Florida SEAMAP Fall 2017 Survey Cruise Report (10/12/17 – 10/22/17)

Cruise Number 171703 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 2017 SEAMAP trawl 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. 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 fall 2017 survey, Florida sampled a total of 80 stations, which included 3 trawl stations with a 0 kg catch. The three trawl stations were labeled as not representative due to gear damage. There was no catch to work up due to extensive damage to the bag, resulting in total loss of catch. Total catch weight from the trawls was 6,547.2 kg. Individual trawl catch weights ranged from 0.0 kg to 770.7 kg. There were 39,839 animals collected, including 1,845 pink shrimp (*Farfantepenaeus duorarum*), 51 red snapper (*Lutjanus campechanus*), and 285 lionfish (*Pterois* spp.), which occurred in 32 of the 77 stations (41% occurrence) with reportable catch. The three most abundant species collected were dusky flounder (*Syacium papillosum*, n=6012; 92% occurrence), brown rock shrimp (*Sicyonia brevirostris*, n=2,657; 32% occurrence), and moon jelly (*Aurelia aurita*, n=1,998; 36% occurrence).

In addition to following standard SEAMAP sampling protocols, we collected ancillary material for various life history studies. Otoliths were removed from 510 fishes for aging analyses, including 339 Lutjanids, 43 Serranids and 71 lionfish. In addition, 18 spines

were removed from managed fishes for alternative aging techniques. Gonads were removed from 49 fish for reproductive staging and 16 fin clip or tissue samples were taken for genetic analysis. Tissue samples were collected from 424 fish for mercury analyses and 692 stomachs were removed for dietary analyses from a wide variety of managed and non-managed species. Sixty-one samples were also collected for cooperative research requests from various federal and state institutions including: FWRI, University of Florida, University of South Florida, NMFS, and NOAA. In addition, FWRI's ISM section collected 115 specimens for tissue samples and vouchers.

Quality Control

A total of 2,887 animals were frozen or preserved and brought back to FWRI. Of those animals 1,158 fishes were kept as representative samples and an additional 459 fishes were brought back to be further identified in the lab. In addition to fishes, 1,270 invertebrates were brought back for confirmation or identification.

Deviations

Three trawl stations were sampled and aborted due to gear damage resulting in loss of total catch. A total of 20 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 Fall 2017 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)
SMP1717001	E0505	10/14/2017 4:44:06	2736.84	8303.63	18.3	20.5	3.3	30.0	96.9
SMP1717002	E0516	10/14/2017 8:42:55	2727.79	8330.89	42.4	43.7	3.1	30.0	265.7
SMP1717003	E0523	10/14/2017 13:12:42	2717.06	8400.53	71.9	71.3	3.2	30.1	24.2
SMP1717004	E0520	10/14/2017 16:41:44	2716.96	8343.92	51.8	51.9	3.2	30.0	29.0
SMP1717005	E0521	10/14/2017 19:21:32	2709.09	8338.57	52.7	54.9	3.4	30.0	37.6
SMP1717006	E0519	10/14/2017 21:36:30	2714.22	8331.34	47.5	48.6	3.4	30.0	47.0
SMP1717007	E0514	10/15/2017 0:13:25	2710.63	8320.8	42.6	44.1	3.4	30.2	90.9
SMP1717008	E0417	10/15/2017 3:15:16	2658.04	8324.15	49.0	49.7	3.5	30.0	47.1
SMP1717009	E0418	10/15/2017 4:59:56	2657.07	8326.93	51.0	52.7	3.1	30.0	48.1
SMP1717010	E0425	10/15/2017 8:34:42	2656.42	8350.73	68.9	71.9	2.9	30.0	69.0
SMP1717011	E0427	10/15/2017 10:17:44	2652.23	8351.55	74.4	76.3	3.1	30.1	242.8
SMP1717012	E0428	10/15/2017 13:42:53	2637.73	8347.8	76.3	83.2	3.1	30.0	16.5

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SMP1717013	E0423	10/15/2017 16:07:52	2629.83	8341.95	67.1	70.6	3.0	30.0	26.3
SMP1717014	E0429	10/15/2017 18:00:38	2621.77	8343.03	75.0	75.2	3.3	30.0	20.2
SMP1717015	E0426	10/15/2017 19:47:59	2626.71	8342.5	71.0	68.9	3.4	30.0	26.4
SMP1717016	E0422	10/15/2017 22:26:53	2639.8	8333.24	59.4	59.1	3.4	30.0	9.2
SMP1717017	E0420	10/16/2017 0:09:44	2639.62	8328.32	56.5	57.8	3.3	30.0	31.6
SMP1717018	E0419	10/16/2017 2:40:39	2626.51	8321.45	53.2	53.6	3.5	30.0	25.0
SMP1717019	E0416	10/16/2017 5:16:22	2636.17	8316.78	47.7	48.3	3.2	30.1	32.7
SMP1717020	E0413	10/16/2017 8:10:16	2639.71	8300.68	37.3	38.2	3.0	30.0	159.9
SMP1717021	E0415	10/16/2017 10:54:57	2622.55	8303.73	41.0	43.0	3.0	30.0	229.4
SMP1717022	E0412	10/16/2017 13:21:43	2618.5	8251.96	34.9	34.2	3.1	30.0	113.7
SMP1717023	E0414	10/16/2017 15:11:04	2614.72	8254.34	36.9	35.3	3.0	30.1	13.6
SMP1717024	E0421	10/16/2017 19:01:18	2602.16	8318.56	56.5	57.6	3.2	30.0	6.0
SMP1717025	E0424	10/16/2017 21:55:53	2604.77	8338.99	66.9	65.7	3.1	30.0	21.0

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SMP1717026	E0332	10/17/2017 1:27:03	2548.25	8334.96	72.8	73.2	3.1	30.0	42.6
SMP1717027	E0324	10/17/2017 4:52:50	2543.26	8312.12	56.5	56.9	3.1	30.1	178.0
SMP1717028	E0322	10/17/2017 7:08:46	2532.2	8303.99	53.9	53.2	3.1	30.1	75.5
SMP1717029	E0325	10/17/2017 8:52:29	2527.7	8307.15	56.1	56.1	3.0	30.0	28.8
SMP1717030	E0323	10/17/2017 10:37:31	2533.23	8305.64	55.8	55.8	3.0	30.0	57.3
SMP1717031	E0327	10/17/2017 13:41:02	2525.62	8325.13	66.4	67.5	3.0	30.0	16.6
SMP1717032	E0331	10/17/2017 15:58:29	2530.56	8336.17	73.9	73.2	2.9	30.0	11.6
SMP1717033	E0334	10/17/2017 18:11:31	2520.78	8338.97	75.7	78.3	3.2	30.0	47.9
SMP1717034	E0328	10/17/2017 21:21:34	2517.33	8325.51	66.9	66.6	3.2	30.0	12.4
SMP1717035	E0326	10/17/2017 23:55:48	2503.62	8318.3	62.5	63.3	3.1	30.0	35.8
SMP1717036	E0329	10/18/2017 2:10:16	2505.51	8331.09	71.9	72.8	3.3	30.0	24.6
SMP1717037	E0330	10/18/2017 4:03:18	2500.53	8333.56	71.3	71.3	3.2	30.0	35.7
SMP1717038	E0209	10/18/2017 6:06:55	2449.4	8332.33	65.1	64.4	3.0	30.0	67.3

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SMP1717039	E0208	10/18/2017 9:16:54	2435.84	8325.18	60.7	58.5	3.1	30.1	26.3
SMP1717040	E0207	10/18/2017 13:51:57	2452.25	8258.36	47.4	48.3	3.2	30.0	40.8
SMP1717041	E0206	10/18/2017 15:45:39	2456.29	8255.6	47.0	48.1	3.0	30.1	14.7
SMP1717042	E0205	10/18/2017 18:11:35	2456.01	8245.34	39.9	40.6	3.1	30.0	66.8
SMP1717043	E0204	10/18/2017 19:57:50	2456.11	8240.68	36.6	37.3	3.2	30.0	18.0
SMP1717044	E0203	10/18/2017 21:25:26	2455.99	8238.4	34.6	35.8	3.0	30.0	45.9
SMP1717045	E0202	10/18/2017 22:57:19	2456.19	8235.19	33.3	34.0	3.0	30.0	24.4
SMP1717046	E0201	10/19/2017 1:02:26	2446.63	8241.61	32.0	32.4	3.1	30.0	21.8
SMP1717047	E0318	10/19/2017 3:52:26	2501.61	8250.78	44.8	45.5	3.1	30.0	116.7
SMP1717048	E0316	10/19/2017 6:30:21	2505.82	8239.74	39.7	39.9	3.1	30.0	88.0
SMP1717049	E0315	10/19/2017 9:12:09	2513.71	8237.75	37.5	37.9	3.1	30.0	126.6
SMP1717050	E0315	10/19/2017 11:57:00	2512.67	8255.47	49.7	50.3	3.0	30.0	21.4
SMP1717051	E0319	10/19/2017 14:36:27	2522.32	8249.95	45.9	46.6	3.3	30.0	6.5

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SMP1717052	E0320	10/19/2017 16:44:39	2528.67	8254.29	49.2	49.2	3.1	30.0	0.0
SMP1717053	E0317	10/19/2017 19:22:32	2531.79	8247.1	42.6	43.3	3.0	30.0	0.0
SMP1717054	E0314	10/19/2017 22:31:35	2545.35	8239.82	34.2	33.8	3.4	30.0	275.1
SMP1717055	E0301	10/20/2017 5:11:13	2558.78	8152.48	10.6	11.7	3.1	30.1	209.3
SMP1717056	E0405	10/20/2017 10:10:43	2616.02	8226.75	19.4	19.8	3.1	30.0	99.2
SMP1717057	E0406	10/20/2017 12:08:35	2624.48	8227.87	18.7	19.4	3.1	30.1	58.2
SMP1717058	E0401	10/20/2017 14:28:48	2631.98	8220.08	11.9	15.9	3.2	30.1	25.8
SMP1717059	E0402	10/20/2017 16:15:21	2637.02	8226.46	18.1	16.5	3.0	30.1	19.0
SMP1717060	E0404	10/20/2017 17:17:02	2638.92	8228.03	18.3	19.8	3.1	30.0	28.4
SMP1717061	E0403	10/20/2017 19:09:57	2644.76	8233.03	18.3	20.5	3.0	30.0	34.0
SMP1717062	E0407	10/20/2017 20:55:01	2647	8243.83	25.1	26.2	3.0	30.0	329.4
SMP1717063	E0410	10/20/2017 23:03:28	2656.06	8249.79	28.2	29.3	3.0	30.0	149.6
SMP1717064	E0409	10/21/2017 0:55:56	2657.04	8250.48	28.2	29.3	3.2	30.0	90.8

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SMP1717065	E0503	10/21/2017 4:12:10	2708.13	8238.97	15.0	15.9	3.1	30.0	119.5
SMP1717066	E0504	10/21/2017 5:36:39	2710.67	8243.19	16.6	18.7	3.0	30.0	770.7
SMP1717067	E0508	10/21/2017 7:44:21	2712.04	8250.99	21.8	21.9	3.1	30.0	131.9
SMP1717068	E0502	10/21/2017 10:12:50	2720.36	8245.11	12.6	13.0	3.2	30.2	0.0
SMP1717069	E0501	10/21/2017 12:00:44	2724.1	8250.81	11.7	12.4	3.0	30.1	18.5
SMP1717070	E0506	10/21/2017 13:32:47	2723.34	8258.64	19.8	20.7	3.1	30.1	25.0
SMP1717071	E0509	10/21/2017 15:23:46	2722.52	8310.3	31.3	31.8	3.1	30.0	62.4
SMP1717072	E0513	10/21/2017 18:58:55	2738.94	8331.65	37.7	39.7	3.0	30.0	6.5
SMP1717073	E0510	10/21/2017 22:06:02	2757.99	8332.98	32.6	33.8	3.2	30.0	14.3
SMP1717074	E0610	10/22/2017 0:15:26	2805.45	8327.39	27.2	27.8	3.1	30.0	50.8
SMP1717075	E0604	10/22/2017 4:50:03	2828.71	8321.47	20.8	20.7	3.0	30.0	147.7
SMP1717076	E0601	10/22/2017 7:37:04	2823.34	8300.6	11.2	12.3	3.2	30.0	156.6
SMP1717077	E0602	10/22/2017 10:01:52	2809.98	8304.28	13.9	15.5	3.0	30.1	409.7

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SMP1717078	E0605	10/22/2017 11:56:28	2808.83	8313.67	18.3	22.3	2.9	30.0	117.8
SMP1717079	E0606	10/22/2017 13:42:50	2803.25	8313.38	21.0	23.2	3.0	30.0	64.4
SMP1717080	E0507	10/22/2017 16:35:09	2747.74	8310.73	21.6	24.0	3.0	30.0	150.6