U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
3209 Frederic St.
Pascagoula, MS 39567

Cruise Report

Date Submitted: 09/19/2013

Platform: NOAA Ship PISCES

Cruise Number: PC-13-04

Project Title: SouthEast Fishery-Independent Survey

Cruise Dates: 06/12/2013 - 08/01/2013

Submitted by: _____ Date: 09/19/2013
Field Party Chief
SEFSC, Beaufort, NC

Approved by: _____ Date: 19 Sept 2013
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Date: 2013.09.20 05:50:11 -04'00'
Date: _____
Dr. Bonnie Ponwith
Director, SEFSC
NMFS, Miami, FL

CRUISE REPORT

Southeast Fishery-Independent Survey (SEFIS)

NOAA Ship *Pisces* Cruise PC-13-04
12 – 27 June 2013
17 July – 1 August 2013
Total Number of Days At-Sea - 32

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

444 camera-trap deployments
75 CTD casts
103 XBT casts
40 unique areas mapped

119 red snapper collected

INTRODUCTION

The NOAA Ship *Pisces* departed from Port Canaveral, FL, on 12 June 2013 at 1900 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 operates out of the Beaufort Laboratory. This survey was created to conduct 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 hardbottom habitats found between 28.182°N and 32.091 °N. The survey was conducted in two legs (June 12-27 and July 17-August1) for a total of 32 sea days. During the survey, 444 stations were sampled with camera-trap arrays between 18 and 77 m depths.

OBJECTIVES

1. Increase the spatial footprint and sample size of fishery-independent sampling on the East Coast of Georgia and Florida. Baited chevron traps, with two mounted high-definition video cameras, were utilized for (a) hardbottom reef fish community assessments, (b) collection of reef fish for biological samples (i.e., 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. Map bottom habitats using multibeam sonar to improve survey design and to expand knowledge of hardbottom habitats in the southeast US.

4. Develop new, and refine existing, mapping protocols using the ME70 sonar equipment through collaborative efforts with colleagues from NOAA's Office of Coast Survey and students from the College of Charleston.

5. Use a Conductivity-Temperature-Depth (CTD) instrument package to collect environmental data (temperature, salinity, dissolved oxygen, turbidity) at camera-trap sampling locations, and Expendable Bathythermographs (XBTs) to sample water temperature during multibeam mapping operations.

METHODS

Camera-Trap Sampling

Camera-trap gear consisted of two high definition video cameras mounted to a chevron fish trap. Chevron traps were composed 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). Traps were baited with Atlantic menhaden, *Brevoortia tyrannus*, and video cameras were set to record before deployment. Camera-traps were deployed at least 200 m apart on suspected or known hardbottom habitats, and left to soak for approximately 90 min. Camera-traps were most often deployed in sets of six. A CTD cast (see environmental data collection) was conducted during the 90-min soak time for each trap set. Fish catches were processed after trap retrieval. All fish were enumerated, weighed, and measured to the nearest mm. Individuals of select species (mostly species found 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 digital media storage devices. Biological samples and video files were brought to the Beaufort Laboratory for further processing and analysis.

Environmental Data Collection
Environmental data were collected with Seabird CTD instrument package (model SBE 9) and Scientific Computer System (SCS) software. CTD casts were conducted near the middle of the camera-trap soak period; instruments were lowered to within 2 m of the bottom. Numerous water profile measurements were taken, including temperature (◦C), salinity, dissolved oxygen (mg/L), average sound velocity (m/s), fluorescence (mg/m^3), and beam transmission (%). CTD data were archived for further processing at the Beaufort Laboratory. SCS software 4.0 was used to collected specific information for each fishing and CTD event, including soak time/cast duration as well as start and end latitude, longitude, and depth (m). XBTs were deployed during the mapping shift to collect water column temperature data while the ship was underway.

Acoustic Data Collection
The *Pisces* ME70 multibeam sonar was used to create hydrographic maps for operational planning (e.g., select potential camera-trap site coordinates on unsampled hardbottom habitat) and future research uses. Areas for mapping were selected based on (1) hardbottom points provided to SEFIS by commercial and recreational fishermen, public sources, and other scientists, (2) hardbottom habitat predicted based on a model developed by Daniel Dunn, Duke University, and (3) efficient use of vessel time. Original ME70 data files (*.raw) were processed through proprietary MATLAB software products designed by George "Randy" Cutter (NOAA Fisheries, SWFSC) and Tom Webber (University of New Hampshire); these products derived hydrographic data (*.xyz or *.gsf format, respectively) from files collected in the ME70 "fisheries research mode." Bathymetry and backscatter were further processed via Caris HIPS and SIPS v7.1.2 and QPS Fledermaus v7.3.2. Potential camera-trap site coordinates were exported to ArcGIS (v10) and navigation software for planning and archiving.

SURVEY RESULTS

Camera-Trap Sampling
Four hundred and forty four stations were sampled with camera-trap gear (Table 1). From these traps, 6,377 fish from 30 taxa were collected and worked up for length frequency data (Table 2). Snapper and grouper species were further processed for otoliths (n=162), gonads (n=150), and DNA (n=145) tissues. One trap was lost when it hit the bottom of the ship and broke free upon retrieval. A total of 119 red snapper were caught in chevron fish traps.

Environmental Data Collection
Seventy five CTD casts (Table 1) and 103 XBT casts were conducted during the cruise. CTD data will be processed with Seabird SBE Data Processing software (version 7.2), and archived in a database at the NMFS-Beaufort Laboratory for future analysis.

Multibeam Acoustics Data Collection
Forty areas were mapped, totaling approximately 258 km^2 (Figure 2). Maps were compiled in an ArcGIS project. Multibeam maps were used to select trap-camera sampling sites, i.e., identifying hardbottom habitats. Multibeam data were archived on a server 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; hook and line, Gear=014) and CTD cast (Gear=298) conducted on the PC-13-04 survey. Times were recorded in Coordinated Universal Time (UTC).

Collection	Gear	Date	Time	Latitude	Longitude	Depth
133278	324	6/14/2013	12:04	30.49	-80.19	55
133279	324	6/14/2013	12:07	30.49	-80.19	57
133280	324	6/14/2013	12:12	30.48	-80.19	61
133281	324	6/14/2013	12:19	30.48	-80.19	54
133282	324	6/14/2013	12:22	30.48	-80.20	52
133283	324	6/14/2013	12:29	30.48	-80.19	60
133284	298	6/14/2013	12:41	30.49	-80.19	66
133285	324	6/14/2013	14:43	30.46	-80.20	55
133286	324	6/14/2013	14:49	30.46	-80.20	55
133287	324	6/14/2013	14:52	30.47	-80.20	51
133288	324	6/14/2013	14:56	30.47	-80.20	56
133289	324	6/14/2013	14:59	30.47	-80.20	56
133290	324	6/14/2013	15:01	30.48	-80.20	54
133291	298	6/14/2013	15:32	30.45	-80.21	52
133292	324	6/14/2013	17:37	30.46	-80.20	54
133293	324	6/14/2013	17:42	30.46	-80.20	51
133294	324	6/14/2013	17:47	30.45	-80.20	59
133295	324	6/14/2013	17:54	30.45	-80.20	56
133296	324	6/14/2013	17:58	30.45	-80.21	52
133297	324	6/14/2013	18:05	30.45	-80.22	49
133298	298	6/14/2013	18:22	30.46	-80.20	51
133299	324	6/14/2013	20:44	30.47	-80.18	73
133300	324	6/14/2013	20:53	30.46	-80.19	76
133301	324	6/14/2013	20:59	30.45	-80.19	77
133302	324	6/14/2013	21:06	30.44	-80.19	70
133303	324	6/14/2013	21:12	30.44	-80.20	63
133304	324	6/14/2013	21:18	30.44	-80.21	52
133305	298	6/14/2013	23:46	30.44	-80.21	51
133306	324	6/15/2013	11:52	30.47	-80.21	45
133307	324	6/15/2013	11:56	30.46	-80.21	45
133308	324	6/15/2013	12:01	30.46	-80.21	48
133309	324	6/15/2013	12:06	30.47	-80.20	49
133310	324	6/15/2013	12:12	30.47	-80.20	48
133311	324	6/15/2013	12:21	30.49	-80.20	47
133312	298	6/15/2013	12:40	30.47	-80.21	46
133313	324	6/15/2013	14:26	30.45	-80.21	48
133314	324	6/15/2013	14:33	30.44	-80.20	52

133315	324	6/15/2013	14:36	30.45	-80.20	54
133316	324	6/15/2013	14:40	30.45	-80.20	61
133317	324	6/15/2013	14:46	30.45	-80.20	60
133318	324	6/15/2013	14:52	30.46	-80.19	60
133319	298	6/15/2013	15:14	30.45	-80.21	46
133320	324	6/15/2013	17:24	30.49	-80.21	48
133321	324	6/15/2013	17:30	30.48	-80.21	45
133322	324	6/15/2013	17:33	30.48	-80.21	45
133323	324	6/15/2013	17:53	30.47	-80.21	48
133324	324	6/15/2013	17:59	30.47	-80.21	49
133325	324	6/15/2013	18:02	30.47	-80.21	49
133326	298	6/15/2013	18:19	30.48	-80.21	46
133327	324	6/15/2013	20:14	30.49	-80.22	44
133328	324	6/15/2013	20:21	30.48	-80.22	44
133329	324	6/15/2013	20:29	30.48	-80.21	47
133330	298	6/15/2013	20:40	30.49	-80.21	47
133331	324	6/16/2013	11:53	29.91	-80.59	37
133332	324	6/16/2013	11:55	29.91	-80.59	38
133333	324	6/16/2013	12:00	29.91	-80.59	39
133334	324	6/16/2013	12:05	29.91	-80.58	36
133335	324	6/16/2013	12:09	29.91	-80.57	38
133336	324	6/16/2013	12:13	29.91	-80.57	38
133337	298	6/16/2013	11:36	29.90	-80.61	38
133338	324	6/16/2013	14:16	29.91	-80.54	40
133339	324	6/16/2013	14:19	29.91	-80.54	38
133340	324	6/16/2013	14:24	29.91	-80.53	38
133341	324	6/16/2013	14:29	29.91	-80.53	38
133342	324	6/16/2013	14:32	29.91	-80.52	39
133343	324	6/16/2013	14:35	29.91	-80.52	38
133344	298	6/16/2013	14:53	29.91	-80.55	39
133345	324	6/16/2013	16:52	29.91	-80.58	39
133346	324	6/16/2013	16:56	29.91	-80.57	39
133347	324	6/16/2013	17:01	29.91	-80.56	40
133348	324	6/16/2013	17:04	29.91	-80.56	39
133349	324	6/16/2013	17:07	29.91	-80.56	38
133350	324	6/16/2013	17:12	29.91	-80.56	39
133351	298	6/16/2013	17:28	29.91	-80.58	39
133352	324	6/17/2013	12:06	29.68	-80.75	30
133353	324	6/17/2013	12:11	29.68	-80.74	31
133354	324	6/17/2013	12:13	29.68	-80.74	32
133355	324	6/17/2013	12:16	29.68	-80.74	31
133356	324	6/17/2013	12:20	29.67	-80.74	29
133357	324	6/17/2013	12:25	29.67	-80.74	30

133358	298	6/17/2013	11:40	29.68	-80.74	31
133359	324	6/17/2013	14:49	29.67	-80.84	29
133360	324	6/17/2013	14:52	29.66	-80.84	28
133361	324	6/17/2013	14:54	29.66	-80.84	27
133362	324	6/17/2013	14:56	29.66	-80.84	27
133363	324	6/17/2013	14:58	29.66	-80.84	26
133364	324	6/17/2013	15:06	29.66	-80.85	27
133365	298	6/17/2013	15:41	29.67	-80.85	27
133366	324	6/17/2013	18:15	29.79	-80.74	32
133367	324	6/17/2013	18:18	29.78	-80.74	32
133368	324	6/17/2013	18:20	29.78	-80.74	31
133369	324	6/17/2013	18:23	29.78	-80.74	31
133370	324	6/17/2013	18:26	29.78	-80.75	31
133371	324	6/17/2013	18:29	29.78	-80.75	28
133372	298	6/17/2013	18:39	29.79	-80.73	27
133373	324	6/18/2013	11:51	29.75	-80.44	38
133374	324	6/18/2013	11:55	29.75	-80.44	37
133375	324	6/18/2013	12:03	29.75	-80.45	34
133376	324	6/18/2013	12:09	29.75	-80.46	34
133377	324	6/18/2013	12:14	29.75	-80.47	36
133378	324	6/18/2013	12:19	29.76	-80.46	38
133380	324	6/18/2013	14:26	29.73	-80.45	35
133381	324	6/18/2013	14:32	29.72	-80.45	35
133382	324	6/18/2013	14:37	29.71	-80.45	36
133383	324	6/18/2013	14:40	29.71	-80.45	37
133384	324	6/18/2013	14:46	29.70	-80.45	35
133385	324	6/18/2013	14:50	29.70	-80.45	37
133386	298	6/18/2013	15:10	29.72	-80.44	39
133387	324	6/18/2013	17:31	29.62	-80.54	33
133388	324	6/18/2013	17:33	29.62	-80.54	33
133389	324	6/18/2013	17:35	29.62	-80.54	33
133390	324	6/18/2013	17:38	29.61	-80.54	34
133391	324	6/18/2013	17:40	29.61	-80.54	33
133392	324	6/18/2013	17:48	29.60	-80.55	32
133393	298	6/18/2013	18:06	29.62	-80.54	33
133394	324	6/19/2013	11:42	29.48	-80.45	33
133395	324	6/19/2013	11:46	29.48	-80.45	32
133396	324	6/19/2013	11:51	29.48	-80.44	33
133397	324	6/19/2013	11:56	29.47	-80.44	33
133398	324	6/19/2013	12:00	29.47	-80.44	34
133399	324	6/19/2013	12:05	29.47	-80.44	34
133400	298	6/19/2013	12:23	29.48	-80.45	32
133401	324	6/19/2013	14:07	29.51	-80.46	31

133402	324	6/19/2013	14:13	29.51	-80.46	33
133403	324	6/19/2013	14:17	29.51	-80.46	32
133404	324	6/19/2013	14:21	29.50	-80.46	32
133405	324	6/19/2013	14:24	29.50	-80.46	32
133406	324	6/19/2013	14:26	29.50	-80.46	31
133407	298	6/19/2013	14:46	29.52	-80.46	31
133408	324	6/20/2013	11:44	29.43	-80.36	44
133409	324	6/20/2013	11:49	29.43	-80.36	43
133410	324	6/20/2013	11:53	29.42	-80.36	45
133411	324	6/20/2013	11:59	29.42	-80.35	44
133412	324	6/20/2013	12:04	29.41	-80.35	44
133413	324	6/20/2013	12:11	29.40	-80.36	40
133414	298	6/20/2013	12:30	29.43	-80.37	43
133415	324	6/20/2013	14:33	29.37	-80.47	29
133416	324	6/20/2013	14:37	29.37	-80.47	29
133417	324	6/20/2013	14:40	29.37	-80.47	27
133418	324	6/20/2013	14:42	29.36	-80.47	28
133419	324	6/20/2013	14:46	29.36	-80.47	29
133420	324	6/20/2013	14:51	29.36	-80.47	27
133421	298	6/20/2013	15:06	29.37	-80.47	29
133422	324	6/20/2013	18:03	29.35	-80.46	30
133423	324	6/20/2013	18:09	29.35	-80.46	29
133424	324	6/20/2013	18:13	29.35	-80.46	29
133425	324	6/20/2013	18:17	29.36	-80.46	29
133426	324	6/20/2013	18:20	29.36	-80.46	28
133427	324	6/20/2013	18:31	29.35	-80.46	29
133428	298	6/20/2013	18:36	29.35	-80.46	30
133429	324	6/21/2013	11:42	29.28	-80.42	31
133430	324	6/21/2013	11:48	29.28	-80.42	31
133431	324	6/21/2013	11:55	29.29	-80.42	33
133432	324	6/21/2013	12:05	29.29	-80.43	33
133433	324	6/21/2013	12:09	29.29	-80.43	30
133434	324	6/21/2013	12:14	29.30	-80.43	31
133435	298	6/21/2013	12:34	29.28	-80.42	33
133436	324	6/21/2013	14:09	29.27	-80.42	31
133437	324	6/21/2013	14:12	29.27	-80.42	31
133438	324	6/21/2013	14:17	29.27	-80.42	32
133439	324	6/21/2013	14:29	29.27	-80.44	30
133440	324	6/21/2013	14:30	29.27	-80.44	31
133441	324	6/21/2013	14:33	29.27	-80.44	31
133442	298	6/21/2013	14:49	29.26	-80.44	31
133443	324	6/21/2013	16:49	29.24	-80.44	28
133444	324	6/21/2013	16:51	29.24	-80.44	30

133445	324	6/21/2013	16:55	29.24	-80.43	30
133446	324	6/21/2013	17:02	29.24	-80.44	28
133447	324	6/21/2013	17:05	29.24	-80.44	28
133448	324	6/21/2013	17:09	29.25	-80.43	29
133449	298	6/21/2013	17:22	29.23	-80.43	31
133450	324	6/22/2013	11:42	29.03	-80.47	23
133451	324	6/22/2013	11:45	29.03	-80.47	23
133452	324	6/22/2013	11:48	29.03	-80.48	23
133453	324	6/22/2013	11:51	29.04	-80.48	25
133454	324	6/22/2013	11:53	29.04	-80.48	24
133455	324	6/22/2013	11:55	29.04	-80.48	23
133456	298	6/22/2013	12:16	29.03	-80.47	24
133457	324	6/22/2013	13:49	29.01	-80.46	25
133458	324	6/22/2013	13:54	29.02	-80.46	24
133459	324	6/22/2013	14:00	29.02	-80.46	24
133460	324	6/22/2013	14:03	29.02	-80.47	24
133461	324	6/22/2013	14:08	29.03	-80.47	23
133462	324	6/22/2013	14:11	29.03	-80.47	23
133463	298	6/22/2013	14:42	29.01	-80.47	25
133464	324	6/22/2013	16:37	28.98	-80.42	24
133465	324	6/22/2013	16:41	28.99	-80.43	24
133466	324	6/22/2013	16:45	28.99	-80.43	24
133467	324	6/22/2013	16:50	28.99	-80.43	25
133468	324	6/22/2013	16:55	29.00	-80.44	24
133469	324	6/22/2013	17:00	29.00	-80.44	24
133470	298	6/22/2013	17:19	28.98	-80.42	25
133471	324	6/23/2013	11:45	29.00	-80.45	25
133472	324	6/23/2013	11:49	29.00	-80.46	26
133473	324	6/23/2013	11:59	29.01	-80.46	25
133474	324	6/23/2013	12:04	29.01	-80.47	25
133475	324	6/23/2013	12:12	29.01	-80.47	22
133476	324	6/23/2013	12:17	29.02	-80.48	22
133477	298	6/23/2013	12:41	28.99	-80.46	27
133478	324	6/23/2013	14:11	29.02	-80.47	25
133479	324	6/23/2013	14:15	29.02	-80.47	22
133480	324	6/23/2013	14:19	29.03	-80.48	22
133481	324	6/23/2013	14:24	29.03	-80.48	23
133482	324	6/23/2013	14:30	29.03	-80.48	22
133483	324	6/23/2013	14:37	29.02	-80.48	21
133484	298	6/23/2013	14:46	29.02	-80.48	21
133485	324	6/23/2013	16:51	28.98	-80.42	24
133486	324	6/23/2013	16:55	28.98	-80.42	23
133487	324	6/23/2013	16:58	28.98	-80.43	24

133488	324	6/23/2013	17:05	28.99	-80.43	25
133489	324	6/23/2013	17:09	28.99	-80.44	25
133490	324	6/23/2013	17:19	29.00	-80.44	24
133491	298	6/23/2013	17:40	28.98	-80.43	24
133492	324	6/24/2013	11:44	29.28	-80.58	32
133493	324	6/24/2013	11:47	29.28	-80.58	32
133494	324	6/24/2013	11:51	29.27	-80.58	32
133495	324	6/24/2013	11:54	29.27	-80.58	31
133496	324	6/24/2013	12:03	29.27	-80.58	32
133497	324	6/24/2013	12:06	29.27	-80.57	32
133498	298	6/24/2013	12:18	29.28	-80.57	32
133499	324	6/24/2013	14:31	29.23	-80.70	26
133500	324	6/24/2013	14:36	29.23	-80.70	25
133501	324	6/24/2013	14:40	29.22	-80.70	26
133502	324	6/24/2013	14:48	29.22	-80.69	26
133503	324	6/24/2013	14:50	29.21	-80.69	26
133504	324	6/24/2013	14:52	29.21	-80.69	26
133505	298	6/24/2013	15:00	29.21	-80.68	26
133506	324	6/24/2013	17:28	29.18	-80.58	24
133507	324	6/24/2013	17:31	29.18	-80.59	24
133508	324	6/24/2013	17:37	29.18	-80.59	25
133509	324	6/24/2013	17:44	29.17	-80.59	25
133510	324	6/24/2013	17:47	29.17	-80.59	26
133511	324	6/24/2013	17:50	29.17	-80.59	24
133512	298	6/24/2013	17:58	29.17	-80.59	27
133513	324	6/25/2013	11:45	28.20	-80.23	25
133514	324	6/25/2013	11:48	28.19	-80.23	27
133515	324	6/25/2013	11:52	28.19	-80.23	28
133516	324	6/25/2013	11:55	28.19	-80.23	25
133517	324	6/25/2013	11:57	28.19	-80.23	29
133518	324	6/25/2013	12:00	28.18	-80.23	26
133519	298	6/25/2013	12:08	28.18	-80.23	27
133520	324	6/25/2013	14:03	28.21	-80.24	29
133521	324	6/25/2013	14:07	28.21	-80.24	26
133522	324	6/25/2013	14:12	28.20	-80.24	26
133523	324	6/25/2013	14:14	28.20	-80.24	29
133524	324	6/25/2013	14:18	28.20	-80.23	25
133525	324	6/25/2013	14:21	28.20	-80.23	25
133526	298	6/25/2013	14:30	28.19	-80.23	29
133527	324	6/25/2013	16:53	28.24	-80.25	26
133528	324	6/25/2013	16:56	28.24	-80.25	27
133529	324	6/25/2013	16:59	28.24	-80.24	27
133530	324	6/25/2013	17:02	28.24	-80.24	27

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133534	324	6/26/2013	11:46	28.34	-80.16	42
133535	324	6/26/2013	11:52	28.34	-80.15	42
133536	324	6/26/2013	12:03	28.32	-80.15	42
133537	324	6/26/2013	12:14	28.30	-80.15	42
133538	324	6/26/2013	12:23	28.29	-80.14	41
133539	324	6/26/2013	12:34	28.27	-80.14	41
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133545	324	6/26/2013	15:21	28.26	-80.14	43
133546	324	6/26/2013	15:26	28.25	-80.14	44
133547	298	6/26/2013	16:04	28.28	-80.14	43
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133553	324	7/18/2013	12:44	31.98	-79.37	70
133554	298	7/18/2013	12:56	31.98	-79.36	73
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133556	324	7/18/2013	16:10	31.92	-79.45	68
133557	324	7/18/2013	16:14	31.92	-79.44	69
133558	324	7/18/2013	16:17	31.92	-79.44	68
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133562	324	7/19/2013	11:48	32.02	-79.97	28
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133571	324	7/19/2013	14:24	32.02	-79.93	32
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133577	324	7/19/2013	16:47	32.01	-79.91	34
133578	324	7/19/2013	16:55	32.01	-79.90	33
133579	324	7/19/2013	17:01	32.01	-79.89	34
133580	324	7/19/2013	17:05	32.01	-79.89	34
133581	324	7/19/2013	17:10	32.01	-79.88	34
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133592	324	7/20/2013	14:47	32.07	-79.94	30
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133604	324	7/21/2013	11:46	31.95	-80.29	27
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133607	324	7/21/2013	11:54	31.95	-80.30	26
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133609	324	7/21/2013	12:04	31.96	-80.30	26
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133616	324	7/21/2013	14:45	31.92	-80.29	26

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133635	324	7/22/2013	15:47	31.88	-80.02	36
133636	324	7/22/2013	15:53	31.88	-80.03	35
133637	324	7/22/2013	15:57	31.88	-80.04	33
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133639	324	7/23/2013	14:21	31.53	-79.83	48
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133641	324	7/23/2013	14:28	31.52	-79.83	49
133642	324	7/23/2013	14:33	31.52	-79.83	50
133643	324	7/23/2013	14:36	31.52	-79.83	49
133644	324	7/23/2013	14:39	31.52	-79.83	51
133645	298	7/23/2013	14:53	31.51	-79.82	46
133646	324	7/24/2013	12:31	30.99	-80.08	43
133647	324	7/24/2013	12:33	30.99	-80.08	43
133648	324	7/24/2013	12:36	30.99	-80.08	43
133649	324	7/24/2013	12:47	30.99	-80.08	42
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133651	324	7/24/2013	12:51	30.99	-80.09	42
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133657	324	7/25/2013	14:10	30.36	-80.85	37
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133671	324	7/26/2013	12:32	29.78	-80.30	55
133672	324	7/26/2013	12:37	29.78	-80.31	55
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133674	324	7/26/2013	15:33	29.75	-80.29	56
133675	324	7/26/2013	15:37	29.75	-80.29	57
133676	324	7/26/2013	15:46	29.75	-80.30	55
133677	324	7/26/2013	15:52	29.76	-80.29	55
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133679	324	7/26/2013	16:06	29.78	-80.30	54
133680	298	7/26/2013	16:09	29.78	-80.30	56
133681	324	7/26/2013	18:53	29.69	-80.29	56
133682	324	7/26/2013	18:56	29.69	-80.29	57
133683	324	7/26/2013	18:59	29.70	-80.29	58
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133692	324	7/27/2013	12:48	29.51	-80.31	48
133693	324	7/27/2013	12:57	29.51	-80.30	47
133694	298	7/27/2013	13:04	29.51	-80.30	48
133695	324	7/27/2013	15:36	29.48	-80.30	50
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133699	324	7/27/2013	16:10	29.47	-80.29	51
133700	324	7/27/2013	16:19	29.46	-80.29	50
133701	298	7/27/2013	16:31	29.46	-80.30	49
133702	324	7/27/2013	18:30	29.40	-80.28	48

133703	324	7/27/2013	18:36	29.39	-80.28	49
133704	324	7/27/2013	18:39	29.39	-80.28	49
133705	298	7/27/2013	18:45	29.39	-80.28	48
133706	324	7/28/2013	11:45	29.19	-80.38	32
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133716	324	7/28/2013	14:31	29.20	-80.38	33
133717	324	7/28/2013	14:33	29.20	-80.38	32
133718	324	7/28/2013	14:36	29.20	-80.38	33
133719	298	7/28/2013	14:46	29.20	-80.38	34
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133723	324	7/28/2013	16:57	29.21	-80.40	30
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133729	324	7/28/2013	19:22	29.25	-80.34	37
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133735	324	7/29/2013	12:25	29.07	-80.38	32
133736	324	7/29/2013	12:28	29.07	-80.38	33
133737	298	7/29/2013	12:42	29.06	-80.37	33
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133743	324	7/29/2013	14:40	29.10	-80.39	31
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133745	324	7/29/2013	17:25	28.97	-80.40	30

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133747	324	7/29/2013	17:34	28.98	-80.40	28
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133749	324	7/29/2013	17:39	28.98	-80.40	30
133750	324	7/29/2013	17:41	28.98	-80.40	29
133751	298	7/29/2013	17:46	28.99	-80.40	30
133752	324	7/29/2013	19:58	28.95	-80.36	32
133753	324	7/29/2013	20:00	28.95	-80.36	32
133754	324	7/29/2013	20:04	28.95	-80.36	32
133755	298	7/29/2013	20:10	28.94	-80.36	33
133756	324	7/30/2013	11:52	28.94	-80.48	20
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133759	324	7/30/2013	12:07	28.94	-80.48	21
133760	324	7/30/2013	12:13	28.93	-80.48	20
133761	324	7/30/2013	12:19	28.93	-80.48	21
133762	298	7/30/2013	12:33	28.94	-80.48	22
133763	324	7/30/2013	14:06	28.93	-80.48	20
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133766	324	7/30/2013	14:20	28.92	-80.48	20
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133781	324	7/31/2013	12:11	28.70	-80.43	20
133782	324	7/31/2013	12:18	28.70	-80.43	19
133783	298	7/31/2013	12:51	28.68	-80.42	21
133784	324	7/31/2013	14:34	28.70	-80.43	18
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133786	324	7/31/2013	14:44	28.71	-80.44	19
133787	324	7/31/2013	14:47	28.71	-80.44	19
133788	324	7/31/2013	14:52	28.72	-80.44	19

133789	324	7/31/2013	14:57	28.72	-80.44	19
133790	298	7/31/2013	15:01	28.72	-80.43	21
133791	324	7/31/2013	17:21	28.76	-80.44	22
133792	324	7/31/2013	17:25	28.75	-80.45	21
133793	324	7/31/2013	17:32	28.75	-80.44	23
133794	324	7/31/2013	17:38	28.75	-80.45	20
133795	324	7/31/2013	17:43	28.74	-80.44	21
133796	324	7/31/2013	17:51	28.74	-80.44	23
133797	298	7/31/2013	18:06	28.74	-80.44	21
134029	014	6/25/2013	20:31	28.20	-80.23	28

Table 2. Taxa, listed in decreasing order of abundance, caught in chevron trap gear on the PC-13-04 survey. Total abundance and number of fish sampled for otoliths, gonads, and DNA tissue are listed for each taxon.

Scientific Name	Common Name	Total Abundance	Otoliths	Histology	DNA
Centropristis striata	Black Sea Bass	4410	0	0	0
Haemulon aurolineatum	Tomtate	1058	0	0	0
Stenotomus sp.		273	0	0	0
Balistes capriscus	Gray Triggerfish	183	0	0	0
Lutjanus campechanus	Northern Red Snapper	119	119	119	119
Pagrus pagrus	Red Porgy	108	0	0	0
Rhomboplites aurorubens	Vermilion Snapper	40	0	0	0
Centropristis ocyurus	Bank Sea Bass	36	0	0	0
Pareques umbrosus	Cubbyu	30	8	8	8
Diplectrum formosum	Sand Perch	27	0	0	0
Haemulon plumierii	White Grunt	24	0	0	0
Epinephelus morio	Red Grouper	14	14	13	14
Equetus lanceolatus	Jacknife Fish	11	11	0	0
Lagodon rhomboides	Pinfish	9	0	0	0
Opsanus sp.		5	1	1	1
Lutjanus synagris	Lane Snapper	4	4	4	0
Gymnothorax vicinus	Purplemouth Moray	4	0	0	0
Muraena retifera	Reticulate Moray	3	0	0	0
Seriola rivoliana	Almaco Jack	3	0	0	0
Mycteroperca phenax	Scamp	3	3	3	2
Seriola dumerili	Greater Amberjack	2	0	0	0
Chaetodon ocellatus	Spotfin Butterflyfish	2	0	0	0
Echeneis sp.		2	0	0	0
Gymnothorax moringa	Spotted Moray	1	0	0	0
Chaetodipterus faber	Atlantic Spadefish	1	0	0	0
Cephalopholis fulva	Coney	1	1	1	1
Mycteroperca microlepis	Gag	1	1	1	0
Stephanolepis hispida	Planehead Filefish	1	0	0	0
Calamus leucosteus	Whitebone Porgy	1	0	0	0
Echeneis naucrates	Sharksucker	1	0	0	0

Figure 1. Chevron trap with video camera gear used to sample reef fish on the PC-13-04 survey.

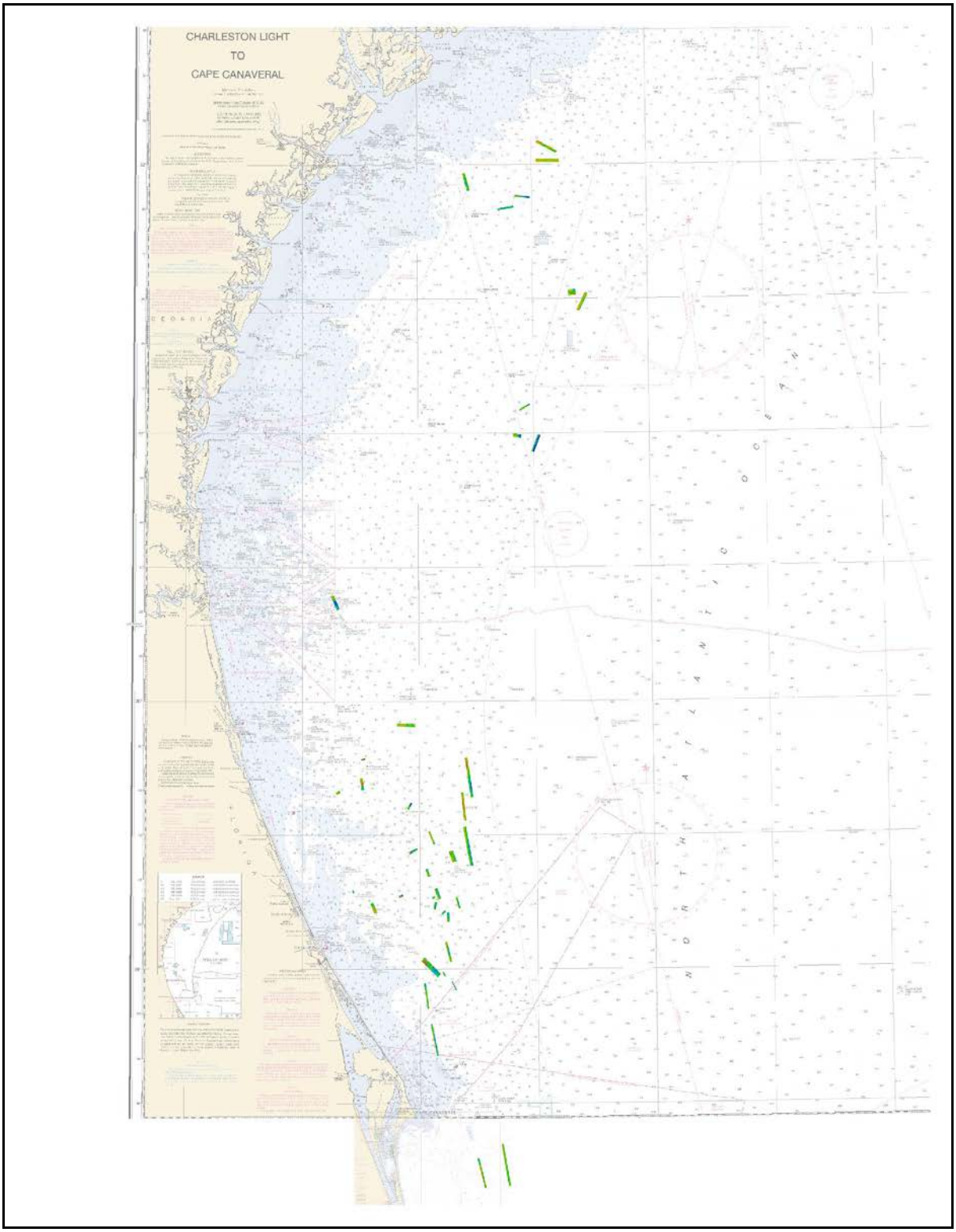

Figure 2. Locations mapped with multibeam acoustic gear on the PC-13-04 survey.

CRUISE PARTICIPANTS

Name / Title / Organization

Leg 1: June 12-27
Nate Bacheler / Chief Scientist / NMFS-Beaufort, NC
Christina Schobernd / Scientist-Video Camera Watch / JHT, Inc.
Warren Mitchell / Acoustics Watch / JHT, Inc.
Matthew Wilson / Scientist / NOS/OCS/HSD/AHB
Erik Ebert / Scientist / JHT, Inc.
David Berrane / Scientist / JHT, Inc.
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Dave Meyer / Scientist / NMFS-Beaufort, NC
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Leg 2: July 17-August 1
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Note: The use of trade, product, industry, or firm names, products, software, or models, whether commercially available or not, is for informative purposes only and does not constitute an endorsement by the U.S. Government or the National Oceanic and Atmospheric Administration.