U S DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
P 0 Drawer 1207
Pascagoula, Miss. 39568-1207

NOAA Ship OREGON II Cruise 04-05 (261)
10/12-11/19/04

INTRODUCTION

The *NOAA Ship OREGON II* departed Pascagoula, Mississippi on October 12, 2004 for the thirty-third annual Fall Southeast Area Monitoring and Assessment Program (SEAMAP) shrimp and bottomfish survey in the northern and western U.S. Gulf of Mexico. SEAMAP is a state-Federal-university program for the collection, management and dissemination of fishery independent data. The primary goal of the survey is to study the abundance and distribution of demersal organisms occurring in the study area.

Two port calls were made to exchange scientific personnel; one in Galveston, Tex. on October 25th and another in Pascagoula, Miss. on November 10th. An additional port call was made for mechanical repairs in Galveston, Tex. on November 1st.

Six survey days were lost due to weather, mechanical and personnel problems. The cruise terminated in Pascagoula, Miss. on November 19, 2004. Due to these problems, *NOAA Ship GORDON GUNTER* was diverted to assist in completing trawling operations in the East Delta.

OBJECTIVES

1) Sample the demersal fauna of the northcentral and northwestern Gulf of Mexico in depths of 5 to 60 fathoms.

2) Collect ichthyoplankton samples to determine the relative abundance and distribution of eggs and larvae of commercially and recreationally important fish species.

3) Conduct CTD casts to profile water temperature, salinity, dissolved oxygen, fluorometry and percent light transmission.

4) Obtain length measurements to estimate size structures of sampled populations.

5) Collect fish and invertebrate samples as requested by staff members of the

Institute of Marine Sciences, Gulf Coast Research Laboratory (GCRL).

6) Collect batfish (*Ogcocephalus* sp.), pancake batfish (*Halieutichthys aculeatus*), frogfish (Antennaridae), goatfish (Mullidae), wenchmen (*Pristipomoides aquilonaris*), jacks (Carangidae), rough scad (*Trachurus lathami*), round scad (*Decapterus punctatus*), bigeye scad (*Selar crumenophthalmus*), tilefish (*Caulolatilus* sp.), grouper (*Epinephelus* sp. and *Mycteroperca* sp.), cuban dogfish (*Squalus cubensis*), and red snapper (*Lutjanus campechanus*) for various age, growth and distributional studies.

7) Collect red porgies (*Pagrus pagrus*) for genetic studies by South Carolina Department of Marine Resources.

MATERIALS AND METHODS

The sampling gear consisted of 40-ft shrimp nets with 8-ft by 40-in chain bracketed wooden doors. A standard free tickler chain cut 42 inches shorter than the footrope was used to stimulate benthic organisms out of the substrate and into the path of the oncoming net. Towing speed was targeted at 2.50 knots. Sample sites were randomly selected within area, depth and diel strata. Area strata consisted of Gulf coast shrimp statistical zones 11-12 (88°00'-89°00' w long), 13-15 (89°00'-92°00' w long), 16-17 (92°00'-94°00' w long), 18-19 (west of 94°00' w long and north of 28°00' n lat), and 20-21 (26°00'-28°00' n lat). Depth strata consisted of 1-fm intervals from 5 to 20 fms, a 2-fm interval from 20 to 22 fms, a 3-fm interval from 22 to 25 fms, 5-fm intervals from 25 to 50 fms and a 10-fm interval from 50 to 60 fms. Diel strata consisted of day and night, and were delimited by astronomical sunrise and sunset. Minimum and maximum tow durations were 10 and 55 minutes respectively, depending on the time required to transect the respective depth strata. If a stratum was not completed in 55 minutes then additional tows were made until it was covered. Tow direction was determined as the shortest distance between strata boundaries (generally perpendicular to depth contours).

Ichthyoplankton samples (conducted with bongo and neuston samplers) were collected at half-degree intervals of latitude and longitude within the defined survey area. Plankton sampling sites were occasionally relocated to the nearest trawling sample site to optimize survey time. Bongo tows were made with two conical 61-centimeter nets with 0.333 mm mesh netting. Digital flowmeters were suspended in each side of the frame to measure the amount of water filtered. Nets were towed at 1.5-2.0 knots to maintain a 45° wire angle of towing warp, and were fished to a maximum depth of 200 meters or within two meters of bottom in depths less than 200 meters. Neuston sampling gear consisted of a 0.947 mm mesh net mounted on a 1 by 2 meter frame. The net was towed for 10 minutes with the frame half submerged at the surface. Bongo and neuston samples were initially preserved in 10% buffered formalin and then transferred to 95% ethyl alcohol 48 hours later.

Temperature, salinity, dissolved oxygen, percent light transmission and

fluorometer readings were recorded at the surface, mid, and maximum depths with a Seabird SBE 911+ CTD unit (complete profiles were archived for later analyses). Forel-ule water color, secchi disc, and percent cloud cover observations were also taken during daylight hours.

RESULTS AND DISCUSSIONS

One hundred and seventy-two strata (75%) were successfully sampled by *NOAA Ships OREGON II* and *GORDON GUNTER* (Table 1). An additional 35 strata were sampled by state vessels; 29 by *R/V Tommy Munro* of Mississippi and 6 by *R/V A. E. Verrill* of Alabama. Nine strata were not sampled because nets were torn on bottom obstructions. The remaining 14 strata were not sampled or attempted due to a lack of time.

Two hundred twenty five tows were required to sample the selected strata (Figure 1). For summary purposes, data were grouped into three geographic areas: East Delta (88°00'-89°15' W long), West Delta (89°15'-94°00' W long), and Texas (94°00'-98°00' W long), and six depth intervals: 5-9, 10-19, 20-29, 30-39, 40-49, and 50-60 fms (Table 2). The mean total catch rate for the entire survey was 82.2 kilograms per hour fished (kg/hr), a 26.1% increase in relative abundance as compared to 2003 and a 29.7% increase relative to the five year mean for 1999-2003 (63.4 kg/hr). Sciaenidae was the most abundant family caught with Atlantic croaker (*Micropogonias undulatus)* making the greatest contribution (Table 3).

Thirty-nine bongo and neuston stations were accomplished (Fig. 2). Neuston and right side bongo samples were returned to Pascagoula for subsequent shipment to the Polish Sorting Center for sorting and identification according to standard SEAMAP protocol. Left bongo samples were sent to the SEAMAP Plankton Archiving Center at the Institute of Marine Science's Gulf Coast Research Laboratory in Ocean Springs, Mississippi.

Two hundred thirteen CTD casts, ninety cloud cover, eighty-five water color, and eighty-one secchi disc measurements were collected (Table 4).

Fish and invertebrate samples were frozen and returned to staff members of the Institute of Marine Sciences, GCRL; red snapper samples were frozen for NMFS in Pascagoula, Mississippi.

ACKNOWLEDGMENTS

On behalf of Mississippi Laboratory and the scientific party I would like to thank the Commanding Officers and the crews of *NOAA Ships OREGON II* and *GORDON GUNTER* for a job well done during the survey.

CRUISE PARTICIPANTS

October 12 – October 25, 2004

NAME	TITLE	ORGANIZATION
Andre J. Debose	Field Party Chief	NMFS, Pascagoula, MS
Kimberley Johnson	Watch Leader	NMFS, Pascagoula, MS
Carrie Horton	Watch Leader	Johnson Controls, MS
A. Paul Felts	Res. Fish. Biologist	NMFS, Pascagoula, MS
Keith Bates	FMES	NMFS, Pascagoula, MS
Jeff Gearhart	Fisheries Biologist	Johnson Controls, MS
Mark Renshaw	Grad. Student	Texas A&M, Texas
Chad Johnson	Student	Pascagoula High School, MS
Cedron Peairs	Student	Pascagoula High School, MS

October 27 – November 10, 2004

NAME	TITLE	ORGANIZATION
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November 12 – November 19, 2004

NAME	TITLE	ORGANIZATION
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Submitted By:

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Scott Nichols, Director
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FOR

Nancy Thompson, Director
Southeast Fisheries Science Center

Table 1. Distribution of sampling effort by strata for *NOAA Ship OREGON II* Cruise 261 (OT-04-05) . Numbers in table body indicate number of times strata were sampled. "Gunter" indicates strata sampled by *NOAA Ship GORDON GUNTER*. "Ala." and "Miss." indicate strata sampled by the respective states, and "Tore net" indicates strata which were unsuccessfully sampled due to bottom obstructions. Dots indicate strata which were not sampled.

Depth Strata (fathoms)	Diel Strata									
	Day					Night				
	Statistical Zones					Statistical Zones				
	11-12	13-15	16-17	18-19	20-21	11-12	13-15	16-17	18-19	20-21
5-6	Miss	1	1	1	1	Miss	.	1	1	1
6-7	Miss	1	1	1	1	Miss	1	1	1	1
7-8	Miss	.	1	1	1	Miss	.	1	1	1
8-9	Miss	.	1	1	1	Miss	.	1	1	1
9-10	Ala	.	1	1	1	Miss	1	1	1	1
10-11	Miss	.	1	1	1	Miss	.	1	1	1
11-12	Miss	.	1	1	1	Miss	1	1	1	1
12-13	Miss	1	1	1	1	Miss	1	1	1	1
13-14	Ala	1	1	1	1	Ala	1	1	1	1
14-15	Ala	1	1	1	1	Miss	.	1	1	1
15-16	Ala	1	1	1	1	Miss	1	1	1	1
16-17	Ala	1	1	1	1	Miss	1	1	1	1
17-18	Miss	1	1	1	1	Miss	.	1	1	1
18-19	Miss	1	1	1	1	Gunter	.	1	1	1
19-20	Miss	Tore Net	1	1	1	Miss	.	1	1	1
20-22	Gunter	1	1	1	1	Gunter	1	1	1	1
22-25	Miss	.	1	1	1	Miss	1	1	1	Tore Net
25-30	Miss	Torn Net	1	1	1	Miss	1	1	1	1
30-35	Gunter	1	1	1	1	Miss	1	1	1	1
35-40	Miss	1	1	1	1	Gunter	1	1	1	1
40-45	Tore Net	1	1	1	Tore Net	Gunter	1	Tore Net	1	1
45-50	Gunter	1	1	1	1	Gunter	1	1	1	1
50-60	Tore Net	1	Tore Net	Tore Net	1	Gunter	1	1	1	1

Table 2. Mean total catch rates (kg/hr) caught during *NOAA Ship OREGON II* Cruise 261 (OT-04-05) by area, depth, and diel strata.

Area	Depth												Diurnal Period				Total	
	5 – 9		10 – 19		20 – 29		30 – 39		40 – 49		50 – 60		Day		Night			
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
East Delta			2	137.9	8	235.3	3	28.0	3	83.6	1	79.7	7	125.1	10	169.7	17	151.4
West Delta	17	81.3	32	123.4	18	73.5	17	49.7	9	53.9	4	89.6	48	98.7	49	73.5	97	86
Texas	21	66.0	42	87.8	21	58.2	14	39.7	8	47.1	5	71.3	53	84.8	58	53.2	111	68.3
Areas Combined	38	72.8	76	104.1	47	94.2	34	43.7	20	55.7	10	79.5	108	93.6	117	71.7	225	82.2

Table 3. Organisms caught during *NOAA Ship OREGON II* Cruise 261 (OT-04-05) which comprised at least 1.0% of the total catch in terms of numbers and kilograms caught per hour fished (n = 225).

	Name	Percent of Total Number Caught	Percent of Total Catch Weight	Percent Frequency Of Capture	Weight Per Individual (gms)
1	Atlantic Bumper (*Chloroscombrus chrysurus*)	18.2	9.8	54.0	19.393
2	Atlantic Croaker (*Micropogonias undulates*)	15.0	20.9	77.9	49.961
3	Longspine Porgy (*Stenotomus caprinus*)	13.4	10.2	79.2	27.170
4	Brown Shrimp (*Penaeus aztectus*)	4.3	2.6	86.7	21.876
5	Spot (*Leiostomus xanthurus*)	2.7	6.7	52.7	89.239
6	Blue Crab (*Callinectes similis*)	2.6	1.2	62.8	16.883
7	Atlantic Butterfish (*Peprilus burti*)	2.3	4.1	53.1	62.967
8	Red Snapper (*Lutjanus campechanus*)	1.8	1.8	74.3	36.059
9	Silver Seatrout (*Cynoscion nothus*)	1.4	1.8	30.1	48.008
10	Inshore Lizardfish (*Synodus Foetens*)	1.2	3.6	73.0	111.715
11	Pinfish (*Lagodon rhomboidies*)	1.1	1.8	50.4	61.596
12	Rough Scad (*Trachurus lathami*)	1.0	1.2	24.8	44.284
Totals		65.0	65.7		

Table 4. Summary of environmental samples and data collected during *NOAA Ship OREGON II* Cruise 261 (OT-04-05).

	Surface	Mid-depth	Maximum Depth	Total
Temperature	212	212	213	637
Salinity	212	212	213	637
Dissolved Oxygen	212	212	213	637
Light Transmission	212	212	211	635
Secchi disk	--	--	--	81
Water color	--	--	--	85
Cloud cover	--	--	--	90
CTD	--	--	--	213
*Shrimp trawl	--	--	--	235
Bongo	--	--	--	39
Neuston	--	--	--	39

*Shrimp trawl total consists of 10 occasions where nets were torn on bottom obstructions.

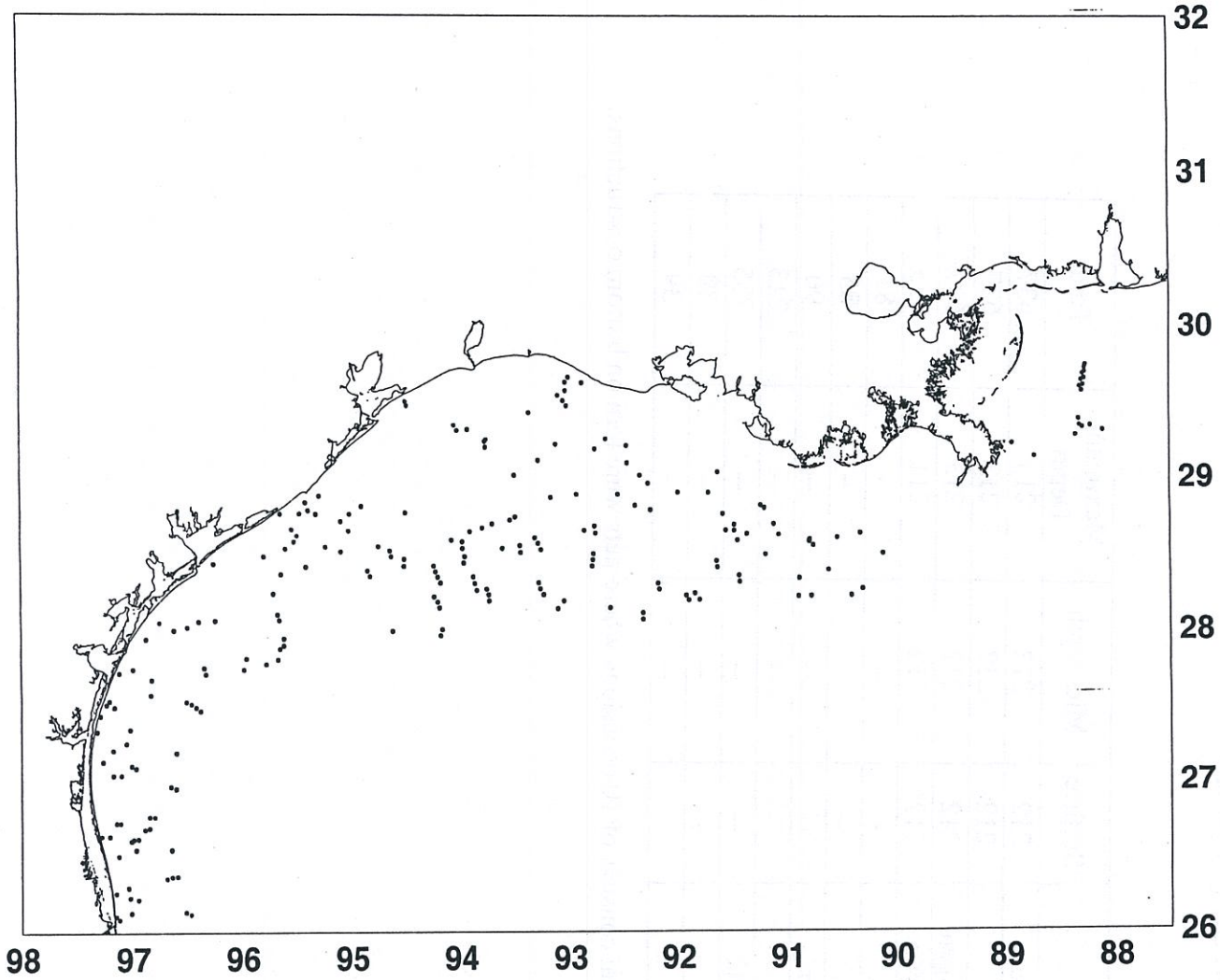

Figure 1. Shrimp trawl stations accomplished during *NOAA Ship OREGON II* Cruise 261 (OT-04-05).

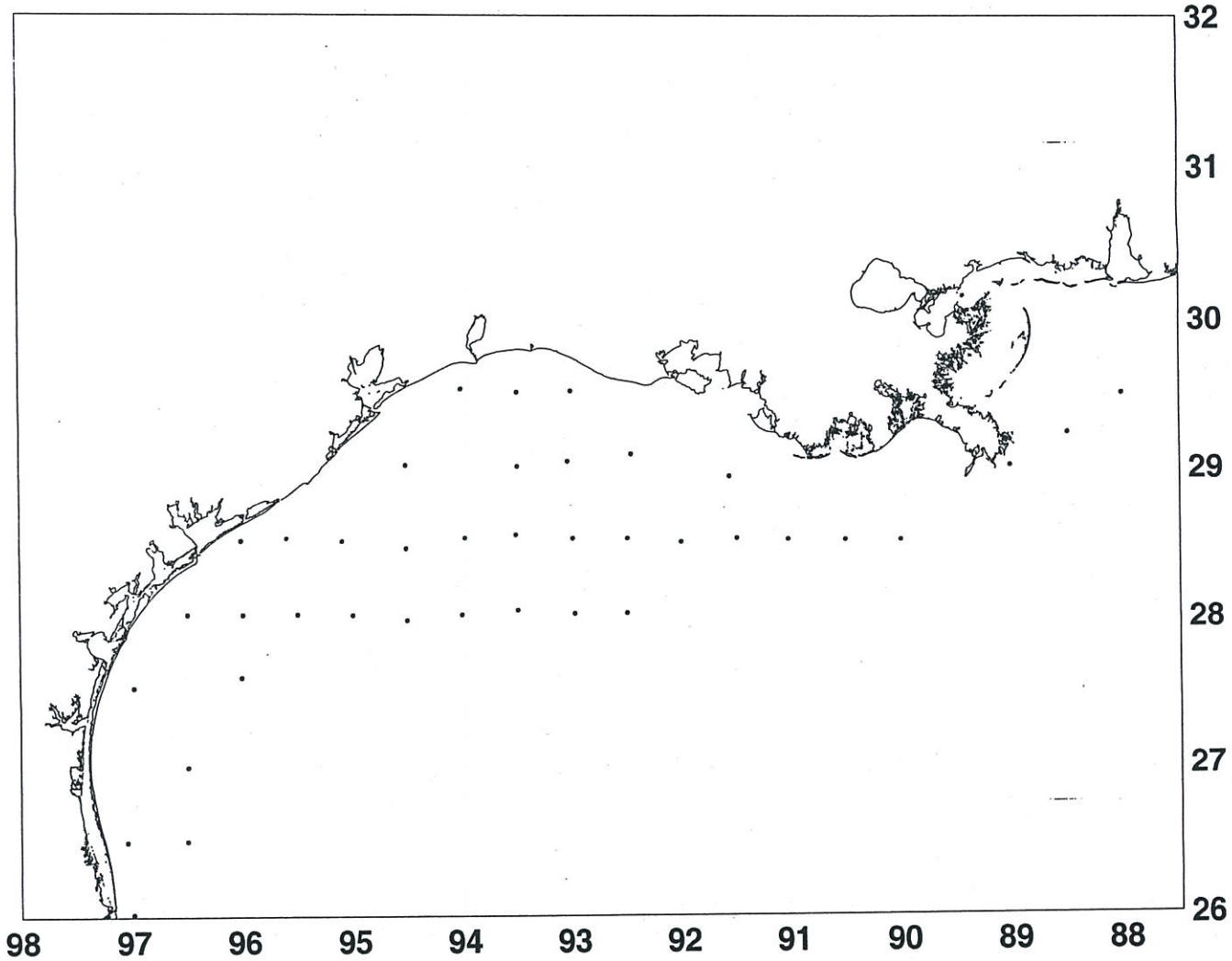

Figure 2. Ichthyoplankton sampling stations completed during *NOAA Ship OREGON II* Cruise 261 (OT-04-05).