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

NOAA Ship Oregon II Cruise 278 (OT-07-05)
10/09-11/12/2007

INTRODUCTION

The *NOAA Ship Oregon II* departed Pascagoula, Mississippi on October 9, 2007 for the thirty-sixth annual Fall Southeast Area Monitoring and Assessment Program (SEAMAP) Shrimp/Bottom fish 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.

A total of twelve survey days were lost due to vessel related issues. Eleven days (268.4 hours) were lost due to mechanical and 1 day (24 hours) was lost for weather. The cruise terminated in Pascagoula, Mississippi on November 12, 2007.

OBJECTIVES

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

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

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

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

5) Collect fish and invertebrate samples as requested by staff members of the Center for Fisheries Research and Development, Gulf Coast Research Laboratory (GCRL), the University of Southern Mississippi.

6) Collect batfish (*Ogcocephalus* sp.); atlantic croaker (*Micropogonias undulatus),* grouper (*Epinephelus* sp. and *Mycteroperca* sp.); sharks, dogfish (Mustelus sp.), skates and rays (Elasmobranchii); red snapper (*Lutjanus*

campechanus); vermilion snapper (*Rhomboplites aurorubens*); and tilefish (Malacanthidae) for age, growth, abundance and distributional studies.

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).

Trawl catch data were electronically recorded at-sea with the Fishery Scientific Computing System (FSCS), version 1.6, developed by NOAA's System Development Branch of the Office of Marine & Aviation Operations. For FSCS to be operational, Scientific Computing System (SCS) version 3.3 was used to collect station metadata, including position, depth, date and time. SCS was also used to collect metadata for ichthyoplankton stations and CTD stations.

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. General Oceanic 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 values 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-three strata (75%) were sampled by *NOAA Ship Oregon II*. An additional 34 strata were sampled by state vessels; 25 by *R/V Tommy Munro* of Mississippi and 9 by *R/V A. E. Verrill* of Alabama (Table 1). Twelve strata were not sampled because leg three (East Delta) was canceled due to a ship break down.

Two hundred and nine 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 survey was 96.3 kilograms per hour fished (kg/hr), a 13% increase in relative abundance as compared to 2006 and a 23% increase relative to the five year mean for 2002-2006 (78.5 kg/hr).. Sciaenidae was the most abundant family caught with the Atlantic croaker (*Micropogonias undulatus)* making the greatest contribution (Table 3).

Twenty-six bongo and twenty-seven 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 GCRL in Ocean Springs, Mississippi.

One hundred and ninety-six CTD casts, eighty-three cloud cover and eighty water color measurements were collected (Table 4). There were no secchi disc measurements taken during this years survey.

Fish and invertebrate samples were frozen and returned to staff members of the GCRL, skate samples were collected for Dr. James Sulikowski and Dana Bethae, bat fish species were collected for Bronson Nagareda, croaker were collected for Dr. Peter Thomas and red snapper samples were shipped to Dr. Will Patterson of the University of West Florida.

ACKNOWLEDGMENTS

On behalf of Mississippi Laboratory and the scientific party I would like to thank the Commanding Officer and crew of *NOAA Ship Oregon II* for a job well done during the survey.

CRUISE PARTICIPANTS

October 9 – 25, 2007

NAME	TITLE	ORGANIZATION
Andre J. Debose	Field Party Chief	NMFS, Pascagoula, MS
Kim Johnson	Watch Leader	NMFS, Pascagoula, MS
Dean Landi	Watch Leader	IAP, Pascagoula, MS
Carolyn Burks	Fisheries Biologist	NMFS, Pascagoula, MS
Butch Sutton	Fish Meth.& Equip. Spec.	IAP, Pascagoula, MS
Christian Jones	Fisheries Biologist	IAP, Pascagoula, MS
Paul Felts	Fisheries Biologist	NMFS, Pascagoula, MS
Pamela Brown-Eyo	Fisheries Biologist	NMFS, Miami, FL
Bronson Nagareda	Cooperator	Honolulu, HI

October 27 - November 12, 2007

NAME	TITLE	ORGANIZATION
Andre J. Debose	Field Party Chief	NMFS, Pascagoula, MS
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Michael Hendon	Watch Leader	IAP, Pascagoula, MS
Michael Felts	Fisheries Biologist	IAP, Pascagoula, MS
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Christian Jones	Fisheries Biologist	IAP, Pascagoula, MS
Lee Saxon	Fisheries Biologist	IAP, Pascagoula, MS
Pamela Brown-Eyo	Fisheries Biologist	NMFS, Miami, FL
Keith Bates	Fish Meth. & Equip. Spec.	IAP, Pascagoula, MS

November 14 – November 20, 2007 **Canceled due to Mechanical**

NAME	TITLE	ORGANIZATION

Submitted By:

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Approved By:

John Watson, Acting Director
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Dr. Bonnie Ponwith, Acting Director
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Table 1. Distribution of sampling effort by strata for *NOAA Ship Oregon II* Cruise 278 (OT-07-05). The number 1 in the table body indicates strata that were successfully sampled by the *NOAA Ship Oregon II*. "Miss." and "Ala." indicate strata that were successfully sampled by the states of Mississippi and Alabama, respectively. "Tore net" indicates strata that were not sampled because the net was torn on bottom obstructions.

Depth Strata (fathoms)	Diurnal 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	Ala.	1	1	1	1	Miss.	1	1	1	1
6-7	Ala.	1	1	1	1	Miss.	1	1	1	1
7-8	Ala.	1	1	1	1	Miss.	1	1	1	1
8-9	Miss.	1	1	1	1	Ala.	1	1	1	1
9-10	Miss.	1	1	1	1	Ala.	1	1	1	1
10-11	Miss.	1	1	1	1	Miss.	1	1	1	1
11-12	Ala.	1	1	1	1	Miss.	1	1	1	1
12-13	.	1	1	1	Tore net	Miss.	1	1	1	1
13-14	Miss.	1	1	1	1	Miss.	1	1	1	1
14-15	Miss.	1	1	1	1	Miss.	1	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	Ala.	1	1	1	1	Miss.	1	1	1	1
18-19	Miss.	1	1	1	Tore net	Miss.	1	1	1	1
19-20	Miss.	1	1	1	1	Miss.	1	1	1	1
20-22	Miss.	1	1	1	Tore net	Miss.	1	1	1	1
22-25	.	1	1	1	1	Miss.	1	1	1	1
25-30	Miss.	1	1	1	1	.	1	1	1	1
30-35	Miss.	1	1	1	1	.	1	1	1	1
35-40	.	1	1	1	1	.	1	1	Tore net	1
40-45	.	1	1	1	1	.	1	1	Tore net	1
45-50	.	1	1	Tore net	Tore net	.	1	1	1	Tore net
50-60	.	1	1	1	Tore net	.	1	1	Tore net	Tore net

Table 2. Mean total catch rates (kg/hr) calculated from *NOAA Ship Oregon II* Cruise 278 (OT-07-05) by area, depth, and diurnal 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
West Delta	20	45.5	42	151.0	19	83.4	14	66.9	8	53.4	9	58.5	57	89.8	55	102.1	112	95.8
Texas	21	123.6	41	115.3	19	69.7	10	44.2	5	51.0	1	57.7	45	114.2	52	82.0	97	96.9
Areas Combined	41	85.5	83	133.4	38	76.6	24	57.5	13	52.5	10	58.4	102	100.6	107	92.3	209	96.3

Table 3. Organisms caught during *NOAA Ship Oregon II* Cruise 278 (OT-07-05) which comprised at least 1.0% of the total catch in terms of numbers and kilograms caught per hour fished (n = 220).

	Name	Percent of Total Number Caught	Percent of Total Catch Weight	Percent Frequency Of Capture	Weight Per Individual (grams)
1	Atlantic croaker (*Micropogonias undulatus*)	49.8	50.2	91.9	42
2	Longspine porgy *(Stenotomus caprinus)*	6.9	5.0	77.5	31
3	Gulf butterfish (Peprilus burti)	4.7	5.3	66.0	48
4	Brown shrimp (*Farfantepenaeus aztecus*)	4.4	2.5	89.0	25
5	Atlantic bumper (*Chloroscombrus chrysurus*)	4.2	3.7	45.5	37
6	Rough scad *(Trachurus lathami)*	2.8	1.8	45.0	28
7	Silver seatrout (*Cynoscion nothus*)	2.7	3.8	57.4	59
8	Spot (*Leiostomus xanthurus*)	2.1	4.3	67.0	86
9	Atlantic cutlassfish (*Trichiurus lepturus*)	1.4	1.2	42.6	35
	Totals	79.0	77.8		

Table 4. Summary of environmental samples and data collected during *NOAA Ship Oregon II* Cruise 278 (OT-07-05).

	Surface	Mid-depth	Maximum Depth	Total
Temperature	189	187	189	565
Salinity	189	187	189	565
Dissolved Oxygen	189	187	189	565
Light Transmission	189	187	189	565
Water color	--	--	--	80
Cloud cover	--	--	--	83
CTD	--	--	--	196
*Shrimp trawl	--	--	--	220
Bongo	--	--	--	26
Neuston	--	--	--	27

*Also includes unsuccessful and repeated tows.

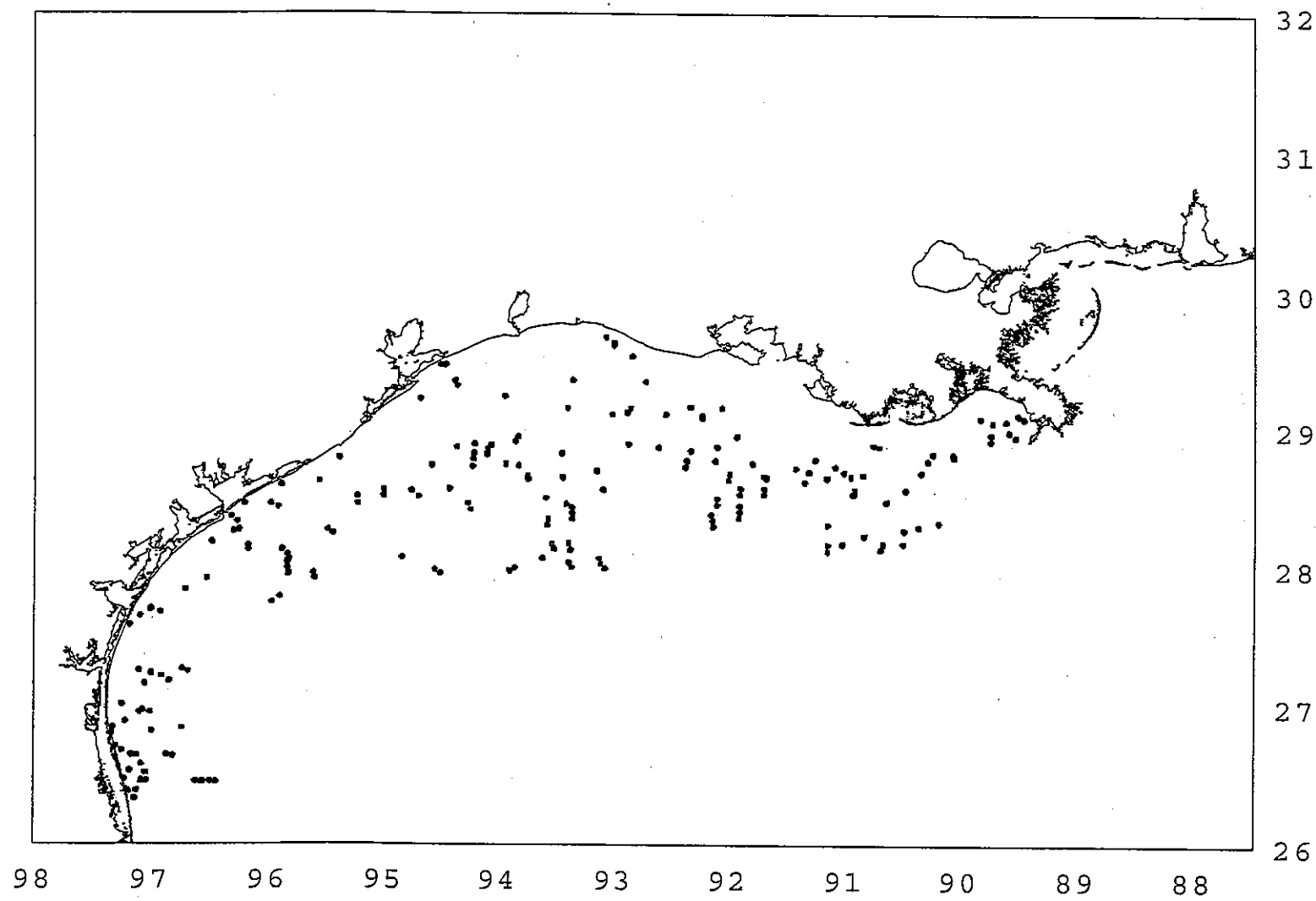

Figure 1. Trawl stations accomplished during *NOAA Ship Oregon II* Cruise 278 (OT-07-05).

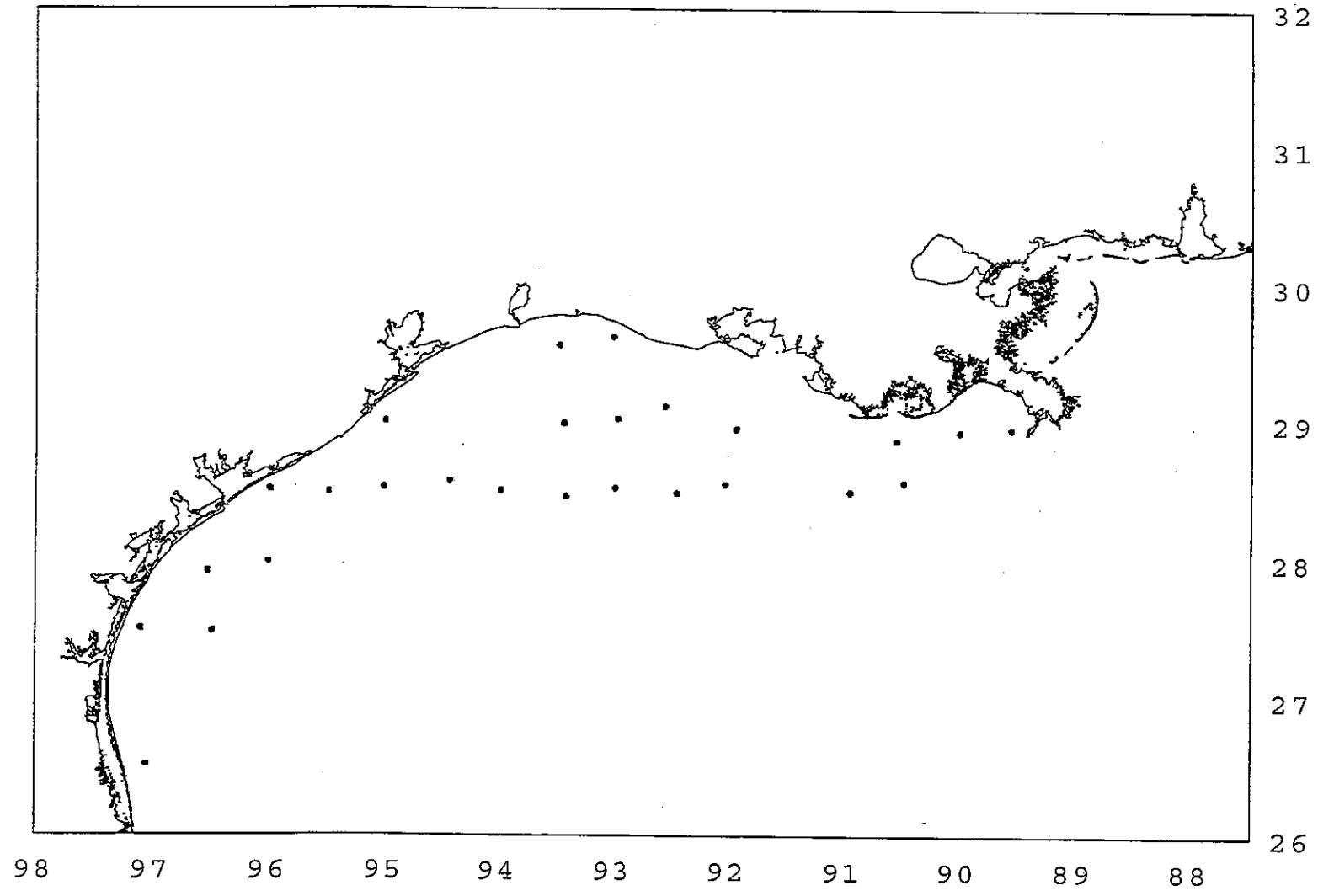

Figure 2. Ichthyoplankton sampling stations completed during *NOAA Ship Oregon II* Cruise 278 (OT-07-05).