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

SEAMAP Reef Fish Survey

NOAA Ship Oregon II Cruise 05-03 (264)

Introduction

The NOAA Ship Oregon II departed Pascagoula, MS on April 12, 2005 as scheduled 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) 4/12/05 to 4/26/05 and Leg 2) 4/27/05 to 5/11/05, with a port call in Galveston, TX, for a total of 30 sea days. After the scheduled departure on 4/12/05 the ship had to return to port later that day to repair a generator. The repair on the generator was further delayed when the wrong part was received. Sailing was then set for 4/15/05. Approximately three hours after this second departure, the ship was again required to return to port to have a crewmember, who had injured himself while off-duty, medically evaluated. Sailing was again delayed an additional two days as the crewmember was deemed unfit for sailing and could not be immediately replaced. The first leg was again scheduled for departure on 4/18/05, six days after the original scheduled date of departure. The second leg was extended for three days to mitigate some of the delay at the start of the cruise. However, a leak in the fire main at a 90° elbow in the piping then forced the cruise to end on 5/12/05, 2 days earlier than scheduled. A total of 27 sea days were completed out of the original 30 sea days scheduled. However, only 25 sea days were accountable to the project mission.

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.
5) Test the deepwater camera array and lighting systems.

Methods

The NOAA Ship Oregon II departed Pascagoula, MS on April 18, 2005 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. Nineteen 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. Two blocks from this year's survey had to be mapped at night prior to site selection, blocks 150 and 131 (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 PC120 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 measures of fish length. A single set of lasers was mounted with the downward-facing camera to estimate height above the bottom. A Seabird SBE25 sealogger CTD was also mounted within the camera array to provide measurements of temperature, salinity, dissolved oxygen and turbidity. 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.

A new deep-water (DW) camera array was tested during the second leg. The DW array consisted of a custom made aluminum frame with 4 Sony VX2000 DCR digital camcorders in ROS custom made underwater housings mounted orthogonally at a height of 30 cm above the bottom and a lighting system. The lighting system consisted of 4 DeepSea Power & Light Multi-SeaLite lamps with wide flood lenses, a controller and a battery. The system was programmable to allow the lamps to turn on or off for different lengths of time. One lamp was mounted 15 cm to one side of each camera housing and angled towards the camera's field of view. The DW camera array was baited with squid and soaked for 30 minutes. Potential sites for testing the DW camera array were selected at the Lab from bathymetry charts of Block 102. Three sites were selected after verifying them with the Ship's EQ500.

Results

Eighteen of the nineteen blocks selected were sampled resulting in a total of 177 stations;

142 video stations, 29 chevron fish traps and 6 deepwater camera drops (Figure 1, Table 1). Block 27 off of south Texas was dropped after the initial delays to the cruise. Seabird SBE911 CTD casts of the water column were collected near all 142 video stations and the first drop on a site with the DW camera array (Table 1). The Seabird SBE25 sealogger CTD collected data from within the camera array at 110 of the video stations (Table 1). One video camera was flooded during the cruise. Video tapes and CTD data from each station were returned to the NMFS Pascagoula Laboratory for viewing and analysis.

The controller for the DW lighting system was unresponsive to programming and communication attempts. Therefore, only two tests were conducted at each of the three sites with the DW camera array; the first test had the lamps turned off for the entire soak period and the second test had the lamps on during the soak (Table 1). Video tapes and CTD data from each treatment were returned to the NMFS Pascagoula Laboratory for viewing and analysis.

Fish were captured in 14 out of 29 deployments of the chevron fish trap (Table 1). One trap was lost after the buoyline snagged on bottom and parted. A total of 167 individual fish of 14 different species weighing 171.305 kgs were captured in the traps (Table 2). Red snapper dominated the catch in weight followed by vermillion snapper and then scamp (Table 2). Vermillion snapper was the most numerous species followed by red snapper and grey triggerfish (Table 2). Otoliths were collected from all red snapper, grouper and most of the vermillion snapper. Dorsal spines were collected from all the grey triggerfish. Dorsal spines were collected from selected fish that had otoliths taken for age verification studies. Grey triggerfish spines were returned to the NMFS Pascagoula Laboratory for processing. All otoliths and the remaining dorsal spines were sent to the NMFS Panama City Laboratory for processing.

Cruise participants:

Leg 1: 04/12/05 - 04/26/05 (11 sea days)

Name	Title	Organization
Kevin Rademacher	Field Party Chief	NMFS Pascagoula, MS
Chris Gledhill	Fisheries Biologist	NMFS Pascagoula, MS
Brandi Trigg	Fisheries Biologist	Johnson Controls, Pascagoula, MS

Leg 2: 04/27/02 - 05/12/05 (16 sea days)

Name	Title	Organization
Kevin Rademacher	Field Party Chief	NMFS Pascagoula, MS
Brandi Trigg	Fisheries Biologist	Johnson Controls, Pascagoula, MS
Andre Debose	Fisheries Biologist	NMFS Pascagoula, MS

Submitted By:

Kevin R. Rademacher
Field Party Chief

Approved By:

Dr. Scott Nichols, Director
Mississippi Laboratories

Dr. Nancy Thompson, Director
Southeast Fisheries Science Center

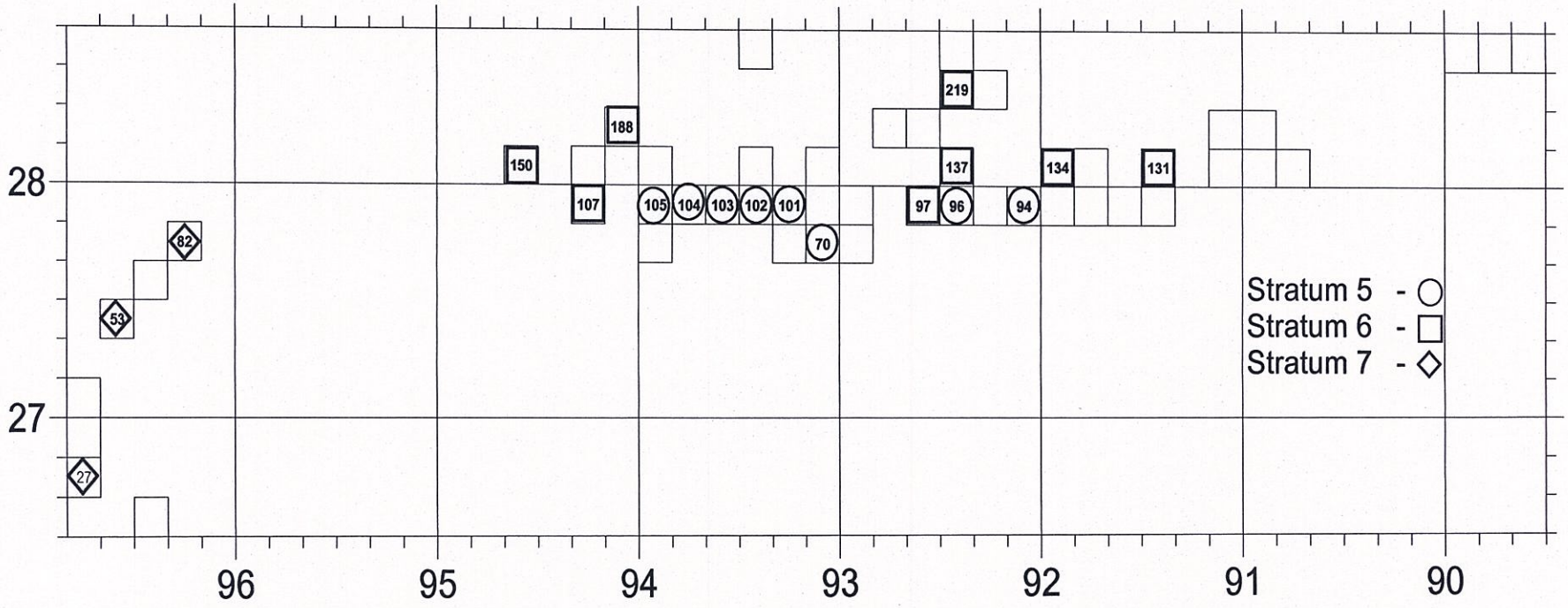

Figure 1. SEAMAP Blocks selected and sampled (bold) during Oregon II Cruise 05-03(264), April-May, 2005.

Table 1. Stations sampled during Oregon II Cruise 05-03(264), April-May, 2005. A (2) behind CTD means that both the CTD profiler and the CTD sealogger collected data, otherwise only the profiler collected data.

STATION	BLOCK	DATE	LATITUDE N	LONGITUDE W	DEPTH (m)	GEAR
001	53	04/20/05	27° 26.39'	96° 31.18'	75.4	Video, CTD(2)
002	53	04/20/05	27° 26.50'	96° 31.29'	62.3	Video, CTD(2)
003	53	04/20/05	27° 26.39'	96° 31.59'	62.1	Video, CTD
004	53	04/20/05	27° 26.69'	96° 31.69'	68.8	Video, CTD(2)
005	53	04/20/05	27° 26.69'	96° 31.39'	70.1	Video, CTD
006	53	04/20/05	27° 26.59'	96° 31.19'	63.7	Video, CTD(2)
007	82	04/21/05	27° 40.49'	96° 16.19'	84.4	Video, CTD(2)
008	82	04/21/05	27° 44.39'	96° 14.30'	75.6	Video, CTD
009	82	04/21/05	27° 44.49'	96° 14.50'	63.2	Video, CTD
010	82	04/21/05	27° 44.60'	96° 14.30'	61.2	Video, CTD
011	82	04/21/05	27° 44.59'	96° 14.30'	62.0	Trap
012	82	04/21/05	27° 44.70'	96° 13.89'	70.5	Video, CTD(2)
013	82	04/21/05	27° 44.89'	96° 13.79'	61.0	Video, CTD(2)
014	82	04/21/05	27° 45.00'	96° 13.89'	70.1	Video, CTD(2)
015	82	04/21/05	27° 44.99'	96° 13.50'	61.2	Video, CTD(2)
016	107	04/22/05	27° 51.49'	94° 16.30'	105.6	Video, CTD(2)
017	107	04/22/05	27° 51.60'	94° 15.58'	94.5	Video, CTD(2)
018	107	04/22/05	27° 51.59'	94° 15.20'	82.2	Video, CTD(2)
019	107	04/22/05	27° 51.58'	94° 15.19'	81.8	Trap
020	107	04/22/05	27° 51.60'	94° 13.98'	100.4	Video, CTD
021	107	04/22/05	27° 52.09'	94° 14.88'	97.9	Video, CTD(2)
022	107	04/22/05	27° 52.10'	94° 14.90'	98.1	Trap
023	107	04/22/05	27° 52.00'	94° 15.80'	107.2	Video, CTD(2)
024	107	04/22/05	27° 52.68'	94° 14.80'	114.5	Video, CTD(2)
025	107	04/22/05	27° 52.40'	94° 13.78'	109.9	Video, CTD(2)
026	105	04/23/05	27° 49.90'	93° 52.30'	113.0	Video, CTD(2)
027	105	04/23/05	27° 50.10'	93° 52.30'	112.8	Trap
028	105	04/23/05	27° 50.20'	93° 52.00'	105.1	Video, CTD(2)
029	105	04/23/05	27° 51.30'	93° 51.10'	91.4	Video, CTD(2)
030	105	04/23/05	27° 51.79'	93° 52.59'	110.4	Video, CTD(2)
031	105	04/23/05	27° 52.60'	93° 51.69'	86.6	Video, CTD(2)
032	105	04/23/05	27° 52.20'	93° 50.99'	68.4	Video, CTD(2)
033	105	04/23/05	27° 51.99'	93° 50.60'	90.0	Video, CTD
034	104	04/24/05	27° 52.20'	93° 49.69'	78.5	Video, CTD(2)
035	104	04/24/05	27° 50.24'	93° 49.25'	105.8	Video, CTD(2)
036	104	04/24/05	27° 50.23'	93° 49.26'	107.1	Trap
037	104	04/24/05	27° 51.10'	93° 49.10'	90.7	Video, CTD(2)
038	104	04/24/05	27° 51.60'	93° 47.89'	98.5	Video, CTD(2)
039	104	04/24/05	27° 53.13'	93° 49.60'	97.5	Video, CTD(2)
040	104	04/24/05	27° 53.13'	93° 49.59'	98.1	Trap
041	104	04/24/05	27° 53.49'	93° 49.30'	79.6	Video, CTD(2)
042	104	04/24/05	27° 53.50'	93° 48.10'	93.4	Video, CTD(2)

STATION	BLOCK	DATE	LATITUDE N	LONGITUDE W	DEPTH (m)	GEAR
043	104	04/24/05	27° 53.80'	93° 48.79'	77.2	Video, CTD(2)
044	104	04/24/05	27° 54.50'	93° 48.89'	96.7	Video, CTD(2)
045	188	04/25/05	28° 19.39'	94° 08.90'	38.4	Video, CTD(2)
046	188	04/25/05	28° 19.30'	94° 08.91'	39.8	Video, CTD(2)
047	188	04/25/05	28° 19.49'	94° 08.80'	39.1	Video, CTD(2)
048	188	04/25/05	28° 19.50'	94° 08.80'	39.1	Trap
049	188	04/25/05	28° 19.69'	94° 08.60'	40.4	Video, CTD(2)
050	188	04/25/05	28° 19.49'	94° 09.49'	45.5	Video, CTD(2)
051	188	04/25/05	28° 19.49'	94° 09.50'	46.3	Trap
052	188	04/25/05	28° 20.00'	94° 08.72'	39.6	Video, CTD(2)
053	188	04/25/05	28° 19.89'	94° 08.40'	45.8	Video, CTD(2)
054	188	04/25/05	28° 19.69'	94° 08.40'	41.5	Video, CTD(2)
055	188	04/25/05	28° 19.59'	94° 08.40'	41.5	Video, CTD(2)
056	150	04/28/05	28° 05.29'	94° 32.50'	54.6	Video, CTD(2)
057	150	04/28/05	28° 05.58'	94° 32.29'	54.8	Video, CTD
058	150	04/28/05	28° 05.58'	94° 32.29'	55.5	Trap
059	150	04/28/05	28° 04.55'	94° 31.88'	54.2	Video, CTD(2)
060	150	04/28/05	28° 03.59'	94° 31.15'	55.8	Video, CTD(2)
061	150	04/28/05	28° 03.71'	94° 30.99'	54.2	Video, CTD(2)
062	150	04/28/05	28° 03.68'	94° 30.99'	53.1	Trap (Lost)
063	150	04/28/05	28° 03.78'	94° 30.84'	55.9	Video, CTD(2)
064	150	04/28/05	28° 03.04'	94° 30.99'	56.7	Video, CTD(2)
065	103	04/29/05	27° 54.80'	93° 35.79'	52.1	Video, CTD(2)
066	103	04/29/05	27° 52.85'	93° 37.04'	97.6	Video, CTD(2)
067	103	04/29/05	27° 52.86'	93° 37.04'	94.6	Trap
068	103	04/29/05	27° 53.90'	93° 35.49'	72.4	Video, CTD(2)
069	103	04/29/05	27° 54.59'	93° 34.89'	69.8	Video, CTD(2)
070	103	04/29/05	27° 56.89'	93° 35.49'	85.1	Video, CTD(2)
071	103	04/29/05	27° 56.89'	93° 35.50'	79.0	Trap
072	103	04/29/05	27° 57.19'	93° 36.00'	61.4	Video, CTD(2)
073	103	04/29/05	27° 56.50'	93° 36.80'	71.8	Video, CTD(2)
074	103	04/29/05	27° 57.09'	93° 37.48'	90.0	Video, CTD(2)
075	103	04/29/05	27° 56.09'	93° 37.70'	72.4	Video, CTD(2)
076	102	04/30/05	27° 54.69'	93° 26.90'	53.5	Video, CTD(2)
077	102	04/30/05	27° 55.89'	93° 26.69'	80.3	Video, CTD(2)
078	102	04/30/05	27° 55.90'	93° 26.70'	80.7	Trap
079	102	04/30/05	27° 55.70'	93° 24.30'	98.3	Video, CTD(2)
080	102	05/01/05	27° 53.80'	93° 27.30'	72.4	Video, CTD(2)
081	102	05/01/05	27° 53.50'	93° 27.00'	78.7	Video, CTD(2)
082	101	05/03/05	27° 52.69'	93° 18.01'	50.1	Video, CTD(2)
083	101	05/03/05	27° 53.00'	93° 18.69'	79.0	Video, CTD(2)
084	101	05/03/05	27° 54.78'	93° 17.93'	84.7	Video, CTD(2)
085	101	05/03/05	27° 54.79'	93° 17.89'	90.1	Trap
086	101	05/03/05	27° 53.69'	93° 17.10'	57.5	Video, CTD(2)
087	101	05/03/05	27° 53.79'	93° 16.79'	61.2	Video, CTD(2)

STATION	BLOCK	DATE	LATITUDE N	LONGITUDE W	DEPTH (m)	GEAR
088	070	05/04/05	27° 49.59'	93° 03.89'	59.4	Video, CTD
089	070	05/04/05	27° 49.70'	93° 04.00'	66.7	Video, CTD
090	070	05/04/05	27° 49.10'	93° 04.49'	85.8	Video, CTD
091	070	05/04/05	27° 49.09'	93° 04.49'	86.2	Trap
092	070	05/04/05	27° 48.70'	93° 04.09'	91.5	Video, CTD
093	070	05/04/05	27° 47.99'	93° 03.99'	61.7	Video, CTD
094	070	05/04/05	27° 47.90'	93° 04.19'	65.1	Video, CTD
095	070	05/04/05	27° 48.10'	93° 03.49'	80.4	Video, CTD
096	070	05/04/05	27° 48.41'	93° 03.27'	67.3	Video, CTD
097	097	05/05/05	27° 57.70'	92° 35.69'	49.3	Video, CTD
098	097	05/05/05	27° 57.90'	92° 33.39'	122.5	Video, CTD
099	097	05/05/05	27° 57.90'	92° 33.40'	122.7	Trap
100	097	05/05/05	27° 58.60'	92° 35.39'	89.9	Video, CTD
101	097	05/05/05	27° 58.60'	92° 36.00'	85.1	Video, CTD
102	097	05/05/05	27° 58.70'	92° 36.09'	83.9	Video, CTD
103	097	05/05/05	27° 58.70'	92° 36.20'	93.0	Video, CTD
104	097	05/05/05	27° 58.70'	92° 36.19'	93.0	Trap
105	097	05/05/05	27° 58.30'	92° 37.20'	97.5	Video, CTD
106	097	05/05/05	27° 58.10'	92° 37.09'	100.8	Video, CTD
107	097	05/05/05	27° 57.49'	92° 36.19'	91.7	Video, CTD
108	096	05/06/05	27° 55.60'	92° 22.70'	75.3	Video, CTD
109	096	05/06/05	27° 56.10'	92° 22.19'	96.8	Video, CTD
110	096	05/06/05	27° 56.09'	92° 22.19'	96.0	Trap
111	096	05/06/05	27° 56.70'	92° 22.80'	95.4	Video, CTD
112	096	05/06/05	27° 57.40'	92° 22.69'	92.0	Video, CTD
113	096	05/06/05	27° 57.90'	92° 22.10'	120.6	Video, CTD
114	096	05/06/05	27° 57.89'	92° 22.09'	122.6	Trap
115	096	05/06/05	27° 59.00'	92° 21.60'	102.2	Video, CTD
116	096	05/06/05	27° 59.20'	92° 22.70'	84.5	Video, CTD
117	096	05/06/05	27° 59.10'	92° 22.88'	80.3	Video, CTD
118	137	05/07/05	28° 02.79'	92° 26.08'	91.4	Video, CTD(2)
119	137	05/07/05	28° 02.29'	92° 26.40'	97.6	Video, CTD(2)
120	137	05/07/05	28° 01.70'	92° 27.30'	93.8	Video, CTD(2)
121	137	05/07/05	28° 01.69'	92° 27.29'	97.5	Trap
122	137	05/07/05	28° 01.09'	92° 28.20'	91.0	Video, CTD(2)
123	137	05/07/05	28° 00.80'	92° 28.89'	94.8	Video, CTD(2)
124	137	05/07/05	28° 00.90'	92° 26.99'	98.3	Video, CTD(2)
125	137	05/07/05	28° 00.90'	92° 26.99'	96.0	Trap
126	137	05/07/05	28° 00.19'	92° 27.39'	96.6	Video, CTD(2)
127	137	05/07/05	28° 02.90'	92° 28.59'	86.4	Video, CTD(2)
128	219	05/08/05	28° 20.99'	92° 28.05'	54.7	Video, CTD(2)
129	219	05/08/05	28° 21.09'	92° 28.00'	57.8	Video, CTD(2)
130	219	05/08/05	28° 20.70'	92° 27.59'	51.5	Video, CTD(2)
131	219	05/08/05	28° 20.70'	92° 27.60'	52.5	Trap
132	219	05/08/05	28° 21.20'	92° 27.99'	57.3	Video, CTD(2)

STATION	BLOCK	DATE	LATITUDE N	LONGITUDE W	DEPTH (m)	GEAR
133	219	05/08/05	28° 20.85'	92° 27.30'	54.0	Video, CTD(2)
134	219	05/08/05	28° 20.54'	92° 27.23'	41.5	Video, CTD(2)
135	219	05/08/05	28° 20.47'	92° 26.73'	58.4	Video, CTD(2)
136	219	05/08/05	28° 20.20'	92° 27.10'	36.5	Video, CTD(2)
137	219	05/08/05	28° 20.19'	92° 27.10'	38.1	Trap
138	219	05/08/05	28° 19.80'	92° 27.14'	60.5	Video, CTD(2)
139	219	05/08/05	28° 19.52'	92° 27.36'	60.0	Video, CTD(2)
140	094	05/09/05	27° 56.59'	92° 00.70'	60.8	Video, CTD(2)
141	094	05/09/05	27° 56.30'	92° 00.60'	71.4	Video, CTD(2)
142	094	05/09/05	27° 56.89'	92° 00.19'	98.8	Video, CTD(2)
143	094	05/09/05	27° 56.89'	92° 00.20'	98.8	Trap
144	094	05/09/05	27° 56.19'	92° 00.50'	74.1	Video, CTD(2)
145	094	05/09/05	27° 56.00'	92° 00.08'	76.5	Video, CTD(2)
146	094	05/09/05	27° 57.29'	92° 00.78'	84.5	Video, CTD(2)
147	094	05/09/05	27° 57.30'	92° 00.80'	86.5	Trap
148	094	05/09/05	27° 58.00'	92° 00.09'	87.5	Video, CTD(2)
149	094	05/09/05	27° 57.89'	92° 00.60'	90.1	Video, CTD(2)
150	094	05/09/05	27° 58.10'	92° 00.79'	94.3	Video, CTD(2)
151	094	05/10/05	28° 04.59'	91° 59.29'	87.8	Video, CTD(2)
152	134	05/10/05	28° 04.80'	91° 59.29'	86.7	Video, CTD(2)
153	134	05/10/05	28° 04.79'	91° 59.39'	80.9	Video, CTD(2)
154	134	05/10/05	28° 04.79'	91° 59.39'	81.0	Trap
155	134	05/10/05	28° 04.80'	91° 58.89'	81.4	Video, CTD(2)
156	134	05/10/05	28° 04.79'	91° 59.10'	84.1	Video, CTD(2)
157	134	05/10/05	28° 05.19'	91° 59.50'	81.0	Video, CTD(2)
158	134	05/10/05	28° 05.19'	91° 59.49'	80.6	Trap
159	134	05/10/05	28° 05.21'	91° 59.17'	83.2	Video, CTD(2)
160	134	05/10/05	28° 05.09'	91° 59.60'	86.3	Video, CTD(2)
161	131	05/11/05	28° 02.96'	91° 27.90'	108.3	Video, CTD(2)
162	131	05/11/05	28° 03.13'	91° 28.30'	101.5	Video, CTD(2)
163	131	05/11/05	28° 02.28'	91° 28.29'	123.1	Video, CTD(2)
164	131	05/11/05	28° 02.31'	91° 28.30'	118.4	Trap
165	131	05/11/05	28° 02.36'	91° 27.29'	120.2	Video, CTD(2)
166	131	05/11/05	28° 01.85'	91° 27.51'	127.1	Video, CTD(2)
167	131	05/11/05	28° 02.29'	91° 29.30'	112.6	Video, CTD(2)
168	131	05/11/05	28° 01.58'	91° 29.71'	132.1	Video, CTD(2)
169	131	05/11/05	28° 01.58'	91° 29.70'	130.9	Trap
170	131	05/11/05	28° 00.97'	91° 29.50'	134.3	Video, CTD(2)
171	131	05/11/05	28° 00.60'	91° 28.90'	117.3	Video, CTD(2)
DW1	102	05/02/05	27° 49.75'	93° 23.74'	139.1	DW Video, CTD
DW2	102	05/02/05	27° 49.75'	93° 23.75'	137.7	DW Video - lights
DW3	102	05/02/05	27° 54.01'	93° 27.59'	148.1	DW Video, CTD
DW4	102	05/02/05	27° 54.01'	93° 27.57'	149.1	DW Video - lights
DW5	72	05/02/05	27° 47.53'	93° 26.49'	180.2	DW Video, CTD
DW6	72	05/02/05	27° 47.53'	93° 26.49'	182.0	DW Video - lights

Table 2: Fish caught in the chevron fish trap during Oregon II 05-03(264), April-May, 2005. Ranked in order by total weight.

Common name	**Species**	**Frequency of Occurrence** (N=29)	**Total number**	**Total weight (kgs)**
Red snapper	*Lutjanus campechanus*	10	39	59.990
Vermilion snapper	*Rhomboplites aurorubens*	5	64	30.850
Scamp	*Mycteroperca phenax*	7	11	29.410
Grey triggerfish	*Balistes capriscus*	3	22	17.155
Warsaw	*Epinephelus nigritus*	1	1	16.800
Red porgy	*Pagrus pagrus*	6	18	11.765
Yellowedge grouper	*Epinephelus flavolimbatus*	1	2	2.170
Snowy grouper	*Epinephelus niveatus*	1	1	0.775
Tomtate	*Haemulon aurolineatum*	2	4	0.695
Spotted moray	*Gymnothorax moringa*	1	1	0.685
Cottonwick	*Haemulon melanarum*	1	1	0.475
Whitebone porgy	*Calamus leucosteus*	1	1	0.350
Rock hind	*Epinephelus adscensionis*	1	1	0.130
Reef butterflyfish	*Chaetodon sedentarius*	1	1	0.055
		Sum =	167	171.305