

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 98-01 (230)
06/18-07/17/98

INTRODUCTION

The NOAA Ship OREGON II departed Mobile, AL on June 18, 1998 for the 16th 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 at depths of 5 to 60 fathoms (fm) and to provide additional biological and catch rate information on groundfish in the same area.

Eight survey days were lost due to late departure from the ship yard and equipment failure. One day was lost due to weather. The cruise terminated in Pascagoula, MS on July 17, 1998.

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 the University of South Alabama.

METHODS

The shrimp assessment survey samples were collected using a 40-ft shrimp trawl with mud rollers and 8-ft X 40-in chain bracketed wooden doors. Sample sites between Mobile Bay, AL and the Texas-Mexico border in depths of 5 to 60 fm were randomly selected. Sample sites encompassed 1 to 3 fm depth strata between 5 and 25 fm, 5 fm strata between 25 and 50 fm, and a 10 fm strata between 50 and 60 fm. Tows were perpendicular to depth contours for 10 to 60 minutes duration. Several stations required multiple tows to sample the entire depth strata. Stations off the coast of Louisiana and Mississippi that required multiple tows to complete were changed to one 60 minute tow. This was necessary to make up for some of the time lost for equipment failure and weather.

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

One hundred ninety four 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 Fig. 2.

Brown shrimp, Penaeus aztecus, was the most abundant Penaeus shrimp species, followed by pinks, Penaeus duorarum, and whites, Penaeus setiferus. Browns shrimp catch rates (kg/hr) are summarized in Fig. 3.

No ichthyoplankton samples were taken due to hydraulic problems with the plankton winch.

The hypoxia areas (dissolved oxygen \leq 2.0 milligrams per liter) continued to be found off the shores of Louisiana and Texas. Hypoxia generally occurs this time of year west of the Mississippi River delta inside of 20 fm (Fig. 4).

On behalf of the scientific party I'd like to thank the commanding officer and crew of NOAA Ship OREGON II for their efforts during a successful survey.

CRUISE PARTICIPANTS

6/18-06/30/98

NAME	TITLE	ORGANIZATION
Nathaniel Sanders, Jr.	Field Party Chief	NMFS, Pascagoula, Miss.
Rob Ford	Watch Leader	NMFS, Pascagoula, Miss.
Nelson May	Watch Leader	NMFS, Pascagoula, Miss.
Harriet Perry	Watch Leader	NMFS, Pascagoula, Miss.
Kirsten Larsen	Co-operator	Gulf Coast Res. Lab, Ocean Springs, MS
Robin McCall	Co-operator	Gulf Coast Res. Lab Ocean Springs, MS
William Jeffries	Professor	Dickinson College, Carlisle, PA
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Marcy Hutchinson	Co-operator	Kenly, NC
Andre Debose	General Biol.	Johnson Controls
Tim Corbin	Co-operator	Hammond, LA

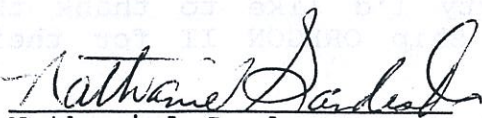
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NAME	TITLE	ORGANIZATION
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Gilmore Pellegrin, Jr	Watch Leader	NMFS, Pascagoula, Miss.
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Thom Henley	Co-operator	Texas A&M University

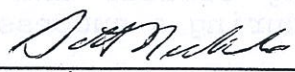
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NAME	TITLE	ORGANIZATION
Kevin Craig	Co-operator	Duke University
Shauneen Giudice	Teacher	Delmar Junior High, Delmar, DE
Marcy Hutchinson	Co-operator	Kenly, NC

Submitted By:


Nathaniel Sanders, Jr.
Field Party Chief

Approved By:


Scott Nichols, Director
Mississippi Laboratories



Bradford E. Brown, Director
Southeast Science & Research

Table 2. Twenty most abundant organisms caught in 40-ft trawls during NOAA Ship OREGON II Cruise 230. Catches were adjusted to numbers 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 = 194).

Genus	Species	Number	Weight (kg)	Catch Frequency
	<u>Micropogonias undulatus</u>	82,491	3,941.7	70
	<u>Stenotomus caprinus</u>	77,296	3,349.4	141
	<u>Penaeus aztecus</u>	63,790	1,213.6	168
	<u>Trachypeneus similis</u>	52,193	349.9	77
	<u>Chloroscombrus chrysurus</u>	39,477	1,989.1	87
	<u>Peprilus burti</u>	27,288	1,943.9	138
	<u>Loligo pleii</u>	18,833	576.8	109
	<u>Callinectes similis</u>	13,527	289.9	98
	<u>Leiostomus xanthurus</u>	13,502	1,317.7	52
	<u>Etrumeus teres</u>	12,882	179.4	57
	<u>Loligo pealei</u>	8,144	365.7	74
	<u>Squilla empusa</u>	7,528	166.3	80
	<u>Cynoscion nothus</u>	6,390	502.1	38
	<u>Trachurus lathami</u>	5,467	242.5	86
	<u>Lagodon rhomboides</u>	5,415	418.8	90
	<u>Cynoscion arenarius</u>	5,350	256.4	51
	<u>Prionotus longispinosus</u>	4,897	143.5	78
	<u>Upeneus parvus</u>	4,879	253.2	101
	<u>Xiphopenaeus kroyeri</u>	4,644	53.6	14
	<u>Saurida brasiliensis</u>	4,412	70.5	105

Table 1. Numbers in table indicate number of times strata were sampled.

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

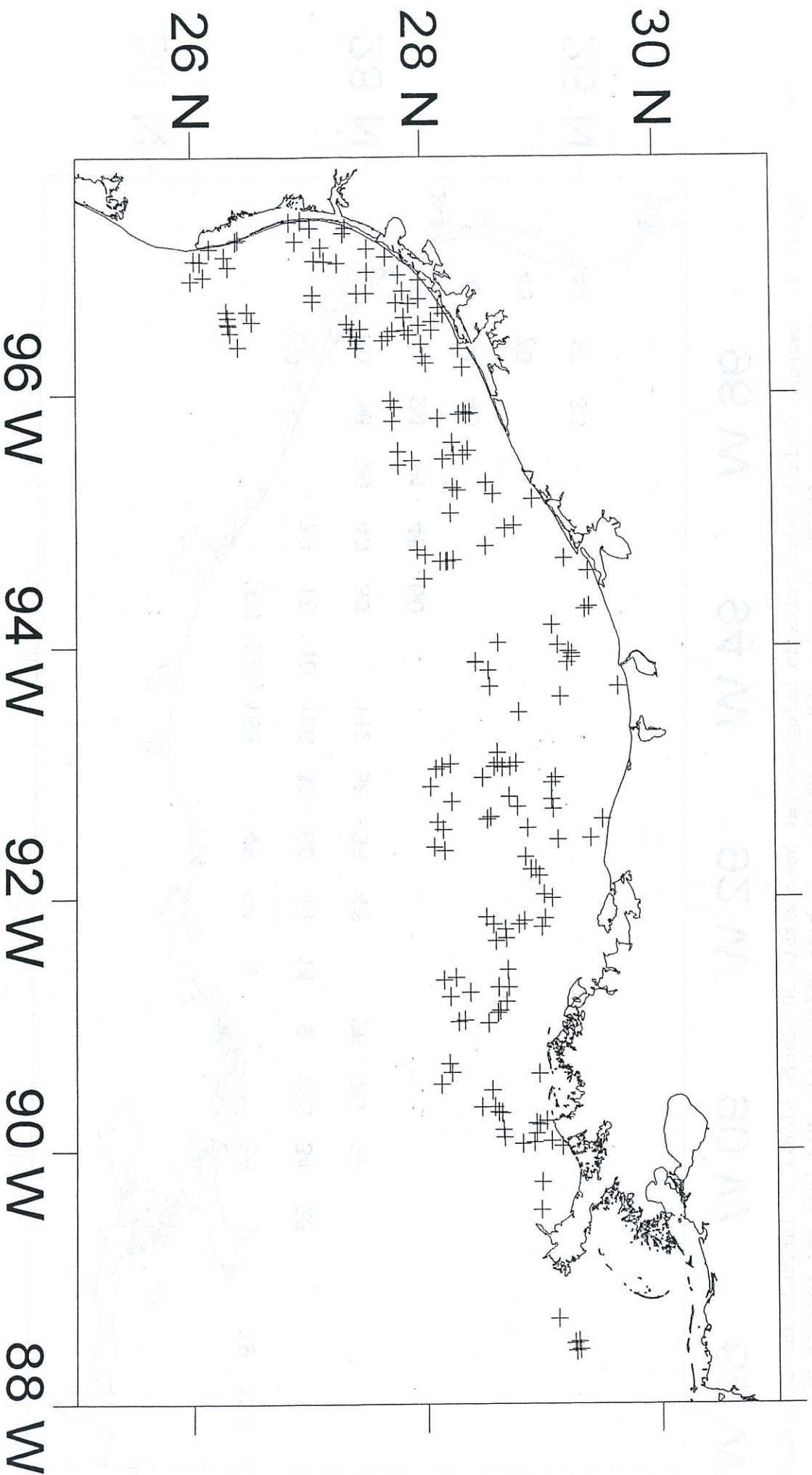


Figure 1. Locations of sampling stations accomplished during NOAA Ship OREGON II Cruise 230 (OT-98-01).

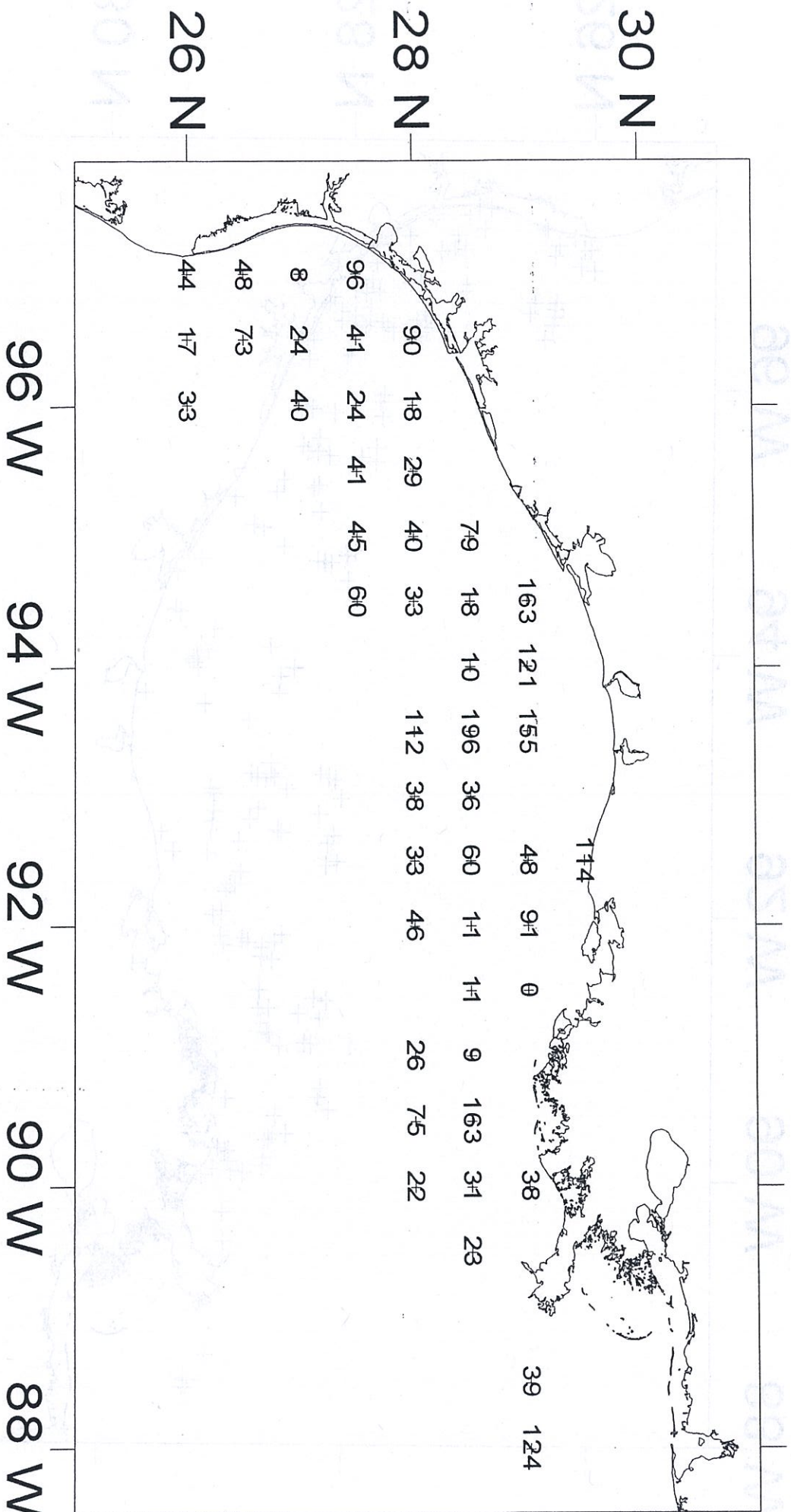


Figure 2. Average finfish catch rates in kilograms per hour within 30 minute blocks of latitude and longitude for NOAA Ship OREGON II Cruise 230 (OT-98-01). Numbers which occur over land are results of nearshore sampling and the subsequent placement of averages in block centers.

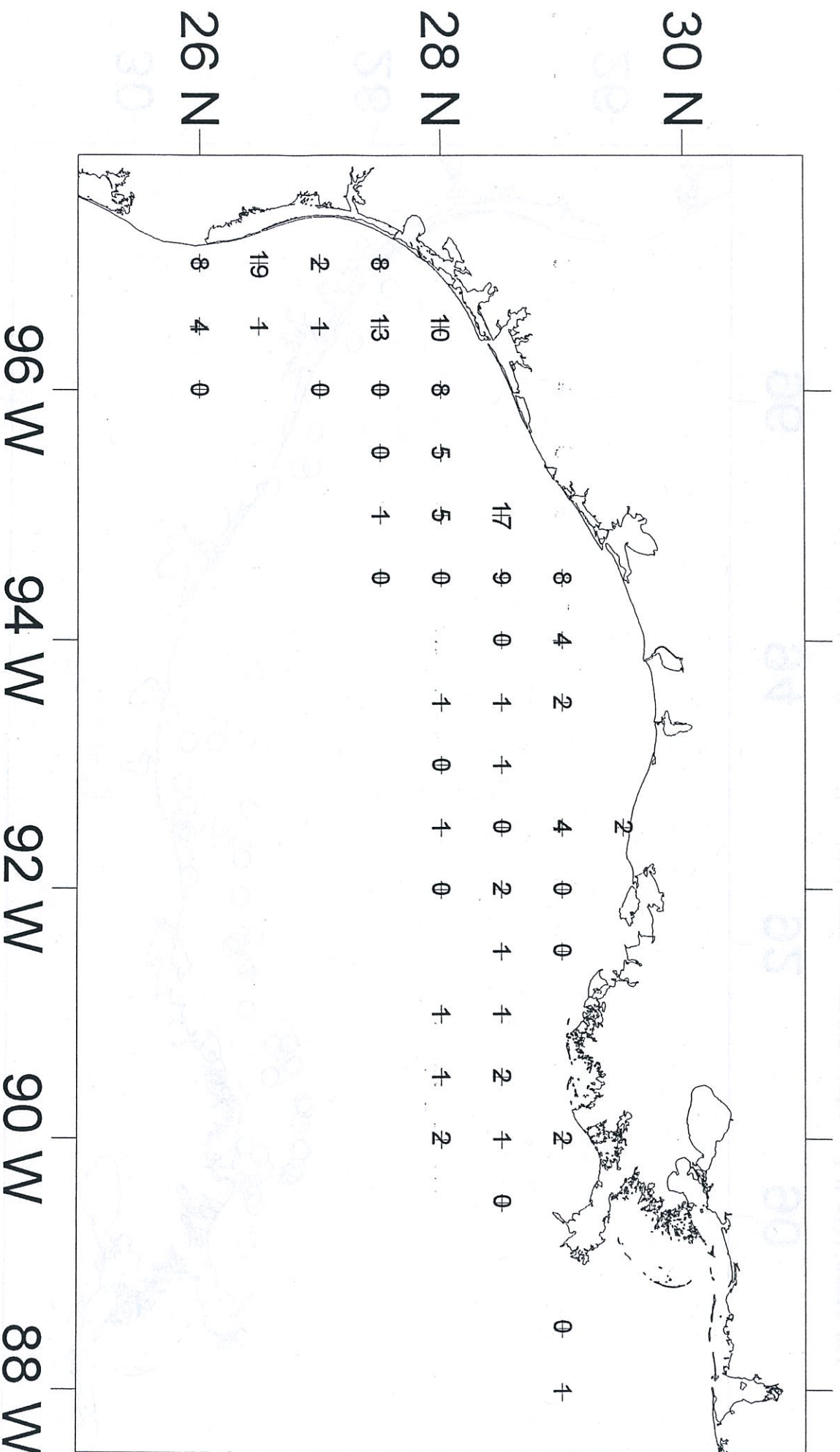


Figure 3. Average brown shrimp catch rates in kilograms per hour within 30 minute blocks of latitude and longitude for NOAA Ship OREGON II Cruise 230 (07-98-01). Numbers which occur over land are results of nearshore sampling and the subsequent placement of averages in block centers.

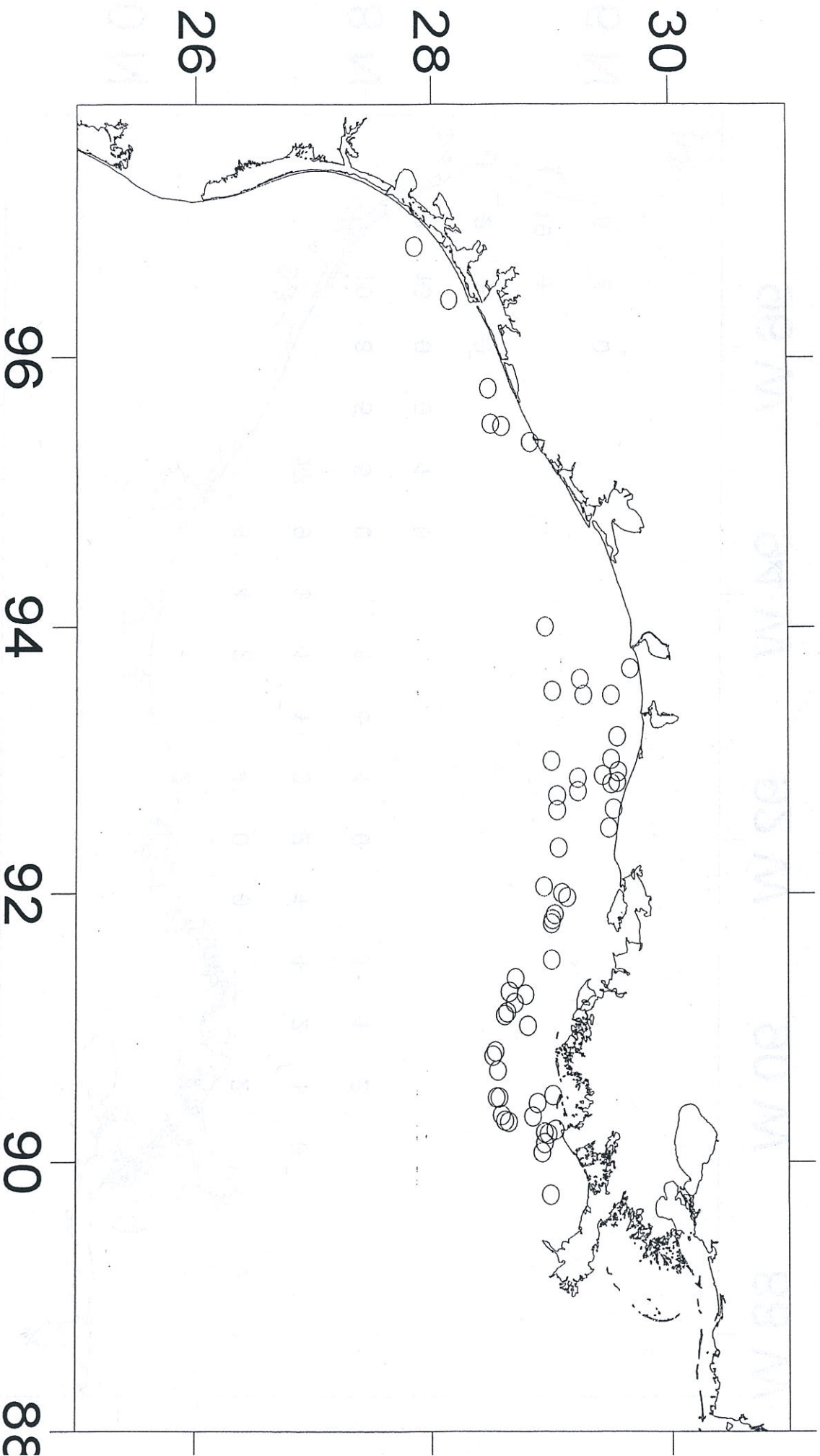


Figure 4. Locations where hypoxic conditions (bottom dissolved oxygen measurements ≤ 2.0 milligrams per liter) were encountered during NOAA Ship OREGON II Cruise 230 (OT-98-01).