

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center

Cruise Report

Date Submitted:

Platform:

Cruise Number:

Project Title:

Cruise Dates: -

Submitted by:
Field Party Chief

Date:

Approved by:
Division Director

Date:

Approved by:
Director, SEFSC

Date:

INTRODUCTION

The NOAA Ship *Pisces* hosted the Southeast Fishery-Independent Survey (SEFIS) for a research cruise in continental shelf and shelf-break waters off North and South Carolina in 2022. SEFIS was created by the National Marine Fisheries Service in 2010 and operates out of the NOAA-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. Transit occurred August 11–15 2022 from Pascagoula, Mississippi, to Morehead City, North Carolina, Leg 1 was scheduled to occur from 17 August–1 September 2022, and leg 2 was scheduled to occur from 3–19 September 2022 (38 days at sea). In reality, leg 1 was shortened to 17 – 30 August due to a motor cooling leak and leg 2 was shortened to 3–11 September due to an A-frame issue (for a total of 28 days at sea)

During this survey, chevron trap catches and associated underwater video recordings were collected from hardbottom habitats from Cape Hatteras, North Carolina, to approximately Charleston, South Carolina. A total of 379 stations were sampled with camera-trap arrays over 23 sea days, at depths ranging from 19 to 113 m, along with 63 CTD casts.

Summary of Objectives:

1. Fishery-independent sampling of randomly selected stations in North and South Carolina. 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. Use a conductivity, temperature, depth (CTD) instrument package to collect environmental data (temperature, salinity, dissolved oxygen, turbidity) at camera-trap sampling locations.

MATERIALS AND METHODS

Camera-Trap Sampling

Camera-trap gear consisted of two high definition video cameras mounted to a chevron fish trap. Additionally, one of the six traps in a group included an attached stereo-video camera for future fish length measurements and another one of the six traps included a GoPro 9 camera for calibration with GoPro 4 cameras (for a future camera switch). Chevron traps were composed of plastic-coated wire mesh. GoPro cameras (model HD Hero[®] H4) were attached above the mouth and 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 soak time was targeted for approximately 90 min. Camera-traps were most often deployed in sets of six. A CTD cast (see

environmental data collection) was conducted while traps were soaking. Fish catches were processed after trap retrieval. All fish were enumerated, weighed, and measured to the nearest millimeter. Individuals of priority 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 a 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/m³), and beam transmission (%). CTD data were archived for further processing at the Beaufort Laboratory. SCS 4.0 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).

RESULTS AND DISCUSSION

Camera-Trap Sampling

A total of 379 stations were sampled with camera-trap gear (Table 1). From these traps, fish were collected and worked up for length frequency data. Various reef fish species were further processed for otolith, gonad, and DNA tissue.

Environmental Data Collection

A total of 63 CTD casts (Table 1) 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 sonar mapping

One small multibeam sonar map was created for a snowy grouper aggregation site in the Snowy Wreck MPA, North Carolina, on 20 August 2022. The area was approximately 1.75 nm² in size and was mapped using the new Kongsberg EM2040 sonar system, which worked very well, entirely due to the after-hours help of Chief ST Walsh. We really appreciate his hard work. We also conducted brief hook-and-line sampling here, catching a single snowy grouper.

Time Lost

Leg 1 was shortened by 2 days at sea due to a motor cooling leak and leg 2 was shortened by 11 days at sea due to an A-frame issue, resulting in the cruise completing 28 out of 38 planned days at sea

Acknowledgments

We thank the NOAA Ship *Pisces* officers and ship's company for their hard work during our cruise

Table 1. Summary of station coordinates (DD), depth (m), date, and time (UTC) for each fishing event (camera-trap, Gear=324), CTD cast (Gear=298), and hook-and-line samples (Gear=014) conducted on the PC-22-03 survey

Collection	Gear	Date	Time (UTC)	Latitude	Longitude	Depth (m)
223576	324	8/17/2022	18:58	34.44789	-76.6245	22
223577	324	8/17/2022	19:02	34.45006	-76.6261	22
223578	324	8/17/2022	19:06	34.45419	-76.6263	20
223579	298	8/17/2022	19:35	34.46023	-76.6203	22
223580	324	8/18/2022	11:00	34.18722	-76.9492	32
223581	324	8/18/2022	11:02	34.18963	-76.9474	33
223582	324	8/18/2022	11:08	34.18979	-76.9508	32
223583	324	8/18/2022	11:23	34.19498	-76.9375	32
223584	324	8/18/2022	11:27	34.19802	-76.9399	32
223585	324	8/18/2022	11:30	34.20152	-76.9416	30
223586	298	8/18/2022	11:48	34.20963	-76.9398	31
223587	324	8/18/2022	14:14	34.17699	-76.9474	33
223588	324	8/18/2022	14:21	34.17728	-76.9392	34
223589	324	8/18/2022	14:25	34.1815	-76.9379	33
223590	324	8/18/2022	14:33	34.19075	-76.9345	33
223591	324	8/18/2022	14:37	34.19069	-76.9283	33
223592	324	8/18/2022	14:44	34.19812	-76.9263	32
223593	298	8/18/2022	14:52	34.20225	-76.9251	33
223594	324	8/18/2022	17:26	34.09015	-76.8322	37
223595	324	8/18/2022	17:30	34.09533	-76.8309	36
223596	324	8/18/2022	17:32	34.09768	-76.8317	35
223597	324	8/18/2022	17:35	34.10081	-76.8313	35
223598	324	8/18/2022	17:38	34.10281	-76.8282	35
223599	324	8/18/2022	17:43	34.10018	-76.8249	36
223600	298	8/18/2022	17:54	34.09694	-76.8261	36
223601	324	8/18/2022	20:16	34.14049	-76.8253	35
223602	324	8/18/2022	20:22	34.13275	-76.8216	35
223603	324	8/18/2022	20:30	34.13139	-76.81	34
223604	324	8/18/2022	20:33	34.13491	-76.8098	33
223605	324	8/18/2022	20:37	34.14042	-76.8095	33
223606	324	8/18/2022	20:40	34.14224	-76.8129	33
223607	298	8/18/2022	20:54	34.14718	-76.8145	33
223608	324	8/19/2022	10:59	34.2522	-77.3295	23
223609	324	8/19/2022	11:02	34.25576	-77.3294	23
223610	324	8/19/2022	11:05	34.25961	-77.3292	25
223611	324	8/19/2022	11:09	34.26435	-77.33	23

223612	324	8/19/2022	11:17	34.26961	-77.3232	21
223613	324	8/19/2022	11:21	34.27507	-77.3227	22
223614	298	8/19/2022	11:31	34.27925	-77.3201	22
223615	324	8/19/2022	14:23	34.34196	-77.2026	23
223616	324	8/19/2022	14:26	34.33928	-77.1993	24
223617	324	8/19/2022	14:30	34.33681	-77.1963	24
223618	324	8/19/2022	14:34	34.3326	-77.195	24
223619	324	8/19/2022	14:40	34.32834	-77.1876	23
223620	324	8/19/2022	14:47	34.32238	-77.1818	24
223621	298	8/19/2022	15:04	34.32505	-77.1764	23
223622	324	8/19/2022	17:27	34.3031	-77.1626	26
223623	324	8/19/2022	17:33	34.30051	-77.164	26
223624	324	8/19/2022	17:36	34.29935	-77.161	26
223625	324	8/19/2022	17:41	34.29629	-77.1596	26
223626	324	8/19/2022	17:45	34.29468	-77.1565	26
223627	324	8/19/2022	17:48	34.29209	-77.1531	26
223628	298	8/19/2022	17:57	34.2892	-77.1501	27
223629	324	8/19/2022	20:25	34.31296	-77.0606	27
223630	324	8/19/2022	20:27	34.31021	-77.06	27
223631	324	8/19/2022	20:30	34.30813	-77.0561	27
223632	324	8/19/2022	20:33	34.30671	-77.0511	28
223633	324	8/19/2022	20:39	34.30273	-77.0555	27
223634	324	8/19/2022	20:41	34.3052	-77.0582	27
223635	298	8/19/2022	20:54	34.31052	-77.0649	27
223636	324	8/20/2022	11:40	33.69482	-76.84	43
223637	324	8/20/2022	11:45	33.6899	-76.8419	43
223638	324	8/20/2022	11:47	33.68797	-76.8433	44
223639	324	8/20/2022	12:03	33.68307	-76.8561	44
223640	324	8/20/2022	12:07	33.68636	-76.8527	44
223641	324	8/20/2022	12:13	33.69408	-76.8486	42
223642	298	8/20/2022	12:34	33.70015	-76.8484	44
223643	324	8/20/2022	15:30	33.67749	-77.0425	39
223644	324	8/20/2022	15:32	33.68056	-77.0415	39
223645	324	8/20/2022	15:37	33.6855	-77.0387	39
223646	324	8/20/2022	15:41	33.68995	-77.0361	39
223647	324	8/20/2022	15:48	33.69912	-77.0314	40
223648	324	8/20/2022	15:51	33.70328	-77.0299	40
223649	298	8/20/2022	16:03	33.70873	-77.0241	40
223650	324	8/20/2022	18:22	33.66462	-76.97	40
223651	324	8/20/2022	18:26	33.66215	-76.9749	41
223652	324	8/20/2022	18:33	33.66231	-76.988	40

223653	324	8/20/2022	18:36	33.66208	-76.9925	40
223654	324	8/20/2022	18:38	33.66059	-76.9971	40
223655	324	8/20/2022	18:41	33.65899	-77.0011	41
223656	298	8/20/2022	18:52	33.66199	-77.0032	41
223657	324	8/21/2022	10:59	33.9675	-76.9796	34
223658	324	8/21/2022	11:05	33.97363	-76.9841	34
223659	324	8/21/2022	11:12	33.98172	-76.9916	34
223660	324	8/21/2022	11:20	33.98525	-77.0013	35
223661	324	8/21/2022	11:24	33.98988	-77.002	35
223662	324	8/21/2022	11:28	33.99478	-77.002	35
223663	298	8/21/2022	11:42	33.99942	-77.0007	34
223664	324	8/21/2022	14:16	33.88858	-76.9662	36
223665	324	8/21/2022	14:22	33.89569	-76.968	36
223666	324	8/21/2022	14:26	33.89968	-76.9662	36
223667	324	8/21/2022	14:30	33.90404	-76.9632	37
223668	324	8/21/2022	14:33	33.90662	-76.9602	36
223669	324	8/21/2022	14:36	33.9097	-76.9572	37
223670	298	8/21/2022	14:46	33.91274	-76.9551	36
223671	324	8/21/2022	17:38	33.89928	-76.8178	40
223672	324	8/21/2022	17:41	33.89691	-76.8212	40
223673	324	8/21/2022	17:46	33.89463	-76.8197	40
223674	324	8/21/2022	17:51	33.88978	-76.8207	41
223675	324	8/21/2022	18:01	33.88407	-76.8168	41
223676	324	8/21/2022	18:05	33.88727	-76.8137	41
223677	298	8/21/2022	18:13	33.8872	-76.8078	42
223678	324	8/22/2022	11:50	34.14804	-76.1992	53
223679	324	8/22/2022	11:55	34.14477	-76.2037	53
223680	324	8/22/2022	12:00	34.1409	-76.2093	56
223681	324	8/22/2022	12:04	34.13613	-76.2109	56
223682	324	8/22/2022	12:06	34.13329	-76.2106	58
223683	324	8/22/2022	12:12	34.13215	-76.2151	58
223684	298	8/22/2022	12:32	34.12559	-76.214	78
223685	324	8/22/2022	15:28	34.16679	-76.146	102
223686	324	8/22/2022	15:31	34.16441	-76.1481	104
223687	324	8/22/2022	15:36	34.15989	-76.1529	95
223688	324	8/22/2022	15:42	34.15425	-76.1518	113
223689	324	8/22/2022	15:51	34.15082	-76.1575	109
223690	324	8/22/2022	15:55	34.14977	-76.1638	102
223691	298	8/22/2022	16:17	34.14488	-76.1678	107
223692	324	8/22/2022	18:14	34.16522	-76.1675	58
223693	324	8/22/2022	18:18	34.1631	-76.1723	58

223694	324	8/22/2022	18:21	34.16092	-76.1765	58
223695	324	8/22/2022	18:25	34.15791	-76.1801	58
223696	324	8/22/2022	18:28	34.15566	-76.183	58
223697	324	8/22/2022	18:32	34.15382	-76.1884	54
223698	298	8/22/2022	18:41	34.15292	-76.1927	55
223699	324	8/23/2022	11:15	34.66708	-75.7296	60
223700	324	8/23/2022	11:21	34.66796	-75.7382	59
223701	324	8/23/2022	11:24	34.6672	-75.7418	58
223702	324	8/23/2022	11:32	34.65931	-75.7367	61
223703	324	8/23/2022	11:42	34.65381	-75.7488	59
223704	324	8/23/2022	11:44	34.65187	-75.7515	59
223705	298	8/23/2022	12:01	34.64937	-75.7545	59
223706	324	8/23/2022	14:14	34.58164	-75.8054	63
223707	324	8/23/2022	14:17	34.57959	-75.8094	62
223708	324	8/23/2022	14:22	34.57613	-75.8099	62
223709	324	8/23/2022	14:31	34.57803	-75.8254	61
223710	324	8/23/2022	14:35	34.5763	-75.8278	63
223711	324	8/23/2022	14:43	34.57165	-75.8406	62
223712	298	8/23/2022	14:52	34.56926	-75.8425	60
223713	324	8/23/2022	17:04	34.48584	-75.8692	88
223714	324	8/23/2022	17:09	34.47986	-75.8741	89
223715	324	8/23/2022	17:13	34.47612	-75.8785	85
223716	324	8/23/2022	17:16	34.47458	-75.8834	81
223717	324	8/23/2022	17:21	34.46807	-75.8868	84
223718	324	8/23/2022	17:27	34.46851	-75.8926	79
223719	298	8/23/2022	17:41	34.47096	-75.8971	76
223720	324	8/23/2022	20:16	34.4878	-75.8834	74
223721	324	8/23/2022	20:20	34.48339	-75.8852	76
223722	324	8/23/2022	20:25	34.47954	-75.8938	74
223723	324	8/23/2022	20:30	34.47416	-75.8984	73
223724	324	8/23/2022	20:38	34.4659	-75.9105	73
223725	324	8/23/2022	20:42	34.46	-75.9128	73
223726	298	8/23/2022	20:52	34.45667	-75.9142	75
223727	324	8/24/2022	13:02	34.62074	-76.1362	39
223728	324	8/24/2022	13:06	34.62306	-76.1379	39
223729	324	8/24/2022	13:12	34.62403	-76.143	39
223730	324	8/24/2022	13:16	34.62127	-76.1479	39
223731	324	8/24/2022	13:23	34.62477	-76.149	38
223732	324	8/24/2022	13:27	34.62623	-76.1526	37
223733	298	8/24/2022	13:43	34.62833	-76.1541	38
223734	324	8/24/2022	15:59	34.60352	-76.1365	40

223735	324	8/24/2022	16:01	34.60575	-76.1362	40
223736	324	8/24/2022	16:05	34.60585	-76.1435	40
223737	324	8/24/2022	16:09	34.60391	-76.1472	40
223738	324	8/24/2022	16:10	34.60245	-76.1486	39
223739	324	8/24/2022	16:16	34.59927	-76.1457	39
223740	298	8/24/2022	16:29	34.59776	-76.1379	39
223741	324	8/24/2022	18:44	34.60389	-76.1716	39
223742	324	8/24/2022	18:46	34.60618	-76.171	39
223743	324	8/24/2022	18:53	34.61474	-76.1683	39
223744	324	8/24/2022	18:59	34.61763	-76.1655	38
223745	324	8/24/2022	19:01	34.61503	-76.1622	38
223746	324	8/24/2022	19:04	34.61604	-76.1589	39
223747	298	8/24/2022	19:14	34.62252	-76.1561	38
223748	324	8/25/2022	12:45	34.52345	-76.2137	40
223749	324	8/25/2022	12:58	34.53411	-76.2109	40
223750	324	8/25/2022	13:03	34.53699	-76.2142	40
223751	324	8/25/2022	13:07	34.53912	-76.2102	38
223752	324	8/25/2022	13:10	34.54292	-76.2087	40
223753	324	8/25/2022	13:15	34.54357	-76.2052	40
223754	298	8/25/2022	13:25	34.5452	-76.2006	40
223755	324	8/25/2022	15:45	34.56062	-76.2473	35
223756	324	8/25/2022	15:52	34.56384	-76.2329	37
223757	324	8/25/2022	15:55	34.56129	-76.2281	38
223758	324	8/25/2022	15:59	34.56179	-76.2234	38
223759	324	8/25/2022	16:06	34.57013	-76.2251	34
223760	324	8/25/2022	16:09	34.57367	-76.2253	36
223761	298	8/25/2022	16:43	34.56217	-76.2488	36
223762	324	8/25/2022	18:47	34.52081	-76.2627	37
223763	324	8/25/2022	18:58	34.54335	-76.2485	36
223764	324	8/25/2022	19:01	34.54546	-76.2441	37
223765	324	8/25/2022	19:06	34.54688	-76.2375	37
223766	324	8/25/2022	19:10	34.55174	-76.2317	38
223767	324	8/25/2022	19:13	34.55214	-76.2281	38
223768	298	8/25/2022	19:21	34.55262	-76.2214	39
223769	324	8/26/2022	11:17	35.01485	-75.4637	50
223770	324	8/26/2022	11:21	35.01231	-75.464	50
223771	324	8/26/2022	11:25	35.00721	-75.4645	50
223772	324	8/26/2022	11:29	35.00461	-75.4626	50
223773	324	8/26/2022	11:34	35.00041	-75.4639	51
223774	324	8/26/2022	11:37	34.99742	-75.4667	52
223775	298	8/26/2022	11:46	34.99477	-75.4656	52

223776	324	8/26/2022	14:12	34.99897	-75.4577	51
223777	324	8/26/2022	14:15	34.99743	-75.461	51
223778	324	8/26/2022	14:19	34.99369	-75.4609	51
223779	324	8/26/2022	14:25	34.98632	-75.4626	52
223780	324	8/26/2022	14:30	34.98188	-75.4636	53
223781	324	8/26/2022	14:34	34.97757	-75.461	54
223782	298	8/26/2022	14:43	34.97528	-75.4627	57
223783	324	8/26/2022	17:26	34.92687	-75.5121	55
223784	324	8/26/2022	17:29	34.92707	-75.517	53
223785	324	8/26/2022	17:33	34.92477	-75.52	53
223786	324	8/26/2022	17:39	34.92376	-75.5281	52
223787	324	8/26/2022	17:43	34.92074	-75.5313	52
223788	324	8/26/2022	17:48	34.91854	-75.5263	54
223789	298	8/26/2022	17:59	34.92033	-75.5202	54
223790	324	8/26/2022	20:15	34.92205	-75.5035	58
223791	324	8/26/2022	20:17	34.92197	-75.5068	56
223792	324	8/26/2022	20:23	34.91739	-75.5081	56
223793	324	8/26/2022	20:30	34.90923	-75.5137	58
223794	324	8/26/2022	20:32	34.90701	-75.5152	58
223795	324	8/26/2022	20:36	34.90296	-75.5185	59
223796	298	8/26/2022	20:52	34.90262	-75.508	65
223797	324	8/27/2022	11:15	34.93386	-75.454	65
223798	324	8/27/2022	11:17	34.93355	-75.4568	63
223799	324	8/27/2022	11:22	34.93052	-75.4575	65
223800	324	8/27/2022	11:29	34.92723	-75.4622	64
223801	324	8/27/2022	11:34	34.92337	-75.4675	63
223802	324	8/27/2022	11:37	34.92051	-75.4704	65
223803	298	8/27/2022	11:47	34.92005	-75.4759	67
223804	324	8/27/2022	14:15	34.92257	-75.4712	64
223805	324	8/27/2022	14:17	34.92494	-75.4701	63
223806	324	8/27/2022	14:21	34.92721	-75.4662	63
223807	324	8/27/2022	14:26	34.9327	-75.4622	62
223808	324	8/27/2022	14:30	34.93566	-75.4589	64
223809	324	8/27/2022	14:35	34.9367	-75.4541	65
223810	298	8/27/2022	14:43	34.93756	-75.45	69
223811	324	8/27/2022	17:23	34.86324	-75.5357	63
223812	324	8/27/2022	17:26	34.86317	-75.5323	58
223813	324	8/27/2022	17:33	34.86566	-75.5262	57
223814	324	8/27/2022	17:38	34.86818	-75.5207	61
223815	324	8/27/2022	17:41	34.86863	-75.5172	61
223816	324	8/27/2022	17:50	34.87181	-75.5073	58

223817	298	8/27/2022	18:03	34.87524	-75.5035	72
223818	324	8/27/2022	20:15	34.86083	-75.5327	62
223819	324	8/27/2022	20:17	34.85819	-75.5299	59
223820	324	8/27/2022	20:20	34.85506	-75.5263	59
223821	324	8/27/2022	20:27	34.85992	-75.52	58
223822	324	8/27/2022	20:32	34.86592	-75.5143	56
223823	324	8/27/2022	20:34	34.86761	-75.5123	56
223824	298	8/27/2022	20:46	34.87118	-75.5075	57
223825	324	8/28/2022	11:00	34.52962	-76.4045	19
223826	324	8/28/2022	11:03	34.53402	-76.4032	19
223827	324	8/28/2022	11:05	34.53718	-76.4035	20
223828	324	8/28/2022	11:08	34.53886	-76.4014	21
223829	324	8/28/2022	11:13	34.54054	-76.4019	22
223830	324	8/28/2022	11:17	34.54303	-76.4012	20
223831	298	8/28/2022	11:28	34.54639	-76.3969	23
223832	324	8/28/2022	14:16	34.59402	-76.3208	28
223833	324	8/28/2022	14:22	34.58774	-76.3174	28
223834	324	8/28/2022	14:24	34.58589	-76.315	29
223835	324	8/28/2022	14:28	34.58794	-76.3128	28
223836	324	8/28/2022	14:33	34.586	-76.3093	29
223837	324	8/28/2022	14:39	34.58159	-76.3143	28
223838	298	8/28/2022	14:52	34.58008	-76.3169	29
223839	324	8/28/2022	17:02	34.54628	-76.3414	27
223840	324	8/28/2022	17:08	34.55368	-76.3396	27
223841	324	8/28/2022	17:11	34.557	-76.3385	26
223842	324	8/28/2022	17:18	34.55364	-76.332	28
223843	324	8/28/2022	17:28	34.56589	-76.3357	28
223844	324	8/28/2022	17:32	34.56744	-76.3335	25
223845	298	8/28/2022	17:43	34.56697	-76.3289	29
223846	324	8/28/2022	20:14	34.5236	-76.3526	24
223847	324	8/28/2022	20:17	34.52048	-76.3493	24
223848	324	8/28/2022	20:22	34.52045	-76.3541	24
223849	324	8/29/2022	20:29	34.51661	-76.3517	23
223850	298	8/28/2022	20:40	34.51577	-76.3457	26
223851	324	8/29/2022	11:46	33.62631	-77.1116	39
223852	324	8/29/2022	11:50	33.62609	-77.1171	36
223853	324	8/29/2022	11:54	33.62318	-77.119	39
223854	324	8/29/2022	11:57	33.62005	-77.1181	39
223855	324	8/29/2022	12:00	33.61655	-77.1194	40
223856	324	8/29/2022	12:02	33.61374	-77.1193	40
223857	298	8/29/2022	12:11	33.61251	-77.1214	41

223858	324	9/3/2022	17:59	34.58931	-76.9396	19
223859	324	9/3/2022	18:05	34.59105	-76.9483	19
223860	324	9/3/2022	18:15	34.58746	-76.9462	19
223861	324	9/3/2022	18:18	34.5846	-76.949	19
223862	324	9/3/2022	18:22	34.58269	-76.9454	19
223863	324	9/3/2022	18:30	34.57734	-76.9467	19
223864	298	9/3/2022	18:42	34.57532	-76.9421	19
223865	324	9/4/2022	11:00	34.44961	-76.9068	25
223866	324	9/4/2022	11:03	34.44696	-76.9062	21
223867	324	9/4/2022	11:07	34.44135	-76.9038	25
223868	324	9/4/2022	11:09	34.43924	-76.9013	24
223869	324	9/4/2022	11:11	34.43709	-76.8987	23
223870	324	9/4/2022	11:19	34.43033	-76.9029	21
223871	298	9/4/2022	11:26	34.4264	-76.9056	25
223872	324	9/4/2022	14:15	34.42364	-76.7101	27
223873	324	9/4/2022	14:18	34.42067	-76.7122	28
223874	324	9/4/2022	14:22	34.4179	-76.7134	28
223875	324	9/4/2022	14:31	34.411	-76.7062	27
223876	324	9/4/2022	14:34	34.40872	-76.7019	28
223877	324	9/4/2022	14:39	34.40555	-76.7037	27
223878	298	9/4/2022	14:47	34.40208	-76.7074	26
223879	324	9/4/2022	17:22	34.38694	-76.583	21
223880	324	9/4/2022	17:25	34.38807	-76.5806	22
223881	324	9/4/2022	17:28	34.38843	-76.5761	24
223882	324	9/4/2022	17:36	34.38934	-76.5657	23
223883	324	9/4/2022	17:38	34.38924	-76.5626	21
223884	324	9/4/2022	17:42	34.3919	-76.5615	22
223885	298	9/4/2022	17:51	34.39528	-76.5581	22
223886	324	9/4/2022	20:37	34.35883	-76.3773	24
223887	324	9/4/2022	20:42	34.35197	-76.3782	23
223888	324	9/4/2022	20:47	34.34751	-76.3803	23
223889	324	9/4/2022	20:52	34.34131	-76.3799	23
223890	324	9/4/2022	20:55	34.33816	-76.3797	25
223891	324	9/4/2022	20:59	34.33344	-76.3792	21
223892	298	9/4/2022	21:07	34.32984	-76.3751	29
223893	324	9/5/2022	11:01	34.1899	-77.3156	25
223894	324	9/5/2022	11:03	34.18724	-77.3123	26
223895	324	9/5/2022	11:07	34.18369	-77.3099	26
223896	324	9/5/2022	11:09	34.18075	-77.3125	25
223897	324	9/5/2022	11:15	34.17686	-77.3076	26
223898	324	9/5/2022	11:18	34.17328	-77.304	26

223899	298	9/5/2022	11:22	34.16972	-77.3009	26
223900	324	9/5/2022	13:00	34.17242	-77.2961	27
223901	324	9/5/2022	13:03	34.16805	-77.2963	26
223902	324	9/5/2022	13:06	34.16642	-77.2931	26
223903	324	9/5/2022	13:09	34.16435	-77.2888	24
223904	324	9/5/2022	13:13	34.16192	-77.2833	26
223905	324	9/5/2022	13:15	34.15995	-77.28	28
223906	298	9/5/2022	13:19	34.15741	-77.2758	27
223907	324	9/5/2022	15:45	34.11962	-77.1695	29
223908	324	9/5/2022	15:49	34.11692	-77.1644	30
223909	324	9/5/2022	15:54	34.1217	-77.1637	30
223910	324	9/5/2022	16:01	34.11812	-77.1567	30
223911	324	9/5/2022	16:06	34.11406	-77.1516	31
223912	324	9/5/2022	16:11	34.11118	-77.146	31
223913	298	9/5/2022	16:13	34.10992	-77.1431	32
223914	324	9/5/2022	18:30	34.06634	-77.2069	32
223915	324	9/5/2022	18:33	34.06306	-77.2044	33
223916	324	9/5/2022	18:37	34.05949	-77.2026	31
223917	324	9/5/2022	18:42	34.05955	-77.1964	30
223918	324	9/5/2022	18:47	34.05732	-77.1917	33
223919	324	9/5/2022	18:50	34.05294	-77.1907	32
223920	298	9/5/2022	18:54	34.04959	-77.1904	35
223921	324	9/6/2022	10:59	34.00914	-77.3785	27
223922	324	9/6/2022	11:02	34.00642	-77.3809	29
223923	324	9/6/2022	11:06	34.00675	-77.3854	32
223924	324	9/6/2022	11:07	34.00715	-77.3878	29
223925	324	9/6/2022	11:11	34.00576	-77.3936	29
223926	324	9/6/2022	11:15	34.00584	-77.3985	27
223927	298	9/6/2022	11:21	34.00658	-77.4036	27
223928	324	9/6/2022	14:16	33.99483	-77.3612	28
223929	324	9/6/2022	14:19	33.99422	-77.3647	28
223930	324	9/6/2022	14:22	33.99551	-77.3684	29
223931	324	9/6/2022	14:30	34.00314	-77.3632	26
223932	324	9/6/2022	14:36	34.00492	-77.3667	26
223933	324	9/6/2022	14:39	34.00376	-77.3709	28
223934	298	9/6/2022	14:46	34.00106	-77.3753	29
223935	324	9/6/2022	17:14	33.97694	-77.2931	29
223936	324	9/6/2022	17:18	33.97468	-77.2886	32
223937	324	9/6/2022	17:21	33.97339	-77.2841	30
223938	324	9/6/2022	17:24	33.97219	-77.2802	32
223939	324	9/6/2022	17:27	33.97104	-77.2774	30

223940	324	9/6/2022	17:30	33.96785	-77.2748	30
223941	298	9/6/2022	17:37	33.96404	-77.2727	29
223942	324	9/6/2022	20:14	33.88832	-77.2383	35
223943	324	9/6/2022	20:17	33.88456	-77.2362	32
223944	324	9/6/2022	20:21	33.87972	-77.235	32
223945	324	9/6/2022	20:31	33.88714	-77.2241	35
223946	324	9/6/2022	20:36	33.89181	-77.2208	32
223947	324	9/6/2022	20:39	33.89466	-77.2204	31
223948	298	9/6/2022	20:46	33.89555	-77.2242	31
223949	324	9/7/2022	11:00	33.73793	-77.2539	36
223950	324	9/7/2022	11:02	33.7402	-77.2555	35
223951	324	9/7/2022	11:06	33.73896	-77.2594	35
223952	324	9/7/2022	11:12	33.74075	-77.2626	35
223953	324	9/7/2022	11:14	33.74342	-77.2645	36
223954	324	9/7/2022	11:19	33.74572	-77.2595	37
223955	298	9/7/2022	11:27	33.74609	-77.2525	37
223956	324	9/7/2022	14:14	33.63612	-77.2121	35
223957	324	9/7/2022	14:17	33.63634	-77.2172	35
223958	324	9/7/2022	14:21	33.63555	-77.2215	34
223959	324	9/7/2022	14:27	33.63899	-77.2245	36
223960	324	9/7/2022	14:34	33.63594	-77.2306	35
223961	324	9/7/2022	14:41	33.63841	-77.2376	36
223962	298	9/7/2022	14:47	33.64149	-77.2411	36
223963	324	9/7/2022	17:14	33.64448	-77.1962	35
223964	324	9/7/2022	17:21	33.64668	-77.1883	37
223965	324	9/7/2022	17:26	33.64488	-77.1819	38
223966	324	9/7/2022	17:32	33.64644	-77.1739	36
223967	324	9/7/2022	17:37	33.64607	-77.1699	36
223968	324	9/7/2022	17:41	33.64743	-77.1656	35
223969	298	9/7/2022	17:48	33.65095	-77.1613	36
223970	324	9/7/2022	20:23	33.52741	-77.1744	42
223971	324	9/7/2022	20:27	33.5231	-77.1704	43
223972	324	9/7/2022	20:32	33.51775	-77.1668	44
223973	324	9/7/2022	20:38	33.50689	-77.1702	44
223974	324	9/7/2022	20:44	33.50325	-77.1659	43
223975	324	9/7/2022	20:47	33.50377	-77.1624	43
223976	298	9/7/2022	20:52	33.50552	-77.158	43
223977	324	9/8/2022	11:14	34.27896	-76.5871	32
223978	324	9/8/2022	11:18	34.28201	-76.5838	30
223979	324	9/8/2022	11:27	34.2945	-76.5835	29
223980	324	9/8/2022	11:29	34.29718	-76.5842	28

223981	324	9/8/2022	11:32	34.30022	-76.5837	28
223982	324	9/8/2022	11:35	34.30165	-76.5818	27
223983	298	9/8/2022	11:41	34.30439	-76.5785	30
223984	324	9/8/2022	14:15	34.24026	-76.5916	29
223985	324	9/8/2022	14:18	34.24234	-76.5939	29
223986	324	9/8/2022	14:23	34.24776	-76.5954	31
223987	324	9/8/2022	14:28	34.25206	-76.5976	31
223988	324	9/8/2022	14:33	34.25636	-76.6019	32
223989	324	9/8/2022	14:37	34.25905	-76.6066	31
223990	298	9/8/2022	14:47	34.26225	-76.6082	32
223991	324	9/9/2022	11:00	33.29396	-78.4567	28
223992	324	9/9/2022	11:05	33.28815	-78.4512	29
223993	324	9/9/2022	11:12	33.28736	-78.4476	28
223994	324	9/9/2022	11:16	33.28931	-78.4452	28
223995	324	9/9/2022	11:19	33.28637	-78.442	28
223996	324	9/9/2022	11:26	33.29074	-78.439	28
223997	298	9/9/2022	11:40	33.29692	-78.4372	29
223998	324	9/9/2022	13:26	33.28231	-78.4407	28
223999	324	9/9/2022	13:32	33.27906	-78.4407	28
224000	324	9/9/2022	13:35	33.27692	-78.4377	28
224001	324	9/9/2022	13:43	33.28215	-78.4307	28
224002	324	9/9/2022	13:47	33.27974	-78.4292	28
224003	324	9/9/2022	13:53	33.28071	-78.4266	28
224004	298	9/9/2022	14:00	33.28302	-78.4229	28
224005	324	9/9/2022	17:05	33.27283	-78.4455	27
224006	324	9/9/2022	17:09	33.27515	-78.4405	27
224007	324	9/9/2022	17:14	33.27059	-78.4377	28
224008	324	9/9/2022	17:20	33.27364	-78.4345	27
224009	324	9/9/2022	17:23	33.27608	-78.4312	27
224010	324	9/9/2022	17:27	33.27323	-78.425	28
224011	298	9/9/2022	17:41	33.2734	-78.4224	28
224012	324	9/10/2022	10:59	32.84343	-78.9297	29
224013	324	9/10/2022	11:02	32.84092	-78.93	32
224014	324	9/10/2022	11:07	32.83978	-78.9268	32
224015	324	9/10/2022	11:11	32.84246	-78.9226	32
224016	324	9/10/2022	11:16	32.83921	-78.923	29
224017	324	9/10/2022	11:21	32.83916	-78.9186	32
228000	014	8/20/2022	22:15	33.53669	-76.9014	120

CRUISE PARTICIPANTS

Leg 1: 17–30 August 2022 (14 days at sea)

Name	Title	Organization
Bachelor, Nate	Field party chief	NMFS-SEFSC-Beaufort
Foor, Brandon	Deck watch	NMFS-SEFSC-Beaufort
Gillum, Zach	Deck watch chief	NMFS-SEFSC-Beaufort
Peterson, Cassidy	Deck watch	NMFS-SEFSC-Beaufort
Reding, Brandon	Deck watch	SCDNR
Rogers, Walt	Deck watch	NMFS-SEFSC-Beaufort
Schobernd, Christina	Video lead	NMFS-SEFSC-Beaufort
Teer, Brad	Deck watch chief	NMFS-SEFSC-Beaufort

Leg 2: 3–11 September 2022 (9 days at sea)

Name	Title	Organization
Clark, Jamie	Deck watch	NMFS-SEFSC-Beaufort
Gillum, Zach	Deck watch chief	NMFS-SEFSC-Beaufort
Markwith, Anne	Deck watch	NCDMF
Pearce, Justin	Deck watch	NMFS-Silver Spring
Reding, Brandon	Deck watch	SCDNR
Schmitz, Giselle	Deck watch	NMFS Knauss Fellow
Zeb Schobernd	Field party chief	NMFS-SEFSC-Beaufort
Teer, Brad	Deck watch chief	NMFS-SEFSC-Beaufort



Figure 1. Chevron trap with video cameras used to sample reef fish on the PC-22-03 survey.