Oceanography Branch CTD Data Report

CTD_REPORT_2010005HB

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

HB10-05
Fall Groundfish Survey
Data Coverage: 9 September – 3 December, 2010
Mid-Atlantic Bight, Georges Bank, Gulf of Maine

This report presents a summary of surface and bottom temperature and salinity data collected during the Northeast Fisheries Science Center's 2010 Fall Groundfish survey aboard the NOAA FSV *Henry Bigelow*. All data was obtained with Seabird Electronics SBE Model 19+ profiling CTD (s/n 4501). Please note that data for the following casts are not available: 015, 049, 050, 128, 156.

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/hb1005.dat

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

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

choose: **2010 Cruises**
SEPT_FALLTRAWL_HB1005
CTD_REPORT_2010005HB

Revised: 26 September, 2011

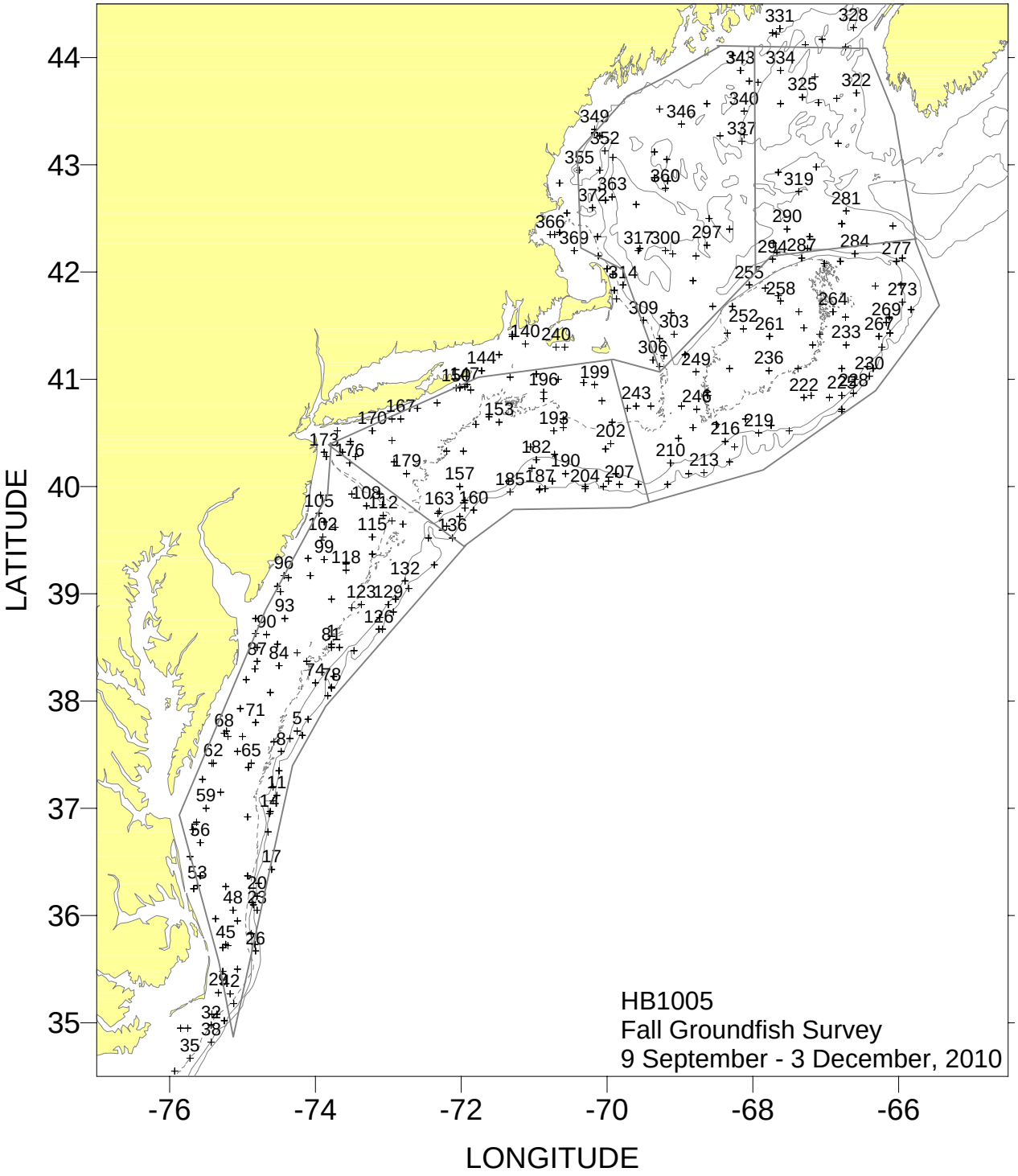
Areal average surface and bottom temperature/salinity and temperature/salinity anomalies for HB1005 Fall Groundfish Survey.

		SURFACE						BOTTOM						
CRUISE	CD	#obs	T/S	Anomaly	SDV1	SDV2	Flag	#obs	T/S	Anomaly	SDV1	SDV2	Flag	Purpose
						GOM West								
HB1005	317	44	10.74	0.54	0.16	0.71	0	44	8.93	1.45	0.14	0.96	0	10
HB1005	317	44	32.81	0.05	0.11	0.32	0	44	33.73	0.13	0.08	0.29	0	10
						GOM East								
HB1005	313	26	11.23	0.25	0.19	0.60	0	26	9.59	1.14	0.20	1.12	0	10
HB1005	313	26	32.79	0.04	0.13	0.38	0	26	34.48	0.06	0.10	0.33	0	10
						Georges Bank								
HB1005	298	56	13.96	-0.07	0.14	1.24	0	38	12.67	0.46	0.19	1.08	0	10
HB1005	298	56	32.41	-0.36	0.09	0.37	0	38	32.90	-0.21	0.11	0.42	0	10
						MAB North								
HB1005	282	61	17.61	0.62	0.17	1.26	0	46	13.81	1.26	0.22	1.73	0	10
HB1005	282	61	32.59	-0.17	0.11	0.65	0	46	33	-0.34	0.14	0.53	0	10
						MAB South								
HB1005	260	95	21.85	-0.03	0.13	1.12	0	81	14.74	0.55	0.16	1.97	0	10
HB1005	260	95	32.43	0.16	0.1	0.79	0	81	32.8	-0.45	0.1	0.71	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.


HB1005
Fall Groundfish Survey
9 September - 3 December, 2010
LATITUDE
LONGITUDE
44
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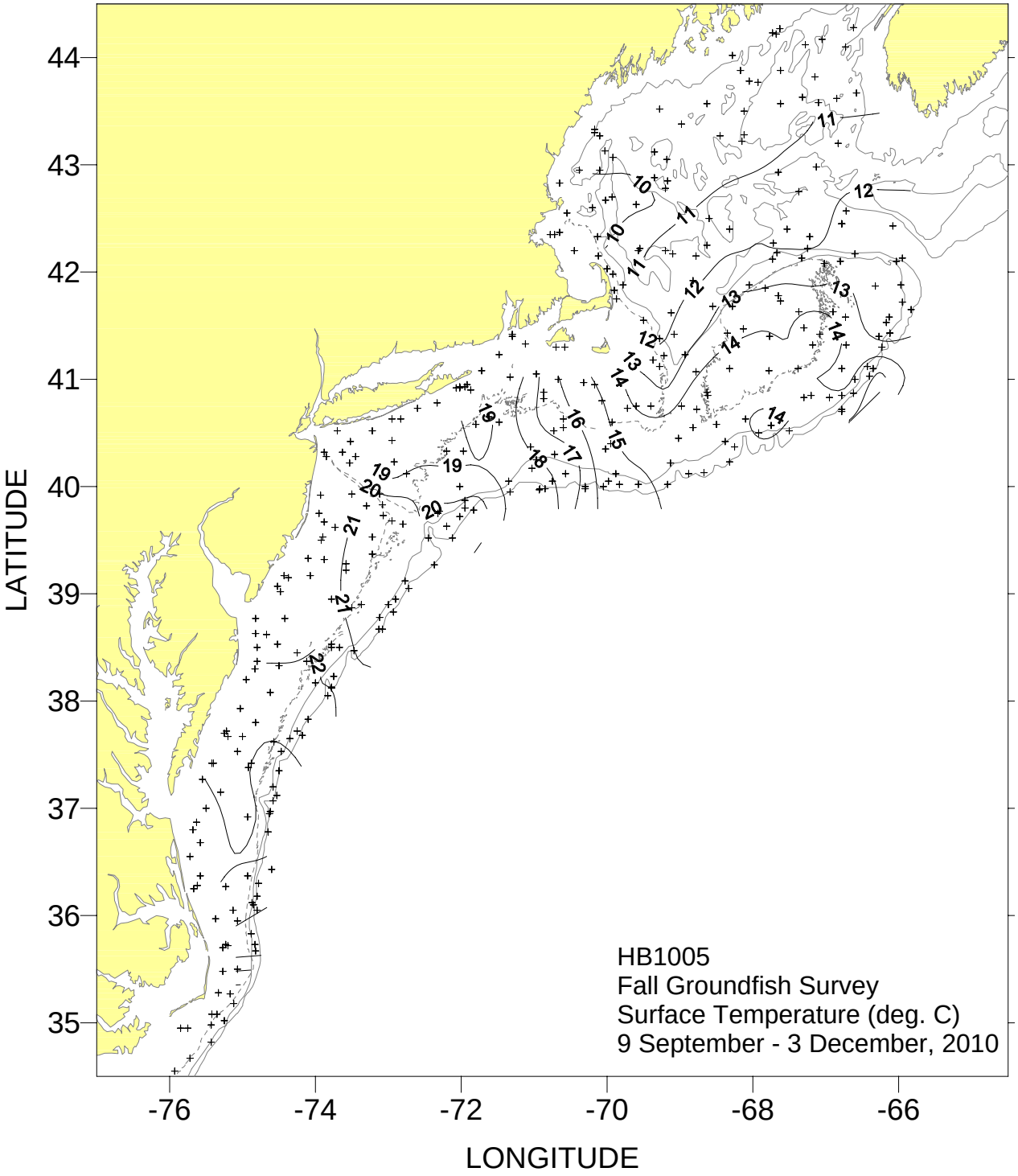
HB1005
Fall Groundfish Survey
Surface Temperature (deg. C)
9 September - 3 December, 2010
LATITUDE
LONGITUDE
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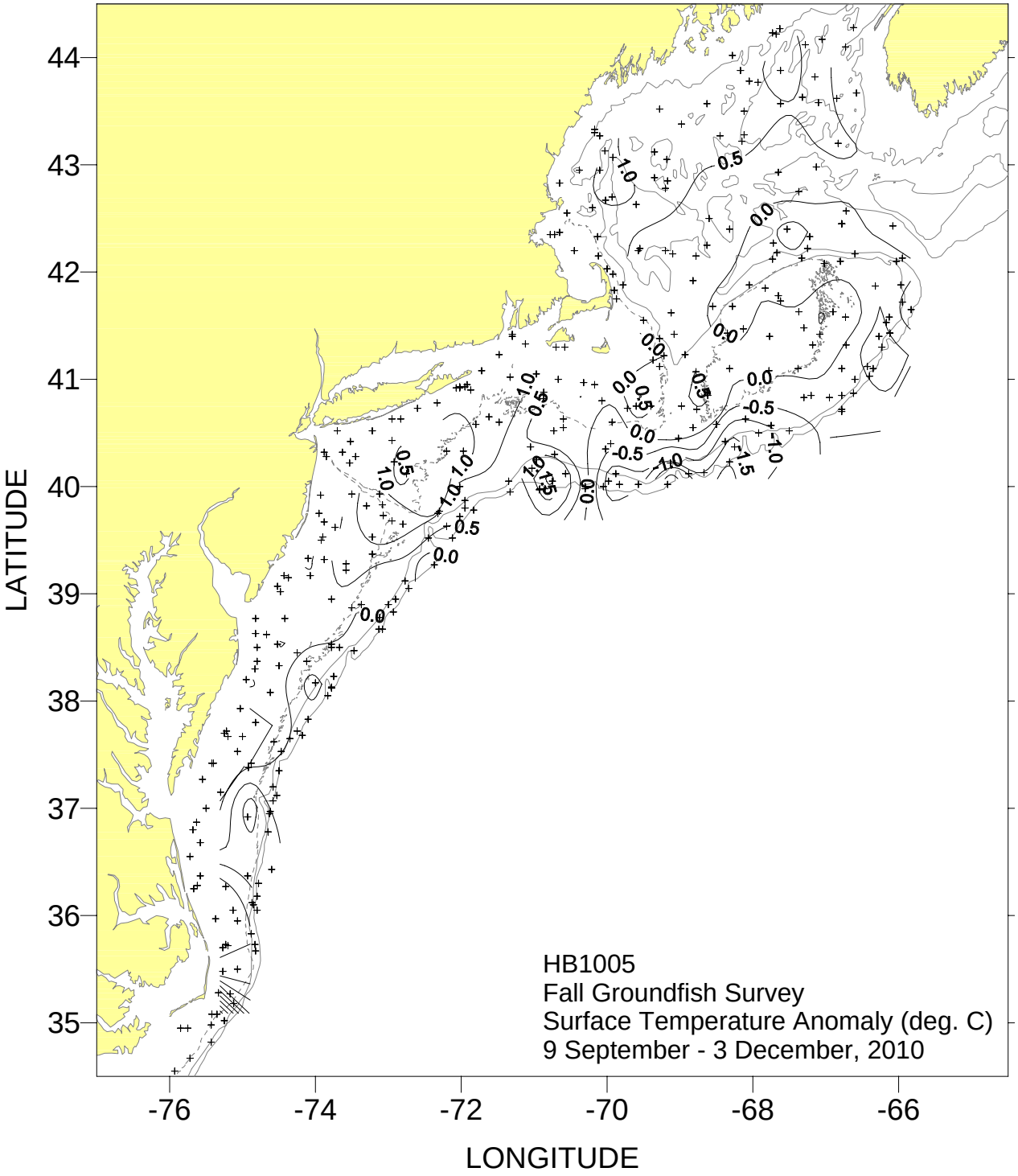
HB1005
Fall Groundfish Survey
Surface Temperature Anomaly (deg. C)
9 September - 3 December, 2010
LATITUDE
LONGITUDE
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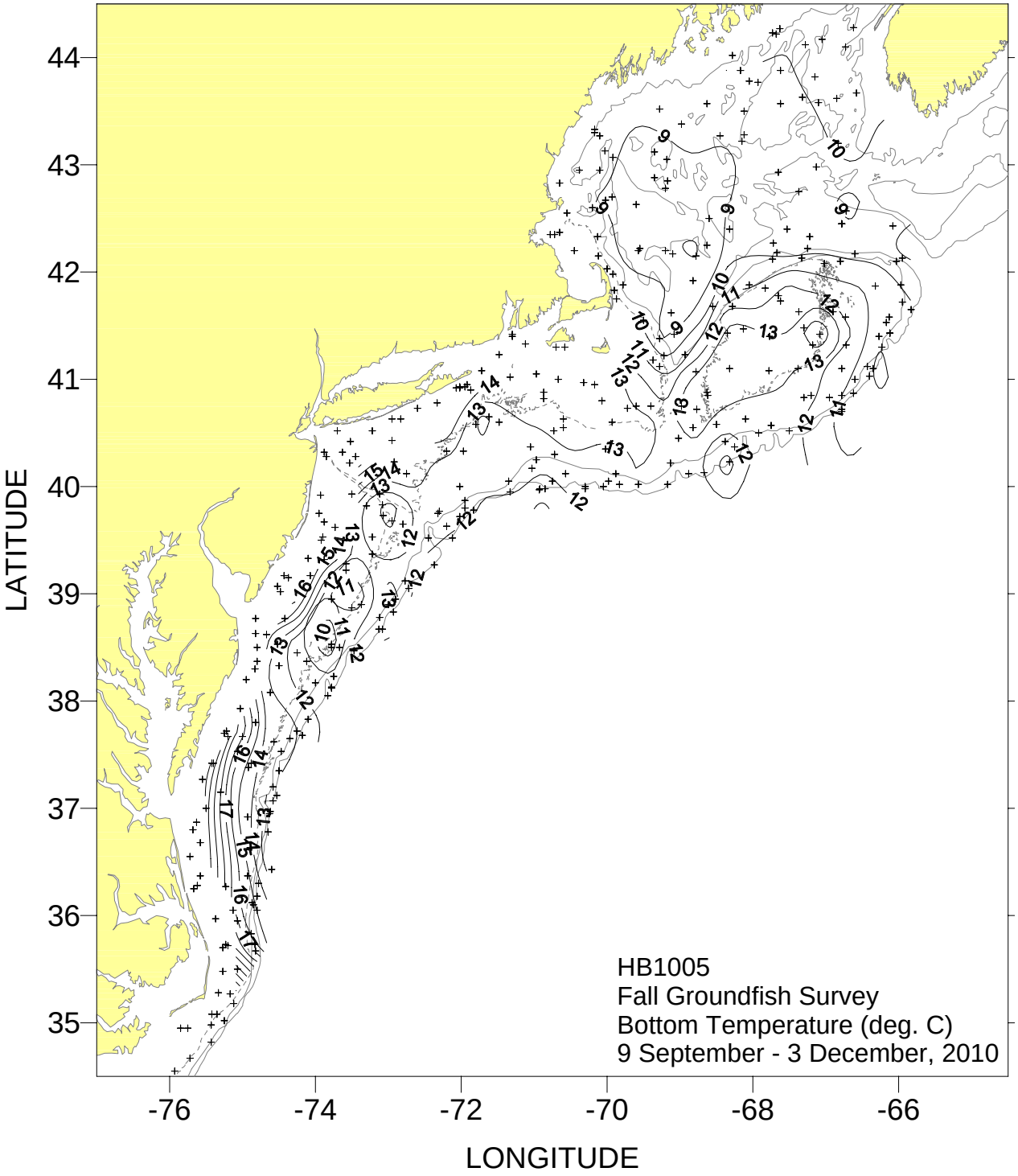
HB1005
Fall Groundfish Survey
Bottom Temperature (deg. C)
9 September - 3 December, 2010
LATITUDE
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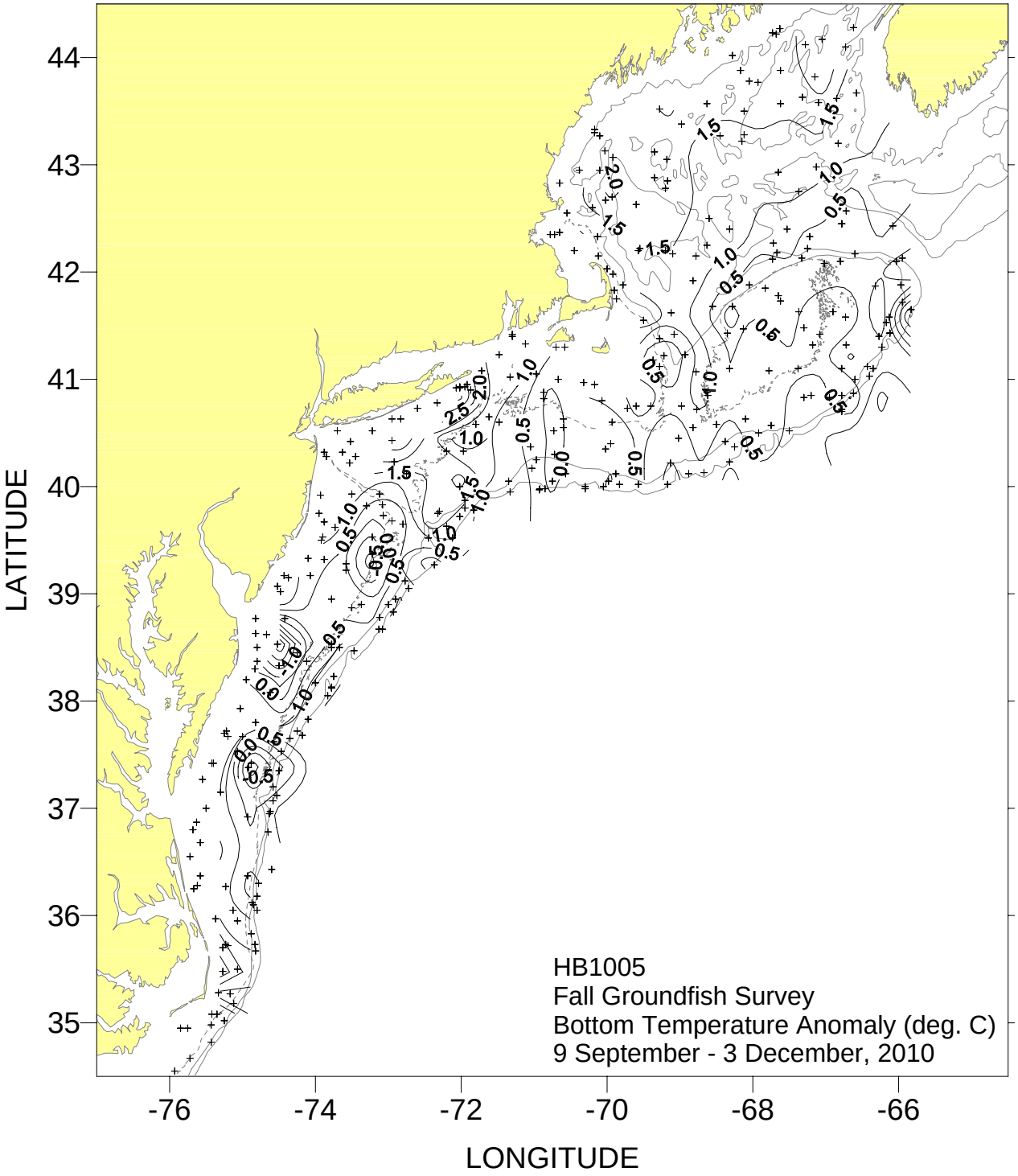
HB1005
Fall Groundfish Survey
Bottom Temperature Anomaly (deg. C)
9 September - 3 December, 2010
LATITUDE
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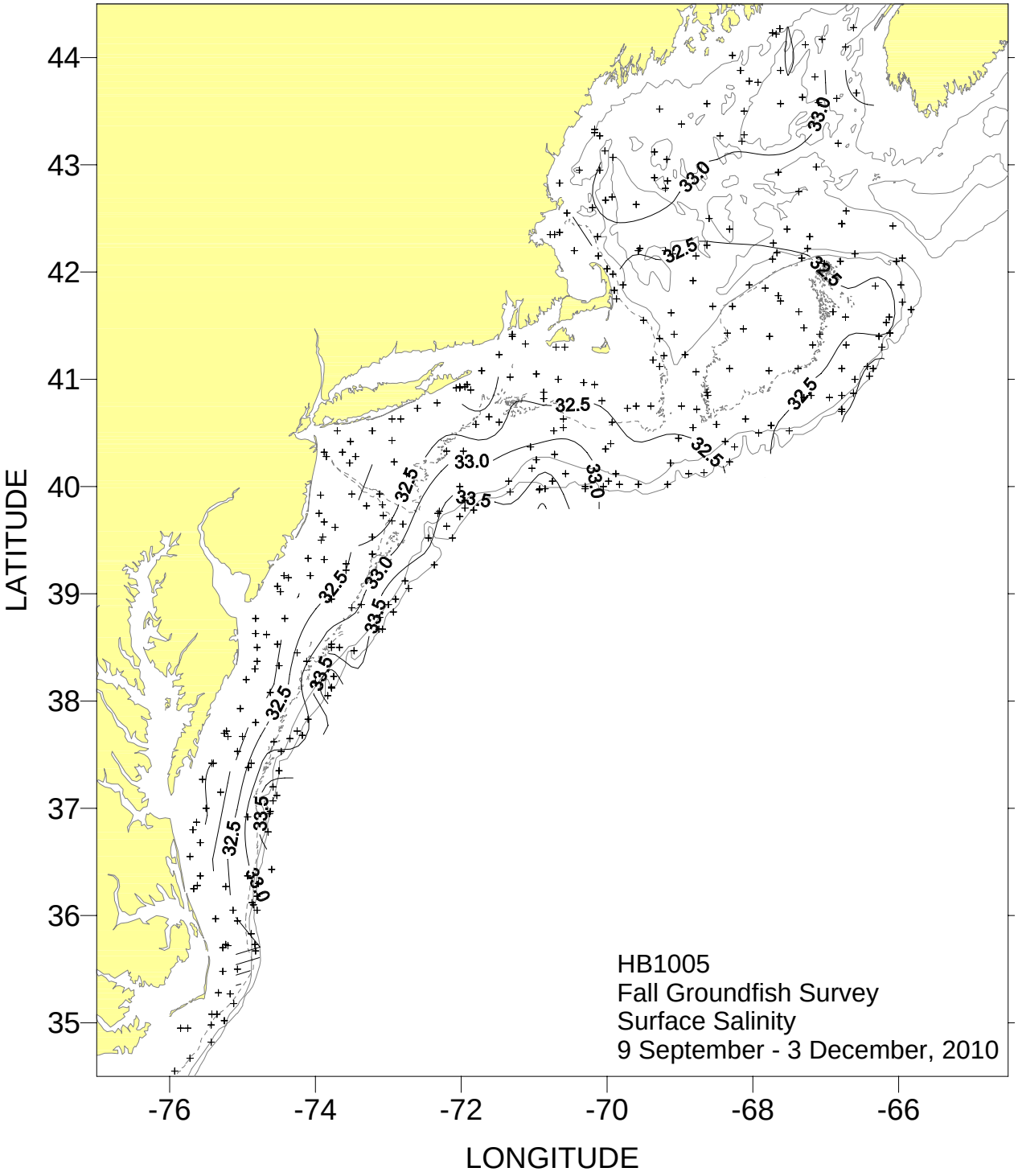
HB1005
Fall Groundfish Survey
Surface Salinity
9 September - 3 December, 2010
LATITUDE
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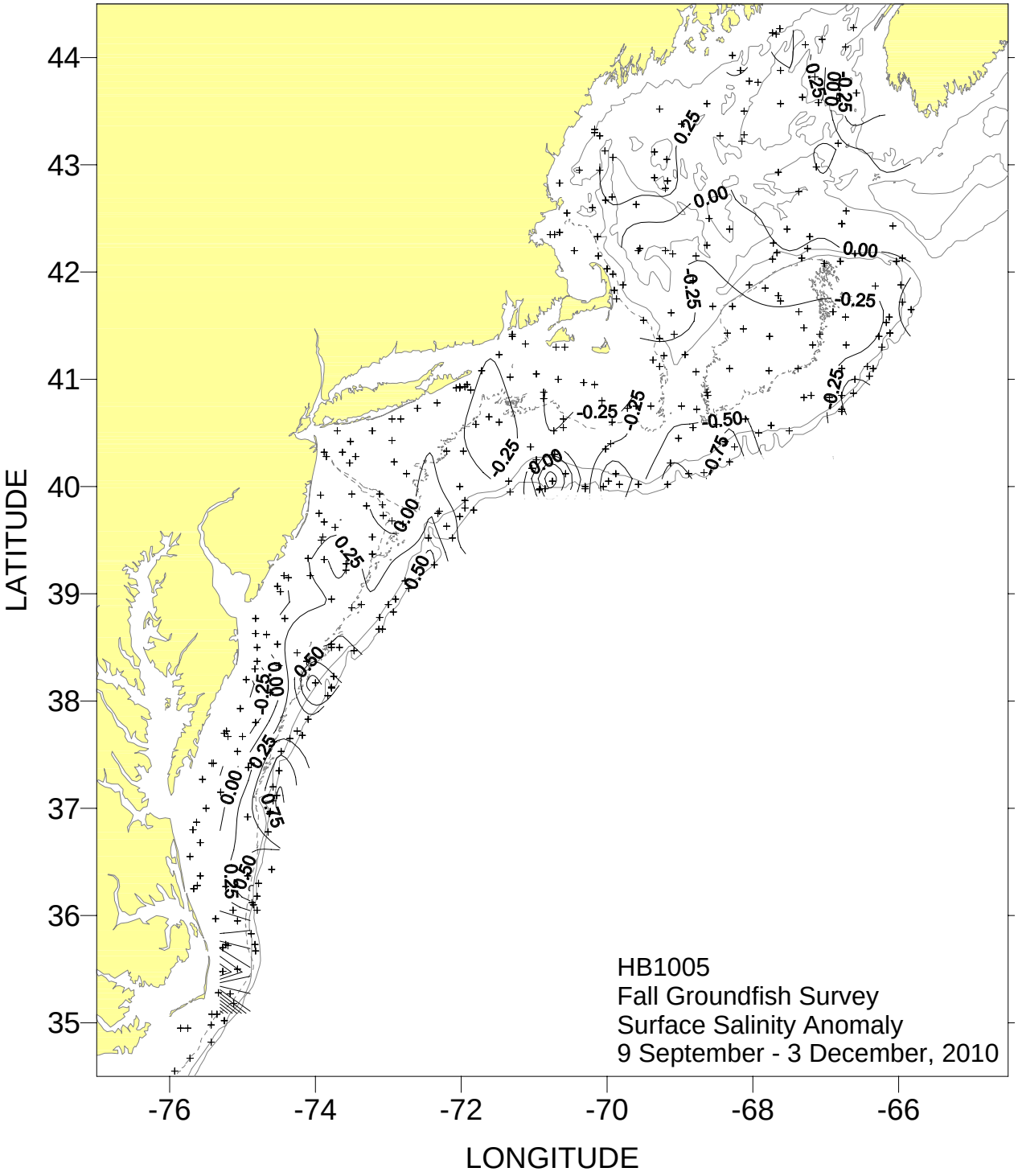
HB1005
Fall Groundfish Survey
Surface Salinity Anomaly
9 September - 3 December, 2010
LATITUDE
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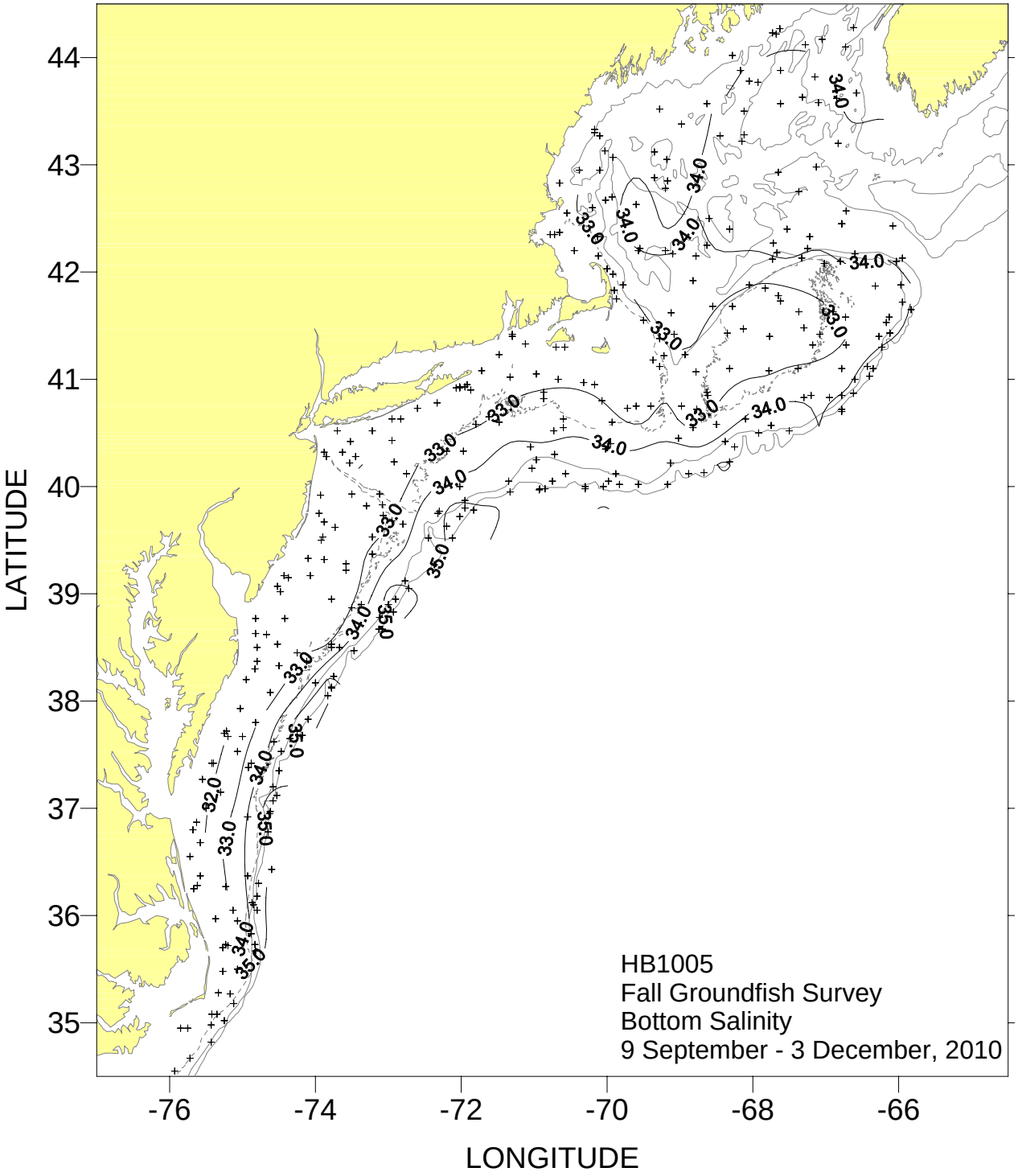
HB1005
Fall Groundfish Survey
Bottom Salinity
9 September - 3 December, 2010
LATITUDE
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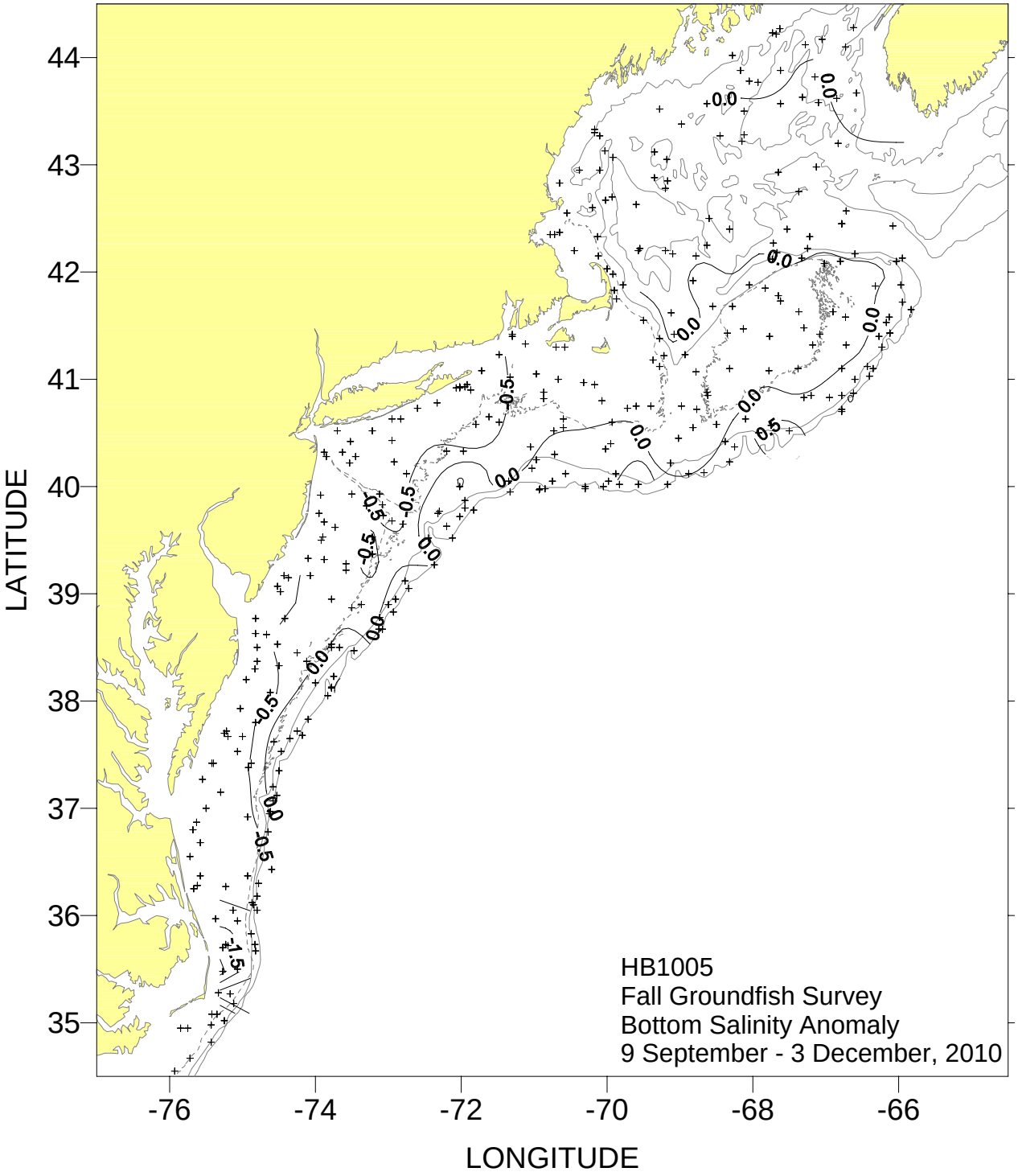
HB1005
Fall Groundfish Survey
Bottom Salinity Anomaly
9 September - 3 December, 2010
LATITUDE
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HB1005

Fall Groundfish Survey

9 September - 3 December, 2010

Cast #	Sta #	Lat (deg. N)	Lon (deg. W)	Day	Mo	Year	Time GMT	Btm Depth (m)	Sfc Temp (deg. C)	Sfc Salinity	Btm Temp (m)	Btm Temp (deg. C)	Meters from Btm
1	1	3832.4	7347.2	9	9	2010	14:16	61	22.3	33.06	8.1	32.61	4
2	3	3750.3	7406.4	10	9	2010	0:41	231	23.4	33.97	12.0	35.53	3
3	4	3741.5	7411.5	10	9	2010	4:16	307	23.4	34.57	9.4	35.24	1
4	5	3743.5	7415.5	10	9	2010	5:22	108	22.6	32.49	13.2	35.67	2
5	6	3739.9	7421.1	10	9	2010	7:18	94	23.1	32.63	14.6	35.69	2
6	7	3737.1	7434.3	10	9	2010	9:16	66	23.7	33.59	11.7	34.06	3
7	8	3732.5	7428.1	10	9	2010	11:21	76	23.6	33.56	14.7	35.49	3
8	9	3721.6	7430.6	10	9	2010	13:28	116	23.5	33.67	11.9	35.52	1
9	10	3712.8	7435.1	10	9	2010	15:49	100	23.9	34.35	13.4	35.63	3
10	11	3707.4	7432.8	10	9	2010	19:28	273	23.9	34.04	10.4	35.34	1
11	12	3704.8	7435.9	10	9	2010	21:15	107	23.7	34.31	13.8	35.69	1
12	13	3658.7	7437.2	11	9	2010	0:09	297	23.2	34.08	10.1	35.31	2
13	14	3657.9	7438.8	11	9	2010	1:31	99	23.2	34.08	13.6	35.58	3
14	15	3655.1	7456.5	11	9	2010	4:01	43	21.3	32.71	11.3	33.09	3
16	16	3647.6	7439.2	11	9	2010	9:34	258	23.1	34.04	12.3	35.57	55
17	17	3626.1	7436.3	11	9	2010	13:36	208	22.9	33.48	11.0	35.41	1
18	18	3622.1	7436.0	11	9	2010	14:45	44	23.3	33.96	13.1	33.72	2
19	19	3618.8	7447.1	11	9	2010	18:01	191	23.5	33.99	11.7	35.48	1
20	20	3611.9	7448.5	11	9	2010	19:07	111	23.6	34.19	13.7	35.69	2
21	21	3606.8	7451.3	11	9	2010	21:32	93	22.5	32.21	14.0	35.56	4
22	22	3607.5	7452.5	11	9	2010	23:07	83	22.5	32.02	14.0	35.49	3
23	23	3603.3	7448.7	12	9	2010	1:16	124	22.4	33.26	12.9	35.63	4
24	24	3550.3	7453.5	12	9	2010	3:52	88	22.7	31.75	14.1	35.69	3
25	25	3544.9	7450.1	12	9	2010	7:34	229	22.1	32.20	11.2	35.44	1
26	26	3540.7	7449.7	12	9	2010	8:34	113	24.3	32.25	13.7	35.68	1
27	27	3530.1	7504.0	12	9	2010	12:38	38	23.4	31.84	21.7	34.00	2
28	28	3529.1	7516.1	12	9	2010	13:33	29	24.2	31.36	22.4	32.73	2
29	29	3517.8	7520.3	12	9	2010	15:46	27	25.4	32.00	27.2	35.17	6

Cast #	Sta #	Lat (deg. N)	Lon (deg. W)	Day	Mo	Year	Time GMT	Btm Depth (m)	Sfc Temp (deg. C)	Sfc Salinity	Btm Temp (m)	Btm Temp (deg. C)	Meters from Btm
30	30	3505.5	7521.2	12	9	2010	18:16	36	28.7	35.91	27.4	36.17	4
31	31	3505.5	7525.6	12	9	2010	19:43	25	28.9	35.94	28.1	36.03	5
32	32	3459.6	7526.0	12	9	2010	21:22	61	28.2	36.20	25.4	36.39	5
33	33	3457.6	7545.2	12	9	2010	23:49	27	27.4	36.18	26.7	36.22	6
34	34	3457.2	7551.0	13	9	2010	1:16	25	27.1	35.88	27.2	36.21	4
35	35	3440.0	7543.9	13	9	2010	4:00	40	28.0	36.13	24.8	36.41	3
36	36	3433.2	7556.0	13	9	2010	6:35	46	28.1	36.08	26.2	36.36	3
37	37	3428.6	7547.2	13	9	2010	8:34	170	27.7	36.22	14.4	35.89	0
38	38	3449.9	7526.0	13	9	2010	14:16	222	27.1	36.21	13.2	35.69	1
39	39	3501.6	7515.9	13	9	2010	16:07	132	28.0	36.07	18.7	36.32	6
40	40	3511.1	7507.9	13	9	2010	18:22	102	28.6	35.95	23.1	36.42	4
41	42	3516.0	7510.2	13	9	2010	21:25	36	26.8	34.54	27.3	36.21	3
42	43	3543.1	7512.8	14	9	2010	0:36	37	22.8	31.55	19.3	32.18	5
43	44	3542.7	7516.6	14	9	2010	2:10	32	22.8	31.42	21.9	31.67	5
44	45	3544.9	7514.4	14	9	2010	3:28	34	22.6	31.63	19.6	32.09	3
45	46	3558.3	7522.2	14	9	2010	6:10	29	22.3	31.85	22.2	31.98	2
46	47	3557.6	7504.7	14	9	2010	7:45	35	22.6	32.27	17.0	32.52	2
47	48	3603.4	7508.6	14	9	2010	9:16	36	22.5	32.85	16.1	32.62	2
48	49	3616.9	7514.3	14	9	2010	11:37	32	21.8	32.47	17.3	33.08	3
51	52	3615.0	7540.7	14	9	2010	16:36	25	23.4	31.23	23.2	31.34	5
52	53	3617.7	7537.7	14	9	2010	17:40	25	23.4	31.53	22.5	31.60	4
53	54	3622.5	7535.2	14	9	2010	18:49	26	22.8	32.08	21.9	32.08	5
54	55	3633.2	7543.2	14	9	2010	20:32	24	23.4	31.24	23.1	31.29	3
55	56	3641.4	7535.8	14	9	2010	22:19	24	24.6	30.77	23.1	31.11	5
56	57	3648.9	7541.8	14	9	2010	23:58	19	23.6	30.58	23.4	31.02	3
57	58	3652.9	7538.2	15	9	2010	1:25	23	23.9	31.22	22.0	31.49	6
58	59	3700.5	7530.2	15	9	2010	3:15	27	23.5	31.36	20.4	31.95	6
59	60	3709.3	7518.9	15	9	2010	5:07	32	22.9	31.40	18.4	32.26	3
60	61	3716.3	7533.2	15	9	2010	7:25	20	23.1	31.31	23.0	31.31	3
61	62	3725.2	7524.5	15	9	2010	9:30	22	22.7	31.30	22.1	31.36	2
62	63	3725.9	7525.3	15	9	2010	10:25	23	22.3	31.34	22.3	31.35	0
63	64	3723.5	7455.6	15	9	2010	13:21	46	22.5	32.13	12.1	32.53	3
64	65	3725.8	7453.8	15	9	2010	14:41	46	22.7	32.64	10.4	32.57	2
65	66	3732.5	7504.4	15	9	2010	17:08	32	22.6	31.72	14.0	32.26	5

Cast #	Sta #	Lat (deg. N)	Lon (deg. W)	Day	Mo	Year	Time GMT	Btm Depth (m)	Sfc Temp (deg. C)	Sfc Salinity	Btm Temp (m)	Btm Temp (deg. C)	Meters from Btm
66	67	3740.4	7512.9	15	9	2010	19:01	28	23.2	31.73	20.7	31.90	4
67	68	3742.7	7515.3	15	9	2010	20:08	23	22.9	31.15	22.3	31.65	4
68	69	3743.0	7513.6	15	9	2010	21:42	26	22.7	31.30	22.2	31.65	4
69	70	3740.8	7500.2	15	9	2010	23:23	28	22.9	31.58	17.4	32.83	1
70	71	3748.4	7449.5	16	9	2010	1:38	40	22.5	31.58	13.1	32.33	3
71	72	3756.4	7502.7	16	9	2010	4:05	26	22.3	31.15	21.3	31.31	2
72	73	3805.9	7437.2	16	9	2010	6:46	35	22.4	31.58	11.7	32.16	2
73	74	3810.6	7400.4	16	9	2010	10:00	74	21.2	33.78	10.4	33.75	1
74	76	3803.2	7350.8	16	9	2010	15:22	259	20.7	33.52	9.2	35.25	2
75	77	3807.4	7347.3	16	9	2010	18:36	218	22.4	34.84	11.0	35.43	1
76	78	3808.0	7347.0	16	9	2010	19:04	158	22.3	34.78	12.5	35.63	3
77	79	3814.9	7345.8	16	9	2010	21:49	117	20.7	33.55	13.9	35.70	2
78	80	3830.1	7340.3	17	9	2010	0:46	72	20.8	33.15	10.5	33.56	4
79	81	3830.9	7347.6	17	9	2010	14:13	60	21.9	33.34	9.0	32.70	3
80	82	3822.5	7407.2	17	9	2010	16:55	60	22.0	32.71	8.4	32.53	3
81	83	3827.1	7415.9	17	9	2010	18:55	48	22.3	32.63	8.5	32.49	5
82	84	3820.3	7430.2	17	9	2010	21:28	46	22.4	31.67	10.1	32.35	2
83	85	3812.7	7457.9	18	9	2010	0:20	22	22.9	31.17	21.1	31.34	5
84	86	3818.4	7450.2	18	9	2010	2:27	28	22.3	31.08	17.6	31.72	4
85	87	3822.2	7448.6	18	9	2010	3:57	25	21.7	31.21	13.8	31.99	2
86	88	3830.0	7448.8	18	9	2010	5:25	27	21.6	31.18	13.2	32.00	2
87	89	3832.7	7431.4	18	9	2010	7:39	36	21.9	32.16	10.2	32.29	3
88	90	3837.6	7440.8	18	9	2010	9:16	27	21.4	31.48	14.5	32.05	2
89	91	3838.8	7449.7	18	9	2010	11:22	28	21.5	31.03	15.1	31.87	4
90	92	3846.6	7449.5	18	9	2010	13:03	17	21.4	30.97	20.1	31.19	2
91	93	3846.0	7425.8	18	9	2010	15:38	31	21.8	32.13	16.3	32.16	7
92	94	3901.7	7429.1	18	9	2010	18:01	18	21.4	31.48	19.6	31.65	5
93	95	3904.0	7431.7	18	9	2010	19:34	18	21.6	31.33	20.5	31.52	4
94	96	3910.8	7426.1	18	9	2010	21:23	21	21.3	31.52	20.1	31.49	5
95	97	3909.8	7422.3	18	9	2010	22:28	23	21.4	31.50	19.4	31.58	4
96	98	3910.9	7404.0	19	9	2010	0:31	25	21.1	32.04	18.2	32.05	3
97	99	3919.9	7353.9	19	9	2010	2:24	33	21.4	32.57	14.1	32.19	3
98	100	3920.2	7406.9	19	9	2010	4:25	26	21.1	31.90	19.4	31.92	2
99	101	3930.3	7355.4	19	9	2010	6:13	25	21.2	31.78	18.5	32.08	1

Cast #	Sta #	Lat (deg. N)	Lon (deg. W)	Day	Mo	Year	Time GMT	Btm Depth (m)	Sfc Temp (deg. C)	Sfc Salinity	Btm Temp (m)	Btm Temp (deg. C)	Meters from Btm
100	102	3932.4	7354.1	19	9	2010	7:07	26	21.1	31.85	18.8	32.08	2
101	103	3937.7	7344.6	19	9	2010	8:48	24	21.2	31.69	17.5	32.33	0
102	104	3940.4	7353.5	19	9	2010	10:18	28	21.2	31.72	20.1	31.90	3
103	105	3945.5	7357.8	19	9	2010	11:52	24	21.1	31.84	20.4	31.96	1
104	106	3955.2	7356.4	19	9	2010	13:30	22	21.1	31.87	19.3	31.98	2
105	107	3956.0	7330.4	19	9	2010	16:28	40	21.2	31.55	11.9	32.35	4
106	108	3949.6	7318.4	19	9	2010	18:21	46	21.7	32.05	10.1	32.45	4
107	110	3956.2	7307.9	19	9	2010	21:34	72	21.5	32.00	9.7	32.46	3
108	111	3950.0	7305.3	19	9	2010	23:17	62	21.3	32.09	9.7	32.47	3
109	112	3944.3	7304.9	20	9	2010	0:52	55	21.2	32.30	9.5	32.50	3
110	113	3941.7	7257.7	20	9	2010	2:30	68	20.5	32.27	9.5	32.49	5
111	114	3939.6	7248.1	20	9	2010	4:03	70	20.3	32.39	9.7	33.12	1
112	115	3932.7	7313.9	20	9	2010	6:55	40	21.2	32.55	10.4	32.35	2
113	116	3922.0	7313.8	20	9	2010	8:45	56	20.8	32.63	11.8	32.71	13
114	117	3917.0	7335.3	20	9	2010	11:28	47	21.2	32.88	11.8	32.71	4
115	118	3913.2	7335.4	20	9	2010	13:22	44	21.1	32.94	10.4	32.55	1
116	119	3857.4	7347.7	20	9	2010	16:08	42	21.5	32.49	10.7	32.47	3
117	121	3852.8	7330.9	20	9	2010	21:28	64	20.7	32.63	9.2	32.64	3
118	123	3854.1	7322.5	21	9	2010	1:16	62	19.9	32.76	9.1	32.65	1
119	124	3828.8	7328.6	21	9	2010	5:11	107	20.4	33.50	14.2	35.48	1
120	125	3840.2	7305.8	21	9	2010	9:55	255	20.3	34.17	10.5	35.35	1
121	126	3840.5	7308.9	21	9	2010	10:45	142	20.1	34.26	13.1	35.67	1
122	127	3847.6	7307.1	21	9	2010	13:13	90	19.6	33.19	13.9	35.43	1
123	128	3850.8	7256.2	21	9	2010	17:02	185	20.4	33.67	12.3	35.57	2
124	129	3854.5	7300.1	21	9	2010	18:10	84	20.2	33.61	14.2	35.47	4
125	130	3857.3	7254.3	21	9	2010	20:15	113	21.2	34.13	14.7	35.77	1
126	131	3903.1	7243.8	22	9	2010	0:15	297	20.8	34.53	8.2	35.14	8
127	132	3907.0	7246.4	22	9	2010	1:38	127	20.6	34.48	14.5	35.83	3
129	134	3916.3	7222.4	22	9	2010	9:13	226	22.3	35.09	10.0	35.30	2
130	135	3931.5	7227.4	22	9	2010	13:43	116	19.0	32.74	14.9	35.76	4
131	136	3931.3	7207.2	22	9	2010	18:10	302	20.1	33.66	9.2	35.21	9
132	137	3938.6	7212.4	22	9	2010	20:10	126	20.3	33.79	13.5	35.63	3
133	138	4103.1	7058.8	28	9	2010	6:15	40	17.9	32.02	15.1	32.55	5
134	140	4120.8	7107.5	28	9	2010	11:26	26	18.4	31.92	17.2	32.10	5

Cast #	Sta #	Lat (deg. N)	Lon (deg. W)	Day	Mo	Year	Time GMT	Btm Depth (m)	Sfc Temp (deg. C)	Sfc Salinity	Btm Temp (m)	Btm Temp (deg. C)	Meters from Btm
135	141	4124.6	7118.9	28	9	2010	19:37	32	18.8	31.83	17.7	31.95	1
136	143	4114.6	7129.7	29	9	2010	1:01	42	18.0	31.71	15.5	32.01	3
137	144	4105.1	7143.4	29	9	2010	5:07	42	18.6	31.31	14.2	32.24	6
138	145	4054.8	7152.6	29	9	2010	8:21	35	18.4	31.73	15.2	32.14	7
139	146	4057.3	7155.2	29	9	2010	11:19	30	18.7	31.53	18.6	31.77	7
140	147	4056.8	7157.8	29	9	2010	11:55	29	18.6	31.50	18.6	31.80	4
141	148	4056.5	7201.1	29	9	2010	13:31	28	18.9	31.55	18.6	31.85	6
142	149	4055.5	7201.7	29	9	2010	15:49	30	18.9	31.50	17.6	31.81	3
143	150	4055.7	7204.8	29	9	2010	17:04	29	19.6	31.62	18.3	31.78	3
144	151	4035.2	7148.3	29	9	2010	20:25	65	20.2	31.90	9.9	32.81	3
145	152	4039.8	7137.2	29	9	2010	22:25	71	19.5	32.06	10.7	32.98	1
146	153	4036.8	7129.3	30	9	2010	0:34	67	19.3	32.50	11.0	33.13	1
147	154	4101.1	7120.8	30	9	2010	4:10	48	19.0	32.37	13.3	32.54	5
148	156	4125.1	7118.0	30	9	2010	8:22	29	18.9	31.86	18.0	31.96	6
149	157	4000.4	7201.8	3	10	2010	2:34	80	19.2	32.98	13.0	34.72	1
150	158	3952.5	7157.3	3	10	2010	4:28	119	21.0	34.14	14.1	35.72	3
151	159	3948.2	7157.3	3	10	2010	5:55	149	20.3	33.70	13.4	35.69	7
152	160	3947.4	7150.3	3	10	2010	8:58	226	21.2	34.04	10.5	35.33	5
153	161	3943.1	7201.6	3	10	2010	10:13	155	20.2	33.72	13.1	35.67	4
154	162	3945.6	7219.4	3	10	2010	12:51	92	20.4	34.16	13.2	99.99	0
157	165	4047.8	7220.9	5	10	2010	15:45	32	17.5	31.75	17.4	31.87	1
158	166	4044.8	7236.9	5	10	2010	18:06	29	18.5	31.68	18.5	31.68	1
155	163	3946.7	7218.3	3	10	2010	14:19	91	20.4	34.13	13.2	35.10	1
159	167	4038.6	7250.9	5	10	2010	19:55	31	18.3	31.73	17.9	31.78	1
160	168	4038.6	7257.2	5	10	2010	21:30	25	18.8	31.70	18.8	31.70	0
161	169	4026.6	7257.4	5	10	2010	23:45	40	17.5	31.90	17.4	31.91	1
162	170	4031.5	7313.1	6	10	2010	1:58	23	18.7	31.70	18.8	31.69	3
163	171	4025.6	7331.0	6	10	2010	4:19	24	19.2	31.75	19.2	31.75	5
164	172	4031.3	7342.3	6	10	2010	6:07	19	18.9	31.38	18.7	31.35	3
165	173	4019.1	7353.9	6	10	2010	8:37	24	18.1	26.75	19.2	31.74	4
166	174	4017.3	7351.2	6	10	2010	9:46	27	19.0	31.45	19.1	31.77	4
167	175	4019.8	7338.7	6	10	2010	11:49	27	18.9	31.77	19.0	31.77	3
168	176	4013.8	7332.3	6	10	2010	13:46	32	19.0	31.75	18.9	31.75	5
169	177	4017.8	7327.4	6	10	2010	15:08	29	18.9	31.75	18.9	31.75	5

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170	178	4014.1	7255.7	6	10	2010	17:52	48	17.4	32.37	14.8	32.21	2
171	179	4007.0	7245.9	6	10	2010	19:38	54	17.2	32.21	10.8	32.42	2
172	180	4020.3	7212.8	6	10	2010	22:52	63	18.1	33.36	10.6	32.67	3
173	181	4020.9	7158.9	7	10	2010	0:51	66	17.7	33.00	10.6	32.91	2
174	182	4015.1	7058.5	13	10	2010	7:19	56	16.5	32.04	12.3	32.82	1
175	183	4049.9	7052.8	13	10	2010	9:01	55	16.3	32.12	12.4	32.69	2
176	184	4003.3	7121.5	13	10	2010	20:15	109	17.4	33.06	14.5	35.70	4
177	185	3957.4	7120.7	13	10	2010	23:17	276	18.2	33.56	9.5	35.22	2
178	186	4010.9	7102.3	14	10	2010	1:34	135	19.2	34.21	13.7	35.72	2
179	187	3958.8	7056.0	14	10	2010	5:25	331	19.9	34.64	12.0	35.53	128
180	187	3959.7	7055.7	14	10	2010	6:01	311	19.9	34.65	8.0	35.13	0
181	188	3959.4	7051.9	14	10	2010	7:58	320	19.8	34.67	8.3	35.14	1
182	189	4003.3	7045.2	14	10	2010	9:16	142	19.6	34.58	13.0	35.67	3
183	190	4007.3	7034.6	14	10	2010	11:37	122	19.4	34.36	14.5	35.82	1
184	191	4018.1	7043.0	14	10	2010	13:43	110	18.5	33.96	13.8	35.16	1
185	192	4022.7	7103.9	14	10	2010	16:06	89	16.7	33.01	13.6	34.97	5
186	193	4031.9	7044.2	14	10	2010	19:13	74	16.0	32.41	13.1	34.05	5
187	194	4033.4	7036.6	14	10	2010	21:30	69	16.0	32.49	13.0	33.82	5
188	195	4038.5	7036.1	14	10	2010	23:04	62	16.1	32.46	13.3	33.19	3
189	196	4053.7	7052.5	15	10	2010	2:07	54	16.2	32.39	13.1	32.70	4
190	197	4100.9	7040.2	17	10	2010	17:07	48	15.4	32.28	13.8	33.04	3
191	198	4058.0	7019.4	17	10	2010	19:40	43	15.2	32.26	15.2	32.29	4
192	199	4057.4	7010.4	17	10	2010	21:32	27	15.5	32.07	15.5	32.07	3
193	200	4048.0	7004.6	17	10	2010	23:19	31	15.2	32.09	15.1	32.34	3
194	201	4036.7	6956.6	18	10	2010	1:46	58	15.2	32.74	13.8	33.20	2
195	202	4024.1	6957.5	18	10	2010	3:58	78	14.7	32.67	12.8	33.53	3
196	203	4021.9	7001.7	18	10	2010	5:22	84	14.7	32.61	12.5	33.53	5
197	204	4000.1	7018.2	18	10	2010	8:40	310	16.1	33.31	11.6	35.48	109
198	204	3959.4	7018.1	18	10	2010	10:40	321	15.4	32.97	8.3	35.17	0
199	205	4000.7	7003.8	18	10	2010	12:13	167	15.0	32.53	12.6	35.55	3
200	206	4007.7	6953.4	18	10	2010	14:30	108	14.7	32.38	13.5	35.28	1
201	207	4001.2	6950.6	18	10	2010	16:43	142	14.6	32.40	12.9	35.52	0
202	208	4001.6	6934.5	18	10	2010	18:53	117	15.0	32.79	13.7	35.53	2
203	209	4001.8	6910.3	18	10	2010	22:43	207	15.2	33.04	11.1	35.41	2

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204	210	4013.5	6908.6	19	10	2010	0:13	105	14.7	32.73	13.4	35.23	6
205	211	4003.3	6909.1	19	10	2010	4:10	196	15.8	33.25	11.4	35.43	0
206	212	4007.7	6853.9	19	10	2010	5:10	166	14.6	32.70	12.4	35.52	1
207	213	4008.8	6840.3	19	10	2010	7:16	170	15.7	33.16	12.3	35.52	1
208	214	4014.7	6819.6	19	10	2010	9:49	202	13.9	32.46	9.8	35.28	2
209	215	4022.0	6815.1	19	10	2010	11:49	140	13.7	32.39	12.9	35.45	4
210	216	4025.2	6823.4	19	10	2010	13:43	105	14.0	32.31	12.6	34.84	1
211	217	4035.4	6830.2	19	10	2010	16:04	72	14.9	32.22	12.1	33.03	5
212	218	4038.1	6806.4	19	10	2010	18:32	89	14.5	32.23	11.9	33.63	3
213	219	4030.4	6755.1	19	10	2010	20:34	111	13.4	32.50	12.5	35.02	7
214	220	4034.9	6745.4	19	10	2010	22:32	95	14.0	32.27	12.5	35.10	3
215	221	4031.4	6730.4	20	10	2010	0:31	126	13.9	32.63	12.2	35.41	2
216	222	4050.5	6718.5	20	10	2010	5:04	90	13.2	32.39	11.7	33.57	1
217	223	4051.7	6712.2	20	10	2010	6:22	90	13.3	32.36	11.3	33.30	1
218	224	4050.8	6657.0	20	10	2010	8:18	94	13.2	32.42	11.8	34.33	2
219	225	4051.8	6647.6	20	10	2010	10:04	102	14.2	32.79	12.6	34.79	2
220	227	4042.4	6647.2	20	10	2010	15:16	303	16.3	33.58	7.5	35.10	4
221	227	4043.0	6647.1	20	10	2010	15:46	292	15.3	33.14	12.4	35.58	88
222	228	4052.7	6637.9	20	10	2010	17:13	170	15.7	33.53	12.5	35.52	1
223	229	4100.5	6636.3	20	10	2010	19:01	91	13.0	32.47	10.6	33.48	2
224	230	4102.2	6624.7	20	10	2010	22:55	318	14.9	33.26	6.7	35.06	3
225	230	4102.4	6624.7	20	10	2010	23:34	346	15.7	33.57	9.7	35.27	138
226	231	4106.7	6621.1	21	10	2010	3:07	254	18.3	34.67	8.4	35.17	4
227	232	4107.6	6626.0	21	10	2010	4:13	114	14.8	33.18	13.2	35.05	3
228	233	4119.7	6643.0	21	10	2010	6:55	76	13.5	32.36	12.7	32.46	2
229	234	4106.3	6647.6	21	10	2010	9:07	76	13.1	32.38	11.1	32.85	4
230	235	4106.5	6723.3	21	10	2010	12:34	61	14.8	32.22	13.8	32.39	5
231	236	4105.7	6747.1	21	10	2010	14:58	52	15.4	32.17	15.3	32.20	5
232	237	4033.3	6849.1	21	10	2010	20:27	69	14.8	32.24	13.5	32.57	5
233	238	4027.9	6901.2	21	10	2010	22:10	78	14.8	32.27	12.7	32.99	5
234	240	4118.6	7042.3	26	10	2010	18:28	23	14.6	32.20	14.3	32.21	6
235	241	4118.4	7035.6	26	10	2010	19:43	23	14.3	31.98	14.3	32.07	3
236	242	4044.1	6943.7	27	10	2010	2:15	44	14.1	32.11	14.2	32.15	2
237	243	4045.3	6936.1	27	10	2010	4:25	47	14.2	32.16	14.1	32.18	5

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238	244	4045.9	6924.3	27	10	2010	7:24	39	13.9	32.12	13.7	32.11	5
239	245	4045.8	6859.0	27	10	2010	10:15	71	14.3	32.42	13.7	32.57	4
240	246	4043.9	6846.0	27	10	2010	12:11	66	14.4	32.37	14.1	32.44	5
241	247	4051.2	6837.3	27	10	2010	15:16	57	15.1	32.28	14.8	32.31	2
242	248	4053.5	6838.3	27	10	2010	17:13	65	14.9	32.30	14.8	32.31	3
243	249	4104.9	6847.0	27	10	2010	19:46	67	14.1	32.35	13.5	32.34	4
244	250	4106.0	6819.5	27	10	2010	22:49	48	14.9	32.28	14.9	32.28	5
245	251	4126.2	6821.1	28	10	2010	2:55	57	13.8	32.33	13.3	32.33	4
246	252	4128.2	6808.1	28	10	2010	5:52	49	14.6	32.30	14.6	32.30	3
247	253	4141.8	6833.8	28	10	2010	9:52	173	13.1	32.15	8.5	34.58	6
248	254	4141.1	6817.1	28	10	2010	12:43	38	13.0	32.17	13.0	32.29	3
249	255	4153.6	6803.1	28	10	2010	15:07	117	13.1	32.17	7.9	32.92	2
250	256	4151.9	6750.8	28	10	2010	17:34	42	13.0	32.30	13.0	32.30	1
251	257	4147.7	6739.0	28	10	2010	19:46	41	13.3	32.31	13.3	32.31	1
252	258	4144.3	6737.7	28	10	2010	21:40	37	13.6	32.29	13.5	32.28	3
253	259	4138.0	6722.5	28	10	2010	23:52	42	13.5	32.26	13.6	32.26	3
254	260	4129.2	6718.3	29	10	2010	2:50	43	14.3	32.22	14.3	32.22	4
255	261	4124.2	6746.0	29	10	2010	6:39	41	15.1	32.20	15.1	32.20	6
256	262	4119.0	6711.8	29	10	2010	9:37	51	15.3	32.14	14.5	32.24	5
257	263	4125.7	6705.6	29	10	2010	11:51	61	14.9	32.20	14.9	32.20	5
258	264	4138.8	6654.9	29	10	2010	14:43	67	14.6	32.21	14.5	32.22	8
259	265	4135.1	6644.7	29	10	2010	16:52	75	13.9	32.20	13.3	32.34	3
260	266	4118.7	6614.1	29	10	2010	20:38	137	12.1	32.43	12.7	35.31	3
261	267	4124.9	6616.8	29	10	2010	23:04	96	12.5	32.43	10.1	33.56	2
262	268	4126.3	6607.5	30	10	2010	1:13	128	12.6	32.51	11.0	34.86	5
263	269	4132.7	6610.0	30	10	2010	3:49	98	12.1	32.24	9.3	33.07	7
264	270	4135.2	6608.7	30	10	2010	5:22	99	12.0	32.33	9.4	33.04	2
265	272	4139.8	6550.5	30	10	2010	10:34	168	13.2	32.72	12.2	35.25	1
266	273	4143.7	6557.5	30	10	2010	12:11	106	11.9	32.53	9.1	33.06	4
267	274	4153.8	6558.4	30	10	2010	15:31	94	12.1	32.54	9.0	33.15	6
268	275	4152.4	6619.3	30	10	2010	19:16	83	12.0	32.37	11.0	32.55	6
270	277	4206.5	6602.1	31	10	2010	1:47	195	12.4	32.68	7.8	35.02	4
271	278	4208.5	6557.1	31	10	2010	4:09	230	12.8	32.68	7.5	35.11	2
272	280	4226.0	6605.1	31	10	2010	10:04	241	12.5	32.76	9.6	35.27	1

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273	281	4234.5	6643.2	31	10	2010	14:37	223	12.2	32.71	8.4	35.13	5
274	283	4227.9	6647.1	31	10	2010	19:04	329	12.3	32.72	7.8	35.09	2
275	283	4227.6	6647.1	31	10	2010	19:40	335	12.3	32.71	8.4	35.10	133
276	284	4210.8	6636.9	31	10	2010	21:57	203	12.1	32.79	8.8	35.08	3
277	285	4206.0	6648.0	1	11	2010	0:22	69	12.2	32.34	11.4	32.51	4
278	286	4205.8	6701.3	1	11	2010	2:40	63	11.9	32.44	11.2	32.66	3
279	287	4208.7	6720.2	1	11	2010	5:43	135	12.4	32.22	7.7	33.47	2
280	288	4213.7	6715.5	1	11	2010	8:31	218	11.7	32.72	8.6	35.10	1
281	289	4220.3	6713.9	1	11	2010	13:07	301	11.4	32.60	8.3	35.10	1
282	290	4224.5	6732.4	1	11	2010	17:10	296	11.2	32.72	8.5	35.10	1
283	292	4216.2	6743.1	1	11	2010	21:31	229	11.5	32.57	8.7	35.11	1
284	293	4211.7	6740.4	1	11	2010	22:28	198	11.8	32.39	8.9	35.10	2
285	294	4207.9	6744.5	2	11	2010	0:36	200	11.7	32.40	8.7	35.01	5
286	295	4224.4	6819.7	2	11	2010	7:28	208	11.5	32.37	8.8	34.99	5
287	296	4230.7	6836.6	2	11	2010	9:38	199	11.2	32.68	8.8	34.86	5
288	297	4215.0	6838.9	2	11	2010	12:37	197	11.4	32.47	7.6	33.96	2
289	298	4209.2	6847.5	2	11	2010	15:33	185	11.4	32.39	7.4	33.83	1
290	299	4210.4	6906.4	2	11	2010	20:10	171	11.7	32.37	7.6	33.95	2
291	300	4212.9	6912.4	2	11	2010	22:31	201	11.4	32.54	8.0	34.20	2
292	301	4155.8	6849.6	3	11	2010	1:07	137	11.8	32.22	6.6	33.33	4
293	302	4137.4	6907.5	3	11	2010	4:25	167	11.8	32.27	7.2	33.63	4
294	303	4125.5	6905.6	3	11	2010	7:19	153	11.7	32.24	7.0	33.45	7
295	304	4114.9	6856.1	3	11	2010	10:01	109	11.7	32.29	7.5	32.91	4
296	305	4107.1	6917.7	3	11	2010	13:19	59	11.3	32.30	11.2	32.31	2
297	306	4111.1	6922.5	3	11	2010	15:15	50	11.3	32.32	11.2	32.32	2
298	307	4113.3	6913.3	3	11	2010	17:13	81	11.8	32.30	8.5	32.78	4
299	308	4123.2	6917.7	3	11	2010	21:49	106	11.7	32.32	8.3	32.87	2
300	309	4133.0	6930.7	3	11	2010	23:34	54	11.3	32.39	11.0	32.48	3
301	312	4145.2	6952.7	4	11	2010	6:39	25	11.5	32.25	11.3	32.33	2
302	313	4150.0	6954.5	4	11	2010	7:16	25	11.3	32.18	11.4	32.31	1
303	314	4153.9	6947.0	4	11	2010	9:43	113	11.0	32.36	7.5	33.32	4
304	315	4159.9	6955.7	4	11	2010	11:46	50	11.1	32.32	10.5	32.65	0
305	316	4202.1	7000.5	4	11	2010	13:25	34	11.2	32.31	10.8	32.59	3
306	317	4212.6	6934.9	13	11	2010	2:12	214	10.5	32.50	8.0	34.10	0

Cast #	Sta #	Lat (deg. N)	Lon (deg. W)	Day	Mo	Year	Time GMT	Btm Depth (m)	Sfc Temp (deg. C)	Sfc Salinity	Btm Temp (m)	Btm Temp (deg. C)	Meters from Btm
307	317	4213.4	6933.1	13	11	2010	4:25	234	10.5	32.49	8.2	34.31	3
308	318	4256.0	6739.4	13	11	2010	15:01	209	11.0	33.20	8.9	34.51	9
309	319	4245.4	6722.5	13	11	2010	18:52	196	11.0	33.27	9.1	35.09	4
310	320	4259.3	6708.8	13	11	2010	23:00	239	11.2	32.68	9.5	35.15	5
311	321	4312.4	6650.1	14	11	2010	1:43	154	11.7	32.90	11.2	34.62	0
312	322	4340.5	6635.0	14	11	2010	6:37	103	10.1	31.45	10.1	32.42	3
313	323	4337.9	6651.3	14	11	2010	8:33	124	11.3	33.09	11.3	34.05	3
314	324	4335.8	6706.6	14	11	2010	11:16	197	11.1	33.28	9.7	34.78	4
315	325	4338.7	6719.6	14	11	2010	15:22	214	10.8	33.44	10.0	34.80	1
316	326	4349.9	6709.8	14	11	2010	16:58	158	11.0	33.36	11.2	34.40	6
317	327	4406.6	6644.7	14	11	2010	20:10	87	9.8	32.29	10.9	33.53	3
318	328	4417.2	6637.2	14	11	2010	22:36	197	9.6	31.77	10.9	33.88	0
319	329	4410.0	6703.8	15	11	2010	1:55	116	9.7	32.23	11.0	33.95	7
320	330	4407.6	6717.2	15	11	2010	4:50	138	9.8	32.44	10.9	34.13	1
321	331	4416.0	6738.1	15	11	2010	10:15	103	10.5	33.07	10.7	33.33	2
322	332	4413.3	6741.6	15	11	2010	10:56	105	10.4	33.06	10.7	33.36	1
323	333	4414.1	6744.7	15	11	2010	14:21	111	10.4	33.05	10.5	33.14	1
324	334	4353.1	6737.4	15	11	2010	17:55	209	10.0	32.91	9.5	34.52	2
325	335	4334.0	6737.4	15	11	2010	21:06	239	10.3	33.28	9.0	34.51	2
326	336	4317.2	6807.6	16	11	2010	0:43	214	10.3	33.00	8.7	34.38	6
327	337	4313.8	6809.4	16	11	2010	1:58	205	10.4	33.06	8.7	34.33	0
328	338	4316.8	6827.5	16	11	2010	5:05	178	10.3	32.99	8.6	34.28	5
329	339	4334.6	6838.2	16	11	2010	10:37	130	10.4	33.25	10.4	33.59	2
330	340	4330.6	6807.3	16	11	2010	13:06	193	10.8	33.43	8.7	34.31	5
331	341	4346.9	6756.9	16	11	2010	16:15	159	10.8	33.58	9.7	34.36	5
332	342	4347.4	6803.1	16	11	2010	18:28	166	10.7	33.53	10.3	34.18	3
333	343	4353.9	6810.6	16	11	2010	23:04	176	10.3	33.06	10.0	33.87	2
334	344	4401.9	6817.8	17	11	2010	2:46	91	10.2	32.94	10.6	33.26	2
335	345	4331.9	6917.3	17	11	2010	11:15	139	10.4	33.29	10.5	33.44	2
336	346	4323.5	6859.6	17	11	2010	14:37	148	10.7	33.41	9.9	33.71	6
337	347	4303.0	6911.3	17	11	2010	18:06	163	10.5	33.18	8.1	33.84	3
338	348	4307.3	6921.2	17	11	2010	22:58	197	10.4	33.14	8.1	33.78	5
339	349	4320.3	7010.0	18	11	2010	3:20	114	10.3	32.94	10.0	33.28	3
340	350	4318.0	7010.2	18	11	2010	5:46	118	10.1	32.69	10.0	33.31	2

Cast #	Sta #	Lat (deg. N)	Lon (deg. W)	Day	Mo	Year	Time GMT	Btm Depth (m)	Sfc Temp (deg. C)	Sfc Salinity	Btm Temp (m)	Btm Temp (deg. C)	Meters from Btm
341	351	4316.4	7006.5	18	11	2010	8:25	155	10.2	33.00	8.3	33.32	2
342	352	4308.6	7002.3	18	11	2010	12:31	62	10.3	33.12	10.1	33.19	5
343	353	4304.2	6955.9	18	11	2010	16:13	195	10.3	33.14	7.8	33.84	1
344	354	4257.1	7006.5	18	11	2010	18:01	128	10.3	33.04	8.9	33.12	12
345	355	4257.7	7023.7	18	11	2010	20:21	119	9.6	31.88	8.9	33.18	2
346	356	4250.5	7039.1	18	11	2010	22:52	72	9.9	32.53	9.4	32.84	1
347	359	4238.8	6936.1	1	12	2010	3:34	282	9.8	33.39	8.4	34.48	0
348	360	4247.3	6912.8	1	12	2010	7:40	146	9.5	33.32	8.4	33.69	4
349	361	4251.8	6910.0	1	12	2010	9:52	171	9.5	33.32	8.4	33.71	1
350	362	4253.9	6921.7	1	12	2010	12:19	156	9.8	33.33	8.3	33.64	0
351	363	4242.7	6956.8	1	12	2010	18:13	202	9.6	33.18	8.0	34.16	3
352	364	4240.0	7001.0	1	12	2010	20:08	125	9.6	33.24	8.9	33.42	3
353	365	4233.3	7033.8	2	12	2010	8:19	48	9.0	32.55	9.2	32.70	1
354	366	4221.7	7047.1	2	12	2010	15:16	26	8.5	32.16	8.4	32.19	3
355	367	4222.1	7039.4	2	12	2010	16:40	65	8.9	32.36	9.1	32.60	1
356	368	4221.1	7043.1	2	12	2010	19:07	37	8.6	32.28	9.0	32.57	3
357	369	4212.1	7027.1	2	12	2010	21:23	64	9.1	32.27	9.1	32.46	3
358	370	4209.8	7007.6	2	12	2010	23:30	52	9.0	32.64	9.2	32.91	3
360	371	4220.9	7008.0	3	12	2010	5:01	78	9.1	32.76	9.4	33.08	3
361	372	4236.8	7012.5	3	12	2010	7:52	82	9.2	33.02	9.5	33.26	6