	3915.2	7305.4	12	3	2008	11:31	69	7.29	33.07	10.89	34.59	1
15	55	3928.8	7326.9	12	3	2008	14:28	38	6.57	32.55	6.40	32.55	4
16	56	3926.0	7402.3	12	3	2008	17:46	28	5.76	31.60	5.51	31.77	4
17	57	3948.6	7349.9	12	3	2008	21:16	26	5.40	31.52	5.37	31.63	4
18	58	3938.6	7318.0	13	3	2008	1:01	40	5.95	32.24	5.94	32.31	4
19	59	3952.6	7309.4	13	3	2008	3:46	54	6.44	32.58	8.61	33.64	5
20	60	3958.4	7239.0	13	3	2008	8:10	57	6.79	32.98	8.09	33.49	5
21	61	3950.5	7236.6	13	3	2008	10:18	58	6.99	33.07	8.79	33.78	5
22	63	3924.7	7231.9	13	3	2008	14:37	119	7.78	33.43	12.05	35.22	3
23	64	3919.6	7217.6	13	3	2008	17:19	225	7.04	33.22	9.93	35.26	2
24	999	3922.8	7214.9	13	3	2008	20:49	273	7.47	33.29	10.56	35.30	72
26	65	3909.0	7249.5	19	3	2008	3:39	90	7.64	33.38	10.38	34.53	4
27	66	3845.9	7306.9	19	3	2008	7:01	112	7.36	33.33	10.39	34.41	4
28	68	3754.6	7406.7	19	3	2008	15:52	120	8.95	33.68	10.91	34.65	2
29	69	3754.7	7409.7	19	3	2008	18:02	105	8.77	33.60	9.90	34.18	1
30	70	3735.8	7416.1	19	3	2008	21:12	321	8.96	33.67	9.11	35.17	12
31	71	3737.9	7438.9	20	3	2008	4:04	60	8.27	32.96	8.58	33.53	4
32	72	3734.4	7457.5	20	3	2008	8:58	33	8.51	32.91	8.46	32.89	4
33	73	3733.3	7444.9	20	3	2008	11:21	58	8.11	33.05	8.06	33.11	4

HB0802 Spring Bottom Trawl Calibration Survey
10 March - 23 April 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
34	74	3730.4	7445.6	20	3	2008	13:28	56	8.31	33.09	8.32	33.23	4
35	75	3717.0	7431.4	20	3	2008	15:51	139	9.47	33.87	11.47	34.84	2
36	76	3726.8	7522.9	20	3	2008	23:46	28	8.10	31.96	8.10	31.96	4
37	77	3722.0	7536.6	21	3	2008	1:58	13	9.48	31.71	9.49	31.71	5
38	78	3714.4	7531.7	21	3	2008	4:56	21	8.73	32.06	8.73	32.06	3
39	82	3655.8	7545.8	21	3	2008	10:40	16	9.81	31.18	9.82	31.19	4
40	83	3657.4	7540.4	21	3	2008	12:25	19	9.17	31.81	9.17	31.81	8
41	84	3653.7	7523.6	21	3	2008	14:28	31	9.01	32.78	8.99	32.78	5
42	85	3654.8	7502.8	21	3	2008	16:43	35	9.58	33.46	9.49	33.49	3
43	86	3711.3	7447.4	21	3	2008	19:30	58	8.79	33.31	8.83	33.42	4
44	87	3713.8	7429.7	21	3	2008	21:43	500	9.79	34.02	11.04	35.36	298
45	87	3712.6	7429.9	21	3	2008	22:16	584	9.86	34.05	5.59	34.98	20
46	88	3659.8	7439.8	22	3	2008	0:18	96	9.60	33.95	11.25	34.71	4
47	89	3654.7	7448.8	22	3	2008	2:07	57	9.11	33.51	9.02	33.56	6
48	90	3644.2	7439.7	22	3	2008	3:58	308	10.04	34.13	9.92	99.99	14
49	92	3624.3	7509.8	22	3	2008	9:40	33	10.46	33.88	10.57	34.00	5
50	93	3624.8	7449.2	22	3	2008	11:46	88	9.24	33.57	12.17	35.05	1
51	94	3616.6	7447.0	22	3	2008	13:49	157	9.58	33.76	12.67	35.31	4
52	98	3541.6	7452.2	22	3	2008	23:17	80	10.53	34.05	12.48	35.04	3
53	99	3537.7	7507.3	23	3	2008	1:34	36	11.29	32.64	11.50	33.85	3
54	100	3532.6	7521.9	23	3	2008	3:34	22	10.94	32.19	10.94	32.22	7
55	101	3503.1	7523.8	23	3	2008	8:10	50	16.69	34.52	17.34	36.11	4
56	104	3504.1	7537.5	23	3	2008	12:01	27	16.70	34.71	16.71	34.70	3
57	106	3505.6	7549.9	23	3	2008	14:55	21	14.79	34.04	14.80	34.03	6
58	109	3435.6	7541.6	23	3	2008	21:30	146	22.84	36.37	18.57	36.20	3
59	110	3441.5	7536.3	23	3	2008	23:15	149	23.12	36.33	18.24	36.13	7
60	111	3453.2	7536.3	24	3	2008	1:34	44	20.45	36.30	20.48	36.29	3
61	113	3505.7	7514.0	24	3	2008	5:26	95	20.94	36.30	15.21	35.68	3
62	115	3542.7	7515.8	24	3	2008	11:18	32	10.67	32.80	10.68	32.80	5
63	116	3545.0	7523.3	24	3	2008	13:23	31	10.54	32.12	10.58	32.23	5
64	117	3607.8	7529.0	24	3	2008	16:16	27	10.15	31.94	10.12	31.94	5
65	118	3618.6	7536.7	24	3	2008	18:16	25	10.06	31.79	10.04	31.80	4

HB0802 Spring Bottom Trawl Calibration Survey
10 March - 23 April 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
66	119	3620.0	7545.4	24	3	2008	19:52	18	10.14	29.73	10.14	29.86	6
67	121	3627.6	7547.4	24	3	2008	22:31	19	10.26	27.44	10.27	27.76	5
68	122	3637.1	7548.0	25	3	2008	0:31	17	9.82	31.04	9.84	31.02	4
69	123	3648.1	7539.9	25	3	2008	2:52	19	9.23	32.06	9.26	32.07	5
70	126	3738.5	7522.1	25	3	2008	11:25	16	8.15	31.14	8.16	31.14	3
71	127	3744.7	7513.3	25	3	2008	13:34	23	8.01	31.39	8.05	31.79	5
72	128	3754.9	7504.4	25	3	2008	15:23	22	7.86	31.17	7.87	31.28	4
73	130	3802.3	7454.1	25	3	2008	18:43	29	8.26	31.63	7.95	32.04	4
74	131	3807.6	7507.2	25	3	2008	20:52	17	7.96	30.48	7.75	30.48	6
75	133	3821.3	7450.7	25	3	2008	23:52	20	7.63	30.04	7.48	30.99	3
76	135	3826.3	7452.6	26	3	2008	2:17	18	7.39	29.06	7.45	30.98	5
77	137	3959.0	7317.0	26	3	2008	14:49	65	6.84	32.83	6.91	32.97	3
78	138	4005.9	7352.2	26	3	2008	18:23	25	6.43	29.88	6.24	32.10	4
79	139	4007.9	7344.6	26	3	2008	19:57	32	6.44	30.15	6.41	32.56	5
80	140	4016.2	7342.0	26	3	2008	21:34	28	6.27	30.59	6.04	32.30	4
81	141	4031.1	7340.3	26	3	2008	23:46	19	6.73	29.43	6.02	30.62	7
82	142	4029.4	7344.0	27	3	2008	1:13	25	6.43	28.85	6.07	32.18	5
83	143	4028.8	7332.3	27	3	2008	3:01	23	6.51	30.38	6.02	31.40	5
84	144	4025.6	7326.3	27	3	2008	4:30	27	6.41	30.81	5.84	31.29	4
85	146	4027.5	7253.9	27	3	2008	8:36	41	5.30	31.79	5.36	32.08	2
86	147	4037.0	7232.5	27	3	2008	12:52	40	5.30	31.69	5.33	32.12	5
87	149	4026.6	7232.7	27	3	2008	15:01	46	5.49	31.90	5.85	32.52	4
88	151	4019.2	7222.9	27	3	2008	18:00	54	6.11	32.47	6.15	32.68	4
89	153	4012.9	7156.8	27	3	2008	21:52	75	6.06	32.61	8.03	33.60	3
90	154	4017.5	7154.8	27	3	2008	23:13	68	6.23	32.56	7.69	33.48	5
91	166	4107.0	7014.2	1	4	2008	22:51	28	4.84	31.94	4.47	32.05	3
92	167	4104.0	7007.3	2	4	2008	11:19	26	4.79	31.97	4.79	31.97	4
93	169	4028.3	7035.8	2	4	2008	16:49	76	5.06	32.53	5.64	33.13	4
94	170	4030.9	7106.7	2	4	2008	19:47	77	5.19	32.33	6.29	33.20	5
95	171	4011.6	7037.3	2	4	2008	23:08	121	5.80	32.88	12.14	35.30	2
96	176	4012.9	6959.3	3	4	2008	11:52	96	5.86	32.90	9.59	34.29	3
97	177	4017.4	7016.5	3	4	2008	14:15	92	6.01	33.00	10.16	34.47	4

HB0802 Spring Bottom Trawl Calibration Survey
10 March - 23 April 2005

Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
98	178	4030.6	6946.6	3	4	2008	17:31	69	5.25	32.67	5.47	32.97	3
99	182	4007.6	6834.6	4	4	2008	2:40	245	7.63	33.65	12.02	35.50	44
100	182	4006.6	6833.1	4	4	2008	3:30	327	7.92	33.75	7.68	35.08	3
101	185	4035.3	6758.2	4	4	2008	11:10	92	4.66	32.48	6.67	33.47	4
102	187	4052.4	6803.4	4	4	2008	14:13	59	5.24	32.89	5.23	32.89	2
103	190	4040.8	6740.2	4	4	2008	22:40	78	5.18	32.96	5.04	32.99	5
104	191	4040.0	6727.3	5	4	2008	0:41	96	4.04	32.32	5.45	33.13	4
105	193	4049.4	6652.2	5	4	2008	7:20	101	4.09	32.39	5.07	33.22	6
106	194	4053.5	6701.4	5	4	2008	9:46	87	4.30	32.46	4.57	32.76	3
107	195	4107.4	6738.8	5	4	2008	13:31	53	5.29	32.97	5.28	32.98	2
108	196	4120.7	6740.3	5	4	2008	16:10	39	5.38	33.03	5.33	33.04	4
109	198	4135.8	6724.5	5	4	2008	20:04	54	5.38	33.09	5.36	33.09	7
110	199	4110.2	6653.8	6	4	2008	0:16	72	5.07	33.04	5.04	33.04	5
111	200	4059.9	6632.8	6	4	2008	2:58	100	3.89	32.31	8.98	34.32	6
112	201	4056.4	6628.3	6	4	2008	5:39	350	4.94	32.61	6.25	34.87	3
113	202	4107.7	6622.0	6	4	2008	8:22	147	4.45	32.65	6.07	33.61	2
114	205	4122.8	6633.7	6	4	2008	14:34	87	4.51	32.60	4.81	32.94	4
115	207	4136.7	6700.5	6	4	2008	18:43	60	5.08	33.10	5.08	33.10	4
116	208	4149.9	6649.8	6	4	2008	22:45	68	4.75	32.93	4.75	32.93	3
117	211	4135.3	6628.3	8	4	2008	4:19	84	4.49	32.78	4.56	32.83	5
118	212	4117.1	6621.3	8	4	2008	8:22	92	4.29	32.59	4.58	32.86	2
119	213	4120.0	6615.6	8	4	2008	10:13	116	4.30	32.65	5.49	33.48	2
120	214	4127.1	6557.5	8	4	2008	13:13	321	2.99	32.06	7.55	34.76	117
121	214	4128.3	6557.5	8	4	2008	13:53	235	2.99	32.06	7.47	34.70	8
122	215	4134.9	6558.5	8	4	2008	17:34	130	3.44	32.09	6.90	34.34	5
123	218	4145.1	6552.2	8	4	2008	23:37	124	3.87	32.34	5.55	33.46	2
124	223	4205.0	6608.2	9	4	2008	7:07	96	3.85	32.42	5.07	33.17	3
125	224	4207.5	6619.3	9	4	2008	9:13	107	4.75	32.97	5.78	33.56	4
126	226	4212.5	6627.5	9	4	2008	13:01	217	3.40	32.03	7.30	34.63	4
127	227	4220.9	6617.8	9	4	2008	15:49	241	4.54	31.81	7.25	34.79	1
128	232	4208.5	6655.6	10	4	2008	3:04	88	4.54	32.70	5.16	33.16	4
129	234	4153.7	6705.5	10	4	2008	7:34	56	5.21	33.09	5.21	33.09	4

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Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
130	235	4147.8	6714.6	10	4	2008	9:49	43	5.34	33.12	5.34	33.12	1
131	236	4141.6	6728.3	10	4	2008	11:49	60	5.47	33.08	5.46	33.08	4
132	506	4040.5	6856.4	16	4	2008	6:37	68	5.85	32.78	5.75	32.79	5
133	507	4053.1	6838.1	16	4	2008	8:52	62	6.02	32.86	6.03	32.86	4
134	508	4059.1	6849.1	16	4	2008	9:55	77	5.99	32.83	5.99	32.83	7
135	509	4104.2	6852.9	16	4	2008	10:34	72	5.74	32.83	5.74	32.84	6
136	510	4058.6	6906.0	16	4	2008	11:55	82	5.13	32.74	5.11	32.76	4
137	511	4120.1	6927.9	16	4	2008	15:55	34	5.06	32.39	4.94	32.39	5
138	241	4134.3	6934.1	16	4	2008	20:01	51	5.00	32.00	4.27	32.64	5
139	242	4132.8	6926.8	16	4	2008	21:31	61	6.87	32.19	4.28	32.68	4
140	243	4122.8	6928.7	17	4	2008	0:04	33	5.25	32.44	5.27	32.44	4
141	244	4114.8	6923.2	17	4	2008	1:42	50	5.30	32.56	5.28	32.57	3
142	245	4107.6	6913.8	17	4	2008	3:39	55	5.18	32.78	5.21	32.78	4
143	247	4057.7	6908.5	17	4	2008	10:43	69	5.15	32.76	5.18	32.78	4
144	248	4104.9	6855.9	17	4	2008	13:01	86	5.85	32.84	5.85	32.84	3
145	249	4100.4	6851.5	17	4	2008	14:26	68	6.02	32.82	6.00	32.82	5
146	250	4039.9	6857.7	17	4	2008	16:49	66	5.75	32.74	5.73	32.76	4
147	251	4051.5	6837.7	18	4	2008	1:22	57	6.05	32.83	6.05	32.83	5
148	252	4057.3	6842.9	18	4	2008	3:13	65	6.06	32.83	6.09	32.84	6
149	253	4100.9	6841.1	18	4	2008	6:00	66	6.07	32.83	6.08	32.83	16
150	253	4110.1	6832.9	18	4	2008	8:07	64	6.01	32.87	6.02	32.87	5
151	254	4116.1	6828.1	18	4	2008	11:43	57	6.14	32.89	6.13	32.89	4
152	255	4120.3	6816.8	18	4	2008	13:34	54	6.20	32.97	6.17	32.98	4
153	258	4144.0	6823.3	18	4	2008	21:06	141	6.06	32.88	5.17	33.20	4
154	259	4131.9	6858.1	19	4	2008	0:22	148	6.22	32.94	5.02	33.11	4
155	260	4145.7	6839.4	19	4	2008	3:02	179	6.38	32.94	5.99	33.65	5
156	261	4159.9	6825.2	19	4	2008	5:50	177	6.22	33.05	6.28	33.82	5
157	263	4220.6	6834.3	19	4	2008	10:07	168	5.67	32.79	6.30	33.71	3
158	264	4227.7	6801.9	19	4	2008	13:33	181	5.55	32.64	6.90	34.07	3
159	267	4241.6	6732.6	19	4	2008	22:25	190	5.98	32.49	6.95	34.31	2
160	268	4253.4	6750.2	20	4	2008	1:19	230	5.39	32.46	7.21	34.34	4
161	269	4258.6	6739.9	20	4	2008	3:16	206	5.39	32.49	6.93	34.14	6

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Cast #	Sta #	Lat	Long	Day	Mo	Year	Time (GMT)	Btm Depth	Sfc Temp	Sfc Salt	Btm Temp	Btm Salt	Meters from Bottom
162	271	4327.3	6724.7	20	4	2008	10:37	202	5.39	32.46	6.98	34.11	2
163	273	4344.9	6703.1	20	4	2008	15:22	142	4.96	32.33	5.29	33.26	5
164	274	4356.6	6650.1	20	4	2008	17:57	121	5.38	32.39	5.07	33.13	5
165	275	4347.0	6643.5	20	4	2008	19:49	107	5.08	32.50	4.67	32.84	7
166	276	4337.8	6634.1	20	4	2008	20:52	109	5.25	32.41	4.33	32.62	4
167	277	4322.7	6640.2	20	4	2008	23:40	114	4.88	32.49	5.08	33.14	4
168	278	4314.4	6629.7	21	4	2008	1:36	90	3.82	31.99	3.84	32.03	3
169	279	4318.9	6621.9	21	4	2008	4:50	60	3.77	31.98	3.80	31.99	4
170	280	4347.2	6626.5	21	4	2008	8:22	84	4.03	31.95	4.03	32.06	3
171	281	4404.6	6634.1	21	4	2008	16:19	99	4.37	32.29	4.54	32.73	4
172	282	4415.2	6657.4	21	4	2008	14:45	173	5.59	32.55	5.78	33.41	2
173	283	4415.8	6711.8	21	4	2008	17:04	193	5.38	32.43	6.69	33.83	4
174	284	4413.7	6746.5	21	4	2008	20:49	96	4.89	32.27	4.82	32.85	4
175	285	4410.2	6741.8	21	4	2008	21:31	180	5.97	32.51	5.62	33.32	8
176	285	4401.1	6741.7	21	4	2008	23:17	193	6.28	32.54	7.08	34.07	5
177	286	4351.3	6746.4	22	4	2008	2:00	223	6.08	32.58	7.06	34.16	20
178	286	4350.8	6745.8	22	4	2008	2:30	226	6.13	32.57	7.03	34.16	4
179	287	4331.3	6804.2	22	4	2008	5:43	201	6.32	32.45	7.09	34.08	3
180	288	4339.5	6800.2	22	4	2008	8:13	190	6.05	32.57	7.17	34.09	2
181	289	4354.7	6808.0	22	4	2008	12:07	138	5.51	32.54	5.08	33.04	8
182	290	4350.4	6829.1	22	4	2008	14:26	129	6.11	32.49	4.85	32.96	2
183	291	4357.5	6818.6	22	4	2008	23:16	109	5.62	32.26	4.67	32.83	2
184	292	4345.1	6923.3	23	4	2008	6:13	91	5.81	32.03	3.72	32.43	8
185	293	4326.0	6909.3	23	4	2008	9:01	162	7.09	32.50	5.43	33.25	4
186	294	4324.5	6919.2	23	4	2008	10:53	160	7.63	32.15	5.56	33.39	3