

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
3209 Frederic St.
Pascagoula, MS 39567

Cruise Report

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Platform:

Cruise Number:

Project Title:

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Submitted by: Date:
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P O Drawer 1207
Pascagoula, Miss. 39568-1207

NOAA Ship *Oregon II* Cruise 297 (R2-11-05)
10/07-11/06/2011

INTRODUCTION

NOAA Ship *Oregon II* departed Pascagoula, Mississippi on October 7, 2011 for the fortieth 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.

Twelve hours were lost due to transporting crew ashore for medical reasons. Forty hours were lost due to weather aboard NOAA Ship *Oregon II*. The third leg of the cruise, which consisted of ten sea days (two hundred forty hours), was lost due to mechanical issues. There was one scheduled port call to exchange scientific personnel (Galveston, Texas October 22 to 24). The ship returned to Pascagoula, Mississippi on November 6, 2011.

OBJECTIVES

1. Sample the northern Gulf of Mexico with Southeast Area Monitoring and Assessment Program (SEAMAP) standard sampling gear to determine the abundance and distribution of benthic fauna.
2. Collect size measurements to determine population size structures.
3. Conduct CTD cast to profile temperature, salinity, conductivity, transmissivity, dissolved oxygen concentrations and fluorometry.
4. Collect at-depth water samples weekly and perform handheld HACH DO meter readings.
5. Collect ichthyoplankton samples with bongo and neuston samplers to map the distribution of fish eggs and larvae.

MATERIALS AND METHODS

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 0.333 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 daily to compare DO readings.

RESULTS AND DISCUSSIONS

Of the two hundred twenty-one stations that were successfully sampled, 117 were trawl stations (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 as well as pink and white shrimp and red snapper. The mean total catch rate for the survey was 126.1 kg per hour fished (kg/hr), which was similar to last year's mean (126.4), and a 7.6% increase relative to the 5 year mean for 2006-2010 (117.1 kg/hr) (Table 2). Sciaenidae was the most abundant family caught with the Atlantic croaker, *Micropogonias undulatus*, 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*. There were 31,790 measurements, 9,415 individual weights, 9,273 sex determinations, and 9,271 sex stages

recorded from 279 species (sex determinations and stages include instances where organisms were inspected but sex or stage could not be discerned).

Fifty four bongo and 55 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 Gulf Coast Research Laboratory (GCRL) in Ocean Springs, Mississippi.

Two hundred twenty-one CTD casts, 103 cloud cover and 101 water color measurements were collected (Table 3). There were no secci disc measurements taken.

Fish and invertebrate samples were frozen and returned to staff members at NOAA Fisheries Pascagoula, MS; Seattle, WA; and Panama City, FL; University of Southern Mississippi-GCRL, Texas A&M, University of New England, and Dartmouth University.

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 – 22, 2011

NAME	TITLE	ORGANIZATION
Brittany Palm	Field Party Chief	IAP, Pascagoula, MS
Andre Debose	Watch Leader	NMFS, Pascagoula, MS
Amy Schmitt	Watch Leader	IAP, Pascagoula, MS
Lauren Jackson	Fisheries Biologist	IAP, Pascagoula, MS
Butch Sutton	Fish Meth. & Equip. Spec.	IAP, Pascagoula, MS
Lee Saxon	Fisheries Biologist	IAP, Pascagoula, MS
Michael Felts	Fisheries Biologist	IAP, Pascagoula, MS
Tami Wolstenholme	Contractor	NMFS, Seattle WA
Kelly Robinson	Cooperator	USA, Dauphin Island, AL

October 24 - November 6, 2011

NAME	TITLE	ORGANIZATION
Brittany Palm	Field Party Chief	IAP, Pascagoula, MS
Amy Schmitt	Watch Leader	IAP, Pascagoula, MS
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Adam Pollack	Fisheries Biologist	IAP, Pascagoula, MS
Ta’Niya Wallace	Fisheries Biologist	IAP, Pascagoula, MS
Chris Hollenbeck	Cooperator	Texas A&M, Corpus, TX
Cindy Hollier	Cooperator	Slidell, LA
Sandra Coghlan	Cooperator	Ocean Springs, MS

Table 1. Five most numerous organisms caught during NOAA Ship *Oregon II* Cruise 297 (R2-11-05), pink and white shrimp, and red snapper (n = 175).

Obs	Taxon	Percent Of Total Number Caught	Percent Of Total Weight Caught	Percent Frequency Of Occurrence	Weight Per Individual (gm)
1	Atlantic croaker (<i>Micropogonias undulatus</i>)	39.9	41.0	77.7	47
2	Paper scallop (<i>Amusium papyraceum</i>)	7.2	1.5	36.0	10
3	Longspine porgy (<i>Stenotomus caprinus</i>)	7.0	5.5	90.3	36
4	Brown shrimp (<i>Farfantepenaeus aztecus</i>)	5.1	3.2	88.0	28
5	Spot (<i>Leiostomus xanthurus</i>)	3.2	6.2	57.7	90
6	Red snapper (<i>Lutjanus campechanus</i>)	0.7	1.3	62.9	80
7	White shrimp (<i>Litopenaeus setiferus</i>)	0.4	0.3	20.6	37
8	Pink Shrimp (<i>Farfantepenaeus duorarum</i>)	0.0	0.0	9.7	24
		63.5	59.0		

Table 2. Mean catch rates (kg/hr) of eight species and four catch categories for NOAA Ship *Oregon II* Cruise 297 (R2-11-05) by area, depth, and diurnal strata.

Atlantic croaker

	Depth (fm)												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	.	.	15	16.9	2	0.0	3	8.1	.	.	.	.	6	4.1	14	18.1	20	13.9
West Delta	8	54.3	17	271.3	18	55.6	14	13.4	13	8.3	2	4.4	39	89.0	33	87.3	72	88.2
Texas	10	50.2	33	49.7	16	13.3	13	0.9	7	0.1	4	0.0	37	33.9	46	24.2	83	28.5
Areas Combined	18	52.0	65	100.1	36	33.7	30	7.5	20	5.4	6	1.5	82	57.9	93	45.7	175	51.4

Paper scallop

	Depth (fm)												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	.	.	15	0.0	2	0.0	3	0.0	.	.	.	.	6	0.0	14	0.0	20	0.0
West Delta	8	0.0	17	0.0	18	0.2	14	6.3	13	11.9	2	0.2	39	3.7	33	3.1	72	3.4
Texas	10	0.0	33	0.0	16	2.0	13	5.5	7	1.9	4	0.1	37	1.3	46	1.5	83	1.4
Areas Combined	18	0.0	65	0.0	36	1.0	30	5.3	20	8.4	6	0.1	82	2.3	93	1.9	175	2.1

Longspine porgy

	Depth (fm)												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	.	.	15	11.0	2	0.0	3	18.7	.	.	.	.	6	16.5	14	8.7	20	11.1
West Delta	8	0.5	17	3.2	18	13.1	14	15.5	13	5.6	2	8.6	39	6.3	33	10.8	72	8.4
Texas	10	1.5	33	4.3	16	4.8	13	7.9	7	3.6	4	5.8	37	3.1	46	5.9	83	4.6
Areas Combined	18	1.1	65	5.6	36	8.7	30	12.5	20	4.9	6	6.7	82	5.6	93	8.0	175	6.9

Brown shrimp

	Depth (fm)												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	.	.	15	0.0	2	0.0	3	1.3	.	.	.	.	6	0.7	14	0.0	20	0.2
West Delta	8	0.1	17	0.8	18	7.1	14	6.1	13	8.2	2	3.0	39	5.4	33	3.9	72	4.7
Texas	10	0.1	33	3.0	16	9.6	13	5.4	7	5.4	4	2.1	37	4.0	46	4.9	83	4.5
Areas Combined	18	0.1	65	1.7	36	7.8	30	5.3	20	7.2	6	2.4	82	4.4	93	3.8	175	4.1

Table 2 continued.

Spot

	Depth (fm)												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	.	.	15	3.3	2	0.0	3	0.0	.	.	.	.	6	0.0	14	3.6	20	2.5
West Delta	8	3.0	17	9.8	18	9.3	14	1.9	13	28.2	2	28.6	39	12.3	33	9.9	72	11.2
Texas	10	5.6	33	10.9	16	3.5	13	2.2	7	0.0	4	0.0	37	4.1	46	7.6	83	6.0
Areas Combined	18	4.5	65	8.8	36	6.2	30	1.9	20	18.3	6	9.5	82	7.7	93	7.8	175	7.8

White shrimp

	Depth (fm)												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	.	.	15	0.0	2	0.0	3	0.0	.	.	.	.	6	0.0	14	0.0	20	0.0
West Delta	8	3.1	17	0.6	18	0.0	14	0.0	13	0.0	2	0.0	39	0.5	33	0.5	72	0.5
Texas	10	3.0	33	0.1	16	0.0	13	0.0	7	0.0	4	0.0	37	0.3	46	0.5	83	0.4
Areas Combined	18	3.1	65	0.2	36	0.0	30	0.0	20	0.0	6	0.0	82	0.4	93	0.4	175	0.4

Red snapper

	Depth (fm)												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	.	.	15	2.1	2	0.0	3	0.0	.	.	.	.	6	0.2	14	2.1	20	1.6
West Delta	8	0.0	17	0.7	18	4.2	14	2.2	13	1.2	2	0.0	39	2.0	33	1.7	72	1.9
Texas	10	0.3	33	0.6	16	4.5	13	1.7	7	1.3	4	0.0	37	2.2	46	1.0	83	1.5
Areas Combined	18	0.2	65	1.0	36	4.1	30	1.8	20	1.2	6	0.0	82	1.9	93	1.4	175	1.7

Pink shrimp

	Depth (fm)												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	.	.	15	0.1	2	0.1	3	0.0	.	.	.	.	6	0.0	14	0.1	20	0.1
West Delta	8	0.0	17	0.0	18	0.0	14	0.0	13	0.0	2	0.0	39	0.0	33	0.0	72	0.0
Texas	10	0.1	33	0.0	16	0.0	13	0.0	7	0.0	4	0.0	37	0.0	46	0.0	83	0.0
Areas Combined	18	0.1	65	0.0	36	0.0	30	0.0	20	0.0	6	0.0	82	0.0	93	0.0	175	0.0

Table 2 continued.

Finfish

	Depth (fm)												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	.	.	15	86.5	2	59.2	3	72.7	.	.	.	.	6	65.0	14	88.9	20	81.7
West Delta	8	104.0	17	336.5	18	111.0	14	66.5	13	69.7	2	102.5	39	146.4	33	147.9	72	147.1
Texas	10	94.3	33	107.5	16	50.7	13	43.3	7	39.7	4	82.2	37	82.6	46	74.3	83	78.0
Areas Combined	18	98.6	65	162.6	36	81.3	30	57.1	20	59.2	6	89.0	82	111.6	93	102.6	175	106.9

Crustacea

	Depth (fm)												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	.	.	15	0.6	2	0.4	3	3.3	.	.	.	.	6	1.8	14	0.6	20	1.0
West Delta	8	3.5	17	3.5	18	9.6	14	10.6	13	12.0	2	8.0	39	8.9	33	7.1	72	8.1
Texas	10	4.4	33	6.6	16	16.4	13	7.1	7	7.3	4	7.4	37	8.6	46	8.2	83	8.4
Areas Combined	18	4.0	65	4.4	36	12.1	30	8.4	20	10.3	6	7.6	82	8.2	93	6.7	175	7.4

Other Invertebrates

	Depth (fm)												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	.	.	15	11.4	2	14.5	3	74.8	.	.	.	.	6	43.2	14	11.8	20	21.2
West Delta	8	63.8	17	8.4	18	4.2	14	7.9	13	15.7	2	14.9	39	15.0	33	14.8	72	14.9
Texas	10	30.3	33	1.3	16	2.9	13	7.1	7	7.7	4	7.4	37	9.5	46	4.7	83	6.8
Areas Combined	18	45.2	65	5.5	36	4.2	30	14.2	20	12.9	6	9.9	82	14.6	93	9.3	175	11.8

Total Catch

	Depth (fm)												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	.	.	15	98.5	2	74.1	3	150.8	.	.	.	.	6	110.1	14	101.3	20	103.9
West Delta	8	171.3	17	348.4	18	124.8	14	84.9	13	97.3	2	125.4	39	170.3	33	169.8	72	170.1

Table 2 continued.

Finfish

	Depth (fm)												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
Texas	10	129.0	33	115.4	16	70.1	13	57.5	7	54.8	4	97.0	37	100.7	46	87.3	83	93.2
Areas Combined	18	147.8	65	172.5	36	97.7	30	79.6	20	82.4	6	106.5	82	134.5	93	118.7	175	126.1

Table 3. Tally of scientific observations acquired during NOAA Ship *Oregon II* Cruise 297 (R2-11-05).

Observation	Tally
CTD	221
Shrimp Trawl	177*
Cloud Cover	103
Water Color	101
Neuston	55
Bongo	54

* Includes two tows during which nets were torn due to bottom obstructions.

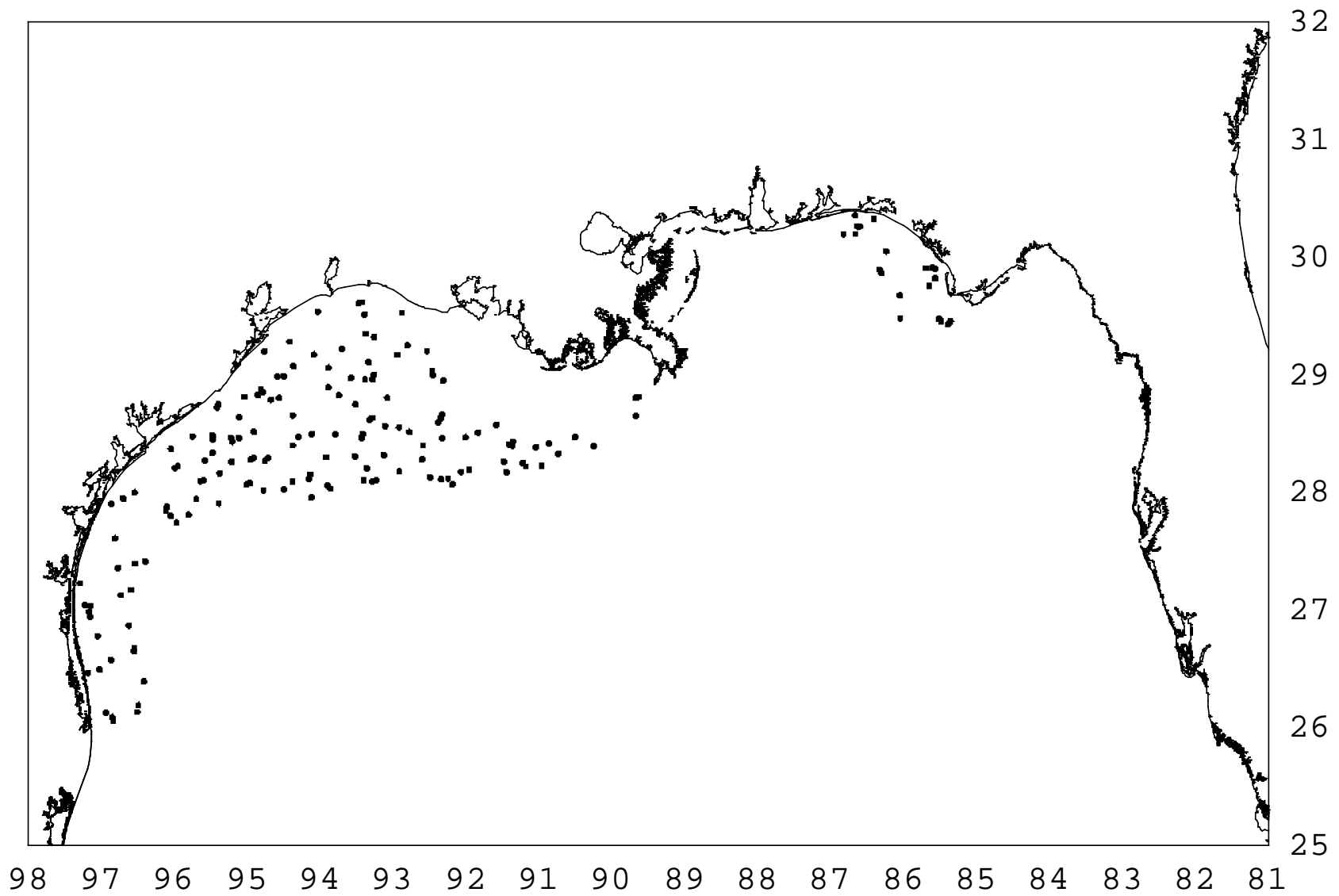


Figure 1. Shrimp trawl stations accomplished during NOAA Ship *Oregon II* Cruise 297 (R2-11-05).

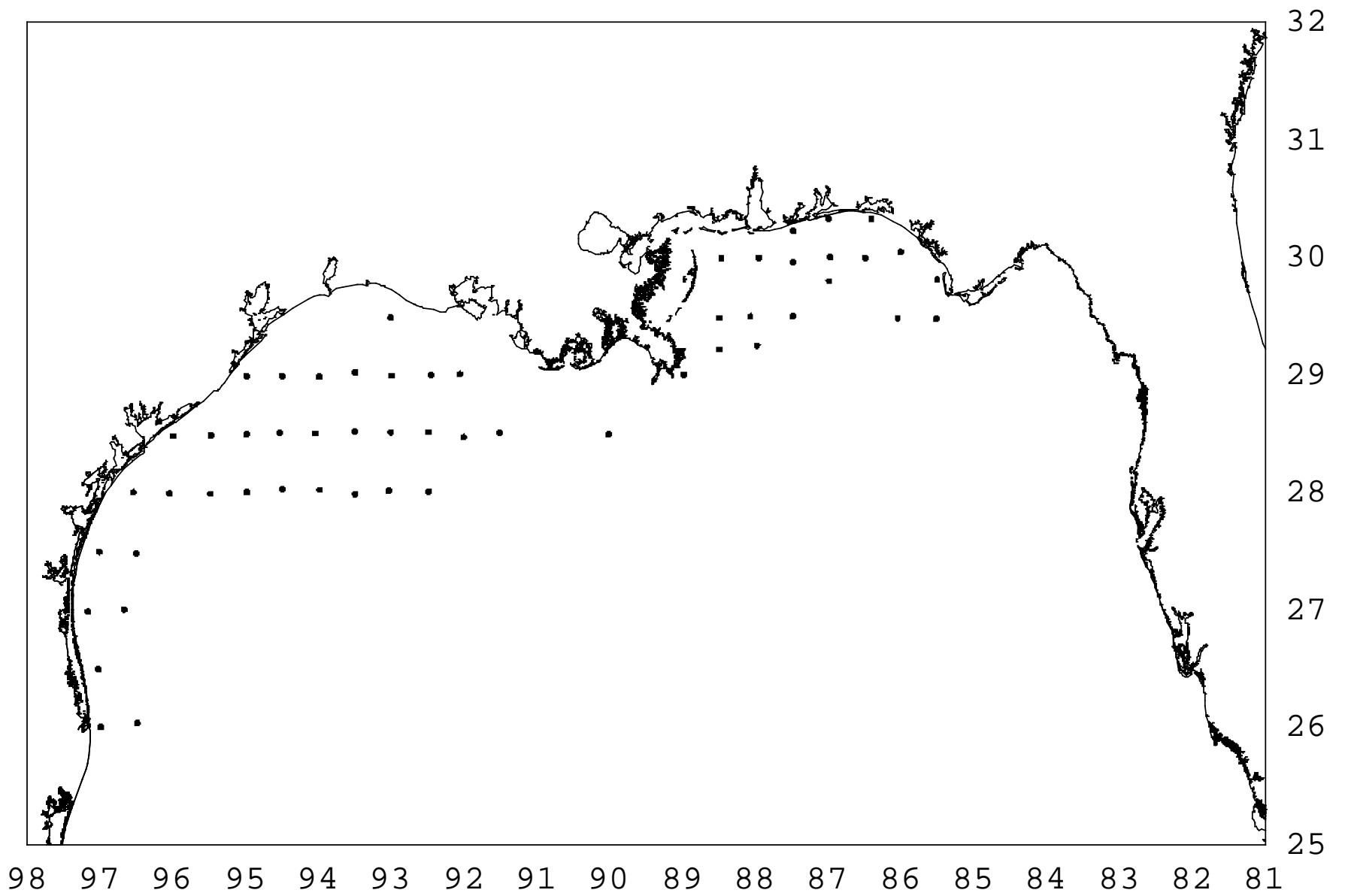


Figure 2. Ichthyoplankton sampling stations completed during NOAA Ship *Oregon II* Cruise 297 (R2-11-05).