

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: 10/02/2023
Platform: NOAA Ship PISCES
Cruise Number: 23-01
Project Title: SEAMAP Reef Fish
Cruise Dates: 03/23/2023 - 05/05/2023

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Field Party Chief

Date: 10/02/2023

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Division Director

Date: 10/10/2023

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Date: 10/12/2023

Introduction

NOAA Ship *Pisces* departed Pascagoula, MS on March 23, 2023 to conduct the SEAMAP reef fish survey of natural hard bottom areas located on the continental shelf and shelf edge of the northern Gulf of Mexico (GOM). The planned itinerary divided the cruise into four legs: Leg I) 03/23/2023 to 04/03/2023; Leg II) 04/06/2023 to 04/19/2023; Leg III) 04/22/2023 to 05/05/2023; and Leg IV) 05/08/2023 to 05/15/2023. Leg IV, 11 days at sea, was cancelled entirely in order to send available staff to assist with other critical mission surveys. That effort will be shifted to R/V *Southern Journey* and conducted in August. During Leg II, a required staffing swap caused a loss of a day at sea (4/16) and weather prevented operations for a single day of Leg III (4/29). Also during leg II, time was taken to assist with a HARP buoy deployment for Scripps Institute of Oceanography. De-staging occurred on arrival to the dock in Pascagoula, MS on May 5, 2023.

Objectives

- 1) Assess relative abundance of reef fish on the continental shelf edge-banks of the northern GOM.
- 2) Determine length frequency distributions of reef fish.
- 3) Collect conductivity, temperature, dissolved oxygen, fluorescence, and transmissivity data profiles of water column at each sample site.
- 4) Collect acoustic data with the Simrad EM 2040, multibeam sonar and Simrad EK 80 echosounder.
- 5) Collect water samples for environmental DNA analysis.

Methods

The Gulf Fishery Independent Survey of Habitat and Ecosystem Resources (GFISHER) sampling design, which is conducted in collaboration with NMFS Panama City and Florida Wildlife Research Institute, was implemented in 2020. We moved to this design because it was created from a composite of mapping and habitat data collated over several decades of mapping effort among the three cooperating laboratories. Most importantly the design optimizes sampling (e.g. minimizes coefficient of variation - CV) by allocating increased number of sites to habitats having the highest variability for target species abundance. Thus the new design increases precision without a consequent increase in sampling effort because of the statistical methods used to optimize site selection. The new design also divides the workload among the laboratories to take advantage of the strengths of each individual program (e.g. MS Labs has access to white ships and thus can work in remote locations more easily). Selection of sampling sites follows a two-stage approach habitat-based survey design. Stage 1 uses the survey select procedure in SAS to select microgrids according to frequency of habitat strata within each Spatial/Depth strata (i.e. weighted). Following the allocation assignment, Stage 2 imports the selected microgrids into GIS where a random point is then chosen for each habitat strata that were selected for that particular microgrid (e.g. microgrids with multiple habitat types can be selected multiple times). Selected reef sites were then sampled with the spherical/satellite arrays. Each spherical/satellite camera array had a mounted In-Situ Aqua TROLL 600 sonde, a CStar transmissometer, and two pressure housings (rated to 500m). SphereCam provides a spherical field-of-view (360 *70 degrees) while the satellite camera is used to capture stereo-images in a single orientation. One array also contained a single 5L Niskin bottle that was triggered at the depth at the beginning of the deployment to collect water for eDNA sampling exactly at the deployment location. The ship supplied Seabird 911 conductivity, temperature and depth (CTD) profiler was deployed prior to

the first array deployment and after the last array retrieval each day to validate SONDE data collections and to provide speed-of-sound measurements for the EM 2040. Additionally, the CTD was used as a backup system for collecting the eDNA water samples. Simrad EK 80 data was collected during daylight hours only. Bathymetric mapping was conducted at night at selected areas near the day's sampling with the Simrad EM 2040.

Bathymetric mapping operations focused on predetermined sites within or adjacent to sampling areas. HYPACK software was used to plan the survey transects over selected targets of interest. To optimize coverage for the EM 2040, the line spacing was calculated by $2.85(D) = LS$, where D is water depth in meters, and LS is distance between lines. EM 2040 configurations and EK 80 configurations were based on the guidance from National Marine Fisheries Service personnel at Stennis Space Center. A Seabird 911 CTD or Castaway CTD was deployed prior to, mid-way, and at end of mapping operations to obtain speed-of-sound through water column for post processing of collected EM 2040 mapping data.

Results

The 2023 SEAMAP Reef Fish survey sampled 374 stations in 56 blocks with the camera arrays. (Figure 1, Table 1). Video data were returned to the NOAA Fisheries Mississippi Laboratory for viewing, analysis and archiving. The Seabird 911 CTD profiler was deployed 64 times (Table 1). CTD data were processed at sea and uploaded to the National Coastal Data Development Center (NCDDC) server for real-time use. Castaway hand-deployed CTD was also utilized for mapping operation integrity.

Bathymetric data was collected at predetermined sites within selected blocks (Figure 2). Approximately 1,250 linear nautical miles were surveyed. EK 80 acoustic data was collected during day operations only. Acoustic and bathymetric data were returned to the NOAA Fisheries Mississippi Laboratory for processing and archiving.

Forty-four water samples were collected from either the Seabird 911 CTD array or the 5L Niskin bottle fired at depth on the camera array. The water samples were fixed and stored at sea and will be processed at the University of West Florida.

Cruise Participants:

Leg I: 03/23/2023 – 04/03/2023

12 DAS Pascagoula, MS – Galveston, TX

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Jack Prior	Field Party Chief	Mississippi State/Northern Gulf Institute
Ryan Caillouet	General Engineer	NMFS - Stennis Space Center, MS
Paul Felts	Fisheries Biologist	NMFS – Pascagoula, MS

Leg II: 04/06/2023 – 04/19/2023 (Spent 4/16 in port to pick up engineer)

14 DAS Galveston, TX – Galveston, TX

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Joseph Salisbury	Field Party Chief	ERT, Inc. - Pascagoula, MS

Jack Prior Fisheries Biologist
Kenneth Wilkinson Electronics Technician
Delaney Harrison-Peters Biologist

Mississippi State/Northern Gulf Institute
NMFS - Stennis Space Center, MS
University of West Florida

Leg III: 04/22/2023 – 05/05/2023

14 DAS Galveston, TX – Pascagoula, MS

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Jack Prior	Field Party Chief	Mississippi State/Northern Gulf Institute
Joseph Salisbury	Fisheries Biologist	ERT, Inc. - Pascagoula, MS
James Johnson	Electronics Technician	NMFS - Stennis Space Center, MS
Julie Hayes	Teacher at Sea	Macon R-1 Middle School
Makailyn Hernandez	Biologist	University of West Florida

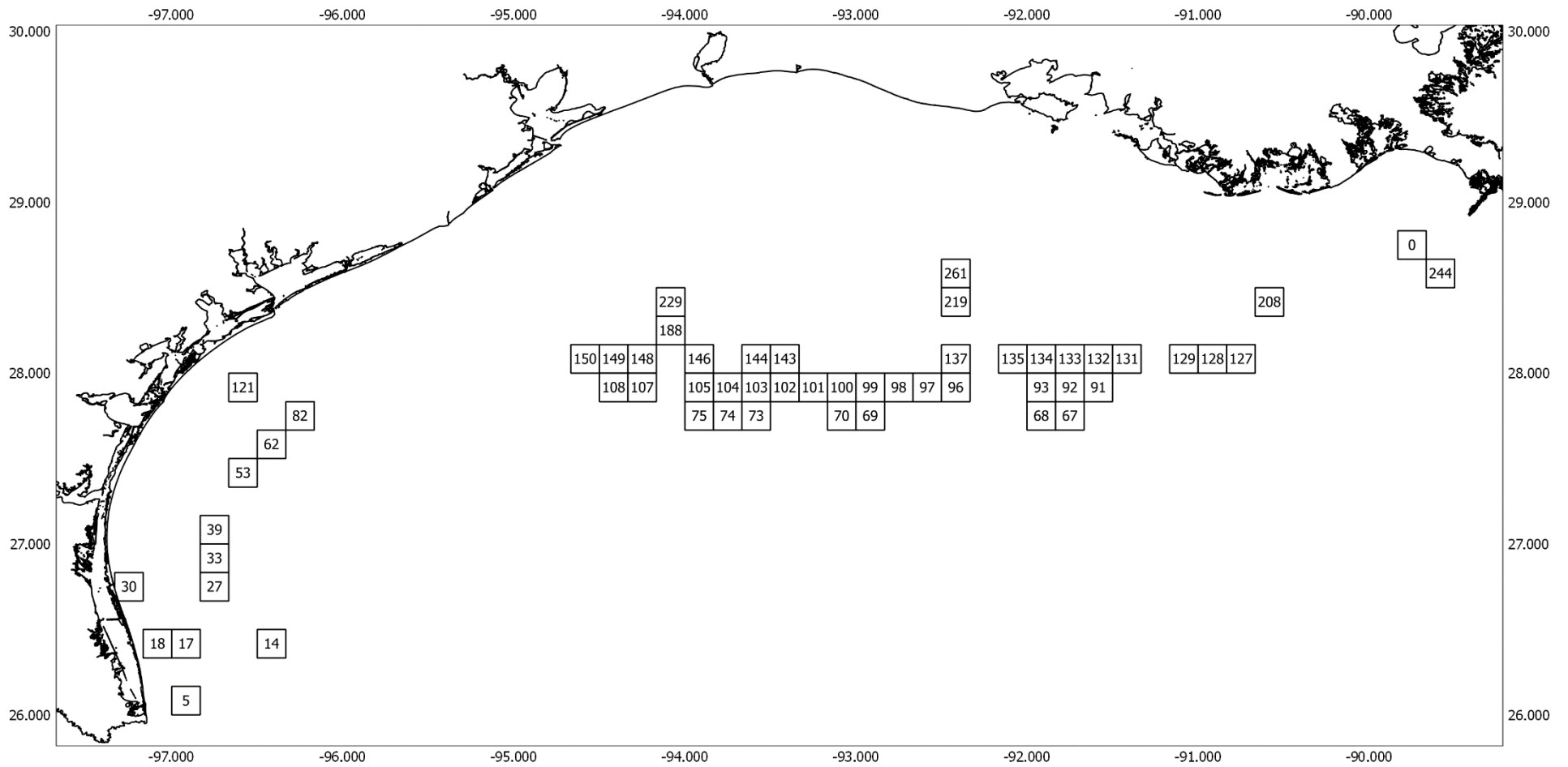


Figure 1. Blocks sampled with cameras in the western Gulf of Mexico during NOAA Ship *Pisces* 23-01 SEAMAP Reef Fish survey.

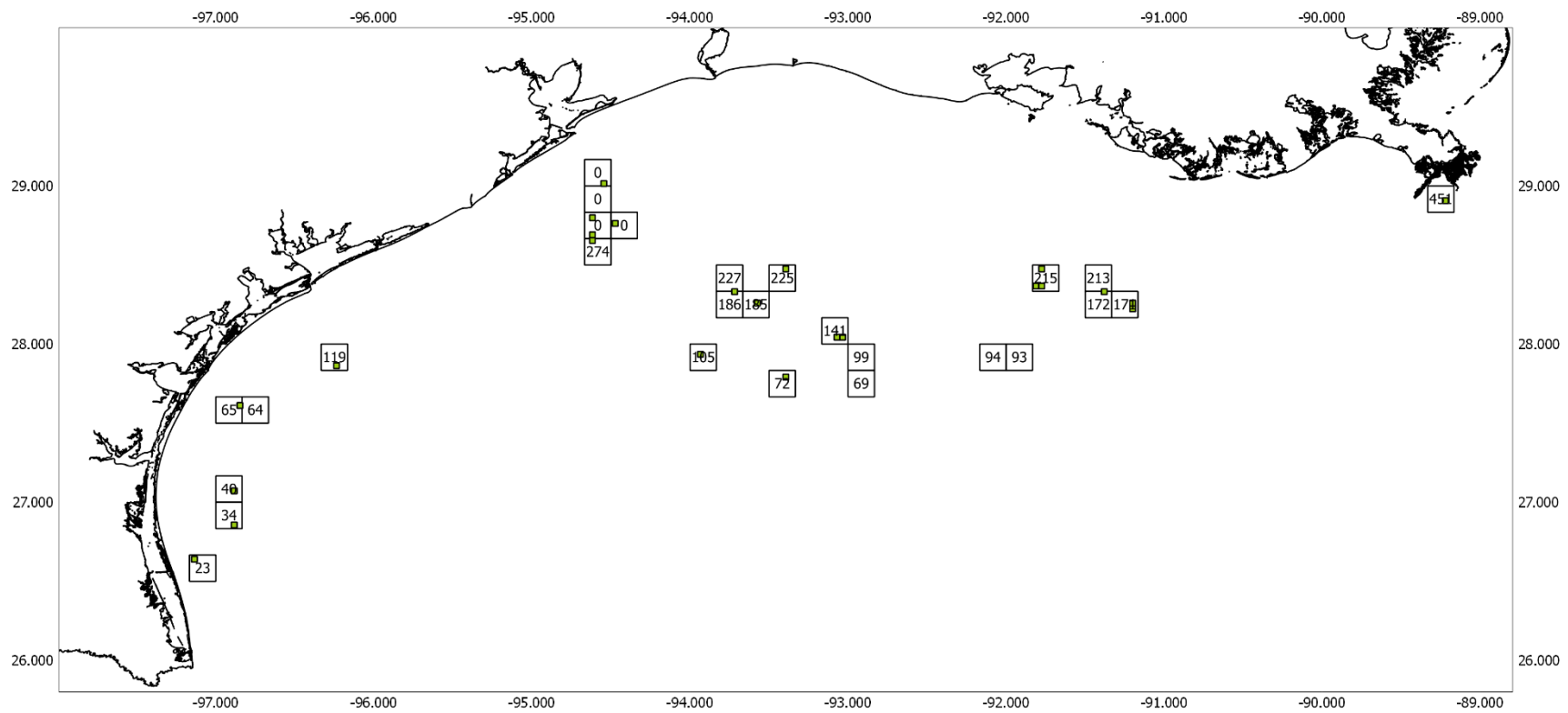


Figure 2. Mapping targets sampled in the western Gulf of Mexico during NOAA Ship *Pisces* 23-01 SEAMAP Reef Fish survey.

Table 1. Stations sampled in the Gulf of Mexico during NOAA Ship *Pisces* 23-01 SEAMAP Reef Fish survey. VC=camera array. CTD=Seabird 911 profiler.

Station	Block	Reef Name	Latitude	Longitude	Depth (m)	Gear
001	208		2821.61	09034.65	49.8	VC, CTD
002	208		2821.97	09035.88	48.9	VC
003	208		2822.07	09036.12	48.6	VC
004	208		2822.74	09035.96	47.6	VC
005	127	Diaphus	2806.39	09041.90	118	VC
006	127	Diaphus	2806.10	09042.30	121	VC, CTD
007	128	Ewing Bank	2806.87	09057.01	95.8	VC, CTD
008	128	Ewing Bank	2806.30	09058.11	85.6	VC
009	128	Ewing Bank	2806.22	09058.07	95	VC
010	128	Ewing Bank	2806.10	09058.94	102	VC
011	128	Ewing Bank	2805.51	09058.91	92.5	VC
012	128	Ewing Bank	2805.56	09058.26	86.3	VC
013	128	Ewing Bank	2805.39	09057.53	94.8	VC
014	128	Ewing Bank	2804.93	09057.33	100	VC
015	128	Ewing Bank	2805.70	09056.98	91.7	VC
016	128	Ewing Bank	2804.85	09057.29	94.4	VC
017	128	Ewing Bank	2805.21	09058.49	85.7	VC
018	128	Ewing Bank	2805.07	09058.70	86.5	VC
019	128	Ewing Bank	2804.88	09059.25	80.1	VC
020	128	Ewing Bank	2804.37	09059.25	93	VC
021	129	Ewing Bank	2804.22	09100.11	92.3	VC
022	129	Ewing Bank	2804.19	09100.64	95.4	VC, CTD
023	129	Ewing Bank	2804.74	09100.37	79.1	VC, CTD
024	129	Ewing Bank	2804.27	09101.27	99	VC
025	129	Ewing Bank	2804.44	09101.79	91.3	VC
026	129	Ewing Bank	2804.11	09102.31	94.9	VC
027	129	Ewing Bank	2804.84	09102.34	89.5	VC

028	129	Ewing Bank	2804.85	09102.72	95.7	VC
029	129	Ewing Bank	2805.12	09102.94	91.3	VC
030	129	Ewing Bank	2804.62	09102.98	94.4	VC
031	129	Ewing Bank	2805.26	09101.26	63.7	VC
032	129	Ewing Bank	2805.31	09100.93	68.5	VC
033	129	Ewing Bank	2805.35	09102.00	60.4	VC
034	129	Ewing Bank	2805.59	09102.03	60.5	VC
035	129	Ewing Bank	2805.58	09102.36	61.6	VC
036	129	Ewing Bank	2805.75	09101.96	58.6	VC
037	129	Ewing Bank	2805.81	09102.15	59.5	VC
038	129	Ewing Bank	2806.02	09102.43	59.6	VC
039	129	Ewing Bank	2806.54	09101.47	77.3	VC, CTD
040	133	Fishnet	2800.36	09140.52	116	VC, CTD
041	133	Fishnet	2800.25	09141.09	118	VC
042	133	Fishnet	2800.57	09140.76	118	VC
043	133	Fishnet	2800.71	09141.35	114	VC
044	133	Fishnet	2800.08	09142.05	122	VC
045	92	Sweet Bank	2759.91	09141.83	131	VC
046	133	Fishnet	2800.39	09143.70	114	VC
047	133	Fishnet	2800.51	09144.07	112	VC
048	133	Fishnet	2800.73	09144.19	107	VC
049	133	Fishnet	2800.71	09144.52	109	VC
050	133	Fishnet	2800.44	09145.00	106	VC
051	133	Fishnet	2800.20	09144.74	110	VC
052	133	Fishnet	2801.09	09145.94	113	VC
053	133	Fishnet	2800.81	09146.84	110	VC
054	133	Fishnet	2800.38	09146.36	95.1	VC
055	92	Sweet Bank	2759.80	09147.09	102	VC, CTD
056	93	Parker Bank	2756.48	09157.04	135	VC, CTD
057	93	Parker Bank	2756.77	09157.47	118	VC
058	93	Parker Bank	2756.99	09157.33	122	VC
059	93	Parker Bank	2756.82	09156.86	129	VC
060	93	Parker Bank	2757.35	09157.52	118	VC

061	93	Parker Bank	2757.40	09158.32	106	VC
062	93	Parker Bank	2757.46	09157.80	113	VC
063	93	Parker Bank	2757.96	09157.55	111	VC
064	93	Parker Bank	2758.57	09158.36	104	VC
065	93	Parker Bank	2758.51	09158.64	99.5	VC
066	93	Parker Bank	2758.54	09159.13	123	VC
067	93	Parker Bank	2758.07	09159.90	103	VC
068	93	Parker Bank	2757.56	09159.24	95.2	VC
069	94	Parker Bank	2757.03	09200.25	98.7	VC
070	93	Parker Bank	2756.52	09159.49	121	VC, CTD
071	96	Rezak Bank	2754.31	09222.64	127	VC, CTD
072	96	Rezak Bank	2753.29	09222.33	124	VC
073	96	Rezak Bank	2759.11	09226.07	119	VC
074	137	Bouma Bank	2800.26	09227.55	95.1	VC
075	137	Bouma Bank	2800.20	09228.30	95.7	VC
076	137	Bouma Bank	2801.50	09228.61	102	VC
077	97	MacGrail Bank	2757.53	09231.28	128	VC
078	99	Elders Bank	2750.40	09254.51	125	VC, CTD
079	99	Elders Bank	2750.84	09254.50	156	VC
080	99	Elders Bank	2750.78	09254.19	145	VC
081	99	Elders Bank	2750.52	09253.40	129	VC
082	69	Elders Bank	2749.67	09254.00	131	VC
083	69	Elders Bank	2748.22	09253.94	161	VC
084	70	Geyer Bank	2748.99	09303.31	72.1	VC
085	70	Geyer Bank	2748.82	09303.60	83.8	VC
086	70	Geyer Bank	2748.80	09305.10	154	VC
087	100	Geyer Bank	2750.82	09303.94	74.6	VC
088	101	Bright Bank	2751.22	09316.35	128	VC, CTD
089	101	Bright Bank	2751.65	09317.38	130	VC
090	101	Bright Bank	2753.87	09317.83	54.1	VC
091	102	Rankin Bank	2755.14	09323.61	101	VC
092	102	Rankin Bank	2755.84	09324.58	91	VC
093	102	Rankin Bank	2755.44	09325.84	90.7	VC

094	102	Rankin Bank	2755.42	09326.05	84.2	VC
095	102	Rankin Bank	2754.80	09326.86	58.2	VC
096	102	Rankin Bank	2754.95	09327.49	114	VC
097	143	29 Fathom Bank	2800.22	09327.30	97.8	VC
098	144	MacNeil Bank	2800.07	09330.45	93.3	VC
099	143	29 Fathom Bank	2801.73	09329.77	86.5	VC, CTD
100	144	MacNeil Bank	2808.74	09334.57	63.2	VC, CTD
101	144	MacNeil Bank	2805.72	09332.21	77.8	VC
102	103	East Flower Gardens	2759.80	09334.87	91.4	VC
103	103	East Flower Gardens	2759.68	09334.63	91	VC
104	103	East Flower Gardens	2758.81	09335.31	103	VC
105	103	East Flower Gardens	2758.42	09336.37	104	VC
106	103	East Flower Gardens	2758.96	09337.81	96.5	VC
107	103	East Flower Gardens	2758.01	09336.30	88.7	VC
108	103	East Flower Gardens	2757.38	09337.46	98.3	VC
109	103	East Flower Gardens	2756.63	09337.02	79.7	VC
110	103	East Flower Gardens	2755.87	09337.58	79.2	VC
111	103	East Flower Gardens	2755.85	09335.59	50	VC
112	103	East Flower Gardens	2754.09	09335.70	43.8	VC, CTD
113	229	Claypile Bank	2820.01	09407.89	50.7	VC, CTD
114	229	Claypile Bank	2820.09	09408.60	48.1	VC
115	229	Claypile Bank	2820.23	09408.78	48.6	VC
116	188	Claypile Bank	2820.00	09408.95	48.1	VC
117	188	Claypile Bank	2819.94	09408.21	48.9	VC
118	188	Claypile Bank	2819.97	09407.84	50.7	VC
119	188	Claypile Bank	2819.74	09408.17	46.5	VC
120	229	Claypile Bank	2819.52	09407.93	48.2	VC
121	188	Claypile Bank	2819.66	09407.71	49.5	VC
122	188	Claypile Bank	2819.55	09407.31	50.3	VC
123	188	Claypile Bank	2819.44	09407.23	50.2	VC
124	188	Claypile Bank	2819.44	09407.67	48.8	VC
125	188	Claypile Bank	2819.19	09407.24	50.8	VC
126	188	Claypile Bank	2819.54	09406.92	51	VC

127	188	Claypile Bank	2819.30	09406.88	50.7	VC
128	188	Claypile Bank	2819.53	09407.18	50.7	VC
129	188	Claypile Bank	2819.35	09407.76	48.3	VC
130	188	Claypile Bank	2819.48	09408.10	47.6	VC, CTD
131	82	North Baker Bank	2744.67	09614.21	66.3	VC, CTD
132	82	North Baker Bank	2744.77	09613.67	75.1	VC
133	82	North Baker Bank	2744.51	09614.52	63.9	VC
134	121		2752.83	09630.54	36.5	VC
135	121		2752.11	09630.81	37.4	VC
136	121		2752.00	09631.09	37.2	VC
137	121		2751.74	09630.89	37.3	VC
138	62	Hospital Bank	2734.63	09628.51	61.9	VC, CTD
139	62	Hospital Bank	2734.36	09628.49	59.2	VC
140	62	Hospital Bank	2734.45	09628.83	63	VC
141	62	Hospital Bank	2734.06	09628.95	71.7	VC
142	62	Hospital Bank	2733.05	09628.41	60.1	VC
143	62	Hospital Bank	2732.74	09628.78	64.1	VC
144	62	Hospital Bank	2732.69	09628.74	62.5	VC
145	62	Hospital Bank	2732.59	09628.65	63.8	VC
146	62	Hospital Bank	2732.35	09628.34	69.8	VC
147	53	Southern Bank	2726.24	09631.34	73.3	VC
148	53	Southern Bank	2726.27	09631.50	61.6	VC
149	53	Southern Bank	2726.45	09631.23	70.5	VC
150	53	Southern Bank	2726.24	09631.56	68.9	VC
151	53	Southern Bank	2726.68	09631.72	73.8	VC
152	53	Southern Bank	2726.59	09631.46	75.2	VC, CTD
153	39	Dream Bank	2702.70	09642.32	68.6	VC, CTD
154	39	Dream Bank	2701.96	09642.15	72.4	VC
155	39	Dream Bank	2701.90	09642.23	77	VC
156	39	Dream Bank	2702.21	09642.59	81.1	VC
157	14	Snapper Banks	2621.52	09624.88	80.9	VC, CTD
158	5	East Bank	2602.79	09650.29	41.2	VC, CTD
159	17	Seabree Bank	2623.61	09658.00	34.7	VC

160	17	Seabree Bank	2623.69	09658.46	37	VC
161	17	Seabree Bank	2624.19	09658.03	35.8	VC, CTD
162	17	Seabree Bank	2624.34	09658.55	34.8	VC, CTD
163	17	Seabree Bank	2624.49	09659.24	33.8	VC
164	17	Seabree Bank	2624.61	09659.20	33.6	VC
165	17	Seabree Bank	2624.88	09659.34	33.3	VC
166	17	Seabree Bank	2625.08	09659.13	35.7	VC
167	17	Seabree Bank	2625.09	09659.34	35	VC
168	17	Seabree Bank	2625.00	09659.74	36	VC
169	17	Seabree Bank	2625.28	09659.41	37.2	VC
170	17	Seabree Bank	2625.45	09659.36	35.8	VC
171	17	Seabree Bank	2625.31	09659.65	32.7	VC
172	17	Seabree Bank	2625.31	09659.83	33	VC
173	17	Seabree Bank	2625.43	09659.98	33.2	VC
174	17	Seabree Bank	2625.47	09659.87	33.3	VC
175	18	Seabree Bank	2625.92	09700.53	33.7	VC
176	18	Seabree Bank	2626.05	09700.47	31.7	VC
177	18	Seabree Bank	2626.18	09700.86	34.3	VC
178	17	Seabree Bank	2625.39	09659.69	35.5	VC
179	17	Seabree Bank	2625.00	09659.43	32.6	VC, CTD
180	30	Steamer Bank	2648.37	09711.61	29.5	VC, CTD
181	30	Steamer Bank	2648.61	09711.73	29.4	VC
182	30	Steamer Bank	2648.47	09711.51	28.5	VC
183	30	Steamer Bank	2648.75	09711.55	28.3	VC
184	30	Steamer Bank	2648.81	09711.59	28.1	VC
185	30	Steamer Bank	2648.80	09711.81	28.8	VC
186	30	Steamer Bank	2648.89	09711.91	29.7	VC
187	30	Steamer Bank	2648.75	09711.72	29.9	VC
188	30	Steamer Bank	2649.22	09712.00	27.7	VC
189	30	Steamer Bank	2649.19	09711.71	27.8	VC
190	30	Steamer Bank	2648.85	09711.28	28.6	VC
191	30	Steamer Bank	2648.76	09711.00	30.4	VC
192	30	Steamer Bank	2648.25	09710.88	30.6	VC

193	30	Steamer Bank	2648.50	09710.69	29.8	VC
194	30	Steamer Bank	2648.21	09710.68	29.1	VC
195	30	Steamer Bank	2648.17	09710.48	29.1	VC, CTD
196	33	Blackfish Bank	2657.49	09649.04	66.3	VC, CTD
197	33	Blackfish Bank	2652.45	09646.93	72.7	VC
198	33	Blackfish Bank	2652.35	09645.97	74.3	VC
199	27	Mysterious Bank	2645.91	09640.65	87.9	VC
200	27	Mysterious Bank	2646.01	09641.53	83.9	VC
201	229		2820.23	09409.79	51	VC, CTD
202	188	Claypile Bank	2819.46	09409.36	50.4	VC
203	188	Claypile Bank	2819.47	09409.16	50.8	VC
204	229		2820.18	09409.69	44.7	VC
205	229		2820.30	09409.60	47.3	VC
206	229		2820.33	09408.88	49.8	VC
207	188	Claypile Bank	2819.41	09409.23	50.6	VC
208	188	Claypile Bank	2819.19	09409.32	50.9	VC
209	188	Claypile Bank	2819.38	09409.53	52.1	VC
210	188	Claypile Bank	2819.08	09409.12	50.9	VC
211	188		2819.16	09409.02	49.9	VC
212	188	Claypile Bank	2819.24	09408.82	41.8	VC
213	188	Claypile Bank	2819.38	09408.95	39.2	VC
214	188	Claypile Bank	2819.24	09408.49	44.7	VC
215	188	Claypile Bank	2819.09	09408.43	50.3	VC
216	188	Claypile Bank	2819.03	09408.71	45.5	VC
217	188	Claypile Bank	2819.10	09408.13	47.8	VC, CTD
218	188	Claypile Bank	2819.00	09407.96	48.9	VC, CTD
219	188	Claypile Bank	2819.01	09407.75	50.3	VC
220	188	Claypile Bank	2819.11	09407.88	49.3	VC
221	188	Claypile Bank	2819.22	09407.57	49.3	VC
222	188	Claypile Bank	2819.35	09407.99	47.7	VC
223	188	Claypile Bank	2819.44	09408.25	44.3	VC
224	188	Claypile Bank	2819.42	09408.53	41.3	VC
225	188	Claypile Bank	2819.72	09408.66	39.9	VC

226	188	Claypile Bank	2819.59	09408.49	42.2	VC
227	188	Claypile Bank	2819.82	09408.58	40.8	VC
228	188	Claypile Bank	2819.77	09408.54	41.4	VC
229	188	Claypile Bank	2819.74	09408.83	39.7	VC
230	188	Claypile Bank	2819.83	09408.63	40.6	VC
231	188	Claypile Bank	2819.69	09408.38	43	VC
232	188	Claypile Bank	2819.89	09408.74	39.1	VC
233	188	Claypile Bank	2819.53	09408.66	40.7	VC, CTD
234	148	Stetson Bank	2809.85	09417.60	56	VC, CTD
235	150	32 Fathom Bank	2803.95	09431.55	54.2	VC, CTD
236	150	32 Fathom Bank	2803.88	09431.98	54.5	VC
237	150	32 Fathom Bank	2803.86	09432.24	54.9	VC
238	150	32 Fathom Bank	2804.00	09432.59	55	VC
239	150	32 Fathom Bank	2803.81	09431.60	54.7	VC
240	150	32 Fathom Bank	2803.96	09431.33	55.4	VC
241	108	Applebaum Bank West	2759.39	09428.61	78.4	VC
242	108	Applebaum Bank West	2759.71	09428.07	72	VC
243	108	Applebaum Bank West	2759.11	09427.92	90.1	VC
244	108	Applebaum Bank West	2759.31	09427.60	81.8	VC
245	108	Applebaum Bank West	2759.48	09427.53	76.2	VC
246	108	Applebaum Bank West	2759.42	09427.04	87.2	VC
247	108	Applebaum Bank West	2759.52	09427.06	74	VC
248	108	Applebaum Bank West	2759.89	09427.11	72.1	VC
249	108	Applebaum Bank West	2759.76	09425.46	76.5	VC, CTD
250	107	Applebaum Bank West	2751.69	09416.19	94.5	VC, CTD
251	107	Applebaum Bank West	2751.19	09415.94	101	VC
252	107	Applebaum Bank West	2751.81	09415.00	90.3	VC
253	107	Applebaum Bank West	2751.93	09415.28	88.3	VC
254	107	Applebaum Bank West	2751.92	09415.03	93.2	VC

255	107	Applebaum Bank West	2752.58	09414.36	111	VC
256	107	Applebaum Bank West	2752.56	09414.58	110	VC
257	107	Applebaum Bank West	2752.74	09414.90	136	VC
258	107	Applebaum Bank West	2752.77	09414.40	116	VC
259	146	Coffee Lump	2801.50	09354.74	65.9	VC, CTD
260	75		2749.99	09353.10	134	VC
261	75		2749.94	09352.15	112	VC
262	75	West Flower Gardens	2749.77	09350.06	116	VC
263	105	West Flower Gardens	2750.29	09350.65	96.9	VC
264	105	West Flower Gardens	2750.13	09350.40	92	VC
265	105	West Flower Gardens	2750.73	09350.44	86.2	VC
266	105	West Flower Gardens	2750.94	09352.40	106	VC, CTD
267	105	West Flower Gardens	2751.66	09352.71	115	VC, CTD
268	105	West Flower Gardens	2752.21	09350.22	99.9	VC
269	105	West Flower Gardens	2753.00	09350.05	96.1	VC
270	105	West Flower Gardens	2753.33	09350.46	97.8	VC, CTD
271	105	West Flower Gardens	2753.27	09350.17	85.6	VC
272	105	West Flower Gardens	2753.41	09350.85	105	VC
273	104	West Flower Gardens	2753.40	09348.87	104	VC
274	104	West Flower Gardens	2751.77	09347.41	99.9	VC, CTD
275	104	West Flower Gardens	2750.70	09341.40	112	VC
276	74	Horseshoe Reef	2748.62	09341.62	124	VC
277	73	Horseshoe Reef	2749.28	09338.68	130	VC
278	73	Horseshoe Reef	2749.71	09338.10	132	VC, CTD
279	102	Rankin Bank	2752.96	09328.05	111	VC, CTD
280	102	Rankin Bank	2752.22	09326.47	104	VC
281	102	Rankin Bank	2752.13	09326.01	113	VC
282	102	Rankin Bank	2752.30	09324.33	104	VC
283	102	Rankin Bank	2753.83	09322.83	114	VC
284	102	Rankin Bank	2753.30	09321.94	113	VC
285	102	Rankin Bank	2752.87	09321.43	117	VC
286	102	Rankin Bank	2752.64	09320.59	118	VC

287	102	Rankin Bank	2754.07	09320.66	95.2	VC
288	102	Rankin Bank	2755.61	09320.30	120	VC
289	101	Bright Bank	2754.77	09315.84	133	VC
290	100	Geyer Bank	2757.67	09304.04	120	VC, CTD
291	99	Elvers Bank	2757.97	09251.95	102	VC, CTD
292	99	Elvers Bank	2758.87	09252.16	106	VC
293	99	Elvers Bank	2759.11	09251.23	98.6	VC
294	99	Elvers Bank	2759.02	09250.23	118	VC
295	98		2757.20	09249.77	132	VC
296	98		2757.59	09249.33	129	VC
297	97	MacGrail Bank	2758.01	09237.28	123	VC
298	97	MacGrail Bank	2759.20	09236.51	120	VC
299	138		2800.17	09236.98	101	VC
300	97	MacGrail Bank	2757.21	09234.99	103	VC
301	97	MacGrail Bank	2758.54	09234.19	110	VC, CTD
302	93	Sweet Bank	2750.65	09150.28	82.1	VC, CTD
303	93	Sweet Bank	2750.74	09150.76	111	VC
304	93	Sweet Bank	2750.31	09150.31	82.4	VC
305	93	Sweet Bank	2750.79	09150.58	104	VC
306	93	Sweet Bank	2750.95	09150.05	118	VC
307	93	Sweet Bank	2751.12	09150.50	134	VC
308	93	Sweet Bank	2752.14	09150.11	178	VC
309	92	Sweet Bank	2752.14	09149.89	170	VC
310	68	Sweet Bank	2749.18	09154.93	172	VC
311	68	Sweet Bank	2749.14	09154.38	162	VC
312	68		2749.39	09153.90	125	VC
313	68		2749.99	09154.50	141	VC
314	93	Sweet Bank	2750.75	09154.02	147	VC
315	93	Sweet Bank	2750.89	09154.17	147	VC
316	93	Sweet Bank	2750.88	09153.96	155	VC, CTD
317	261		2835.69	09223.66	40.7	VC, CTD
318	261		2835.49	09223.12	40.7	VC
319	261		2835.13	09223.29	41.4	VC

320	261		2834.80	09222.49	42.3	VC
321	261		2834.31	09222.81	42.8	VC
322	261		2834.02	09222.34	43.4	VC
323	219	Sonnier Bank	2820.95	09227.66	60.4	VC, CTD
324	137	Bouma Bank	2802.23	09221.95	113	VC
325	137	Bouma Bank	2803.41	09228.17	67.6	VC, CTD
326	135	Alderdice Bank	2806.97	09202.77	90.9	VC, CTD
327	135	Alderdice Bank	2805.65	09200.02	90	VC
328	134	Alderdice Bank	2805.71	09158.77	92.6	VC
329	134	Alderdice Bank	2804.92	09159.22	85.6	VC
330	134	Alderdice Bank	2804.73	09159.80	89.1	VC
331	134	Alderdice Bank	2804.74	09159.37	88.3	VC
332	134	Alderdice Bank	2804.51	09158.94	87.3	VC
333	134	Alderdice Bank	2804.71	09159.15	88.2	VC, CTD
334	134	Alderdice Bank	2804.23	09158.09	91.6	VC
335	134	Alderdice Bank	2803.25	09157.79	101	VC
336	134	Alderdice Bank	2805.00	09155.98	95	VC
337	134	Alderdice Bank	2806.20	09155.77	92.4	VC
338	92	Sweet Bank	2759.06	09146.42	101	VC, CTD
339	92	Sweet Bank	2758.97	09145.75	97.3	VC
340	92	Sweet Bank	2751.58	09148.52	149	VC, CTD
341	92	Sweet Bank	2751.25	09147.96	149	VC
342	92	Sweet Bank	2751.27	09148.18	139	VC
343	92	Sweet Bank	2751.05	09148.38	122	VC
344	92	Sweet Bank	2751.12	09148.57	120	VC
345	92	Sweet Bank	2750.59	09149.31	123	VC
346	92	Sweet Bank	2750.59	09149.10	117	VC
347	92	Sweet Bank	2750.56	09148.71	111	VC
348	92	Sweet Bank	2750.42	09149.21	121	VC
349	67	Sweet Bank	2749.94	09149.04	110	VC
350	92	Sweet Bank	2750.34	09147.89	111	VC
351	67	Sweet Bank	2749.67	09147.17	141	VC
352	67	Sweet Bank	2749.89	09147.24	125	VC

353	67		2749.65	09146.95	157	VC
354	67		2749.36	09147.97	179	VC
355	67	Sweet Bank	2756.89	09143.84	138	VC, CTD
356	91	Jakkula Bank	2759.43	09139.86	111	VC, CTD
357	91	Jakkula Bank	2758.96	09139.34	68.3	VC
358	91	Jakkula Bank	2758.61	09139.11	66.9	VC
359	91	Jakkula Bank	2758.23	09139.67	105	VC
360	91	Jakkula Bank	2758.52	09139.84	103	VC
361	92	Jakkula Bank	2758.05	09140.44	150	VC
362	91	Jakkula Bank	2757.44	09140.00	145	VC
363	132	Jakkula Bank	2800.73	09135.68	189	VC
364	132	Jakkula Bank	2800.50	09134.42	161	VC
365	132	Jakkula Bank	2800.67	09134.10	148	VC
366	131		2802.74	09129.48	106	VC
367	131		2803.42	09128.85	135	VC
368	131		2803.34	09128.94	130	VC
369	131		2802.26	09129.17	109	VC
370	131		2801.68	09128.70	127	VC
371	131		2801.52	09128.40	147	VC, CTD
372	244		2844.30	08947.54	84.7	VC, CTD
373	244	Sackett Bank	2838.11	08933.41	64.9	VC
374	244	Sackett Bank	2837.49	08933.05	95.7	VC, CTD
375	451		2853.3	08914.74	72.6	CTD
376	94		2749.5	09256.65	203	CTD