

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

OREGON II Cruise 00-04 (240)
06/13-07/20/00

INTRODUCTION

The NOAA Ship OREGON II departed Pascagoula, MS on June 13, 2000 for the eighteenth annual Southeast Area Monitoring and Assessment Program (SEAMAP) summer 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 this survey has been to monitor size composition and spatial distribution of penaeid shrimp stocks across the northern Gulf of Mexico in 5 to 60 fathoms (fm) and to provide additional biological and catch rate information on groundfish in the same area.

Two survey days were lost due to mechanical and medical problems, the cruise terminated in Pascagoula, MS on July 20, 2000.

OBJECTIVES

- 1) Determine size distribution of penaeid shrimp by depth across the U.S. northern and western Gulf of Mexico.
- 2) Obtain samples of brown, pink and white shrimp to determine length-weight relationships.
- 3) Collect finfish catch and effort data.
- 4) Collect hydrographic and environmental data at each station.
- 5) Collect ichthyoplankton samples throughout the survey area.
- 6) Collect samples of red snapper (Lutjanus campechanus) for Louisiana State University.

METHODS

The shrimp assessment survey samples were taken with a 40-ft shrimp trawl with mud rollers and 8-ft X 40-in wooden chain doors. Sample sites between Mobile Bay, AL and the Texas-Mexico border in 5 to 60 fm were randomly selected. Sample sites encompassed 1 to 3 fm depth strata between 5 and 25 fm and 5 fm depth strata between 30 and 60 fm. Tows were perpendicular to depth contours for 10 to 55 minutes. Several stations required multiple tows to sample the entire depth strata.

Total weight of each catch was recorded, after which all Penaeus shrimp, other invertebrates and finfish were separated. Weight and number of each species were then recorded. A random sample of 200 shrimp of each species (when available) was removed to extract data on sex, maturation, and length frequency.

CTD casts were made at each station to collect salinity, temperature, depth, dissolved oxygen (DO) and turbidity data.

Bongo (61 cm, 0.333 mm mesh) and neuston (1 X 2 m, 0.947 mm mesh) samples were taken at preselected stations integrated into the cruise track. Samples were fixed in 10% buffered formalin for 48 hours, then drained and placed in 95% ethanol for final preservation.

RESULTS AND DISCUSSIONS

Two hundred and forty trawl samples were collected (Fig. 1) in shrimp statistical zones 11 through 21. Distribution of effort within statistical zones by depth strata can be found in Table 1. In general each zone-depth strata combination was sampled only once. In some cases, a second station was taken in a cell to avoid some obstruction or two stations were located so close together that after the second trawl haul was completed both stations fell into the same statistical zone. Unoccupied cells were due to lost gear or represent stations that were occupied by state SEAMAP participants.

Dominant faunal components are listed in (Table 2) with croaker Micropogonias undulatus being the most abundant species in terms of weight and Chloroscombrus chrysurus being the most abundant species in terms of number. Finfish catch rates (Kg/hr) are summarized in Figure 2.

Brown shrimp, Penaeus aztecus, was the most abundant penaeus shrimp species, followed by white shrimp, Penaeus setiferus, and pink, Penaeus duorarum. Shrimp catch rates (Kg/hr) are summarized in Figure 3.

Forty-three bongo and neuston stations were accomplished (Fig. 4). 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, MS.

Figure 5 shows the area of hypoxia (dissolved oxygen readings ≤ 2 milligrams per liter) encountered off the Louisiana coast. This year hypoxic areas were also found off the Mississippi and Texas coast.

ACKNOWLEDGMENTS

On behalf of Mississippi Laboratories and the scientific party I would like to thank the Commanding Officer and the crew of the NOAA Ship OREGON II for a job well done during a highly successful survey.

CRUISE PARTICIPANTS

6/13-6/16/00

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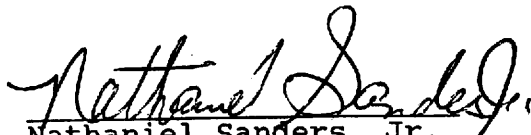
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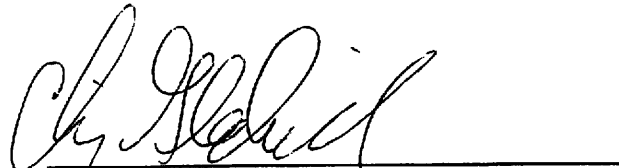
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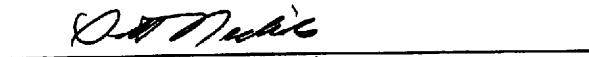
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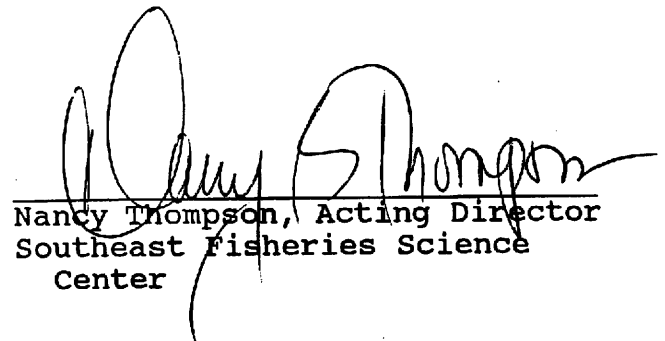
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DEPTH STRATA (FATHOMS)	DIURNAL STRATA									
	DAY					NIGHT				
	STATISTICAL ZONES					STATISTICAL ZONES				
	11-12	13-15	16-17	18-19	20-21	11-12	13-15	16-17	18-19	20-21
5-6	.	1	1	.	1	.	1	1	1	1
6-7	.	1	1	1	1	.	.	2	1	1
7-8	.	1	1	1	1	.	.	.	2	1
8-9	.	1	1	1	1	.	1	1	.	1
9-10	.	1	1	.	1	.	1	1	1	1
10-11	.	1	1	1	1	.	1	1	1	1
11-12	.	.	2	1	1	.	.	2	1	1
12-13	.	1	.	1	1	1	1	1	1	1
13-14	.	1	1	1	1	1	1	1	1	1
14-15	.	1	1	1	1	1	1	1	1	1
15-16	1	1	2	1	1	1	1	1	1	1
16-17	.	1	.	1	1	1	1	1	1	1
17-18	.	.	1	1	2	1	1	1	1	1
18-19	.	1	1	1	.	.	1	1	1	1
19-20	.	1	1	1	2	1	1	1	1	2
20-22	1	1	1	1	.	1	1	1	1	.
22-25	1	.	1	1	1	1	1	1	1	1
25-30	1	1	1	1	1	1	.	1	1	1
30-35	1	1	1	1	2	1	1	1	.	2
35-40	1	1	1	.	1	1	.	1	.	2
40-45	1	1	2	1	1	1	.	1	1	1
45-50	1	2	.	.	3	1	1	1	.	2
50-60	1	.	1	.	1	1	1	1	.	1

Table 2. Twenty most abundant organisms (plus red snapper) caught in 40-ft trawls during NOAA Ship OREGON Cruise 240. Catches were adjusted to number and weights per hour fished and species are listed in descending order of number caught. Catch frequency is the number of tows in which respective species were caught (N = 240).

Genus	Species	Number	Weight (kg)	Frequency Of Catch
<u>Chloroscombrus</u>	<u>chrysurus</u>	92,487	1,903.7	118
<u>Penaeus</u>	<u>aztecus</u>	85,136	1,204.6	206
<u>Micropogonias</u>	<u>undulatus</u>	68,223	2,987.7	104
<u>Stenotomus</u>	<u>caprinus</u>	57,204	1,737.3	187
<u>Trachypeneus</u>	<u>similis</u>	46,514	177.9	94
<u>Loligo</u>	<u>pleii</u>	25,467	306.3	128
<u>Serranus</u>	<u>atrobranchus</u>	16,215	1,114.3	137
<u>Loligo</u>	<u>pealei</u>	14,957	134.9	102
<u>Upeneus</u>	<u>parvus</u>	8,914	191.2	88
<u>Portunus</u>	<u>spinicarpus</u>	7,189	162.9	154
<u>Trachurus</u>	<u>lathami</u>	6,970	35.9	74
<u>Renilla</u>	<u>muller</u>	6,564	214.9	100
<u>Anchoa</u>	<u>hepsetus</u>	6,498	9.8	26
<u>Saurida</u>	<u>brasilienses</u>	5,782	125.0	49
<u>Cynoscion</u>	<u>nothus</u>	5,695	35.5	141
<u>Leiostomus</u>	<u>xanthurus</u>	5,287	222.4	50
<u>Sardinella</u>	<u>aurita</u>	5,000	379.0	56
<u>Laqodon</u>	<u>rhomboides</u>	4,195	63.2	30
<u>Aurelia</u>	<u>aurita</u>	4,049	231.7	122
<u>Lutjanus</u>	<u>campechanus</u>	1,348	616.2	25
Total		583,077	15,405.8	

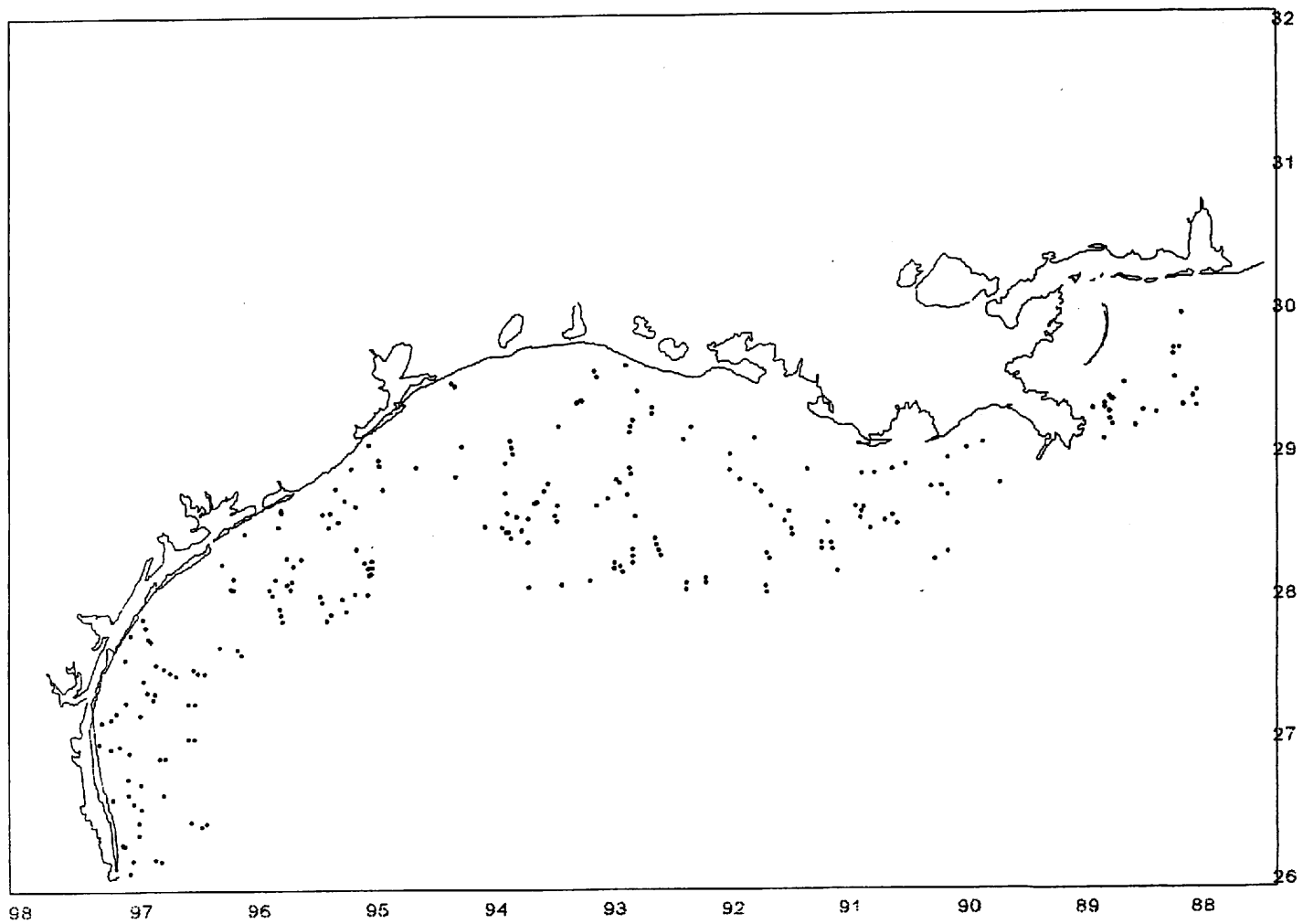


Figure 1. Locations of sampling stations accomplished during N.O.A.A. Ship Oregon II Cruise 240.

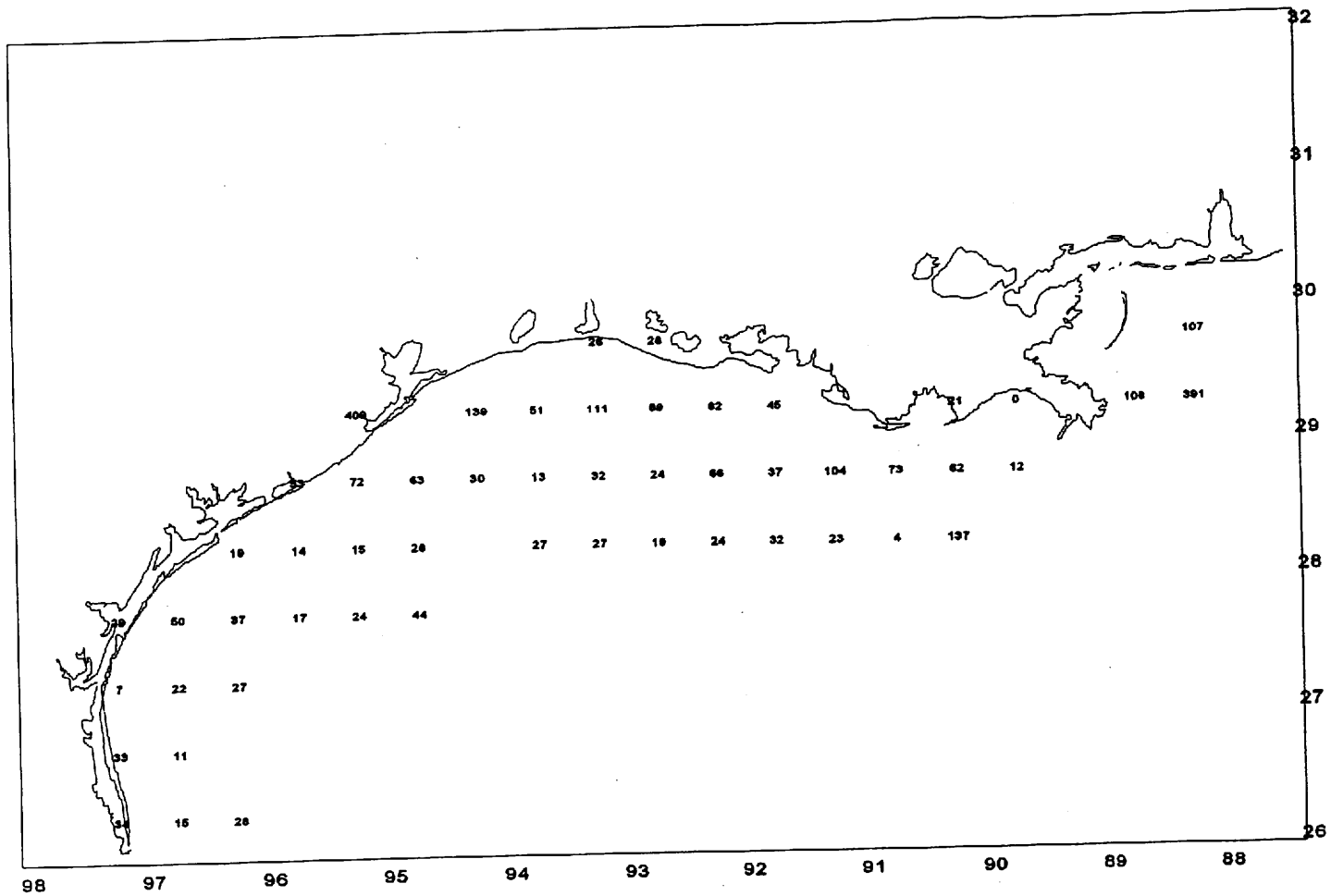


Figure 2. Average finfish catch rates in kilograms per hour within 30 minute blocks of latitude and longitude for N.O.A.A. Ship Oregon II Cruise 240. Numbers which occur over land are results of near shore sampling and the subsequent placement of averages in block centers.

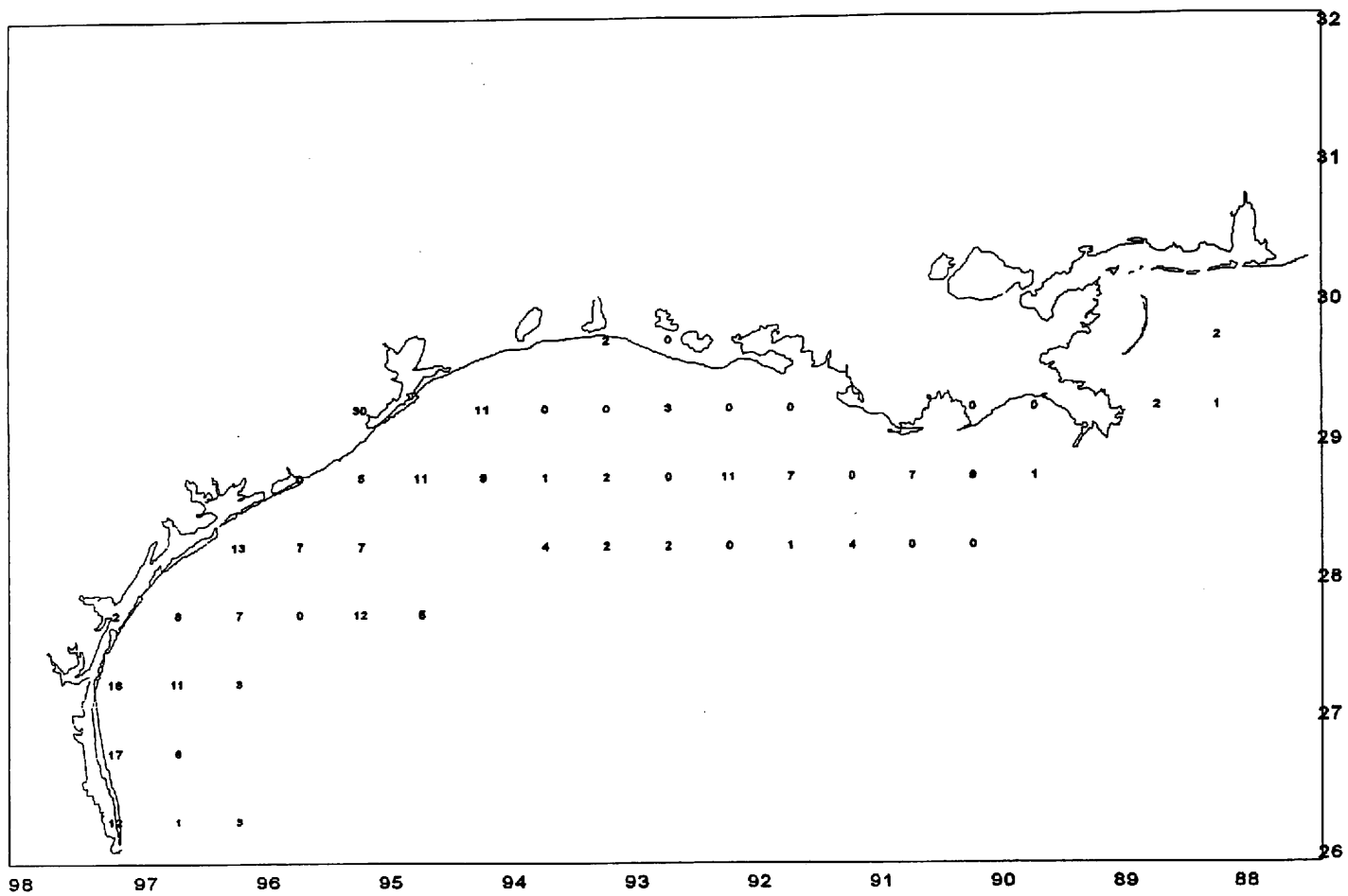


Figure 3. Average shrimp catch rates in kilograms per hour within 30 minute blocks of latitude and longitude for N.O.A.A. Ship Oregon II Cruise 240. Numbers which occur over land are results of near shore sampling and subsequent placement of averages in block centers.

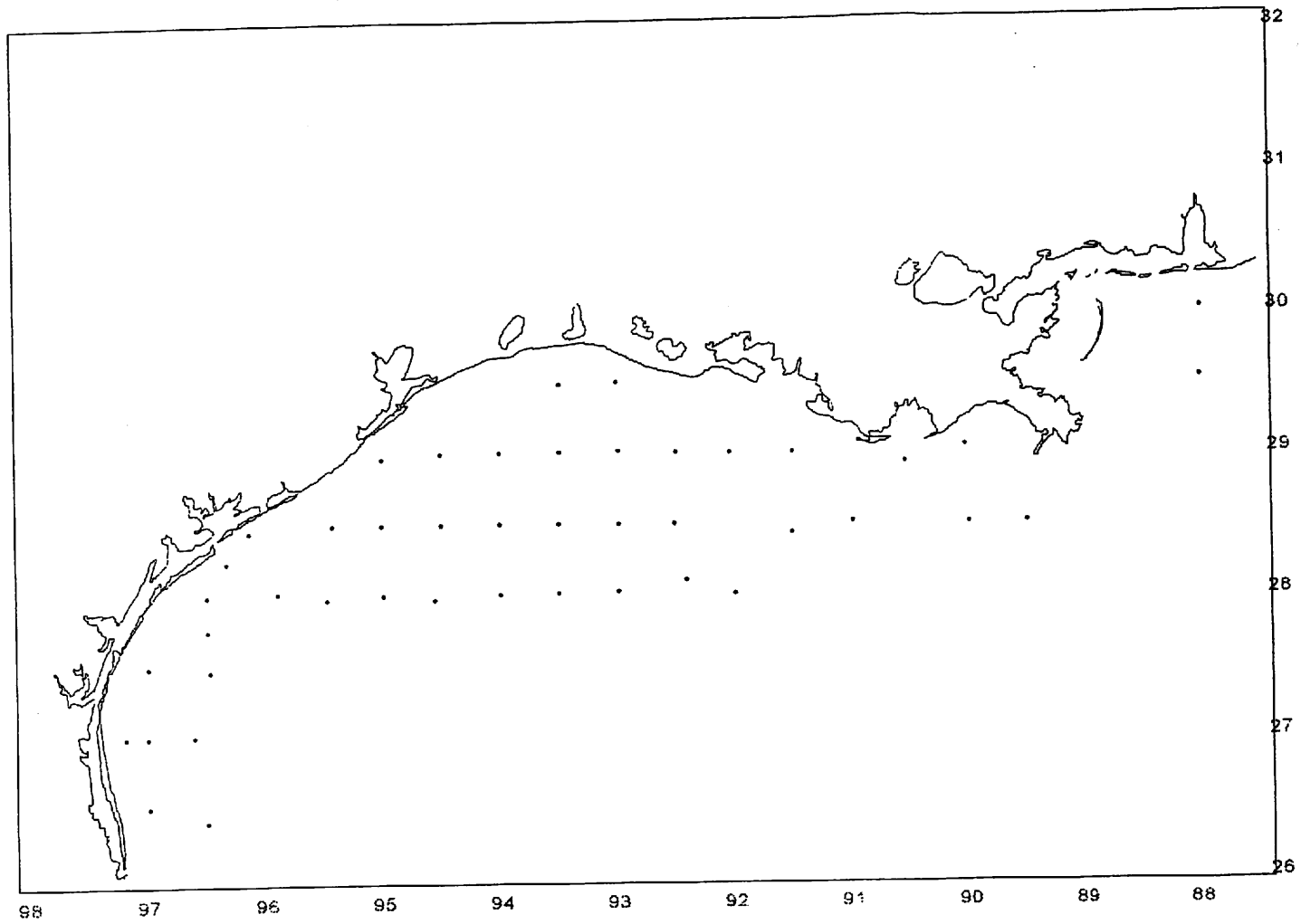


Figure 4. Map of the area sampled showing locations of Ichthyoplankton sample sites.

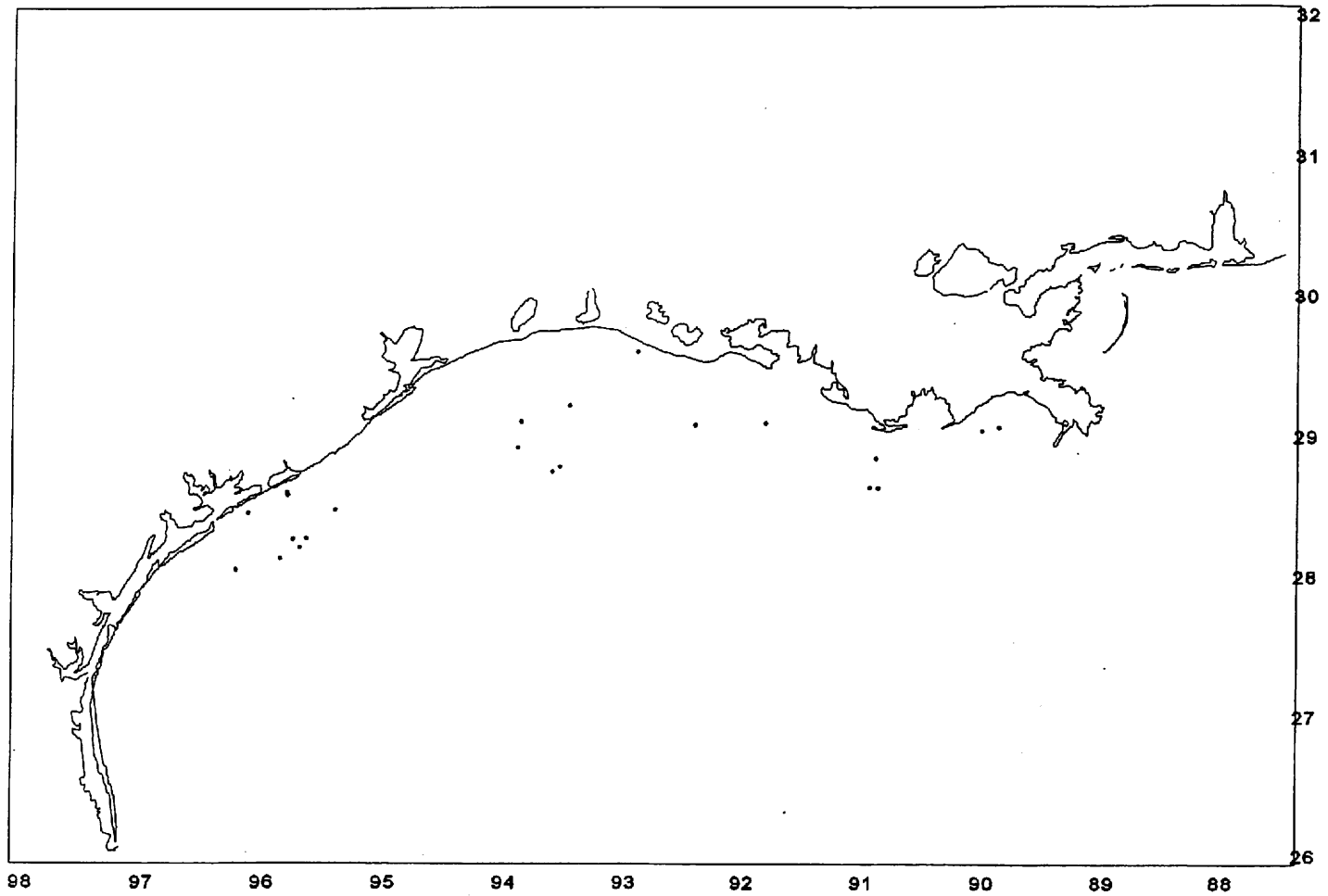


Figure 5. Locations where hypoxic conditions (bottom dissolved oxygen measurement ≤ 2.0 milligrams per liter) were encountered during N.O.A.A. Ship Oregon II Cruise 240.