

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 92-03 (200)
06/12-07/13/92

INTRODUCTION

The NOAA Ship OREGON II departed Pascagoula, MS on June 12, 1992 to conduct a 35-day shrimp and bottomfish survey in the northern and western U.S. Gulf of Mexico. This was a Southeast Area Monitoring and Assessment Program (SEAMAP) survey which also included additional nearshore sampling by the states of Florida, Alabama, Mississippi, Louisiana and Texas.

Major objectives were 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. Specific objectives are listed below.

The NOAA Ship OREGON II returned to Pascagoula, MS on July 13, 1992, terminating the cruise. The cruise ended early because all stations and objectives were met.

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 trawl samples in the vicinity of the US Army Corps of Engineers berm site containing dredge spoil material from the Mobile ship channel.

SURVEY METHODOLOGY

Ten sample sites were randomly selected for day and night replicate sampling around the U.S. Army Corps of Engineers berm site off Mobile Bay, AL. Ten-minute tows were made at each site using a 40-ft shrimp trawl with mud rollers and 8-ft X 40-in wooden chain doors, and a 65-ft two seam fish trawl with six 10-in floats and 8-ft X 40-in wooden chain doors.

The shrimp assessment survey samples were taken with a 40-ft shrimp trawl. 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 spp. 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.

HYDROGRAPHIC AND ENVIRONMENTAL DATA

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. Surface DO samples was also determined at each station using a YSI meter. Surface chlorophyll samples (three replicates) were taken at each station, filtered with a GF/C filter, fixed with magnesium carbonate and frozen for later analysis at the Mississippi Laboratories, Pascagoula station. All chlorophyll samples were taken from the surface waters, except at stations less than 20 fm deep off Louisiana, where bottom samples were also collected.

ICHTHYOPLANKTON

Bongo (61 cm, 0.333 mm mesh) and neuston (1 X 2 X 6 m) 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.

REAL TIME DATA

A data telecommunication terminal aboard the NOAA Ship OREGON II was used to transmit environmental data and catch rates via cellular phone to the Mississippi Laboratories. These transmissions provided information for a weekly report on shrimp and finfish catch rates and location that was communicated on to shrimpers and other personnel in the fishing industry.

OBSERVATIONS AND RESULTS

A total of twenty trawl samples were collected around the berm site off Mobile Bay, AL; results were not available for incorporation in this cruise report.

Two hundred and twenty individual trawl samples (Fig. 1) were collected on the SEAMAP portion of the cruise. The dominant faunal components are listed in Tables 1 and 2 with croakers Micropogonias undulatus being most abundant. Finfish catch rates expressed in kilograms per hour can be found in Figure 2.

Shrimp catches were low over the entire Gulf, with the best catches being in the south Texas area (Fig. 3).

ICHTHYOPLANKTON

Forty two bongo and neuston samples were obtained during the cruise (Fig. 4). Right bongo and neuston samples are processed at the NMFS, Mississippi Laboratory and shipped to Polish Sorting Center for sorting and identification according to standard SEAMAP protocol. Left bongo samples were sent to the Gulf Coast Research Laboratory for storage.

A large area of hypoxia was again found off the coast of Louisiana (Fig. 5). Bottom dissolved oxygen in this area ranged from a low of .1 ppm to a high of 2.0 ppm.

I would like to thank the crew of the NOAA Ship OREGON II and the members of the scientific party for a job well done.

CRUISE PARTICIPANTS

6/12-16/92

NAME	TITLE	ORGANIZATION
Nathaniel Sanders, Jr.	Field Party Chief	NMFS Pascagoula, Miss.
Gilmore Pellegrin, Jr.	Watch Leader	NMFS Pascagoula, Miss.
Perry Thompson, Jr.	Watch Leader	NMFS Pascagoula, Miss.
Joanne L-Shultz	Watch Leader	NMFS Pascagoula, Miss.
Chris Williams	Student Trainee	NMFS Pascagoula, Miss.
Brian Underwood	Co-op Student	NMFS Pascagoula, Miss.
Eva Kargard	Biological Tech.	NMFS Pascagoula, Miss.
Kendall Falana	Gear Specialist	NMFS Pascagoula, Miss.
Jon Peterson	Biological Tech.	NMFS Pascagoula, Miss.
Anna Avrigian	Biological Tech.	NMFS Panama City, Fla.
Judith Weaver	Student Coop.	Florida A&M University
Barry Fancher	Student Coop.	University of South Ala.

CRUISE PARTICIPANTS (Cont'd)

6/17-30/92

NAME	TITLE	ORGANIZATION
14 Nathaniel Sanders, Jr.	Field Party Chief	NMFS Pascagoula, Miss.
Perry Thompson, Jr.	Watch Leader	NMFS Pascagoula, Miss.
Robert Ford, Jr.	Watch Leader	NMFS Pascagoula, Miss.
Kevin Rademacher	Watch Leader	NMFS Pascagoula, Miss.
Chris Williams	Student Trainee	NMFS Pascagoula, Miss.
Bennie Rohr	Resh. Fish. Bio.	NMFS Pascagoula, Miss.
Eva Kargard	Biological Tech.	NMFS Pascagoula, Miss.
Kathy Torralva	Biological Tech.	NMFS Galveston, Tex.
Wayne Parris	Student Coop.	Univ. of the Virgin Island, Virgin Islands
Juliana Walker	Student Coop.	Univ. of South Ala.
John Jacobs	Cooperator	Gautier, Miss.
Cassie Norris	Student Coop.	Duke University

7/1-13/92

NAME	TITLE	ORGANIZATION
17 Nathaniel Sanders, Jr.	Field Party Chief	NMFS Pascagoula, Miss.
Gilmore Pellegrin, Jr.	Watch Leader	NMFS Pascagoula, Miss.
Kevin Rademacher	Watch Leader	NMFS Pascagoula, Miss.
Miriam Hahn	Watch Leader	NMFS Pascagoula, Miss.
Chris Williams	Student Trainee	NMFS Pascagoula, Miss.
Gregory Crist	Biological Tech.	NMFS Pascagoula, Miss.
Harriet Perry	Fishery Biolo.	NMFS Pascagoula, Miss.
Kamille Hammerstorm	Biological Tech.	NMFS Galveston, Tex.
Monica Daniels	Biological Tech.	NMFS Galveston, Tex.
Debra Holmes	Student Coop.	Jackson State Univ., Jackson, Miss.
¹ Sunita Babu	Student Coop.	Jackson State Univ., Jackson, Miss.
Elliot Coleman	Professor	Mississippi Valley State University

¹ Ms. Babu was only on Cruise 200 for two days July 1 and 2, 1992.

Submitted By:

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Scott Nichols, Director
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Bradford E. Brown, Acting
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Director

Table 1. 40-Ft shrimp net catches adjusted to 60-min tows. The twenty most numerous species caught plus red snapper are listed in descending order by number. Total number of stations 220.

Genus	Species	Number	Weight (kg)	Frequency of occurrence
	<u>Micropogonias undulatus</u>	208,217	6,402.6	77
	<u>Stenotomus caprinus</u>	183,429	1,773.0	179
	<u>Peprilus burti</u>	54,193	1,504.8	145
	<u>Trachypeneus sp.</u>	50,324	241.9	75
	<u>Loligo sp.</u>	43,238	499.6	127
	<u>Penaeus aztecus</u>	28,161	403.6	171
	<u>Trachypeneus similis</u>	17,716	110.4	16
	<u>Etrumeus teres</u>	15,057	137.1	57
	<u>Squilla empusa</u>	14,262	107.5	68
	<u>Callinectes similis</u>	14,064	140.7	110
	<u>Loligo pleii</u>	13,995	172.0	46
	<u>Portunus spinicarpus</u>	13,772	83.4	82
	<u>Centropristis philadelphica</u>	13,107	221.9	120
	<u>Leiostomus xanthurus</u>	12,460	830.3	44
	<u>Prionotus longispinosus</u>	12,110	203.7	117
	<u>Chloroscombrus chrysurus</u>	11,255	380.4	40
	<u>Saurida brasiliensis</u>	10,430	61.2	123
	<u>Serranus atrobranchus</u>	9,167	108.9	90
	<u>Sicyonia brevirostris</u>	7,258	65.8	75
	<u>Trachurus lathami</u>	7,159	131.7	84
	<u>Lutjanus campechanus</u>	586	58.7	64
Total		875,823	17,837.0	220

Table 2. 40-Ft shrimp net catches adjusted to 60-min tows. The twenty most numerous species caught plus red snapper are listed in descending order by weight. Total number of stations 220.

Genus	Species	Number	Weight (kg)	Frequency of occurrence
	<u>Micropogonias undulatus</u>	208,217	6,402.6	77
	<u>Stenotomus caprinus</u>	183,429	1,773.0	179
	<u>Peprilus burti</u>	54,193	1,504.8	145
	<u>Leiostomus xanthurus</u>	12,460	830.3	44
	<u>Loligo sp.</u>	43,238	499.6	127
	<u>Cynoscion arenarius</u>	4,195	499.3	77
	<u>Synodus foetens</u>	5,844	493.8	175
	<u>Penaeus aztecus</u>	28,161	403.6	171
	<u>Chloroscombrus chrysurus</u>	11,255	380.4	40
	<u>Arius felis</u>	3,009	370.3	12
	<u>Trachypeneus sp.</u>	50,324	241.9	75
	<u>Centropristis philadelphica</u>	13,107	221.9	120
	<u>Pristipomoides aquilonaris</u>	2,793	211.1	86
	<u>Prionotus longispinosus</u>	12,110	203.2	117
	<u>Lagodon rhomboides</u>	5,928	200.1	106
	<u>Loligo pleii</u>	13,995	172.0	46
	<u>Cynoscion nothus</u>	2,909	152.5	26
	<u>Larimus fasciatus</u>	6,080	144.1	10
	<u>Callinectes similis</u>	14,064	140.7	110
	<u>Etrumeus teres</u>	15,057	137.1	57
	<u>Lutianus campechanus</u>	586	58.7	64
Total		875,823	17,837.0	220

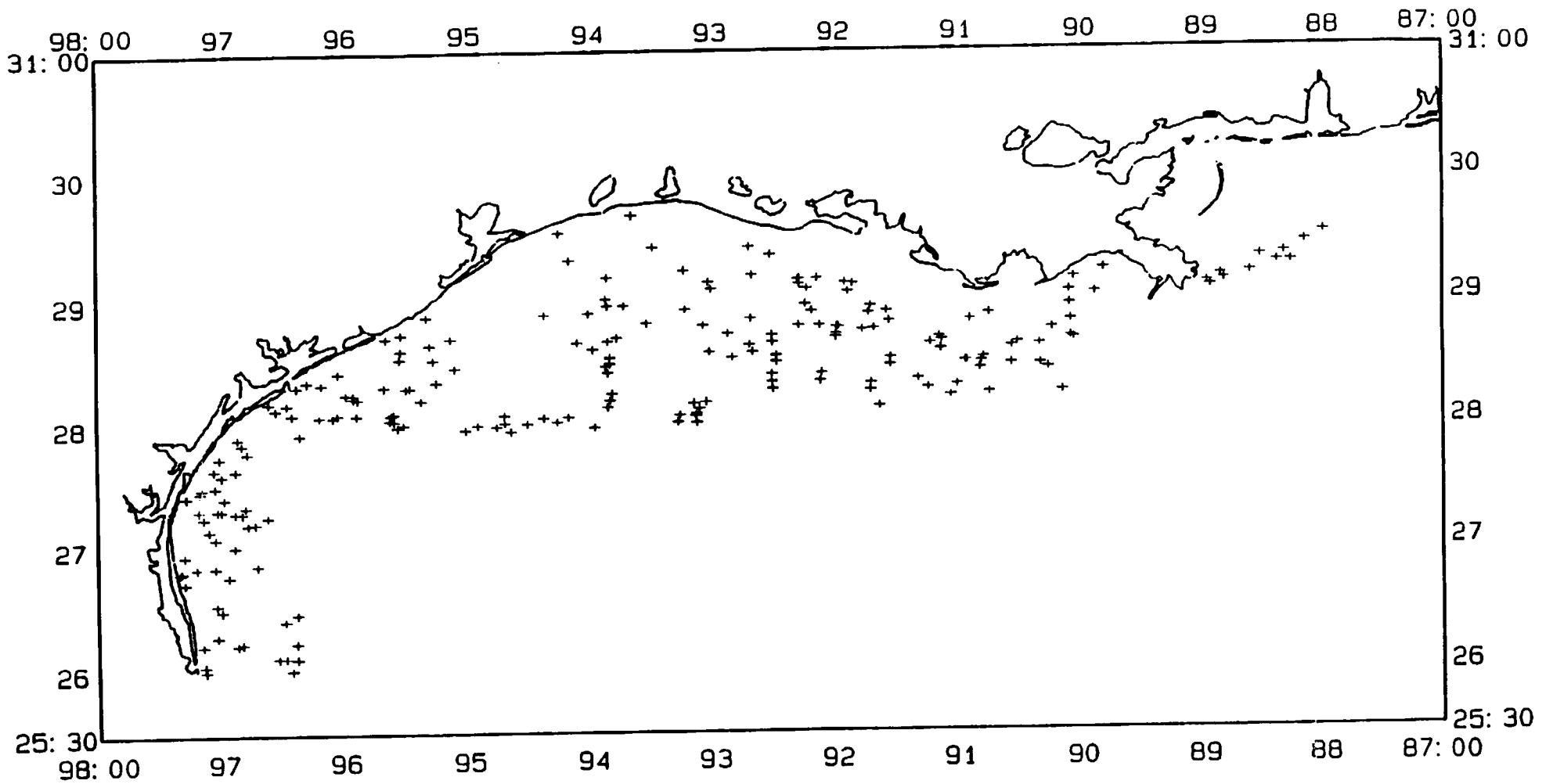


Figure 1. Map of the area sampled showing location of trawl sample sites.

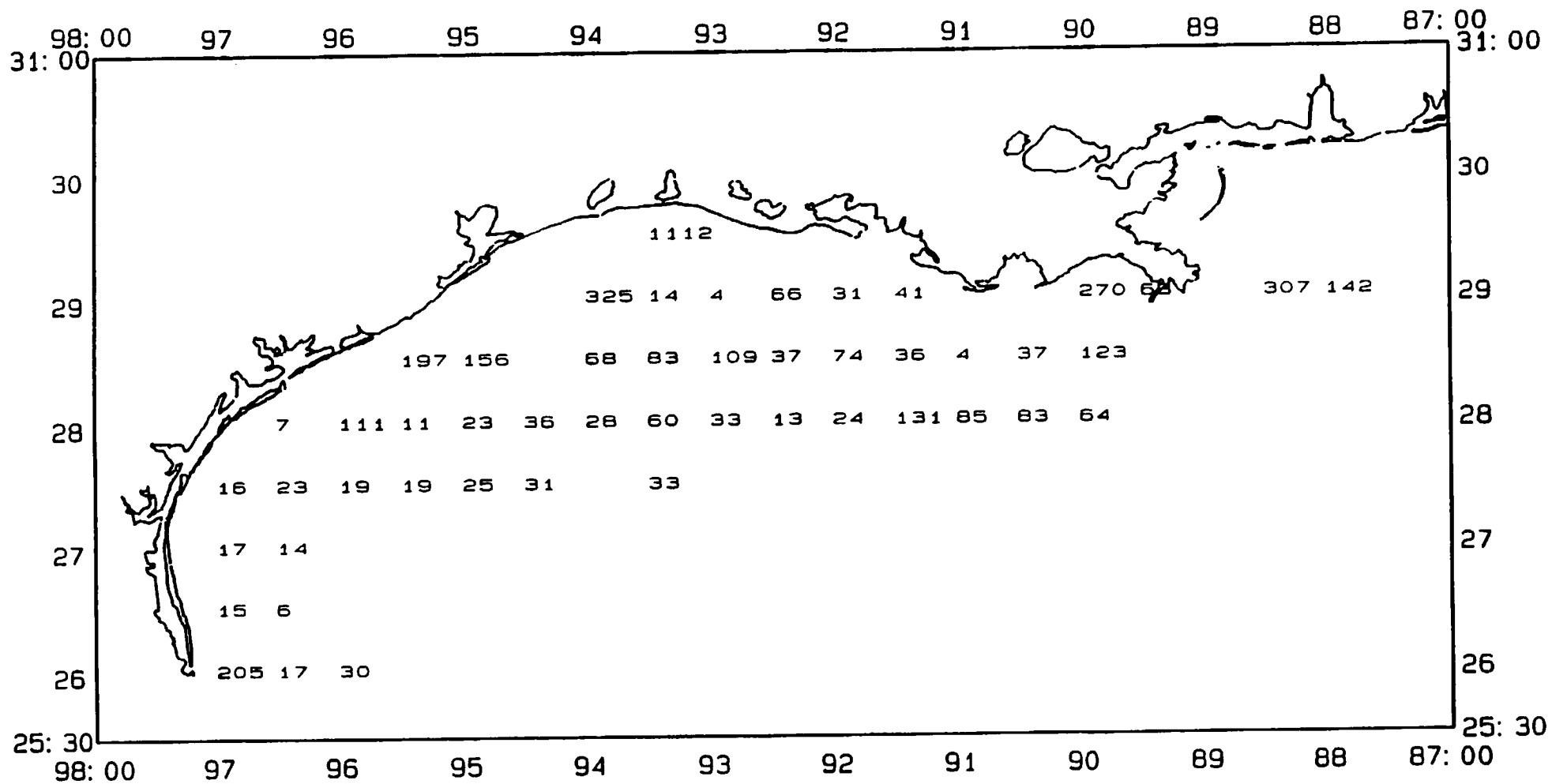


Figure 2. Map of the area sampled showing finfish catch rates Kg h⁻¹ (40-ft trawl) within a 30 X 30 minute block.

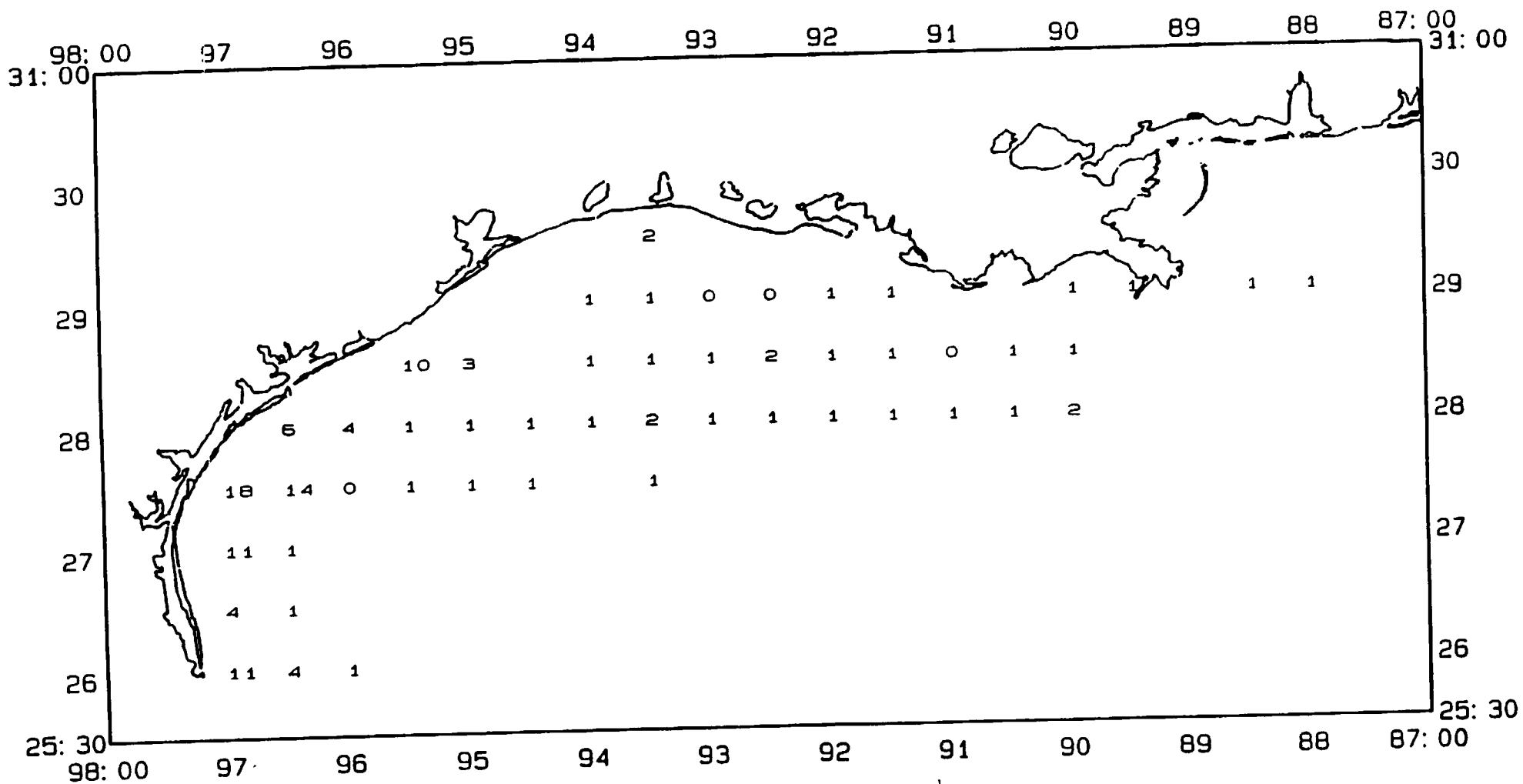


Figure 3. Map of the area sampled showing shrimp catch rates Kg^{-1} (40-ft trawl) within a 30 X 30 minute block.

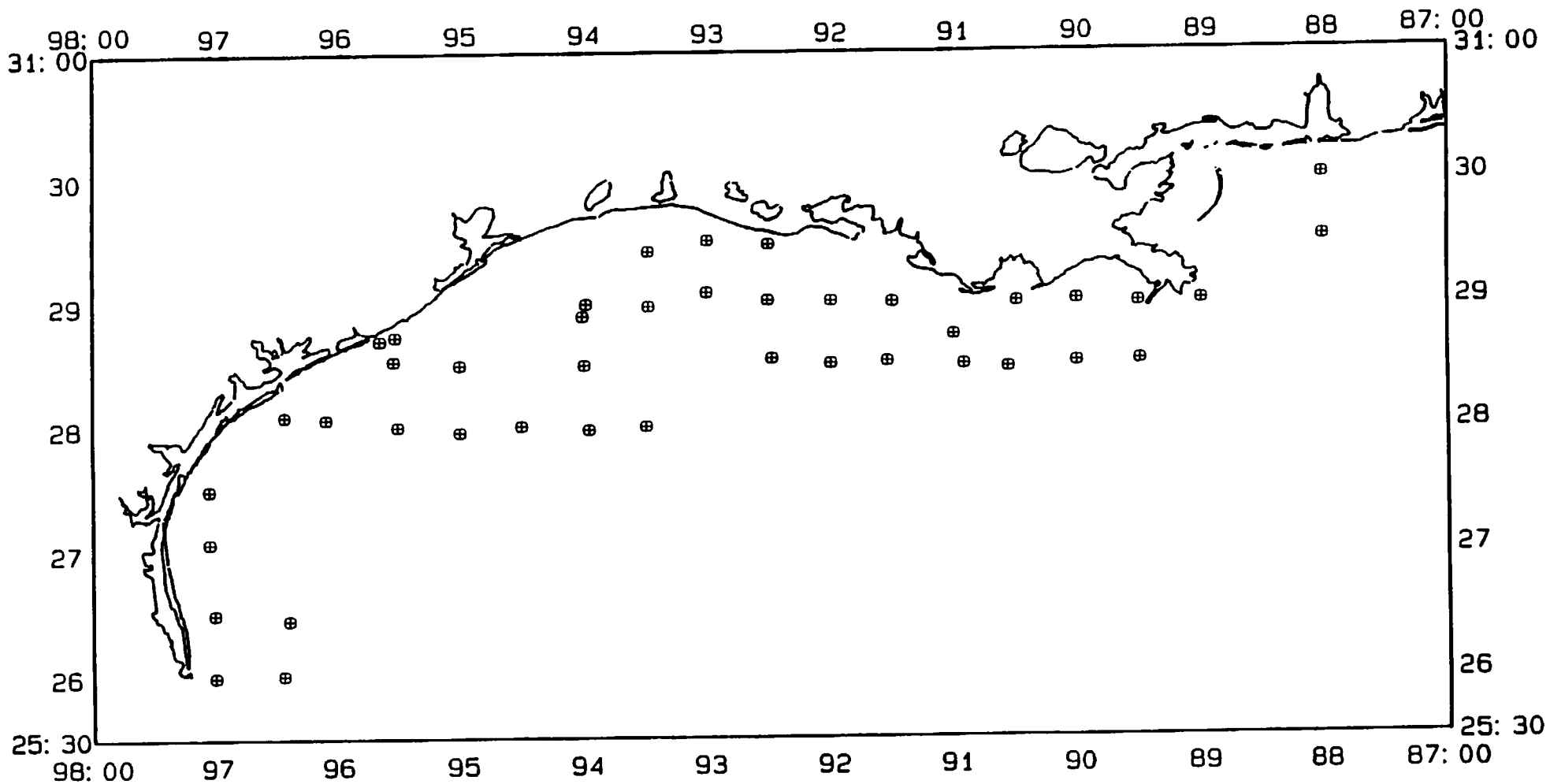


Figure 4. Map of the area sampled showing locations of ichthyoplankton sample sites.

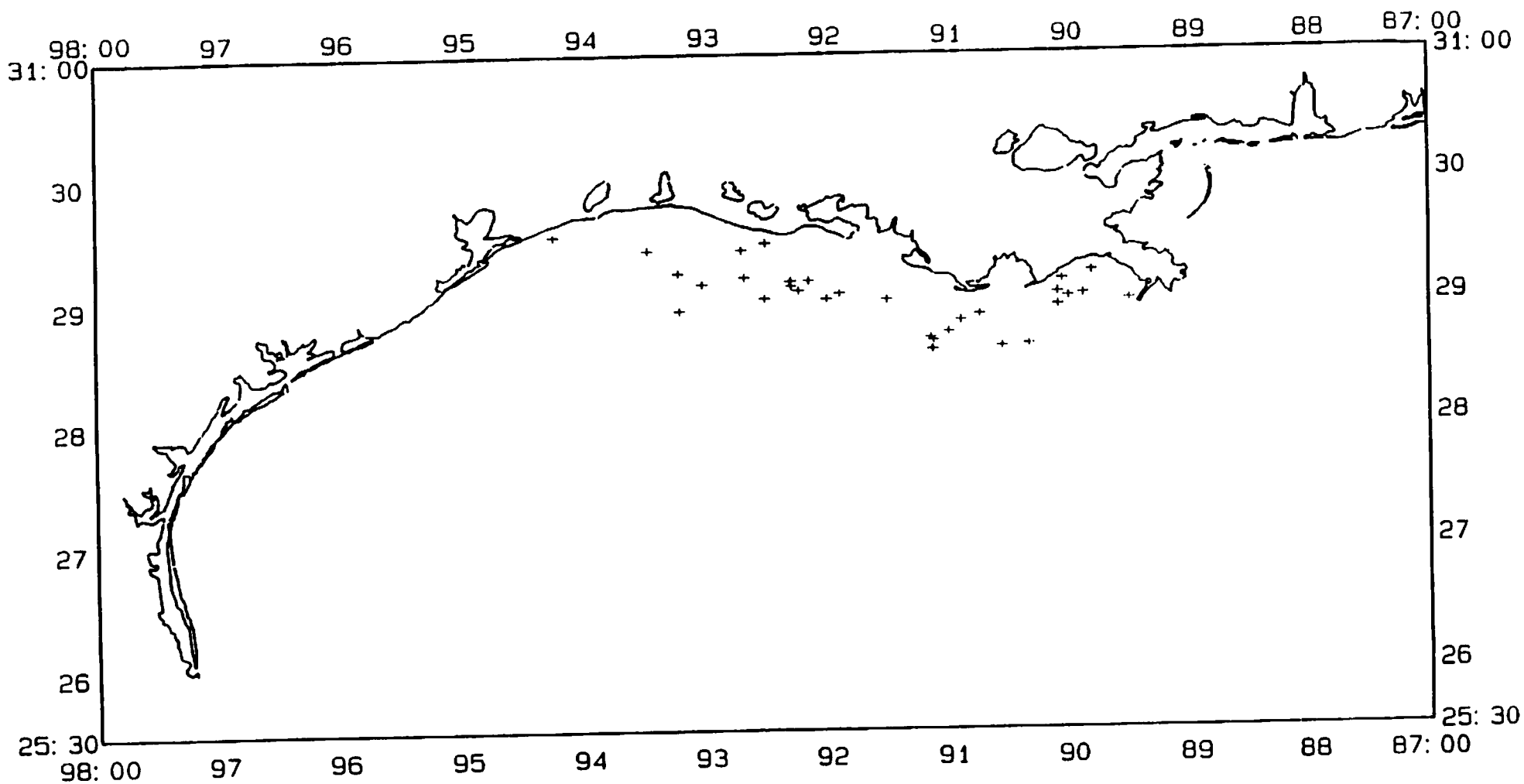


Figure 5. Map of the area sampled showing trawl sample sites where bottom dissolved oxygen was less than 2.0 ppm.