

0068541
006950

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

NOAA Ship *Oregon II* Cruise 292 (R2-10-03)
10/07-11/20/2010

INTRODUCTION

NOAA Ship *Oregon II* departed Pascagoula, Mississippi on October 7, 2010 for the thirty-ninth 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 northern Gulf of Mexico in 5 to 60 fm and to provide additional biological and catch rate information on demersal organisms occurring in the study area.

Sixteen hours were lost due to weather aboard NOAA Ship *Oregon II*. There were 2 scheduled port calls to exchange scientific personnel (Galveston, Texas October 19th to 21st and Pascagoula, Mississippi November 5th to 9th). The ship returned to Pascagoula, Mississippi on November 20, 2010.

OBJECTIVES

- 1) Sample demersal fauna of the north-central and north-western Gulf of Mexico in depths of 5 to 60 fm with SEAMAP standard sampling gear to determine the abundance and distribution of benthic fauna.
- 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 (DO), fluorometry and percent light transmission.
- 5) Conduct paired comparison tows with NOAA Ship *PISCES*.

- 6) 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.
- 7) 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 design used in this survey was altered from that used in previous years by making 3 major changes. Day/night stratification and depth stratification were eliminated and tow duration was limited to 30 min. These changes resulted in an increased efficiency of the survey and an increase in the number of stations that could be occupied. Additional stations resulted in improvement in precision of catch per unit effort (CPUE) estimates for a number of species.

Paired comparison towing was conducted alongside the NOAA Ship *PISCES*. Catch rate and gear comparisons were performed to calibrate NOAA Ship *PISCES* and NOAA Ship *Oregon II* to trawl gear in 5 – 60 fm of water.

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, the Scientific Computing System (SCS) version 4.2.3 was used to collect metadata, including position, depth, date, time and meteorological data. SCS was also used to collect metadata for ichthyoplankton stations and CTD stations. Catches were either processed in their entirety or subsampled, depending on the total catch weight. If catches exceeded 50 lb, then at least 10% was taken as a subsample. Catches (or subsamples) were sorted by species which were then enumerated and weighed. Additional data taken for specimens identified down to species level, included length measurements, sex, and gonad condition. Specimens that could not be identified to species level were frozen and brought back to the laboratory for identification.

Ichthyoplankton samples (conducted with bongo and neuston samplers) were collected at half-degree intervals of latitude and longitude within the defined survey area. Plankton sample sites were occasionally relocated to the nearest trawl sample site to optimize survey time. Bongo tows were made with 2 conical 61-cm nets with 0.335 mm mesh netting. General Oceanic flowmeters were suspended in each side of the frame to measure the amount of water filtered. Single oblique tows were made. Nets were towed at 1.5 to 2.0 kt to maintain a 45° wire angle of towing warp, and were fished to a maximum depth of 200 m or within 2 m of bottom in depths less than 200 m. Neuston

sampling gear consisted of a 0.947 mm mesh net mounted on a 1 by 2 m frame. The net was towed for 10 min 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 36 h later.

Vertical profiles of temperature, conductivity, dissolved oxygen, percent light transmission and fluorometer values were recorded with a Seabird SBE 911. Forel-ule water color, and percent cloud cover observations were also taken during daylight hours. A Hach LDO™ HQ10 portable dissolved oxygen meter was also used at these stations to compare DO readings.

RESULTS AND DISCUSSIONS

Two hundred and thirteen stations were successfully sampled (Figure 1). For summary purposes, data were grouped into 3 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 6 depth intervals; 5-9, 10-19, 20-29, 30-39, 40-49, and 50-60 fm (Table 2). Table 1 lists the 5 most numerous species caught, plus pink and white shrimp, and red snapper. The mean total catch rate for the entire survey was 125.2 kg per hour fished (kg/hr), a slight increase in relative abundance as compared to 2009 (123.6 kg/hr) and an 11% increase relative to the five year mean for 2005-2009 (112.5 kg/hr) (Table 2). Sciaenidae was the most abundant family caught with the Atlantic croaker making the greatest contribution (Table 2). Brown shrimp, *Farfantepenaeus aztecus*, was the most abundant commercial shrimp species, followed by white shrimp, *Litopenaeus setiferus* and pink shrimp, *Farfantepenaeus duorarum*.

Seventy-one bongo and 73 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.

Two hundred and seventy-six CTD casts, 101 cloud cover and 104 water color measurements were collected (Table 3). There were no secci disc measurements taken on this years fall survey.

Fish and invertebrate samples were frozen and returned to staff members at GCRL, skate samples were collected for Dr. James Sulikowski, batfish species were collected for Bronson Nagareda, croaker were collected for Brittany Palm and red snapper samples were shipped to the Texas A&M University, Corpus Christi.

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 7 – 19, 2010

NAME	TITLE	ORGANIZATION
Andre DeBose	Field Party Chief	NMFS, Pascagoula, MS
Brittany Palm	Watch Leader	IAP, Pascagoula, MS
Michael Felts	Watch Leader	IAP, Pascagoula, MSa
Taniya Wallace	Fisheries Biologist	IAP, Pascagoula, MSa
Keith Bates	Fish Meth. & Equip. Spec.	IAP, Pascagoula, MSa
Sandra Coghlan	Cooperator	Ocean Springs, MSa
Holland McCandless	Fisheries Biologist	IAP, Pascagoula, MSa
David Huddleston	Fisheries Biologist	IAP, Pascagoula, MSa
Daniel Aboagye	Cooperator	MS State Univ., Oxford, MSa
Beverly Barnett	Fisheries Biologist	NMFS, Panama City, FLa
Alex Wang	Bird Observer	NRDAa

October 21 - November 5, 2010

NAME	TITLE	ORGANIZATION
Andre J. Debose	Field Party Chief	NMFS, Pascagoula, MS
Allison Odom	Watch Leader	IAP, Pascagoula, MS
Kristin Hannan	Watch Leader	IAP, Pascagoula, MS
Cher Newman	Fisheries Biologist	IAP, Pascagoula, MS
Holland McCandless	Fisheries Biologist	IAP, Pascagoula, MS
David Huddleston	Fisheries Biologist	IAP, Pascagoula, MS
Jake Beaton	Fisheries Biologist	IAP, Pascagoula, MS
Sandra Coghlan	Cooperator	Ocean Springs, MS
Lauren Jackson	Fisheries Biologist	IAP, Pascagoula, MS
Mark Renshaw	Cooperator	TAMU, Corpus Christi, TX
Alex Wang	Bird Observer	NRDA

November 9 – November 20, 2010

NAME	TITLE	ORGANIZATION
Andre J. Debose	Field Party Chief	NMFS, Pascagoula, MS
Brittany Palm	Watch Leader	IAP, Pascagoula, MS
Kristin Hannan	Watch Leader	IAP, Pascagoula, MS
Robert Ford	Ret. Biologist	Pascagoula, MS
Heather Otte	Cooperator	Florida F&W Institute
Bronson Nagareda	Cooperator	Florida F&W Institute
Lorelei Ford	Cooperator	MS State Univ., Oxford, MS
Beverly Barnett	Fisheries Biologist	NMFS, Panama City, FL
Melissa Giresi	Cooperator	TAMU, Corpus Christi, TX
Don Palm	Cooperator	Calverton, NY
Alex Wang	Bird Observer	NRDA

Table 2. Mean catch rates (kg/ha) of 8 species and 4 catch categories for NYS-A. Help Chapter 11 (Chms 202 (82-10-11)) by area.

Submitted By:

Andre J. DeBoe

Andre J. DeBoe
Field Party Chief

Date 2/15/2011

Approved By:

Lisa Desfosse

Lisa Desfosse, Ph.D., Director
Mississippi Laboratory

Date 2/27/11

Bonnie Pohwith

Bonnie Pohwith, Ph.D., Director
Southeast Fisheries Science Center

Date 3-4-11

Table 1. Mean catch rates (kg m⁻³) of 8 species and 4 catch categories for NOAA Ship Oregon II Cruise 292 (R2-10-03), plus pink and white shrimp and red snapper (n = 210).

Table 1. Five most numerous organisms caught during NOAA Ship Oregon II Cruise 292 (R2-10-03), plus pink and white shrimp, and red snapper (n = 210).

	Name	Percent of Total Number Caught	Percent of Total Catch Weight	Percent Frequency Of Capture	Weight Per Individual (g)
1	Atlantic croaker (<i>Micropogonias undulatus</i>)	30.5	34.7	68.1	34
2	Atlantic bumper (<i>Chloroscombrus chrysurus</i>)	6.7	6.4	33.3	29
3	Longspine porgy (<i>Stenotomus caprinus</i>)	5.5	4.8	65.7	26
4	Brown shrimp (<i>Farfantepenaeus aztecus</i>)	3.7	3.0	71.0	24
5	Gulf butterfish (<i>Peprilus burti</i>)	3.3	5.6	56.2	51
6	White shrimp (<i>Litopenaeus setiferus</i>)	0.4	0.4	20.0	29
7	Red snapper (<i>Lutjanus campechanus</i>)	0.3	0.6	49.5	55
8	Pink shrimp (<i>Farfantepenaeus duorarum</i>)	0.1	0.0	9.5	22

Table 2. Mean catch rates (kg/hr) of 8 species and 4 catch categories for NOAA Ship *Oregon II* Cruise 292 (R2-10-03) by area, depth, and diurnal strata.

Atlantic croaker

Area	Depth												Diurnal Period				Total	
	5 - 90		10 - 19		20 - 290		30 - 390		40 - 490		50 - 600		Day		Night			
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
East Delta	13	5.1	26	0.4	12	1.1	1	0.1	2	0.0	1	0.0	23	0.9	32	2.1	55	1.6
West Delta	11	156.7	16	157.4	20	55.3	14	31.4	9	0.2	5	0.1	35	63.7	40	89.0	75	77.2
Texas	14	44.8	29	69.8	20	28.8	12	1.3	5	0.6			35	48.2	45	34.6	80	40.6
Areas Combined	38	63.6	71	64.1	52	32.6	27	16.8	16	0.3	6	0.1	93	42.4	117	44.3	210	43.5

Atlantic bumper

Area	Depth												Diurnal Period				Total	
	5 - 90		10 - 190		20 - 290		30 - 390		40 - 490		50 - 600		Day		Night			
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
East Delta	13	0.0	26	0.0	12	0.0	1	0.0	2	0.0	1	0.0	23	0.0	32	0.0	55	0.0
West Delta	11	8.0	16	27.3	20	0.4	14	0.0	9	0.0	5	0.0	35	10.7	40	4.0	75	7.1
Texas	14	48.4	29	14.9	20	2.5	12	0.1	5	0.0			35	12.8	45	15.9	80	14.5
Areas Combined	38	20.10	71	12.2	52	1.1	270	0.0	16	0.0	6	0.0	93	8.8	117	7.5	210	8.1

Longspine porgy

Area	Depth												Diurnal Period				Total	
	5 - 90		10 - 19		20 - 290		30 - 390		40 - 490		50 - 600		Day		Night			
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
East Delta	13	0.4	26	1.7	12	0.0	1	0.0	2	0.3	1	0.0	23	1.9	32	0.2	55	0.9
West Delta	11	0.7	16	8.6	20	13.2	14	7.3	9	5.5	5	5.2	35	8.7	40	7.1	75	7.8
Texas	14	3.6	29	10.9	20	7.2	12	7.0	5	4.5			35	6.4	45	8.8	80	7.7
Areas Combined	38	1.6	71	7.0	52	7.9	27	6.9	16	4.5	6	4.4	93	6.2	117	5.8	210	6.0

Brown shrimp

Area	Depth												Diurnal Period				Total	
	5 - 90		10 - 190		20 - 290		30 - 390		40 - 490		50 - 600		Day		Night			
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
East Delta	13	0.1	26	0.0	12	0.0	1	0.0	2	0.0	1	0.0	23	0.0	32	0.1	55	0.0
West Delta	11	0.4	16	2.7	20	7.0	14	10.0	9	6.7	5	3.1	35	5.2	40	5.6	75	5.4
Texas	14	0.1	29	6.2	20	6.6	12	4.7	5	3.7			35	6.1	45	3.9	80	4.9
Areas Combined	38	0.2	71	3.2	52	5.2	27	7.3	16	4.9	6	2.6	93	4.2	117	3.8	210	3.8

Table 2 continued.

Gulf butterfish

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	13	0.0	26	0.0	12	0.0	1	0.0	2	0.0	1	0.0	23	0.1	32	0.0	55	0.0
West Delta	11	34.4	16	18.3	20	9.0	14	2.2	9	2.3	5	5.4	35	9.6	40	14.8	75	12.4
Texas	14	6.6	29	11.1	20	3.5	12	4.2	5	1.5			35	7.3	45	6.4	80	6.8
Areas Combined	38	12.4	71	8.7	52	4.8	27	3.0	16	1.8	6	4.5	93	6.4	117	7.5	210	7.0

White shrimp

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	13	0.0	26	0.0	12	0.0	1	0.0	2	0.0	1	0.0	23	0.0	32	0.0	55	0.0
West Delta	11	4.3	16	0.8	20	0.0	14	0.0	9	0.0	5	0.0	35	1.1	40	0.6	75	0.8
Texas	14	2.0	29	0.3	20	0.0	12	0.0	5	0.0			35	0.3	45	0.5	80	0.4
Areas Combined	38	2.0	71	0.3	52	0.0	27	0.0	16	0.0	6	0.0	93	0.5	117	0.4	210	0.5

Red snapper

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	13	0.0	26	0.0	12	1.4	1	0.0	2	0.0	1	0.0	23	0.0	32	0.6	55	0.3
West Delta	11	0.0	16	1.3	20	1.0	14	1.7	9	0.0	5	0.0	35	0.7	40	1.0	75	0.9
Texas	14	0.6	29	1.1	20	0.9	12	1.8	5	0.1			35	1.0	45	1.0	80	1.0
Areas Combined	38	0.2	71	0.8	52	1.1	27	1.7	16	0.0	6	0.0	93	0.7	117	0.9	210	0.8

Pink shrimp

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	13	0.4	26	0.2	12	0.0	1	0.0	2	0.0	1	0.0	23	0.3	32	0.1	55	0.2
West Delta	11	0.0	16	0.0	20	0.0	14	0.0	9	0.0	5	0.0	35	0.0	40	0.0	75	0.0
Texas	14	0.0	29	0.1	20	0.0	12	0.0	5	0.0			35	0.0	45	0.0	80	0.0
Areas Combined	38	0.1	71	0.1	52	0.0	27	0.0	16	0.0	6	0.0	93	0.1	117	0.1	210	0.1

Table 2 continued.

Finfish

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	13	48.9	26	78.5	12	55.7	1	16.0	2	27.7	1	11.9	23	67.6	32	58.5	55	62.3
West Delta	11	230.2	16	304.4	20	143.8	14	76.7	9	36.6	5	49.3	35	146.8	40	169.7	75	159.0
Texas	14	147.9	29	146.3	20	70.8	12	38.9	5	41.8			35	105.7	45	104.6	80	105.1
Areas Combined	38	137.8	71	157.1	52	95.4	27	57.6	16	37.1	6	43.0	93	111.8	117	114.3	210	113.2

Crustacea

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	13	0.7	26	4.8	12	1.6	1	0.5	2	0.7	1	0.0	23	0.9	32	4.2	55	2.8
West Delta	11	6.4	16	4.5	20	10.3	14	12.2	9	9.4	5	4.8	35	8.1	40	8.7	75	8.4
Texas	14	2.5	29	8.2	20	11.9	12	8.4	5	6.2			35	9.2	45	7.1	80	8.0
Areas Combined	38	3.0	71	6.1	52	8.9	27	10.1	16	7.3	6	4.0	93	6.7	117	6.9	210	6.8

Invertebrates other than crustacea

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	13	5.0	26	3.2	12	2.7	1	3.4	2	1.7	1	0.6	23	4.1	32	2.9	55	3.4
West Delta	11	0.3	16	5.9	20	1.1	14	2.4	9	16.1	5	4.2	35	4.7	40	3.9	75	4.3
Texas	14	36.2	29	0.5	20	0.8	12	2.5	5	4.5			35	9.5	45	5.7	80	7.4
Areas Combined	38	15.1	71	2.7	52	1.4	27	2.5	16	10.7	6	3.6	93	6.4	117	4.3	210	5.2

Total live catch

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	13	54.6	26	86.5	12	60.0	1	20.0	2	30.0	1	12.5	23	72.6	32	65.7	55	68.6
West Delta	11	236.9	16	314.8	20	155.3	14	91.3	9	62.2	5	58.3	35	159.6	40	182.3	75	171.7
Texas	14	186.5	29	155.0	20	83.6	12	49.9	5	52.5			35	124.4	45	117.4	80	120.5
Areas Combined	38	156.0	71	166.0	52	105.7	27	70.2	16	55.1	6	50.7	93	124.9	117	125.4	210	125.2

Table 2. Daily Observations acquired during NOAA Ship Oregon II Cruise 292 (R2-10-03).

Observation	Number
Shrimp trawl *	213
Bongo	71
Neuston	73
CTD profile	276
Water color	104
Cloud cover	101

* Includes three times during which nets were torn due to bottom obstructions.

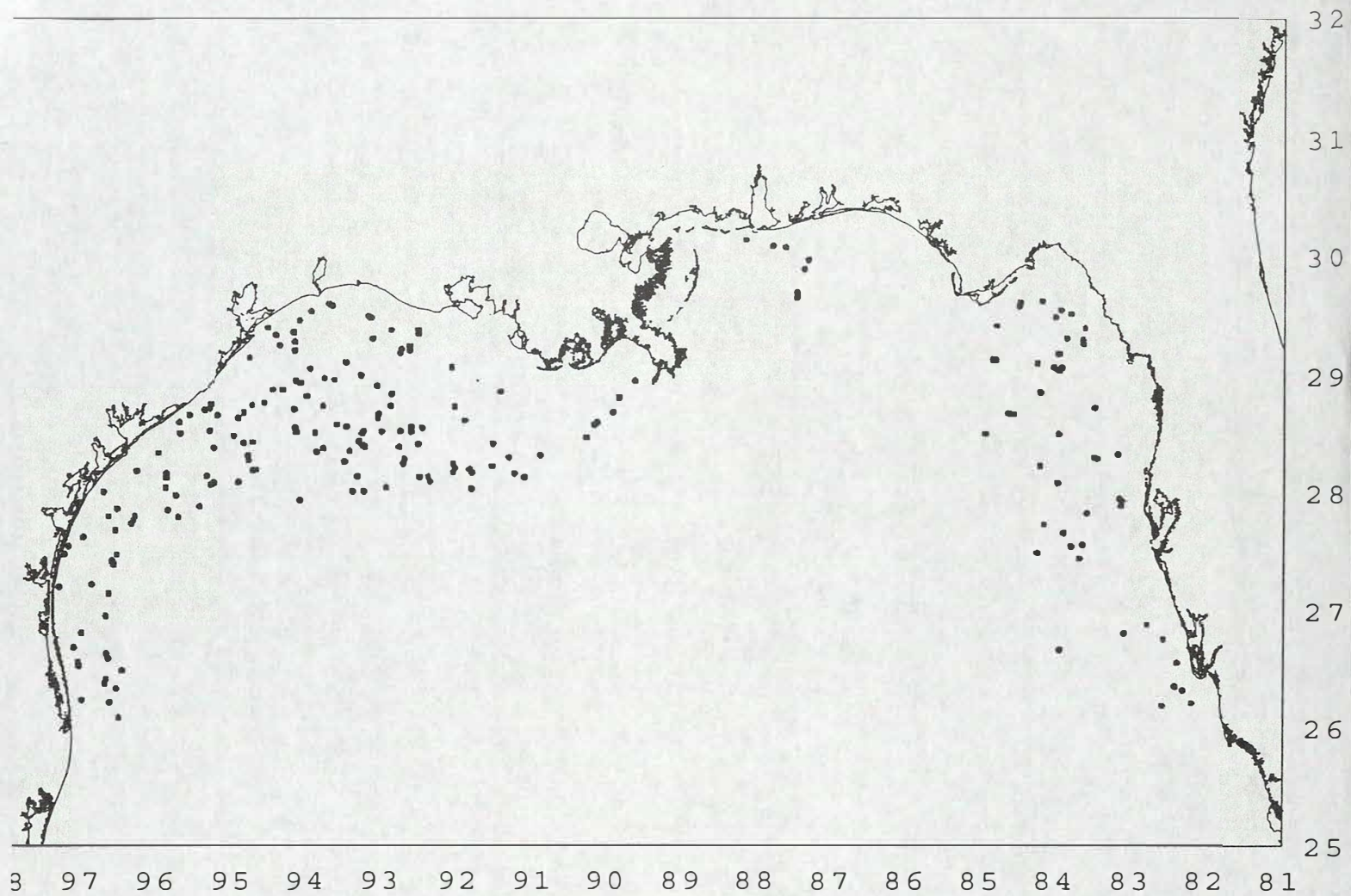


Figure 1. Shrimp trawl stations accomplished during NOAA Ship *Oregon II* Cruise 292 (R2-10-03).

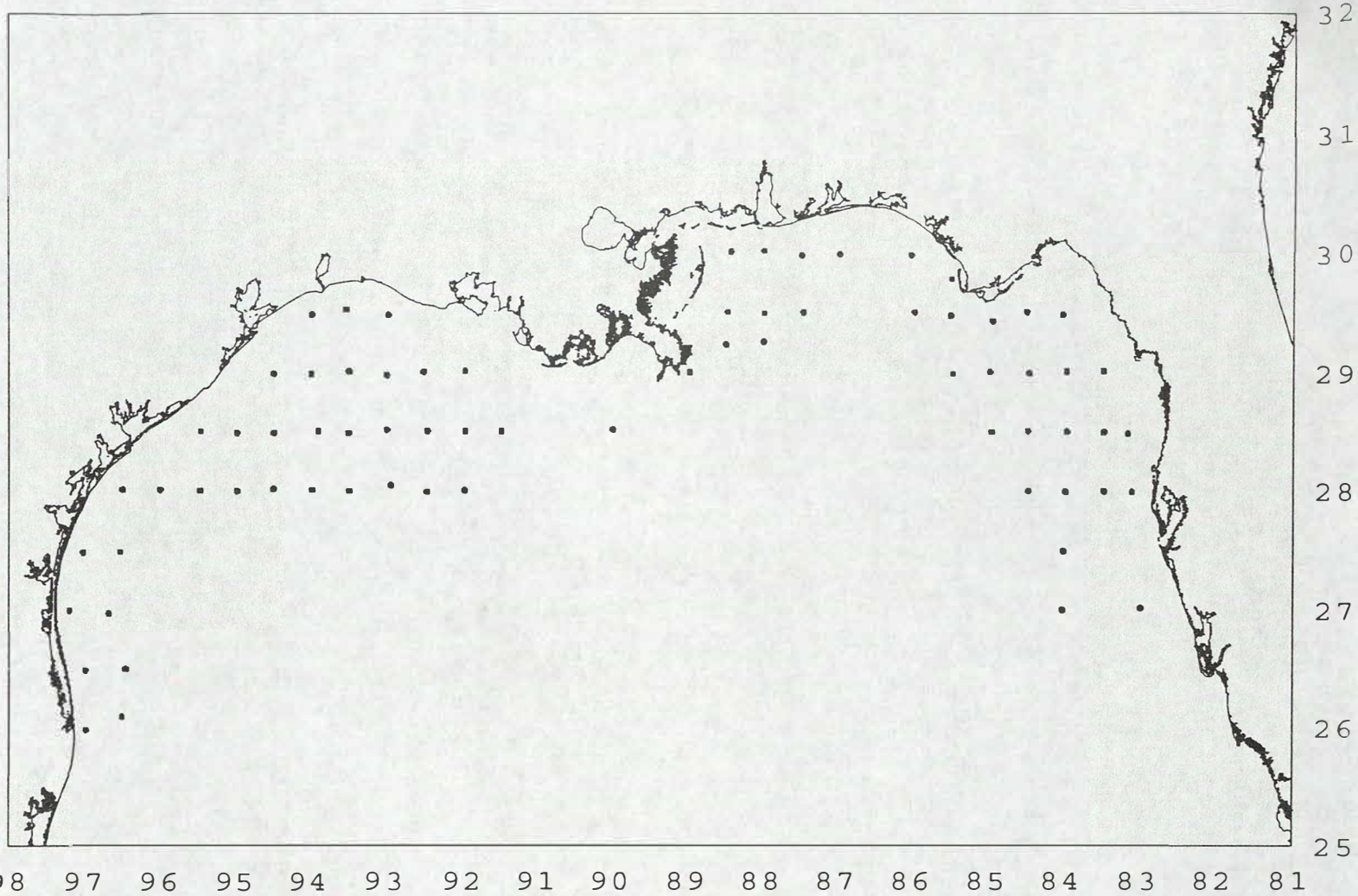


Figure 2. Ichthyoplankton sampling stations completed during NOAA Ship *Oregon II* Cruise 292 (R2-10-03).