

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

GULF STATES MARINE
FEB 22 2001
FISHERIES COMMISSION

NOAA Ship Oregon II Cruise 243 (OT-00-07)
10/12-11/20/00

INTRODUCTION

The NOAA Ship Oregon II departed Pascagoula, Miss. on October 12th, 2000 for the Southeast Area Monitoring and Assessment Program's (SEAMAP) twenty-ninth annual fall resource assessment survey in the northwestern and northcentral Gulf of Mexico. SEAMAP is a cooperative 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.

One survey day was lost due to bad weather and no survey days were lost due to equipment breakdowns. Two port calls were made to exchange scientific personnel; one in Galveston, Tex. on October 27th and another in Pascagoula on November 13th.

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.
- 4) Conduct CTD casts to profile water temperature, salinity, dissolved oxygen, fluorometry and percent light transmission.
- 5) Obtain length measurements to estimate size structures of sampled populations.
- 6) Conduct paired comparison towing with NOAA Ship Gordon Gunter.
- 7) Collect fish and invertebrate samples as requested by staff members of the Institute of Marine Sciences, Gulf Coast Research Laboratory (GCRL).
- 8) Collect juvenile red snapper (*Lutjanus campechanus*) for the Louisiana State University.

9) Collect brown, pink and white shrimp (*Farfantepenaeus aztecus*, *F. duorarum* and *Litopenaeus setiferus*, respectively) for a shrimp virus study.

10) Collect sharks (*Mustelus* sp.) and yellowedge grouper (*Epinephelus flavolimbatus*) for age, growth 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 into the path of the oncoming net. Towing speed varied from 2.50 to 2.75 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 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). NOAA Ship Gordon Gunter accompanied NOAA Ship Oregon II to conduct paired comparison towing with 40-ft shrimp trawls.

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 within two meters of the bottom. 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

One hundred ninety three of two hundred thirty strata (84%) were successfully sampled by NOAA Ship Oregon II (Table 1). An additional 30 strata were sampled by state vessels; 21 by R/V Tommy Munro of Mississippi and 9 by R/V A. E. Verrill of Alabama. Seven strata were not sampled because nets were torn on bottom obstructions.

Two hundred thirty three 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 55.5 kilograms per hour fished (kg/hr), a 16% decrease in relative abundance as compared to 1999 and 42% below the five year mean for 1995-1999. Estimates of relative abundance for the West Delta and Texas areas were 16% and 28% lower than last year while the East Delta estimate was 33% greater. Sciaenidae was the most abundant family caught with Atlantic croaker (*Micropogonias undulatus*) making the greatest contribution (Table 3).

Upon departing Pascagoula on October 12, NOAA Ship Gordon Gunter experienced rudder problems and had to be dry-docked for repairs. She joined NOAA Ship Oregon II on November 17 and completed twenty two comparative tows.

Forty six bongo and neuston tows were accomplished (Figure 2). Samples were returned to Pascagoula for processing, and subsequent shipment to the Polish Sorting Center and SEAMAP Invertebrate Plankton Archiving Center.

Two hundred fourteen CTD casts, twenty eight cloud cover, fifty one water color and fifty five 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 forwarded to the Louisiana State University; and shrimp virus samples were forwarded to the National Seafood Inspection Laboratory.

My thanks are extended to the scientific and vessel crew members whose cooperative efforts contributed to a successful survey. Special thanks are extended to the Mississippi State University which provided eight scientists (one faculty and seven students) for the final leg. Their efforts contributed significantly towards accomplishing NMFS goals.

CRUISE PARTICIPANTS

10/12-27/00

NAME

Nathaniel Sanders, Jr.	Field Party Chief	NMFS Pascagoula, Miss.
Carolyn Burks	Watch Leader	NMFS Pascagoula, Miss.
André Debose	Watch Leader	NMFS Pascagoula, Miss.
Kendall Falana	Fish. Gear Spec.	NMFS Pascagoula, Miss.
Melissa Woods	Student	Univ. of South Alabama
Toby Letlow	Biologist	Johnson Controls
Jim Bartlett	Biologist	Johnson Controls

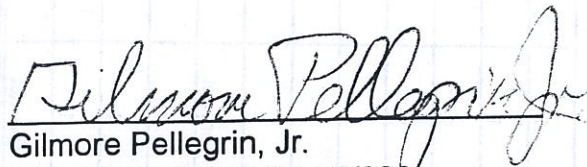
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Nathaniel Sanders, Jr.	Field Party Chief	NMFS Pascagoula, Miss.
André Debose	Watch Leader	NMFS Pascagoula, Miss.
Nelson May	Watch Leader	NMFS Bay St. Louis, Miss
James Barbour	Fish. Gear Spec.	NMFS Pascagoula, Miss.
Chris Burrige	Research Associate	Texas A&M University
Richard Waller	Biologist	Johnson Controls
Jim Bartlett	Biologist	Johnson Controls

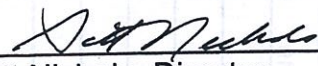
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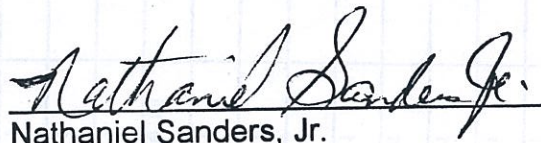
Gilmore Pellegrin, Jr.	Field Party Chief	NMFS Pascagoula, Miss.
Dan Foster	Watch Leader	NMFS Pascagoula, Miss.
Harriet Perry	Watch Leader	IMS, GCRL, Ocean Springs, Miss.
Wil Patterson	Research Associate	LSU Baton Rouge, La.
Donald Jackson	Professor	Miss. State Univ.
James Parrish	Student	Miss. State Univ.
Samuel Seale	Student	Miss. State Univ.
Brad Segrest	Student	Miss. State Univ.
Cory Clouse	Grad. Student	Miss. State Univ.
Justin Hart	Grad. Student	Miss. State Univ.
Kirk Rundle	Grad. Student	Miss. State Univ.
Ekaterina Kovalenko	Grad. Student	Miss. State Univ.

Submitted By:


Gilmore Pellegrin, Jr.
Chief Scientist 11/14-20/200

Approved By:


Scott Nichols, Director,
Mississippi Laboratories


Nathaniel Sanders, Jr.
Chief Scientist 10/12-11/13/2000

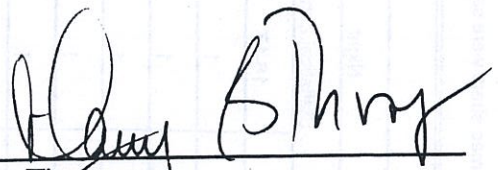

Nancy Thompson,
Acting Director, Southeast Fisheries
Science Center

Table 1. Distribution of sampling effort by strata for NOAA Ship Oregon II Cruise 243 (OT-00-07). Numbers in table body indicate number of times strata were sampled. "Ala." and "Miss." indicate strata sampled by the respective states, and "tore net" indicates strata which were unsuccessfully sampled due to bottom obstructions.

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	1	1	1	1	Tore net	Miss.	1	1	1	1
6-7	1	1	1	1	1	Ala.	1	1	1	1
7-8	Miss.	1	1	1	1	Miss.	1	1	1	1
8-9	Miss.	1	1	1	1	Ala.	1	1	1	1
9-10	1	1	1	1	1	Ala.	1	1	1	1
10-11	Ala.	1	1	1	1	Ala.	1	1	1	1
11-12	Ala.	1	1	1	1	Miss.	1	1	1	1
12-13	Ala.	1	1	1	1	Ala.	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	Miss.	1	1	1	1	1	1	1	1	1
16-17	Miss.	1	1	1	1	Miss.	1	1	1	1
17-18	Ala.	1	1	1	1	1	1	1	1	1
18-19	Miss.	1	1	1	1	Miss.	1	1	1	1
19-20	Miss.	1	1	1	1	Miss.	1	1	1	1
20-22	1	1	1	1	1	1	1	1	1	1
22-25	1	1	1	1	1	Miss.	1	1	1	1
25-30	Miss.	1	1	1	1	Miss.	1	1	1	1
30-35	Miss.	1	1	1	1	1	1	1	Tore net	1
35-40	1	1	1	1	1	Miss.	Tore net	1	1	1
40-45	1	1	1	1	1	1	1	1	1	1
45-50	Tore net	1	1	1	1	Tore net	1	1	1	1
50-60	1	1	1	1	Tore net	1	1	1	Tore net	1

Table 2. Mean catch rates (kg/hr) of five abundant finfish species and three shrimp species caught during NOAA Ship Oregon II Cruise 243 (OT-00-07) by area, depth and diel strata.

Area	Depth (fms)						Diurnal Period		Total
	5 - 9	10-19	20-29	30-39	40-49	50-60	Day	Night	
Atlantic croaker (<i>Micropogonias undulatus</i>)									
East Delta	9.2	6.5	0.0	0.3	52.1	10.3	4.4	18.9	11.7
West Delta	14.4	39.2	13.8	0.9	0.8	0.0	19.3	19.1	19.2
Texas	0.1	1.7	2.4	0.4	0.2	0.2	0.6	1.9	1.2
All Areas	8.0	19.7	7.1	0.6	5.7	1.6	9.9	11.3	10.6
Spot (<i>Leiostomus xanthurus</i>)									
East Delta	5.8	5.1	0.4	0.2	147.2	18.3	41.4	9.9	25.7
West Delta	0.3	3.4	5.3	0.9	5.3	0.0	2.9	2.5	2.7
Texas	0.2	0.2	0.6	0.2	0.1	0.0	0.2	0.4	0.3
All Areas	0.5	1.9	2.6	0.5	17.4	2.8	3.9	2.0	3.0
Longspine porgy (<i>Stenotomus caprinus</i>)									
East Delta	0.0	7.2	7.3	22.2	24.2	7.3	11.2	10.3	10.8
West Delta	0.1	3.5	5.9	8.6	6.8	10.0	5.3	3.8	4.6
Texas	0.0	0.4	1.7	0.8	4.1	4.0	0.9	1.2	1.0
All Areas	0.1	2.1	3.9	5.9	7.5	8.2	3.7	3.0	3.3
Atlantic bumper (<i>Chloroscombrus chrysurus</i>)									
East Delta	1.5	0.4	0.0	0.0	0.0	0.0	0.4	0.1	0.3
West Delta	0.1	1.8	0.5	0.4	0.3	0.0	1.6	0.1	0.8
Texas	3.9	4.7	4.3	0.7	0.1	0.1	6.4	0.4	3.5
All Areas	1.8	3.2	2.4	0.5	0.2	0.0	3.7	0.2	2.0

Table 2. (continued)

Table 2: (Continued)

Area	Depth (fms)						Diurnal Period		Total
	5 - 9	10-19	20-29	30-39	40-49	50-60	Day	Night	
Inshore lizardfish (<i>Synodus foetens</i>)									
East Delta	0.1	1.3	0.5	5.3	7.1	19.6	2.4	7.5	5.0
West Delta	0.1	1.3	1.7	1.7	2.7	3.4	1.8	1.0	1.4
Texas	0.2	1.4	2.7	2.5	2.2	5.2	2.8	0.7	1.8
All Areas	0.2	1.3	2.1	2.3	3.0	6.3	2.3	1.3	1.8
Brown shrimp (<i>Farfantepenaeus aztecus</i>)									
East Delta	0.2	1.2	0.0	0.5	3.2	2.3	0.4	1.9	1.1
West Delta	0.1	1.5	2.5	1.9	3.0	0.9	1.0	2.0	1.5
Texas	0.3	3.4	2.0	2.2	2.7	0.6	1.2	3.3	2.3
All Areas	0.2	2.4	2.1	1.9	2.9	1.1	1.1	2.6	1.8
White shrimp (<i>Litopenaeus setiferus</i>)									
East Delta	2.3	12.4	0.0	0.0	0.0	9.0	6.3	2.2	4.3
West Delta	2.0	0.5	0.3	0.0	0.0	0.0	0.5	0.8	0.6
Texas	0.8	0.4	0.0	0.0	0.0	0.0	0.3	0.3	0.3
All Areas	1.5	0.9	0.1	0.0	0.0	1.4	0.7	0.6	0.7
Pink shrimp (<i>Farfantepenaeus duorarum</i>)									
East Delta	0.4	1.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3
West Delta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Texas	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.1
All Areas	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1

Table 2. continued

Area	Depth (fms)						Diurnal Period		Total
	5 - 9	10-19	20-29	30-39	40-49	50-60	Day	Night	
Crustacea									
East Delta	3.5	26.5	0.0	1.7	6.2	26.3	13.7	8.4	11.1
West Delta	3.2	4.1	4.1	2.5	3.8	1.2	2.5	4.5	3.5
Texas	3.0	6.8	5.0	3.9	4.4	0.9	2.7	7.4	5.0
All Areas	3.1	6.2	4.2	3.1	4.3	5.0	3.3	6.1	4.6
Finfish									
East Delta	85.0	54.8	54.7	40.3	311.6	166.2	123.7	95.5	109.6
West Delta	34.8	64.1	56.3	27.7	43.8	43.7	54.3	43.8	49.1
Texas	14.4	24.3	24.7	16.0	40.4	58.0	29.0	18.2	23.7
All Areas	28.3	44.4	40.4	23.1	69.2	65.8	46.9	35.4	41.2
Total Catch									
East Delta	89.0	82.7	56.7	45.6	318.7	192.6	138.2	106.1	122.2
West Delta	74.1	70.7	61.7	33.5	52.0	47.0	67.2	56.7	62.0
Texas	71.3	33.4	30.8	21.4	46.3	60.6	42.6	36.9	39.8
All Areas	73.6	52.9	45.9	28.6	76.4	72.5	60.2	50.8	55.5
Sampling Distribution (number of tows)									
East Delta	2	3	3	2	2	2	7	7	14
West Delta	23	40	18	14	10	8	57	56	113
Texas	19	41	21	14	8	3	54	52	106
All Areas	44	84	42	30	20	13	118	115	233

Table 3. Organisms caught during NOAA Ship Oregon II Cruise 243 (OT-00-07) which comprised at least 1.0% of the total catch in terms of numbers and kilograms caught per hour fished (n=233).

	Name	Percent of Total Number Caught	Percent of Total Catch Weight	Percent Frequency of Capture	Weight Per Individual (gms)
1	Atlantic croaker (<i>Micropogonias undulatus</i>)	12.3	19.8	72.5	52.2
2	Atlantic bumper (<i>Chloroscombrus chrysurus</i>)	8.4	3.2	50.2	12.5
3	Brown shrimp (<i>Farfantepenaeus aztecus</i>)	5.6	3.1	85.9	17.8
4	Moonjelly (<i>Aurelia aurita</i>)	4.9	15.8	36.1	104.0
5	Blackear bass (<i>Serranus atrobranchus</i>)	3.8	1.3	42.4	11.2
6	Longspine porgy (<i>Stenotomus caprinus</i>)	3.5	5.4	49.0	49.7
7	Lesser blue crab (<i>Callinectes similis</i>)	2.9	1.3	67.5	15.3
8	White shrimp (<i>Litopenaeus setiferus</i>)	2.6	1.4	40.8	17.6
9	Dwarf sand perch (<i>Diplectrum bivittatum</i>)	2.5	1.1	49.4	14.3
10	Spot (<i>Leiostomus xanthurus</i>)	1.6	5.5	45.5	113.2
11	Wenchman (<i>Pristipomoides aquilonaris</i>)	1.3	1.5	28.6	39.4
12	Pinfish (<i>Lagodon rhomboides</i>)	1.2	2.0	59.6	53.9
13	Dwarf goatfish (<i>Upeneus parvus</i>)	1.2	1.1	33.7	30.3
14	Inshore lizardfish (<i>Synodus foetens</i>)	1.0	2.9	72.9	100.1
15	Sand seatrout (<i>Cynoscion arenarius</i>)	1.0	2.4	51.0	81.4
Totals		66.1	63.4		

Table 4. Summary of environmental samples and data collected during *NOAA Ship Oregon II* Cruise 243 (OT-00-07).

	Surface	Mid-depth	Maximum depth	Total
Temperature	214	214	214	646
Salinity	214	214	214	646
Dissolved oxygen	212	214	213	639
Light Transmission	104	110	180	394
Secchi disk	--	--	--	55
Water color	--	--	--	51
Cloud cover	--	--	--	28
CTD	--	--	--	214
Shrimp trawl*	--	--	--	266
Bongo	--	--	--	46
Neuston	--	--	--	46

* Shrimp trawl total consists of 233 successful SEAMAP trawls, 22 comparative trawls with *NOAA Ship Gordon Gunter* and 11 discarded trawls due to nets torn on bottom obstructions.

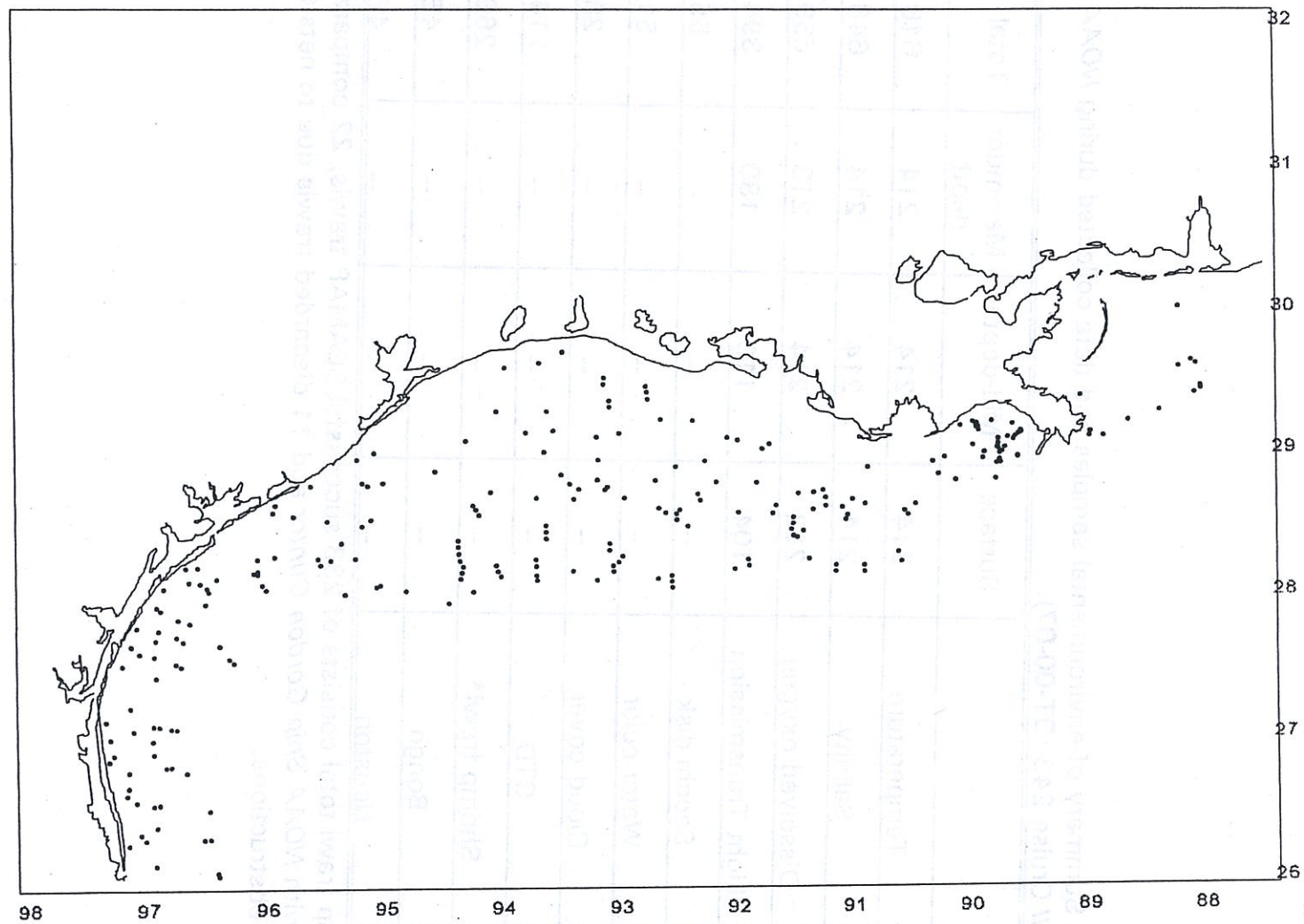


Figure 1. Shrimp trawl stations accomplished during *NOAA Ship Oregon II* Cruise 243 (OT-00-07).

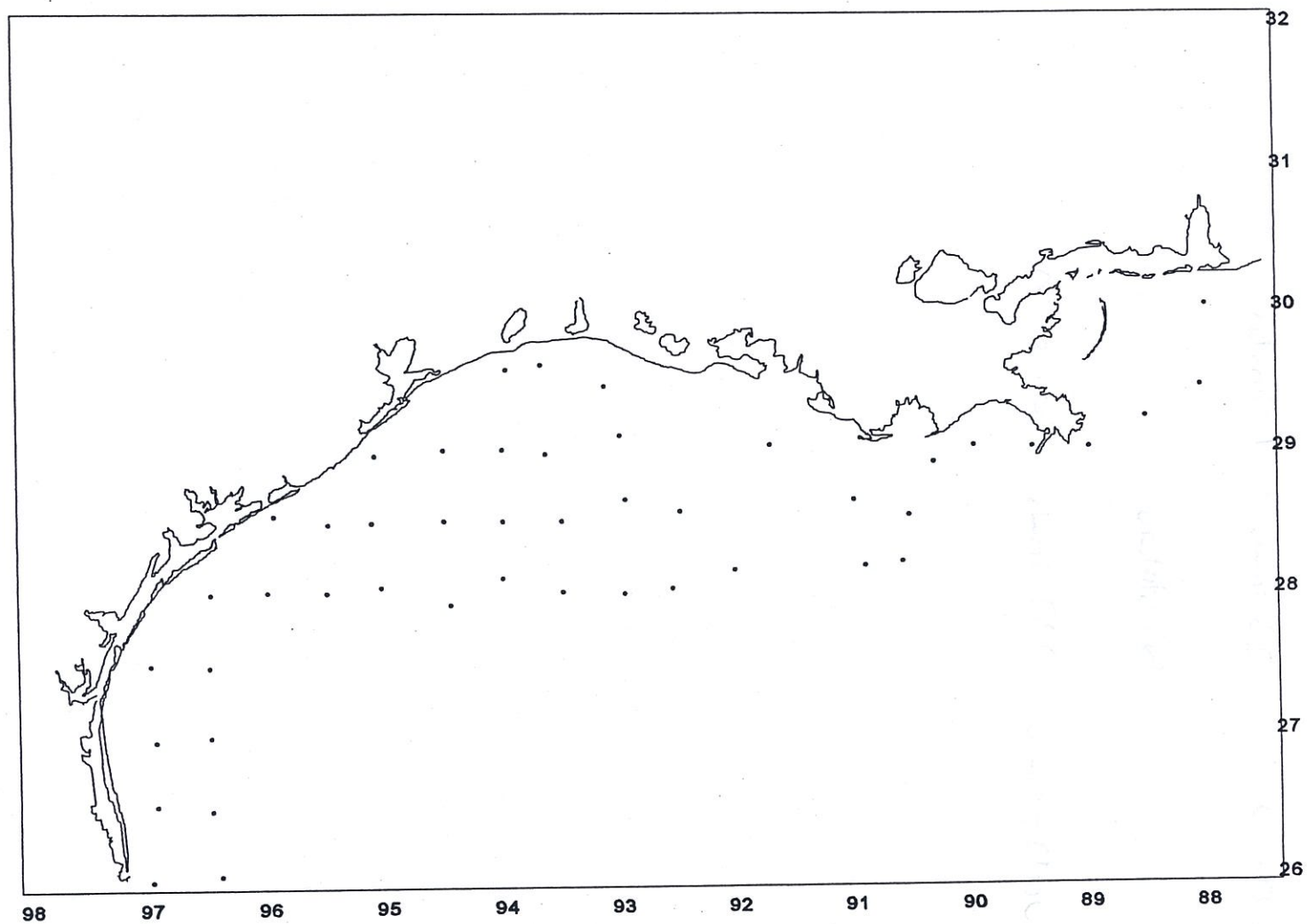


Figure 2. Ichthyoplankton sampling stations completed during NOAA Ship Oregon II Cruise 243 (OT-00-07).

Fall Groundfish

AL Oct 19, 30, 13 stations

MS Oct 19 - 22 22 trawls 2 plankton

LA ~~Oct~~ Nov 27 - Dec 1 26 trawls 7 plankton

TX 80 stations

NMFS Oct 12 - Nov 20 232 trawls 46 plankton

