

**Florida SEAMAP Fall 2009 Survey Cruise Report (10/9/09 – 10/28/09)**  
*Cruise Number 0907 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 4 – 10. Before implementing the Florida SEAMAP trawl program in 2010, two years of exploratory surveys were conducted to validate the feasibility of sampling these three areas as well as the most appropriate season (summer or fall) within which to conduct trawl surveys. The goal of the 2008 summer and fall trawl surveys was to explore the feasibility of trawling along the west Florida shelf; the 2008 surveys were conducted at a reduced sampling effort, excluding the Charlotte Harbor (NMFS statistical zone 5) area. In 2009 a full complement of sampling effort was achieved, both summer and fall; data from these trawl surveys will be analyzed over the coming months to determine which season (summer or fall) will provide the most useful data in support of the assessment and management of fisheries resources in Florida.

## **Objectives**

1. Conduct a fall trawl survey to collect information on shrimp and groundfish abundance/distribution with standard SEAMAP 40-ft trawls.
2. Select sampling stations from FWC-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

Sampling areas of the Gulf coast of Florida were defined by aggregating NMFS statistical shrimp zones. For the fall 2009 survey, sampling effort was assigned to three aggregated areas: mid-Peninsula Florida (statistical zones 4 and 5), the Big Bend (statistical zones 6 and 7), and the Florida Panhandle (statistical zones 8-10). Within each area, bathymetry data (3 second x 3 second resolution) were downloaded from the NOAA National Geophysical Data Center and assigned to the appropriate SEAMAP depth strata (5 – 60 fathoms). Specific sampling sites within each area and depth strata were then randomly selected from all available sites using ArcGIS and the Hawth's Analysis Tools extension. A full compliment of 138 sampling sites was selected (3 areas x 23 depth strata x 2 diel periods).

At each sampling station, trawl samples were collected using standard 40-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; tow directions varied, and were chosen to assure that 30 minutes of trawling occurred within the pre-selected depth stratum. 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.

## Results

During the fall 2009 survey a total of 128 stations were sampled, 123 stations with reportable catches and 5 stations with zero catches due to net damage. This includes 60 daytime and 63 nighttime stations. Total catch weight for the trip was 12,877 kg. Individual trawl catch weights ranged from 7 kg to 737 kg. Over 80,000 animals were collected, including 1,658 pink shrimp and 156 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 549 managed fishes for ageing analyses, including 238 lutjanids and 138 serranids. Fin clips were taken for genetic analysis from two species, Gray Triggerfish (*Balistes capriscus*) and Hogfish (*Lachnolaimus maximus*), totaling 64 samples. Sections of gonad tissue were

taken from 66 juvenile Vermillion Snapper (*Rhomboplites aurorubens*). Tissue samples were collected from 2,674 fish for mercury analyses and approximately 300 stomachs were removed for dietary analyses from a wide variety of managed and non-managed species. Additional specimens were retained for validation of field identifications. All samples will be processed at the Fish and Wildlife Research Institute at no additional cost to SEAMAP.

**Deviations**

Ten stations were not sampled due to inclement weather and/or gear damage. 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:

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*Robert McMichael*  
SEAMAP Coordinator

**Table 1. Florida SEAMAP Fall 2009 Shrimp/Groundfish Cruise Summary**

<i>SEAMAP Station Number</i>	<i>Date and Time (GMT)</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Depth (Ftm)</i>	<i>Tow Time (Min)</i>	<i>Total Weight (Kg)</i>	<i>Fish</i>	<i>Crustaceans</i>	<i>Other</i>
FN001	10/09/2009 1:12:21	2949.78	08752.03	18	30.65	19.240	16.980	2.030	0.230
FN002	10/09/2009 2:57:44	2944.21	08748.43	20	31.43	28.000	25.356	1.732	0.912
FN003	10/09/2009 7:11:35	2959.63	08716.44	17	30.15	18.723	12.098	0.904	5.721
FD001	10/09/2009 13:20:39	2951.15	08630.35	49	30.05	42.928	39.866	0.902	2.160
FD002	10/09/2009 15:37:41	2956.64	08624.23	35	30.12	181.284	180.038	0.000	1.246
FD003	10/09/2009 17:58:52	2958.45	08632.01	40	30.02	111.890	110.444	0.278	1.168
FD004	10/09/2009 20:17:32	3001.54	08622.56	27	30.02	20.155	16.214	0.272	3.669
FD005	10/09/2009 21:46:15	3006.17	08626.82	21	30.03	13.900	8.438	0.024	5.438
FN004	10/10/2009 0:12:09	3002.06	08618.10	23	29.95	52.035	46.906	0.898	4.231
FN005	10/10/2009 2:30:27	2956.54	08623.83	36	30.28	66.092	60.614	0.802	4.676
FN006	10/10/2009 4:53:53	2947.16	08619.89	45	30.05	84.146	75.890	8.156	0.100
FN007	10/10/2009 8:30:38	2929.70	08603.90	41	30.23	62.834	52.250	6.940	3.644
FD006	10/10/2009 12:32:00	2918.75	08541.68	31	29.98	9.823	9.036	0.036	0.751
FD007	10/10/2009 18:59:36	2901.45	08452.04	22	30.02	7.955	3.954	0.016	3.985
FD008	10/10/2009 21:07:14	2853.47	08458.47	25	29.92	26.690	26.322	0.002	0.366
FD009	10/10/2009 23:25:33	2846.06	08506.37	45	30.22	125.400	123.798	0.211	1.391
FN008	10/11/2009 1:08:39	2852.44	08505.24	31	30.48	24.218	21.440	1.516	1.262
FN009	10/11/2009 2:57:25	2900.56	08508.11	24	30.35	19.350	14.008	3.640	1.702
FN010	10/11/2009 5:53:14	2850.13	08519.99	56	30.03	48.603	30.520	0.218	17.865
FN011	10/11/2009 10:26:51	2831.22	08457.56	47	30.07	49.851	44.289	2.078	3.484
FD010	10/11/2009 12:49:56	2828.06	08453.95	41	30.12	25.527	23.526	1.398	0.603

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FD011	10/11/2009 14:51:46	2822.28	08454.87	51	30.28	20.768	19.624	0.718	0.426
FD012	10/11/2009 17:25:42	2816.33	08440.35	37	30.00	20.198	16.317	0.832	3.049
FD013	10/11/2009 19:54:49	2827.93	08436.60	31	30.07	30.252	25.276	2.191	2.785
FN012	10/13/2009 6:50:06	2826.28	08414.29	21	30.08	43.907	32.892	7.222	3.793
FN013	10/13/2009 8:25:09	2823.61	08410.88	21	30.05	0.000	0.000	0.000	0.000
FN013	10/13/2009 11:22:19	2824.29	08410.91	19	30.52	120.894	37.616	17.886	65.392
FD014	10/13/2009 13:31:47	2823.78	08409.68	19	30.05	139.470	22.142	14.026	103.302
FD015	10/13/2009 16:07:27	2815.27	08400.08	20	30.25	69.699	3.406	0.448	65.845
FD016	10/13/2009 19:46:18	2750.49	08357.48	26	30.08	13.606	11.852	0.922	0.832
FD017	10/13/2009 22:07:00	2749.19	08410.18	31	30.08	8.405	4.647	2.980	0.778
FN014	10/14/2009 1:06:29	2750.95	08422.90	42	30.37	32.462	30.216	0.558	1.688
FN015	10/14/2009 3:25:06	2736.37	08422.42	51	29.53	21.178	15.966	1.398	3.814
FN016	10/14/2009 6:28:58	2733.43	08404.13	35	30.17	59.294	49.164	3.716	6.414
FN017	10/14/2009 10:10:46	2713.28	08348.27	30	30.05	30.085	23.100	0.518	6.467
FD018	10/14/2009 13:40:32	2710.54	08410.11	50	30.50	54.118	7.322	45.802	0.994
FD019	10/14/2009 16:24:00	2703.48	08355.60	40	29.92	14.342	13.880	0.027	0.435
FD020	10/14/2009 18:57:01	2647.98	08358.17	47	30.05	23.096	4.127	18.176	0.793
FD021	10/14/2009 22:11:08	2631.13	08341.57	36	30.07	9.726	7.058	0.050	2.618
FN018	10/15/2009 1:01:45	2638.32	08351.68	47	30.22	38.601	32.338	5.016	1.247
FN019	10/15/2009 5:23:01	2641.05	08317.87	26	30.17	47.704	39.464	7.931	0.309
FN020	10/15/2009 10:02:39	2611.23	08259.01	22	30.22	142.628	60.932	7.950	73.746
FD022	10/15/2009 12:14:07	2619.10	08252.40	18	29.47	9.097	5.547	0.016	3.534
FD023	10/15/2009 14:31:17	2624.56	08243.29	15	30.57	116.845	26.071	30.356	60.418
FD024	10/15/2009 16:14:50	2615.97	08242.61	16	29.92	135.123	33.677	1.832	99.614

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FD025	10/15/2009 18:14:24	2608.97	08239.33	16	30.12	20.065	7.040	0.061	12.964
FD026	10/15/2009 20:50:51	2622.24	08236.83	14	30.05	238.736	44.129	9.117	185.490
FD027	10/15/2009 22:48:57	2631.53	08239.50	12	30.45	62.084	48.154	3.060	10.870
FN021	10/16/2009 0:58:54	2625.53	08231.32	12	29.98	45.498	41.020	0.598	3.880
FN022	10/16/2009 3:22:36	2629.36	08217.12	5.9	29.65	113.772	24.466	0.096	89.210
FN023	10/16/2009 5:15:58	2632.21	08223.79	8.7	30.17	73.378	22.036	1.008	50.334
FN024	10/16/2009 7:02:16	2631.51	08232.02	10.9	30.17	76.150	39.572	0.570	36.008
FN025	10/16/2009 9:10:30	2636.39	08239.57	13	30.15	57.631	48.200	1.695	7.736
FN026	10/16/2009 11:16:56	2640.72	08231.55	9.7	31.10	237.474	2.250	0.728	234.496
FD028	10/16/2009 13:23:38	2641.69	08221.86	7.3	30.45	174.861	5.465	0.000	169.396
FD029	10/16/2009 15:55:53	2653.82	08229.66	8.2	30.12	225.523	9.650	0.000	215.873
FD030	10/16/2009 17:57:29	2655.67	08236.07	10.2	30.15	251.638	4.244	2.088	245.306
FD031	10/16/2009 20:28:30	2709.82	08235.32	6	30.15	46.686	22.436	0.000	24.250
FN027	10/17/2009 1:40:20	2720.19	08306.80	16	30.30	65.332	51.780	0.732	12.820
FN028	10/17/2009 3:35:45	2727.42	08308.11	15	30.02	70.510	46.128	11.424	12.958
FN029	10/17/2009 6:24:52	2731.08	08252.49	6.8	25.25	0.000	0.000	0.000	0.000
FD032	10/21/2009 14:41:43	2725.83	08246.18	5.2	30.05	251.831	212.817	2.113	36.901
FD033	10/21/2009 18:12:17	2736.56	08303.81	10.7	30.00	42.435	33.872	0.904	7.659
FD034	10/21/2009 20:32:58	2746.84	08304.82	9.3	30.00	15.550	13.790	0.007	1.753
FD035	10/21/2009 22:40:59	2753.28	08303.16	7	30.23	61.066	58.036	0.040	2.990
FN030	10/22/2009 0:31:35	2755.63	08311.06	11	30.05	72.794	43.286	1.990	27.518
FN031	10/22/2009 2:41:38	2801.60	08317.58	12	30.27	198.282	119.652	2.455	76.174
FN032	10/22/2009 4:59:27	2752.90	08316.52	14	30.03	224.737	48.982	42.923	132.832
FN033	10/22/2009 8:06:05	2745.97	08326.06	18	30.08	23.180	22.166	0.754	0.260

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FN034	10/22/2009 10:13:07	2744.23	08330.17	19	30.03	25.784	17.684	5.766	2.334
FD036	10/22/2009 12:24:33	2752.27	08334.61	18	30.45	132.000	44.464	0.160	87.376
FD037	10/22/2009 14:18:43	2757.47	08341.95	20	31.28	129.826	12.408	4.902	112.516
FD038	10/22/2009 17:27:18	2816.44	08346.27	18	30.48	48.426	21.836	0.038	26.552
FD039	10/22/2009 19:18:14	2818.12	08345.51	18	30.18	21.332	11.259	0.004	10.069
FD040	10/22/2009 22:03:33	2827.85	08337.83	14	30.00	607.836	14.904	40.329	552.603
FN035	10/23/2009 0:46:08	2825.22	08326.24	12	30.23	64.783	59.415	2.652	2.716
FN036	10/23/2009 2:24:50	2824.50	08321.53	11	30.05	76.505	70.752	4.507	1.246
FN037	10/23/2009 5:47:12	2843.15	08317.79	9.4	30.07	143.059	68.301	9.708	65.050
FN038	10/23/2009 9:02:36	2845.02	08305.25	5.6	30.15	204.818	80.988	11.140	112.690
FN039	10/23/2009 10:54:14	2851.37	08312.78	6.1	30.43	86.600	48.866	0.186	37.548
FD041	10/23/2009 13:13:39	2854.48	08326.04	9.4	30.82	161.506	49.286	0.026	112.194
FD042	10/23/2009 16:12:00	2851.06	08338.94	11	30.00	0.000	0.000	0.000	0.000
FD042	10/23/2009 17:37:12	2851.09	08338.28	12	30.00	737.999	51.514	0.052	686.433
FD043	10/23/2009 21:03:03	2848.75	08357.45	17	30.02	425.070	51.582	0.000	373.488
FN040	10/24/2009 0:12:10	2838.92	08357.45	17	30.03	744.817	21.572	5.631	717.614
FN041	10/24/2009 2:06:41	2845.24	08405.28	17	30.15	154.145	55.193	9.644	89.308
FN042	10/24/2009 4:50:17	2859.35	08415.04	16	30.07	263.499	54.936	4.291	204.272
FN043	10/24/2009 7:47:28	2902.86	08355.71	14	30.07	595.584	18.708	5.010	571.866
FN044	10/24/2009 11:28:07	2905.38	08333.71	8.6	30.35	87.033	39.406	0.144	47.483
FD044	10/24/2009 13:53:16	2911.56	08343.61	10.1	34.00	283.728	283.540	0.002	0.186
FD045	10/24/2009 16:38:01	2920.90	08336.52	6.6	30.17	48.014	3.628	0.008	44.378
FD046	10/24/2009 19:46:07	2921.29	08352.21	10	30.10	215.900	59.020	0.037	156.843
FD047	10/24/2009 21:47:50	2928.62	08348.69	8.5	30.13	20.792	20.086	0.000	0.706

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FN045	10/25/2009 0:30:19	2941.00	08353.77	7	30.02	24.253	20.333	0.248	3.672
FN046	10/25/2009 4:08:22	2948.32	08415.40	6.2	30.08	139.261	42.573	3.827	92.861
FN047	10/25/2009 7:41:02	2923.70	08419.72	7.7	30.05	70.975	59.721	3.094	8.160
FN048	10/25/2009 10:25:59	2931.85	08432.83	6.7	30.00	202.065	56.494	2.142	143.429
FD048	10/25/2009 14:50:10	2921.36	08508.34	14	30.02	64.310	63.486	0.020	0.804
FD049	10/25/2009 16:59:39	2930.85	08510.22	9.3	30.50	194.800	194.207	0.008	0.585
FD050	10/25/2009 19:12:04	2924.58	08519.44	15	30.00	11.846	11.804	0.000	0.042
FD051	10/25/2009 21:51:06	2920.85	08528.57	19	0.02	23.566	17.136	0.070	6.360
FN049	10/25/2009 23:25:08	2931.06	08523.46	9.5	30.00	169.592	139.746	3.090	26.756
FN050	10/26/2009 1:43:49	2939.32	08528.09	9	30.12	86.624	62.794	3.496	20.334
FN051	10/26/2009 3:33:37	2944.87	08529.22	10.9	30.13	137.400	51.133	1.807	84.460
FN052	10/26/2009 4:59:26	2949.32	08526.16	5.6	30.02	26.163	21.165	0.212	4.786
FN053	10/26/2009 6:06:51	2949.12	08528.98	7.5	30.00	181.262	20.856	0.194	160.212
FN054	10/26/2009 7:29:21	2944.74	08532.70	13	30.00	136.528	72.080	0.648	63.800
FN055	10/26/2009 8:56:33	2946.29	08537.17	14	30.07	152.844	47.518	0.816	104.510
FN056	10/26/2009 10:53:24	2946.17	08547.04	18	30.00	37.292	28.628	0.314	8.350
FD052	10/26/2009 13:07:42	2951.48	08551.45	19	30.03	23.900	11.158	0.002	12.740
FD053	10/26/2009 14:59:33	2952.16	08543.84	15	31.00	30.396	28.950	0.000	1.446
FD054	10/26/2009 16:06:14	2953.52	08542.91	15	30.00	51.008	47.374	0.000	3.634
FD055	10/26/2009 17:38:23	3000.49	08541.99	11	30.03	18.520	16.828	0.000	1.692
FD056	10/26/2009 21:47:07	3018.70	08611.91	9.9	30.05	0.000	0.000	0.000	0.000
FD056	10/26/2009 23:11:45	3018.38	08611.87	10.9	30.00	82.394	27.848	0.086	54.460
FN057	10/27/2009 4:39:39	3008.17	08659.63	18	30.18	52.753	19.992	0.925	31.836
FN058	10/27/2009 6:07:51	3009.13	08704.97	16	30.05	21.981	13.508	0.901	7.572

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FN059	10/27/2009 10:55:11	2947.53	08738.69	19	30.67	23.542	11.634	0.190	11.718
FD057	10/27/2009 12:37:55	2949.86	08738.51	19	14.87	0.000	0.000	0.000	0.000
FD058	10/27/2009 14:09:25	2943.36	08733.26	20	30.28	25.952	12.842	0.014	13.096
FD059	10/27/2009 17:44:57	3003.06	08743.36	12	30.05	52.112	43.780	0.004	8.328
FD060	10/27/2009 18:50:52	3004.09	08746.08	11	30.00	20.228	17.626	0.000	2.602
FD061	10/27/2009 22:21:40	3009.28	08723.24	12	30.08	22.671	10.992	0.000	11.679
FN060	10/28/2009 0:10:38	3017.00	08716.70	7.8	30.00	21.925	10.893	0.076	10.956
FN061	10/28/2009 2:50:26	3021.01	08657.88	8.7	30.10	148.338	15.628	0.070	132.640
FN062	10/28/2009 3:59:20	3021.01	08659.36	7.2	30.57	46.897	19.861	0.142	26.894
FN063	10/28/2009 7:11:02	3015.83	08723.85	6.3	30.03	65.486	64.660	0.118	0.708
FN064	10/28/2009 10:38:20	3011.20	08753.03	6.1	31.00	306.200	31.885	0.000	274.315