

**Florida SEAMAP Summer 2017 Survey Cruise Report (6/7/17 – 6/24/17)**

*Cruise Number 171702 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 2 – 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 recurring fall Florida SEAMAP trawl survey was pursued should additional funds become available.

## Objectives

1. Conduct a trawl survey to collect information on shrimp and groundfish abundance/distribution with standard SEAMAP 42 foot 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 in 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 trawling sites were chosen following a simple random survey design.

At each trawl station, samples were collected using a standard 42-foot SEAMAP 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 Operation Manual guidelines. In addition, specimens were retained to validate field identifications and provide biological material for various life-history studies (e.g., 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 summer 2017 survey, Florida sampled a total of 104 stations, which included 104 trawl stations with reportable catch. Two trawl stations were labeled as not representative due to gear damage but catch was worked up per new SEAMAP protocols

from Gulf States Marine Fisheries Commission. Total catch weight from the trawls was 6261.2 kg. Individual trawl catch weights ranged from 1.2 kg to 413.6 kg. There were 39,559 animals collected, including 1,387 pink shrimp (*Farfantepenaeus duorarum*), 35 red snapper (*Lutjanus campechanus*), and 410 lion fish (*Pterois* sp.), which occurred in 55 of the 104 stations (53% occurrence) with reportable catch. The three most abundant species collected were dusky flounder (*Syacium papillosum*, n=3,439; 85% occurrence), slender inshore squid (*Doryteuthis plei*, n=3,254; 72% occurrence), and lane snapper (*Lutjanus synagris*, n=3,120; 44% occurrence).

In addition to following standard SEAMAP sampling protocols, we collected ancillary material for various life history studies. Otoliths were removed from 671 fishes for aging analyses, including 375 Lutjanids, 45 Serranids and 158 lion fish. In addition, 38 spines were removed from managed fishes for alternative aging techniques. Gonads were removed from 61 fish for reproductive staging and 7 fin clip or tissue samples were taken for genetic analysis. Tissue samples were collected from 570 fish for mercury analyses and 783 stomachs were removed for dietary analyses from a wide variety of managed and non-managed species. Sixty four samples were also collected for cooperative research requests from various state institutions including: University of Florida, University of South Florida, and the Florida Department of Agriculture and Consumer Services.

## **Quality Control**

A total of 3,202 animals were frozen or preserved and brought back to FWRI. Of those animals 1,421 fishes were kept as representative samples and an additional 473 fishes were brought back to be further identified in the lab. In addition to fishes, 1,308 invertebrates were brought back for confirmation or identification.

## **Deviations**

Two trawl stations were sampled and aborted due to hard bottom and/or gear damage. A total of 32 trawl stations were skipped due to inclement weather. All stations sampled were completed according to the NMFS SEAMAP protocol.

## **Cruise participants**

Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute and University of Florida personnel collected all samples. Sample summary and data entry were completed by Ryan Jones.

Submitted By:

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*Ted Switzer*

SEAMAP Coordinator

**Table 1. Florida SEAMAP Summer 2017 Shrimp/Groundfish Cruise Summary**

SEAMAP STATION NUMBER	START TIME (GMT)	START LAT	START LONG	START DEPTH (m)	TOW TIME (min)	CATCH TOTAL (kg)	CATCH FISH (kg)	CATCH CRUST. (kg)	CATCH OTHER (kg)
E1009	06/07/2017 13:40:17	2946.63	8731.7	40	30	9.75	2.50	0.00	7.26
E1008	06/07/2017 17:16:55	2940.31	8720.6	84	30.02	3.65	3.08	0.01	0.56
E1005	06/07/2017 19:58:09	2953.04	8721.93	36	30	4.17	2.44	0.01	1.72
E0910	06/08/2017 0:45:06	3004.77	8656.77	94	30	6.82	5.21	0.44	1.16
E0909	06/08/2017 6:28:55	2952.53	8630.36	80	30	32.98	30.54	0.55	1.88
E0908	06/08/2017 11:25:41	2945.3	8616.52	76	30	25.48	24.65	0.13	0.71
E0815	06/08/2017 17:30:29	2920.34	8540.48	50	30.02	27.77	20.37	0.01	7.39
E0813	06/08/2017 20:26:51	2910.25	8522.53	45	30	10.09	9.78	0.01	0.30
E0812	06/08/2017 23:22:31	2901.47	8509.44	41	30.02	153.50	151.45	0.08	1.97
E0816	06/09/2017 2:32:30	2842.41	8508.28	104	30	23.12	22.53	0.23	0.36
E0629	06/09/2017 6:11:18	2842.67	8445.54	52	30.03	24.29	20.97	1.35	1.97
E0631	06/09/2017 8:20:56	2831.52	8449.87	54	30	11.94	6.79	0.05	5.11
E0604	06/09/2017 10:49:48	2825.92	8441.66	64	30	39.99	16.41	0.27	23.31

SEAMAP STATION NUMBER	START TIME (GMT)	START LAT	START LONG	START DEPTH (m)	TOW TIME (min)	CATCH TOTAL (kg)	CATCH FISH (kg)	CATCH CRUST. (kg)	CATCH OTHER (kg)
E0632	06/09/2017 13:22:55	2820.23	8428.35	59	30	16.26	9.64	0.00	6.62
E0633	06/09/2017 16:11:36	2802.95	8435.76	82	30.02	7.86	6.80	0.00	1.06
E0630	06/09/2017 19:21:06	2800.93	8414.18	53	30	13.71	1.82	0.00	11.88
E0522	06/09/2017 21:02:56	2753.47	8415.42	62	30.02	5.38	4.01	0.00	1.37
E0525	06/09/2017 22:51:00	2746.46	8416.59	65	30.02	10.70	8.64	0.01	2.06
E0526	06/10/2017 1:51:52	2734.27	8404.19	65	30	45.74	41.93	0.75	3.06
E0523	06/10/2017 3:39:07	2730.5	8359.87	61	30.02	63.10	26.04	0.41	36.65
E0524	06/10/2017 5:06:46	2725.04	8401.28	64	30	43.76	23.40	0.03	20.32
E0528	06/10/2017 7:26:00	2725.31	8413.88	80	30	70.69	48.57	1.59	20.54
E0527	06/10/2017 10:44:29	2713.49	8354.45	69	30	8.78	3.91	0.00	4.87
E0529	06/10/2017 13:08:33	2708.37	8402.13	84	30	10.48	9.41	0.00	1.07
E0530	06/10/2017 15:09:45	2700.87	8400.38	86	30.1	8.60	6.89	0.01	1.70
E0521	06/10/2017 17:42:36	2702.46	8345.47	56	30.07	3.86	3.64	0.01	0.21

SEAMAP STATION NUMBER	START TIME (GMT)	START LAT	START LONG	START DEPTH (m)	TOW TIME (min)	CATCH TOTAL (kg)	CATCH FISH (kg)	CATCH CRUST. (kg)	CATCH OTHER (kg)
E0427	06/10/2017 19:24:05	2655.94	8341.9	64	30.02	15.01	13.80	0.74	0.46
E0429	06/10/2017 21:04:29	2651.48	8346.43	68	30	8.89	6.94	1.36	0.59
E0431	06/10/2017 22:47:49	2646.78	8343.21	71	30.35	10.44	3.68	0.00	6.76
E0428	06/11/2017 1:52:23	2626.43	8336.29	66	30.03	25.75	22.28	1.07	2.41
E0426	06/11/2017 3:47:01	2624.51	8329.17	58	30.03	164.61	24.71	0.32	139.57
E0423	06/11/2017 6:30:12	2614.82	8319.6	55	30.02	20.91	16.57	1.20	3.14
E0402	06/11/2017 8:52:13	2612.43	8331.47	63	30	50.60	39.26	0.34	11.00
E0430	06/11/2017 10:40:27	2612.58	8337.12	68	30	8.19	6.54	0.00	1.65
E0433	06/11/2017 11:59:16	2613.17	8342.83	73	30.02	26.58	8.99	0.01	17.58
E0432	06/11/2017 13:31:53	2610.62	8342.39	74	30	13.14	4.68	0.00	8.46
E0338	06/11/2017 15:43:49	2559.48	8343.16	92	30	6.80	6.57	0.01	0.22
E0332	06/11/2017 17:50:13	2557.36	8331.42	69	30	128.70	6.31	0.06	122.33
E0425	06/11/2017 20:22:07	2600.65	8316.31	69	30.23	9.91	2.42	0.03	7.47

SEAMAP STATION NUMBER	START TIME (GMT)	START LAT	START LONG	START DEPTH (m)	TOW TIME (min)	CATCH TOTAL (kg)	CATCH FISH (kg)	CATCH CRUST. (kg)	CATCH OTHER (kg)
E0326	06/11/2017 23:08:34	2543.16	8316.5	60	30	90.98	1.69	0.03	89.26
E0325	06/12/2017 0:50:22	2536.84	8311.87	58	30	53.73	33.74	2.34	17.65
E0328	06/12/2017 2:16:12	2539.25	8315.12	60	30.02	180.39	40.11	2.90	137.38
E0327	06/12/2017 3:55:13	2541.5	8318.78	60	30.02	127.94	29.17	3.27	95.50
E0334	06/12/2017 6:30:49	2534.75	8333.57	74	30	23.94	15.01	0.12	8.81
E0333	06/12/2017 9:06:21	2521	8330.71	72	30	23.86	21.30	0.08	2.49
E0329	06/12/2017 11:54:23	2519.5	8315.43	61	30	13.53	5.14	0.01	8.38
E0330	06/12/2017 13:23:17	2516.85	8322.25	65	30	45.53	3.15	0.05	42.33
E0331	06/12/2017 15:21:13	2509.08	8326.06	69	30.03	62.54	4.73	0.00	57.81
E0337	06/12/2017 16:45:51	2509.74	8332.04	73	30	2.34	1.82	0.02	0.50
E0335	06/12/2017 18:52:22	2512.5	8344.27	99	30.02	10.66	9.34	0.01	1.31
E0336	06/12/2017 20:40:51	2503.39	8347.28	102	30.03	6.92	6.10	0.00	0.82
E0209	06/12/2017 22:55:38	2451.95	8351.99	94	30.18	7.44	7.32	0.01	0.12



SEAMAP STATION NUMBER	START TIME (GMT)	START LAT	START LONG	START DEPTH (m)	TOW TIME (min)	CATCH TOTAL (kg)	CATCH FISH (kg)	CATCH CRUST. (kg)	CATCH OTHER (kg)
E0207	06/13/2017 2:48:12	2441.51	8327.31	65	30	91.69	18.27	0.72	72.70
E0208	06/13/2017 4:58:31	2442.46	8317.42	65	30	29.83	24.71	1.03	4.09
E0206	06/13/2017 6:40:11	2442.57	8314.04	60	30	22.22	17.50	1.99	2.73
E0210	06/13/2017 9:08:00	2450.81	8317.74	64	30	25.82	16.64	2.19	7.00
E0205	06/13/2017 11:33:31	2455.2	8308.03	57	30.02	18.75	12.16	0.29	6.30
E0204	06/13/2017 13:32:25	2458.6	8302.09	53	30	35.28	2.94	0.11	32.23
E0320	06/13/2017 15:46:19	2503.86	8252.17	46	30.02	156.77	5.08	0.22	151.46
E0317	06/13/2017 18:15:09	2500.54	8240.85	39	30.58	5.35	4.46	0.84	0.04
E0203	06/13/2017 20:25:53	2452.03	8240.75	34	30.25	8.95	6.54	1.06	1.34
E0202	06/13/2017 22:07:44	2455.62	8232.57	32	30.02	7.44	6.43	0.70	0.31
E0201	06/14/2017 1:53:33	2447.83	8205.27	20	30	22.72	9.29	13.38	0.06
E0301	06/14/2017 5:39:11	2509.99	8147.84	16	30	189.72	124.08	0.03	65.61
E0306	06/14/2017 8:13:51	2509.07	8153.1	17.3	30	64.89	45.63	0.09	19.17

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E0303	06/14/2017 10:01:53	2517.27	8153.24	16.4	30	413.55	126.46	0.61	286.48
E0309	06/14/2017 12:48:25	2514.5	8209.85	24	30	162.59	128.27	0.03	34.29
E0314	06/14/2017 15:26:01	2509.93	8227.3	33	30	21.87	10.00	0.01	11.85
E0318	06/14/2017 17:36:28	2510.12	8242.11	40	30	17.39	11.87	0.13	5.39
E0323	06/14/2017 20:45:21	2526.35	8300.3	53	30.02	102.03	3.31	0.02	98.70
E0322	06/14/2017 23:18:35	2542.3	8300.26	50	30	152.18	6.85	0.01	145.31
E0316	06/15/2017 2:11:13	2538.58	8241.39	36	30	273.13	48.68	0.30	224.15
E0302	06/15/2017 7:53:06	2538	8150.37	13	30	81.32	56.64	4.16	20.51
E0307	06/15/2017 9:54:00	2546.38	8200.69	18	30.02	115.74	54.88	1.58	59.28
E0308	06/15/2017 11:45:27	2551.43	8210.59	20	30.02	391.22	38.78	0.10	352.34
E0503	06/17/2017 21:00:21	2715.69	8240.78	12	30.02	137.34	136.05	0.00	1.29
E0502	06/18/2017 0:01:14	2705.93	8231.11	11	30	100.22	99.44	0.16	0.62
E0506	06/18/2017 1:58:56	2700.17	8240.2	20	30.08	61.63	40.47	1.95	19.21

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E0415	06/18/2017 4:50:00	2657.18	8259.27	33	30.12	55.50	48.95	4.25	2.30
E0417	06/18/2017 6:58:54	2647.5	8306.74	40	30.02	52.36	47.63	2.74	1.99
E0412	06/18/2017 9:38:34	2648.17	8254.57	33	30.02	93.19	78.85	1.04	13.30
E0413	06/18/2017 11:37:50	2640.32	8255.86	34	30	34.94	31.09	0.41	3.44
E0409	06/18/2017 15:51:44	2622.36	8234.42	24	30.02	52.99	37.94	0.03	15.03
E0405	06/18/2017 17:29:22	2623.37	8230.15	20	30.02	25.47	24.83	0.00	0.64
E0403	06/18/2017 20:53:46	2616.51	8211.91	14	30.03	7.59	7.18	0.05	0.36
E0404	06/18/2017 23:18:09	2607.36	8207.43	16	30.03	62.06	43.03	0.06	18.98
E0505	06/22/2017 23:04:07	2734.45	8259.36	13	30.03	39.73	39.27	0.00	0.46
E0507	06/23/2017 1:28:38	2743.54	8306.48	22	30.03	52.95	47.18	2.74	3.03
E0508	06/23/2017 3:44:20	2736.07	8306.35	24	30.15	171.95	56.39	2.90	112.66
E0511	06/23/2017 5:24:59	2732.43	8311.76	29	30.02	97.48	33.47	1.79	62.22
E0510	06/23/2017 7:55:46	2726.74	8305.12	27	30.02	64.95	49.22	1.99	13.75

SEAMAP STATION NUMBER	START TIME (GMT)	START LAT	START LONG	START DEPTH (m)	TOW TIME (min)	CATCH TOTAL (kg)	CATCH FISH (kg)	CATCH CRUST. (kg)	CATCH OTHER (kg)
E0512	06/23/2017 10:04:27	2721.6	8311.24	32	30.02	22.37	21.72	0.26	0.39
E0513	06/23/2017 12:33:25	2732.87	8321.06	35	30.02	22.16	21.29	0.01	0.86
E0531	06/23/2017 15:02:21	2725.7	8333.85	46	30.02	174.80	8.39	0.00	166.41
E0517	06/23/2017 16:47:31	2732.23	8341.67	48	30.07	11.13	7.98	0.00	3.14
E0501	06/23/2017 18:58:11	2736.43	8332.29	42	30.13	7.99	7.98	0.00	0.01
E0514	06/23/2017 21:11:27	2744.35	8344.03	44	30.02	97.02	14.42	0.00	82.61
E0516	06/23/2017 23:10:58	2744.88	8351.59	48	30.1	1.23	1.13	0.00	0.09
E0520	06/24/2017 1:14:58	2751.07	8400.45	52	30.02	336.60	335.27	0.63	0.70
E0515	06/24/2017 3:28:05	2758.94	8358.23	47	30.5	19.26	15.71	2.70	0.85
E0624	06/24/2017 6:02:43	2803.78	8345.39	38	30	89.42	45.51	0.81	43.10
E0603	06/24/2017 8:20:13	2805.28	8331.54	29	30.02	49.30	46.57	0.87	1.87
E0610	06/24/2017 11:06:56	2800.66	8311.93	21	30.02	56.48	49.83	0.12	6.53
E0504	06/24/2017 13:02:38	2757.36	8304.44	16	30.02	30.83	29.96	0.00	0.87