

Florida SEAMAP Summer 2010 Survey Cruise Report (6/25/10 – 7/16/10)
Cruise Number 1002 using the R/V Tommy Munro

Prepared by:
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Introduction

Florida shrimp and groundfish trawl surveys are conducted to provide fisheries-independent data on the distribution and abundance of fishes and macroinvertebrates in the eastern Gulf of Mexico as part of the coordinated and cost-efficient SEAMAP program. Fisheries-independent data, which are collected without the direct reliance on information provided by commercial and recreational fishers, are essential to the assessment and management of fisheries resources in Florida and the nearshore Gulf of Mexico. Data collected by these surveys will be used to improve existing single-species assessments for managed species as well as further develop an ecosystem-based approach to managing fisheries resources in the eastern Gulf of Mexico.

The long-term goal of the Florida SEAMAP trawl program is to collect a full complement of seasonal trawl samples in the eastern Gulf of Mexico encompassing NMFS statistical zones 3 – 10. Before fully implementing the Florida SEAMAP trawl program in 2010, two years of exploratory surveys were conducted to validate the feasibility of sampling these zones as well as the most appropriate season (summer or fall) within which to conduct trawl surveys. Based on a preliminary examination of data collected in 2008 and 2009, it was decided that from 2010 onward the Florida SEAMAP trawl survey will occur in summer. Although trawling in fall was logistically feasible, overall catch and species diversity was greatest in summer, and so summer surveys will likely provide the most comprehensive data set. Fall catch rates were higher for select taxa (i.e., red snapper), and so the implementation of a fall Florida SEAMAP trawl survey in the future is recommended should additional funds become available.

Objectives

1. Conduct a summer trawl survey to collect information on shrimp and groundfish abundance/distribution with standard SEAMAP 42-ft trawls.
2. Select sampling stations from NMFS-generated universe of known bathymetric data.
3. Identify, weigh, count and measure all species according to protocols outlined in the NMFS SEAMAP Operations Manual.
4. Collect information on environmental parameters (salinity, temperature, dissolved oxygen, wind speed and direction, wave height, precipitation) in conjunction with trawl sampling.

5. Code all data according to approved NMFS SEAMAP Operations Manual guidelines, and enter data on the NMFS SEAMAP data entry system.
6. Submit data to the Gulf States Marine Fisheries Commission/NMFS Data Manager.

Methods

Beginning in 2010, a new survey design was implemented for the Gulf-wide SEAMAP trawl survey. Overall sampling effort was allocated proportionally among NMFS statistical reporting zones based on proportional availability of sampling habitat (5 – 60 fathoms). Within each NMFS zone, specific sampling sites were chosen following a simple random survey design. To facilitate sampling in the eastern Gulf of Mexico, it was decided that sampling effort would be divided by the state of Florida and NMFS, with the state of Florida surveying shallow waters (≤ 20 fathoms) and NMFS surveying deeper waters (> 20 fathoms) from NMFS zones 3 – 10. Due to the Deepwater Horizon incident a significant proportion of the NMFS summer trawling ship days were allocated to meet other needs, and it was unlikely that NMFS would be able to conduct trawl surveys in the eastern Gulf of Mexico. Accordingly, for summer 2010 the state of Florida selected a random subset of all planned summer 2010 stations from NMFS zones 3 – 10 to ensure complete spatial coverage of the summer 2010 survey.

At each sampling station, trawl samples were collected using standard 42-foot SEAMAP trawls (1.58 inch stretched mesh towed at a 5:1 cable length to water depth ratio). At sites where the bottom composition was unknown, an exploratory survey of the bottom using the fathometer on the R/V Tommy Munro was conducted prior to deploying the trawl. Trawls were towed at a speed of 3 knots for a standard duration of 30 minutes. Sample workup and data processing were conducted in accordance with the SEAMAP Operational Manual guidelines. In addition, specimens were retained to validate field identifications and provide biological material for various life-history studies (i.e., age and growth, reproduction, diet, mercury concentration). Environmental data (temperature, salinity, pH, and dissolved oxygen) were measured in association with each trawl event using a CTD or YSI.

Results

During the summer 2010 survey a total of 146 stations were sampled, 139 stations with reportable catches and 7 stations with zero catches due to net damage. Total catch weight for the trip was 9,822 kg. Individual trawl catch weights ranged from 0.2 kg to 1008 kg. Over 90,000 animals were collected, including 3,039 pink shrimp, 32 brown shrimp, and 24 red snapper. In addition to following standard SEAMAP sampling protocols, we collected ancillary material for various life history studies at no additional cost to SEAMAP. Otoliths were removed from 471 managed fishes for ageing analyses, including 323 lutjanids and 50 serranids. Fin clips were taken for genetic analysis from three species, gray triggerfish (*Balistes capriscus*), hogfish (*Lachnolaimus maximus*), and goliath grouper (*Epinephelus itajara*) totaling 70 samples. Tissue samples were collected from 1,778 fish for mercury analyses and 1,466 stomachs were removed for dietary analyses from a wide variety of managed and non-managed species. All samples will be

processed at the Fish and Wildlife Research Institute at no additional cost to SEAMAP.

Deviations

Twenty fewer stations were sampled than planned due to inclement weather, untrawlable bottom, and the diversion of the research ship for one day to sample in the oil impacted and Florida closed to harvest area off of Escambia County. All stations sampled were completed according to the NMFS SEAMAP protocol.

Cruise participants

Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute
Personnel collected all samples. Sample summary and data entry were completed by
Jenna Tortorelli.

Submitted By:

Robert McMichael
SEAMAP Coordinator

Table 1. Florida SEAMAP Summer 2010 Shrimp/Groundfish Cruise Summary

<i>SEAMAP Station Number</i>	<i>Date and Time (GMT)</i>	<i>Latitude (DD MM.SS)</i>	<i>Longitude (DD MM.SS)</i>	<i>Depth (Ftms)</i>	<i>Tow Time (Min)</i>	<i>Total Weight (Kg)</i>	<i>Fish (Kg)</i>	<i>Crustaceans (Kg)</i>	<i>Other (Kg)</i>
E1011	06/25/2010 15:19:27	29 20.08	87 50.02	55	4.25	0.000	0.000	0.000	0.000
E1011	06/25/2010 17:45:01	29 20.58	87 49.95	51	30.15	36.123	34.573	0.015	1.535
E1010	06/25/2010 12:24:42	29 32.09	87 54.15	12	30.1	10.002	2.064	0.018	7.920
E1009	06/26/2010 6:58:09	29 48.63	87 22.15	30	30.18	23.342	8.728	4.326	10.288
E1004	06/26/2010 9:36:26	30 00.62	87 16.63	14	30.12	14.536	9.997	0.267	4.272
E1003	06/26/2010 11:49:12	30 06.67	87 12.90	18	30.8	7.309	5.658	0.010	1.642
E1002	06/26/2010 3:26:41	30 12.14	87 24.83	8.9	29.93	35.162	30.070	0.132	4.960
E1001	06/26/2010 1:01:14	30 13.46	87 42.63	4.3	29.43	44.944	44.572	0.012	0.360
E0914	06/27/2010 2:36:14	29 44.76	86 19.04	48	30.25	41.959	39.266	2.577	0.116
E0913	06/26/2010 23:59:43	29 51.63	86 26.96	40	30.77	7.202	3.690	0.000	3.512
E0912	06/27/2010 6:03:13	30 01.68	86 09.89	20	30.23	17.013	14.070	0.182	2.761
E0911	06/26/2010 20:20:35	30 02.13	86 33.95	26	30.18	0.000	0.000	0.000	0.000
E0910	06/27/2010 9:44:00	30 02.26	86 04.35	15	30.35	22.441	9.208	0.111	13.122
E0909	06/26/2010 21:39:35	30 01.87	86 30.34	25	30.15	1.321	0.579	0.001	0.741
E0908	06/27/2010 8:00:29	30 02.61	86 05.46	16	30.07	17.448	11.220	1.500	4.727
E0907	06/26/2010 18:28:01	30 05.55	86 33.66	23	31.05	2.333	1.762	0.001	0.570
E0906	06/26/2010 15:25:34	30 06.24	86 52.75	50	29.92	17.998	6.198	0.000	11.800
E0813	06/28/2010 10:55:07	28 59.02	85 22.82	43	30.53	2.963	1.670	0.101	1.192
E0812	07/14/2010 21:15:34	29 02.35	85 06.36	19	30.2	68.753	0.767	0.038	67.947
E0811	06/28/2010 8:28:45	29 06.20	85 30.56	26	30.13	6.606	6.076	0.170	0.360
E0810	07/14/2010 22:42:14	29 06.57	85 07.33	20	30.2	5.972	3.930	0.094	1.948
E0809	06/28/2010 5:01:44	29 18.42	85 10.04	15	30.07	19.949	10.000	0.076	9.873
E0808	06/28/2010 3:26:38	29 21.64	85 08.37	13	31.15	14.998	6.034	0.294	8.670

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E0807	06/28/2010 2:09:36	29 22.88	85 07.67	12	30.23	10.979	6.365	0.716	3.898
E0806	06/27/2010 20:51:15	29 36.25	85 53.82	21	30.17	0.720	0.252	0.002	0.466
E0805	06/27/2010 18:47:04	29 39.60	85 44.30	14	30.08	1.050	0.296	0.002	0.752
E0804	06/27/2010 17:17:02	29 42.26	85 50.25	19	30.07	6.980	6.080	0.014	0.886
E0803	06/27/2010 15:52:38	29 44.06	85 50.96	21	29.95	9.757	9.608	0.060	0.088
E0801	06/27/2010 12:10:18	30 08.51	85 53.57	13	30.00	5.274	4.854	0.010	0.410
E0726	07/14/2010 16:13:43	29 04.77	84 25.47	15	25.92	13.437	7.925	0.016	5.495
E0725	07/14/2010 14:05:45	29 09.82	84 11.24	14	30.17	20.217	14.696	0.012	5.509
E0724	07/13/2010 16:03:53	29 13.71	83 48.64	11	30.18	73.441	22.950	0.032	50.460
E0721	07/14/2010 11:56:18	29 20.12	84 16.38	14	29.63	8.969	6.296	0.023	2.650
E0720	07/14/2010 8:55:49	29 20.19	84 31.27	16	29.97	42.538	32.281	8.721	1.536
E0717	07/14/2010 7:20:02	29 25.12	84 36.53	14	30.15	22.607	9.145	11.451	2.010
E0713	07/13/2010 18:41:36	29 30.98	83 43.10	6.5	29.92	14.831	9.396	0.013	5.422
E0711	07/14/2010 4:52:35	29 32.59	84 30.14	11	30.08	259.787	30.746	4.875	224.166
E0708	07/14/2010 2:48:57	29 37.16	84 44.89	6.7	30.13	15.286	6.320	3.541	5.425
E0706	07/14/2010 0:24:24	29 39.86	84 28.04	7.7	29.57	13.565	8.814	0.025	4.726
E0646	07/11/2010 20:45:13	28 01.36	83 08.04	9.4	30.08	12.213	10.831	0.051	1.331
E0642	07/11/2010 22:36:52	28 05.15	83 00.64	5.6	30.32	24.390	19.245	0.042	5.103
E0641	07/11/2010 7:49:18	28 05.69	84 00.71	23	30.12	34.639	21.396	8.098	5.145
E0640	07/11/2010 14:59:26	28 07.70	83 28.90	15	30.15	13.419	9.102	0.005	4.312
E0639	07/11/2010 10:19:48	28 09.42	83 49.93	20	30.02	28.771	23.513	0.787	4.471
E0637	07/11/2010 11:22:03	28 09.92	83 47.32	20	30.17	16.807	10.168	0.193	6.446
E0636	07/12/2010 0:30:08	28 10.21	83 05.88	8.2	30.20	26.944	14.068	0.033	12.843
E0635	07/11/2010 18:23:48	28 12.30	83 20.76	12	30.27	9.261	9.046	0.000	0.206
E0634	07/11/2010 12:56:18	28 12.23	83 41.61	18	30.00	8.193	8.032	0.004	0.158
E0632	07/11/2010 16:36:22	28 13.72	83 23.73	13	30.00	13.927	10.406	0.065	3.456

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E0631	06/29/2010 1:40:25	28 14.05	84 15.10	25	30.15	48.211	33.557	5.954	8.700
E0629	06/28/2010 23:29:37	28 19.39	84 27.33	31	30.17	23.970	6.574	0.150	17.246
E0628	06/28/2010 21:16:27	28 21.88	84 35.25	34	30.02	10.531	9.062	0.008	1.460
E0626	07/12/2010 22:30:20	28 25.79	83 59.86	18	30.02	86.664	18.104	0.228	68.332
E0625	07/12/2010 3:04:40	28 26.05	83 05.64	7	30.2	117.369	56.965	0.313	60.091
E0624	06/28/2010 18:44:15	28 27.70	84 44.21	34	30.1	22.682	4.808	0.003	17.871
E0622	07/12/2010 19:41:25	28 27.84	83 45.04	16	30.00	248.353	13.467	0.322	234.564
E0621	07/12/2010 5:02:33	28 30.25	83 01.51	5.6	30.20	61.521	47.748	0.246	13.528
E0620	07/12/2010 7:13:41	28 31.35	83 01.11	5.4	29.90	63.968	37.723	0.158	26.088
E0619	07/12/2010 11:24:56	28 32.15	83 09.64	7.3	31.28	0.000	0.000	0.000	0.000
E0619	07/12/2010 9:21:22	28 31.68	83 09.11	7.4	29.90	0.000	0.000	0.000	0.000
E0618	06/28/2010 15:36:19	28 36.86	84 59.42	41	30.47	3.006	0.692	0.484	1.830
E0617	07/13/2010 1:17:53	28 39.05	84 01.33	17	30.25	851.284	29.883	7.560	813.842
E0614	07/12/2010 13:28:59	28 43.80	83 11.76	7.1	30.08	260.393	11.807	0.094	248.492
E0610	07/13/2010 8:45:13	28 44.97	83 51.91	15	30.02	96.600	24.626	6.610	65.365
E0608	07/12/2010 16:15:33	28 46.49	83 28.44	10.6	30.00	35.939	8.400	0.026	27.514
E0606	07/13/2010 10:42:17	28 50.23	83 56.57	16	30.02	1008.460	21.658	0.497	986.305
E0604	07/13/2010 12:50:32	28 52.67	83 51.19	14	29.52	20.043	11.605	0.030	8.408
E0540	06/30/2010 14:25:22	27 04.01	82 51.99	13	30.48	42.756	41.096	0.028	1.632
E0539	07/05/2010 5:38:53	27 04.60	83 50.52	36	30.07	30.748	26.708	2.974	1.066
E0538	07/05/2010 7:39:27	27 08.20	83 42.65	30	30.10	33.265	27.284	2.695	3.286
E0528	07/05/2010 10:31:00	27 24.22	83 43.25	27	30.43	28.094	21.024	0.334	6.736
E0526	06/30/2010 10:41:46	27 25.25	82 54.56	8.5	30.48	40.387	37.336	0.105	2.946
E0522	06/30/2010 8:18:26	27 32.02	83 03.05	10.3	30.28	77.127	72.924	0.801	3.402
E0518	06/29/2010 16:54:45	27 38.94	84 03.34	32	29.95	16.946	12.712	0.014	4.220
E0517	06/29/2010 8:09:23	27 42.09	84 25.09	52	30.23	138.200	136.029	1.811	0.358

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E0516	06/29/2010 10:41:52	27 41.38	84 15.15	37	29.53	34.759	25.976	0.172	8.610
E0514	06/29/2010 15:11:13	27 43.46	84 03.22	32	30.05	18.048	13.544	0.058	4.446
E0511	06/29/2010 12:51:02	27 46.38	84 09.24	28	30.22	67.073	8.732	0.228	58.113
E0510	06/30/2010 2:12:51	27 46.55	83 30.31	18	30.80	75.119	61.795	10.532	2.792
E0507	06/29/2010 20:08:57	27 48.51	83 43.98	23	30.45	24.464	23.552	0.030	0.882
E0506	06/30/2010 4:37:30	27 48.54	83 17.86	14	29.97	48.511	31.918	11.987	4.606
E0503	06/30/2010 0:18:23	27 50.22	83 34.40	19	29.9	15.547	12.804	0.354	2.389
E0502	06/29/2010 21:54:56	27 54.44	83 45.22	22	30.00	176.898	43.961	0.018	132.918
E0501	06/29/2010 5:01:43	27 56.24	84 29.13	46	30.47	26.246	24.175	0.652	1.419
E0444	07/01/2010 22:57:45	26 03.09	82 38.49	16	30.77	82.833	68.300	0.532	14.002
E0438	07/01/2010 18:08:04	26 12.47	82 15.84	9.5	30.12	148.012	43.792	0.052	104.168
E0436	07/09/2010 2:41:56	26 11.85	83 27.31	32	30.52	20.268	17.528	1.028	1.712
E0435	07/01/2010 20:28:51	26 13.41	82 30.94	12	29.95	12.102	11.762	0.026	0.314
E0433	07/09/2010 1:02:17	26 15.41	83 20.99	30	30.05	15.104	11.985	0.517	2.602
E0430	07/04/2010 2:51:58	26 19.38	82 57.73	21	30.28	39.192	30.676	2.434	6.083
E0429	07/04/2010 4:40:59	26 19.49	83 04.10	22	30.33	36.696	24.156	0.186	12.354
E0427	07/08/2010 23:45:45	26 19.37	83 24.17	31	30.10	3.817	3.044	0.037	0.736
E0426	07/04/2010 6:53:12	26 23.46	83 06.28	23	30.02	31.362	27.842	1.500	2.020
E0423	07/10/2010 20:20:11	26 28.23	83 39.19	36	30.00	3.028	1.604	0.016	1.408
E0422	07/01/2010 14:54:50	26 29.45	82 27.82	9.9	29.42	105.173	42.809	0.028	62.336
E0421	07/04/2010 9:03:08	26 30.79	83 10.07	25	30.05	105.542	101.460	2.130	1.952
E0419	07/04/2010 11:17:11	26 31.83	83 00.32	21	30.12	2.948	1.952	0.006	0.990
E0418	07/04/2010 17:03:07	26 32.90	83 34.34	32	30.12	3.972	2.218	0.008	1.746
E0417	07/01/2010 9:55:50	26 32.82	82 47.56	15	30.02	262.078	186.586	0.092	75.400
E0417	07/01/2010 8:39:00	26 32.91	82 47.48	15	29.97	0.000	0.000	0.000	0.000
E0416	07/01/2010 13:05:29	26 34.03	82 31.61	10.7	30.30	24.444	23.872	0.012	0.560

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E0415	07/04/2010 14:12:42	26 37.70	83 18.61	26	30.45	4.560	3.608	0.022	0.930
E0414	07/04/2010 18:43:07	26 38.20	83 38.00	35	30.05	2.356	1.870	0.028	0.459
E0412	07/01/2010 5:30:20	26 41.21	82 51.58	16	30.12	180.353	177.888	0.925	1.540
E0411	07/01/2010 3:06:21	26 42.45	82 40.13	12	29.98	427.015	46.924	1.572	378.520
E0410	07/01/2010 1:18:49	26 43.65	82 42.58	9.7	30.78	63.664	53.578	1.448	8.638
E0409	07/04/2010 20:39:36	26 45.41	83 33.74	32	30.08	4.698	3.168	0.044	1.486
E0407	06/30/2010 22:34:09	26 46.48	82 23.24	6.6	29.95	91.510	25.448	0.096	65.966
E0406	07/05/2010 0:25:20	26 48.68	84 00.58	45	30.03	13.712	10.096	0.598	3.018
E0405	07/08/2010 17:48:58	26 46.98	83 11.87	23	30.00	6.102	5.046	0.000	1.056
E0403	06/30/2010 20:46:27	26 51.18	82 27.02	6.8	30.28	41.474	38.418	0.144	2.912
E0352	07/09/2010 18:53:40	25 05.44	83 36.86	40	30.10	19.071	17.770	0.006	1.295
E0351	07/09/2010 14:49:45	25 05.56	83 17.49	33	30.00	0.808	0.336	0.018	0.454
E0350	07/03/2010 0:47:29	25 06.32	82 21.58	16	30.33	78.413	72.661	3.230	2.522
E0350	07/02/2010 22:35:22	25 06.02	82 20.80	16	30.37	0.000	0.000	0.000	0.000
E0349	07/03/2010 2:47:56	2508.23	08233.68	19	30.20	12.025	6.587	3.714	1.724
E0348	07/09/2010 17:09:53	25 07.21	83 30.51	38	30.00	0.644	0.527	0.008	0.109
E0344	07/09/2010 13:12:11	25 09.31	83 21.29	35	30.00	0.217	0.086	0.010	0.121
E0343	07/02/2010 19:59:27	25 11.30	82 06.29	12	30.23	397.862	95.032	0.021	302.808
E0342	07/03/2010 4:13:09	2511.70	08237.07	20	30.05	41.202	17.832	1.966	21.404
E0341	07/02/2010 12:27:08	25 12.47	81 41.51	7.1	30.53	530.269	117.979	0.012	412.277
E0338	07/02/2010 18:21:56	25 14.18	81 59.19	10.5	30.48	49.228	42.966	0.060	6.202
E0337	07/03/2010 7:08:50	2515.33	08216.50	14	30.33	47.598	45.066	0.184	2.348
E0336	07/09/2010 21:14:55	25 16.97	83 33.36	39	30.08	15.540	15.010	0.006	0.524
E0334	07/03/2010 8:34:03	25 17.65	82 19.71	15	30.18	119.214	94.605	1.390	23.2189
E0333	07/03/2010 10:22:51	25 17.76	82 12.38	13	30.27	269.608	40.784	0.000	228.824
E0331	07/09/2010 23:32:12	25 21.12	83 43.33	43	30.35	2.148	1.646	0.026	0.476

<i>SEAMAP Station Number</i>	<i>Date and Time (GMT)</i>	<i>Latitude (DD MM.SS)</i>	<i>Longitude (DD MM.SS)</i>	<i>Depth (Ftms)</i>	<i>Tow Time (Min)</i>	<i>Total Weight (Kg)</i>	<i>Fish (Kg)</i>	<i>Crustaceans (Kg)</i>	<i>Other (Kg)</i>
E0330	07/09/2010 10:52:40	25 20.94	83 26.65	37	30.00	0.867	0.506	0.056	0.306
E0329	07/03/2010 13:06:33	25 23.10	82 18.30	14	29.62	66.872	44.568	0.267	22.038
E0329	07/03/2010 12:07:50	25 22.90	82 18.34	14	30.63	0.000	0.000	0.000	0.000
E0328	07/02/2010 15:53:12	25 24.43	81 59.12	10.2	31.23	381.676	140.447	0.018	241.211
E0327	07/10/2010 1:05:57	25 27.67	83 43.26	48	30.05	9.837	4.654	3.289	1.893
E0326	07/02/2010 8:11:25	25 27.13	81 38.87	5.9	29.78	103.685	79.937	0.124	23.623
E0324	07/02/2010 9:49:44	25 27.92	81 47.09	6.5	30.65	227.235	108.141	0.064	119.030
E0323	07/03/2010 14:56:20	25 29.68	82 24.10	16	31.35	16.536	6.134	0.002	10.400
E0318	07/10/2010 5:12:36	25 39.46	83 40.36	44	29.85	30.978	24.617	5.171	1.190
E0317	07/09/2010 8:03:45	25 38.38	83 23.59	34	29.92	15.542	13.148	1.160	1.234
E0316	07/03/2010 21:52:25	25 39.87	83 00.14	27	30.03	2.282	1.534	0.006	0.742
E0315	07/10/2010 7:27:19	25 41.96	83 36.19	41	30.10	16.245	13.083	1.908	1.254
E0313	07/03/2010 19:46:09	25 41.78	82 50.07	23	30.00	7.756	6.180	1.330	0.246
E0312	07/03/2010 18:23:55	25 41.73	82 49.48	23	30.22	9.323	8.942	0.004	0.378
E0310	07/10/2010 9:47:27	25 42.73	83 34.63	39	30.30	15.186	7.102	1.490	6.594
E0305	07/10/2010 13:20:47	25 54.51	83 48.20	55	30.00	7.723	2.347	0.060	5.316
E0304	07/09/2010 5:29:22	25 54.02	83 18.52	31	30.22	22.317	17.004	1.850	3.463
E0303	07/10/2010 16:06:20	25 57.97	83 32.52	36	30.00	3.165	0.328	0.036	2.801
E0302	07/02/2010 2:00:29	25 57.79	82 19.74	12	29.95	405.362	107.939	0.212	297.210