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

OREGON II Cruise 99-04 (235)
06/15-07/20/99

INTRODUCTION

The NOAA Ship OREGON II departed Mobile, AL on June 15, 1999 for the seventeenth 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.

No survey days were lost, and the cruise terminated in Pascagoula, MS on July 20, 1999.

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.

7) Collect shrimp samples for virus study.

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 60 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. Water samples were obtained daily to validate the CTD salinity readings.

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-one 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 number and weight 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.

Thirty five 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 $\leq$ 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

6/15-18/99

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06/20-07/04/99

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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	1
6-7	.	1	1	1	1	.	1	1	1	1
7-8	.	1	1	1	1	.	1	1	1	1
8-9	.	1	1	1	1	.	1	1	1	1
9-10	.	1	1	1	1	.	1	1	1	1
10-11	.	1	1	1	2	.	1	1	1	1
11-12	.	1	1	1	1	.	1	1	1	1
12-13	.	1	1	1	1	.	1	1	1	1
13-14	.	1	1	1	1	.	1	1	1	1
14-15	.	1	1	.	1	.	1	1	1	1
15-16	.	1	1	1	1	1	2	1	1	1
16-17	.	1	1	1	1	.	1	1	1	1
17-18	.	1	1	1	2	.	1	1	1	1
18-19	1	1	1	1	1	1	1	1	1	1
19-20	.	1	1	1	1	.	1	1	1	1
20-22	.	1	1	1	1	.	1	.	1	1
22-25	1	1	1	1	.	1	1	1	1	1
25-30	.	.	1	.	3	.	1	1	1	1
30-35	1	1	1	.	2	1	1	1	1	1
35-40	1	1	1	.	2	1	1	1	.	2
40-45	.	1	1	.	1	1	1	1	1	1
45-50	1	1	1	1	1	.	1	1	1	1
50-60	1	1	1	.	2	1	1	.	1	1

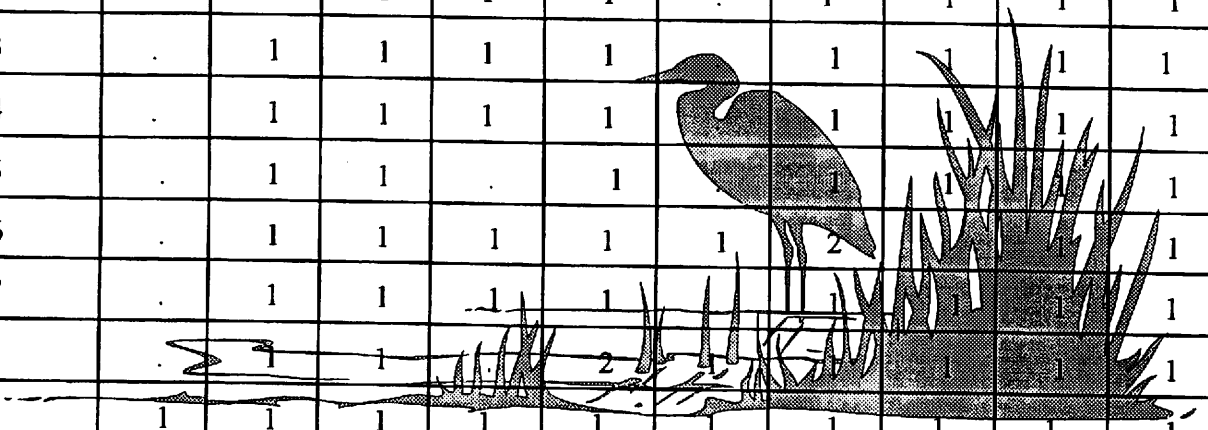

Table 2. Twenty most abundant organisms (plus red snapper) caught in 40-ft trawls during NOAA Ship OREGON Cruise 235. Catches were adjusted to number and weights per hour fished and species are listed in descending order of number caught. Catch frequency is the number of tows in which respective species were caught (N = 245).

Genus Species	Number	Weight (kg)	Catch Frequency
Micropogonias undulatus	120,703	4,136.3	117
Stenotomus caprinus	74,714	1,660.6	176
Penaeus aztecus	65,240	879.7	196
Trachypeneus similis	52,539	195.5	86
Callinectes similis	51,511	507.3	145
Peprilus burti	42,753	1,779.6	141
Loligo pleii	27,315	330.1	140
Chloroscombrus chrysurus	19,650	580.1	92
Squilla empusa	19,344	140.5	97
Serranus atrobranchus	17,301	129.7	107
Trachurus lathami	15,747	283.1	100
Prionotus longispinosus	12,506	171.1	124
Portunus spinicarpus	12,266	57.0	69
Upeneus parvus	12,118	180.0	121
Cynoscion nothus	11,284	483.8	70
Centropristis philadelphica	10,201	211.8	143
Cynoscion arenarius	9,838	269.5	69
Loligo pealei	9,075	97.2	59
Trichiurus lepturus	8,891	423.2	90
Portunus gibbesii	7,730	31.9	95
Lutjanus campechanus	809	93.8	78
Total	646,779	16,425.6	

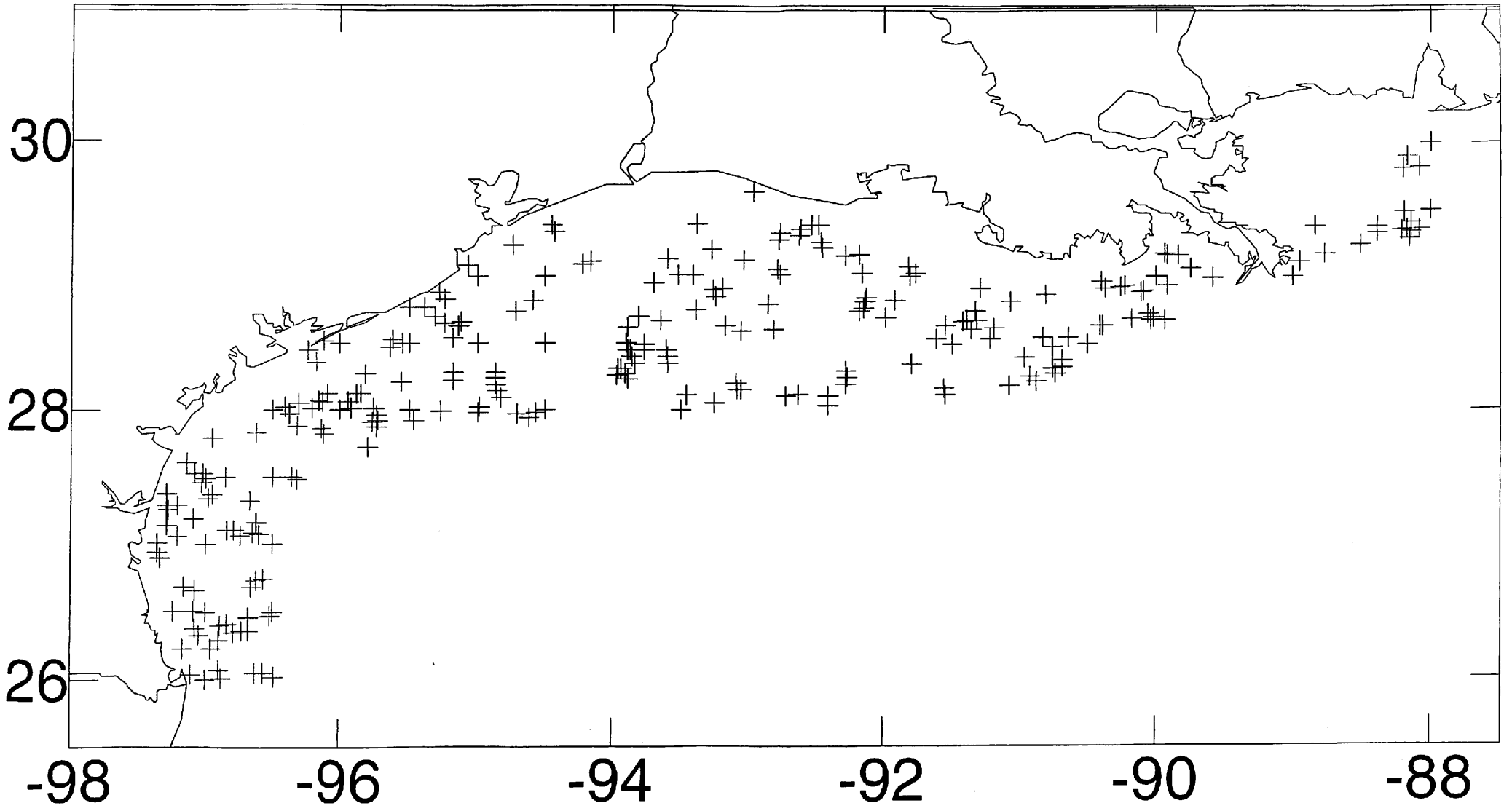

Figure 1. Locations at sampling stations accomplished during NOAA Ship OREGON II Cruise 235 (OT-99-04).

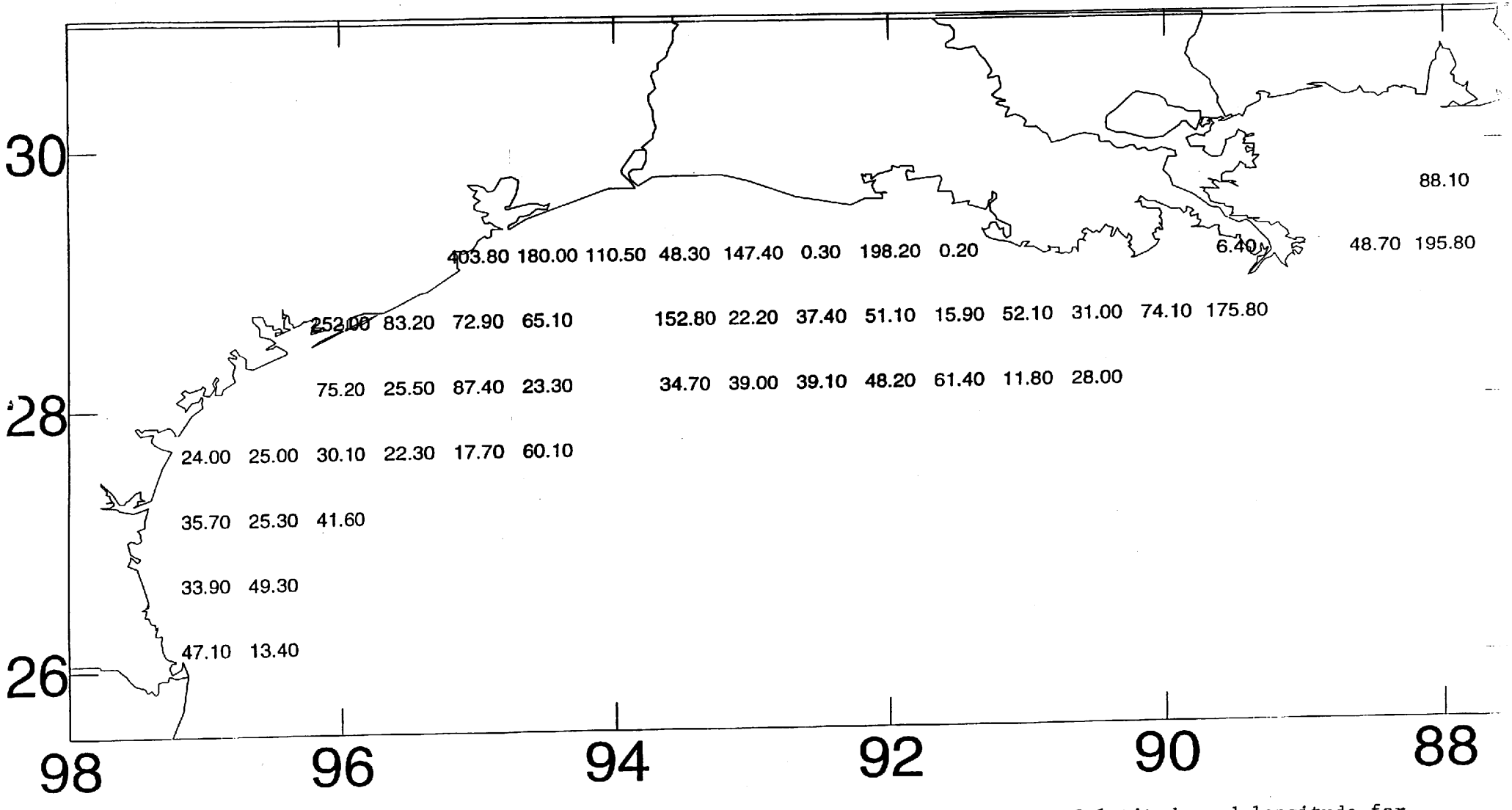

Figure 2. Average finfish catch rates in kilograms per hour within 30 minute blocks of latitude and longitude for NOAA Ship OREGON II Cruise 235 (OT-99-04). Numbers which occur over land are results of nearshore sampling and the subsequent placement of averages in block centers.

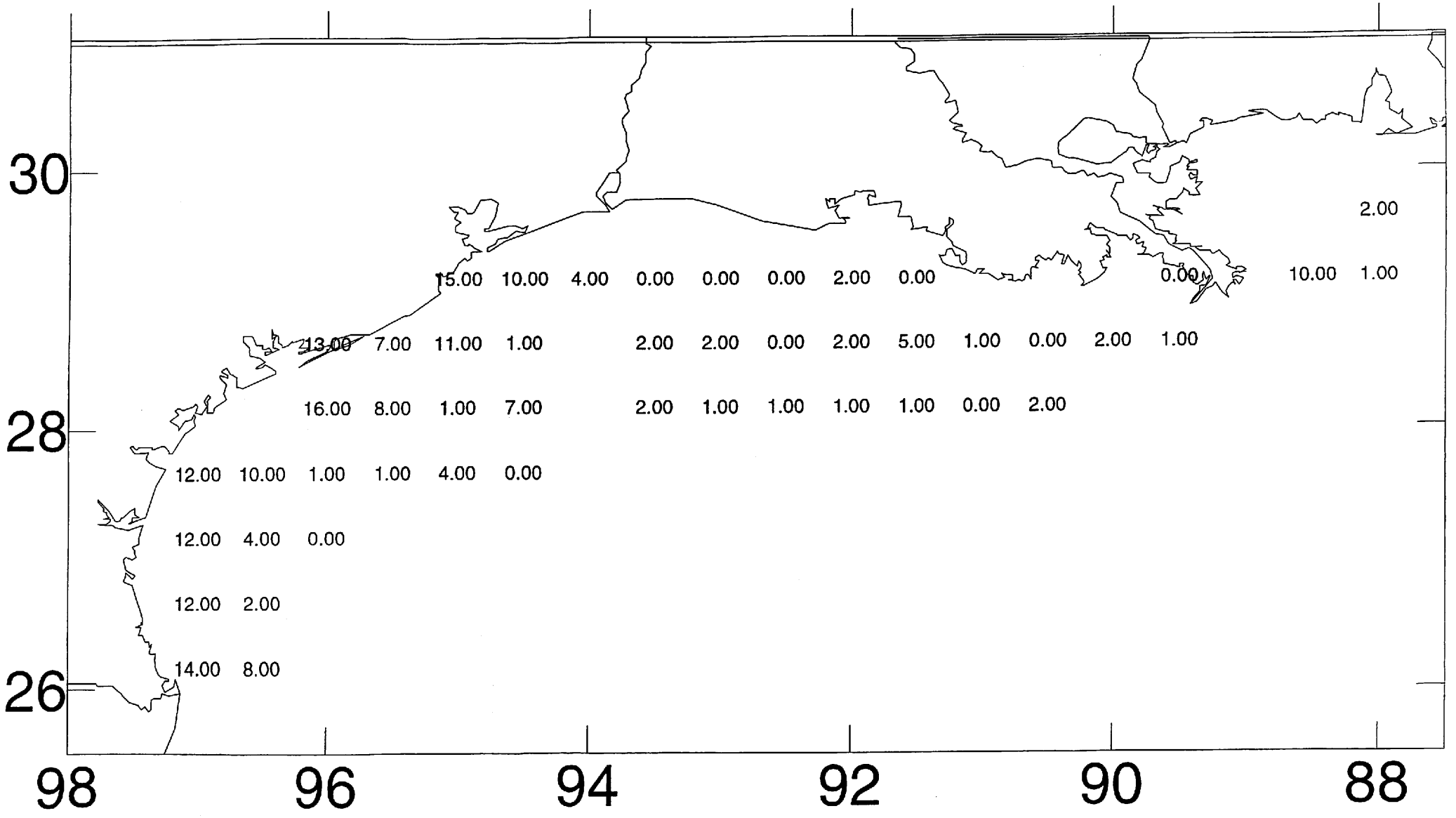

Figure 3. Average shrimp catch rates in kilograms per hour within 30 minute blocks of latitude and longitude for NOAA Ship OREGON II Cruise 235 (OT-99-04). Numbers which occur over land are results of nearshore sampling and the subsequent placement of averages in block centers.

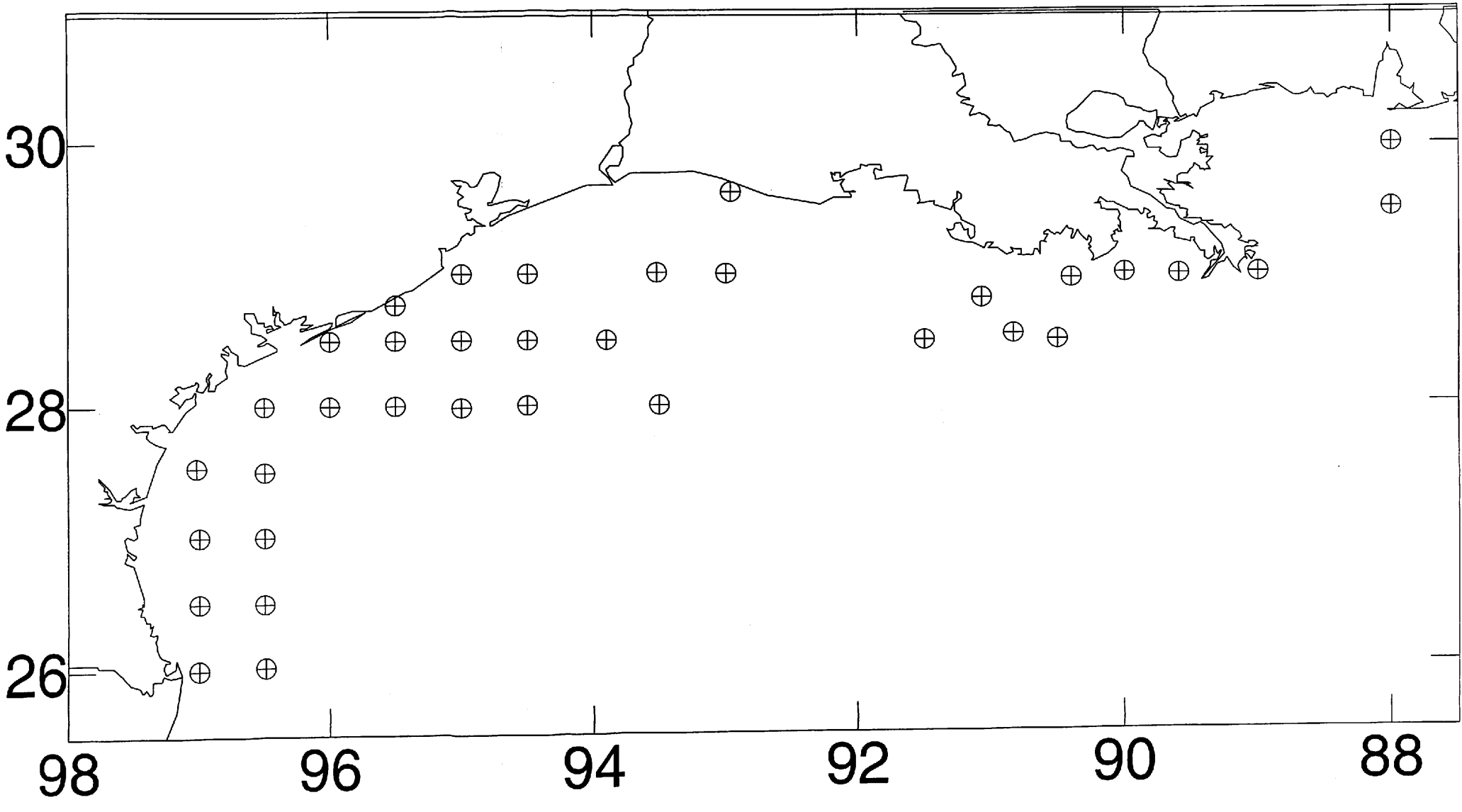

Figure 4. Map of the area sampled showing locations of ichthyoplankton sample sites.

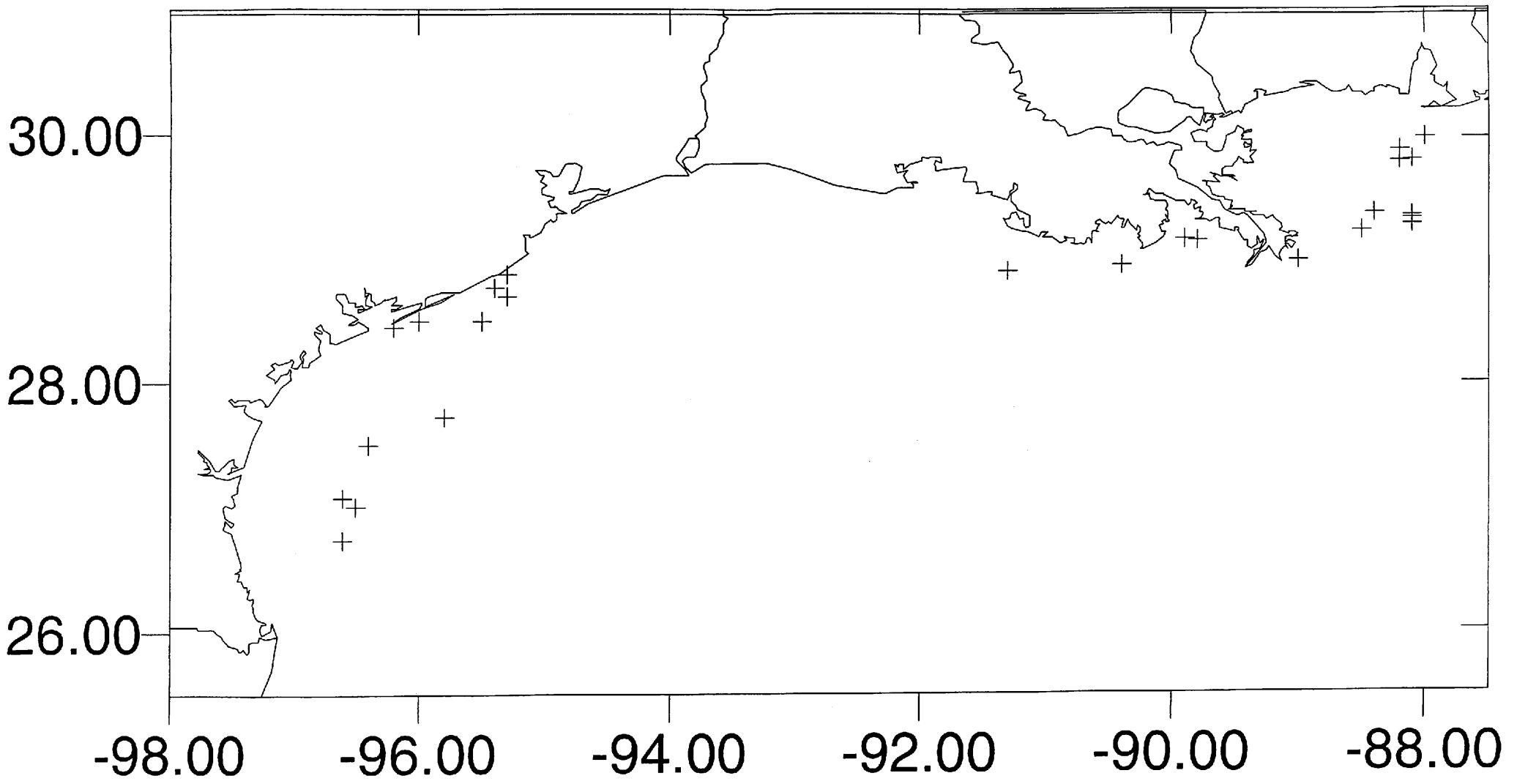

Figure 5. Locations where hypoxic conditions (bottom dissolved oxygen measurement $\leq$ 2.0 milligrams per liter) were encountered during NOAA Ship OREGON II Cruise 235 (OT-99-04).