

U. S. DEPARTMENT OF COMMERCE
National Oceanographic and Atmospheric Administration
National Marine Fisheries Service Southeast Fisheries Science Center
P. O. Drawer 1207 Pascagoula, MS 39568-1207

SEAMAP Reef Fish Survey

NOAA Ship Oregon II Cruise 06-03 (270)

Introduction

The NOAA Ship Oregon II was scheduled to depart Pascagoula, MS on April 11, 2006 to conduct the annual SEAMAP Reef Fish Survey along the continental shelf of the western Gulf of Mexico. The planned itinerary divided the cruise into two legs: Leg 1) 4/11/06 to 4/25/06 and Leg 2) 4/26/06 to 5/10/06, with a port call in Galveston, TX, for a total of 29 sea days. Two sea days were lost to vessel repairs/maintenance due to a perforated fire main suction pump which occurred during fire drills with an additional two sea days lost to boat personnel issues. One day of operations was lost due to weather.

Objectives

- 1) Assess relative abundance of reef fish on Gulf of Mexico shelf-edge banks.
- 2) Estimate length frequency distributions of reef fish.
- 3) Collect hard parts from fish for ageing.
- 4) Collect temperature, salinity, and dissolved oxygen profile data at each station.

Methods

The NOAA Ship Oregon II departed Pascagoula, MS on April 12, 2006 to conduct the SEAMAP reef fish survey of natural hard bottom areas located on the continental shelf and shelf edge of the western Gulf of Mexico (Figure 1). A two-stage procedure was used to select sample sites. Sample blocks were first selected using stratified random sampling, with strata defined by region of the Gulf of Mexico and size. Twenty-one blocks were selected to be sampled for this year's survey (Figure 1). Reef sites within each selected block were then selected randomly, either from previously collected bathymetric data, or from echograms made during night transects. Three blocks from this year's survey had to be mapped at night prior to site selection, blocks 27, 150 and 244 (Figure 1). Each site sampled was sampled with a 4 camera array and the Seabird 911 CTD profiler. Additionally, one or two sites from a days work were randomly chosen to be sampled with the chevron fish trap after being sampled with the camera array. Video gear used to assess relative abundance consisted of a custom aluminum camera array frame with 4 Sony VX2000 DCR digital camcorders in Gates 'Diego' underwater housings mounted orthogonally at a height of 30 cm above the bottom, and a single, downward-facing Sony PC 120 digital camcorder in a Gates 'Baja' underwater housing. The down-facing camera was used to provide estimates of substrate type. Two sets of lasers were mounted with each horizontally-mounted video camera, one above

each camera and one below. Each laser set consisted of two lasers spaced 10 cm apart. These lasers were placed to obtain fish lengths. A single set of lasers was mounted with the downward-facing camera to estimate height above the bottom. A chevron fish trap, that measured 1.83 x 1.83 x 0.75 meters with 3.81-cm mesh, was employed to capture fish for aging and other life history studies. Both the fish trap and camera array were baited with squid. The camera array was allowed to soak on the bottom for 30 minutes, and the fish trap soaked for 1 hour. Temperature, salinity, dissolved oxygen, fluorescence and turbidity profiles of the water column were measured using a Seabird SBE911 CTD profiler at each video site.

Results

Sixteen of the twenty-one blocks selected were sampled resulting in a total of 154 video stations and 28 chevron fish traps (Figure 1, Table 1). Seabird SBE911 CTD casts of the water column were collected at 110 stations (Table 1). Mechanical problems with the CTD wench and backup bongo wench prevented data collection at 72 stations. Video tapes and CTD data from each station was returned to the NMFS Pascagoula Laboratory for viewing and analysis.

Fish were captured in 11 out of 28 deployments of the chevron fish trap. A total of 281 individual fish of 7 different species weighing a total weight of 151.188 kg were captured in the traps (Table 2). Red snapper (*Lutjanus campechanus*) dominated the catch in weight followed by vermillion snapper (*Rhomboplites aurorubens*) and then greater amberjack (*Seriola dumerili*) (Table 2). Red snapper was the most numerous species followed by vermillion snapper and lane snapper (*Lutjanus synagris*) (Table 2). Otoliths were collected from all red and lane snapper and most of the vermillion snapper. Stomachs were collected from most of the red snapper. The red snapper stomachs were returned to NMFS Pascagoula Laboratory for processing. All otoliths were sent to the NMFS Panama City Laboratory for processing.

Cruise participants:

Leg 1: 04/11/06 - 04/25/06 (15 sea days)

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Paul Felts	Field Party Chief	NMFS Pascagoula, MS
Kevin Rademacher	Fisheries Biologist	NMFS Pascagoula, MS
Andre' Debose	Fisheries Biologist	NMFS Pascagoula, MS
Michael Hendon	Fisheries Biologist	IAP Pascagoula, MS

Leg 2: 04/26/02 - 05/10/05 (114 sea days)

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Paul Felts	Field Party Chief	NMFS Pascagoula, MS
Brandi Trigg	Fisheries Biologist	IAP Pascagoula, MS
Michael Felts	Fisheries Biologist	IAP Pascagoula, MS
Carrie Horton	Fisheries Biologist	IAP Pascagoula, MS

Figure 1. Location of blocks selected for sampling during NEA/OP 2006 reef fish survey

Submitted by:

Paul Felts

Paul Felts
Field Party Chief

Approved by:

Scott Nichols

Dr. Scott Nichols, Director
Mississippi Laboratories

Alan J. Chetani

Dr. Nancy Thompson, Director
Southeast Fisheries Science Center

Figure 1. Location of blocks selected for sampling during SEAMAP 2006 reef fish survey

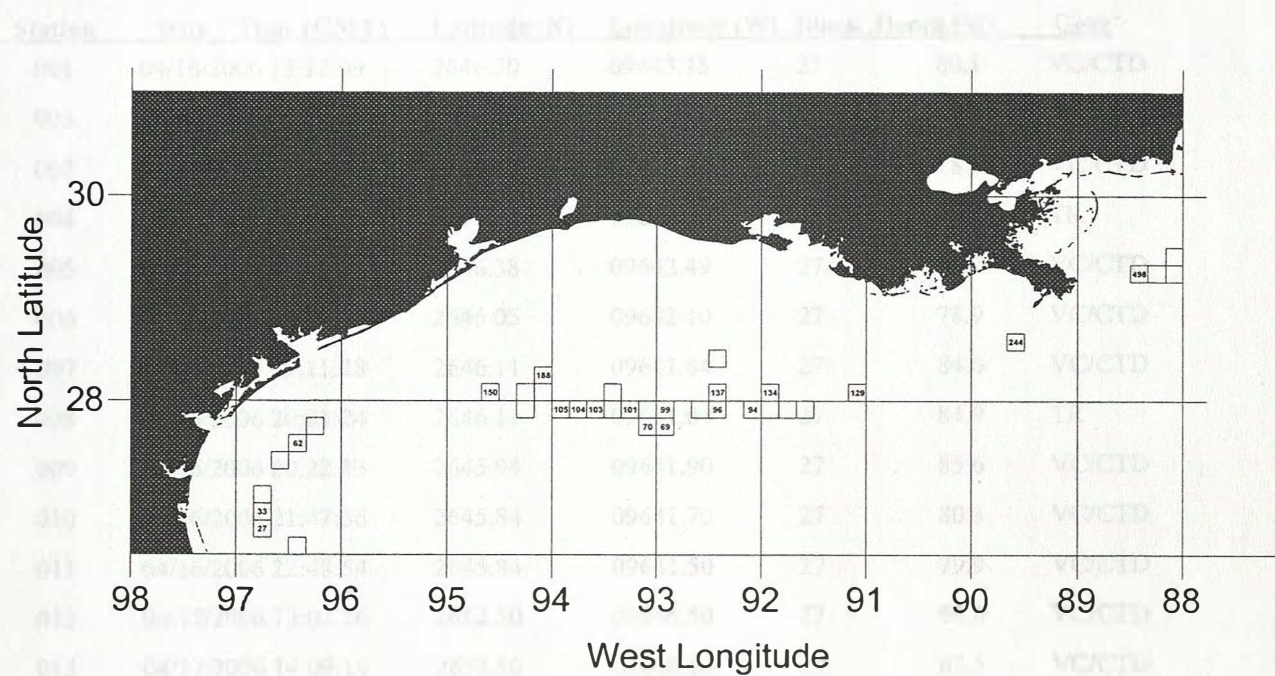


Table 1. Stations sampled during Oregon II Cruise 06-03(270), April-May 2006. Gear codes: VC-video camera; TR-chevron fish trap; CTD- ctd cast deployed

Station	Date	Time (GMT)	Latitude (N)	Longitude (W)	Block	Depth (M)	Gear
001	04/16/2006	13:12:09	2646.70	09643.15	27	80.1	VC/CTD
003	04/16/2006	15:19:08	2646.20	09642.78	27	74.8	VC/CTD
002	04/16/2006	14:21:20	2646.50	09642.80	27	78.5	VC/CTD
004	04/16/2006	16:10:35	2646.20	09642.79	27	73.7	TR
005	04/16/2006	16:17:56	2646.38	09642.49	27	78.7	VC/CTD
006	04/16/2006	18:13:15	2646.05	09642.10	27	78.9	VC/CTD
007	04/16/2006	19:11:28	2646.11	09641.84	27	84.6	VC/CTD
008	04/16/2006	20:01:24	2646.11	09641.84	27	84.9	TR
009	04/16/2006	20:22:13	2645.94	09641.90	27	85.6	VC/CTD
010	04/16/2006	21:47:36	2645.84	09641.70	27	80.5	VC/CTD
011	04/16/2006	22:48:54	2645.84	09641.50	27	79.9	VC/CTD
012	04/17/2006	13:02:26	2652.50	09646.50	27	69.0	VC/CTD
013	04/17/2006	14:09:19	2652.50	09646.60	27	67.5	VC/CTD
014	04/17/2006	15:05:38	2652.50	09646.60	33	67.0	TR
015	04/17/2006	15:18:53	2652.50	09646.70	33	67.6	VC/CTD
016	04/17/2006	16:49:29	2652.60	09646.70	33	67.9	VC/CTD
017	04/17/2006	17:51:01	2652.60	09646.59	33	60.5	VC/CTD
018	04/17/2006	18:42:05	2652.70	09646.59	33	64.9	VC/CTD
019	04/17/2006	19:35:15	2652.70	09646.50	33	63.3	VC/CTD
020	04/17/2006	20:36:20	2652.60	09646.48	33	62.0	VC/CTD
021	04/17/2006	21:24:45	2652.60	09646.50	33	62.2	TR
022	04/17/2006	21:40:12	2652.60	09646.38	33	67.5	VC/CTD
023	04/18/2006	13:03:15	2732.30	09628.09	62	60.3	VC/CTD
024	04/18/2006	14:00:39	2732.90	09628.30	62	68.9	VC/CTD
025	04/18/2006	14:48:26	2732.90	09628.30	62	70.5	TR
026	04/18/2006	15:01:17	2732.60	09628.79	62	63.8	VC/CTD
027	04/18/2006	16:39:32	2732.60	09628.90	62	63.7	VC/CTD
028	04/18/2006	17:34:03	2732.80	09628.81	62	61.8	VC/CTD
029	04/18/2006	18:24:38	2732.90	09628.60	62	61.8	VC/CTD
030	04/18/2006	19:20:25	2733.10	09628.60	62	64.1	VC/CTD

Station	Date	Time (GMT)	Latitude (N)	Longitude (W)	Block	Depth (M)	Gear
031	04/18/2006	20:22:22	2734.20	09628.99	62	66.9	VC/CTD
032	04/18/2006	21:25:29	2734.20	09629.01	62	66.5	TR
033	04/18/2006	21:44:41	2734.60	09628.90	62	63.5	VC/CTD
034	04/18/2006	23:05:34	2734.50	09628.90	62	66.1	VC/CTD
035	04/19/2006	12:51:58	2819.00	09408.20	188	49.9	VC/CTD
036	04/19/2006	13:42:55	2819.30	09407.89	188	46.7	VC/CTD
037	04/19/2006	14:30:41	2819.30	09407.89	188	46.6	TR
038	04/19/2006	14:43:46	2819.70	09407.99	188	47.0	VC/CTD
039	04/19/2006	16:08:49	2819.60	09408.40	188	40.8	VC/CTD
040	04/19/2006	17:12:06	2819.70	09408.79	188	37.7	VC/CTD
042	04/19/2006	19:36:51	2820.00	09408.90	188	44.1	VC/CTD
043	04/19/2006	20:21:15	2820.00	09408.90	188	43.7	TR
044	04/19/2006	20:37:31	2819.70	09409.00	188	44.3	VC/CTD
046	04/19/2006	23:02:29	2819.38	09409.18	188	47.1	VC/CTD
041	04/19/2006	18:43:01	2819.90	09408.80	188	36.5	VC/CTD
047	04/20/2006	12:50:20	2805.80	09432.12	150	55.7	VC/CTD
048	04/20/2006	13:39:37	2805.20	09432.30	150	55.5	VC/CTD
049	04/24/2006	12:45:31	2804.86	09432.27	150	53.8	VC/CTD
050	04/24/2006	13:57:35	2804.58	09431.94	150	53.3	VC/CTD
051	04/24/2006	14:42:08	2804.58	09431.92	150	52.5	TR
052	04/24/2006	14:52:20	2804.31	09431.68	150	52.7	VC/CTD
053	04/24/2006	16:39:44	2804.00	09431.70	150	52.9	VC/CTD
054	04/24/2006	17:32:24	2803.68	09431.54	150	52.8	VC/CTD
055	04/24/2006	18:17:26	2803.68	09431.54	150	52.6	TR
056	04/24/2006	18:25:08	2803.39	09431.91	150	53.9	VC/CTD
057	04/24/2006	20:11:03	2802.49	09432.18	150	57.0	VC/CTD
058	04/24/2006	21:04:59	2803.09	09430.89	150	55.6	VC/CTD
059	04/26/2006	12:54:25	2754.59	09348.80	104	92.9	VC/CTD
060	04/26/2006	13:53:48	2754.20	09348.20	104	88.1	VC/CTD
061	04/26/2006	14:37:18	2754.20	09348.19	104	87.9	TR
062	04/26/2006	14:56:12	2753.81	09348.88	104	65.3	VC/CTD

<u>Station</u>	<u>Date</u>	<u>Time (GMT)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Block</u>	<u>Depth (M)</u>	<u>Gear</u>
063	04/26/2006	16:31:41	2753.51	09349.20	104	86.0	VC/CTD
064	04/26/2006	17:24:38	2753.30	09348.39	104	100.2	VC/CTD
065	04/26/2006	18:42:14	2753.00	09348.90	104	78.9	VC/CTD
066	04/26/2006	19:33:51	2752.60	09349.69	104	84.5	VC/CTD
067	04/26/2006	20:35:12	2751.99	09348.50	104	73.6	VC/CTD
068	04/26/2006	21:31:48	2751.80	09349.20	104	70.0	VC/CTD
069	04/26/2006	22:31:19	2751.49	09349.30	104	78.9	VC/CTD
070	04/27/2006	12:38:33	2754.90	09335.00	103	51.6	VC/CTD
071	04/27/2006	13:28:36	2754.00	09335.60	103	52.1	VC/CTD
072	04/27/2006	14:33:13	2754.30	09339.01	103	95.1	VC/CTD
073	04/27/2006	15:20:26	2754.30	09339.00	103	95.0	TR
074	04/27/2006	15:37:40	2754.89	09338.00	103	86.9	VC/CTD
075	04/27/2006	17:11:11	2755.30	09338.09	103	92.2	VC/CTD
076	04/27/2006	18:13:29	2756.09	09337.68	103	69.7	VC/CTD
077	04/27/2006	19:08:39	2756.19	09337.60	103	83.4	VC/CTD
078	04/27/2006	20:04:01	2757.00	09337.29	103	88.3	VC/CTD
079	04/27/2006	21:00:04	2757.29	09335.90	103	75.9	VC/CTD
080	04/27/2006	21:52:15	2758.10	09335.99	103	88.2	VC/CTD
081	04/27/2006	22:45:39	2757.89	09336.90	103	86.1	VC/CTD
082	04/28/2006	12:42:10	2800.80	09329.29	143	83.7	VC/CTD
083	04/28/2006	13:36:31	2801.75	09329.57	143	85.2	VC/CTD
084	04/28/2006	14:24:25	2801.75	09329.57	143	85.0	TR
085	04/28/2006	14:37:23	2802.00	09329.80	143	82.9	VC/CTD
086	04/28/2006	16:28:56	2807.50	09328.70	143	73.4	VC/CTD
087	04/28/2006	17:23:32	2807.70	09329.00	143	65.7	VC/CTD
088	04/28/2006	18:18:57	2807.90	09329.60	143	59.3	VC/CTD
089	04/28/2006	19:03:28	2807.90	09329.60	143	59.4	TR
090	04/28/2006	19:16:22	2808.00	09329.90	143	60.5	VC/CTD
091	04/28/2006	20:44:46	2808.20	09329.30	143	58.3	VC/CTD
092	04/28/2006	21:43:21	2808.20	09329.20	143	58.9	VC/CTD

Station	Date	Time (GMT)	Latitude (N)	Longitude (W)	Block	Depth (M)	Gear
093	04/28/2006	22:42:12	2808.80	09329.10	143	60.9	VC/CTD
045	04/19/2006	22:10:35	2819.50	09409.10	188	47.4	VC/CTD
094	04/30/2006	12:38:19	2754.70	09317.80	101	79.7	VC/CTD
095	04/30/2006	14:06:41	2754.00	09317.00	101	69.3	VC/CTD
096	04/30/2006	14:52:18	2754.00	09317.00	101	69.0	TR
097	04/30/2006	15:07:42	2754.10	09316.29	101	94.4	VC/CTD
098	04/30/2006	17:22:37	2752.20	09316.40	101	106.1	VC/CTD
099	04/30/2006	18:34:34	2751.40	09316.50	101	115.1	VC/CTD
100	04/30/2006	19:29:24	2752.50	09317.30	101	63.0	VC/CTD
101	04/30/2006	20:14:51	2752.50	09317.30	101	62.7	TR
102	04/30/2006	20:25:13	2752.30	09317.79	101	67.0	VC/CTD
103	04/30/2006	21:53:51	2752.50	09317.90	101	50.6	VC/CTD
105	05/01/2006	12:36:45	2749.29	09302.50	70	102.4	VC/CTD
106	05/01/2006	13:30:32	2748.80	09302.20	70	107.6	VC/CTD
107	05/01/2006	14:27:23	2748.90	09302.40	70	93.0	VC/CTD
108	05/01/2006	15:10:00	2748.91	09302.40	70	91.3	TR/CTD
109	05/01/2006	15:21:37	2748.60	09303.00	70	58.1	VC/CTD
110	05/01/2006	16:59:04	2747.79	09302.80	70	68.6	VC/CTD
111	05/01/2006	18:14:56	2747.50	09304.09	70	92.9	VC
112	05/01/2006	19:08:04	2748.40	09304.20	70	70.3	VC
113	05/01/2006	19:54:29	2748.40	09304.20	70	69.8	TR
114	05/01/2006	20:04:39	2748.70	09304.80	70	103.4	VC
115	05/01/2006	21:51:27	2749.30	09304.29	70	77.9	VC
116	05/01/2006	22:46:33	2749.30	09303.50	70	73.6	VC
119	05/02/2006	14:17:22	2749.09	09253.59	69	84.8	VC
120	05/02/2006	15:09:51	2749.30	09253.80	69	94.2	VC
121	05/02/2006	15:49:30	2749.30	09253.79	69	93.5	TR
122	05/02/2006	16:03:08	2749.30	09253.50	69	65.8	VC
123	05/02/2006	17:36:08	2749.40	09253.40	69	67.6	VC
124	05/02/2006	18:56:33	2749.31	09253.20	69	88.5	VC

Station	Date	Time (GMT)	Latitude (N)	Longitude (W)	Block	Depth (M)	Gear
125	05/02/2006	19:50:57	2749.31	09253.10	69	90.1	VC
126	05/02/2006	20:42:41	2749.41	09252.99	69	99.3	VC
127	05/02/2006	21:35:30	2749.40	09252.90	69	109.3	VC
128	05/05/2006	12:31:12	2750.71	09252.20	99	100.9	VC
129	05/05/2006	13:23:11	2750.70	09252.90	99	114.1	VC
130	05/05/2006	14:18:18	2750.20	09253.41	99	111.5	VC
131	05/05/2006	15:06:40	2750.21	09253.41	99	111.8	TR
132	05/05/2006	15:17:50	2750.40	09254.00	99	112.3	VC
133	05/05/2006	16:47:18	2750.40	09254.10	99	112.9	VC
134	05/05/2006	17:45:02	2750.50	09254.21	99	111.3	VC
135	05/05/2006	18:43:44	2750.40	09254.40	99	113.9	VC
136	05/05/2006	19:30:33	2750.40	09254.40	99	114.1	TR
137	05/05/2006	19:39:53	2750.10	09254.51	99	125.4	VC
138	05/05/2006	21:33:36	2751.11	09255.10	99	90.0	VC
139	05/05/2006	22:28:58	2751.10	09255.20	99	73.7	VC
140	05/06/2006	12:27:43	2802.81	09226.00	137	90.1	VC
141	05/06/2006	13:24:28	2802.30	09226.40	137	95.6	VC
142	05/06/2006	14:23:03	2801.61	09227.30	137	91.7	VC
143	05/06/2006	15:18:50	2800.51	09229.00	137	95.3	VC
144	05/06/2006	16:02:55	2800.50	09229.00	137	95.6	TR
145	05/06/2006	16:18:33	2801.70	09229.10	137	89.7	VC
146	05/06/2006	17:58:56	2801.80	09228.50	137	86.1	VC
147	05/06/2006	19:14:53	2802.21	09229.00	137	89.3	VC
148	05/06/2006	20:14:48	2802.20	09229.00	137	89.4	TR
149	05/06/2006	20:26:02	2802.70	09228.60	137	95.4	VC
150	05/06/2006	22:03:17	2802.80	09228.91	137	90.8	VC
151	05/06/2006	22:59:49	2804.31	09229.00	137	84.9	VC
152	05/07/2006	12:25:57	2758.31	09202.60	94	93.0	VC
153	05/07/2006	13:16:43	2758.00	09201.00	94	87.0	VC
154	05/07/2006	14:05:52	2757.81	09201.00	94	105.7	VC
155	05/07/2006	15:04:19	2757.30	09200.80	94	85.6	VC

<u>Station</u>	<u>Date</u>	<u>Time (GMT)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Block</u>	<u>Depth (M)</u>	<u>Gear</u>
156	05/07/2006	15:45:11	2757.30	09200.80	94	83.9	TR
157	05/07/2006	15:59:09	2756.51	09201.00	94	64.2	VC
158	05/07/2006	17:25:22	2756.70	09202.20	94	62.0	VC
159	05/07/2006	18:17:58	2756.60	09202.71	94	80.1	VC
160	05/07/2006	19:09:09	2757.70	09203.10	94	77.9	VC
161	05/07/2006	19:51:51	2757.70	09203.11	94	76.6	TR
162	05/07/2006	20:06:57	2757.40	09203.10	94	89.5	VC
163	05/07/2006	21:30:20	2757.70	09203.61	94	106.9	VC
164	05/08/2006	12:23:20	2804.40	09200.00	134	87.7	VC
165	05/08/2006	13:16:01	2804.61	09159.80	134	86.1	VC
166	05/08/2006	14:13:32	2804.41	09159.60	134	85.7	VC
167	05/08/2006	15:08:06	2804.20	09159.40	134	92.1	VC
168	05/08/2006	15:49:17	2804.20	09159.40	134	92.9	TR
169	05/08/2006	16:04:38	2804.61	09159.10	134	86.2	VC
170	05/08/2006	17:38:05	2805.20	09159.60	134	85.9	VC
171	05/08/2006	18:50:49	2805.30	09159.60	134	84.0	VC
172	05/08/2006	19:41:11	2805.50	09159.50	134	85.7	VC
173	05/08/2006	20:21:18	2805.50	09159.51	134	85.5	TR
174	05/08/2006	20:34:36	2805.41	09159.11	134	77.5	VC
175	05/08/2006	22:06:00	2805.60	09159.09	134	88.6	VC
176	05/09/2006	12:18:33	2805.80	09100.60	129	72.1	VC
177	05/09/2006	13:07:32	2806.01	09100.80	129	72.6	VC
178	05/09/2006	14:00:07	2805.90	09101.20	129	70.2	VC
179	05/09/2006	14:50:55	2805.80	09101.20	129	67.2	VC
180	05/09/2006	15:32:08	2805.80	09101.20	129	67.4	TR
181	05/09/2006	15:48:07	2806.10	09101.70	129	66.5	VC
182	05/09/2006	17:14:58	2806.00	09102.31	129	58.1	VC

Table 2: Fish caught in the chevron fish trap during Oregon II 06-03(270) April-May, 2006.

Common name	Species	Frequency of Occurrence (N=28)	Total number	Total weight (kg)
Red snapper	<i>Lutjanus campechanus</i>	9	114	81.268
Vermilion snapper	<i>Rhomboplites aurorubens</i>	5	154	63.40
Greater amberjack	<i>Seriola dumerili</i>	1	1	2.155
Grey triggerfish	<i>Balistes capriscus</i>	2	3	1.905
Lane snapper	<i>Lutjanus Synagris</i>	1	5	1.29
Whitebone Porgy	<i>Calamus leucosteus</i>	2	3	1.04
Rock Sea Bass	<i>Centropristis philidelphica</i>	1	1	0.13
		Sum =	281	151.188