

CRUISE REPORT

Southeast Fishery-Independent Survey (SEFIS)

R/V *Savannah* Cruise SH-12-19

23 – 31 May 2012

Total Number of Sea Days - 9

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
Beaufort Laboratory
101 Pivers Island Rd.
Beaufort, NC 28516

94 camera-trap deployments

18 CTD casts

INTRODUCTION

The R/V *Savannah* departed Savannah, GA, on 23 May 2012 for a Southeast Fishery-Independent Survey (SEFIS) research cruise in continental shelf and shelf-break waters off the southeastern US. SEFIS was created by the National Marine Fisheries Service in 2010 and is run out of the Beaufort Laboratory. This survey conducts applied fishery-independent sampling and related research focusing on the assessment of spatial variability in distribution and abundance of red snapper and other reef species within the snapper-grouper complex, via data collected from fish traps, video cameras, and acoustics. During this survey, chevron trap catches and associated underwater video recordings were collected from randomly selected stations on known hardbottom habitats between 27.73 and 31.64° N. A total of 94 stations were sampled with camera-trap gear over 8 sea days between 20 and 75 meter depths.

OBJECTIVES

1. Increase the spatial footprint and sample size of fishery-independent sampling in US southeast waters. Baited chevron traps, with 2 or 3 mounted high-definition video cameras, were utilized for (a) hardbottom reef fish community assessments, (b) collection of reef fish for biological samples (e.g., otoliths and gonads), and (c) comparative gear sampling (cameras versus traps).
2. Use video cameras on chevron traps to address trap selectivity issues, locate and describe hardbottom habitats, and provide an additional index of abundance for stock assessments.
3. Use a CTD instrument package to collect environmental data (temperature, salinity, dissolved oxygen, and turbidity) at camera-trap sampling locations.

METHODS

Camera-Trap Sampling

Camera-trap gear consisted of two or three high definition video cameras mounted to a chevron fish trap. Chevron traps were constructed out of plastic-coated wire mesh. A Canon[®] camera (model HF S200) was attached above the mouth of the trap, and a GoPro[®] camera (model HD Hero with a flat-lens housing) was attached above the nose of the trap (Figure 1). Additionally, some traps had a third camera (GoPro) attached to the side of the trap, looking inward towards the mouth opening, so that reef fish entries and exits could be recorded. Traps were baited with Atlantic menhaden, *Brevoortia tyrannus*, and video cameras were set to record before deployment. Camera-traps were deployed at randomly selected stations at least 200 meters apart on suspected or known hardbottom habitats, and left to soak for approximately 90 minutes. Camera-traps were most often deployed in sets of six. A CTD cast (see environmental data collection) was conducted during the 90-minute soak time for each trap set. Fish catches were processed after trap retrieval. All fish were counted, weighed, and measured to the nearest millimeter. Individuals of select species (e.g., species in the snapper-grouper complex) were further processed for additional lengths and biological samples

(otoliths, gonads, and DNA). Video files were downloaded and backed up on media storage devices. Biological samples were sent to the Marine Resources Monitoring, Assessment, and Prediction (MARMAP) Program laboratory for processing, and video files were brought to the NMFS Beaufort laboratory for further processing and analysis.

Environmental Data Collection

Environmental data were collected with a Seabird “Conductivity, Temperature and Depth” instrument package (CTD; model SBE 25) and Scientific Computer System software (SCS; version 4). CTD casts were conducted near the middle of each camera-trap soak period; instruments were lowered to within 2 meters of the bottom. Numerous water profile measurements were collected, including temperature (°C), salinity (psu), dissolved oxygen (mg/L), and turbidity (% transmission). CTD data were archived for further processing at the Beaufort laboratory. SCS software was used to collect specific information for each fishing and CTD event, including soak time/cast duration as well as start and end latitude, longitude, and depth (m).

SURVEY RESULTS

Camera-Trap Sampling

94 stations were sampled with camera-trap gear (Table 1, Figure 2).

Environmental Data Collection

18 CTD casts were conducted during the cruise (Table 1, Figure 2). CTD data will be processed back at the lab using Seabird SBE Data Processing software (version 7.2), and archived in a database at the NMFS–Beaufort Laboratory for future analysis.

Table 1. Summary of station coordinates, depth (m), date and time for each fishing event (camera-trap, Gear=324) and CTD cast (Gear=298) conducted on the SH-12-19 survey. Times were recorded in Coordinated Universal Time (UTC).

Collection	Gear ID	Date	Start Time	Start Latitude	Start Longitude	Start Depth
123171	324	5/23/2012	20:34	31.62	-80.56	24
123172	324	5/23/2012	20:43	31.63	-80.57	24
123173	324	5/23/2012	20:48	31.62	-80.58	24
123174	324	5/23/2012	20:52	31.63	-80.58	24
123175	324	5/23/2012	20:57	31.63	-80.58	24
123176	324	5/23/2012	21:00	31.63	-80.57	23
123177	298	5/23/2012	21:09	31.62	-80.56	23
123178	324	5/24/2012	11:50	31.63	-79.65	75
123179	324	5/24/2012	12:04	31.63	-79.66	73
123180	324	5/24/2012	12:09	31.63	-79.66	70
123181	324	5/24/2012	12:15	31.64	-79.66	69
123182	324	5/24/2012	12:20	31.64	-79.67	68
123183	324	5/24/2012	12:26	31.64	-79.67	68
123184	298	5/24/2012	12:40	31.63	-79.64	75
123185	324	5/24/2012	15:22	31.64	-79.67	68
123186	324	5/24/2012	15:29	31.63	-79.67	69
123187	324	5/24/2012	15:35	31.63	-79.66	72
123188	324	5/24/2012	15:40	31.62	-79.66	71
123189	324	5/24/2012	15:46	31.62	-79.67	70
123190	324	5/24/2012	15:50	31.62	-79.67	68
123191	298	5/24/2012	16:02	31.62	-79.66	73
123192	324	5/24/2012	19:30	31.61	-79.68	69
123193	324	5/24/2012	19:37	31.61	-79.68	69
123194	324	5/24/2012	19:45	31.61	-79.67	70
123195	324	5/24/2012	19:54	31.61	-79.67	72
123196	324	5/24/2012	20:02	31.61	-79.68	69
123197	324	5/24/2012	20:09	31.61	-79.68	67
123198	298	5/24/2012	20:22	31.61	-79.67	73
123199	324	5/25/2012	11:37	31.44	-80.33	37
123200	324	5/25/2012	11:47	31.44	-80.34	36
123201	324	5/25/2012	11:51	31.44	-80.35	36
123202	324	5/25/2012	11:56	31.44	-80.36	35
123203	324	5/25/2012	12:02	31.44	-80.36	36
123204	324	5/25/2012	12:08	31.44	-80.35	36
123205	298	5/25/2012	12:20	31.44	-80.33	38

123206	324	5/25/2012	14:18	31.43	-80.33	39
123207	324	5/25/2012	14:27	31.43	-80.35	39
123208	324	5/25/2012	14:33	31.43	-80.35	36
123209	324	5/25/2012	14:36	31.43	-80.36	37
123210	324	5/25/2012	14:38	31.43	-80.36	36
123211	324	5/25/2012	14:43	31.42	-80.37	37
123212	298	5/25/2012	15:07	31.43	-80.32	39
123213	324	5/26/2012	11:33	29.10	-80.58	23
123214	324	5/26/2012	11:39	29.09	-80.59	24
123215	324	5/26/2012	11:44	29.10	-80.58	21
123216	324	5/26/2012	11:47	29.10	-80.58	24
123217	324	5/26/2012	11:53	29.10	-80.58	23
123218	324	5/26/2012	11:56	29.10	-80.57	24
123219	298	5/26/2012	12:04	29.10	-80.57	23
123220	324	5/26/2012	13:56	29.07	-80.54	25
123221	324	5/26/2012	13:59	29.07	-80.54	20
123222	324	5/26/2012	14:03	29.07	-80.54	25
123223	324	5/26/2012	14:07	29.07	-80.53	21
123224	324	5/26/2012	14:10	29.07	-80.53	22
123225	324	5/26/2012	14:14	29.07	-80.53	21
123226	298	5/26/2012	14:22	29.07	-80.54	26
123227	324	5/26/2012	18:19	29.03	-80.20	55
123228	324	5/26/2012	18:25	29.03	-80.20	54
123229	324	5/26/2012	18:36	29.02	-80.19	52
123230	324	5/26/2012	18:47	29.01	-80.19	52
123231	324	5/26/2012	18:56	29.01	-80.19	53
123232	298	5/26/2012	19:14	29.04	-80.19	62
123233	324	5/27/2012	11:35	27.75	-80.13	28
123234	324	5/27/2012	11:43	27.74	-80.13	23
123235	324	5/27/2012	11:50	27.74	-80.13	29
123236	324	5/27/2012	11:57	27.74	-80.13	26
123237	298	5/27/2012	12:08	27.74	-80.12	29
123238	324	5/27/2012	14:30	27.75	-80.01	52
123239	324	5/27/2012	14:36	27.75	-80.02	52
123240	324	5/27/2012	14:42	27.75	-80.02	52
123241	324	5/27/2012	14:49	27.76	-80.02	54
123242	324	5/27/2012	14:54	27.76	-80.01	56
123243	324	5/27/2012	15:02	27.76	-80.01	57
123244	298	5/27/2012	15:14	27.75	-80.01	56
123245	324	5/27/2012	17:21	27.79	-80.01	57
123246	324	5/27/2012	17:30	27.79	-80.01	56

123247	324	5/27/2012	17:38	27.79	-80.01	55
123248	324	5/27/2012	17:43	27.78	-80.02	54
123249	324	5/27/2012	17:51	27.78	-80.02	54
123250	324	5/27/2012	17:59	27.78	-80.01	58
123251	298	5/27/2012	18:05	27.78	-80.00	64
123252	324	5/28/2012	11:34	27.86	-80.15	27
123253	324	5/28/2012	11:42	27.86	-80.15	29
123254	324	5/28/2012	11:47	27.87	-80.16	27
123255	324	5/28/2012	11:52	27.87	-80.16	29
123256	324	5/28/2012	11:57	27.88	-80.16	27
123257	298	5/28/2012	12:19	27.85	-80.15	29
123258	324	5/28/2012	14:40	27.89	-80.03	54
123259	324	5/28/2012	14:49	27.90	-80.03	51
123260	324	5/28/2012	14:55	27.90	-80.03	51
123261	298	5/28/2012	15:19	27.89	-80.03	52
123262	324	5/28/2012	18:24	28.08	-80.20	29
123263	324	5/28/2012	18:38	28.09	-80.21	29
123264	324	5/28/2012	18:44	28.09	-80.21	28
123265	324	5/28/2012	18:50	28.09	-80.21	29
123266	324	5/28/2012	18:55	28.09	-80.21	29
123267	298	5/28/2012	19:02	28.09	-80.21	31
123268	324	5/29/2012	11:41	28.15	-80.22	25
123269	324	5/29/2012	11:49	28.15	-80.22	25
123270	324	5/29/2012	11:54	28.16	-80.22	27
123271	324	5/29/2012	12:05	28.16	-80.23	26
123272	298	5/29/2012	12:13	28.15	-80.22	27
123273	324	5/29/2012	16:16	28.50	-80.11	55
123274	324	5/29/2012	16:24	28.51	-80.11	53
123275	324	5/29/2012	16:33	28.52	-80.12	51
123276	324	5/29/2012	16:41	28.53	-80.12	51
123277	298	5/29/2012	16:49	28.53	-80.11	54
123278	324	5/29/2012	18:57	28.59	-80.12	56
123279	324	5/29/2012	19:06	28.60	-80.12	54
123280	324	5/29/2012	19:25	28.60	-80.12	55
123281	324	5/29/2012	19:30	28.60	-80.13	53
123282	298	5/29/2012	19:42	28.60	-80.11	61



Figure 1. Chevron trap with video cameras attached over the nose and mouth positions.

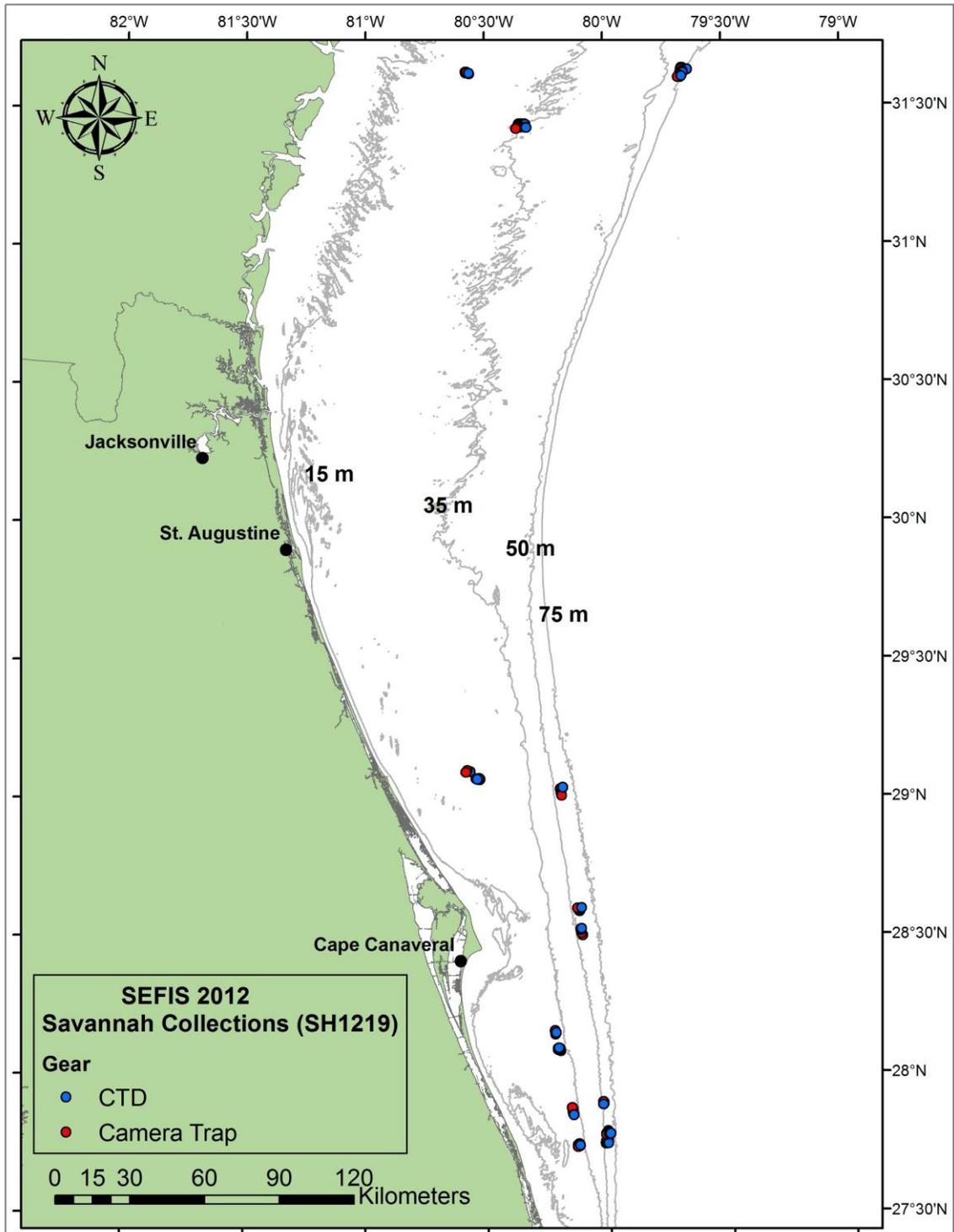


Figure 2. Locations of stations sampled with camera-trap and CTD gear on the SH-12-19 survey. Note that symbols overlap in many cases.

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