Oceanography Branch CTD Data Report

CTD_REPORT_2009010DE

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

DE 09-10
HydroAcoustic Survey
Data Coverage: 13 September – 15 October
GOM, MAB, GB

This report presents a summary of surface and bottom temperature and salinity data collected during the Northeast Fisheries Science Center's HydroAcoustic research survey aboard the NOAA FSV *Delaware II*. All data was obtained with Seabird Electronics SBE Model 19+ profiling CTDs (s/n 4758 and s/n 4759).

Please note there is no data for stations 98, 100, 102, 103, and 104.

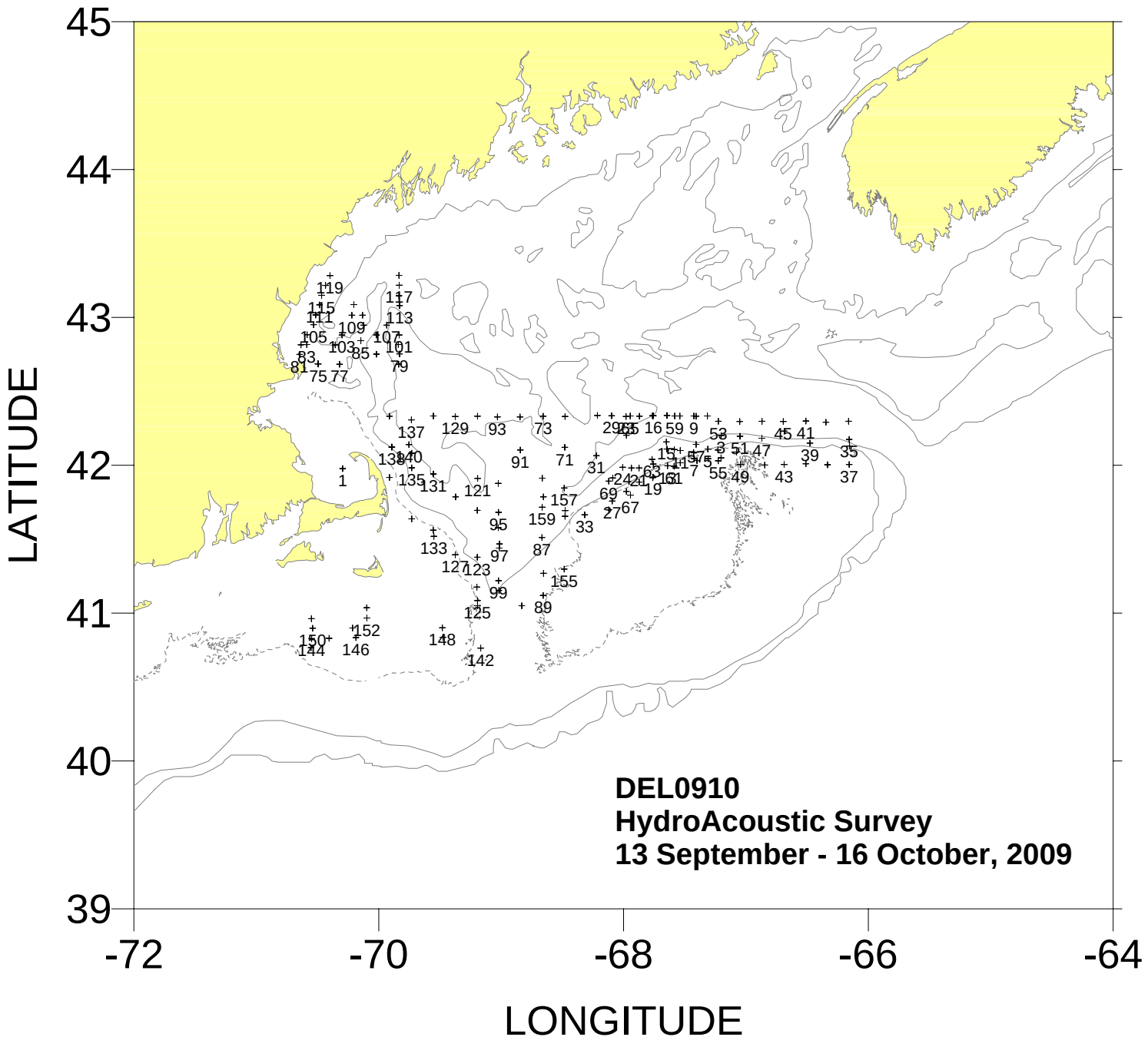
Data presented here have been audited, however, corrections and/or updates may be applied at a later time.
The most recent and complete station data can be found in an NODC formatted ASCII file at:
ftp://ftp.nefsc.noaa.gov/pub/hydro/del0910.dat

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

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

choose: **2009 Cruises**
SEPT_ACOUSTIC_DEL0910
CTD_REPORT_2009010DE

Revised: September 20, 2010


45
44
43
42
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39
LATITUDE
-72
-70
-68
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-64
LONGITUDE
DEL0910
HydroAcoustic Survey
13 September - 16 October, 2009

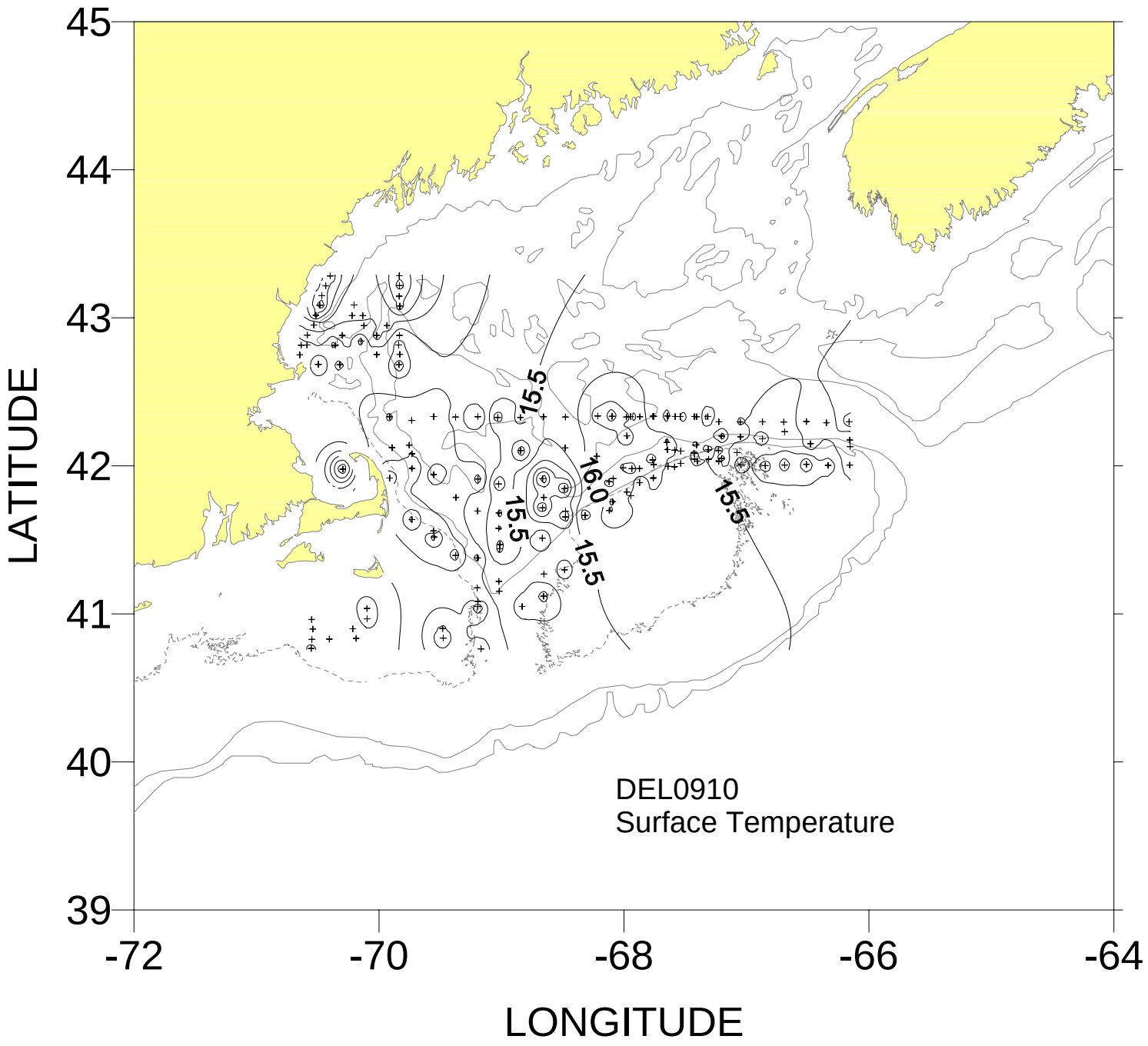
Areal average surface and bottom temperature/salinity and temperature/salinity anomalies for DEL0910 HYDROACOUSTIC SURVEY.

		SURFACE						BOTTOM						
CRUISE	CD	#obs	T/S	Anomaly	SDV1	SDV2	Flag	#obs	T/S	Anomaly	SDV1	SDV2	Flag	Purpose
							GOM West							
DEL0910	276	64	15.04	0.87	0.14	0.95	1	63	7.18	0.28	0.12	2.37	1	16
DEL0910	276	64	31.96	-0.22	0.09	0.25	1	63	33.44	-0.03	0.07	0.37	1	16
							GOM East							
DEL0910	262	42	15.97	0.34	0.16	1.45	1	42	9.35	0.32	0.15	3.15	1	16
DEL0910	262	42	32.21	-0.19	0.10	0.34	1	42	34.32	0.01	0.08	0.52	1	16
							Georges Bank							
DEL0910	268	32	15.21	0.02	0.17	0.72	1	32	13.30	-0.34	0.17	2.80	1	16
DEL0910	268	32	32.29	-0.22	0.10	0.19	1	32	32.49	-0.08	0.10	0.30	1	16
							MAB North							
DEL0910	286	9	15.41	-0.9	0.43	0.61	1	9	14.16	-0.06	0.43	1.19	1	16
DEL0910	286	9	32.06	-0.58	0.25	0.22	1	9	32.43	-0.45	0.25	0.42	1	16

"CRUISE", the code name for a cruise: "CD", the calendar mid-date of all the stations within a region for a cruise:
"#obs", the number of observations include in each average: "T/S", the areal average temp/salt: "Anomaly", the areal average temp/salt anomaly: "SDV1", the standard deviation associated with the average temp/salt anomaly: "SDV2", the standard deviation of the individual anomalies from which the average anomaly was derived

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

"Purpose", 2 digit code assigned by DMS to identify a unique NEFSC program survey.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39
LATITUDE
-72
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-68
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-64
LONGITUDE
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15.5
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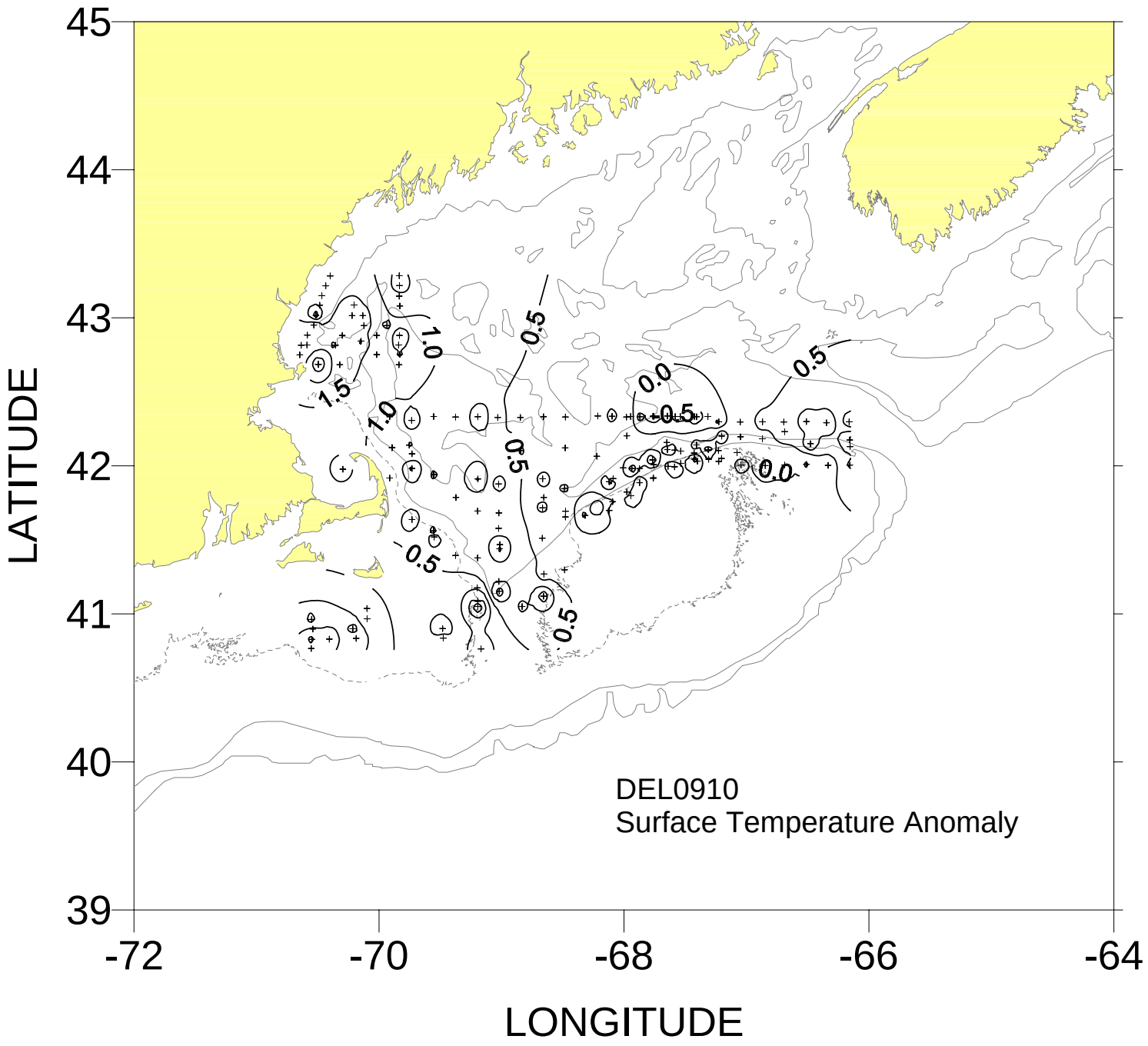
15.5
DEL0910
Surface Temperature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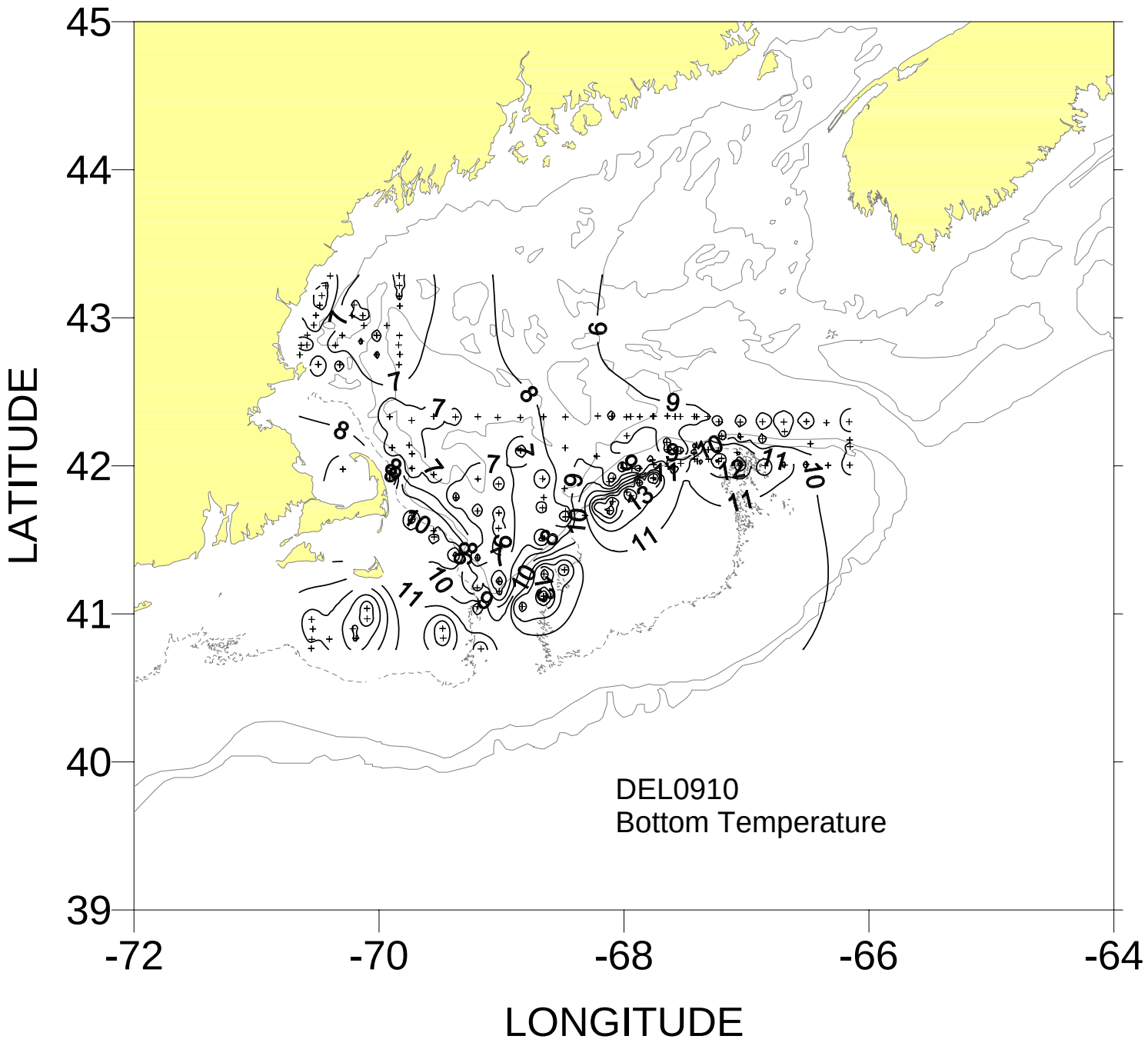
DEL0910
Surface Temperature Anomaly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39
LATITUDE
-72
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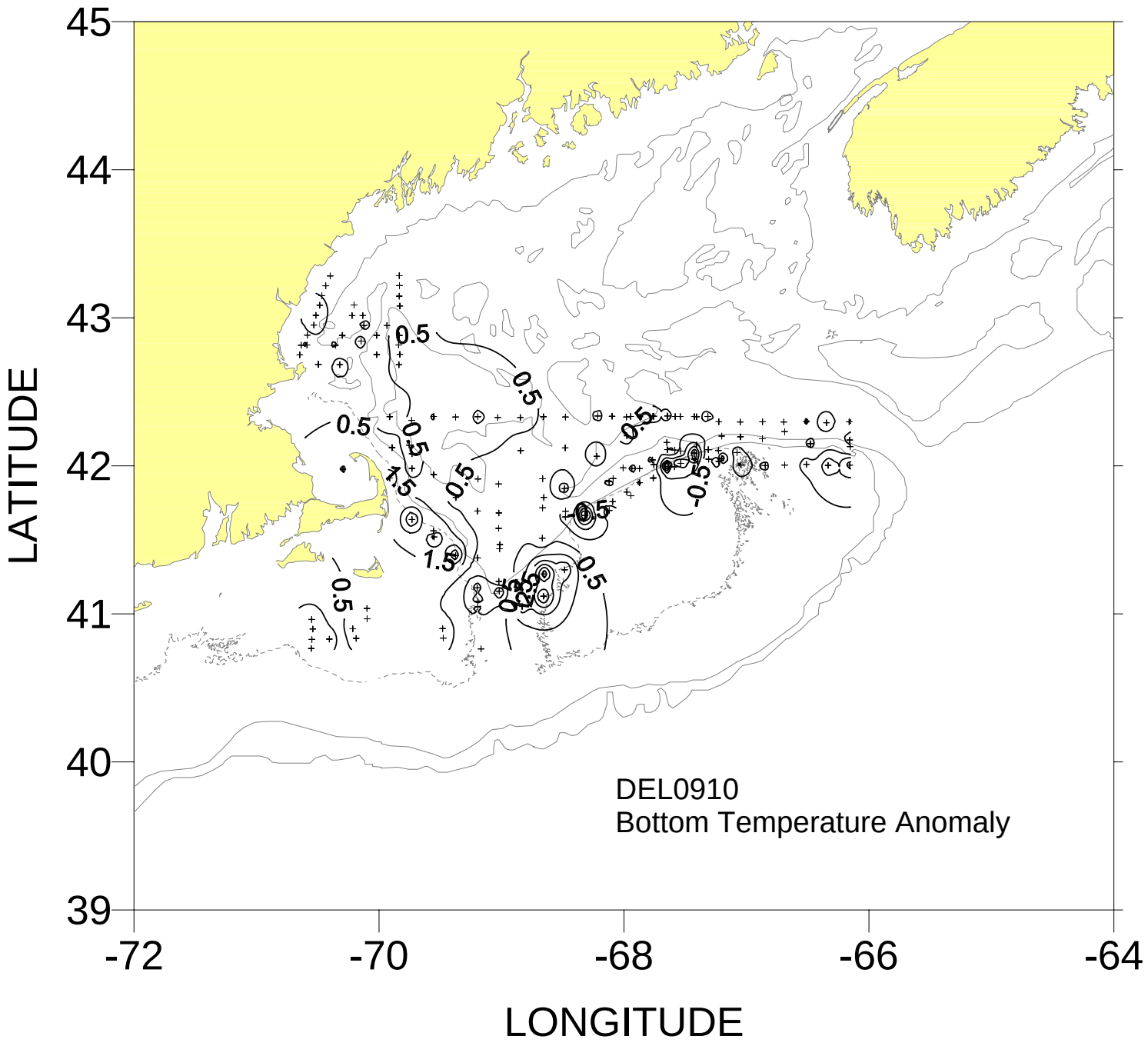
-66
-64
LONGITUDE
DEL0910
Bottom Temperature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LONGITUDE
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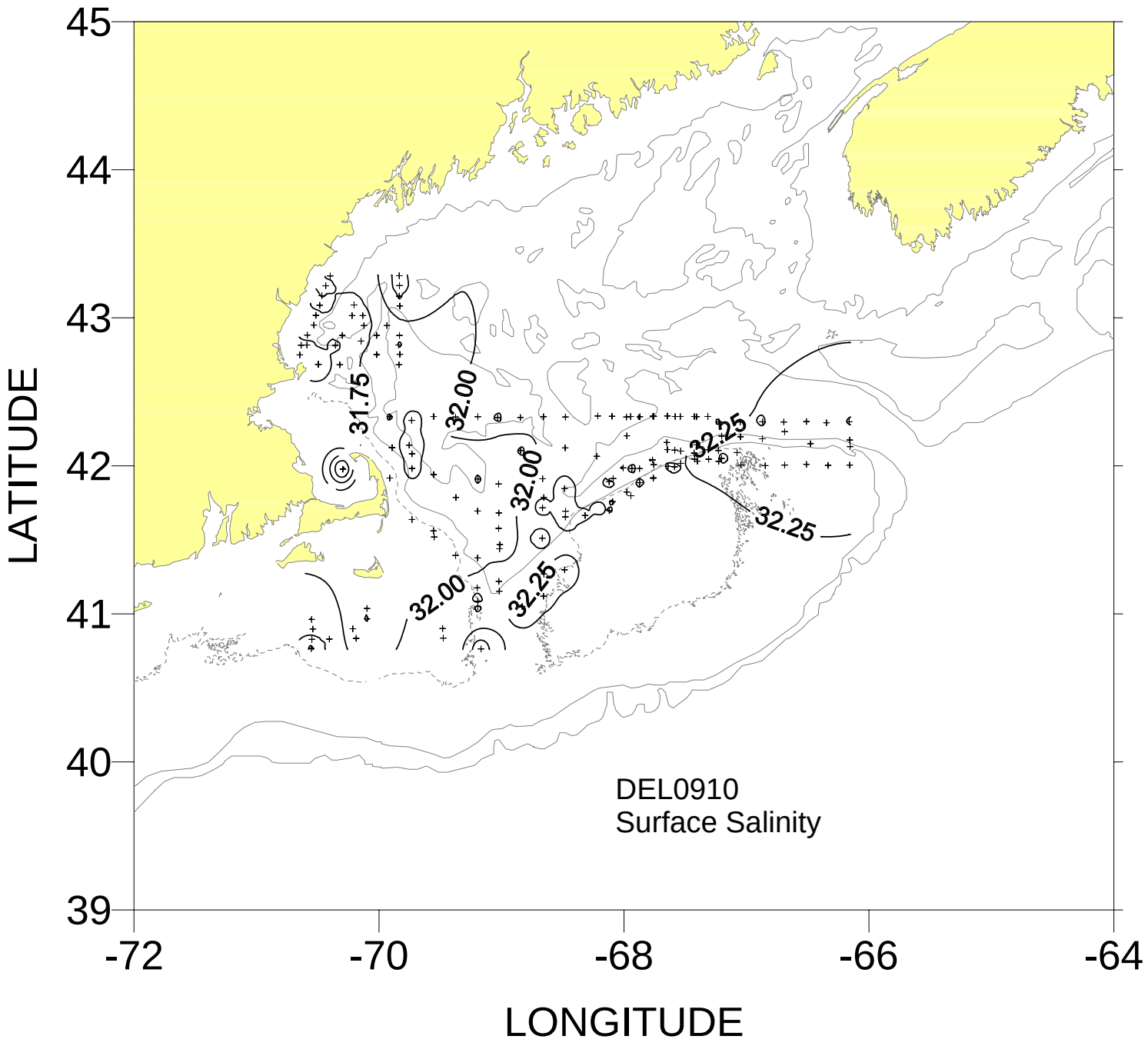
DEL0910
Bottom Temperature Anomaly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LATITUDE
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LONGITUDE
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32.00
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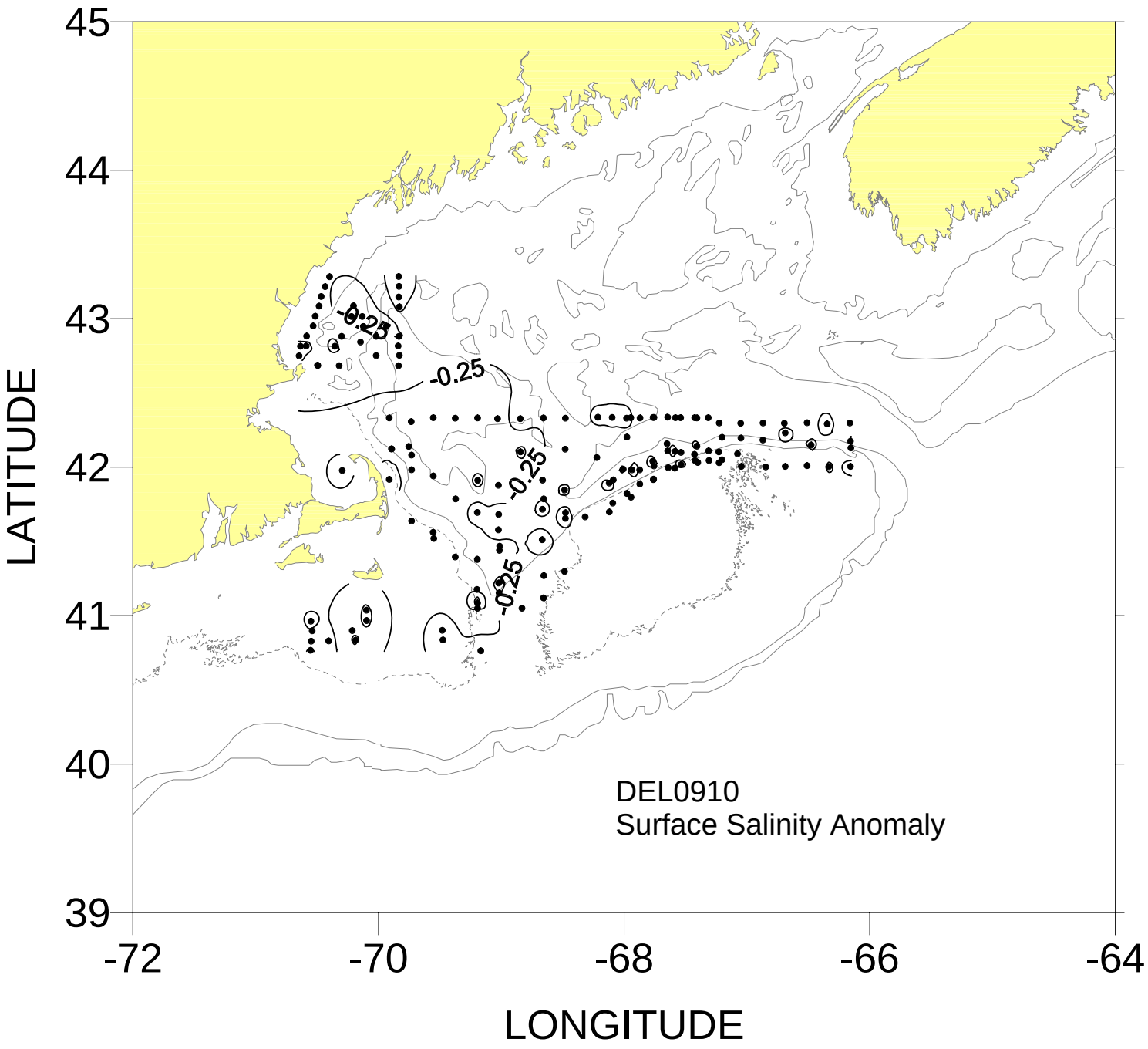
32.25
DEL0910
Surface Salinity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LATITUDE
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LONGITUDE
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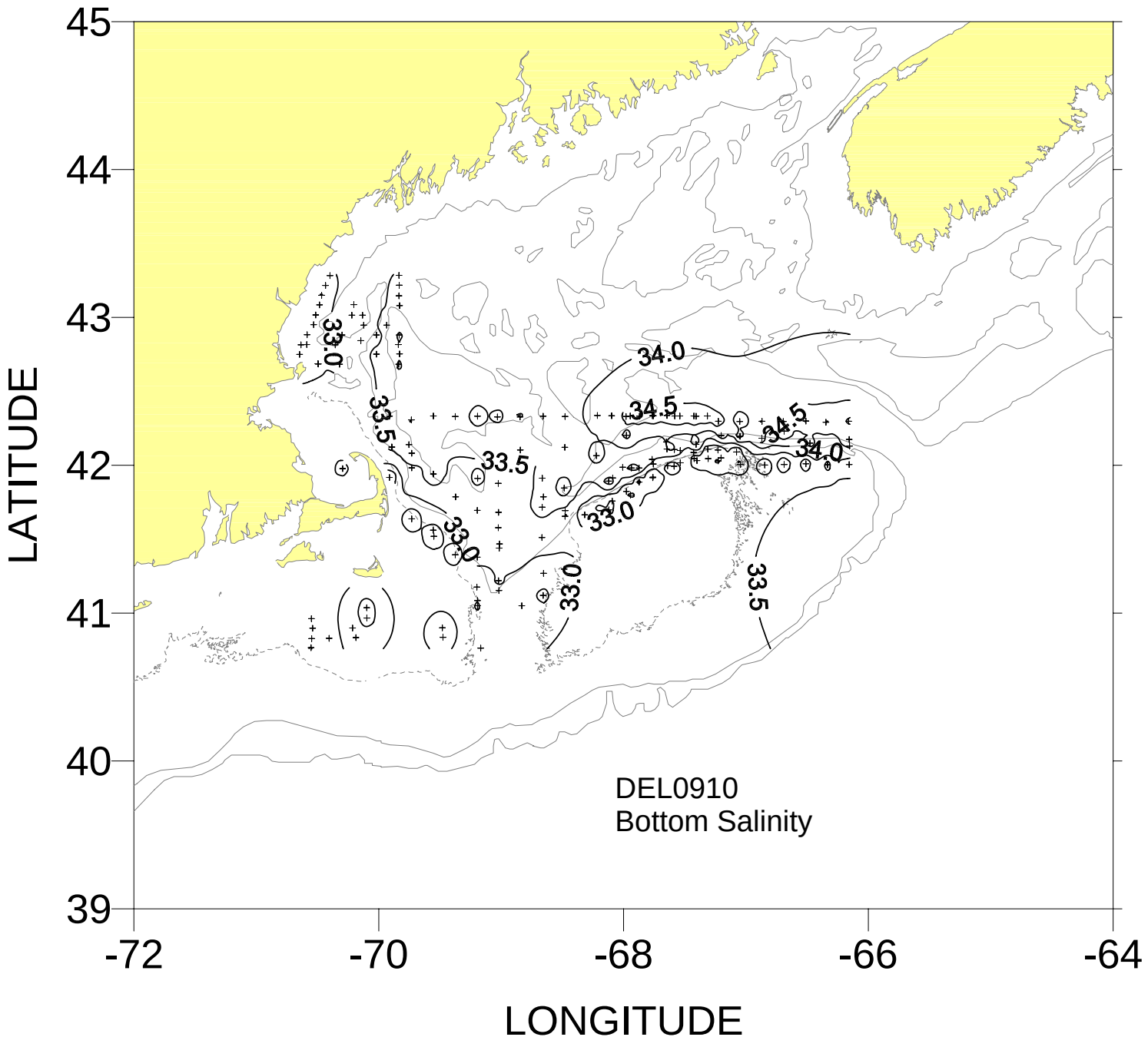
DEL0910
Surface Salinity Anomaly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LATITUDE
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LONGITUDE
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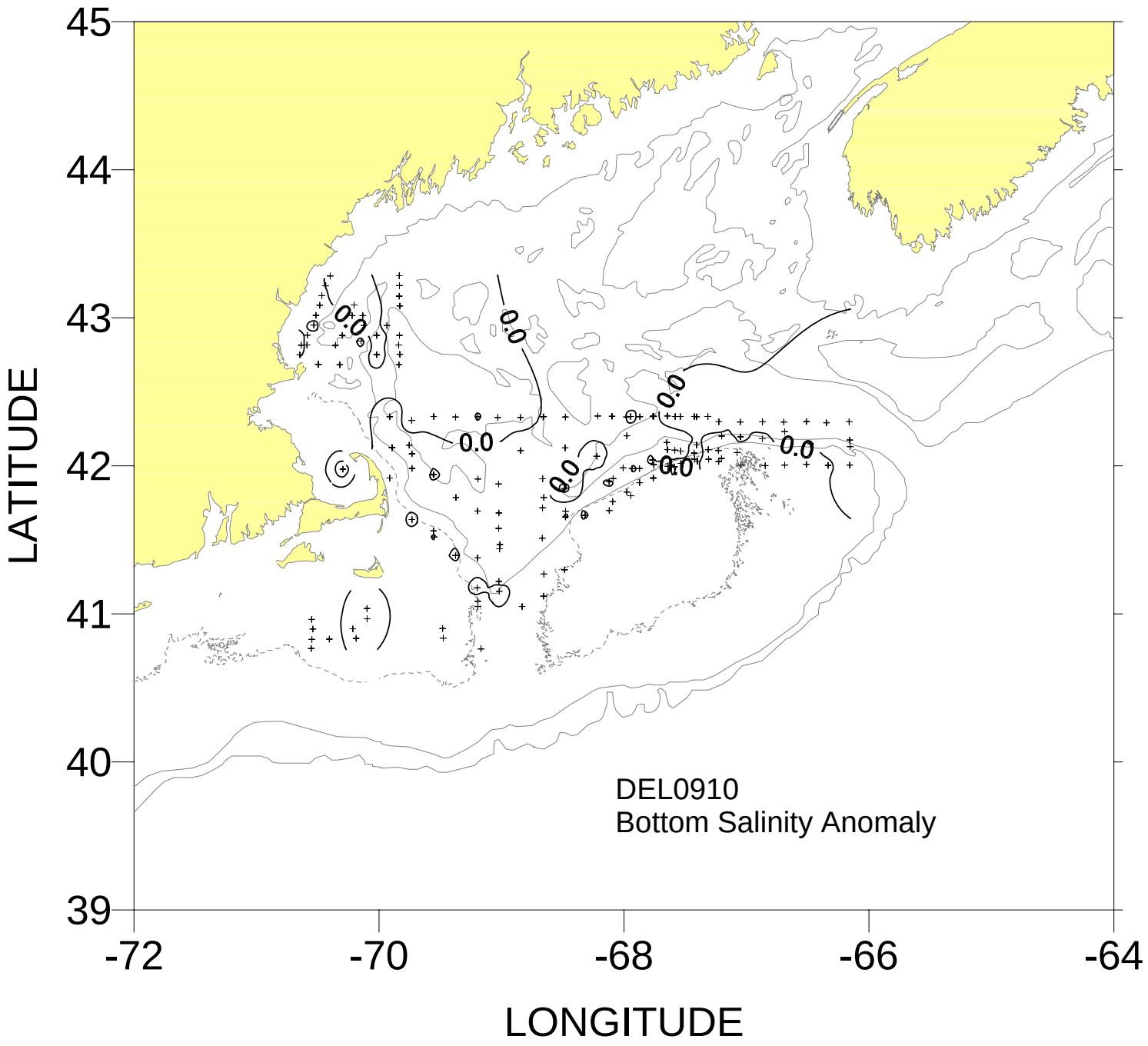
DEL0910
Bottom Salinity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LONGITUDE
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0.0
0.0
0.0
0.0
DEL0910
Bottom Salinity Anomaly

DEL0910
HYDROACOUSTIC
SEPTEMBER 13 - OCTOBER 15, 2009

CAST #	STA #	LAT	LON	DAY	MO	YEAR	TIME	BTM DEPTH	SFC TEMP	SFC SALT	BTM TEMP	BTM SALT	METERS FROM BTM
001	1	4158.7	7017.7	13	9	2009	4:20	37	17.8	30.72	9.6	33.59	5
002	2	4203.0	6712.2	13	9	2009	19:17	49	16.4	32.16	13.7	32.37	6
003	3	4212.1	6712.1	13	9	2009	20:30	185	16.8	32.14	7.8	34.38	3
004	4	4220.0	6718.9	13	9	2009	21:45	300	16.7	32.03	8.8	35.04	6
005	5	4206.6	6718.7	13	9	2009	23:34	68	16.5	32.48	12.8	32.60	8
006	7	4202.7	6718.5	14	9	2009	2:02	50	15.4	32.22	13.6	32.42	5
007	8	4202.7	6725.4	14	9	2009	3:16	49	15.3	32.28	11.3	33.03	4
008	9	4205.2	6725.6	14	9	2009	3:45	65	15.3	32.30	7.9	32.86	5
009	11	4220.0	6725.5	14	9	2009	8:55	314	16.2	32.20	8.4	35.03	8
010	12	4220.0	6732.4	14	9	2009	9:49	286	16.2	32.15	8.4	35.04	7
011	13	4206.0	6732.2	14	9	2009	11:41	163	15.5	32.28	6.2	33.47	4
012	16	4201.0	6732.2	14	9	2009	16:17	47	15.5	32.24	10.5	33.03	4
013	17	4159.8	6738.4	14	9	2009	17:07	50	16.0	32.26	9.7	32.81	5
014	18	4206.6	6738.7	14	9	2009	18:00	175	16.6	32.21	7.3	33.98	6
015	20	4209.5	6739.0	14	9	2009	23:22	186	16.0	32.23	7.2	9999	8
016	22	4220.2	6738.7	15	9	2009	4:03	250	16.1	32.23	8.7	35.02	8
017	23	4220.1	6745.4	15	9	2009	4:58	213	15.7	32.15	8.6	34.74	9
018	24	4200.5	6745.4	15	9	2009	7:30	89	15.9	32.22	10.6	32.84	7
019	26	4155.2	6745.6	15	9	2009	10:04	40	16.4	32.32	16.3	32.32	6
020	27	4153.2	6752.3	15	9	2009	10:58	53	15.6	32.30	15.5	32.32	5
021	28	4158.9	6752.4	15	9	2009	12:01	123	16.1	32.24	6.8	34.09	5
022	29	4219.9	6752.2	15	9	2009	15:03	193	16.2	31.97	8.8	34.87	7
023	30	4219.8	6758.8	15	9	2009	15:53	175	17.4	31.89	8.1	9999	5
024	31	4212.2	6758.6	15	9	2009	16:49	223	17.1	32.04	8.8	34.74	9
025	32	4159.2	6800.4	15	9	2009	23:32	193	16.6	32.26	6.7	33.79	6
026	35	4149.4	6758.6	16	9	2009	0:45	56	16.4	32.25	15.1	32.45	7
027	36	4145.5	6805.5	16	9	2009	1:40	39	16.6	32.27	15.5	32.36	5
028	37	4154.9	6805.3	16	9	2009	3:17	181	15.9	32.25	6.7	33.84	4

CAST #	STA #	LAT	LON	DAY	MO	YEAR	TIME	BTM DEPTH	SFC TEMP	SFC SALT	BTM TEMP	BTM SALT	METERS FROM BTM
029	39	4220.1	6805.8	16	9	2009	9:06	187	17.5	32.02	7.7	34.31	5
030	40	4220.2	6812.8	16	9	2009	9:49	194	16.7	32.04	8.1	34.50	8
031	43	4203.9	6813.3	16	9	2009	15:49	218	16.4	32.00	7.8	34.37	7
032	45	4143.4	6812.5	16	9	2009	22:27	38	15.6	32.29	15.4	32.30	6
033	46	4139.9	6819.0	16	9	2009	0:30	54	16.2	32.26	10.9	32.54	1
034	47	4217.9	6609.7	22	9	2009	15:56	247	14.7	32.53	8.6	35.10	3
035	48	4210.5	6609.4	22	9	2009	17:06	225	16.0	32.32	9.1	35.08	4
036	51	4207.8	6609.2	22	9	2009	22:04	120	15.9	32.28	8.9	34.48	6
037	52	4200.3	6609.4	22	9	2009	23:02	92	15.7	32.27	8.6	32.95	5
038	53	4200.2	6620.0	23	9	2009	0:04	79	14.7	32.29	9.3	32.81	4
039	54	4209.0	6628.6	23	9	2009	1:43	172	15.8	32.32	9.2	34.74	7
040	56	4217.5	6620.8	23	9	2009	4:22	246	15.9	32.33	9.1	35.07	5
041	57	4218.0	6630.6	23	9	2009	5:25	271	15.9	32.32	8.6	35.01	6
042	58	4200.6	6630.6	23	9	2009	7:34	82	14.1	32.36	11.2	32.60	5
043	59	4200.3	6641.3	23	9	2009	8:52	71	14.2	32.36	12.2	32.52	6
044	60	4213.9	6641.3	23	9	2009	10:37	240	15.3	32.28	8.7	35.01	11
045	62	4217.8	6641.7	23	9	2009	13:16	283	15.2	32.35	8.3	35.04	7
046	63	4217.9	6652.1	23	9	2009	14:25	295	15.3	32.24	8.4	35.04	7
047	65	4211.0	6652.2	23	9	2009	17:01	188	15.7	32.28	8.5	34.72	5
048	66	4200.1	6650.8	23	9	2009	18:37	72	14.2	32.40	13.3	32.44	5
049	67	4200.3	6702.7	23	9	2009	19:47	64	14.4	32.34	14.4	32.34	6
050	69	4205.4	6704.6	23	9	2009	22:27	56	15.1	32.32	13.6	32.40	4
051	70	4211.8	6702.9	23	9	2009	23:21	187	15.6	32.31	8.7	34.85	5
052	72	4217.8	6703.0	24	9	2009	2:04	288	15.5	32.24	8.4	35.04	7
052	73	4217.9	6713.5	24	9	2009	3:27	284	15.6	32.26	8.5	35.04	5
054	74	4206.2	6713.7	24	9	2009	5:04	51	15.0	32.31	13.1	32.42	4
055	76	4201.8	6713.6	24	9	2009	7:18	51	14.7	32.36	14.6	32.36	4
056	77	4201.9	6724.0	24	9	2009	8:25	48	15.4	32.34	15.0	32.34	3
057	78	4208.5	6724.4	24	9	2009	9:19	170	16.2	32.08	8.6	34.82	3
058	80	4219.9	6724.4	24	9	2009	12:13	309	15.2	32.13	8.5	35.04	8
059	81	4220.0	6734.9	24	9	2009	13:46	270	15.7	32.16	8.4	35.02	6
060	83	4206.4	6735.1	24	9	2009	17:21	176	16.4	32.04	7.9	34.32	7
061	84	4159.6	6735.2	24	9	2009	18:17	49	15.4	32.29	15.0	32.31	4
062	85	4155.0	6745.7	24	9	2009	19:25	43	15.8	32.20	15.5	32.23	3
063	86	4202.4	6746.0	24	9	2009	20:17	176	17.2	31.90	7.8	34.33	6

CAST #	STA #	LAT	LON	DAY	MO	YEAR	TIME	BTM DEPTH	SFC TEMP	SFC SALT	BTM TEMP	BTM SALT	METERS FROM BTM
064	88	4220.1	6745.8	25	9	2009	0:41	212	15.7	32.16	8.8	35.00	3
065	89	4220.0	6756.7	25	9	2009	1:55	184	15.3	32.25	8.4	34.72	6
066	92	4158.9	6756.1	25	9	2009	7:50	180	17.0	31.78	7.8	34.37	4
067	93	4147.9	6756.6	25	9	2009	9:13	40	15.7	32.25	15.7	32.26	5
068	94	4141.9	6807.2	25	9	2009	10:22	39	16.6	32.25	16.3	32.23	5
069	95	4153.6	6807.3	25	9	2009	11:51	178	16.9	31.76	7.9	34.44	5
075	106	4241.1	7029.6	28	9	2009	19:40	53	15.9	31.31	9.3	32.44	19
076	107	4241.2	7029.8	28	9	2009	9:28	52	15.9	31.25	8.8	32.90	4
077	108	4241.0	7019.2	28	9	2009	20:43	97	15.7	31.50	8.3	32.81	6
078	111	4241.0	6950.2	29	9	2009	3:04	264	16.4	31.92	6.9	34.11	5
079	112	4245.2	6949.8	29	9	2009	3:40	238	15.8	31.94	6.5	33.90	9
080	113	4245.1	7001.1	29	9	2009	5:04	159	15.4	32.00	5.9	9999	2
081	115	4245.0	7038.8	29	9	2009	9:52	61	15.1	9999	7.8	9999	3
082	116	4248.9	7038.1	29	9	2009	10:22	78	15.4	31.38	6.6	32.57	5
083	118	4249.0	7035.3	29	9	2009	12:11	97	15.2	31.31	6.4	32.74	5
084	119	4248.9	7021.3	29	9	2009	13:25	117	15.7	31.35	6.3	33.08	5
085	122	4250.6	7008.8	29	9	2009	18:49	110	15.7	31.59	5.9	33.45	7
086	123	4249.0	6950.4	29	9	2009	10:38	252	15.8	32.02	6.7	34.04	4
087	124	4130.7	6840.0	30	9	2009	6:33	131	15.9	31.77	5.5	33.12	5
088	126	4116.2	6839.2	30	9	2009	10:23	67	15.3	32.45	14.9	32.53	5
089	128	4107.2	6839.4	30	9	2009	13:10	65	16.2	32.30	16.2	32.30	5
090	130	4103.0	6849.9	30	9	2009	15:36	69	15.8	32.44	14.9	32.48	5
091	131	4206.2	6850.6	30	9	2009	22:04	159	16.8	31.68	5.3	33.19	6
092	133	4219.6	6850.7	1	10	2009	1:28	219	15.5	32.18	6.9	34.04	2
093	134	4219.6	6901.8	1	10	2009	2:46	219	16.2	31.98	7.1	34.11	6
094	136	4152.7	6901.4	1	10	2009	7:35	171	16.4	31.75	5.4	33.36	5
095	138	4140.9	6901.3	1	10	2009	11:04	167	16.1	31.80	5.4	33.29	5
096	140	4134.7	6901.4	1	10	2009	13:23	153	16.1	31.94	5.2	33.15	6
097	142	4128.1	6900.8	1	10	2009	16:53	152	16.1	31.84	5.2	33.22	3
098	144	4126.4	6900.9	1	10	2009	18:42	151	16.1	31.78	5.2	33.13	2
099	146	4113.2	6901.3	1	10	2009	21:40	138	15.5	32.39	5.3	33.05	2
100	148	4109.2	6901.1	1	10	2009	23:42	101	15.3	32.43	6.7	32.92	6
101	150	4252.9	6950.0	7	10	2009	5:50	251	15.3	31.96	7.0	34.06	8
102	151	4252.9	7001.1	7	10	2009	7:01	159	14.3	31.77	5.6	33.35	6
103	154	4252.9	7018.0	7	10	2009	11:07	107	14.6	31.68	6.7	33.12	1

CAST #	STA #	LAT	LON	DAY	MO	YEAR	TIME	BTM DEPTH	SFC TEMP	SFC SALT	BTM TEMP	BTM SALT	METERS FROM BTM
104	156	4253.0	7035.1	7	10	2009	13:51	85	14.5	31.70	7.8	32.58	13
105	157	4257.1	7031.9	7	10	2009	14:26	81	14.6	31.70	8.5	32.68	6
106	158	4256.9	7007.4	7	10	2009	16:28	127	14.5	31.64	6.2	32.97	5
107	160	4256.9	6956.1	7	10	2009	19:04	228	14.2	31.76	6.5	33.89	7
108	161	4300.9	7007.9	7	10	2009	23:55	153	14.4	31.70	5.5	33.03	8
109	163	4300.9	7013.2	8	10	2009	5:20	157	14.5	31.69	5.8	33.33	6
110	164	4301.0	7030.9	8	10	2009	7:07	82	12.8	31.66	8.3	32.79	7
111	165	4305.1	7029.0	8	10	2009	7:49	62	12.0	31.95	9.7	32.69	7
112	166	4305.2	7012.2	8	10	2009	9:16	175	14.3	31.69	5.8	33.11	7
113	168	4304.8	6949.8	8	10	2009	13:25	174	13.3	32.22	6.0	33.60	5
114	170	4308.8	6950.1	8	10	2009	15:45	177	13.3	32.27	5.9	33.55	5
115	171	4309.0	7028.0	8	10	2009	18:46	47	12.7	31.73	9.7	33.01	5
116	172	4313.0	7026.1	8	10	2009	19:22	55	12.8	31.71	9.1	32.62	6
117	173	4313.1	6950.0	8	10	2009	22:13	172	12.7	32.42	5.8	33.58	7
118	174	4317.1	6950.1	8	10	2009	22:52	159	13.0	32.35	5.8	33.50	9
119	176	4317.0	7023.9	9	10	2009	3:01	52	12.7	31.76	9.4	32.77	10
120	177	4219.9	6911.6	9	10	2009	10:40	239	14.6	32.13	7.6	34.31	6
121	178	4154.7	6911.5	9	10	2009	13:48	215	14.3	31.71	5.9	33.60	6
122	180	4141.7	6911.7	9	10	2009	18:49	190	15.2	31.90	5.4	33.35	8
123	182	4122.7	6911.7	9	10	2009	22:43	145	14.4	31.80	5.6	33.10	10
124	184	4110.6	6911.9	10	10	2009	1:30	79	7.2	32.75	7.4	32.83	8
125	186	4105.1	6911.6	10	10	2009	3:46	56	14.9	31.82	9.7	32.48	5
126	188	4103.0	6911.6	10	10	2009	5:58	55	13.4	32.35	12.3	32.42	6
127	189	4123.7	6922.5	10	10	2009	8:22	53	13.8	31.79	12.4	31.98	9
128	191	4147.2	6922.3	10	10	2009	12:40	178	14.8	31.81	5.6	33.33	5
129	193	4219.8	6922.5	10	10	2009	17:52	229	15.0	32.07	6.7	33.98	5
130	194	4220.0	6933.2	10	10	2009	19:01	242	14.7	31.99	6.6	33.96	5
131	195	4156.5	6933.2	10	10	2009	23:10	211	15.3	31.92	6.4	33.85	8
132	197	4133.7	6933.3	11	10	2009	3:19	49	14.3	31.88	9.8	32.41	7
133	199	4131.2	6933.0	11	10	2009	5:25	42	13.2	31.88	12.0	32.04	4
134	200	4138.3	6943.8	11	10	2009	6:43	43	13.4	31.93	12.6	32.00	7
135	202	4159.0	6943.8	11	10	2009	10:19	157	13.9	32.05	5.9	33.43	5
136	204	4204.9	6943.8	11	10	2009	12:43	209	14.5	32.01	6.3	33.83	6
137	206	4218.4	6944.0	11	10	2009	16:06	242	15.0	32.03	6.7	34.05	5
138	208	4219.9	6954.7	11	10	2009	19:28	207	14.4	32.01	6.2	33.79	4

CAST #	STA #	LAT	LON	DAY	MO	YEAR	TIME	BTM DEPTH	SFC TEMP	SFC SALT	BTM TEMP	BTM SALT	METERS FROM BTM
139	210	4207.4	6953.6	12	10	2009	0:07	147	9.8	32.74	6.1	33.54	4
140	211	4208.4	6945.2	12	10	2009	1:25	216	14.7	32.07	6.4	33.90	8
141	212	4155.1	6954.7	12	10	2009	5:40	36	13.6	31.85	13.0	31.94	6
142	213	4045.8	6910.0	12	10	2009	13:01	71	14.2	32.71	12.7	32.86	5
143	214	4046.0	7033.2	12	10	2009	19:53	56	15.6	32.57	12.7	33.03	4
144	217	4049.7	7032.9	12	10	2009	23:12	53	15.3	32.30	13.1	32.91	9
145	218	4049.8	7024.3	13	10	2009	0:01	50	15.1	32.25	13.1	32.76	9
146	221	4050.1	7011.2	13	10	2009	3:50	38	15.4	31.86	15.2	32.15	6
147	224	4050.2	6928.5	13	10	2009	9:36	47	13.6	32.14	13.6	32.18	8
148	225	4054.1	6928.8	13	10	2009	10:06	30	14.0	32.03	14.0	32.04	5
149	227	4054.0	7012.8	13	10	2009	15:03	35	15.1	31.94	15.2	32.07	6
150	229	4053.9	7032.4	13	10	2009	17:37	53	15.2	32.12	13.3	32.73	6
151	230	4057.8	7033.0	13	10	2009	18:13	52	15.5	31.98	13.4	32.67	5
152	231	4058.0	7005.8	13	10	2009	20:22	23	15.8	31.72	15.7	31.72	5
153	232	4102.2	7005.9	13	10	2009	20:55	23	15.7	31.74	15.7	31.76	6
155	235	4117.9	6829.1	14	10	2009	16:21	60	14.6	32.42	13.8	32.59	4
156	238	4139.3	6828.7	15	10	2009	0:01	149	14.2	32.47	6.0	33.50	9
157	239	4150.8	6829.1	15	10	2009	1:19	204	13.5	32.45	8.2	34.64	7
158	240	4154.8	6839.8	15	10	2009	2:34	165	13.2	32.15	5.9	33.52	7
159	241	4143.0	6839.9	15	10	2009	4:03	176	13.6	32.37	6.5	33.79	6