

## **Florida SEAMAP Fall 2018 Survey Cruise Report (10/14/18 – 10/23/18)**

*Cruise Number 171805 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. Because long-term SEAMAP funding was not sufficient to support Florida's participation in both the summer and fall trawl survey, a decision was made to only support one seasonal survey. Based on a preliminary examination of data collected in 2008 and 2009, it was decided that from 2010 onward the Florida SEAMAP trawl survey would 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 recommended as additional funds become available. Due to the availability of carryover funding from the previous fiscal year, Florida was able to participate in a limited way in the fall 2018 SEAMAP trawl survey. NMFS field party chief, Andre Debose, joined us for a cross training during the fall survey.

## 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. Conduct acoustic work to determine net geometry in less than 100 ft in depth.
4. Identify, weigh, count and measure all species according to protocols outlined in the NMFS SEAMAP Operations Manual.
5. Collect information on environmental parameters (salinity, temperature, dissolved oxygen, wind speed and direction, wave height, precipitation) in conjunction with trawl sampling.
6. Code all data according to approved NMFS SEAMAP Operations Manual guidelines and enter data in the NMFS SEAMAP data entry system.
7. 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. Trawl sensors were put on during some stations in less the 100 ft of water to look at net geometry.

## Results

During the fall 2018 survey, Florida sampled a total of 73 stations. Five trawl stations were labeled as not representative due to gear damage, but remaining catch was worked up. Total catch weight from all trawls was 10,901.05 kg. Individual trawl catch weights ranged from 1.5 kg to 1,576.7 kg. There were 43,463 animals collected, including 872 Pink Shrimp (*Farfantepenaeus duorarum*), 9 Red Snapper (*Lutjanus campechanus*), and 145 Lionfish (*Pterois* spp.), which occurred in 28 of the 73 stations (38% occurrence). The three most abundant species collected were Dusky Flounder (*Syacium papillosum*, n=5,682; 75% occurrence), Lane Snapper (*Lutjanus synagris*, n=2,756; 58% occurrence), and Brown Rock Shrimp (*Sicyonia brevirostris*, n=1,749; 47% occurrence).

In addition to following standard SEAMAP sampling protocols, we collected ancillary material for various life history studies. Otoliths were removed from 476 fishes for aging analyses, including 320 Lutjanids, 40 Serranids and 72 lionfish. In addition, 16 spines were removed from managed fishes for alternative aging techniques. Gonads were removed from 23 fish for reproductive staging and 2 fin clip or tissue samples were taken for genetic analysis. Tissue samples were collected from 482 fish for mercury analyses and 609 stomachs were removed for dietary analyses from a wide variety of managed and non-managed species. Twenty-five samples were also collected for cooperative research requests from various federal and state institutions including: FWRI, University of Florida, University of Southern Mississippi, University of South Florida, and NMFS. In addition, FWRI's ISM section collected specimens for tissue samples and vouchers. We collected acoustic data from 11 stations for net geometry analysis.

### **Quality Control**

A total of 2,768 animals were frozen or preserved and brought back to FWRI. Of those animals 901 fishes were kept as representative samples and an additional 486 fishes were brought back to be further identified in the lab. In addition to fishes, 1,381 invertebrates were brought back for confirmation or identification.

### **Deviations**

Five trawl stations were sampled and aborted due to gear damage resulting in loss of some catch. A total of 6 trawl stations were skipped due to inclement weather and time constraints. All stations sampled were completed according to the NMFS SEAMAP protocol.

### **Cruise participants**

Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, NOAA (Pascagoula, MS) and University of Florida personnel collected all samples. Sample summary and data entry were completed by Steven Warner.

Submitted By:

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*Ted Switzer*

SEAMAP Coordinator

**Table 1. Florida SEAMAP Fall 2018 Shrimp/Groundfish Cruise Summary**

SEAMAP SEQUENCE NUMBER	SEAMAP STATION NUMBER	START TIME (GMT)	START LAT	START LONG	START DEPTH (m)	END DEPTH (m)	SPEED (knts)	TOW TIME (min)	CATCH TOTAL (kg)
SMP171805001	E0506	10/15/2018 2:14:15	2722.84	8305.54	28.0	29.0	3.2	30.0	49.0
SMP171805002	E0414	10/15/2018 5:31:52	2657.39	8302.46	36.0	38.0	3.0	30.0	76.1
SMP171805003	E0416	10/15/2018 7:36:03	2651.38	8310.9	43.0	46.0	2.9	30.0	267.4
SMP171805004	E0418	10/15/2018 9:49:51	2651.82	8316.68	46.0	46.0	3.0	30.0	113.9
SMP171805005	E0420	10/15/2018 11:52:44	2656.96	8326.44	52.0	52.0	2.9	30.1	40.4
SMP171805006	E0512	10/15/2018 14:36:43	2705.37	8318.86	44.0	44.0	2.9	30.0	138.2
SMP171805007	E0515	10/15/2018 16:20:17	2706.41	8325.79	48.0	50.0	2.9	30.0	369.3
SMP171805008	E0519	10/15/2018 18:16:56	2705.11	8333.59	53.0	53.0	3.0	30.0	56.1
SMP171805009	E0426	10/15/2018 20:51:05	2658.2	8346.63	60.0	66.0	3.1	30.0	57.8
SMP171805010	E0422	10/15/2018 23:46:19	2650.44	8330.88	56.0	56.0	3.1	30.0	96.5
SMP171805011	E0429	10/16/2018 2:56:49	2646.63	8350.63	78.0	78.0	3.1	30.0	47.0
SMP171805012	E0430	10/16/2018 5:17:11	2641.2	8352.96	85.0	96.0	3.0	30.0	42.0

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SMP171805013	E0424	10/16/2018 8:59:25	2639.89	8327.93	57.0	57.0	3.1	30.0	140.6
SMP171805014	E0423	10/16/2018 11:41:26	2628.6	8325.86	56.0	56.0	3.0	30.0	152.4
SMP171805015	E0427	10/16/2018 13:38:47	2624.95	8334.59	64.0	64.0	3.0	30.0	26.6
SMP171805016	E0421	10/16/2018 17:24:53	2620.28	8315.82	52.0	53.0	3.2	30.0	40.0
SMP171805017	E0425	10/16/2018 19:24:15	2614.8	8322.31	57.0	58.0	3.3	30.0	160.6
SMP171805018	E0331	10/16/2018 22:52:35	2559.84	8335.23	70.0	71.0	3.2	30.0	16.8
SMP171805019	E0332	10/17/2018 0:54:35	2555.7	8339.03	73.0	69.0	3.2	30.0	51.2
SMP171805020	E0328	10/17/2018 3:40:45	2558.44	8323.78	62.0	64.0	3.2	30.0	227.1
SMP171805021	E0326	10/17/2018 5:45:42	2555.71	8318.51	59.0	59.0	3.0	30.1	272.3
SMP171805022	E0322	10/17/2018 9:12:49	2546.95	8303.49	52.0	54.0	3.1	30.0	181.9
SMP171805023	E0333	10/17/2018 13:24:23	2547.47	8333.25	72.0	72.0	2.9	30.0	1.5
SMP171805024	E0335	10/17/2018 15:20:41	2541.17	8335.85	76.0	75.0	3.0	30.0	20.1
SMP171805025	E0337	10/17/2018 18:19:10	2536.12	8346.34	100.0	105.0	3.0	30.0	10.7

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SMP171805026	E0334	10/17/2018 21:50:25	2522.38	8331.46	73.0	75.0	3.2	30.0	57.0
SMP171805027	E0329	10/18/2018 1:04:54	2526.59	8317.64	63.0	63.0	3.3	30.0	76.7
SMP171805028	E0330	10/18/2018 3:44:47	2515.6	8318.57	63.0	65.0	3.2	30.0	44.0
SMP171805029	E0325	10/18/2018 6:19:03	2512.26	8308.14	59.0	59.0	3.0	30.0	96.3
SMP171805030	E0324	10/18/2018 8:24:30	2516.47	8305.22	57.0	57.0	3.0	30.0	74.6
SMP171805031	E0319	10/18/2018 12:15:22	2521.72	8243.63	39.0	39.0	3.1	30.0	146.0
SMP171805032	E0318	10/18/2018 14:20:44	2521.08	8238.32	38.0	38.0	3.1	30.0	178.5
SMP171805033	E0321	10/18/2018 16:27:20	2514.05	8249.09	45.0	46.0	3.0	30.0	1357.3
SMP171805034	E0320	10/18/2018 19:23:44	2506.38	8244.37	42.0	43.0	3.2	30.0	250.2
SMP171805035	E0323	10/18/2018 22:07:56	2507.12	8303.17	55.0	57.0	3.3	30.0	176.2
SMP171805036	E0327	10/19/2018 0:22:38	2501.47	8312.38	61.0	62.0	3.2	30.0	41.7
SMP171805037	E0207	10/19/2018 2:06:26	2457.93	8318.34	64.0	65.0	3.2	30.1	45.4
SMP171805038	E0208	10/19/2018 5:35:14	2442.74	8336.1	67.0	67.0	3.1	30.1	39.2

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SMP171805039	E0206	10/19/2018 7:26:19	2442.12	8328.32	64.0	64.0	3.0	30.0	107.8
SMP171805040	E0209	10/19/2018 10:12:51	2434.16	8317.16	66.0	66.0	3.0	30.0	69.2
SMP171805041	E0204	10/19/2018 12:45:59	2429.25	8304.26	46.0	46.0	3.0	30.0	3.8
SMP171805042	E0205	10/19/2018 16:10:34	2449.82	8305.99	54.0	58.0	3.1	30.0	14.4
SMP171805043	E0203	10/19/2018 20:01:14	2446.62	8244.64	33.0	34.0	3.3	30.1	2.9
SMP171805044	E0202	10/19/2018 22:49:17	2453.22	8232.08	32.0	32.0	3.2	30.0	25.6
SMP171805045	E0201	10/20/2018 0:55:51	2449.3	8224.71	27.0	28.0	3.3	30.0	18.5
SMP171805046	E0311	10/20/2018 4:37:42	2504.81	8208.31	22.0	24.0	3.2	30.1	141.8
SMP171805047	E0308	10/20/2018 7:05:00	2502.97	8159.05	20.0	20.0	3.0	30.0	75.5
SMP171805048	E0302	10/20/2018 10:37:42	2516.42	8139.45	13.0	13.0	2.9	30.0	54.4
SMP171805049	E0303	10/20/2018 12:11:32	2522.51	8143.15	13.0	13.0	3.0	30.0	583.2
SMP171805051	E0307	10/20/2018 16:15:00	2522.87	8158.15	19.0	19.0	3.1	30.0	193.0
SMP171805050	E0304	10/20/2018 14:36:18	2517.14	8151.58	15.0	15.0	3.1	30.2	12.7

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SMP171805052	E0306	10/20/2018 18:17:52	2531.72	8156.71	17.0	17.0	3.2	30.0	47.9
SMP171805053	E0310	10/20/2018 19:53:05	2534.54	8206.29	21.0	21.0	3.2	30.0	596.4
SMP171805054	E0312	10/20/2018 22:00:09	2535.97	8216.32	25.0	28.0	3.2	30.0	275.0
SMP171805055	E0313	10/21/2018 0:27:02	2542.89	8219.78	26.0	27.0	3.1	30.0	528.0
SMP171805056	E0309	10/21/2018 3:34:56	2556.26	8214.21	21.0	22.0	3.1	30.0	19.3
SMP171805057	E0403	10/21/2018 6:11:10	2607.56	8203.48	14.0	13.0	3.1	30.0	31.6
SMP171805058	E0409	10/21/2018 8:53:04	2606.12	8221.39	22.0	22.0	3.0	30.1	1576.7
SMP171805059	E0413	10/21/2018 12:02:56	2605.32	8240.65	32.0	33.0	3.0	30.1	95.8
SMP171805060	E0412	10/21/2018 13:59:15	2610.88	8238.08	29.0	30.0	3.1	30.0	176.2
SMP171805061	E0411	10/21/2018 16:25:54	2620.4	8234.4	26.0	26.0	3.1	30.0	20.7
SMP171805062	E0404	10/21/2018 19:07:26	2617	8218.42	16.0	14.2	3.2	30.0	4.1
SMP171805063	E0402	10/21/2018 20:38:17	2623.16	8217.25	13.3	14.2	3.4	30.0	28.0
SMP171805064	E0405	10/21/2018 22:13:18	2624.7	8223.79	16.5	14.5	3.3	30.0	47.3



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SMP171805065	E0406	10/22/2018 0:47:25	2637.66	8226.02	17.5	18.0	3.3	30.0	40.6
SMP171805066	E0408	10/22/2018 2:45:51	2639.67	8235.63	20.0	23.0	3.4	30.0	167.0
SMP171805067	E0407	10/22/2018 5:30:54	2648.55	8234.76	19.0	21.0	2.9	30.0	214.1
SMP171805068	E0410	10/22/2018 7:28:33	2647.42	8240.42	24.0	25.0	3.1	30.0	209.0
SMP171805069	E0503	10/22/2018 11:01:02	2703.3	8240.06	20.0	20.0	3.0	30.0	88.2
SMP171805070	E0504	10/22/2018 13:06:44	2706.1	8247.51	21.0	23.0	3.1	30.0	31.2
SMP171805071	E0502	10/22/2018 15:40:13	2718.22	8253.95	19.0	21.0	3.0	30.0	44.3
SMP171805072	E0501	10/22/2018 18:11:58	2732.27	8300.23	17.5	16.7	3.2	30.0	33.4
SMP171805073	E0507	10/22/2018 19:53:18	2733.57	8309.86	27.0	29.0	3.2	30.0	84.5