

seamap

**environmental and
biological atlas of
the gulf of mexico
1993**

gulf states marine fisheries commission

number 34

january 1996

Gulf States Marine Fisheries Commission

Commissioners

ALABAMA

James Martin
Alabama Department of
Conservation and Natural
Resources
64 North Union Street
Montgomery, AL 36130

Representative Walter Penry
Alabama House of Representatives
12040 County Road 54
Daphne, AL 36526

Chris Nelson
Bon Secour Fisheries, Inc.
P.O. Box 60
Bon Secour, AL 36511

FLORIDA

Virginia Wetherell
Executive Director
Florida Department of Natural
Resources
3900 Commonwealth Blvd.
Tallahassee, FL 32399

Representative Allen Boyd
Florida House of Representatives
P.O. Box 551
Monticello, FL 32345

LOUISIANA

William S. "Corky" Perret
Assistant Secretary
Louisiana Department of Wildlife
and Fisheries
P.O. Box 98000
Baton Rouge, LA 70898-9000

Representative Frank J. Patti
Louisiana House of Representatives
P.O. Box 53
Belle Chasse, LA 70037

Leroy Kiffe
11066 Highway 1
Lockport, LA 70374

MISSISSIPPI

Earl Glade Woods
Executive Director
Mississippi Department of
Marine Resources
152 Gateway Drive
Biloxi, MS 39531

Senator Tommy Gollott
Mississippi Senate
155 5th Street
Biloxi, MS 39530

George Sekul
Gulf Central Seafoods, Inc.
132 Howard Avenue
Biloxi, MS 39530

TEXAS

Andrew Sansom
Executive Director
Texas Parks & Wildlife Department
4200 Smith School Road
Austin, TX 78744

Representative Robert Saunders
Texas House of Representatives
P.O. Box 2910
Austin, TX 78768-2910

Jan J. Harper
950 Bayou Road
Lake Jackson, TX 77566

Staff

Larry B. Simpson
Executive Director

Ronald R. Lukens
Virginia K. Herring
David M. Donaldson
Richard L. Leard

Nancy K. Marcellus
Cynthia D. Bosworth
Cheryl R. Noble
Madeleine A. Travis

SEAMAP ENVIRONMENTAL AND BIOLOGICAL ATLAS OF THE GULF OF MEXICO, 1993

Edited by

David M. Donaldson
Gulf States Marine Fisheries Commission
Ocean Springs, Mississippi

Nathaniel Sanders, Jr.
National Marine Fisheries Service
Pascagoula, Mississippi

Rick Minkler
National Marine Fisheries Service
Pascagoula, Mississippi

Perry A. Thompson
National Marine Fisheries Service
Pascagoula, Mississippi

Manuscript Design and Layout

Cheryl Noble
Gulf States Marine Fisheries Commission
Ocean Springs, Mississippi

GULF STATES MARINE FISHERIES COMMISSION

January 1996
Number 34

This project was supported in part by the National Oceanic and Atmospheric Administration, National Marine Fisheries Service, under State/Federal Project Number NA47FS0038.



SEAMAP SUBCOMMITTEE

Mr. Walter M. Tatum, Chairman
*Alabama Department of Conservation
and Natural Resources
Gulf Shores, Alabama*

Mr. Richard S. Waller, Vice Chairman
*Gulf Coast Research Laboratory
Ocean Springs, Mississippi*

Mr. Terry Cody
*Texas Parks and Wildlife Department
Rockport, Texas*

Mr. Jim Hanifen
*Louisiana Department of
Wildlife and Fisheries
Baton Rouge, Louisiana*

Dr. Joanne Lyczkowski-Shultz
*National Marine Fisheries Service
Pascagoula, Mississippi*

Mr. Mark Leiby
*Florida Department of Environmental
Protection
St. Petersburg, Florida*

Mr. Wayne Swingle
*Gulf of Mexico Fishery
Management Council
Tampa, Florida*

Mr. David Donaldson
*SEAMAP Coordinator
Gulf States Marine Fisheries Commission
Ocean Springs, Mississippi*

SEAMAP DATA COORDINATING WORK GROUP

Mr. Kenneth Savastano, Leader
*National Marine Fisheries Service
Stennis Space Center, Mississippi*

Mr. Stevens Heath
*Shrimp/Groundfish Work Group Leader
Alabama Department of Conservation
and Natural Resources
Dauphin Island, Alabama*

Mr. Walter Tatum
*SEAMAP Subcommittee Chairman
Alabama Department of Conservation
and Natural Resources
Gulf Shores, Alabama*

Mr. Michael Murphy
*Red Drum Work Group Leader
Florida Department of Natural Resources
St. Petersburg, Florida*

Mr. Richard Waller
*Reef Fish Work Group Leader
Gulf Coast Research Laboratory
Ocean Springs, Mississippi*

Dr. Joanne Lyczkowski-Shultz
*Plankton Work Group Leader
National Marine Fisheries Service
Pascagoula, Mississippi*

Dr. Terry Henwood
*Adult Finfish Work Group Leader
National Marine Fisheries Service
Pascagoula, Mississippi*

Mr. Perry Thompson
*Environmental Work Group Leader
National Marine Fisheries Service
Pascagoula, Mississippi*

TABLE OF CONTENTS

	PAGE
List of Tables.	vi
List of Figures	xiv
Acknowledgements	xviii
Introduction	1
Materials and Methods	1
Plankton Surveys	2
Environmental Surveys	2
Satellite Images	3
Trawl Surveys	3
Spring Louisiana Trawl Survey	3
Summer Shrimp/Groundfish Survey	3
Fall Shrimp/Groundfish Survey	4
Reef Fish Surveys	4
Reef Fish Survey	4
Results.	5
Plankton Surveys	5
Environmental Surveys	5
Trawl Surveys	5
Spring Louisiana Trawl Survey	5
Summer Shrimp/Groundfish Survey	5
Fall Shrimp/Groundfish Survey	6
Real-Time Data Management	6
Reef Fish Surveys	6
Reef Fish Survey	6
Discussion	7
Data Requests	8
Tables	9
Figures.	182
Literature Cited	283

LIST OF TABLES

		PAGE
Table 1.	List of SEAMAP survey activities from 1982 to 1992.	9
Table 2.	Selected environmental parameters measured during 1993 SEAMAP surveys in the Gulf of Mexico, by individual vessel and survey.	10
Table 3.	1993 Spring Louisiana Trawl Survey species composition list, 24 trawl stations, using 40-ft trawl. Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.	61
Table 4a.	Statistical Zone 13. 40-ft trawls. Summary of dominant organisms taken in statistical zone 13 during 1993 Spring Louisiana Trawl Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 11 fm or greater than 20 fm.	64
Table 4b.	Statistical Zone 13. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during 1993 Spring Louisiana Trawl Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 11 fm or greater than 20 fm.	65
Table 5a.	Statistical Zone 14. 40-ft trawls. Summary of dominant organisms taken in statistical zone 14 during 1993 Spring Louisiana Trawl Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.	66
Table 5b.	Statistical Zone 14. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during 1993 Spring Louisiana Trawl Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.	67
Table 6a.	Statistical Zone 15. 40-ft trawls. Summary of dominant organisms taken in statistical zone 15 during 1993 Spring Louisiana Trawl Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm or greater than 20 fm.	68
Table 6b.	Statistical Zone 15. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during 1993 Spring Louisiana Trawl Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 fm or greater than 20 fm.	69
Table 7.	1993 Summer Shrimp/Groundfish Survey species composition list, 299 trawl stations, for those vessels that used a 40-ft trawl. Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.	70
Table 8.	1993 Summer Shrimp/Groundfish Survey species composition list, 80 trawl stations, for those vessels that used a 20-ft trawl. Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.	80
Table 9a.	Statistical Zone 11. 40-ft trawls. Summary of dominant organisms taken in statistical zone 11 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.	85

LIST OF TABLES

PAGE

Table 9b. Statistical Zone 11. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. 87

Table 10a. Statistical Zone 13. 40-ft trawls. Summary of dominant organisms taken in statistical zone 13 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm. 88

Table 10b. Statistical Zone 13. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 40 fm. 90

Table 11a. Statistical Zone 14. 40-ft trawls. Summary of dominant organisms taken in statistical zone 14 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. 91

Table 11b. Statistical Zone 14. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. 93

Table 12a. Statistical Zone 15. 40-ft trawls. Summary of dominant organisms taken in statistical zone 15 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. 94

Table 12b. Statistical Zone 15. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. 96

Table 13a. Statistical Zone 16. 40-ft trawls. Summary of dominant organisms taken in statistical zone 16 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. 97

Table 13b. Statistical Zone 16. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. 99

Table 14a. Statistical Zone 17. 40-ft trawls. Summary of dominant organisms taken in statistical zone 17 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm. 100

LIST OF TABLES

	PAGE
Table 14b. Statistical Zone 17. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 40 fm.	102
Table 15a. Statistical Zone 18. 40-ft trawls. Summary of dominant organisms taken in statistical zone 18 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.	103
Table 15b. Statistical Zone 18. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.	105
Table 16a. Statistical Zone 19. 40-ft trawls. Summary of dominant organisms taken in statistical zone 19 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.	106
Table 16b. Statistical Zone 19. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 30 fm.	108
Table 17a. Statistical Zone 20. 40-ft trawls. Summary of dominant organisms taken in statistical zone 20 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.	109
Table 17b. Statistical Zone 20. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 fm.	111
Table 18a. Statistical Zone 21. 40-ft trawls. Summary of dominant organisms taken in statistical zone 21 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.	112
Table 18b. Statistical Zone 21. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.	114
Table 19a. Statistical Zone 17. 20-ft trawls. Summary of dominant organisms taken in statistical zone 17 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 10 fm.	115

LIST OF TABLES

	PAGE
Table 19b. Statistical Zone 17. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 10 fm.	116
Table 20a. Statistical Zone 18. 20-ft trawls. Summary of dominant organisms taken in statistical zone 18 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 10 fm.	117
Table 20b. Statistical Zone 18. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 10 fm.	118
Table 21a. Statistical Zone 19. 20-ft trawls. Summary of dominant organisms taken in statistical zone 19 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.	119
Table 21b. Statistical Zone 19. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.	120
Table 22a. Statistical Zone 20. 20-ft trawls. Summary of dominant organisms taken in statistical zone 20 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.	121
Table 22b. Statistical Zone 20. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.	122
Table 23a. Statistical Zone 21. 20-ft trawls. Summary of dominant organisms taken in statistical zone 21 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.	123
Table 23b. Statistical Zone 21. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.	124

LIST OF TABLES

	PAGE
Table 24a. Statistical Zone 22. 20-ft trawls. Summary of dominant organisms taken in statistical zone 22 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 11 fm or greater than 20 fm.	125
Table 24b. Statistical Zone 22. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 11 fm or greater than 20 fm.	126
Table 25. 1993 Fall Shrimp/Groundfish Survey species composition list, 331 trawl stations, for those vessels that used a 40-ft trawl. Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.	127
Table 26. 1993 Fall Shrimp/Groundfish Survey species composition list, 80 trawl stations, for those vessels that used a 20-ft trawl. Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.	137
Table 27a. Statistical Zone 11. 40-ft trawls. Summary of dominant organisms taken in statistical zone 11 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.	141
Table 27b. Statistical Zone 11. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.	143
Table 28a. Statistical Zone 13. 40-ft trawls. Summary of dominant organisms taken in statistical zone 13 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths between 31-40 fm.	144
Table 28b. Statistical Zone 13. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths between 31-40 fm.	146
Table 29a. Statistical Zone 14. 40-ft trawls. Summary of dominant organisms taken in statistical zone 14 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.	147
Table 29b. Statistical Zone 14. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 fm.	149
Table 30a. Statistical Zone 15. 40-ft trawls. Summary of dominant organisms taken in statistical zone 15 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.	150

LIST OF TABLES

	PAGE
Table 30b. Statistical Zone 15. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.	152
Table 31a. Statistical Zone 16. 40-ft trawls. Summary of dominant organisms taken in statistical zone 16 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.	153
Table 31b. Statistical Zone 16. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.	155
Table 32a. Statistical Zone 17. 40-ft trawls. Summary of dominant organisms taken in statistical zone 17 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm or between 31-40 fm.	156
Table 32b. Statistical Zone 17. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 fm or between 31-40 fm.	158
Table 33a. Statistical Zone 18. 40-ft trawls. Summary of dominant organisms taken in statistical zone 18 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.	159
Table 33b. Statistical Zone 18. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 fm.	161
Table 34a. Statistical Zone 19. 40-ft trawls. Summary of dominant organisms taken in statistical zone 19 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.	162
Table 34b. Statistical Zone 19. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 30 fm.	164
Table 35a. Statistical Zone 20. 40-ft trawls. Summary of dominant organisms taken in statistical zone 20 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.	165

LIST OF TABLES

PAGE

Table 35b. Statistical Zone 20. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. 167

Table 36a. Statistical Zone 21. 40-ft trawls. Summary of dominant organisms taken in statistical zone 21 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm. 168

Table 36b. Statistical Zone 21. 40-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 40 fm. 170

Table 37a. Statistical Zone 17. 20-ft trawls. Summary of dominant organisms taken in statistical zone 17 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 5 fm. 171

Table 37b. Statistical Zone 17. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 5 fm. 172

Table 38a. Statistical Zone 18. 20-ft trawls. Summary of dominant organisms taken in statistical zone 18 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 10 fm. 173

Table 38b. Statistical Zone 18. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 10 fm. 174

Table 39a. Statistical Zone 19. 20-ft trawls. Summary of dominant organisms taken in statistical zone 19 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm or greater than 20 fm. 175

Table 39b. Statistical Zone 19. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 6 fm or greater than 20 fm. 176

Table 40a. Statistical Zone 20. 20-ft trawls. Summary of dominant organisms taken in statistical zone 20 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm. 177

LIST OF TABLES

	PAGE
Table 40b. Statistical Zone 20. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.	178
Table 41a. Statistical Zone 21. 20-ft trawls. Summary of dominant organisms taken in statistical zone 21 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.	179
Table 41b. Statistical Zone 21. 20-ft trawls. Summary of the mean total catch and environmental data (X), the standard error of the mean (SEM) and the number of samples taken (N) during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.	180
Table 42. 1993 Reef Fish Survey species composition list, 199 stations, Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg. . . .	181

LIST OF FIGURES

		PAGE
Figure 1.	1993 SEAMAP Surveys, Gulf of Mexico.	182
Figure 2.	Statistical zones for shrimp in the Gulf of Mexico.	183
Figure 3.	Locations of plankton and environmental stations during 1993 Spring Plankton Survey.	184
Figure 4.	Locations of plankton stations during 1993 Summer Shrimp/Groundfish Survey.	185
Figure 5.	Locations of plankton and environmental stations during 1993 Fall Plankton Survey.	186
Figure 6.	Locations of plankton stations during 1993 Fall Shrimp/Groundfish Survey.	187
Figure 7.	Locations of environmental stations during the 1993 Summer Shrimp/Groundfish Survey summarized by 10-minute squares.	188
Figure 8.	Locations of environmental stations during the 1993 Fall Shrimp/Groundfish Survey summarized by 10-minute squares.	189
Figure 9.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, March 2, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	190
Figure 10.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, April 18, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	191
Figure 11.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, May 11, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	192
Figure 12.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, June 6, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	193
Figure 13.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, July 13, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	194
Figure 14.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, August 15, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	195
Figure 15.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, September 7, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	196
Figure 16.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, October 12, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	197
Figure 17.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, November 9, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	198
Figure 18.	Satellite measurement of surface temperature (°C) in the Gulf of Mexico, December 5, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).	199
Figure 19.	Locations of trawl stations during the 1993 Summer Shrimp/Groundfish Survey summarized by 10-minute squares.	200
Figure 20.	Locations of trawl stations during the 1993 Fall Shrimp/Groundfish Survey, summarized by 10-minute squares.	201
Figure 21.	Locations of trap stations during 1993 Spring Reef Fish Survey.	202
Figure 22.	Atlantic croaker, <i>Micropogonias undulatus</i> , number/hour for June-July 1993.	203
Figure 23.	Atlantic croaker, <i>Micropogonias undulatus</i> , lb/hour for June-July 1993.	204
Figure 24.	Atlantic bumper, <i>Chloroscombrus chrysurus</i> , number/hour for June-July 1993.	205

LIST OF FIGURES

		PAGE
Figure 25.	Atlantic bumper, <i>Chloroscombrus chrysurus</i> , lb/hour for June-July 1993.	206
Figure 26.	Longspine porgy, <i>Stenotomus caprinus</i> , number/hour for June-July 1993.	207
Figure 27.	Longspine porgy, <i>Stenotomus caprinus</i> , lb/hour for June-July 1993.	208
Figure 28.	Gulf butterfish, <i>Peprilus burti</i> , number/hour for June-July 1993.	209
Figure 29.	Gulf butterfish, <i>Peprilus burti</i> , lb/hour for June-July 1993.	210
Figure 30.	Bigeye searobin, <i>Prionotus longispinosus</i> , number/hour for June-July 1993.	211
Figure 31.	Bigeye searobin, <i>Prionotus longispinosus</i> , lb/hour for June-July 1993.	212
Figure 32.	Blackwing searobin, <i>Prionotus rubio</i> , number/hour for June-July 1993.	213
Figure 33.	Blackwing searobin, <i>Prionotus rubio</i> , lb/hour for June-July 1993.	214
Figure 34.	Spot, <i>Leiostomus xanthurus</i> , number/hour for June-July 1993.	215
Figure 35.	Spot, <i>Leiostomus xanthurus</i> , lb/hour for June-July 1993.	216
Figure 36.	Atlantic cutlassfish, <i>Trichiurus lepturus</i> , number/hour for June-July 1993.	217
Figure 37.	Atlantic cutlassfish, <i>Trichiurus lepturus</i> , lb/hour for June-July 1993.	218
Figure 38.	Blackear bass, <i>Serranus atrobranchus</i> , number/hour for June-July 1993.	219
Figure 39.	Blackear bass, <i>Serranus atrobranchus</i> , lb/hour for June-July 1993.	220
Figure 40.	Rock sea bass, <i>Centropristis philadelphia</i> , number/hour for June-July 1993.	221
Figure 41.	Rock sea bass, <i>Centropristis philadelphia</i> , lb/hour for June-July 1993.	222
Figure 42.	Red snapper, <i>Lutjanus campechanus</i> , number/hour for June-July 1993.	223
Figure 43.	Red snapper, <i>Lutjanus campechanus</i> , lb/hour for June-July 1993.	224
Figure 44.	Brown shrimp, <i>Penaeus aztecus</i> , number/hour for June-July 1993.	225
Figure 45.	Brown shrimp, <i>Penaeus aztecus</i> , lb/hour for June-July 1993.	226
Figure 46.	Pink shrimp, <i>Penaeus duorarum</i> , number/hour for June-July 1993.	227
Figure 47.	Pink shrimp, <i>Penaeus duorarum</i> , lb/hour for June-July 1993.	228
Figure 48.	White shrimp, <i>Penaeus setiferus</i> , number/hour for June-July 1993.	229
Figure 49.	White shrimp, <i>Penaeus setiferus</i> , lb/hour for June-July 1993.	230
Figure 50.	Roughback shrimp, <i>Trachypenaeus similis</i> , number/hour for June-July 1993.	231
Figure 51.	Roughback shrimp, <i>Trachypenaeus similis</i> , lb/hour for June-July 1993.	232
Figure 52.	Lesser blue crab, <i>Callinectes similis</i> , number/hour for June-July 1993.	233
Figure 53.	Lesser blue crab, <i>Callinectes similis</i> , lb/hour for June-July 1993.	234
Figure 54.	Mantis shrimp, <i>Squilla empusa</i> , number/hour for June-July 1993.	235
Figure 55.	Mantis shrimp, <i>Squilla empusa</i> , lb/hour for June-July 1993.	236
Figure 56.	Brown rock shrimp, <i>Sicyonia brevirostris</i> , number/hour for June-July 1993.	237
Figure 57.	Brown rock shrimp, <i>Sicyonia brevirostris</i> , lb/hour for June-July 1993.	238

LIST OF FIGURES

		PAGE
Figure 58.	Longspine swimming crab, <u>Portunus spinicarpus</u> , number/hour for June-July 1993.	239
Figure 59.	Longspine swimming crab, <u>Portunus spinicarpus</u> , lb/hour for June-July 1993.	240
Figure 60.	Squids, <u>Loligo spp.</u> , number/hour for June-July 1993.	241
Figure 61.	Squids, <u>Loligo spp.</u> , lb/hour for June-July 1993.	242
Figure 62.	Atlantic croaker, <u>Micropogonias undulatus</u> , number/hour for October-December 1993.	243
Figure 63.	Atlantic croaker, <u>Micropogonias undulatus</u> , lb/hour for October-December 1993.	244
Figure 64.	Longspine porgy, <u>Stenotomus caprinus</u> , number/hour for October-December 1993.	245
Figure 65.	Longspine porgy, <u>Stenotomus caprinus</u> , lb/hour for October-December 1993.	246
Figure 66.	Atlantic bumper, <u>Chloroscombrus chrysurus</u> , number/hour for October-December 1993.	247
Figure 67.	Atlantic bumper, <u>Chloroscombrus chrysurus</u> , lb/hour for October-December 1993.	248
Figure 68.	Gulf butterflyfish, <u>Peprilus burti</u> , number/hour for October-December 1993.	249
Figure 69.	Gulf butterflyfish, <u>Peprilus burti</u> , lb/hour for October-December 1993.	250
Figure 70.	Hardhead catfish, <u>Arius felis</u> , number/hour for October-December 1993.	251
Figure 71.	Hardhead catfish, <u>Arius felis</u> , lb/hour for October-December 1993.	252
Figure 72.	Bigeye searobin, <u>Prionotus longispinosus</u> , number/hour for October-December 1993.	253
Figure 73.	Bigeye searobin, <u>Prionotus longispinosus</u> , lb/hour for October-December 1993.	254
Figure 74.	Spot, <u>Leiostomus xanthurus</u> , number/hour for October-December 1993.	255
Figure 75.	Spot, <u>Leiostomus xanthurus</u> , lb/hour for October-December 1993.	256
Figure 76.	Atlantic cutlassfish, <u>Trichiurus lepturus</u> , number/hour for October-December 1993.	257
Figure 77.	Atlantic cutlassfish, <u>Trichiurus lepturus</u> , lb/hour for October-December 1993.	258
Figure 78.	Sand seatrout, <u>Cynoscion arenarius</u> , number/hour for October-December 1993.	259
Figure 79.	Sand seatrout, <u>Cynoscion arenarius</u> , lb/hour for October-December 1993.	260
Figure 80.	Seatrouts, <u>Cynoscion spp.</u> , number/hour for October-December 1993.	261
Figure 81.	Seatrouts, <u>Cynoscion spp.</u> , lb/hour for October-December 1993.	262
Figure 82.	Red snapper, <u>Lutjanus campechanus</u> , number/hour for October-December 1993.	263
Figure 83.	Red snapper, <u>Lutjanus campechanus</u> , lb/hour for October-December 1993.	264
Figure 84.	Brown shrimp, <u>Penaeus aztecus</u> , number/hour for October-December 1993.	265
Figure 85.	Brown shrimp, <u>Penaeus aztecus</u> , lb/hour for October-December 1993.	266
Figure 86.	Pink shrimp, <u>Penaeus duorarum</u> , number/hour for October-December 1993.	267
Figure 87.	Pink shrimp, <u>Penaeus duorarum</u> , lb/hour for October-December 1993.	268
Figure 88.	White shrimp, <u>Penaeus setiferus</u> , number/hour for October-December 1993.	269
Figure 89.	White shrimp, <u>Penaeus setiferus</u> , lb/hour for October-December 1993.	270
Figure 90.	Mantis shrimps, <u>Squilla spp.</u> , number/hour for October-December 1993.	271

LIST OF FIGURES

		PAGE
Figure 91.	Mantis shrimps, <u>Squilla spp.</u> , lb/hour for October-December 1993.	272
Figure 92.	Roughback shrimp, <u>Trachypenaeus similis</u> , number/hour for October-December 1993.	273
Figure 93.	Roughback shrimp, <u>Trachypenaeus similis</u> , lb/hour for October-December 1993.	274
Figure 94.	Lesser blue crab, <u>Callinectes similis</u> , number/hour for October-December 1993.	275
Figure 95.	Lesser blue crab, <u>Callinectes similis</u> , lb/hour for October-December.	276
Figure 96.	Iridescent swimming crab, <u>Portunus gibbesii</u> , number/hour for October-December 1993.	277
Figure 97.	Iridescent swimming crab, <u>Portunus gibbesii</u> , lb/hour for October-December 1993.	278
Figure 98.	Brown rock shrimp, <u>Sicyonia brevirostris</u> , number/hour for October-December 1993.	279
Figure 99.	Brown rock shrimp, <u>Sicyonia brevirostris</u> , lb/hour for October-December 1993.	280
Figure 100.	Squids, <u>Lolligo spp.</u> , number/hour for October-December 1993.	281
Figure 101.	Squids, <u>Lolligo spp.</u> , lb/hour for October-December 1993.	282

ACKNOWLEDGEMENTS

The 1993 SEAMAP Atlas was developed as a cooperative effort between the five Gulf States fishery management agencies and the National Marine Fisheries Service (NMFS), to present information collected during SEAMAP research survey activities in the Gulf of Mexico. The SEAMAP Data Coordinating Work Group would like to thank the following agencies for their participation in the project: Florida Department of Environmental Protection, Alabama Department of Conservation and Natural Resources, Gulf Coast Research Laboratory (representing the Mississippi Department of Marine Resources), Louisiana Department of Wildlife and Fisheries, Texas Parks and Wildlife Department, and NMFS-Southeast Fisheries Science Center.

Special thanks go to NMFS-Southeast Fisheries Science Center, Mississippi Laboratory personnel Rosanne Brasher, April Jahncke and Mark Grace; and to Cheryl Noble of the Gulf States Marine Fisheries Commission staff for her assistance in preparing this atlas.

INTRODUCTION

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a State/Federal/university program for the collection, management and dissemination of fishery-independent data (information collected without direct reliance on statistics reported by commercial or recreational fishermen) in United States waters of the Gulf of Mexico (Eldridge 1988). A major SEAMAP objective is to provide a large, standardized data base needed by management agencies, industry and scientists to wisely manage and develop fishery resources for the least possible cost. To accomplish this goal, survey data must be disseminated in a useful format to SEAMAP participants, cooperators and other interested organizations.

The SEAMAP Program began in March 1981 when the National Marine Fisheries Service (NMFS), Southeast Fisheries Science Center (SEFSC), presented a SEAMAP Strategic Plan (1981) to the Gulf States Marine Fisheries Commission (GSMFC). This strategic plan outlined the proposed program organization (goals, objectives, procedures, resource requirements, etc.); within the existing framework of the GSMFC, a SEAMAP Subcommittee was then formed. The Subcommittee consists of one representative from each state fishery management agency [Florida Department of Environmental Protection (FDEP); Alabama Department of Conservation and Natural Resources (ADCNR); Mississippi Department of Marine Resources (MDMR) represented by the Gulf Coast Research Laboratory (GCRL); Louisiana Department of Wildlife and Fisheries (LDWF) and Texas Parks and Wildlife Department (TPWD)], one from NMFS Southeast Fisheries Science Center and a non-voting member representing the Gulf of Mexico Fishery Management Council (GMFMC). The Subcommittee organized and successfully coordinated a number of surveys between 1982 through 1992 (Table 1). The data are published in atlases for the surveys in 1982 (Stuntz et al. 1985); 1983 (Thompson and Bane 1986a); 1984 (Thompson and Bane 1986b); 1985 (Thompson et al. 1988); 1986 (Sanders et al. 1990a); 1987 (Sanders et al. 1990b); 1988 (Sanders et al. 1991a); 1989 (Sanders et al. 1991b); 1990 (Sanders et al. 1992); 1991 (Donaldson et al. 1993); and 1992 (Donaldson et al. 1994). Environmental assessment activities occurred with each of the surveys found in Table 1.

In March 1993, the SEAMAP Subcommittee identified and began to plan the year's SEAMAP survey activities for the Gulf of Mexico. In keeping with the program goal of establishing a coordinated long-term resource data base, it was decided to continue the same types of survey activities conducted in 1982 through 1992. Overall survey objectives in 1982 to 1992 were to assess the distribution and abundance of recreational and commercial organisms collected by plankton, trap/video and trawl gears and document environmental factors that might affect their distribution and abundance. The basis for plankton work was primarily assessment of selected finfish and invertebrate eggs and larvae across the northern Gulf of Mexico (Sherman et al. 1983). The basis for the trawl surveys which started with the Texas Closure (Nichols 1982, 1984; Nichols and Poffenberger 1987), was to establish a seasonal data base to assess the abundance and distribution of the shrimp and groundfish stocks across the northern Gulf of Mexico. The basis for the Reef Fish Survey is to determine the relative abundance of reef fish populations and habitat using a fish trap/video recording system and a fisheries acoustic system (Russell 1992).

A major purpose of SEAMAP is to provide resource survey data to State and Federal management agencies and universities participating in SEAMAP activities. This twelfth in a series of SEAMAP environmental and biological atlases presents such data, in a summarized form, collected during the 1993 SEAMAP surveys. The area covered in the Gulf of Mexico for all SEAMAP survey activities during 1993 is shown in Figure 1.

MATERIALS AND METHODS

Methodology for the 1993 SEAMAP surveys is similar to that of the 1982 through 1992 surveys. Sampling was conducted within the U.S. Exclusive Economic Zone (EEZ) and state territorial waters. Vessels that participated in collecting plankton and environmental data during the Spring Plankton Survey included the NOAA Ship CHAPMAN (April 26-May 14); the NOAA Ship OREGON II (May 19-June 15); and the Florida vessel BELLOWS (May 12-15). The Louisiana vessel PELICAN collected plankton samples off Louisiana during its seasonal trawl surveys (March 22-26).

Vessels that participated in the Reef Fish Survey and concurrently sampled plankton and environmental data included the GCRL vessel TOMMY MUNRO (June 19-20); the NOAA Ship CHAPMAN (May 23-July 1); and the Alabama Vessel A.E. VERRILL (July 29, September 19, 23-24, and November 30). In addition, the NOAA Ship CHAPMAN collected periodic plankton samples during the survey.

Vessels that participated in the Summer Shrimp/Groundfish Survey and concurrently sampled plankton and environmental data included the GCRL vessel TOMMY MUNRO (June 11-13 and 23 and July 6-8); the NOAA Ship OREGON II (June 19 - July 21); and the Louisiana vessel PELICAN (July 5-8). The Alabama vessel A.E. VERRILL (June 3 and 11) and the TPWD vessels ARANSAS BAY, MATAGORDA BAY, LAGUNA MADRE, GALVESTON BAY and SABINE (June 1-28) did not sample plankton in conjunction with the summer survey.

Vessels that participated in collecting plankton and environmental data during the Fall Plankton Survey included the NOAA Ship CHAPMAN (September 10-29); the GCRL vessel TOMMY MUNRO (September 20-21); the Alabama vessel A.E. VERRILL (September 21); the Louisiana vessel PELICAN (October 4-7); the NOAA Ship OREGON II (October 5-6); and the Florida vessel SUN COASTER (October 11-18).

Vessels that participated in the Fall Shrimp/Groundfish Survey and concurrently sampled plankton and environmental data included the NOAA Ship OREGON II (October 5-November 18); the GCRL vessel TOMMY MUNRO (October 28 - November 3); and the Louisiana vessel PELICAN (November 29 - December 3). The Alabama vessel A.E. VERRILL (October 25 and 27); and the TPWD vessels ARANSAS BAY, MATAGORDA BAY, LAGUNA MADRE, GALVESTON BAY and SABINE (November 1-22) did not sample plankton in conjunction with the fall survey.

PLANKTON SURVEYS

Plankton samples were taken at stations arranged in a systematic grid across the Gulf of Mexico. Such a grid was chosen because of the large survey area. Stations were set at minimum intervals of 30 miles (1/2 degree). The exceptions were with LDWF vessels, which collected samples opportunistically at the end of a trawl station.

Sampling gear and procedures were similar to those recommended by Kramer et al. (1972), Smith and Richardson (1977) and Posgay and Marak (1980). Plankton sampling gear consisted of standard 61-cm bongos and a 2x1-m neuston net for the large vessels. The bongos were fitted with 0.333-mm mesh nets with either hard (PVC) or soft (0.333-mm mesh net) cod ends. A flowmeter was mounted off-center in the mouth of each net to record the volume of water filtered. A 50-lb weight was attached approximately 1 m below the bongo frame attachment. The neuston net consisted of a 2x1-m pipe frame fitted with a 0.948-mm mesh net on which the cod end was tied off.

At each designated plankton station, either an oblique bongo/surface neuston tow or a surface neuston tow was made. In deep water bongo stations (more than 95 m) a standard oblique tow was made to 200 m, or to 2 m off the bottom at depths less than 200 m, with a payout speed of 50 m/min, 30-second settling time depths under 100 m and a 1-minute settling time for depths over 100 m, and a retrieval speed of 20 m/min, at a vessel speed of 1.5 knots to maintain a 45° angle. Neuston tows were made at the surface with the net half-submerged for 10 minutes at a vessel speed of 1.5 knots. The Louisiana vessels made plankton tows with small, 20-cm bongo nets with 0.333-mm mesh and soft cod ends.

Samples were preserved initially in 10% buffered formalin. After a 48-hr period, the bongo and neuston samples were transferred to 95% ethyl alcohol for final preservation. The Pascagoula Laboratory curated and computerized the sample data. The right bongo sample and the neuston sample from each station were transshipped to the Polish Sorting and Identification Center (PSIC) in Szczecin, Poland, for sorting and identification. Plankton samples from Louisiana vessels were retained by LDWF for sorting and identification at their facilities. All ichthyoplankton components (eggs and larvae) were removed from each sample and the fish larvae identified to the lowest feasible taxon (families in most cases).

Sorted ichthyoplankton specimens from PSIC were returned to the SEAMAP Archiving Center (SAC), managed in conjunction with the FDEP, for long-term storage under museum-like conditions. Sorted ichthyoplankton samples from 1982 through 1993 are available for loan to researchers throughout the country. Plankton volumes were determined according to procedures in Smith and Richardson (1977). The alternate bongo sample from each station was retained at GCRL as a backup for those samples transshipped to the PSIC, in case of loss or damage during transit. These backup unsorted plankton samples containing zooplankton and phytoplankton are stored at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC), managed in conjunction with GCRL, for use by researchers.

ENVIRONMENTAL SURVEYS

Standardized methodology was used although the actual parameters measured varied among vessels participating in each survey. The following parameters were recorded:

Vessel: Vessel code for each vessel.

Station: Station identifiers varied by state and vessel.

Cruise: Cruise numbers varied by state and vessels.

Date: Month/Day/Year.

Time: Local time and time zone, recorded at the start of sampling.

Latitude/longitude: Recorded to seconds.

Barometric pressure: Recorded in millibars.

Wave height: Estimated visually in meters.

Wind speed and direction: Recorded in knots with direction recorded in compass degrees from which the wind was blowing.

Air temperature: Recorded in Centigrade.

Cloud type: Types of clouds recorded in daylight stations.

Cloud cover: Estimated visually in percent cloud cover.

Secchi depth: Secchi depth in meters, estimated at each daylight station. Standard oceanographic 30-cm white discs were lowered until no longer visible, then raised until visible. If different depths were recorded, an average was used.

Water Color: Forel-Ule data was recorded.

The following parameters were measured at the surface, mid-depth and bottom; for bottom depths greater than 200 m, samples were taken at surface, 100 m and 200 m:

Water temperature: Temperatures were measured by a hand-held thermometer onboard ship, in situ electronic sensors, or in situ reversing thermometers. No attempt was made to intercalibrate the various instruments used on individual vessels although several vessels did sample together to calibrate other sampling gear. Some error can be expected.

Salinity: Salinity samples were collected by Niskin bottles and stored for laboratory analysis with a salinometer. Conductivity probes or refractometers were used on some vessels.

Chlorophyll: Chlorophyll samples were collected and frozen for later laboratory analysis. The general procedure for shipboard collection of chlorophyll was to collect more than 9 liters of water from the surface. This was kept stirred by bubbling air through it while filtration was being done. Three samples, to each of which a 1 ml, 1% (W/V), suspension of $MgCO_3$ was added, of up to 3 liters of water from the 9 liter sample were filtered through GF/C filters. The three filters were placed individually in Petri dishes, wrapped in opaque material and frozen until analysis. Each of the three samples was analyzed separately in the laboratory. Values in the tables that follow, are the mean of the three samples.

Laboratory analyses for chlorophyll a and phaeophytin a (chlorophyll degradation product) were conducted by fluorometry and spectrophotometry. The general extraction procedures prior to measurement were similar. Samples analyzed by spectrophotometer included other chlorophyllous products but these have not been included as data in this report. The methodology used is described in Strickland and Parsons (1972) and Jeffrey and Humphrey (1975). Some of the values have been deleted from the data base because of analytical errors.

Dissolved oxygen: Dissolved oxygen values were measured by electronic probes (depending on the vessel) or by the Winkler titration method. No attempts were made to intercalibrate the methods. When oxygen was measured in samples collected from a Niskin sampler, the oxygen bottles were allowed to overflow a minimum of 10 seconds to eliminate oxygen contamination. The tubing which delivered the water sample was inserted to the bottom of the bottle and withdrawn while the sample was still flowing. The oxygen bottles were sealed with a ground-glass stopper and analyzed onboard the vessels.

Turbidity: Turbidity values were measured by electronic probes (depending on the vessel).

Satellite Images

Thermal data were collected by the Advanced Very High Resolution Radiometers (AVHRR) carried on the NOAA Polar Orbiter series of satellites. The data were provided by the National Hurricane Center.

TRAWL SURVEYS

Spring Louisiana Trawl Survey

The Louisiana Department of Wildlife and Fisheries conducted a seasonal day/night trawl survey and concurrently took environmental samples at each trawl station and plankton samples according to SEAMAP protocols. The trawl survey was conducted as part of an effort to provide comparative information on critical life states of major Gulf species, especially shrimp, and associated environmental parameters in Louisiana and adjacent EEZ waters. The LDWF sampled day and night stations with a 40-ft shrimp trawl to depths of 20 fm. A stratified random station selection design was maintained. All organisms captured were identified, counted, measured and weighed.

Summer Shrimp/Groundfish Survey

The sampling strategy and a description of the statistical rationale for the sampling design as described by Nichols in the 1982 SEAMAP Atlas (Stuntz et al. 1985) has been modified. Since 1987, the strategy has been that day/night sampling sites were chosen randomly in areas stratified by depth and statistical area. These areas are shrimp statistical zones 11 and 13 through 22 (Figure 2). Trawl stations for NMFS, Alabama, Mississippi and Louisiana vessels are made with a standard

SEAMAP 40-ft net, and 20-ft net for Texas vessels. Depth strata consisted of 1 fm intervals from 5 to 20 fm, a 2 fm interval from 20 to 22 fm, a 3 fm interval from 22 to 25 fm, 5 fm intervals from 25 to 50 fm and a 10 fm interval from 50 to 60 fms. Additionally, the GCRL vessel TOMMY MUNRO sampled 1 fm intervals from 2 to 5 fm off Louisiana in July. Trawls were towed perpendicularly to the depth contours and covered the entire depth stratum on each station. Single tows were for a maximum of 60 minutes; for certain stations, a series of consecutive trawl tows was necessary to cover a given depth stratum, with a minimum individual tow across each stratum of 10 minutes and a maximum tow of 60 minutes. The Texas vessels towed 10 minutes parallel to the depth stratum. The Louisiana vessels did not cover a complete depth stratum on several stations because of the distance between depth stratum.

All *Penaeus* spp. shrimp were separated from the trawl catch at each station. Total count and weight by species were recorded for each station. A sample of up to 200 shrimp of each species from every trawl was sexed and measured to obtain length-frequency information. Estimated total numbers were derived from the total weights of those processed. Other species of fishes and invertebrates were identified, enumerated and weighed. Weights and individual measurements on selected species other than commercial shrimp were also recorded.

Fall Shrimp/Groundfish Survey

The design of the fall survey was similar to the Summer Shrimp/Groundfish Survey. During the Fall survey trawl stations were made with the standard 40-ft and 20-ft SEAMAP net and covered NMFS shrimp statistical zones 11 and 13 through 21 (Figure 2). Catch rates on all the vessels sampling were treated in the same manner as the Summer Shrimp/Groundfish Survey with the exception to shrimp catches where only 20 shrimp of each species from every trawl were measured.

REEF FISH SURVEYS

Reef Fish Survey

The primary purpose of this survey is to assess relative abundance and compute population estimates of reef fishes found on natural reef fish habitat in the Gulf of Mexico. The primary gear used to observe fishes and to record reef habitat is a Hi-8 video camera in an underwater housing mounted outside a single funnel, baited fish trap. The resultant video recordings (typically of one hour duration) are processed back at the laboratory where fishes are identified and counted independently by two tape readers. Final counts are entered into the SEAMAP reef fish database along with additional observations on habitat, and fish activity.

The hardbottom database from which sampling sites for this survey are chosen was developed in the following manner. Areas of natural reef habitat from Brownsville, Texas to the southern tip of Florida (at 81°00' W longitude and 24°02' N latitude) and between 9 and 110 m water depth were first inscribed on navigation charts, then divided into 10 by 10 nautical mile blocks (primary sample units). Each block was subdivided into 100-m², secondary sample units that were numbered and initially classified as being "reef" or "nonreef", then entered into a database. Prior to the survey, blocks are selected from this database in the east and west Gulf with probability proportional to the number of "reef" sample units within a block. Within each selected block, 100 sample sites are randomly selected. During the survey each selected block is occupied for one 24-h period, where night hours are devoted to ship's echo sounder surveys of up to 100 sites and daytime hours to trap/video sampling. Each potential sample site surveyed at night is given a final determination as being either a reef site or not based on echo patterns, vertical relief and other characteristics. Up to 8 actual "reef" sites are then randomly selected for sampling during that day. Trap/video sampling began one hour after sunup and ends one hour before sunset. Trap soak time is one hour.

Associated environmental data collected at each site usually includes profiles of salinity, temperature, and surface chlorophyll; and may also include profiles of dissolved oxygen, light transmittance, and fluorescence. Additional environmental and meteorological observations taken on stations follow standard SEAMAP methodology. During the NMFS component of the reef fish survey fish abundance is also measured with a fisheries acoustic device and plankton collections are taken either prior to or at the end of trap/video sampling each day. Ichthyoplankton collections consisted of one Tucker trawl and one 10-minute neuston trawl. The 1-m Tucker trawl, fitted with three 0.335-mm mesh nets, sampled the water column in the following manner: net 1 was fished in an oblique path from the surface to near-bottom; net 2 was opened at the near-bottom level and fished for three minutes; net 3 was fished during trawl retrieval from the near-bottom to the surface. At five sites, a plankton light trap was set at night 1 m below the surface, and fished for 3 to 6 hours.

RESULTS

PLANKTON SURVEYS

Twenty thousand eight hundred and thirty-six (20,836) identified ichthyoplankton lots were received at the SAC in 1993. All of these samples have been accessioned into the SAC computer systems; both in dbase and SEAMAP Data Management System.

Plankton stations for the Spring Plankton Survey in conjunction with environmental stations are shown in Figure 3, the Summer Shrimp/Groundfish Survey stations are shown in Figure 4, the Fall Plankton Survey Stations in conjunction with environmental stations are shown in Figure 5, and the Fall Shrimp/Groundfish survey stations are shown in Figure 6. Sixty additional collections were taken by Mississippi during the fall plankton survey in waters of the east Louisiana-Mississippi-Alabama shelf.

ENVIRONMENTAL SURVEYS

Environmental data was collected in conjunction with each plankton station for the Spring (Figure 3) and Fall (Figure 5) plankton surveys. Environmental data stations for the Summer Shrimp/Groundfish Survey are shown in Figure 7 and the Fall Shrimp/Groundfish Survey in Figure 8. Environmental sampling locations are summarized in Figures 7 and 8 by 10-minute squares. A complete listing of environmental stations and dates of sampling by vessel for all SEAMAP surveys is shown in Table 2. In Table 2 under statistical zone, the 99 codes are stations located outside the shrimp statistical zones. Additional environmental information (Secchi readings, Forel-Ule, cloud cover, etc.) may be obtained from the SEAMAP Information System by contacting the SEAMAP Data Manager.

Satellite-derived sea-surface temperatures are shown for the months of March (Figure 9), April (Figure 10), May (Figure 11), June (Figure 12), July (Figure 13), August (Figure 14), September (Figure 15), October (Figure 16), November (Figure 17) and December (Figure 18).

TRAWL SURVEYS

Spring Louisiana Trawl Survey

Louisiana Department of Wildlife and Fisheries conducted their seasonal day/night trawl survey in March 1993. Trawl station data can be found in Table 2 and the plankton/environmental stations are plotted in Figure 3. A species composition listing from the trawls is presented in Table 3, ranked in order of abundance within the categories of finfish, crustaceans and other invertebrates.

Tables 4a-6a present the biological data, from 40-ft nets, of the eight most abundant fish, six most abundant invertebrates and squids within NMFS statistical zones 13-15 by depth stratum. Tables 4b-6b list the total catch and environmental data from the 40-ft nets within NMFS statistical zones 13-15 depth stratum.

For all tables, the standard error of the mean (SEM) was calculated with the equation:

$$SEM = \frac{\alpha}{\sqrt{n}}$$

where α = population standard deviation
n = number of samples

On all tables, NUM = number per hour; all weights shown are in kilograms per hour.

For all "b" tables, discrepancies between catch and environmental data may appear in the number of samples (n). These discrepancies may be due to different sampling depths for trawl and environmental stations, unsuccessful trawl stations and/or stations where only plankton data was collected.

Summer Shrimp/Groundfish Survey

Shrimp and groundfish sampling was conducted during June and July from off Gulf Shores, Alabama to Brownsville, Texas and summarized by 10-minute squares in Figure 19. The Summer Shrimp/Groundfish Survey consisted primarily of biological trawl data and concomitant environmental and plankton data. A species composition listing from the 40-ft trawls is presented in Table 7, ranked in order of abundance, within the categories of finfish, crustaceans and other invertebrates. Species composition listing from 20-ft trawls is presented in Table 8.

Biological distributions of the ten most abundant finfish plus red snapper, three main penaeid shrimps, five most abundant non-Penaeus invertebrates and squid species, taken from Table 7 and 8 are displayed in plots of number/hour and lb/hour in Figures 22-61. Data for the biological

plots were computed from the 40-ft and 20-ft trawl data, standardized to 40-ft trawls using relative headrope length. In the plots of lb/hour, a zero value indicates less than 0.5 lb/hr taken; only stations where some of the species were taken are shown. During this time frame, the state of Florida did not participate in any SEAMAP survey activities.

Tables 9a-18a present the biological data, from the 40-ft nets, of the eight most abundant fish, six most abundant invertebrates and squid within NMFS statistical zones 11 and 13 through 21, by depth stratum. Tables 9b-18b list the total catch and environmental data from the 40-ft nets within NMFS statistical zone listed above, by depth stratum.

Tables 19a-24a present the biological data from the 20-ft nets of the eight most abundant fish, six most abundant invertebrates and squid within NMFS statistical zones 17 through 22, by depth stratum. Tables 19b-24b present the total catch and environmental data from the 20-ft nets within the NMFS statistical zones listed above, by depth stratum.

Catch rates for the survey were computed with the same equations used to compute the Spring Louisiana Trawl Survey catch rates. And, as in the Spring Louisiana Trawl Survey, discrepancies in the "b" tables may have occurred.

Fall Shrimp/Groundfish Survey

Shrimp and groundfish sampling was conducted during October through December from off Mobile Bay, Alabama to Brownsville, Texas and summarized by 10-minute squares in Figure 20. The Fall Shrimp/Groundfish Survey consisted of biological trawl data and concomitant environmental and plankton data. A species composition listing from the 40-ft trawls is presented in Table 25 and 20-ft trawls in Table 26. The species list for Tables 25 and 26 are ranked in order of abundance within the categories of finfish, crustaceans and other invertebrates.

Biological distributions of the ten most abundant finfish plus red snapper, three main penaeid shrimps, five most abundant non-Penaeus invertebrates and squid species, taken from Tables 25 and 26 are displayed in plots of number/hour and lb/hour in Figures 62 to 101. Data for the biological plots were computed from the 40-ft and 20-ft trawl data, standardized to 40-ft trawls using relative headrope length. In the plots of lb/hour, a zero value indicates less than 0.5 lb/hr taken; only stations where some of the species were taken are shown. During this time frame, the state of Florida did not participate in any SEAMAP survey activities.

Tables 27a-36a present the biological data, from the 40-ft nets, of the eight most abundant fish, six most abundant invertebrates and squid species within NMFS statistical zones 11 and 13 through 21, by depth stratum. Tables 27b-36b list the total catch and environmental data from the 40-ft nets within the NMFS statistical zone listed above, by depth stratum.

Tables 37a-41a present the biological data from the 20-ft nets of the eight most abundant finfish, six most abundant invertebrates and squid within each NMFS shrimp statistical zones 17 through 21, by depth stratum. Tables 37b-41b present the total catch and environmental data from the 20-ft nets within the NMFS statistical zones listed above, by depth stratum.

The catch data were calculated using the same equation that was used to compute catch rates for the Spring Louisiana Trawl Survey. And, as in the Spring Louisiana Trawl Survey, discrepancies in the "b" tables may have occurred.

REAL-TIME DATA MANAGEMENT

The SEAMAP Subcommittee agreed it was imperative to the success of the SEAMAP Program to distribute data on a near real-time basis to the fishing industry and others interested in SEAMAP. To distribute near real-time data, NMFS utilized a cellular phone and/or satellite communications aboard the NOAA Ship OREGON II. This enabled personnel aboard the vessel to transmit daily catch rates and environmental data to the NMFS computer system located at the NMFS Mississippi Laboratories in Pascagoula.

Summarized data were distributed weekly to approximately 250 individuals during the Summer Shrimp/Groundfish Survey. The summarized data in the form of computer plots and data listings was sent to management agencies and industry members. These plots showed station locations, catches of brown, pink and white shrimp in lb/hr and count/lb and total finfish catch in lb/hr.

REEF FISH SURVEYS

Reef Fish Survey

Primary data collection and sampling for reef fish assessment was conducted during May to July from the Texas Flower Garden Banks to the Florida Keys by NMFS personnel; during May in the area between the Mississippi River and Mobile Bay by State of Mississippi personnel; and during July, September and November by personnel of the State of Alabama in their state waters. Station data for these observations can be found in Table 2 and station locations are plotted in Figure 21.

A species composition listing from the traps is presented in Table 42. The species list for Table 42 is ranked in order of abundance. Video tapes from all three sources were analyzed using standardized protocols and NMFS is in the process of analyzing the plankton data collected during the survey.

DISCUSSION

The quasisynoptic SEAMAP sampling program and the intended long-term nature of the sampling programs have been designed to provide the baseline data set needed for fishery management and conservation. In 1985, the SEAMAP long-term baseline data was disrupted by the loss of the Spring Gulf-wide plankton and Fall Mackerel Survey. In 1986, the SEAMAP Subcommittee renewed its commitment for the collection of baseline plankton data. These ichthyoplankton samples are and will be used by researchers studying taxonomy, age and growth, bioenergetics and other life history aspects, as well as spawning biomass and recruitment. Information on species' relative distributions within the Gulf of Mexico can be analyzed with respect to environmental data to assess population abundance as a function of environmental change. In the same way, satellite data can be related to species distribution and changing conditions in the Gulf of Mexico.

Similar analyses and investigations are being undertaken with Summer and Fall Shrimp/Groundfish Survey data. These data sets will be utilized in resource management decisions, and because of the program's ability to process data quickly, the capability exists to optimize some fisheries on a real-time basis. The long-term data set on all of the species collected, not just those of commercial and recreational importance, offers an opportunity to examine ecological relationships, with the eventual goal of developing management models that take into account the multi-species nature of most Gulf fisheries. The value of the SEAMAP program lies in its use for both immediate and long-range management. In addition, there are many studies and other uses for SEAMAP data that are not mentioned here.

Much use has already been made of SEAMAP data. For example, during the past SEAMAP surveys an area of very low dissolved bottom oxygen was found off Louisiana in the summers of 1982, 1985-1993. The presence of this phenomenon and some of the related conditions and biological effects were reported by Leming and Stuntz (1984), and during such occurrences, SEAMAP has distributed special environmental bulletins and news releases to management agencies and the shrimp industry. In addition, SEAMAP data were used by some coastal states to determine the status of shrimp stocks and their movements just as the shrimping seasons were to be opened. SEAMAP data was also used to develop a guide to the grouper species of the western North Atlantic Ocean (Grace et al. 1994). The primary purpose of the guide is for species identification with projects that deploy underwater video camera systems.

Richards et al. 1984, Kelley et al. 1985, Kelley et al. 1990, and Kelley et al. 1993 used SEAMAP ichthyoplankton data to identify larval abundance and distribution of key Gulf of Mexico species. SEAMAP ichthyoplankton data were also used to estimate spawning stock sizes of bluefin tuna in the Gulf of Mexico (McGowan and Richards 1986; Scott et al. 1990; Scott and Turner 1991). The results of this work were recognized by the International Commission for the Conservation of Atlantic Tunas as a reliable index of stock size. Continuation of the ichthyoplankton surveys each spring by SEAMAP will provide information on Gulf of Mexico tuna stocks.

The SEAMAP data collected during the Summer Shrimp/Groundfish Survey continues to be used extensively for fishery management purposes. In 1981, the Gulf of Mexico Fishery Management Council's plan for shrimp was implemented (Center for Wetland Resources 1980), with one management measure calling for the temporary closure to shrimping of the EEZ off Texas. This closure complements the traditional closure of the Texas territorial sea, normally May 15 through early July of each year. The GMFMC determined that this type of closure would still allow small brown shrimp to be protected from harvest but would allow the taking of larger brown shrimp by fishermen in deeper waters.

National Marine Fisheries Service was charged with evaluating the effects of the Texas Closure and submitted a report (Nance 1994) to the GMFMC in January 1994. This report contained the results and an overview of the effect of the 1993 Texas Closure. After review of these data and other information, the GMFMC voted to continue the Texas Closure in 1994.

DATA REQUESTS

It is the policy of the SEAMAP Subcommittee that all verified non-confidential SEAMAP data, collected specimens and samples shall be available to all SEAMAP participants, other fishery researchers and management organizations approved by the Subcommittee. This atlas presents, to those individuals interested in the data or specimens, a chance to review the data in a summary form.

Data and specimen requests from SEAMAP participants, cooperators and others will normally be handled on a first-come, first-served and time-available basis. Because of personnel and funding limitations, however, certain priorities must be assigned to the data and specimen requests. These priorities are reviewed by the SEAMAP Subcommittee. For further information on SEAMAP data management, see the SEAMAP Management Plan: 1990-1995 (Atlantic States Marine Fisheries Commission 1990).

Data requests and inquiries, as well as requests for plankton samples, can be made by contacting the SEAMAP Coordinator, Gulf States Marine Fisheries Commission, P.O. Box 726, Ocean Springs, MS 39566-0726; 601/875-5912.

Table 1. List of SEAMAP survey activities from 1982 to 1992.

SEAMAP SURVEY ACTIVITIES

YEAR	SPRING PLANKTON	SUMMER SHRIMP/GROUNDFISH	BUTTERFISH	FALL PLANKTON	FALL SHRIMP/GROUNDFISH	WINTER PLANKTON	REEF FISH
1982	APRIL-MAY	JUNE-JULY	--	--	--	--	
1983	APRIL-MAY	JUNE-JULY	--	--	--	DECEMBER	
1984	APRIL-MAY	JUNE-JULY	--	AUGUST	--	DECEMBER	
1985	--	JUNE-JULY	JULY-AUGUST	SEPTEMBER	SEPTEMBER-DECEMBER	--	
1986	APRIL-MAY	JUNE-JULY	MAY-JUNE	SEPTEMBER	OCTOBER-DECEMBER	--	
1987	APRIL-MAY	JUNE-JULY	--	SEPTEMBER	SEPTEMBER-DECEMBER	--	
1988	MARCH-MAY	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	--	
1989	APRIL-MAY	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	--	
1990	APRIL-MAY	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	--	
1991	APRIL-MAY	JUNE-JULY	--	AUGUST-SEPTEMBER	SEPTEMBER-DECEMBER	--	
1992	APRIL-MAY	JUNE-JULY	--	AUGUST-OCTOBER	OCTOBER-DECEMBER	--	MAY-JUNE

Table 2. Selected environmental parameters measured during 1993 SEAMAP surveys in the Gulf of Mexico, by individual vessel and survey. (Gear codes: ST = trawl; PN = bongo and/or neuston; TV = trap/video).

PELICAN, SPRING LOUISIANA TRAWL SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
36962	3/22/93	1748	2851.8	9026.4	14	19	9	19	17.5	17.5	18.7	28.9	30.1	32.6	.683	8.1	8.0	7.3	ST
36964	3/22/93	2138	2851.1	9014.0	14	24	12	24	19.1	19.1	19.3	31.7	34.1	35.4	.613	8.0	6.9	5.8	ST
36965	3/22/93	2351	2859.3	9008.4	14	18	10	18	16.3	16.9	18.1	24.8	30.4	32.8	1.467	8.6	7.8	6.4	ST
36966	3/23/93	0219	2906.8	9007.2	14	8	4	8	16.9	16.8	16.8	24.3	24.5	25.5	3.685	8.7	8.4	7.3	ST
36967	3/23/93	0325	2902.9	9004.9	14	16	8	16	15.9	16.2	17.5	23.8	27.0	31.6	2.581	8.3	7.6	6.2	ST
36968	3/23/93	0443	2900.0	9003.3	14	22	10	22	15.6	17.1	18.7	23.4	30.3	34.0	1.473	8.8	7.3	5.3	ST
36969	3/23/93	0632	2900.0	9000.0	14	19	8	19	15.4	16.9	18.6	20.3	29.8	33.4		10.5	9.8	6.5	PN
36970	3/23/93	0744	2900.2	9003.5	14	21	11	21	15.6	17.3	18.7	23.1	30.7	34.0	1.139	9.0	7.4	5.5	ST
36971	3/23/93	0927	2903.1	9005.0	14	16	7	16	15.9	16.2	17.7	19.7	27.5	32.0	4.005	9.2	7.7	6.5	ST
36972	3/23/93	1105	2905.9	9007.4	14	10	5	10	17.3	16.2	16.7	23.8	24.4	27.1	4.542	8.8	9.5	9.3	ST
36973	3/23/93	1242	2859.3	9008.3	14	18	9	18	16.4	17.3	18.5	20.4	30.5	32.9	3.222	9.2	7.8	6.1	ST
36974	3/23/93	1428	2851.1	9014.0	14	23	11	23	19.0	18.9	19.2	31.6	34.1	35.4	.928	7.6	6.7	5.1	ST
36975	3/23/93	1909	2905.6	8942.7	13	26	12	26	16.6	16.8	19.0	22.1	30.1	34.1	1.443	9.9	7.4	5.8	ST
36976	3/23/93	2009	2902.5	8940.9	13	32	16	32	16.6	17.8	19.3	22.4	31.9	35.3	2.137	9.8	7.0	5.3	ST
36977	3/24/93	0628	2900.0	8930.0	13	15	9	15	16.9	17.8	19.0	23.0	32.0	34.0	.609	9.7	7.0	5.5	PN
36978	3/24/93	0827	2902.4	8940.9	13	33	17	33	16.5	17.6	19.3	21.9	32.1	35.5	4.390	9.1	6.1	4.7	ST
36979	3/24/93	0943	2905.5	8942.8	13	25	13	25	15.4	16.9	18.8	14.5	30.9	33.9	3.389	10.4	6.9	5.0	ST
36980	3/24/93	1703	2851.4	9053.0	14	11	5	11	18.6	18.3	17.9	29.7	29.9	30.3	12.925	10.0	8.3	8.3	ST
36981	3/24/93	1836	2851.4	9052.8	14	11	5	11	18.6	18.6	17.9	29.6	29.6	30.4	15.641	10.2	10.0	7.9	ST
36982	3/24/93	2256	2835.4	9126.9	15	34	16	34	18.7	18.3	19.3	32.4	33.0	35.5	4.089	8.9	6.8	4.0	ST
36983	3/25/93	0109	2835.6	9118.4	15	30	15	30	19.0	18.6	19.4	32.8	33.5	35.6	2.199	8.4	6.8	5.6	ST
36984	3/25/93	0627	2830.0	9030.0	14	39	20	39	19.6	19.1	19.5	24.4	34.8	35.7	2.223	8.7	6.7	5.1	PN
36985	3/25/93	0951	2830.0	9100.0	15	33	18	33	18.5	18.7	19.5	32.8	33.6	35.8	2.593	8.1	7.0	5.0	PN
36986	3/25/93	1225	2835.6	9118.4	15	30	15	30	19.9	18.5	19.4	32.9	33.4	35.6	6.582	8.7	6.9	5.6	ST
36987	3/25/93	1405	2835.3	9126.9	15	34	17	34	18.9	18.3	19.4	32.1	33.0	35.8	7.227	9.7	7.2	5.5	ST
36988	3/25/93	1723	2856.7	9127.4	15	13	6	13	18.2	18.2	17.6	30.0	30.1	30.8	23.167	8.9	8.1	6.9	ST
36989	3/25/93	1955	2856.7	9127.4	15	13	6	13	18.2	18.2	17.7	30.1	30.3	30.7	12.929	9.2	8.4	7.0	ST
36990	3/26/93	0627	2900.0	9130.0	15	10	4	10	18.1	18.1	18.1	29.6	29.6	30.6	36.082	8.8	9.4	7.2	PN
36991	3/26/93	1044	2900.0	9100.0	15	7	4	7	18.0	18.0	18.0	26.6	26.6	27.0	18.652	9.8	9.2	8.2	PN
36992	3/26/93	1432	2900.0	9030.0	14	10	4	10	17.9	18.3	17.2	16.6	24.9	29.6	4.025	11.5	10.2	8.2	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, SPRING PLANKTON SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
28001	4/26/93	0415	2959.5	8659.5	9	75	36	69	19.4	19.6	17.9	29.1	31.2	31.5	.206	6.4	6.9	5.4	PN
28002	4/26/93	0855	2930.0	8630.6	9	214	100	197	20.3	18.1	14.6	30.5	31.5	31.3	.132	6.9	6.7	4.1	PN
28003	4/26/93	1410	2900.0	8600.0	99	250	99	197	20.7	16.9	12.9	30.9	31.5	31.0	.085	6.8	4.7	4.2	PN
28004	4/26/93	1930	2830.0	8530.2	99	205	100	195	22.2	19.3	14.5	31.1	31.7	31.3	.117	6.0	5.5	4.2	PN
28005	4/27/93	0031	2800.0	8500.0	6	254	100	200	21.2	17.3	13.2	31.2	31.5	31.1	.112	7.2	5.7	4.2	PN
28006	4/27/93	0504	2729.9	8500.0	99	406	100	198	21.7	18.8	14.7	31.4	31.5	31.3	.107	7.6	7.0	4.7	PN
28007	4/27/93	0847	2700.0	8459.9	99	867	100	200	21.4	19.1	15.7	31.5	31.6	31.4	.080	6.3	7.3	4.8	PN
28008	4/27/93	1328	2630.3	8459.8	99	1468	100	197	22.2	19.1	15.1	31.5	31.6	31.4	.054	6.9	7.2	4.6	PN
28009	4/27/93	1709	2600.0	8459.9	99	3292	98	203	23.0	18.6	14.1	31.5	31.8	31.2	.056	7.4	5.0	4.6	PN
28010	4/27/93	2144	2600.0	8429.9	99	223	100	201	23.1	18.9	13.4	31.4	31.6	31.2	.062	5.8	7.3	4.7	PN
28011	4/28/93	0126	2600.2	8400.5	99	141	70	130	22.4	18.8	16.8	36.2	36.2	36.2		5.2	6.1	3.7	PN
28012	4/28/93	0606	2529.9	8400.0	3	139	70	130	22.4	18.8	16.8	31.6	31.6	31.5	.057	6.9	7.3	4.4	PN
28013	4/28/93	1010	2459.7	8400.1	99	128	61	127	22.9	20.8	17.8	31.6	31.7	31.7	.057	6.3	7.2	4.9	PN
28014	4/28/93	1442	2430.0	8359.8	99	1602	99	183	25.6	20.2	16.0	31.7	31.6	31.5		5.8	7.0	4.9	PN
28015	4/28/93	1849	2430.1	8429.9	99	3294	101	202	26.3	23.4	18.0	31.6	32.2	31.8	.054	6.3	5.5	5.5	PN
28016	4/29/93	0015	2430.2	8459.6	99	3240	100	191	26.4	24.3	19.5	31.6	32.1	32.0	.043	6.0	5.6	5.5	PN
28017	4/29/93	0420	2500.0	8459.8	99	3291	100	199	22.7	18.7	13.1	31.6	31.8	31.1	.084	7.5	5.1	4.6	PN
28018	4/29/93	0855	2500.0	8529.9	99	3294	103	212	22.5	20.2	12.8	29.5	31.7	31.0	.161	5.4	5.6	4.8	PN
28019	4/29/93	1246	2459.8	8559.6	99	3111	101	200	26.5	26.0	20.6	31.7	31.8	31.8		6.5	6.5	6.6	PN
28020	4/29/93	1807	2428.9	8600.0	99	3109	100	200	26.5	22.0	18.7	31.7	31.6	31.7	.072	6.8	7.4	4.8	PN
28021	4/29/93	2214	2529.9	8628.1	99	3275	100	199	25.7	25.2	22.5	31.7	31.7	32.2	.027	6.5	6.8	5.2	PN
28022	4/30/93	0355	2559.9	8559.8	99	3109	100	199	25.7	25.2	22.5	31.7	31.7	32.2	.067	6.7	6.8	5.3	PN
28023	4/30/93	1029	2629.9	8559.8	99	3111	100	200	25.4	20.7	15.7	31.6	31.7	31.5	.057	6.7	7.0	4.8	PN
28024	4/30/93	1507	2700.0	8559.8	99	3060	100	192	23.9	20.5	16.4	31.7	31.6	31.6	.133	6.0	7.1	4.9	PN
28025	4/30/93	1939	2729.9	8559.9	99	3212	104	209	22.7	20.9	16.3	31.6	31.7	31.6	.070		6.8	5.1	PN
28026	4/30/93	2338	2800.0	8559.9	99	985	100	195	22.7	20.8	16.6	31.5	31.7	31.6	.523	6.5	7.2	5.0	PN
28027	5/ 1/93	0408	2830.0	8559.9	99	342	108	217	24.0	18.6	13.9	31.7	31.6	31.2	.091	6.9	5.3	4.6	PN
28028	5/ 1/93	0908	2859.9	8630.1	99	393	103	207	21.8	17.8	13.0	30.6	31.6	31.1	.312	5.9	4.6	4.4	PN
28029	5/ 1/93	1256	2900.0	8659.8	99	684	100	200	21.9	19.3	12.6	30.7	31.7	31.0	.294	7.1	5.4	4.5	PN
28030	5/ 5/93	0039	2930.1	8800.0	11	42	21	41	21.7	21.5	19.2	34.4	34.9	35.6	.245	5.6	7.7	5.7	PN
28031	5/ 5/93	0414	2900.0	8800.0	99	1371	100	202	24.2	19.3	14.9	36.3	36.6	36.0	.057	6.8	5.2	4.5	PN
28033	5/ 5/93	1135	2830.1	8700.2	99	874	100	200	25.1	20.2	15.3	35.8	36.5	36.0	.117	6.9	5.2	4.6	PN
28035	5/ 5/93	1528	2800.5	8700.0	99	2816	101	200	25.3	18.2	14.4	36.0	36.5	35.9	.063	5.3	4.4	4.1	PN
28037	5/ 5/93	1936	2729.9	8659.8	99	3072	98	210	24.3	20.8	14.4	35.9	36.5	35.9	.064	5.7	5.0	4.2	PN
28039	5/ 5/93	2310	2659.8	8659.9	99	2132	100	199	27.1	26.7	21.0	36.2	36.3	36.8	.027	5.4	5.5	4.5	PN
28041	5/ 6/93	0313	2629.8	8659.8	99	3017	100	199	26.9	26.3	23.1	36.2	36.3	36.8	.027	5.3	5.6	4.6	PN
28042	5/ 6/93	0519	2616.0	8660.0	99	3109	96	204	27.0	26.0	23.7	36.2	36.3	36.8	.045	5.5	5.4	4.6	PN
28044	5/ 6/93	0951	2600.0	8730.1	99	3148	100	200	25.5	25.2	24.0	36.4	36.3	36.8	.053	5.4	5.7	4.7	PN
28046	5/ 6/93	1315	2600.0	8759.8	99	3001	100	195	26.6	25.1	23.7	36.3	36.3	36.8	.027	5.1	5.6	4.6	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, SPRING PLANKTON SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, °C			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
28048	5/ 6/93	1709	2630.7	8759.5	99	2651	101	202	26.7	25.2	24.0	36.3	36.3	36.7	.027	5.3	5.6	5.0	PN
28050	5/ 6/93	2115	2700.1	8800.0	99	2754	101	201	27.1	26.0	23.2	36.1	36.3	36.9	.027	5.2	5.5	4.5	PN
28051	5/ 7/93	0122	2729.9	8759.0	99	2617	100	197	27.2	26.2	20.4	36.1	36.4	36.7	.019	4.6	5.3	4.3	PN
28052	5/ 7/93	0503	2800.8	8759.7	99	2423	101	201	26.8	21.3	17.7	36.3	36.2	36.4		5.2	5.6	4.4	PN
28053	5/ 7/93	0917	2830.0	8759.9	99	2233	100	200	24.4	18.8	15.5	36.1	36.4	36.1	.062	4.9	4.0	4.1	PN
28054	5/ 7/93	1410	2900.0	8830.0	11	610	101	201	24.2	18.9	14.8	36.5	36.5	35.9	.064	5.0	4.3	4.0	PN
28055	5/ 7/93	1843	2830.0	8859.9	99	860	100	202	24.5	18.6	14.3	36.2	36.4	35.9	.045	5.2	3.6	3.9	PN
28056	5/ 7/93	2229	2800.0	8900.0	99	1314	101	203	26.3	19.9	14.9	36.4	36.4	36.0	.032	5.0	4.1	3.6	PN
28057	5/ 8/93	0259	2730.0	8900.0	99	1793	102	199	24.9	18.1	14.0	36.3	36.4	35.8	.037	4.8	3.3	3.5	PN
28058	5/ 8/93	0707	2700.2	8900.0	99	2231	100	200	24.8	19.3	13.9	36.1	36.5	35.8	.027	5.0	3.9	3.7	PN
28059	5/ 8/93	1342	2630.2	8859.8	99	2839	101	183	27.4	24.0	18.4	36.1	36.8	36.5	.032	4.2	4.2	4.0	PN
28060	5/ 8/93	1920	2600.4	8900.2	99	3145	100	198	27.0	22.0	15.9	36.3	36.6	36.1	.048	4.3	4.2	3.6	PN
28061	5/ 8/93	2310	2559.9	8930.0	99	3367	100	200	26.1	17.7	13.7	36.3	36.4	35.8	.299	4.6	3.8	3.5	PN
28062	5/ 9/93	0233	2600.7	8959.9	99	3367	101	201	24.7	18.3	13.8	35.9	36.4	35.8	.040	4.7	3.1	3.0	PN
28063	5/ 9/93	0701	2630.1	9000.0	99	2834	101	203	24.6	18.7	13.7	36.0	36.5	35.8	.027	4.5	3.6	3.5	PN
28064	5/ 9/93	1035	2700.0	9000.0	99	2269	100	200	24.8	17.1	13.5	36.3	36.3	35.7	.045	4.5	3.4	3.2	PN
28065	5/ 9/93	1450	2730.0	8959.8	99	1192	101	202	24.8	19.6	11.8	36.3	36.5	35.5	.053	4.4	3.6	3.2	PN
28066	5/ 9/93	2055	2730.0	9100.1	99	1102	101	200	24.5	19.9	16.0	36.1	36.7	36.1	.071	4.2	3.6	3.6	PN
28067	5/10/93	0042	2700.0	9100.0	99	1747	101	200	24.6	18.2	14.3	36.1	36.5	35.9	.044	4.0	3.4	3.3	PN
28068	5/10/93	0502	2630.0	9100.0	99	2103	101	201	24.1	18.4	12.9	36.1	36.4	35.7	.027	3.9	3.1	3.0	PN
28069	5/10/93	0840	2600.0	9059.9	99	2708	101	202	24.4	20.3	11.0	36.2	36.3	35.4	.048	4.3	4.2	2.8	PN
28070	5/10/93	1249	2600.0	9129.9	99	2184	101	201	24.7	17.9	13.1	36.2	36.4	35.7	.071	3.9	3.2	2.9	PN
28071	5/10/93	1616	2600.0	9159.9	99	2103	100	200	24.7	18.5	14.1	35.7	36.4	35.8	.053	4.3	3.2	2.9	PN
28072	5/10/93	2049	2630.1	9200.0	99	1879	100	195	24.4	18.4	14.2	36.0	36.4	35.8	.053	4.0	3.1	2.9	PN
28073	5/11/93	0041	2700.1	9200.0	99	1464	101	200	23.8	18.5	13.8	35.7	36.4	35.8	.079	4.2	3.2	2.8	PN
28074	5/11/93	0508	2730.0	9200.1	99	777	102	201	24.3	20.1	14.6	36.3	36.6	35.9	.053	4.2	3.3	3.0	PN
28075	5/11/93	1045	2730.0	9300.0	99	805	100	200	23.5	18.3	14.2	35.3	36.3	35.9	.072	4.2	3.3	3.0	PN
28076	5/11/93	1442	2700.1	9300.0	99	1274	101	201	24.3	19.4	14.5	35.9	36.4	35.9	.034	4.2	3.0	2.7	PN
28077	5/11/93	1917	2630.1	9300.0	99	1920	103	210	24.7	19.0	13.4	35.9	36.4	35.7		4.2	3.2	2.7	PN
28078	5/11/93	2300	2559.9	9259.9	99	2196	100	200	24.4	18.6	14.0	35.6	36.4	35.8	.036	3.9	2.8	2.7	PN
28079	5/12/93	0300	2600.1	9330.1	99	2275	100	201	24.1	17.6	13.0	35.6	36.3	35.7	.045	3.8	2.9	2.7	PN
28080	5/12/93	0609	2600.0	9359.5	99	2743	100	200	23.9	17.0	12.2	35.9	36.2	35.6	.027	4.0	2.7	2.6	PN
28081	5/12/93	1009	2630.0	9400.0	99	1557	104	208	23.4	18.9	13.9	34.7	36.3	35.8	.053	3.8	2.6	2.7	PN
28082	5/12/93	1403	2659.8	9400.1	99	956	101	201	24.0	20.0	14.4	34.0	36.4	35.9	.094	3.8	3.0	2.6	PN
28083	5/12/93	1842	2730.0	9400.1	99	878	102	201	24.1	18.7	13.9	34.9	36.2	35.8	.089	4.0	3.2	2.8	PN
28084	5/12/93	2327	2800.1	9430.0	18	71	35	70	23.4	19.7	19.1	31.9	35.5	35.8	.087	3.9	4.0	3.9	PN
28085	5/13/93	0245	2800.2	9400.1	18	82	50	80	24.0	22.4	19.0	34.4	36.1	35.9	.047	3.7	4.3	4.0	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, SPRING PLANKTON SURVEY

STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
28086	5/13/93	0905	2800.1	9300.1	17	110	53	105	23.2	21.4	18.5	35.1	36.3	36.4	.048	3.9	4.5	3.1	PN
28087	5/13/93	1300	2800.2	9230.0	16	108	53	107	23.0	20.0	17.9	34.7	35.9	36.3	.069	3.4	4.4	2.9	PN
28088	5/13/93	1622	2800.0	9200.2	16	119	60	118	23.7	20.8	17.7	32.9	36.3	36.3	.157	4.0	4.4	2.8	PN
28089	5/13/93	2320	2800.0	9100.0	15	151	70	149	23.5	20.2	15.9	35.7	36.4	36.1	.080	4.4	3.6	3.0	PN
28090	5/14/93	0332	2759.6	9030.0	99	342	100	198	23.3	18.4	13.8	35.3	36.4	35.8	.080	3.9	3.1	3.0	PN
28091	5/14/93	0637	2800.0	9000.4	99	560	100	207	24.8	18.7	13.8	36.3	36.4	35.8	.048	3.4	2.8	2.8	PN

Table 2. Selected environmental parameters (continued)

BELLOWS, SPRING PLANKTON SURVEY																			
STA#	DATE	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
00001	5/12/93	0940	2802.2	8502.2	6	253	100	200	20.5	17.5	14.5	36.4	36.5	36.2	.136				PN
00002	5/12/93	1604	2730.1	8500.0	99	400	100	200	21.0	17.0	14.0	36.6	36.5	36.1	.074				PN
00003	5/12/93	2120	2700.1	8500.0	99	856	100	200	20.0	18.0	14.0	36.4	36.3	36.5	.043				PN
00004	5/13/93	0201	2630.0	8459.6	99	1252	100	200	21.0	17.0	14.0	36.3	36.2	36.4	.064				PN
00005	5/13/93	0704	2600.0	8500.0	99	3331	100	200	22.0	16.5	12.5	36.4	36.6	36.1	.049				PN
00006	5/13/93	1100	2600.0	8430.0	99	218	100	200	23.0	18.0	14.0	36.8	36.6	36.0	.054				PN
00007	5/13/93	1500	2600.0	8400.1	99	137	66	132	23.5	19.5	17.0	36.4	36.6	36.6	.082				PN
00008	5/13/93	1950	2530.0	8400.0	3	137	62	124	23.0	19.0	17.0	36.7	36.9	36.5	.088				PN
00009	5/14/93	0004	2529.6	8429.6	99	203	100	200	22.0	16.0	13.0	36.8			.073				PN
00010	5/14/93	0434	2529.6	8459.6	99	201	98	196	21.5	17.0	12.5	36.6			.067				PN
00011	5/14/93	0920	2530.0	8530.0	99	3294	100	200	22.0	17.0	13.0	36.3			.064				PN
00012	5/14/93	1335	2459.6	8530.0	99	3386	100	200	21.0	18.0	13.5	36.5	36.5	36.1	.036				PN
00013	5/14/93	1826	2500.0	8500.1	99	3349	100	200	22.0	16.5	12.5	36.3	36.6	37.0	.073				PN
00014	5/14/93	2252	2430.0	8500.0	99	3389	100	200	21.0	16.0	11.0	36.7	36.8	35.9	.058				PN
00015	5/15/93	0321	2430.1	8429.5	99	3417	100	200	21.5	17.0	12.5	36.8	36.4	35.9	.061				PN
00016	5/15/93	0730	2500.1	8430.1	99	2013	100	200	21.5	17.0	13.0	36.7	36.4	36.5	.084				PN
00017	5/15/93	1207	2459.5	8400.1	99	125	60	120	23.0	19.5	18.0	36.4	36.5	36.9	.023				PN
00018	5/15/93	1703	2430.1	8400.0	99	1314	100	200	24.0	19.0	16.0	36.9	36.2	36.6	.039				PN
00019	5/15/93	2041	2430.0	8329.6	2	273	100	200	23.0	20.0	17.0	36.4		36.7	.056				PN

Table 2. Selected environmental parameters (continued)

OREGON II, SPRING PLANKTON SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
54886	5/19/93	0018	2959.9	8659.8	9	134	66	128	24.4	20.6	18.7	31.2	36.0	36.2	.070	6.7		5.7	PN
54887	5/19/93	0421	2929.8	8630.0	99	211	101	200	24.1	18.5	14.8	35.8	36.2	35.9	.053	6.3	5.7	3.8	PN
54888	5/19/93	0832	2859.9	8630.0	99	386	193	385	24.2	14.8	9.8	35.1	36.0	35.2	.072	6.6	4.1	3.6	PN
54890	5/19/93	1229	2900.0	8559.9	99	248	100	240	24.5	19.4	14.3	36.0	36.5	35.8	.069	6.5	4.6	3.8	PN
54892	5/19/93	1750	2830.0	8530.1	99	201	100	200	24.6	19.1	15.5	36.0	36.3	36.0	.071	6.3	6.4	3.9	PN
54893	5/19/93	2126	2830.0	8600.1	99	338	169	335	25.3	16.8	11.6	36.2	36.3	35.4	.053	6.0	4.5	3.6	PN
54894	5/20/93	0103	2800.0	8600.0	99	1025	250	500	25.9	14.0	8.0	36.4	35.8	35.0	.027	6.0	4.1	3.8	PN
54895	5/20/93	0459	2729.9	8600.2	99	3221	250	500	26.1	13.5	8.3	36.3	35.7	35.0	.057	5.9	4.2	3.8	PN
54897	5/20/93	0903	2659.9	8559.7	99	3203	250	500	26.6	15.4	9.8	36.3	36.1	35.2	.049	6.1	4.6	3.8	PN
54899	5/20/93	1437	2629.6	8600.2	99	3203	100	200	27.5	23.3	18.3	36.3	36.8	36.5	.070	6.2	5.1	4.8	PN
54901	5/20/93	1752	2559.9	8600.1	99	3221	250	500	26.6	13.6	8.2	36.3	35.7	35.0	.078	5.9	4.1	3.8	PN
54902	5/20/93	2242	2530.2	8600.1	99	962	100	200	25.8	19.1	12.6	36.3	36.5	35.6	.068	6.3	4.6	4.2	PN
54903	5/21/93	0155	2500.3	8600.1	99	3294	250	500	25.4	13.1	7.9	36.3	35.7	35.0	.055	5.5	4.0	3.9	PN
54904	5/21/93	0706	2529.8	8627.8	99	3276	250	500	27.2	15.1	8.9	36.3	36.0	35.1	.049	5.8	4.3	3.9	PN
54906	5/21/93	1727	2630.1	8659.9	99	3038	100	200	27.2	25.5	23.6	36.2	36.3	36.8	.048	6.2	6.3	5.1	PN
54907	5/21/93	1939	2616.2	8659.9	99	3111	250	500	27.1	21.1	14.3	36.2	36.8	35.8	.045	6.1	4.9	4.4	PN
54908	5/21/93	2350	2600.1	8700.1	99	3268	100	200	26.8	25.7	23.8	36.3	36.4	36.8	.034	5.9	5.9	4.9	PN
54909	5/22/93	0246	2600.0	8759.2	99	5527	250	500	26.9	22.4	14.6	36.3	36.9	35.9	.057	5.7	4.8	4.4	PN
54910	5/22/93	0653	2630.2	8759.9	99	2718	250	500	26.9	21.8	13.9	36.3	36.8	35.8	.048	6.0	4.8	4.2	PN
54912	5/22/93	1044	2700.2	8759.9	99	2754	250	500	26.8	20.9	13.4	36.3	36.7	35.7	.036	5.9	4.8	4.2	PN
54914	5/22/93	1509	2729.5	8800.0	99	2525	100	200	26.5	25.1	21.2	36.3	36.3	36.8	.032	6.2	6.3	4.8	PN
54916	5/22/93	1844	2800.2	8759.9	99	2434	250	500	27.2	17.7	10.7	36.3	36.4	35.3	.027	6.1	5.1	4.0	PN
54917	5/22/93	2237	2829.9	8759.8	99	2196	100	200	26.2	21.4	15.9	36.3	36.2	36.1	.027	6.1	6.4	4.7	PN
54918	5/23/93	0157	2859.5	8800.1	99	1263	250	500	25.0	13.3	8.4	34.1	35.7	35.0	.117	6.3	4.3	3.8	PN
54919	5/23/93	0524	2900.1	8830.0	11	626	100	200	24.0	19.0	14.7	32.4	36.5	35.9	.102	6.5	4.4	4.2	PN
54921	5/23/93	1010	2929.8	8800.1	11	46	22	45	23.2	24.0	21.5	31.8	36.2	36.0	.355	6.9	6.4	5.8	PN
54925	5/23/93	1744	2900.1	8700.0	99	714	250	500	23.8	9.9	7.0	35.2	35.2	34.9	.049	6.6	3.8	4.2	PN
54926	5/23/93	2231	2829.9	8659.6	99	860	100	200	23.3	18.3	14.8	34.8	36.5	36.0	.064	6.8	4.2	4.6	PN
54927	5/24/93	0246	2800.0	8659.9	99	2873	250	500	26.3	15.1	9.5	36.3	36.0	35.2	.027	6.1	4.2	3.7	PN
54928	5/24/93	0652	2729.5	8659.8	99	3049	100	200	27.0	24.6	18.8	36.3	36.4	36.5		5.7	6.4		PN
54929	5/24/93	1026	2659.9	8659.8	99	2946	250	500	26.9	20.1	12.1	36.3	36.8	35.5		5.9	4.8	3.9	PN
54934	5/25/93	0037	2829.8	8900.0	99	842	100	200	25.3	18.6	14.5	36.1	36.5	36.9		6.3	4.7	4.5	PN
54935	5/25/93	0353	2759.9	8859.9	99	1289	250	500	25.5	12.0	7.8	36.3	35.5	35.0	.053	6.4	4.6	3.8	PN
54937	5/25/93	0836	2729.9	8900.0	99	1830	100	200	26.2	18.5	12.5	36.1	36.4	35.6	.078	6.2	4.5	4.1	PN
54939	5/25/93	1234	2700.2	8859.9	99	2269	250	500	25.0	13.2	8.2	36.0	35.7	35.0	.050	6.4	4.2	3.9	PN
54941	5/25/93	1738	2630.1	8859.9	99	2869	100	200	27.3	26.1	22.3	36.1	36.4	36.8	.027	6.0	6.0	4.9	PN
54942	5/25/93	2204	2600.2	8859.9	99	3111	250	500	27.2	20.3	12.9	36.2	36.7	36.7	.027	6.0	4.7	3.7	PN
54943	5/26/93	0208	2600.1	8929.8	99	3294	100	200	27.4	25.3	20.1	36.2	36.3	36.7	.053	5.8	6.1	4.7	PN
54944	5/26/93	0524	2600.2	9000.0	99	3184	250	500	27.0	15.0	8.8	36.4	36.0	35.0	.053	5.7	4.0	3.7	PN
54946	5/26/93	0936	2630.6	8959.7	99	2745	100	200	26.0	20.0	14.5	36.3	36.3	35.9	.069	5.3	5.8	4.1	PN

Table 2. Selected environmental parameters (continued)

OREGON II, REEF FISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)			TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	SUR	MID	MAX	
54948	5/26/93	1316	2659.4	8959.9	99	2452	250	500	25.2	12.9	8.1	36.1	35.6	35.0	.088	5.8	3.8	3.8	TV/PN	
54950	5/26/93	1739	2729.6	9000.0	99	1135	100	200	25.7	18.4	13.8	36.3	36.5	35.8	.050	6.2	4.3	3.9	TV/PN	
54952	5/26/93	2125	2800.8	9000.6	14	549	250	500	25.3	13.1	9.0	36.2	35.7	35.1	.087	6.1	4.1	3.8	TV/PN	
54953	5/27/93	0123	2759.9	9029.7	99	302	100	200	25.1	19.1	14.8	32.7	36.4	35.9	.243	6.4	4.3	4.2	TV/PN	
54954	5/27/93	0440	2800.0	9100.0	99	151	74	147	25.1	20.6	17.4	35.4	36.2	36.3	.102	6.1	6.2	4.0	TV/PN	
54956	5/26/93	0904	2730.1	9059.9	99	1171	100	200	24.9	18.5	13.0	36.3	36.4	35.7	.053	6.3	4.4	4.1	TV/PN	
54958	5/27/93	1248	2700.2	9100.0	99	1665	250	500	24.8	12.8	6.9	35.4	35.6	34.9	.089	6.1	3.9	4.1	TV/PN	
54960	5/27/93	1832	2630.1	9100.0	99	2105	100	200	25.2	19.6	13.1	36.2	36.3	35.7	.062	6.4	5.4	3.9	TV/PN	
54961	5/27/93	2236	2600.0	9100.0	99	2708	250	500	25.2	9.4	6.2	36.2	35.1	34.9	.053	6.3	3.8	4.5	TV/PN	
54962	5/28/93	0244	2600.0	9129.8	99	2452	100	200	24.9	19.4	13.3	36.2	36.4	35.7	.027	6.0	4.8	3.9	TV/PN	
54963	5/28/93	0607	2559.9	9159.7	99	2178	250	500	25.5	13.1	7.9	36.0	35.7	35.0	.054	6.2	3.4	3.8	TV/PN	
54965	5/28/93	1054	2630.1	9200.0	99	1830	100	200	25.1	19.5	14.6	35.6	36.4	35.9	.064	6.2	4.9	4.0	TV/PN	
54967	5/28/93	1530	2659.9	9159.9	99	1446	250	500	25.1	13.5	8.3	36.1	35.7	35.0	.053	6.4	4.1	3.8	TV/PN	
54969	5/28/93	1956	2730.2	9200.1	99	769	101	200	25.0	19.7	15.6	35.4	36.7	36.1	.133	5.6	4.8	4.4	TV/PN	
54970	5/29/93	0043	2759.8	9200.0	99	115	60	115	24.8	20.9	18.5	35.7	36.2	36.3	.072	6.4	6.6	4.3	TV/PN	
54971	5/29/93	0415	2800.1	9230.0	16	104	52	101	23.9	21.5	19.3	34.8	36.2	36.3	.087	6.4	6.8	4.9	TV/PN	
54973	5/29/93	0816	2800.1	9300.3	17	110	50	100	24.5	21.5	19.0	34.5	36.2	36.3	.089	6.4	6.8	4.8	TV/PN	
54975	5/29/93	1235	2730.1	9300.0	99	834	100	200	25.0	18.6	14.0	36.2	36.4	35.8	.352	5.8	4.5	4.2	TV/PN	
54977	5/29/93	1619	2700.2	9300.2	99	1281	250	500	25.6	12.2	7.7	35.4	35.5	34.9	.056	6.3	4.0	4.0	TV/PN	
54979	5/29/93	2103	2629.9	9300.1	99	1739	100	200	26.2	18.0	13.1	35.3	36.4	35.7	.044	6.2	3.9	3.9	TV/PN	
54980	5/29/93	2329	2616.9	9300.8	99	1885	250	500	26.0	11.4	7.5	35.8	35.4	35.0	.027	6.3	3.6	3.8	TV/PN	
54981	5/30/93	0402	2600.3	9330.0	99	2379	101	200	25.5	18.3	11.6	35.8	36.4	35.4	.056	6.0	4.2	3.7	TV/PN	
54982	5/30/93	0723	2600.4	9359.9	99	2471	250	500	25.9	10.9	7.1	35.4	35.4	34.9	.088	6.2	3.6	3.9	TV/PN	
54984	5/30/93	1231	2630.0	9400.0	99	1464	100	200	25.5	17.6	13.4	35.5	36.4	35.7	.573	6.0	4.0	3.9	TV/PN	
54986	5/30/93	1707	2659.9	9400.0	99	988	250	500	25.6	12.4	8.1	35.7	35.6	35.0	.072	6.1	4.0	3.7	TV/PN	
54987	5/30/93	2203	2730.1	9400.0	99	824	100	200	25.2	17.9	14.1	34.6	36.4	35.8	.141	6.5	4.1	4.0	TV/PN	
54988	5/31/93	0200	2759.9	9359.9	99	77	40	77	25.3	21.9	19.5	33.8	35.6	36.0	.112	5.9	6.6	5.7	TV/PN	
54989	5/31/93	0509	2800.3	9430.0	18	73	34	68	26.0	22.2	19.6	33.6	36.0	36.0	.089	5.8	6.6	5.3	TV/PN	
54990	5/31/93	0820	2800.0	9500.1	19	82	40	80	25.4	20.8	19.3	28.8	35.7	36.0	.214	6.4	4.7	4.9	TV/PN	
54992	5/31/93	1222	2730.0	9500.0	99	878	100	200	25.8	19.5	14.9	30.4	36.4	36.0	.149	6.1	5.3	3.8	TV/PN	
54995	5/31/93	1615	2700.1	9500.5	99	1427	250	500	25.7	14.8	9.1	35.6	35.9	35.1	.078	6.2	3.9	3.5	TV/PN	
54997	5/31/93	2046	2630.4	9500.3	99	1647	100	200	25.7	21.7	15.9	35.0	36.4	36.1	.061	6.2	6.0	4.1	TV/PN	
54998	6/ 1/93	0104	2601.0	9500.0	99	2432	250	500	25.8	12.4	7.8	34.9	35.6	35.0	.069	5.9	3.7	3.7	TV/PN	
54999	6/ 1/93	0451	2600.7	9530.1	99	1409	101	201	25.1	19.7	14.1	34.4	36.3	35.8	.080	6.0	5.6	3.8	TV/PN	
55001	6/ 1/93	0910	2601.1	9600.2	99	1007	250	500	25.3	12.8	8.4	34.8	35.6	35.0	.098	6.3	3.7	3.6	TV/PN	
55005	6/ 1/93	1529	2629.9	9600.0	99	1057	100	200	26.1	22.4	16.6	35.3	36.3	36.2	.095	6.2	6.3	3.9	TV/PN	
55007	6/ 1/93	2011	2701.0	9600.0	99	796	250	500	25.8	14.7	9.4	35.2	36.0	35.2	.080	6.2	3.9	3.5	TV/PN	
55008	6/ 2/93	0043	2729.7	9559.9	99	218	100	200	25.7	19.8	15.0	34.1	36.4	36.0	.055	6.0	4.6	3.8	TV/PN	
55009	6/ 2/93	0408	2759.9	9600.0	20	45	22	45	25.4	23.5	22.2	29.9	33.1	36.2	.193	6.3	5.8	5.4	PN	

Table 2. Selected environmental parameters (continued)

OREGON II, REEF FISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
55012	6/ 5/93	0634	2800.4	9259.5	17	108	53	107	25.7	21.9	18.7	35.1	36.2	36.4	.097	6.9	7.7	5.2	TV/PN
55016	6/ 5/93	1312	2659.7	9259.7	99	1281	250	503	26.8	12.8	7.7	35.6	35.6	34.9	.045	6.7	4.7	4.6	TV/PN
55019	6/ 5/93	2008	2617.4	9259.8	99	1848	250	500	26.7	11.3	7.2	35.6	35.4	34.9	.043	6.8	4.3	4.6	TV/PN
55027	6/ 7/93	1805	2600.2	9100.0	99	2782	250	506	27.1	11.0	7.3	36.0	35.3	34.9	.043	6.7	4.5	4.7	TV/PN
55028	6/ 7/93	2141	2559.9	9030.3	99	3056	418	760	27.5	7.5	5.3				.048				TV/PN
55029	6/ 8/93	0107	2602.0	8959.3	99	2928	250	500	27.7	14.6	8.7	36.2	35.9	35.1	.053	6.6	4.8	4.3	TV/PN
55030	6/ 8/93	0441	2631.6	8959.1	99	2745	250	500	27.2	12.7	7.9	35.7	35.6	35.0	.030	7.0	4.5	4.4	TV/PN
55032	6/ 8/93	0858	2700.1	8959.9	99	2269	250	500	27.6	12.0	6.4	36.5	35.5	34.9	.044	6.8	4.8	5.2	TV/PN
55036	6/ 8/93	1658	2800.7	8959.6	99	531	250	500	27.4	13.5	7.9	35.9	35.7	35.0	.033	7.3	5.0	4.6	TV/PN
55039	6/ 9/93	0511	2858.3	8900.0	13	85	44	84	27.3	20.5	18.5	29.4	36.4	36.4	3.470	7.8	6.0	4.8	TV
55043	6/ 9/93	1426	2800.5	8859.1	99	1281	251	500	27.8	13.9	8.9	36.0	35.8	35.1	.039	6.9	4.9	4.7	TV/PN
55046	6/ 9/93	2244	2703.3	8857.5	99	2269	250	500	28.0	18.3	11.0	36.3	36.5	35.4		6.8	5.8	4.2	TV/PN
55047	6/10/93	0630	2600.6	8901.0	99	3111	250	500	27.9	22.1	14.8	36.4	36.8	35.9	.027	7.0	5.7	5.0	TV/PN
55051	6/10/93	1327	2559.5	8801.6	99	2928	250	500	28.0	21.7	12.7	36.4	36.8	35.6	.040	7.1	5.7	4.6	TV/PN
55055	6/10/93	2007	2615.2	8700.0	99	924	250	500	28.3	20.2	12.9	36.4	36.7	35.6	.027	7.0	5.7	4.6	TV/PN
55056	6/11/93	0135	2659.3	8658.4	99	2983	250	500	28.0			36.3				6.9			TV/PN
55058	6/11/93	0747	2659.7	8559.9	99	957	250	500	27.7	13.8	8.6	35.9	35.8	35.0	.106	6.4	4.8	4.4	TV/PN
55059	6/11/93	1149	2629.9	8600.0	99	3185	283	500	28.3	14.3	9.6				.034				TV/PN
55060	6/11/93	1414	2558.3	8600.9	99	3221	250	458	28.3	17.9	11.8	36.4	36.4	35.5	.027	6.5	5.8	4.6	TV/PN
55061	6/11/93	1813	2530.7	8600.0	99	3191	252	481	28.5	15.0	9.2				.030				TV/PN
55063	6/11/93	2057	2500.1	8600.0	99	3294	250	488	28.5	16.4	10.0	36.3	36.2	35.2	.027	6.7	5.8	4.5	TV/PN
55064	6/12/93	0008	2500.0	8529.8	99	3367	402	760	28.3	10.9	6.2				.027				TV/PN
55065	6/12/93	0228	2459.5	8458.8	99	3349	250	496	28.1	13.8	7.7	36.3	35.8	34.9	.040	6.7	4.9	4.6	TV/PN
55066	6/12/93	0603	2430.5	8459.9	99	3386	398	760	28.3	11.8	6.2	36.5	36.2	35.1					TV/PN
55067	6/12/93	0853	2428.8	8426.1	99	3422	251	466	28.3	14.1	7.3	36.2	35.8	34.9	.034	5.9	4.9	4.8	TV/PN
55068	6/12/93	1222	2429.9	8400.5	99	2196	392	760	27.7	8.2	5.4				.069				TV/PN
55069	6/12/93	1547	2459.8	8400.2	99	125	62	120	28.0	21.8	18.1	36.4	36.3	36.4	.045	6.2	7.6	5.1	TV/PN
55070	6/12/93	1919	2529.7	8400.0	3	137	72	137	28.0	20.8	17.1				.027				TV/PN
55071	6/12/93	2158	2559.8	8360.0	3	137	66	132	28.0	20.7	16.6	36.4	36.3	36.2	.027	6.6	7.3	5.0	TV/PN
55072	6/13/93	0104	2600.0	8429.6	99	218	104	200	27.8	19.6	14.5				.027				TV/PN
55073	6/13/93	0336	2559.9	8500.2	99	2312	240	493	28.0	14.1	8.4	36.3	35.8	35.0	.053	6.7	4.9	4.4	TV/PN
55075	6/13/93	0732	2629.5	8459.9	99	2013	364	760	28.2	10.2	5.9				.043				TV/PN
55076	6/13/93	1255	2659.9	8500.0	99	860	250	500	28.5			36.0	35.6	35.1	.090	5.8			TV/PN
55077	6/13/93	1804	2729.5	8500.0	99	403	190	403	28.7	14.6	8.6				.054				TV/PN
55079	6/13/93	2048	2800.2	8501.2	99	254	127	254	28.0	17.7	11.5	35.7	36.3	35.4	.057	4.7	5.1	4.2	TV/PN
55080	6/14/93	0231	2759.9	8559.9	99	1005	248	504	28.5	13.6	8.6	36.2	35.7	35.0	.043	5.9	4.9	4.4	TV/PN
55081	6/14/93	0616	2829.8	8600.3	99	340	168	339	28.2	15.4	10.4	36.3	36.0	35.3	.040	5.8	4.7	4.3	TV/PN
55083	6/14/93	1057	2900.6	8630.7	99	380	190	370	27.1	13.5	9.1	35.1	35.7	35.1	.072	4.6	4.8	4.4	TV/PN
55084	6/14/93	1558	2859.9	8700.0	99	677	240	499	29.8	13.3	8.3		35.7	35.0	.054	7.9	4.7	4.4	TV/PN
55086	6/14/93	2350	2900.0	8730.1	99	1702	390	760	28.4	9.6	5.8				.089				TV/PN

Table 2. Selected environmental parameters (continued)

OREGON II, REEF FISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
55087	6/15/93	0313	2859.0	8800.9	11	1373	238	492	27.9	12.8	8.2	36.0	35.6	35.0	.045	5.4	4.7	4.4	TV/PN
55090	6/15/93	1138	2930.5	8800.5	99	46	23	44	29.6	25.7	22.4	27.9	36.2	36.2	.363	5.6	7.0	5.0	TV/PN
55091	6/15/93	1428	2959.9	8800.0	11	25	14	24	29.1	23.2	21.5	27.8	36.1	36.2	2.772	6.7	6.8	4.0	TV/PN

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, REEF FISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
17003	5/19/93	0832	2915.0	8820.3	11	74	36	72	25.0	22.5	19.6	24.7	35.9	36.2	3.159	6.8	6.2	5.3	TV
17004	5/19/93	1043	2914.6	8819.9	11	96	47	92	25.5	21.8	19.3	23.8	36.4	36.2	4.130	7.0	6.1	5.6	TV
17005	5/19/93	1307	2914.8	8819.8	11	92	45	90	25.6	22.5		24.0	36.3	35.7	5.551	7.7	5.6	6.0	TV
17006	5/20/93	0700	2928.1	8742.8	10	68	33	66	23.4	20.8	19.8	32.8	35.5	35.4	.230	6.3	6.8	5.6	TV
17007	5/20/93	0848	2927.8	8741.2	10	69	33	67	23.6	20.1	19.7	31.9		36.1	.280	6.3	6.5	5.7	TV
17008	5/20/93	1043	2927.7	8740.9	10	68	33	66	23.6	20.1	19.8	30.6	35.3	36.1	.248	6.4	6.5	5.6	TV
17009	5/20/93	1230	2927.7	8741.2	10	68	33	66	24.0	20.9	19.9	30.7	35.8	35.8	.280	6.3	3.7	5.6	TV
17010	5/20/93	1400	2928.0	8742.7	10	68	33	66	24.3	20.9	20.0	29.6	35.6	35.5	.211	6.2	6.7	5.7	TV

Table 2. Selected environmental parameters (continued)

CHAPMAN, REEF FISH SURVEY																				
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)			TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR		MID	MAX		
00001	5/23/93	0500	2757.9	9200.8	99	85	41	81	24.4	22.3	19.9	36.2	36.3	36.5	.064	7.2	8.6	6.4	TV/PN	
00003	5/23/93	1115	2757.8	9200.8	99	86	43	86	24.5	22.1	20.0	36.2	36.2	36.4	.064	8.1	8.7	6.6	TV	
00004	5/23/93	1352	2757.1	9201.1	99	68	35	68	24.6	23.0	20.8	36.1	36.3	36.3	.053	7.0	8.5	8.0	TV	
00005	5/23/93	1553	2757.3	9200.8	99	64	32	62	24.6	23.1	20.9	36.1	36.2	36.3	.043	8.1	8.6	8.2	TV	
00006	5/24/93	0500	2757.8	9203.1	99	123	61	123	24.5	21.0	17.9	36.1	36.3	36.3	.043	7.8	8.4	5.1	TV/PN	
00007	5/24/93	0755	2757.5	9203.1	99	64	32	64	24.4	23.1	20.7	36.1	36.3	36.3	.230	6.3	8.4	7.8	TV	
00008	5/24/93	1045	2757.6	9202.8	99	60	31	60	24.4	23.1	21.2	36.0	36.3	36.3	.094	6.7	8.3	8.2	TV	
00009	5/24/93	1248	2756.1	9201.8	99	67	34	67	24.4	22.9	20.6	36.1	36.3	36.3	.125	6.4	8.3	7.5	TV	
00010	5/24/93	1457	2756.4	9201.1	99	75	37	75	24.4	23.1	20.6	36.1	36.3	36.3	.100	6.5	8.1	7.4	TV	
00011	5/24/93	1710	2756.7	9202.4	99	56	28	56	24.4	23.3	22.1	36.1	36.3	36.3	.094	7.0	7.8	7.9	TV	
00012	5/25/93	0520	2758.7	9223.0	99	78	39	78	24.0	22.1	19.9	35.7	36.1	36.3	.104	7.1	8.5	6.5	TV/PN	
00014	5/25/93	0922	2758.5	9222.5	99	67	32	65	24.0	22.9	20.4	37.7	36.0	36.3	.089	7.2	8.2	6.9	TV	
00015	5/25/93	1104	2758.5	9222.6	99	69	34	68	24.1	22.8	20.2	35.7	36.0	36.4	.107	7.3	8.0	6.7	TV	
00016	5/25/93	1237	2758.3	9222.6	99	68	35	68	24.2	22.9	20.1	35.7	36.1	36.3	.083	6.7	7.8	6.5	TV	
00017	5/25/93	1403	2758.1	9222.7	99	64	32	64	24.3	22.8	20.5	35.7	36.2	36.3	.072	6.2	7.6	7.1	TV	
00018	5/25/93	1603	2753.5	9222.8	99	88	45	88	25.0	22.4	19.4	36.2	36.3	36.3	.116	6.6	7.4	5.6	TV	
00019	5/26/93	0510	2750.3	9252.1	99	116	59	116	24.4	20.8	17.3	35.4	36.2	36.3	.098	6.9	8.6	5.2	TV/PN	
00021	5/26/93	0920	2749.3	9253.3	99	86	40	80	24.4	22.4	19.1	35.4	36.1	36.3	.109	6.2	8.1	6.2	TV	
00022	5/26/93	1058	2749.1	9253.9	99	106	53	106	24.2	21.4	18.0	35.3	36.2	36.3	.107	6.4	7.9	4.9	TV	
00023	5/26/93	1228	2748.7	9253.4	99	106	53	106	24.5	21.2	18.3	35.4	36.3	36.4	.116	5.8	7.6	4.7	TV	
00024	5/26/93	1404	2748.9	9253.7	99	126	63	126	24.5	20.9	17.7	35.4	36.3	36.3	.098	6.5	7.7	4.5	TV	
00025	5/26/93	1705	2748.7	9303.5	99	75	40	75	24.4	21.4	19.8	34.6	36.0	36.3	.104	5.7	7.1	6.0	TV	
00026	5/27/93	0450	2748.7	9303.0	99	64	30	60	24.3	22.5	20.2	34.7	35.7	36.2	.110	6.6	8.2	7.1	PN	
00028	5/27/93	0924	2748.1	9303.9	99	75	37	75	24.3	21.6	19.6	34.6	35.8	36.3	.159	7.4	7.9	6.3	TV	
00029	5/27/93	1109	2748.1	9303.9	99	84	39	81	24.3	21.6	19.4	34.6	35.8	36.3	.117	6.3	7.5	5.8	TV	
00030	5/27/93	1404	2748.4	9304.3	99	84	42	84	24.4	21.4	19.0	34.6	36.0	36.4	.110	7.0	7.4	5.5	TV	
00031	5/27/93	1548	2748.3	9304.2	99	82	40	82	24.3	21.8	19.2	34.6	35.8	36.3	.126	6.6	7.0	5.2	TV	
00032	5/27/93	1736	2748.6	9303.6	99	69	35	69	24.4	22.0	20.1	34.6	35.8	36.2	.126	6.6	7.0	5.8	TV	
00033	5/28/93	0505	2752.1	9353.5	99	130	62	124	23.9	19.8	17.4	34.2	36.2	36.3	.153	7.0	7.0	4.8	TV/PN	
00035	5/28/93	0937	2752.2	9351.3	99	49	24	48	24.2	21.6	20.1	34.4	35.1	36.1	.110	6.8	8.1	7.7	TV	
00036	5/28/93	1109	2753.0	9350.5	99	84	41	83	24.4	20.7	18.9	34.4	35.5	36.2	.094	6.9	7.4	5.7	TV	
00037	5/28/93	1429	2752.3	9350.7	99	88	44	88	24.7	20.9	19.2	34.5	35.9	36.2	.102	7.2	7.6	5.8	TV	
00038	5/28/93	1627	2751.0	9350.4	99	67	34	67	24.7	21.5	19.5	34.5	35.7	36.2	.116	5.9	7.2	6.1	TV	
00039	5/28/93	1756	2750.6	9350.2	99	75	38	75	24.7	21.2	19.2	34.5	35.8	36.2	.145	6.6	7.0	5.4	TV	
00040	5/29/93	0538	.0	.0	99	132	66	132	24.5	20.1	17.4	34.4	36.1	36.2	.085	7.8	7.3	4.9	TV/PN	
00042	5/29/93	1012	2755.8	9326.6	99	77	38	77	24.6	22.1	19.5	32.3	36.0	36.2	.089	6.2	8.1	6.4	TV	
00043	5/29/93	1211	2755.5	9325.0	99	87	44	87	25.2	21.4	18.7	34.4	35.9	36.3	.081	6.3	5.8	5.1	TV	
00045	5/29/93	1528	2754.7	9326.3	99	88	43	88	24.9	21.2	18.8	34.4	35.8	36.3	.053	7.0	7.5	5.1	TV	
00046	5/29/93	1713	2754.8	9326.9	99	52	27	52	25.6	22.7	20.9	34.4	35.7	36.1	.087	6.6	7.1	7.1	TV	
00047	5/30/93	0525	2753.4	9320.2	99	115	56	114	24.6	19.8	17.7	34.6	35.9	36.3	.064	6.4	7.2	4.8	TV/PN	

Table 2. Selected environmental parameters (continued)

CHAPMAN, REEF FISH SURVEY																				
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)			TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR		MID	MAX		
00049	5/30/93	0853	2754.0	9318.9	99	77	38	77	24.7	22.3	19.3	34.7	36.1	36.3	.095	6.4	8.3	6.1	TV	
00050	5/30/93	1036	2753.0	9318.1	99	44	22	43	24.6	24.0	21.9	34.7	35.6	36.1	.395	7.3	7.5	7.9	TV	
00051	5/30/93	1304	2752.8	9317.8	99	44	24	44	24.6	23.5	21.8	34.7	35.7	36.1	.068	7.5	7.7	7.9	TV	
00052	5/30/93	1455	2752.8	9318.1	99	50	25	50	26.5	24.2	21.0	34.9	35.4	36.1	.055	6.4	6.9	7.3	TV	
00053	5/30/93	1619	2753.2	9319.1	99	60	31	60	25.9	22.9	19.8	34.8	35.7	36.1	.080	6.5	7.0	6.1	TV	
00054	5/30/93	1815	2753.4	9318.2	99	54	27	54	26.1	23.6	20.7	34.8	35.7	36.1	.057	6.3	6.7	6.7	TV	
00055	5/31/93	0505	2751.7	9306.1	99	198	98	198	25.5	18.3	15.0	34.8	36.3	36.0	.309	4.3	5.5	4.5	TV/PN	
00057	5/31/93	0856	2751.1	9304.7	99	87	43	87	24.0	22.4	19.1	34.7	36.3	36.4	.297	7.9	8.1	5.8	TV	
00058	5/31/93	1023	2751.0	9304.0	99	63	32	62	25.3	23.3	21.1	35.1	36.2	36.3	.214	6.3	7.4	7.6	TV	
00059	5/31/93	1217	2751.1	9304.1	99	73	33	73	25.5	23.1	20.3	35.1	36.3	36.3	.048	6.6	7.3	6.3	TV	
00060	5/31/93	1417	2751.1	9303.9	99	71	35	71	25.5	23.1	20.3	35.1	36.4	36.3	.064	5.5	6.9	6.1	TV	
00061	5/31/93	1603	2751.4	9303.9	99	90	45	90	25.4	22.5	19.4	35.2	36.3	36.3	.056	6.4	6.8	5.3	TV	
00062	5/31/93	1747	2751.3	9303.8	99	70	38	70	25.4	23.0	20.8	35.2	36.3	36.2	.071	5.9	6.6	6.6	TV	
00063	6/ 1/93	0505	2817.8	9244.0	16	54	25	54	25.7	21.8	20.1	32.1	35.4	36.2	.287	8.0	8.4	7.3	TV/PN	
00065	6/ 1/93	0915	2818.3	9243.3	16	53	26	53	25.1	21.9	20.1	32.2	35.6	36.2	.319	7.1	8.3	7.1	TV	
00066	6/ 1/93	1045	2819.5	9243.0	16	55	27	55	25.0	21.6	20.0	32.9	35.5	36.2	.242	7.7	8.1	6.5	TV	
00067	6/ 1/93	1226	2818.9	9243.2	16	56	29	56	24.9	21.7	19.9	32.4	35.6	36.2	.331	7.7	7.8	6.4	TV	
00068	6/ 6/93	0558	3002.0	8758.6	10	14	7	13	27.3	25.9	23.2	25.4	29.3	34.9	1.386	6.1	6.4	4.6	PN	
00070	6/ 6/93	1002	3002.2	8758.7	10	17	8	16	27.3	25.0	21.3	26.0	31.7	36.2	.997	5.7	6.9	4.4	TV	
00071	6/ 6/93	1140	3001.6	8757.2	10	18	9	18	28.0	24.5	21.3	25.7	32.9	36.0	.863	6.2	7.2	4.8	TV	
00072	6/ 6/93	1355	3001.5	8757.0	10	21	10	20	27.2	23.9	21.3	26.5	34.1	36.0	.890	6.2	7.3	4.5	TV	
00073	6/ 6/93	1528	3001.4	8757.1	10	20	9	19	26.8	23.9	21.3	27.4	34.2	36.1	.743	6.9	7.1	4.6	TV	
00074	6/ 7/93	1315	2952.3	8719.4	10	48	24	47	27.9	24.0	19.5	28.9	35.6	36.1	.178	5.5	7.1	5.9	TV	
00075	6/ 7/93	1449	2950.5	8718.7	10	62	30	60	27.6	23.2	19.2	29.8	36.0	36.2	.144	6.4	7.1	6.3	TV	
00076	6/ 7/93	1721	2956.3	8713.1	10	47	24	46	28.0	23.1	19.6	29.2	35.4	36.1	.178	6.5	7.1	5.8	TV	
00077	6/ 8/93	1210	3006.7	8655.4	9	48	23	47	28.2	20.4	19.5	27.4	35.3	36.1	.196	6.4	6.0	6.5	TV	
00078	6/ 8/93	1343	3005.9	8657.4	9	50	24	48	28.1	21.1	19.4	27.9	35.3	36.1	.196	6.5	5.8	6.2	TV	
00079	6/ 8/93	1535	3007.4	8652.7	9	56	28	55	28.5	20.5	19.3	27.4	35.6	36.1	.196	6.2	6.1	6.2	TV	
00080	6/ 8/93	1719	3005.9	8656.3	9	84	41	82	28.7	19.8	18.9	27.1	36.1	36.2	.191	6.5	6.4	5.9	TV	
00084	6/ 9/93	0548	3007.5	8651.3	9	82	41	81	28.0	20.1	18.9	27.4	36.1	36.2	.193	6.3	7.1	6.1	TV/PN	
00086	6/ 9/93	0954	3009.2	8657.3	9	31	15	30	28.4	23.0	20.1	26.1	35.0	36.1	.256	5.7	7.1	6.3	TV	
00087	6/ 9/93	1155	3008.3	8658.5	9	34	15	29	28.7	23.6	20.2	26.6	34.6	36.1	.223	6.1	7.3	6.5	TV	
00088	6/ 9/93	1335	3008.3	8659.5	9	31	15	30	29.1	23.8	20.1	26.7	34.5	36.1	.218	6.0	7.1	5.4	TV	
00089	6/10/93	0537	2916.9	8543.2	8	63	31	62	26.7	22.5	19.2	34.4	36.2	36.3	.111	6.3	7.4	6.2	TV/PN	
00091	6/10/93	0859	2918.0	8545.4	8	62	29	61	26.5	22.3	19.2	34.4	35.8	36.3	.063	6.3	7.3	6.0	TV	
00092	6/10/93	1034	2918.1	8545.9	8	64	31	63	26.5	22.5	19.2	34.6	35.7	36.3	.056	6.3	7.3	6.0	TV	
00093	6/10/93	1203	2918.1	8545.9	8	62	30	60	27.0	23.0	19.2	34.6	35.2	36.3	.047	5.1	7.3	6.0	TV	
00094	6/10/93	1320	2917.9	8545.4	8	62	30	60	27.5	22.1	19.2	34.3	35.7	36.3	.083	4.9	7.2	5.9	TV	
00095	6/10/93	1532	2917.7	8546.5	8	72	35	70	27.1	22.0	19.3	34.6	36.0	36.3	.056	4.8	7.1	6.0	TV	
00096	6/10/93	1710	2917.9	8547.0	8	31	30	30	29.2	22.1	19.3	34.7	35.8	36.3	.081	4.4	7.0	6.1	TV	

Table 2. Selected environmental parameters (continued)

CHAPMAN, REEF FISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)			TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR		MID	MAX		
00098	6/11/93	0510	2856.9	8521.6	8	78	38	77	27.1	21.1	19.3	34.5	36.0	36.3	.096	4.2	7.5	6.4	TV/PN	
00100	6/11/93	0846	2857.9	8521.0	8	70	36	64	27.0	20.9	19.8	34.5	35.8	36.3	.116	6.2	7.5	6.3	TV	
00101	6/11/93	1022	2857.7	8521.0	8	74	38	73	27.3	20.9	19.7	34.4	35.9	36.2	.098	5.3	7.7	6.3	TV	
00102	6/11/93	1158	2858.1	8521.0	8	68	33	67	27.2	21.4	19.6	34.4	35.7	36.2	.094	5.7	7.4	6.2	TV	
00103	6/11/93	1357	2858.9	8527.2	8	67	33	65	28.7	24.6	20.3	34.9	36.2	36.2	.080	5.8	6.7	6.7	TV	
00104	6/11/93	1535	2858.9	8529.8	8	75	37	74	28.3	23.9	19.9	34.9	36.2	36.3	.075	4.9	6.9	6.1	TV	
00105	6/11/93	1703	2858.9	8529.8	8	69	34	68	29.0	23.9	20.3	35.0	36.3	36.3	.131	4.9	6.8	6.6	TV	
00106	6/12/93	0508	2837.9	8459.6	8	69	35	64	27.3	20.6	19.5	34.4	35.9	36.3	.062	5.1	7.7	6.6	TV/PN	
00108	6/12/93	0857	2837.3	8500.0	6	82	39	80	27.5	20.5	19.3	34.4	35.9	36.3	.084	5.5	7.3	6.3	TV	
00109	6/12/93	1027	2836.2	8459.2	6	73	35	71	27.4	20.6	19.7	34.4	35.7	36.3	.054	5.8	7.6	6.5	TV	
00110	6/12/93	1205	2836.0	8459.2	6	76	37	75	27.8	21.3	19.7	34.4	35.8	36.3	.054	4.5	7.5	6.5	TV	
00111	6/12/93	1332	2836.0	8458.9	6	71	35	70	27.3	21.9	19.8	34.4	35.7	36.3	.062	6.0	7.3	6.5	TV	
00112	6/12/93	1527	2835.1	8457.9	6	68	33	67	27.8	23.1	20.0	34.4	35.9	36.3	.060	5.8	7.2	6.5	TV	
00113	6/12/93	1652	2834.9	8457.9	6	67	33	66	27.8	22.0	20.0	34.4	35.8	36.3	.053	5.0	7.2	6.4	TV	
00115	6/13/93	0517	2815.1	8444.7	6	73	36	72	27.8	23.0	20.0	34.7	36.2	36.2	.080	6.0	7.4	7.2	TV/PN	
00117	6/13/93	0913	2817.1	8446.2	6	71	34	68	27.9	23.0	20.2	34.6	36.2	36.2	.077	5.3	7.2	6.8	TV	
00118	6/13/93	1102	2816.8	8442.7	6	67	34	66	28.3	21.9	20.2	34.7	35.9	36.2	.053	4.8	7.4	7.1	TV	
00119	6/13/93	1303	2818.3	8447.1	6	69	33	68	29.5	23.1	20.3	34.8	36.3	36.2	.089	4.7	7.1	6.9	TV	
00120	6/13/93	1440	2819.9	8448.9	6	77	38	76	27.0	22.6	20.0	34.5	36.3	36.2	.053	4.9	7.1	6.5	TV	
00121	6/14/93	0614	2742.1	8410.8	5	58	29	57	27.8	23.6	20.4	35.5	36.1	36.2	.064	5.9	7.2	7.4	TV/PN	
00123	6/14/93	0855	2742.6	8411.1	5	60	30	59	28.0	22.3	20.4	35.5	36.1	36.2	.070	5.3	7.3	7.3	TV	
00124	6/14/93	1021	2743.1	8410.6	5	56	25	53	28.0	22.8	20.5	35.5	35.9	36.2	.080	5.1	7.1	7.1	TV	
00125	6/14/93	1204	2742.9	8410.4	5	55	27	53	27.9	22.6	20.4	35.6	36.3	36.2	.100	5.7	7.2	7.2	TV	
00126	6/14/93	1340	2741.0	8410.5	5	58	27	56	27.6	22.2	20.3	35.7	36.1	36.2	.086	6.0	7.2	7.0	TV	
00127	6/14/93	1515	2741.5	8410.9	5	53	26	52	27.7	22.8	20.4	35.6	36.2	36.2	.056	5.7	7.1	7.1	TV	
00128	6/14/93	1645	2741.6	8410.6	5	55	27	54	27.6	22.5	20.4	35.6	36.1	36.2	.098	5.8	7.0	6.9	TV	
00130	6/15/93	0519	2748.4	8409.4	5	49	25	48	26.9	23.2	20.4	35.8	35.7	36.2	.098	6.5	7.4	7.4	TV/PN	
00133	6/15/93	0934	2748.2	8409.4	5	51	26	50	27.2	23.0	20.5	35.6	35.8	36.2	.116	5.9	7.4	7.4	TV	
00134	6/15/93	1101	2747.9	8409.7	5	51	26	49	27.3	23.0	20.5	35.6	35.9	36.2	.089	6.2	7.4	7.3	TV	
00135	6/15/93	1241	2747.3	8409.8	5	52	25	50	27.2	22.6	20.5	35.7	36.1	36.5	.090	6.3	7.3	7.4	TV	
00136	6/15/93	1422	2746.5	8409.9	5	55	27	53	27.3	21.8	20.5	35.6	36.2	36.2	.069	6.2	7.4	7.2	TV	
00137	6/20/93	0738	2433.6	8254.6	2	21	10	20	28.5	27.9	25.8	36.3	36.4	36.3	.069	6.5	6.8	7.1	TV	
00138	6/20/93	0928	2432.9	8256.2	2	21	10	20	28.5	27.9	25.8	36.3	36.4	36.3	.077	6.6	6.8	7.1	TV	
00139	6/20/93	1106	2432.5	8256.8	2	21	10	20	28.5	27.9	25.8	36.3	36.4	36.3	.044	6.5	6.8	7.1	TV	
00140	6/20/93	1237	2432.1	8257.1	2	18	7	16	27.9	27.8	27.6	36.4	36.4	36.4	.075	7.0	7.0	7.2	TV	
00141	6/20/93	1512	2435.1	8258.7	2	16	8	15	27.9	27.9	27.7	36.4	36.4	36.4	.111	5.4	6.7	6.8	TV	
00142	6/20/93	1650	2435.1	8259.2	2	19	9	18	27.8	27.8	27.8	36.4	36.4	36.4	.151	5.0	6.7	6.9	TV	
00143	6/20/93	1826	2437.2	8258.4	2	21	11	21	27.8	27.8	27.8	36.4	36.4	36.4	.230	5.6	6.3	6.4	TV	
00144	6/21/93	0544	2439.5	8304.3	2	15	7	14	27.5	27.5	27.6	36.4	36.4	36.4	.064	6.8	6.6	7.0	TV/PN	
00146	6/21/93	0922	2438.2	8302.8	2	17	8	16	27.7	27.7	27.6	36.4	36.4	36.4		6.8	6.7	6.9	TV	

Table 2. Selected environmental parameters (continued)

CHAPMAN, REEF FISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
00147	6/21/93	1101	2436.9	8304.9	2	17	8	16	28.0	27.3	26.3	36.4	36.4	36.4	.030	6.4	6.9	7.4	TV
00148	6/21/93	1232	2436.7	8304.0	2	13	5	12	28.2	27.9	27.7	36.4	36.4	36.4	.043	6.8	6.8	7.1	TV
00149	6/21/93	1410	2437.9	8302.4	2	13	6	13	28.3	27.9	27.9	36.3	36.4	36.4	.037	6.0	6.9	7.0	TV
00150	6/21/93	1610	2438.6	8303.1	2	11	6	11	28.2	27.9	27.8	36.4	36.4	36.4	.039	5.6	6.5	6.7	TV
00151	6/21/93	1749	2439.6	8304.4	2	17	7	16	27.9	27.8	26.6	36.4	36.4	36.4	.056	5.8	6.7	7.3	TV
00152	6/22/93	1059	2550.4	8334.6	3	71	35	70	27.8	23.6	20.7	36.5	36.3	36.3		6.4	7.6	7.0	TV
00153	6/22/93	1259	2557.0	8334.0	3	69	33	68	28.1	24.4	21.2	36.5	36.3	36.3	.053	5.3	7.6	7.8	TV
00154	6/22/93	1505	2559.0	8334.3	3	71	35	68	28.8	24.1	21.3	36.4	36.3	36.3	.053	6.2	7.8	7.8	TV
00155	6/22/93	1703	2556.7	8335.3	3	70	35	69	29.0	24.2	21.3	36.5	36.3	36.3		6.4	7.7	7.9	TV
00156	6/23/93	1311	2745.1	8300.9	5	16	7	13	28.7	28.3	28.3	35.7	35.7	35.7	.267	6.9	6.7	6.6	TV
00157	6/24/93	0544	2814.4	8405.3	6	38	18	37	26.8	22.5	22.2	36.0	36.0	36.0	.089	6.9	7.8	7.6	TV/PN
00158	6/24/93	0729	2814.4	8405.0	6	38	18	37	26.8	22.5	22.2	36.0	36.0	36.0		6.9	7.8	7.6	TV
00159	6/24/93	0904	2814.3	8404.8	6	42	20	41	26.9	22.5	22.0	36.0	36.0	35.9	.080	6.6	8.1	7.9	TV
00160	6/24/93	1107	2813.3	8407.7	6	21	10	20	26.9	26.7	22.7	36.1	36.1	36.0	.054	6.4	7.1	7.7	TV
00161	6/24/93	1242	2813.4	8406.8	6	40	18	39	27.1	26.2	21.9	36.0	36.0	36.0	.062	6.9	7.3	8.0	TV
00162	6/24/93	1438	2813.5	8407.3	6	20	9	19	27.3	26.8	25.1	36.0	36.1	36.1	.053	7.0	7.0	7.5	TV
00163	6/24/93	1616	2816.0	8405.5	6	35	16	32	27.8	25.9	22.6	36.0	36.1	36.0	.094	7.1	7.4	7.9	TV
00164	6/24/93	1801	2815.7	8408.0	6	39	19	39	27.6	22.6	22.5	36.1	36.0	36.0	.072	6.9	6.7	8.0	TV
00165	6/25/93	0604	2821.1	8407.5	6	33	16	32	26.8	26.2	22.3	36.0	36.0	36.0	.055	6.3	4.1	8.0	TV/PN
00167	6/25/93	0910	2820.7	8409.8	6	33	17	32	27.1	26.2	22.7	35.8	36.0	36.0	.053	6.9	7.2	7.7	TV
00168	6/25/93	1052	2820.7	8408.5	6	36	17	35	27.4	26.4	22.4	35.9	36.0	36.0	.053	6.3	7.2	7.9	TV
00169	6/25/93	1219	2821.2	8408.2	6	39	19	38	27.4	28.9	22.2	36.0	36.0	36.0	.070	7.0	7.4	8.0	TV
00170	6/25/93	1343	2822.1	8407.9	6	32	15	31	27.3	26.5	22.2	36.1	36.0	36.0	.062	6.7	7.1	7.1	TV
00171	6/25/93	1514	2822.2	8408.8	6	38	18	37	27.6	24.4	22.6	35.9	36.1	36.0	.072	6.6	7.5	7.8	TV
00172	6/25/93	1633	2822.6	8407.8	6	37	17	37	27.9	26.0	22.4	36.0	36.0	36.0	.070	6.1	7.1	7.9	TV
00173	6/25/93	1801	2823.0	8407.7	6	36	18	36	27.8	23.6	22.3	36.1	36.1	36.0	.159	5.7	7.6	7.9	TV
00174	6/26/93	0625	2827.6	8417.9	6	37	18	36	27.3	24.1	23.1	35.9	36.0	36.0	.116	6.1			TV/PN
00176	6/26/93	0950	2821.8	8412.0	6	41	20	40	27.5	24.7	22.8	35.5	36.1	36.0	.097	6.1	7.5	7.9	TV
00177	6/26/93	1126	2821.8	8410.9	6	34	15	33	27.8	26.6	22.6	35.6	36.0	36.0	.058	5.4	6.9	7.6	TV
00178	6/26/93	1342	2827.5	8417.3	6	30	15	30	27.6	26.2	23.3	35.8	36.0	36.0	.072	4.9	7.2	7.6	TV
00179	6/26/93	1608	2828.0	8415.5	6	40	20	39	27.7	24.2	23.0	35.9	35.8	36.0	.062	5.6	7.6		TV
00180	6/26/93	1734	2827.9	8415.2	6	40	20	40	25.6	23.8	22.8	35.9	36.0	36.0	.080	6.8	7.7	7.7	TV
00181	6/27/93	0527	2829.6	8417.5	6	28	13	27	27.6	25.4	23.3	35.8	36.0	36.0	.064	5.9	7.2	7.5	TV/PN
00183	6/27/93	0858	2829.5	8418.9	6	39	19	38	27.5	23.5	22.9	35.9	36.0	36.0	.062	5.9	8.0	7.7	TV
00184	6/27/93	1032	2829.2	8418.4	6	32	15	31	27.5	24.6	23.4	35.9	36.0	36.0	.062	6.1	7.3	7.2	TV
00185	6/27/93	1221	2828.4	8419.7	6	37	17	36	27.8	26.3	23.0	35.9	36.0	36.0	.071	6.8	7.3	7.6	TV
00186	6/27/93	1354	2827.8	8418.7	6	28	14	28	28.8	26.5	23.4	35.7	36.0	36.0	.053	6.8	7.2	5.4	TV
00187	6/27/93	1541	2827.0	8416.6	6	38	18	38	28.6	24.1	23.0	35.5	35.9	36.0	.206	4.7	7.5	8.1	TV
00188	6/27/93	1713	2826.3	8416.6	6	31	16	31	28.1	24.2	23.3	35.9	36.0	36.0	.073	5.7	7.3	8.2	TV
00189	6/28/93	0528	2831.9	8412.3	6	32	15	31	27.9	24.8	22.8	35.7	36.2	36.0	.063	6.1	7.6	7.9	TV/PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, REEF FISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C°			SALINITY,PPT			CL, MG/M ³	DISSOLVED OXYGEN,PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
00191	6/28/93	0853	2832.3	8415.0	6	37	18	36	27.7	25.1	22.8	35.5	35.9	36.1	.063	6.5	7.4	7.7	TV
00192	6/28/93	1021	2831.9	8414.0	6	34	16	33	28.0	24.9	23.0	35.5	36.1	36.0	.131	5.7	7.3	7.6	TV
00193	6/28/93	1206	2831.7	8414.4	6	30	14	30	28.2	25.9	22.9	35.6	35.9	36.0	.055	6.8	7.4	7.4	TV
00194	6/28/93	1418	2838.0	8416.3	6	22	11	22	28.0	26.9	22.6	36.0	36.0	36.0	.071	6.7	7.0	7.9	TV
00195	6/28/93	1541	2838.2	8416.6	6	35	17	34	28.0	25.7	22.1	36.0	36.0	36.0	.053	6.8	7.3	8.0	TV
00196	6/29/93	0525	2836.4	8421.7	6	37	18	36	27.9	24.1	23.3	35.5	36.0	36.0	.097	6.1	7.5	7.3	TV/PN
00198	6/29/93	0906	2836.7	8422.0	6	38	18	37	28.0	25.1	23.3	35.5	35.9	36.0	.072	6.6	7.4	5.2	TV
00199	6/29/93	1039	2836.1	8420.2	6	36	18	35	27.9	23.6	22.4	35.5	36.0	36.0	.072	6.4	7.4	6.2	TV
00200	6/29/93	1229	2836.0	8420.3	6	24	10	23	27.8	27.4	23.1	35.6	35.7	36.0	.081	6.3	6.8	7.8	TV
00201	6/29/93	1424	2833.3	8421.2	6	22	12	20	28.1	27.8	22.3	35.5	35.5	36.3	.083	6.4	6.6	7.5	TV
00202	6/29/93	1602	2835.6	8422.1	6	37	18	36	27.9	25.6	23.3	35.6	35.9	36.0	.056	6.6	7.2	7.1	TV
00203	6/29/93	1750	2832.0	8421.3	6	28	14	28	28.2	26.6	23.1	35.5	35.8	36.0	.069	6.4	6.8		TV
00204	6/30/93	0531	2829.6	8421.1	6	39	19	38	27.6	25.2	23.1	35.6	35.9	36.0	.078	5.8	7.4	7.6	TV/PN
00206	6/30/93	0923	2829.8	8422.3	6	37	18	36	27.7	26.5	22.1	35.6	35.8	36.0	.072	6.1	7.1	7.7	TV
00207	6/30/93	1059	2829.4	8422.2	6	43	21	42	27.8	22.0	21.9	35.6	35.9	36.0	.321	6.6	7.2	7.4	TV
00208	6/30/93	1231	2829.2	8423.3	6	35	18	34	27.8	26.4	23.2	35.6	35.8	36.0	.054	6.8	7.0	6.8	TV
00209	6/30/93	1421	2826.0	8421.3	6	31	15	30	27.7	26.2	23.4	35.6	35.8	36.0	.081	5.3	6.4		TV
00210	6/30/93	1634	2826.1	8421.5	6	41	20	41	27.6	24.5	21.5	35.5	36.0	36.0	.100	5.1	6.7	6.9	TV
00211	7/ 1/93	0530	2822.1	8451.0	6	76	37	75	27.7	22.6	17.9	34.7	36.1	36.3	.110	6.4	7.6	5.2	TV/PN
00213	7/ 1/93	0904	2823.9	8451.0	6	73	36	72	27.6	22.8	17.8	34.5	36.1	36.2	.087	6.4	7.5	5.2	TV

Table 2. Selected environmental parameters (continued)

ALABAMA MARINE PATROL VESSEL, REEF FISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
23001	7/29/93	0938	3002.0	8804.4	11	24		24	31.0		31.0								TV
23002	9/19/93	0853	3003.5	8804.0	11	22	11	22	27.5	26.0	24.5	30.0	32.0	32.0					TV
23003	9/19/93	1027	3001.7	8804.7	11	22	11	22	27.5	26.0	24.5	30.0	30.0	32.0					TV
23004	9/23/93	0806	3002.7	8804.0	11	24	12	24	29.0	28.5	28.5	32.0	32.0	32.0	8.0	8.4	7.6		TV
23005	9/23/93	1142	3006.1	8807.0	11	24	12	24	30.0	29.5	29.0	28.0	28.0	30.0	8.2	8.0	4.6		TV
23006	9/24/93	0914	3006.2	8812.4	11	22	11	22	29.0	29.0	28.5	30.0	30.0	32.0	9.0	7.8	6.8		TV
23007	9/24/93	1115	3004.1	8813.6	11	26	13	26	29.5	29.5	29.0	32.0	30.0	32.0	9.8	8.0	8.0		TV
23008	9/24/93	1248	3002.1	8813.1	11	24	12	24	30.0	29.5	29.0	30.0	30.0	32.0	7.2	8.2	5.6		TV
23009	11/30/93	0928	3001.3	8804.0	11	22	12	22	17.5	18.0	16.5	30.0	32.0	32.0	8.6	8.2	8.8		TV
23010	11/30/93	1115	3000.7	8805.5	11	26	13	26	18.0	18.5	17.5	28.0	30.0	32.0	8.8	8.6	8.8		TV
23011	11/30/93	1240	3000.2	8806.0	11	24	12	24	18.0	18.0	17.0	30.0	30.0	32.0	8.4	8.6	8.6		TV

Table 2. Selected environmental parameters (continued)

ARANSAS BAY, SUMMER SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	SUR	MID	
31001	6/14/93	0857	2753.5	9654.7	20	15	8	15	27.0	26.3	26.2	27.5	29.6	30.0	1.234	7.0	7.0	7.0	ST
31002	6/14/93	0950	2758.5	9653.6	20	13	7	13	27.6	27.2	26.4	26.7	29.5	29.6	1.271	7.1	6.9	6.0	ST
31003	6/14/93	1033	2754.6	9652.7	20	17	9	17	27.1	26.8	26.6	29.4	30.2	30.4	.550	6.9		7.0	ST
31004	6/14/93	1105	2755.7	9650.6	20	18	9	18	27.0	26.8	26.2	30.2	30.2	31.1	.534	6.8		7.0	ST
31005	6/14/93	1141	2754.6	9649.6	20	19	10	19	27.0	26.4	26.3	30.1	30.3	31.6	.534	7.3		7.0	ST
31006	6/14/93	1217	2752.7	9649.5	20	21	10	21	26.7	26.2	26.1	30.3	30.5	31.5	.427	7.5		6.0	ST
31007	6/14/93	1322	2747.6	9658.7	20	17	9	17	27.0	26.1	26.0	30.6	30.9	31.0	.379	7.0		7.0	ST
31008	6/14/93	1352	2748.7	9658.8	20	16	8	16	27.1	27.0	26.3	29.6	30.2	30.3	2.654	7.0		7.0	ST
31009	6/28/93	1532	2744.3	9706.3	20	10	5	10	28.5	27.6	27.4	27.5	27.5	27.5	2.280	8.4	7.0	6.0	ST
31010	6/28/93	1454	2742.4	9705.5	20	14	7	14	28.5	27.6	26.9	28.0	27.9	28.7	1.282	7.7	7.0	5.0	ST
31011	6/28/93	1342	2738.9	9707.5	20	16	8	16	28.2	27.4	26.9	28.4	28.7	29.1	1.458	8.2	7.0	5.0	ST
31012	6/28/93	1256	2738.4	9704.7	20	20	10	20	28.0	27.3	27.0	28.1	28.2	28.4	1.047	8.0	6.0	7.0	ST
31013	6/28/93	1202	2738.8	9703.4	20	22	11	22	28.0	27.4	27.1	28.0	28.1	28.1	.854	8.0	6.0	7.0	ST
31014	6/28/93	1100	2740.5	9658.5	20	24	12	24	27.9	27.3	26.8	27.0	27.7	27.9	.940	7.7	7.0	6.0	ST
31015	6/28/93	0933	2744.8	9658.3	20	21	10	21	27.8	27.3	27.0	26.8	27.2	27.4	.662	7.6	7.0	6.0	ST
31016	6/28/93	0856	2745.5	9659.5	20	20	10	20	27.8	27.7	27.0	26.8	27.0	27.2	.753		7.0	6.0	ST

Table 2. Selected environmental parameters (continued)

MATAGORDA BAY, SUMMER SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
32001	6/ 1/93	1016	2824.4	9619.6	19	7	4	7	26.0	25.8	25.6	25.5	26.2	26.7	6.184	7.7	7.3	7.4	ST
32002	6/ 1/93	1122	2826.5	9614.6	19	11	6	11	25.6	25.5	25.5	26.2	26.2	26.5	3.188	7.3	7.4	7.4	ST
32003	6/ 1/93	1233	2830.5	9610.3	19	4	2	4	26.2	26.2	26.2	25.6	25.6	25.6	7.526	7.9	7.9	8.0	ST
32004	6/11/93	1020	2831.4	9608.6	19	4	2	4	27.7	27.7	27.7	25.7	25.7	25.7	18.470	6.5	6.4	6.1	ST
32005	6/11/93	1053	2829.6	9607.7	19	12	6	12	27.4	27.4	27.2	27.6	27.9	28.3	2.371	6.4	6.5	7.0	ST
32006	6/11/93	1149	2824.4	9610.6	19	16	8	16	27.3	27.3	26.8	28.5	28.6	32.1	.849	6.6	6.5	6.3	ST
32007	6/11/93	1229	2823.4	9612.5	19	16	8	16	27.3	26.9	24.6	28.4	28.8	31.1	1.031	6.4	6.3	2.9	ST
32008	6/11/93	1308	2822.6	9614.7	19	16	8	16	27.8	27.2	26.7	27.2	28.2	30.6	2.579	6.6	6.5	6.3	ST
32009	6/16/93	1013	2821.5	9619.6	19	12	6	12	28.0	28.0	27.7	28.1	28.1	28.1	1.234	6.5	6.5	6.7	ST
32010	6/16/93	1106	2817.5	9617.5	19	20	10	20	27.9	26.7	26.8	28.9	29.1	29.1	.235	6.2	5.5	5.9	ST
32011	6/16/93	1147	2815.4	9616.8	19	22	11	22	27.7	27.3	26.7	29.3	29.5	31.6		6.4	6.3	6.0	ST
32012	6/16/93	1218	2815.5	9617.6	19	21	11	21	27.8	26.9	26.8	29.2	30.3	31.2		6.2	5.8	5.9	ST
32013	6/16/93	1308	2816.3	9619.5	19	20	10	20	28.0	27.4	26.9	28.8	28.8	31.0	.160	6.3	6.4	5.7	ST
32014	6/16/93	1352	2813.5	9622.6	19	21	10	21	27.9	27.2	26.9	28.7	29.2	31.3	.182	6.2	5.8	6.4	ST
32015	6/16/93	1440	2814.6	9627.7	19	14	7	14	28.3	28.0	27.4	27.7	28.3	28.5	1.490	6.7	6.7	6.1	ST
32016	6/16/93	1520	2816.5	9630.6	19	8	4	8	29.1	28.6	28.4	23.5	24.5	26.0	2.841	7.0	7.2	7.2	ST

Table 2. Selected environmental parameters (continued)

LAGUNA MADRE, SUMMER SHRIMP/GROUNDFISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
33001	6/12/93	0826	2603.4	9706.7	21	17	9	17	24.5	24.4	24.4	35.3	35.3	36.1	.280	6.2	5.8	6.1	ST
33002	6/12/93	0922	2600.8	9708.6	21	8	4	8	24.2	24.1	24.0	35.3	35.2	35.3	.355	6.9	6.3	6.3	ST
33003	6/14/93	0830	2559.6	9704.7	22	20	10	20	24.8	24.7	22.1	35.2	35.3	36.0	.262	5.0	5.1	4.1	ST
33004	6/14/93	0929	2600.6	9659.7	21	27	14	27	24.9	22.4	22.1	35.2	36.0	36.1	.262	3.7	5.4	4.8	ST
33005	6/14/93	1045	2607.4	9703.4	21	21	11	21	25.6	23.6	22.5	35.2	35.3	36.0	.352	5.2	6.6	5.6	ST
33006	6/14/93	1140	2611.4	9704.5	21	18	9	18	26.3	24.3	22.9	35.2	35.2	36.0	.262	6.2	6.3	5.9	ST
33007	6/14/93	1225	2610.4	9708.3	21	16	8	16	27.8	24.2	22.5	34.5	35.0	35.5	.377	4.3	6.5	4.4	ST
33008	6/14/93	1311	2606.7	9709.5	21	7	4	7	26.0	24.2	24.1	35.1	35.3	36.0	.934	5.4	6.4	4.9	ST
33009	6/16/93	0849	2612.0	9709.4	21	12	6	12	25.5	25.5	25.4	34.5	34.6	34.7	.515	6.7	6.2	6.2	ST
33010	6/16/93	0937	2612.2	9706.4	21	18	9	18	25.7	25.3	24.0	35.0	35.2	35.5	.144	6.6	6.0	6.1	ST
33011	6/16/93	1023	2614.5	9704.6	21	19	9	19	26.1	25.1	23.3	35.0	35.1	35.6	.117	6.3	6.2	6.2	ST
33012	6/16/93	1116	2614.7	9701.7	21	24	12	24	26.0	24.7	23.5	35.0	35.3	35.3	.080	6.1	6.3	6.2	ST
33013	6/16/93	1218	2618.5	9705.7	21	19	9	19	26.4	25.1	24.5	34.6	36.3	35.2	.128	5.9	6.2	6.2	ST
33014	6/16/93	1301	2618.2	9707.7	21	17	9	17	27.2	26.1	25.3	32.8	34.1	35.1	.163	6.4	6.3	6.3	ST
33015	6/16/93	1346	2619.4	9708.7	21	16	8	16	27.3	26.3	26.1	32.7	33.9	34.8	.216	6.0	6.1	6.2	ST
33016	6/16/93	1437	2615.2	9708.6	21	16	8	16	27.0	26.9	25.8	33.0	33.2	34.8	.168	6.3	6.0	6.2	ST

Table 2. Selected environmental parameters (continued)

GALVESTON BAY, SUMMER SHRIMP/GROUNDFISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
34001	6/ 2/93	1030	2920.6	9440.2	18	13	6	13	25.4	25.2	24.9	17.5	17.7	21.2	4.261	6.8	6.0	5.0	ST
34002	6/ 2/93	1059	2922.5	9437.6	18	10	5	10	25.4	25.2	25.0	17.8	19.1	17.9	1.570	6.6	6.4	4.5	ST
34003	6/ 2/93	1146	2924.2	9435.5	18	10	5	10	25.4	25.4	25.2	17.4	18.3	18.3	2.803	6.6	6.5	3.0	ST
34004	6/ 2/93	1228	2924.9	9431.5	18	11	6	11	25.6	25.5	24.7	18.4	18.7	21.9	1.848	6.6	6.4	3.0	ST
34005	6/ 2/93	1312	2923.5	9430.5	18	10	5	10	25.7	25.5	24.6	19.9	20.5	25.8	1.196	6.2	5.9	2.9	ST
34006	6/ 2/93	1356	2921.8	9431.5	18	12	6	12	25.7	25.3	24.5	19.5	21.7	27.2	1.698	6.8	6.0	4.0	ST
34007	6/ 2/93	1441	2921.4	9435.1	18	11	5	11	25.6	25.4	24.8	18.5	22.3	20.6	1.719	6.3	5.8	3.2	ST
34008	6/ 2/93	1518	2921.9	9434.8	18	11	5	11	25.6	25.4	24.8	18.3	18.4	25.4	1.543	6.2	5.8	3.4	ST
34009	6/16/93	0759	2923.2	9440.9	18	7	3	7	29.4	29.5	29.0	13.5	13.6	16.4	9.532	7.0	6.9	6.9	ST
34010	6/16/93	0914	2920.6	9435.0	18	14	7	14	28.5	28.5	28.0	21.0	26.8	27.1	4.299	6.8	6.5	5.6	ST
34011	6/16/93	0959	2916.4	9436.8	18	14	7	14	28.5	28.3	27.2	19.8	26.0	28.4	4.934	6.0	6.0	3.0	ST
34012	6/16/93	1116	2907.9	9448.8	18	16	8	16	28.5	28.3	28.3	18.0	25.6	26.3	4.859	6.8	6.4	6.4	ST
34013	6/16/93	1149	2907.6	9450.8	18	15	7	15	28.5	28.3	28.3	18.9	24.0	26.5	6.392	7.0	6.7	6.3	ST
34014	6/16/93	1228	2910.5	9450.5	18	13	6	13	28.7	28.6	28.1	16.6	21.6	26.7	6.878	7.3	6.9	5.6	ST
34015	6/16/93	1320	2913.2	9447.9	18	11	6	11	29.1	28.7	28.6	18.6	24.8	8.896	7.8	7.1	6.5	ST	
34016	6/16/93	1350	2914.9	9451.6	18	4	2	4	29.8	29.8	29.7	16.4	16.4	16.4	23.045	9.4	9.4	8.9	ST

Table 2. Selected environmental parameters (continued)

SABINE, SUMMER SHRIMP/GROUNDFISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	SUR	MID	
40001	6/13/93	0836	2939.4	9351.4	17	2	1	2	28.4	28.4	28.4	11.2	11.2	11.2	8.485	8.1	8.2	8.2	ST
40002	6/13/93	0933	2938.4	9356.4	17	5	2	5	28.5	28.5	28.4	10.7	10.7	10.9	6.691	7.5	7.5	7.5	ST
40003	6/13/93	1019	2935.4	9353.4	17	7	4	7	28.7	28.5	28.3	10.0	9.9	12.0	10.280	8.4	8.1	7.0	ST
40004	6/13/93	1109	2933.4	9351.6	17	11	6	11	28.8	28.5	28.7	9.5	11.4	15.1	9.083	7.5	7.0	8.0	ST
40005	6/13/93	1217	2935.6	9401.2	18	7	4	7	29.1	28.5	28.4	11.0	11.2	22.4	26.166	10.6	9.0	8.0	ST
40006	6/13/93	1305	2933.3	9400.8	18	10	5	10	29.5	28.7	28.8	10.6	12.8	20.5	12.373	9.6	8.6	8.6	ST
40007	6/13/93	1344	2933.6	9359.0	17	9	4	9	29.7	28.7	28.7	10.5	12.3	15.0	16.746	9.9	8.4	8.1	ST
40008	6/13/93	1418	2932.6	9358.2	17	10	5	10	29.7	28.8	28.6	10.1	14.4	17.0	16.858	9.3	8.7	7.6	ST
40009	6/16/93	0741	2942.4	9343.9	17	5	3	5	29.8	30.1	29.6	8.9	9.2	14.4	25.418	8.5	7.9	6.2	ST
40010	6/16/93	0824	2942.4	9347.3	17	1	1	1	29.7	29.6	29.2	9.0	9.0	9.0	24.708	6.0	5.9	5.9	ST
40011	6/16/93	0858	2941.6	9346.7	17	5	2	5	30.0	29.9	28.9	8.9	9.2	12.5	35.100	8.2	6.9	6.7	ST
40012	6/16/93	0934	2939.3	9345.4	17	8	4	8	29.9	29.9	29.6	9.1	9.4	19.1	13.307	8.7	7.8	7.4	ST
40013	6/16/93	1009	2938.6	9347.6	17	8	4	8	30.0	30.0	29.6	9.2	12.9	22.6	16.971	8.8	8.5	7.6	ST
40014	6/16/93	1050	2935.6	9345.8	17	11	5	11	29.8	29.6	29.3	11.2	17.4	22.3	12.448	9.0	8.3	7.5	ST
40015	6/16/93	1153	2938.4	9338.8	17	10	5	10	30.2	29.9	29.0	9.9	17.9	21.9	16.410	9.4	7.6	6.2	ST
40016	6/16/93	1234	2936.3	9338.6	17	11	5	11	30.2	30.0	29.1	10.0	16.1	22.4	16.372	10.0	9.3	6.4	ST

Table 2. Selected environmental parameters (continued)

A.E. VERRILL, SUMMER SHRIMP/GROUNDFISH SURVEY

STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
23001	6/ 3/93	0847	3012.3	8806.0	11	7	4	7	26.2	26.0	25.7	24.8	29.8	31.1	7.9	6.7	6.6	ST	
23002	6/ 3/93	1054	3012.4	8818.9	11	8	4	8	26.4	25.1	24.5	24.2	30.8	33.3	8.3	6.8	6.0	ST	
23003	6/ 3/93	1210	3011.4	8825.9	11	9	5	9	25.2	24.1	24.0	28.5	31.8	33.6	7.0	6.8	6.4	ST	
23004	6/ 3/93	1324	3005.9	8829.4	11	16	8	16	26.4	24.4	22.0	26.8	31.3	34.8	7.8	7.2	4.4	ST	
23005	6/ 3/93	1508	3001.4	8823.1	11	26	13	26	26.6	21.9	20.8	27.5	35.4	36.1	8.1	6.7	2.9	ST	
23006	6/ 3/93	1950	3011.9	8816.2	11	12	6	12	27.0	25.0	24.2	24.8	31.5	33.9	6.3	7.1	6.9	ST	
23007	6/ 3/93	2055	3008.0	8813.4	11	6	3		26.9	24.5		25.1	24.5		9.3	6.8		ST	
23008	6/ 3/93	2203	3003.9	8812.3	11	21	11	21	26.6	24.0	21.0	26.7	33.7	36.1	8.8	7.4	2.4	ST	
23009	6/11/93	1955	3005.1	8827.3	11	16	8	16	29.9	23.8	21.1	20.6	33.6	36.1	8.0	7.3	1.8	ST	
23010	6/11/93	2114	3001.1	8821.3	11	25	13	25	29.8	22.5	21.3	21.1	36.3	36.3	7.5	6.4	3.6	ST	

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, SUMMER SHRIMP/GROUNDFISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
17001	6/11/93	0001	2952.4	8831.4	11	28	14	27	29.0	21.9	21.2	25.4	36.2	36.2	1.225	7.3	6.2	5.1	ST
17002	6/11/93	0421	2950.3	8828.8	11	30	15	29	28.5	21.5	21.0		36.0	36.2	.467	4.9	5.2	5.1	ST
17003	6/11/93	0953	2953.9	8837.1	11	23	11	22	28.7	25.3	22.1	23.9	34.5	36.2	.467	8.5	6.5	5.2	ST
17004	6/11/93	1330	2942.6	8838.7	11	20	10	19	29.3	22.7	21.6	23.5	35.4	36.2	.617	7.6	6.2	4.9	ST
17005	6/11/93	1556	2944.2	8845.3	11	12	6	11	30.4	28.1	23.6	23.1	27.3	34.8	.561	6.9	7.4	5.4	ST
17006	6/11/93	1807	2938.9	8849.7	11	12	6	11	29.4	27.8	24.1	24.7	26.2	34.5	.542	7.9	7.0	4.2	ST
17007	6/11/93	2158	2922.1	8854.4	11	21	10	19	28.4	21.8	20.7	15.1	35.6	36.5	23.169	13.0	5.0	5.4	ST
17008	6/12/93	0045	2916.9	8855.8	11	31	15	29	27.7	20.7	20.5	7.4	35.9	36.3	11.663	11.0	4.4	5.0	ST
17009	6/12/93	0355	2919.5	8851.4	11	36	18	35	27.6	21.5	20.4	20.0	36.2	36.2	20.484	13.3	5.9	5.3	ST
17010	6/12/93	0505	2923.5	8848.5	11	29	14	28	26.7	22.1	20.5	19.1	36.0	36.4	27.568	9.6	5.7	5.1	ST
17011	6/12/93	0734	2922.9	8848.9	11	29	14	28	26.7	22.7	21.3	16.6	36.1	36.2	20.469	12.7	6.2	6.0	ST
17012	6/12/93	0923	2921.4	8849.3	11	42	21	41	27.0	22.7	21.4	15.4	36.0	35.9	26.114	10.8	5.4	5.3	ST
17013	6/12/93	1057	2927.3	8847.7	11	18	9	17	27.5	23.0	21.0	20.6	35.7	36.3	13.268	13.2	5.6	5.5	ST
17014	6/12/93	1340	2936.3	8835.7	11	26	13	25	30.4	22.0	21.4	24.4	35.8	36.3	.494	7.2	5.0	5.0	ST
17015	6/12/93	1530	2929.4	8839.3	11	36	18	35	29.2	24.3	23.2	20.9	34.6	34.9	10.579	12.1	6.4	5.6	ST
17016	6/12/93	1651	2930.5	8829.7	11	50	25	49	27.7	24.0	22.5	31.0	35.8	36.4	.561	14.6	5.6	5.1	PN
17017	6/12/93	2108	2924.3	8848.0	11	26	13	25	30.0	23.1	22.8	16.6	34.6	34.6	9.662	11.6	6.2	6.6	ST
17018	6/13/93	0003	2914.9	8831.4	11	74	37	73	27.4	24.0	22.0	28.5	36.2	36.2	.294	6.5	6.2	5.6	ST
17019	6/13/93	0416	2932.6	8823.4	11	46	23	45	27.6	22.0	20.8	24.5	36.2	36.4	4.691	8.7	5.2	4.6	ST
17020	6/13/93	0743	2943.4	8822.6	11	37	18	36	28.2	26.6	21.2	27.5	35.4	36.2	.395	6.4	5.5	5.8	ST
17021	6/13/93	1207	3000.0	8830.0	11	27	13	26	28.6	25.4	26.1	23.4	32.6	30.7	1.268	7.1	6.2	5.6	PN
17022	6/13/93	2029	2948.0	8846.7	11	11	5	10	30.0	30.1	29.2	23.5	23.6	26.3	1.140	7.4	6.8	6.8	ST
17023	6/13/93	2155	2950.8	8843.4	11	15	7	14	30.1	28.6	24.2	23.8	27.8	33.2	.991	7.6	6.9	4.4	ST
17024	6/23/93	1620	3007.0	8836.9	11	15	7	14	29.5	25.0	24.2	25.8	29.1	30.1	1.402	6.6	6.2	5.6	ST
17025	6/23/93	2349	3013.4	8844.4	11	9	4	8	29.3	24.3	24.8	24.9	25.1	27.9	1.962	6.9	6.6	4.9	ST
17026	7/ 6/93	0755	2917.1	8945.0	13	7	3	6	29.9	29.8	30.5	6.6	15.0	16.7	17.132	5.0	5.8	5.2	ST
17027	7/ 6/93	0950	2916.8	8950.0	13	5	2	4	28.5	29.8	30.4	8.7	9.0	15.8	17.008	5.6	6.3	4.4	ST
17028	7/ 6/93	1253	2905.3	9012.2	14	4	2	3	30.2	30.2	30.2	17.5	17.7	17.7	11.064	7.2	7.9	7.6	ST
17029	7/ 6/93	2157	2901.8	9137.8	15	7	3	6	30.1	30.2	29.6	21.1	21.1	21.3	4.859	6.9	6.9	6.6	ST
17030	7/ 7/93	0008	2909.6	9139.8	15	5	2	4	29.7	30.1	29.4	18.0	18.0	20.3	6.822	6.9	6.6	4.6	ST
17031	7/ 7/93	0309	2919.6	9157.8	15	4	2	3	28.3	30.0	29.8	14.9	14.4	15.2	13.145	6.9	6.0	6.5	ST
17032	7/ 7/93	0634	2913.9	9207.1	16	5	2	4	29.6	29.4	29.3	19.5	19.3	19.7	5.732	5.6	5.6	5.6	ST
17033	7/ 7/93	1401	2941.9	9258.7	16	4	2	3	29.5	30.3	30.1	15.2	15.3	15.3	9.345	5.5	5.5	5.5	ST
17034	7/ 7/93	1915	2941.5	9342.3	17	6	3	5	29.7	29.7	28.5	19.7	19.7	24.7	5.607	6.9	6.8	5.4	ST
17035	7/ 7/93	2107	2939.9	9349.2	17	5	2	4	29.0	29.9	29.3	18.5	20.4	21.4	9.560	6.1	6.5	6.3	ST
17036	7/ 8/93	0123	2942.0	9319.0	17	6	3	5	28.9	29.3	28.9	18.3	18.1	19.4	8.373	5.9	5.8	5.6	ST
17037	7/ 8/93	0343	2944.9	9308.8	17	3	1	2	28.9	29.4	29.5	14.5	15.1	15.2	9.859	6.2	6.2	6.2	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
55092	6/19/93	0215	2923.5	8807.5	11	81	41	80	27.2	23.5	19.9	35.7	36.1	36.7		7.1	7.9	4.6	ST
55093	6/19/93	0434	2923.5	8807.0	11	59	28	59	27.4	25.8	21.6				.100				ST
55094	6/19/93	0918	2959.0	8829.3	11	27	14	26	26.8	26.3	22.3	34.3	34.5	35.6	.293	7.5	6.7	3.5	ST
55095	6/19/93	1301	2952.6	8819.5	11	34	19	33	26.5	23.5	21.8	35.3	36.2	36.1	.178	7.9	7.6	3.4	ST
55098	6/19/93	1817	2958.0	8813.4	11	31	15	31	27.6	27.5	22.6	34.3	34.4	35.8	.174	7.0	7.0	3.0	ST
55100	6/19/93	2305	2932.3	8817.7	11	47	22	46	27.5	27.3	20.7	33.1	35.4	36.3	.467	7.0	7.0	4.9	ST
55102	6/20/93	0309	2939.3	8809.0	11	36	18	35	27.5	25.0	22.2	34.6	35.7	36.2	.119	6.8	7.1	3.4	ST
55103	6/20/93	0602	2930.2	8800.2	11	44	22	43	27.0	26.8	22.7	35.7	35.8	36.2	.081	7.0	7.1	4.1	PN
55104	6/20/93	0758	2925.9	8808.7	11	54	28	53	27.4	24.6	21.8	34.8	36.1	36.2	.374	7.2	8.0	5.5	ST
55105	6/20/93	1044	2916.4	8807.8	11	136	68	136	27.5	22.0	16.6	35.1	36.2	36.2	.247	7.0	7.4	5.0	ST
55106	6/20/93	1353	2918.0	8815.5	11	86	43	86	27.4	23.9	19.5	35.5	36.2	36.2	.222	7.1	7.9	4.5	ST
55107	6/20/93	1851	2900.0	8900.0	13	71	36	70	27.7	22.1	21.5	27.3	36.1	36.2	8.642	7.2	5.3	5.6	PN
55108	6/22/93	1042	2631.8	9633.4	21	116	58	115	27.5	24.7	15.3	35.8	36.5	36.0	.151	6.9	7.7	4.6	ST/PN
55109	6/22/93	1720	2601.3	9626.5	21	70	34	69	27.3	23.9	21.3	35.7	36.3	36.3	.153	6.9	7.8	6.5	ST/PN
55110	6/22/93	2119	2611.9	9656.1	21	31	17	31	27.5	27.2	26.9	28.9	33.1	33.6	1.565	7.0	6.5	6.5	ST
55111	6/22/93	2323	2619.3	9702.3	21	26	13	24	27.5	27.3	27.2	28.8	32.0	32.1	1.406	7.0	6.3	6.2	ST
55112	6/23/93	0055	2619.6	9710.9	21	10	6	10	27.7	27.7	27.8	30.2	30.5	30.6	.934	6.9	6.9	6.9	ST
55113	6/23/93	0243	2629.1	9713.1	21	14	8	14	27.6	27.7	27.4	29.8	30.0	30.8	1.101	6.2	5.8	6.0	ST
55114	6/23/93	0405	2631.3	9714.3	21	13	7	12	27.6	27.6	27.4	29.8	30.0	30.8	1.111	5.5	5.5	5.5	ST
55115	6/23/93	0502	2638.8	9713.6	21	20	9	19	27.5	27.4	27.3	28.9	29.0	30.1	.897	7.2	7.2	6.8	ST
55116	6/23/93	0611	2640.7	9711.5	21	22	11	21	27.4	27.4	27.1	28.9	29.2	31.5	1.044	6.3	6.2	5.9	ST
55117	6/23/93	0733	2638.7	9710.4	21	22	11	21	27.4	27.4	27.1	29.1	29.5	31.4	.777	6.8	6.2	6.2	ST
55118	6/23/93	1022	2626.7	9712.5	21	13	6	12	27.6	27.6	27.4	30.6	30.6	30.9	1.632	6.7	6.6	6.0	ST
55119	6/23/93	1251	2615.0	9709.9	21	13	7	13	27.8	27.7	27.4	31.0	31.0	31.4	1.595	7.1	7.0	4.5	ST
55120	6/23/93	1501	2607.8	9708.6	21	12	6	12	27.7	27.7	27.4	31.3	31.3	31.5	1.221	6.6	6.6	5.5	ST
55121	6/23/93	1713	2603.6	9701.1	21	24	12	23	27.9	27.4	27.2	29.7	30.9	32.5	1.350	7.4	6.8	6.0	ST/PN
55122	6/23/93	1920	2619.5	9700.7	21	31	15	30	27.8	27.1	27.0	29.2	32.9	33.9	1.191	7.5	6.6	6.5	ST
55123	6/23/93	2225	2626.0	9632.9	21	55	8	15	29.3	28.0	27.2	31.0	29.6	33.4	.355	7.1	6.9	6.7	ST
55124	6/24/93	0218	2703.7	9651.6	20	73	15	31	27.6	26.9	24.1	32.5	35.2	36.1	.110	6.7	6.9	7.1	ST
55125	6/24/93	0501	2637.6	9700.3	21	37	18	36	27.8	26.9	27.0	28.2	32.1	33.0	.660	7.1	6.4	5.9	ST
55126	6/24/93	0732	2630.3	9660.0	21	36	18	36	27.6	27.0	27.0	29.6	32.7	33.3	1.452	6.8	6.2	6.2	PN
55128	6/24/93	1018	2628.5	9652.9	21	40	20	40	27.7	27.0	25.0	29.5	33.8	35.2	.604	7.0	6.6	5.5	ST
55129	6/24/93	1304	2627.4	9704.8	21	23	11	23	27.7	27.6	26.9	29.6	29.7	32.5	1.763	7.4	6.9	6.0	ST
55130	6/24/93	1609	2652.2	9657.6	21	47	23	47	28.1	26.8	22.3	28.1	33.8	36.2	.716	7.1	6.5	6.0	ST
55131	6/24/93	1811	2655.7	9650.0	21	68	34	64	28.2	24.0	20.6	27.8	36.0	36.2	.642	7.2	7.5	6.1	ST
55133	6/24/93	2316	2654.7	9706.0	21	33	18	32	28.2	27.3	23.8	27.7	30.7	35.6	.959	7.2	6.5	5.0	ST
55134	6/25/93	0319	2709.6	9639.2	20	80	40	79	28.1	23.9	21.2	29.7	36.3	36.3	.262	6.8	7.8	6.3	ST
55135	6/25/93	0510	2714.2	9645.3	20	61	30	60	27.9	26.0	21.9	30.0	35.8	36.2	.162	6.7	7.0	6.2	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55136	6/25/93	0718	2714.5	9650.3	20	56	28	55	27.9	26.7	22.2	30.3	35.7	36.2	.149	6.5	6.8	5.5	ST
55137	6/25/93	0924	2710.4	9701.7	20	38	18	36	28.0	27.2	23.3	29.4	34.5	35.0	.255	6.8	6.7	5.0	ST
55138	6/25/93	1157	2700.1	9700.0	20	41	20	41	28.2	27.0	22.3	27.0	31.4	36.1	.854	7.2	6.7	5.9	PN
55139	6/25/93	1433	2703.2	9716.1	20	21	11	21	28.5	27.4	27.0	26.2	30.1	31.3	2.255	7.4	6.5	5.4	ST
55140	6/25/93	1730	2725.2	9708.7	20	24	12	22	28.2	27.6	27.3	26.3	28.4	30.6	2.533	7.4	6.3	6.0	ST
55141	6/25/93	1913	2727.6	9655.3	20	37	18	36	28.4	27.3	25.1	28.0	30.2	35.3	.934	6.8	6.2	5.6	ST/PN
55142	6/25/93	2232	2709.4	9656.3	20	47	23	46	28.2	25.2	22.7	31.3	35.3	36.0	.206	6.6			ST
55143	6/26/93	0208	2720.8	9716.1	20	15	7	15	28.1	28.2	27.1	26.9	26.9	30.5	2.241	7.2	7.2	4.7	ST
55144	6/26/93	0355	2724.3	9707.0	20	25	12	23	28.1	27.7	27.4	25.9	28.5	30.2	1.897	7.1	6.5	6.2	ST
55145	6/26/93	0547	2726.8	9703.6	20	28	14	27	28.2	27.6	26.3	26.1	28.5	33.2	1.645	7.0	6.3	4.5	ST
55146	6/26/93	0740	2742.1	9704.0	20	14	7	13	28.2	28.3	28.0	24.9	25.2	26.9	3.558	6.8	6.8	5.5	ST
55147	6/26/93	1037	2754.2	9655.3	20	13	8	13	28.5	28.4	27.8	23.2	23.5	26.3	3.004	7.5	6.6	4.7	ST
55148	6/26/93	1225	2802.1	9650.5	19	11	6	11	28.4	28.2	27.9	22.9	24.7	26.2	2.847	7.5	6.0	4.6	ST
55149	6/26/93	1338	2802.1	9641.9	19	18	10	18	28.8	28.4	27.5	22.9	23.5	28.9	2.181	7.9	7.0	4.4	ST
55150	6/26/93	1612	2748.2	9642.3	20	28	13	28	28.6	27.5	24.1	22.8	29.2	34.1	1.885	7.8	6.1	3.1	ST
55151	6/26/93	1704	2742.8	9644.5	20	35	17	34	28.8	26.9	24.9	23.4	30.3	35.3	1.290	7.4	5.7	5.4	ST
55152	6/26/93	2035	2732.8	9706.9	20	20	10	19	28.1	28.0	27.2	26.3	26.7	30.5	1.635	7.0	6.8	4.8	ST
55153	6/26/93	2330	2748.8	9647.1	20	24	12	24	28.9	27.6	25.5	22.5	29.2	33.2	2.139	8.0	6.1	3.3	ST
55154	6/27/93	0142	2751.7	9638.9	20	28	15	28	28.8	27.3	23.8	23.1	29.5	34.2	1.976	7.6	6.0	3.1	ST
55155	6/27/93	0333	2754.4	9628.8	20	35	17	35	28.3	23.4	23.8	23.8	31.2	34.1	3.883	7.1	7.3	3.9	ST
55156	6/27/93	0424	2800.2	9629.5	20	26	14	25	28.4	27.7	24.5	24.7	29.0	33.5	1.987	6.9	6.1	3.4	PN
55157	6/27/93	0536	2802.2	9622.6	19	29	14	28	28.3	27.0	25.7	23.6	30.2	32.8	2.303	7.3	5.3	4.8	ST
55158	6/27/93	0807	2803.7	9606.8	19	34	17	33	28.0	27.7	22.6	29.3	30.7	35.6	.449	6.3	6.4	4.0	ST
55159	6/27/93	0920	2808.3	9609.5	19	27	14	27	28.4	27.9	27.3	23.1	30.1	31.3	1.807	7.6	6.6	6.3	ST
55160	6/27/93	1114	2813.9	9558.5	19	27	13	27	28.9	27.7	23.7	26.5	28.4	34.3	.428	6.8	5.7	3.1	ST
55162	6/27/93	1410	2807.1	9545.7	19	40	20	39	28.6	27.1	22.9	29.3	31.1	35.4	.339	6.8	6.5	4.8	ST
55163	6/27/93	1514	2803.4	9546.0	19	46	23	45	28.7	27.0	22.2	30.0	33.2	36.0	.151	6.8	6.6	4.9	ST
55164	6/27/93	1805	2749.3	9545.4	20	58	29	57	27.7	27.3	21.6	32.7	34.7	36.1	.125	6.6	6.7	5.6	ST
55166	6/27/93	2157	2754.9	9604.3	20	54	27	53	28.0	23.1	21.5	31.9	34.9	36.2	.119	6.5	4.4	6.2	ST
55168	6/28/93	0043	2804.7	9617.4	19	28	14	27	28.4	27.7	25.6	24.2	29.9	32.8	1.522	5.9	3.9	3.6	ST
55169	6/28/93	0219	2804.9	9611.0	19	32	16	32	28.3	27.5	23.5	24.5	31.0	34.7	1.890	7.0	6.5	3.6	ST
55170	6/28/93	0357	2806.7	9602.2	19	35	17	34	27.9	27.6	22.1	28.0	30.9	36.0	.492	6.2	6.4	4.7	ST
55171	6/28/93	0519	2801.1	9600.4	19	44	22	43	27.9	26.5	21.7	30.0	33.2	36.1	.262	6.3	6.5	5.4	PN
55172	6/28/93	0846	2826.7	9609.3	19	16	8	13	28.5	28.0	27.9	21.5	28.6	28.7	4.008	6.8	6.4	6.3	ST
55173	6/28/93	1033	2831.6	9604.3	19	11	6	9	28.3	28.1	27.9	25.0	26.7	27.5	1.952	6.5	5.4	5.0	ST/PN
55174	6/28/93	1233	2824.7	9559.1	19	19	11	19	28.8	28.4	26.7	23.1	27.0	30.5	1.329	7.3	6.4	2.7	ST
55175	6/28/93	1358	2822.0	9553.3	19	22	12	22	29.1	28.2	26.8	26.2	27.4	30.3	.878	7.1	6.6	2.4	ST
55176	6/28/93	1652	2831.9	9540.4	19	20	10	18	29.3	28.5	26.8	23.7	24.5	30.3	1.388	7.2	6.1	4.4	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55177	6/28/93	1801	2828.8	9533.7	19	25	12	23	29.4	28.1	27.0	24.6	27.6	30.8	1.068	7.1	6.2	5.0	ST/PN
55178	6/28/93	2102	2834.6	9543.4	19	16	8	16	28.8	28.7	26.4	24.8	24.8	30.8	.868	7.0	7.0	3.0	ST
55179	6/28/93	2321	2824.8	9548.4	19	23	12	22	29.0	28.3	24.9	26.3	27.2	32.9	.782	6.7	6.3	2.5	ST
55180	6/29/93	0251	2817.0	9529.0	19	35	18	35	29.5	27.3	22.6	25.3	31.2	36.0	.498	7.1	6.3	5.2	ST
55182	6/29/93	0606	2808.4	9537.4	19	43	22	41	28.4	26.8	22.1	28.9	32.2	36.0	.305	6.5	5.3	5.1	ST
55185	6/29/93	0955	2759.0	9533.4	19	56	28	53	28.2	26.6	21.4	29.2	34.5	36.1	.511	5.5	5.6	3.1	ST/PN
55186	6/29/93	1439	2829.8	9522.3	19	28	14	27	29.3	28.1	23.0	23.7	26.5	34.9	.865	7.1	5.5	3.3	ST
55187	6/29/93	1718	2845.9	9527.9	19	10	5	9	29.5	29.4	27.6	23.5	23.6	27.6	1.568	7.3	7.2	2.0	PN
55188	6/29/93	1838	2848.1	9521.5	19	12	6	11	29.7	28.6	26.6	22.9	24.3	29.7	2.596	7.2	6.0	6.7	ST
55189	6/29/93	2037	2852.4	9518.6	19	13	7	12	29.2	27.8	26.4	23.8	27.7	30.8	2.006	7.0	1.6	1.1	ST
55191	6/29/93	2253	2844.2	9510.2	19	21	11	20	28.8	28.3	24.1	24.0	25.4	32.9	.779	6.7	6.0	2.8	ST
55192	6/30/93	0044	2837.4	9510.8	19	27	15	27	29.0	27.8	23.2	24.8	28.0	34.1	.685	6.6	5.4	3.2	ST
55193	6/30/93	0314	2836.4	9519.8	19	25	13	23	28.7	28.8	25.8	25.3	25.7	31.5	.573	6.4	6.4	4.7	ST
55194	6/30/93	0604	2820.8	9509.4	19	36	17	33	28.8	27.4	23.9	28.7	31.0	34.6	.266	6.6	6.1	5.0	ST
55195	6/30/93	0807	2829.9	9459.8	18	33	16	32	29.0	27.4	22.1	32.5	30.9	34.8	1.184	7.0	6.2	2.5	PN
55196	6/30/93	1026	2833.3	9451.6	18	32	16	31	29.1	27.2	24.5	23.2	31.1	33.3	.934	6.9	5.9	3.0	ST
55197	6/30/93	1443	2759.6	9454.8	18	88	44	87	28.7	21.5	19.4	31.9	35.7	36.2	.110	6.5	6.4	5.8	ST
55198	6/30/93	1938	2747.2	9531.4	20	99	50	97	28.5	22.4	18.9	32.5	36.1	36.3	.111	6.3	6.4	4.8	ST
55199	6/30/93	2151	2748.9	9524.2	20	118	54	118	28.1	21.5	17.8	29.9	36.2	36.5	.498	6.6	6.5	4.8	ST
55200	7/ 1/93	0139	2757.4	9458.5	18	95	48	94	28.3	21.1	19.2	32.3	35.9	36.2	.072	6.6	6.0	5.5	ST
55201	7/ 1/93	0538	2800.6	9433.2	18	63	31	62	27.9	27.8	20.3	34.5	34.9	36.0	.055	6.4	6.5	6.2	ST
55202	7/ 1/93	0823	2759.6	9414.3	18	84	42	83	28.5	22.7	19.3	32.4	35.9	36.2	.091	6.3	7.8	5.4	ST
55203	7/ 1/93	0931	2755.9	9415.7	18	119	60	117	28.4	21.0	17.5	32.7	36.2	36.3	.081	6.5	6.5	4.7	ST
55204	7/ 1/93	1223	2759.8	9359.8	17	82	40	82	28.2	23.6	19.6	34.1	35.6	36.2	.067	6.7	7.6	5.8	PN
55205	7/ 1/93	1432	2806.8	9406.5	18	64	33	64	28.9	24.1	20.2	32.0	35.2	36.0	.077	6.4	7.4	5.6	ST
55207	7/ 1/93	1747	2804.1	9418.7	18	69	33	68	28.1	25.3	19.8	33.6	34.5	36.1	.078	6.7	6.9	5.5	ST
55211	7/ 2/93	0300	2810.9	9419.8	18	55	26	55	28.7	26.8	21.2	30.3	34.9	36.0	.141	6.4	6.6	6.0	ST
55213	7/ 2/93	0539	2806.1	9423.8	18	59	30	58	27.9	26.9	21.0	33.4	35.0	36.0	.147	6.3	6.4	5.9	ST
55214	7/ 2/93	0800	2800.3	9430.2	18	70	36	67	28.1	26.9	20.0	34.2	35.0	36.1	.103	6.2	6.5	5.4	PN
55215	7/ 2/93	1127	2829.9	9429.9	18	37	18	36	29.2	23.4	21.4	24.0	30.9	35.3	.958	7.0	5.6	3.1	PN
55216	7/ 2/93	1446	2837.7	9408.0	18	32	16	32	29.4	28.0	23.5	24.0	32.0	35.0	1.282	7.1	6.6	4.5	ST
55217	7/ 2/93	2059	2904.3	9452.7	18	16	8	15	29.2	27.7	25.7	25.6	28.7	31.5	1.218	6.5	5.0	3.3	ST/PN
55218	7/ 2/93	2341	2859.8	9429.9	18	18	9	17	29.1	28.7	27.1	25.1	25.6	30.3	.976	6.6	6.6	2.9	PN
55219	7/ 3/93	0253	2924.1	9434.8	18	10	5	10	27.5	27.3	26.9	26.9	28.1	30.0	9.033	3.9	2.0	1.7	ST/PN
55220	7/ 4/93	2054	2907.4	9410.1	18	14	7	14	28.7	28.5	28.7	26.0	26.1	26.2	1.191	5.9	5.9	5.9	ST
55221	7/ 4/93	2246	2857.4	9418.3	18	16	8	16	28.9	28.9	28.6	22.4	25.0	26.1	.498	7.3	6.0	5.6	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³ SUR	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55222	7/ 5/93	0237	2838.7	9348.3	17	30	15	30	29.1	29.0	24.3	27.9	30.5	35.1	.336	6.0	5.9	5.1	ST
55223	7/ 5/93	0438	2829.0	9334.8	17	45	22	45	28.5	27.8	22.4	32.0	33.8	35.8	.110	5.8	6.0	5.6	ST/PN
55224	7/ 5/93	0920	2837.0	9355.4	17	32	16	32	28.8	28.7	22.4	24.2	30.8	35.8	.708	6.0	6.0	4.6	ST
55225	7/ 5/93	1020	2834.3	9358.4	17	36	18	36	29.0	27.5	22.3	24.4	31.3	36.2	.979	6.1	6.6	5.7	ST
55226	7/ 5/93	1425	2821.9	9330.2	17	54	27	54	28.6	27.1	20.9	33.4	34.0	35.9	.132	6.1	6.3	5.5	ST
55227	7/ 5/93	2107	2758.5	9422.5	18	88	44	88	28.4	23.4	19.0	31.3	36.4	36.3	.112	5.8	6.5	4.9	ST
55228	7/ 6/93	0037	2802.7	9402.4	18	72	36	72	28.4	24.2	19.4	33.7	34.5	36.2	.070	5.8	5.2	5.0	ST
55229	7/ 6/93	0506	2807.4	9332.0	17	74	37	73	28.6	23.3	20.1	33.9	35.7	36.1	.072	5.8	6.0	5.2	ST
55230	7/ 6/93	1017	2837.5	9317.5	17	36	18	36	29.3	28.6	21.7	28.7	31.2	35.8	.430	5.9	5.9	4.1	ST
55232	7/ 6/93	1420	2849.4	9322.4	17	22	13	22	29.6	28.5	25.4	23.8	28.5	33.3	.679	6.2	5.7	4.7	ST
55233	7/ 6/93	1638	2906.6	9335.3	17	20	10	19	29.4	28.7	27.4	24.9	26.4	31.1	1.427	6.2	5.1	3.0	ST/PN
55235	7/ 6/93	2140	2921.1	9347.2	17	12	6	12	29.1	29.1	28.5	25.5	25.5	26.3	1.931	6.6	6.7	6.4	ST
55236	7/ 6/93	2336	2927.7	9335.6	17	12	6	12	28.8	28.8	28.5	25.8	25.8	26.4	4.517	6.2	6.2	4.7	ST
55238	7/ 7/93	0439	2927.1	9301.7	17	14	7	14	29.3	29.3	27.6	20.1	20.1	26.6	1.352	6.5	6.6	3.1	ST
55239	7/ 7/93	0734	2927.2	9251.3	16	15	7	14	29.1	29.1	27.8	20.6	21.4	26.6	1.758	7.0	6.9	1.9	ST/PN
55241	7/ 7/93	1320	2925.2	9320.2	17	10	5	10	29.3	29.2	28.9	24.5	24.6	24.9	3.622	6.8	6.8	6.7	ST/PN
55242	7/ 7/93	1808	2911.9	9348.9	17	16	8	16	29.2	28.4	27.6	25.4	27.1	28.8	1.925	6.5	4.1	.1	ST
55243	7/ 7/93	1909	2903.6	9344.5	17	18	9	18	28.8	28.1	26.8	27.6	28.0	31.7	6.364	7.0	5.8	1.8	ST
55244	7/ 7/93	2359	2840.5	9319.2	17	32	16	32	29.5	29.0	22.6	27.0	29.2	35.6	.336	6.3	6.4	3.8	ST
55245	7/ 8/93	0255	2821.5	9334.5	17	54	27	54	28.6	27.4	21.6	29.1	33.9	35.9	.193	6.6	6.7	6.0	ST
55247	7/ 8/93	1053	2816.2	9235.3	16	64	32	64	28.8	25.0	20.0	33.4	34.8	36.0	.109	6.1	6.3	4.1	ST
55250	7/ 8/93	1530	2801.7	9234.1	16	110	55	109	29.0	22.3	18.4	34.2	36.1	36.4	1.663	5.6	7.2	4.4	ST
55251	7/ 8/93	1715	2807.9	9227.5	16	80	40	80	28.7	24.6	18.6	33.0	35.2	36.4	.156	5.6	7.4	4.4	ST
55252	7/ 8/93	1904	2808.0	9222.3	16	86	43	86	29.2	23.4	18.5	32.9	35.7	36.4	.141	6.0	6.8	4.3	ST
55253	7/ 8/93	2318	2805.1	9206.6	16	90	45	90	28.9	21.6	17.8	32.8	35.2	36.4	.087	4.6	5.9	4.3	ST
55255	7/ 9/93	0234	2805.7	9212.3	16	97	48	96	28.9	21.3	17.4	32.9	35.8	36.3	.092	6.1	5.8	4.3	ST
55256	7/ 9/93	0554	2808.8	9236.5	16	81	40	81	28.8	24.5	18.6	33.2	35.6	36.4	.095	6.2	7.2	4.3	ST
55258	7/ 9/93	0949	2832.4	9237.5	16	46	23	46	29.8	27.2	20.1	23.9	33.8	35.7	1.202	6.5	6.3	2.8	ST/PN
55259	7/ 9/93	1253	2832.4	9237.5	16	46	23	46	29.6	26.8	20.1	25.9	33.9	35.7	1.609	6.4	6.7	2.9	ST
55260	7/ 9/93	2039	2829.9	9359.1	17	40	20	40	29.5	27.5	22.2	24.9	32.7	35.9	.449	6.4	6.1	6.3	PN
55261	7/ 9/93	2249	2834.2	9344.7	17	36	18	36	29.2	27.5	22.6	25.1	30.8	35.7	.442	6.3	3.4	5.6	ST
55262	7/10/93	0046	2841.6	9335.7	17	28	15	28	29.1	28.5	23.1	25.9	28.7	35.4	.533	6.5	5.7	3.8	ST
55264	7/10/93	0521	2820.6	9303.3	17	52	26	52	29.1	25.3	20.7	28.5	34.4	36.0	.250	6.0	5.8	5.5	ST
55265	7/10/93	0800	2830.0	9300.2	17	45	22	44	29.0	27.1	21.0	28.4	33.8	35.8	.374	5.9	6.3	4.5	PN
55266	7/10/93	1122	2859.8	9259.9	16	24	12	24	28.9	28.5	24.7	22.7	28.7	34.2	1.084	6.1	4.6	3.0	PN
55267	7/10/93	1325	2907.4	9253.1	16	21	10	20	29.0	28.5	25.0	21.5	27.6	34.2	1.613	6.2	4.0	2.3	ST
55268	7/10/93	1651	2859.8	9230.2	16	24	12	24	29.1	29.1	23.5	23.4	27.1	34.3	1.371	6.2	5.9	2.6	PN
55269	7/10/93	1836	2854.2	9237.1	16	27	13	27	28.8	29.0	21.0	24.0	28.9	35.3	1.015	6.1	5.9	1.1	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
55270	7/10/93	2033	2853.8	9240.4	16	26	13	26	28.6	28.9	22.4	26.0	29.8	35.2	1.109	6.2	6.0	2.7	ST
55271	7/10/93	2256	2849.5	9256.9	16	26	13	26	28.7	29.1	24.2	26.0	29.0	34.5	.922	6.1	6.1	3.8	ST
55274	7/11/93	0328	2914.7	9309.4	17	17	8	17	28.8	28.8	26.9	24.5	24.7	30.0	2.093	5.9	5.9	.8	ST
55275	7/11/93	0915	2911.4	9221.3	16	13	6	13	28.4	28.5	25.0	20.6	20.6	27.2	2.181	5.7	5.7	4.9	ST
55276	7/11/93	1042	2916.1	9228.0	16	12	6	12	28.7	28.7	28.3	21.1	21.1	22.9	1.071	5.8	6.0	1.6	ST
55277	7/11/93	1251	2928.6	9229.9	16	10	5	10	28.7	28.6	27.5	21.9	21.9	27.4	1.819	6.0	5.9	2.0	PN
55278	7/11/93	2030	2926.0	9249.2	16	14	7	14	29.3	29.2	27.6	24.6	24.7	27.9	3.226	5.8	6.4	1.8	ST
55280	7/12/93	0009	2905.0	9245.4	16	23	11	23	29.4	28.8	24.0	22.8	28.2	34.3	.847	6.1	5.5	2.4	ST
55282	7/12/93	0330	2912.2	9232.8	16	17	8	17	28.9	29.0	23.9	21.1	21.4	34.0	.785	5.9	5.9	1.1	ST
55283	7/12/93	0703	2851.5	9222.4	16	30	15	30	28.9	27.8	28.9	22.8	29.7	35.4	.903	5.3	5.8	1.2	ST
55284	7/12/93	0919	2849.4	9212.9	16	31	15	31	28.6	28.0	21.1	23.7	31.5	35.5	1.103	5.5	5.2	1.9	ST
55285	7/12/93	1033	2853.8	9210.9	16	26	13	26	28.8	28.9	21.6	21.9	28.3	35.1	.637	6.1	5.4	1.2	ST
55286	7/12/93	1406	2829.6	9159.7	15	50	25	50	29.5	28.0	21.2	24.7	35.0	36.2	1.191	5.7	5.6	3.8	PN
55289	7/12/93	1804	2819.8	9152.5	15	65	31	65	29.6	22.2	20.3	24.2	35.1	36.2	.779	5.8	4.7	3.7	ST
55290	7/12/93	2025	2819.9	9152.6	15	64	32	64	31.1	22.3	20.3	23.0	35.3	37.0	1.352	2.5	3.3	3.0	ST
55293	7/13/93	0219	2839.8	9211.4	16	39	19	38	29.9	27.3	21.3	28.3	33.6	35.6	.267	5.7	5.7	2.8	ST
55295	7/13/93	0726	2836.8	9137.3	15	37	19	36	29.5	28.3	21.6	28.0	30.5	36.1	.611	5.5	4.9	2.2	ST
55296	7/13/93	0900	2836.3	9129.3	15	34	17	34	29.4	25.5	21.8	23.0	32.5	36.0	.984	5.7	1.3	2.9	ST
55297	7/13/93	1018	2829.8	9129.2	15	46	23	46	29.4	23.6	20.9	22.1	35.0	36.1	1.464	5.9	3.6	3.4	PN
55298	7/13/93	1221	2838.1	9120.0	15	28	14	28	29.9	27.0	22.7	21.3	32.7	35.7	2.640	5.9	4.9	2.4	ST
55299	7/13/93	1518	2855.6	9133.3	15	16	8	16	29.9	28.4	25.3	18.5	21.5	34.5	4.646	5.4	5.7	1.4	ST/PN
55300	7/13/93	1812	2900.2	9159.5	15	19	10	19	30.3	29.1	22.7	22.1	24.6	34.6	.845	5.8	5.5	1.2	PN
55301	7/13/93	2018	2902.0	9210.3	16	19	9	19	29.9	28.1	22.3	21.4	24.5	34.6	1.682	6.0	5.4	.9	ST
55302	7/13/93	2100	2858.5	9210.1	16	23	11	23	29.3	28.4	22.0	21.3	28.7	34.9	.854	5.9	5.4	1.4	ST
55303	7/13/93	2317	2851.9	9156.6	15	25	12	25	29.2	28.7	22.8	21.4	29.1	35.0	1.352	5.8	5.4	2.2	ST
55304	7/14/93	0107	2856.4	9148.0	15	19	9	19	29.2	28.9	23.0	21.2	21.9	34.7	1.165	5.6	5.9	1.5	ST
55305	7/14/93	0223	2853.1	9144.5	15	21	10	21	29.0	27.9	23.0	20.9	27.6	34.8	.972	5.7	4.5	1.1	ST
55306	7/14/93	0434	2859.7	9134.5	15	11	5	11	29.4	29.4	26.5	20.4	20.4	33.8	2.473	6.1	6.2	1.4	ST
55307	7/14/93	0819	2839.8	9114.4	15	21	10	21	29.5	28.1	24.1	21.3	28.8	35.3	2.430	5.7	3.6	.9	ST
55308	7/14/93	0949	2845.2	9105.8	15	10	5	10	29.3	29.0	28.0	15.3	24.0	33.0	15.712	5.7	3.1	.9	ST/PN
55309	7/14/93	1308	2836.7	9057.2	14	19	9	19	29.5	28.5	24.9	21.0	27.5	35.3	4.423	5.8	5.0	2.3	ST
55310	7/14/93	1451	2825.4	9052.2	14	39	19	39	29.1	28.8	21.4	24.0	33.0	36.1	1.467	5.8	5.6	2.7	ST
55311	7/14/93	1820	2827.8	9116.9	15	51	25	50	29.2	24.2	20.7	22.9	35.2	36.2	1.371	5.6	5.9	2.9	ST
55312	7/14/93	2241	2832.7	9143.8	15	46	23	46	29.5	27.1	21.1	25.5	32.8	36.1	1.068	5.7	4.2	2.8	ST
55313	7/15/93	0041	2844.6	9133.4	15	25	12	25	29.0	27.7	23.0	21.1	29.9	35.5	1.146	5.7	4.6	1.2	ST
55314	7/15/93	0406	2829.9	9108.6	15	38	19	38	29.1	27.0	21.7	23.1	34.1	36.1	1.433	5.0	4.8	3.1	ST
55315	7/15/93	0707	2834.1	9040.5	14	21	11	20	29.4	27.6	26.3	23.3	32.0	35.3	3.889	5.4	4.4	3.0	ST
55316	7/15/93	1036	2820.7	9010.6	14	70	35	70	29.6	22.3	18.2	28.6	36.0	36.2	.630	5.0	5.8	3.7	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C°			SALINITY, PPT			CL, MG/M ³	DISSOLVED OXYGEN, PPM			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
55317	7/15/93	1438	2810.8	9037.1	14	96	48	96	29.9	21.2	17.6	31.3	36.2	36.3	4.015	5.4	5.5	3.9	ST
55318	7/15/93	1649	2808.8	9049.0	14	121	59	121	29.9	21.3	15.6	29.4	36.2	36.0	.864	5.4	5.6	4.1	ST
55319	7/15/93	2026	2812.8	9111.3	15	82	41	82	29.4	23.5	18.7	31.5	35.3	36.3	.291	5.5	5.3	3.8	ST
55320	7/16/93	0010	2829.1	9052.9	14	34	17	34	29.5	26.8	22.1	20.9	33.1	36.0	3.756	6.0	4.3	2.0	ST
55321	7/16/93	0124	2832.4	9045.4	14	26	14	26	29.9	27.2	23.6	21.5	33.2	36.0	2.118	5.9	4.7	1.6	ST
55322	7/16/93	0430	2814.1	9037.7	14	73	37	73	30.3	23.1	19.5	29.4	36.1	36.3	.277	5.2	5.7	4.0	ST
55323	7/16/93	0855	2836.0	9024.2	14	33	16	33	29.5	27.2	22.8	25.2	35.2	36.1	1.629	5.3	5.3	1.8	ST/PN
55324	7/16/93	1135	2840.6	9002.0	14	62	31	62	29.9	22.8	20.2	23.7	36.1	36.3	2.193	4.7	5.4	3.5	ST
55325	7/16/93	1245	2843.6	9009.7	14	34	18	34	29.7	27.6	22.1	24.9	35.6	36.2	1.994	5.6	5.0	2.9	ST
55326	7/16/93	1418	2851.3	9010.0	14	24	12	24	29.6	28.2	24.4	22.3	35.0	35.8	3.937	5.2	4.7	2.0	ST
55327	7/16/93	1616	2854.0	9023.7	14	17	8	17	29.5	28.6	26.5	20.0	33.3	35.4	5.246	5.1	3.8	1.7	ST/PN
55328	7/16/93	2012	2835.7	9025.6	14	33	16	33	30.7	26.9	22.9	21.6	34.9	36.1	3.289	5.9	5.0	2.0	ST
55329	7/16/93	2113	2838.9	9023.3	14	24	12	24	29.9	27.4	24.8	26.5	34.0	36.0	2.131	5.6	4.3	3.8	ST
55330	7/16/93	2333	2839.8	9005.3	14	66	33	66	29.8	22.5	19.0	24.5	36.1	36.4	2.918	5.5	4.4	3.9	ST
55331	7/17/93	0040	2842.1	9000.1	14	60	30	60	29.6	24.2	18.7	22.9	36.0	36.8	4.750	5.9	5.6	3.4	ST
55332	7/17/93	0237	2840.6	8957.3	13	58	29	58	29.7	24.0	19.8	22.2	35.6	36.3	3.788	5.9	5.5	3.5	ST
55333	7/17/93	0439	2857.1	8953.0	13	36	18	36	30.3	26.3	21.9	20.0	35.1	36.2	4.660	5.7	5.4	2.4	ST
55334	7/17/93	0557	2854.8	8959.6	13	33	17	33	30.0	27.8	22.3	21.2	35.2	36.1	4.610	5.8	4.3	3.1	ST
55335	7/17/93	0817	2900.4	9013.1	14	14	7	14	29.6	29.6	25.8	20.7	29.0	35.3	1.464	5.4	5.0	1.9	ST/PN
55336	7/17/93	1048	2904.9	8959.2	13	18	9	18	30.3	28.4	26.0	21.3	34.5	35.9	4.436	5.6	4.0	2.3	ST
55337	7/17/93	1417	2858.6	8931.6	13	26	13	26	30.1	27.1	28.4	18.4	34.6	36.1	24.219	11.9	4.2	3.5	ST/PN
55338	7/17/93	1533	2906.8	8934.0	13	13	6	13	29.9	28.6	26.0	6.8	30.4	35.2	8.764	7.8	3.3	1.7	ST
55339	7/17/93	2014	2909.6	8955.2	13	13	6	13	31.5	29.1	25.2	18.6	26.6	35.0	4.959	6.9	4.5	1.3	ST
55340	7/17/93	2116	2911.6	8958.4	13	11	5	11	31.7	29.8	25.7	18.9	22.6	34.5	5.295	6.2	5.7	1.8	ST
55341	7/17/93	2302	2914.5	8948.1	13	10	5	10	31.7	29.1	25.5	12.9	27.5	34.8	11.982	6.2	4.0	1.8	ST
55342	7/18/93	0013	2909.0	8944.3	13	18	9	18	31.0	27.1	25.3	12.3	34.0	35.8	17.403	10.7	2.8	1.5	ST
55343	7/18/93	0933	2912.5	8833.3	11	82	41	82	29.2	21.1	18.4	27.1	36.2	36.4	2.492	5.5	5.3	3.7	ST
55344	7/18/93	1134	2916.7	8840.7	11	66	33	66	29.4	21.1	18.7	27.0	36.3	36.4	4.008	6.1	4.9	3.2	ST
55346	7/18/93	1523	2906.7	8854.1	11	64	32	64	30.7	22.0	18.3	18.2	36.2	36.3	34.623	10.9	5.5	3.9	ST
55347	7/18/93	2012	2907.5	8848.3	11	81	41	81	32.2	21.7	18.0	18.1	36.2	36.4	25.512	6.0	4.6	4.0	ST
55348	7/18/93	2221	2908.4	8839.4	11	90	45	90	31.1	21.3	16.1	21.3	36.2	35.5	14.438	9.2	4.9	4.0	ST
55389	7/21/93	1642	2959.9	8800.1	11	23	11	23	30.7	28.0	23.8	26.7	35.9	35.7	1.034				PN

Table 2. Selected environmental parameters (continued)

PELICAN, SUMMER SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
36993	7/ 5/93	1600	2859.7	9035.6	14	10	5	10	30.6	30.0	27.8	15.2	27.6	33.9	20.735	8.2	6.2	2.1	ST
36994	7/ 5/93	1734	2851.9	9031.8	14	18	9	18	30.6	28.2	27.2	20.4	35.1	35.3	7.603	7.7	5.7	3.0	ST
36995	7/ 5/93	1942	2900.0	9030.0	14	9	5	9	30.4	28.3	27.5	17.4	31.9	34.3	12.461	8.3	6.1	1.4	PN
36996	7/ 5/93	2109	2859.8	9035.7	14	10	5	10	30.4	29.9	27.6	18.3	28.0	34.0	15.455	8.3	5.4	1.3	ST
36997	7/ 5/93	2247	2852.0	9031.7	14	17	9	17	29.9	28.4	27.1	19.9	35.2	35.3	7.723	8.5	5.6	2.9	ST
36998	7/ 6/93	0215	2901.3	9010.7	14	14	7	14	30.1	27.4	26.4	19.2	32.5	34.5		7.2	3.6	.4	ST
36999	7/ 6/93	0410	2856.8	9003.6	14	25	13	25	30.0	26.6	24.9	23.5	34.7	35.8	1.315	6.8	3.1	1.7	ST
37000	7/ 6/93	0550	2857.8	8958.2	13	29	14	29	29.8	28.0	23.4	26.6	35.1	35.8	1.232	6.5	5.3	1.1	ST
37001	7/ 6/93	0807	2900.7	9010.6	14	14	9	14	29.8	28.2	26.8	18.3	30.9	34.0	3.096	8.2	.8	.7	ST
37002	7/ 6/93	1004	2856.9	9003.4	14	25	13	25	30.0	27.1	24.7	23.0	34.5	35.8	3.125	6.4	3.1	1.3	ST
37003	7/ 6/93	1142	2857.7	8958.1	13	29	14	29	30.2	28.0	23.4	24.2	34.6	35.8	1.927	6.7	1.2	1.5	ST
37004	7/ 6/93	1301	2900.0	9000.0	14	25	12	25	28.0	27.7	25.0	20.5	35.2	35.7	6.728	7.2	5.2	2.1	PN
37005	7/ 6/93	1435	2903.7	8956.5	13	21	9	21	30.8	27.1	25.9	20.5	34.9	35.9	6.320	7.8	4.5	3.7	ST
37006	7/ 6/93	1702	2903.9	8941.8	13	28	14	28	30.7	28.4	24.0	25.4	36.0	36.0	1.357	1.7	5.8	1.7	ST
37007	7/ 6/93	1805	2901.9	8938.5	13	30	15	30	30.8	28.3	24.0	20.3	35.7	35.9	23.694	7.8	5.9	2.4	ST
37008	7/ 6/93	1926	2858.1	8931.9	13	32	16	32	30.9	26.6	22.2	17.1	35.2	36.1	8.687	7.6	1.7	1.9	ST
37010	7/ 6/93	2208	2903.3	8937.2	13	20	10	20	30.5	27.9	25.5	18.5	34.5	35.6	16.978	8.2	4.7	1.7	ST
37011	7/ 6/93	2248	2901.9	8938.4	13	30	15	30	30.8	28.3	24.0	20.3	35.7	35.9	23.694	7.8	5.9	2.4	ST
37012	7/ 6/93	2345	2904.1	8941.8	13	27	15	27	30.4	28.2	25.0	21.6	35.9	35.6	9.115	8.1	5.8	1.6	ST
37013	7/ 7/93	0155	2903.8	8956.5	13	22	11	22	30.7	27.2	25.7	19.8	35.5	35.8	3.366	7.9	5.2	2.6	ST
37014	7/ 7/93	0642	2903.4	8937.0	13	19	10	19	30.0	27.9	25.6	17.0	34.4	35.6	11.536	8.3	4.2	1.7	ST
37015	7/ 7/93	0817	2900.0	8930.0	13	15	8	15	30.1	27.2	26.5	17.2	31.4	35.2	.643	6.8	3.5	1.0	PN
37016	7/ 7/93	1532	2830.0	9030.0	14	39	20	39	30.0	25.9	22.2	33.4	34.8	36.0	.244	6.7	6.7	1.4	PN
37017	7/ 7/93	1755	2833.1	9046.9	14	24	13	24	30.9	27.9	25.5	19.3	34.8	35.6	8.817	8.0	6.5	2.0	ST
37018	7/ 7/93	1939	2830.0	9100.0	15	34	17	34	30.6	27.0	22.2	23.6	34.7	36.0	4.738	7.8	6.4	3.3	PN
37019	7/ 7/93	2146	2833.3	9046.9	14	23	11	23	30.6	28.0	25.5	22.2	34.8	35.5	5.508	7.7	6.6	2.1	ST
37020	7/ 8/93	0443	2848.0	9116.4	15	12	7	12	30.2	29.0	26.9	24.4	27.5	33.9	2.744	8.0	5.6	.5	ST
37021	7/ 8/93	0655	2848.0	9116.3	15	13	7	13	29.7	28.9	26.9	24.6	28.0	33.8	1.037	6.7	5.4	.7	ST
37022	7/ 8/93	0955	2900.0	9130.0	15	10	6	10	30.5	30.0	26.8	19.9	21.3	33.6	9.502	7.5	6.2	.4	PN
37023	7/ 8/93	1354	2900.0	9100.0	15	6	4	6	31.2	30.0	27.7	15.1	19.3	30.3	21.286	2.3	5.6	1.0	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, FALL PLANKTON SURVEY																				
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)			TEMPERATURE, C			SALINITY, PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR		MID	MAX		
28054	9/10/93	0400	2559.9	9629.9	99	60	30	60	29.5	26.3	21.4	35.6	36.2	36.3	.077	5.5	6.4	5.1	PN	
28055	9/10/93	0813	2600.3	9659.8	21	27	13	27	28.0	25.6	24.7	36.2	36.2	36.4	.127	9.9	6.1	6.1	PN	
28056	9/10/93	1217	2630.0	9700.0	21	31	15	31	27.9	26.0	23.3	36.3	36.1	36.3	.144	5.7	6.3	5.9	PN	
28057	9/10/93	1600	2630.0	9632.6	21	82	40	82	29.7	25.9	21.6	35.7	35.7	36.4	.080	4.7	6.4	4.9	PN	
28058	9/10/93	2019	2700.2	9639.8	20	88	44	87	29.5	24.5	20.7	35.9	35.9	36.4	.095	5.5	6.3	4.1	PN	
28059	9/11/93	0010	2700.1	9711.8	21	24	12	24	28.1	28.0	24.4	36.3	36.2	36.3	.085	6.8	.1	5.6	PN	
28060	9/11/93	0424	2730.6	9659.5	20	24	12	23	27.1	28.5	27.4	37.3	36.3	36.8	.119	7.1	7.1	4.0	PN	
28061	9/11/93	0826	2730.1	9629.9	20	75	36	72	21.8	26.7	29.1	36.3	36.0	35.9	.080	5.2	6.2	5.0	PN	
28062	9/11/93	1225	2759.9	9629.5	20	25	12	25	28.8	28.7	28.5	36.2	36.2	36.3	.107	5.6	6.3	4.7	PN	
28063	9/11/93	1710	2735.0	9600.2	20	144	72	144	29.6	21.7	15.9	35.9	36.1	37.1	.107	5.3	5.3	3.9	PN	
28064	9/11/93	2046	2800.1	9559.7	20	42	20	40	29.3	28.7	24.9	35.9	36.1	36.5		5.2	5.5	6.8	PN	
28065	9/12/93	0021	2819.9	9619.5	19	12	6	11	29.5	29.5	29.8	34.5	34.5	36.3	.361	5.6	5.5	5.3	PN	
28066	9/12/93	0318	2830.2	9559.6	19	12	6	11	29.8	29.8	29.8	36.3	36.3	36.3	.592	5.6	5.7	5.6	PN	
28067	9/12/93	0713	2829.6	9529.4	19	24	12	24	29.8	29.8	29.8	36.2	36.2	36.2	.374	5.1	5.1	5.2	PN	
28068	9/12/93	1146	2800.4	9528.3	19	54	26	53	29.5	28.0	22.8	35.9	36.0	36.3	.094	5.3	7.1		PN	
28069	9/12/93	1423	2745.3	9529.3	99	103	55	102	29.7	25.4	18.1	35.9	36.0	36.5	.078	5.6	5.7	3.8	PN	
28070	9/12/93	1835	2759.1	9459.0	18	79	39	79	29.7	28.2	20.7	35.9	36.1	36.7	.083	5.5	4.7	5.3	PN	
28071	9/12/93	2239	2830.0	9459.6	18	31	17	31	29.7	29.7	26.0	36.1	36.0	37.1	.125	5.2	5.4	4.2	PN	
28072	9/13/93	0738	2922.8	9430.1	18	11	6	11	29.4	29.4	29.4	34.7	34.7	34.7	2.274	4.3	4.6	4.6	PN	
28073	9/15/93	1813	2900.2	9500.6	19	15	8	15	28.8	28.8	28.8	35.4	35.4	35.4	1.371	4.8	4.8	4.8	PN	
28074	9/15/93	2209	2900.3	9430.3	18	16	8	16	28.8	28.8	28.9	34.7	34.8	34.8	.748	4.9	5.0	4.9	PN	
28075	9/16/93	0205	2830.3	9430.3	18	33	16	33	28.9	28.9	25.9	36.2	36.2	37.1	.181	4.1	5.2	5.5	PN	
28076	9/16/93	0609	2800.6	9429.7	18	68	33	67	28.7	27.4	21.5	36.0	35.3	36.4	.144	5.2	7.4	4.8	PN	
28077	9/16/93	0959	2800.3	9359.7	17	77	36	77	29.0	27.8	20.1	36.0	35.7	36.4	.083	5.0	5.7	3.8	PN	
28078	9/16/93	1353	2830.2	9400.2	17	36	18	32	29.1	29.1	24.5	35.7	35.7	37.7	.274	5.1	5.1	4.5	PN	
28079	9/16/93	1811	2900.3	9400.1	18	19	9	19	28.7	28.7	29.9	32.7	32.7	33.7	.368	4.9	5.0	4.0	PN	
28080	9/16/93	2158	2930.0	9400.3	18	13	6	11	27.8	28.2	29.1	25.5	28.0	32.3	4.268	5.5	5.0	2.9	PN	
28081	9/17/93	0217	2930.6	9330.6	17	9	4	7	27.9	28.0	28.1	29.3	29.4	29.5	2.386	5.2	5.2	5.2	PN	
28082	9/17/93	0620	2900.6	9331.2	17	21	11	21	28.8	28.9	28.9	32.7	33.1	35.7	.474	4.7	4.5	3.7	PN	
28083	9/17/93	1013	2829.9	9330.1	17	42	21	40	28.9	28.9	24.2	36.0	36.1	36.3	.126	5.1	5.3	7.6	PN	
28084	9/17/93	1408	2800.5	9330.2	17	82	41	82	28.9	23.9	19.3	36.0	36.0	36.5	.078	5.2	5.8	3.7	PN	
28085	9/17/93	1800	2800.6	9259.2	16	103	49	98	29.4	24.5	18.6	35.7	35.9	36.4	.102	5.2	6.1	3.6	PN	
28086	9/17/93	2204	2829.7	9259.8	17	45	22	45	28.9	28.9	23.6	36.1	36.0	36.3	.064	5.1	5.8	4.4	PN	
28087	9/18/93	0151	2900.4	9300.1	17	24	12	23	28.8	28.8	26.8	31.4	32.1	35.4	.729	5.1	2.9	1.8	PN	
28088	9/18/93	0618	2929.9	9300.0	17	11	6	11	26.9	29.6	29.6	23.0	30.4	30.5	2.455	4.8	3.0	2.9	PN	
28089	9/18/93	1007	2928.7	9230.4	16	9	4	8	26.5	26.5	29.4	14.9	20.0	29.5	7.248	5.5	3.7	2.2	PN	
28090	9/18/93	1406	2901.1	9230.5	16	22	11	21	29.1	28.8	28.0	33.8	34.0	36.9	.181	5.1	5.3	5.3	PN	
28091	9/18/93	1825	2829.9	9229.3	16	46	23	44	29.4	28.9	21.7	35.7	35.5	36.1	.100	4.6	4.5	3.9	PN	

Table 2. Selected environmental parameters (continued)

CHAPMAN, FALL PLANKTON SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
28092	9/18/93	2227	2800.1	9229.4	16	104	51	103	29.4	22.6	18.1	35.6	35.9	36.4	.100	5.1	5.2	3.8	PN
28093	9/19/93	0212	2800.2	9159.8	99	118	59	118	29.3	21.6	17.3	35.7	36.2	36.5	.112	5.1	5.4	3.9	PN
28094	9/19/93	0627	2830.0	9159.1	16	48	23	48	29.3	29.2	21.6	34.8	35.1	36.1	.129	5.1	4.3	3.9	PN
28095	9/19/93	1018	2900.1	9159.7	15	15	7	15	29.0	29.2	29.6	27.8	29.2	31.5	1.442	4.4	4.4	3.6	PN
28096	9/19/93	1352	2900.4	9129.9	15	8	4	8	29.0	29.0	28.8	23.5	23.5	23.6	3.380	5.4	5.6	5.4	PN
28097	9/19/93	1815	2829.9	9129.4	15	44	22	44	29.4	29.4	22.6	35.4	35.4	36.8	.129	4.8	5.3	4.5	PN
28098	9/19/93	2221	2800.3	9129.1	15	128	55	109	29.4	22.6	17.0	35.2	35.9	36.3	.112	5.2	5.0	3.8	PN
28099	9/20/93	0216	2800.2	9059.5	99	149	75	149	29.2	19.7	16.0	35.3	36.1	36.2	1.252	5.0	3.8	3.7	PN
28100	9/20/93	0636	2805.2	9029.6	14	138	67	134	29.2	20.3	16.1	35.5	36.4	36.1	.293	5.1	4.3	3.7	PN
28101	9/20/93	1058	2820.2	8959.7	14	104	52	104	29.4	23.2	17.6	35.6	36.0	36.4	.100	4.7	5.7	3.6	PN
28102	9/20/93	1503	2835.5	8929.8	13	168	83	166	29.8	20.1	14.9	35.5	36.1	36.0	.076	4.9	3.6	3.6	PN
28103	9/20/93	2031	2900.1	8900.1	13	66	33	66	29.1	23.4	20.4	27.4	35.9	36.5	25.917	3.7	1.2	2.9	PN
28104	9/20/93	2150	2904.8	8900.1	11	22	10	21	29.5	28.9	25.6	28.1	30.0	35.6	38.667	3.2	1.4	3.5	PN
28105	9/24/93	0846	2859.9	8930.2	13	13	7	13	29.5	29.2	29.5	23.1	22.0	34.3	27.381	.0	.0	9.8	PN
28106	9/24/93	1200	2859.9	9001.0	14	21	10	18	29.8	29.5	29.7	17.7	33.6	33.7	8.467				PN
28107	9/24/93	1513	2856.6	9030.3	14	9	5	9	30.3	29.6	29.3	15.5	25.1	25.0	10.504	5.6	2.2	1.0	PN
28108	9/24/93	1914	2848.4	9100.5	15	8	4	8	29.8	29.8	29.4	28.2	29.2	31.4	4.880	5.2	4.7	.1	PN
28109	9/24/93	2159	2830.4	9101.0	15	31	15	30	29.6	29.2	24.2	34.9	35.7	35.8	1.386	5.2	8.4	1.1	PN
28110	9/25/93	0145	2829.9	9029.7	14	37	18	37	29.4	29.3	24.3	34.4	35.5	35.9	.239	3.8	9.5	1.3	PN
28111	9/25/93	0524	2830.2	8959.8	99	105	47	95	29.4	23.8	17.7	32.5	35.9	36.4	.083	1.7	5.8	3.5	PN
28124	9/26/93	0625	2959.7	8830.1	11	24	12	24	29.2	29.4	24.2	30.3	34.4	36.4	.230				PN
28129	9/26/93	1229	2929.8	8830.1	11	51	25	50	29.8	23.6	19.9	29.3	35.6	36.4	.230				PN
28130	9/26/93	1526	2912.3	8830.0	11	127	63	124	29.6	19.7	15.7	29.8	36.1	36.1	1.838				PN
28144	9/27/93	1030	2930.0	8800.2	11	46	22	44	29.1	27.4	21.5	30.9	35.4	36.6	.187				PN
28145	9/27/93	1250	2914.3	8801.4	11	240	100	194	29.1	16.8	14.2	33.4	36.4	35.8	.262				PN
28149	9/27/93	2115	3000.3	8800.1	10	20	10	20	28.7	28.7	28.1	30.1	31.2	35.4	.293				PN
28155	9/28/93	0636	3000.5	8730.5	10	24	12	24	28.3	29.6	26.4	31.2	34.2	35.6	.226				PN
28156	9/28/93	0857	3014.3	8729.7	10	11	5	10	27.9	27.9	29.4	30.4	30.9	33.5	1.225				PN
28157	9/28/93	1221	3020.0	8659.8	9	18	7	17	27.9	28.2	28.8	29.4	33.3	33.7	.243				PN
28158	9/28/93	1539	3020.0	8629.3	9	25	12	25	28.2	28.3	27.6	31.8	34.6	35.0	.224				PN
28159	9/28/93	1830	3000.0	8629.8	9	55	27	55	28.3	24.9	18.5	31.0	35.0	36.4	.157				PN
28160	9/28/93	2208	3000.4	8700.0	9	69	35	69	28.1	23.6	18.0	30.2	35.5	36.4	.194				PN
28161	9/29/93	0005	2948.2	8700.5	10	194	97	193	27.7	17.3	14.0	31.9	36.6	35.8	.138				PN
28162	9/29/93	0459	2930.9	8729.8	99	69	35	68	28.8	28.0	20.3	35.3	35.5	36.5	.080				PN

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, FALL PLANKTON SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR	SUR	MID	MAX	
17034	9/20/93	2214	2928.9	8901.4	12	10	5	9	28.5	28.6	28.6	20.6	28.9	29.7	26.633	10.0		4.6	PN
17044	9/21/93	0813	2959.4	8858.8	11	6		4	28.5		28.9	26.5		28.4	2.570	6.6		5.8	PN

Table 2. Selected environmental parameters (continued)

A.E. VERRILL, FALL PLANKTON SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
23001	9/21/93	1311	3014.4	8808.2	11	3	3		32.0		30.0	33.0		33.0		6.8		6.8	PN
23002	9/21/93	1414	3008.4	8806.7	11	7	4	7	31.0	30.0	30.0	30.0	32.0	32.0		7.2	7.4	7.4	PN
23003	9/21/93	1451	3008.0	8804.3	11	8	4	8	32.0	33.0	32.0	34.0	32.0	32.0		8.0	8.0	7.6	PN
23004	9/21/93	1523	3008.3	8801.9	11	9	5	9	32.0	32.5	32.0	32.0	32.0	30.0		7.4	8.6	7.8	PN
23005	9/21/93	1556	3010.7	8800.5	11	6	6		32.0		31.0	32.0		30.0		7.0		8.0	PN
23006	9/21/93	1656	3012.5	8802.6	11	7	4	7	32.5	32.0	32.5	26.0	28.0	28.0		7.4	7.6	7.4	PN
23007	9/21/93	1735	3016.1	8759.7	10	2	2		33.0		32.0	25.0		25.0		6.8		5.8	PN
23008	9/21/93	1804	3017.1	8802.1	11	7	7		31.5		32.0	26.0		26.0		8.4		7.6	PN
23009	9/21/93	1842	3017.4	8806.0	11	2	2		32.5		32.0	20.0		20.0		7.0		7.2	PN

Table 2. Selected environmental parameters (continued)

PELICAN, FALL PLANKTON SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
37024	10/ 4/93	1305	2900.0	9030.0	14	9	4	9	27.2	27.4	27.0	25.5	26.9	28.2	6.144	8.7	8.1	4.7	PN
37025	10/ 4/93	1420	2854.4	9030.6	14	14	7	14	27.5	27.4	27.5	25.5	28.9	31.5	3.826	8.4	7.7	5.9	ST
37026	10/ 4/93	1618	2850.7	9041.2	14	16	8	16	27.8	26.5	27.5	28.1	30.4	31.8	7.836	8.8	8.4	5.5	ST
37027	10/ 4/93	1835	2851.2	9055.5	14	9	5	9	27.9	27.2	27.2	27.2	29.0	29.3	7.877	8.5	8.6	8.6	ST
37028	10/ 4/93	1933	2851.3	9055.5	14	10	4	10	27.5	27.4	27.2	27.4	28.7	29.1	4.455	8.8	8.8	8.8	ST
37029	10/ 4/93	2155	2850.7	9041.0	14	17	8	17	27.0	27.5	27.6	27.2	29.4	30.7	5.955	8.9	8.2	5.6	ST
37030	10/ 5/93	0009	2854.2	9030.3	14	15	8	15	27.4	27.4	27.7	26.4	28.5	32.4	5.979	8.8	7.9	5.6	ST
37031	10/ 5/93	0259	2847.9	9013.6	14	26	14	26	27.9	28.1	27.1	35.2	35.3	35.8	2.978	6.9	7.1	4.4	ST
37032	10/ 5/93	0500	2837.1	9020.5	14	32	16	32	28.0	28.0	26.2	35.8	35.8	35.8	.199	7.2	7.0	3.5	ST
37033	10/ 5/93	0630	2836.2	9027.2	14	21	10	21	27.5	27.8	28.0	34.3	35.0	35.6	1.440	8.4	6.6	6.3	ST
37035	10/ 5/93	1009	2847.9	9013.5	14	25	14	25	27.8	27.9	27.0	35.2	35.3	35.8	1.369	6.4	6.6	4.7	ST
37036	10/ 5/93	1213	2836.9	9020.8	14	32	16	32	27.9	27.9	25.6	35.2	35.6	36.0	.728	7.5	6.7	3.9	ST
37037	10/ 5/93	1406	2830.0	9030.0	14	38	18	38	27.9	27.9	24.6	35.8	35.8	36.0	.120	7.1	7.1	3.3	PN
37038	10/ 5/93	1726	2830.0	9100.0	15	33	17	33	27.9	27.8	23.1	35.1	35.2	36.1	.679	7.4	6.7	3.0	PN
37039	10/ 5/93	2044	2838.4	9125.9	15	28	15	28	27.8	28.0	27.2	32.7	34.5	35.6	2.978	8.0	6.9	3.3	ST
37040	10/ 6/93	0032	2902.7	9130.3	15	8	4	8	26.9	26.9	26.8	25.8	25.8	27.3	3.814	9.1	9.1	6.4	ST
37041	10/ 6/93	0730	2838.5	9125.9	15	28	14	28	27.7	27.8	27.1	33.1	33.4	35.5	2.009	7.6	7.0	2.3	ST
37042	10/ 6/93	1122	2902.7	9130.3	15	7	3	7	26.7	26.7	26.7	25.1	25.1	25.7	4.326	9.1	8.8	7.6	ST
37043	10/ 6/93	1224	2900.0	9130.0	15	10	4	10	26.7	26.6	26.8	25.3	25.4	26.3	10.054	9.1	8.0	6.8	PN
37044	10/ 6/93	1628	2900.0	9100.0	15	6	3	6	27.1	27.1	27.1	26.3	26.3	26.3	10.340	8.6	8.5	8.4	PN
37045	10/ 6/93	2323	2903.3	9006.8	14	14	7	14	26.8	26.8	27.7	23.2	23.3	28.7	9.439	9.3	9.3	6.4	ST
37046	10/ 7/93	0038	2859.9	9006.0	14	18	9	18	27.0	27.6	28.1	26.3	30.7	35.4	8.665	8.6	5.6	2.7	ST
37047	10/ 7/93	0404	2901.8	8948.5	13	32	17	32	26.6	28.1	26.1	20.9	35.1	35.8	6.983	9.4	6.9	2.5	ST
37048	10/ 7/93	0613	2859.3	8933.6	13	20	9	20	26.4	26.5	27.9	20.3	26.7	32.8	2.576	8.3	8.3	2.3	ST
37050	10/ 7/93	0826	2900.0	8930.0	13	14	6	14	26.2	26.5	27.7	19.5	23.0	31.0	2.161	8.5	7.8	4.6	PN
37051	10/ 7/93	1110	2901.6	8948.4	13	31	18	31	26.7	28.1	26.7	23.2	26.0	35.7	5.566	9.2	6.9	2.1	ST
37052	10/ 7/93	1241	2900.0	9000.0	14	23	12	23	27.1	27.8	28.0	28.9	33.7	35.4	7.575	8.8	7.7	5.1	PN
37053	10/ 7/93	1347	2859.7	9005.6	14	18	10	18	27.2	27.9	28.1	27.0	32.0	35.4	5.094	8.5	7.5	2.7	ST
37054	10/ 7/93	1516	2903.2	9007.3	14	13	7	13	26.8	26.8	27.9	21.7	21.9	31.7	9.167	9.4	9.4	5.0	ST

Table 2. Selected environmental parameters (continued)

SUNCOASTER, FALL PLANKTON SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
00020	10/11/93	1238	2730.0	8300.0	5	12	6	12	27.7	27.6	27.6	35.3	35.3	35.3	.250	5.1	5.1	5.1	PN
00021	10/11/93	1655	2800.0	8300.0	6	10	5	10	26.7	26.7	26.7	35.0	35.0	35.2	.750	5.4	5.5	5.6	PN
00022	10/11/93	2035	2830.0	8300.0	6	10	5	10	26.1	26.1	26.1	35.3	35.3	35.3	.330	5.5	5.5	5.5	PN
00023	10/12/93	0026	2900.1	8259.6	7	6	3	6	25.2	25.2	25.2	33.4	33.4	33.4	1.450	5.4	5.4	5.4	PN
00024	10/12/93	0350	2900.0	8330.0	7	17	7	15	26.4	26.4	26.4	34.1	34.1	34.1	.250	5.3	5.3	5.3	PN
00025	10/12/93	0751	2930.0	8330.0	7	4	2	4	24.8	24.8	24.8	33.2	33.2	33.2	.580	5.4	5.4	5.4	PN
00026	10/12/93	1125	2930.0	8400.0	7	18	9	18	26.6	26.6	26.6	34.4	34.4	34.4	.710	5.2	5.2	5.2	PN
00027	10/12/93	1452	2955.0	8400.0	7	4	2	4	24.0	24.0	24.0	32.8	32.8	32.8	2.240	5.9	5.9	5.9	PN
00028	10/12/93	1929	2930.0	8430.0	7	24	10	21	26.4	26.4	27.3	34.3	34.3	35.4	.380	5.2	5.2	3.5	PN
00029	10/12/93	2310	2900.0	8430.0	7	34	17	31	26.8	27.1	26.7	34.9	35.1	35.7	.150	5.4	5.3	4.0	PN
00030	10/13/93	0239	2900.0	8400.0	7	29	15	25	26.9	26.9	26.9	35.0	35.0	35.0	.470	5.0	5.0	5.0	PN
00031	10/13/93	0750	2830.0	8330.0	6	20	10	20	26.8	26.8	27.2	34.9	34.9	35.2	.240	5.2	5.2	5.2	PN
00032	10/13/93	1115	2830.0	8400.0	6	31	15	30	27.5	27.4	27.5	35.2	35.2	35.3	.310	5.1	5.1	5.0	PN
00033	10/13/93	1437	2830.0	8430.0	6	51	25	49	27.5	27.4	24.1	35.0	35.2	36.2	.280	5.2	5.2	4.6	PN
00034	10/13/93	1836	2800.0	8430.0	6	77	40	70	26.5	22.7	18.4	34.6	36.1	36.3	.070	5.2	4.2	3.4	PN
00035	10/13/93	2210	2800.0	8400.0	6	48	23	43	27.7	27.8	24.3	35.0	35.3	36.2		5.3	5.3	4.7	PN
00036	10/14/93	0145	2800.0	8330.0	6	30	15	26	27.7	27.7	27.7	35.6	35.6	35.6	.310	5.0	5.0	5.0	PN
00037	10/14/93	0540	2730.0	8330.0	5	41	20	36	27.5	28.1	27.2	34.7	35.6	35.9	.080	5.1	5.0	4.3	PN
00038	10/14/93	0907	2730.0	8400.0	5	62	31	60	27.6	28.0	22.1	34.2	35.8	36.2	.090	5.1	5.2	4.7	PN
00039	10/14/93	1256	2730.0	8430.0	5	134	67	133	27.0	21.6	16.1	35.9	36.6	36.1	.090	5.1	4.5	3.8	PN
00040	10/14/93	1704	2700.0	8430.0	5	173	87	172	27.7	21.0	17.0	35.8	36.6	36.3	.020	5.0	4.2	4.0	PN
00041	10/14/93	2140	2700.0	8400.0	5	85	42	80	27.8	23.3	18.4	33.7	36.3	36.3	.080	5.1	4.7	3.6	PN
00042	10/15/93	0140	2700.0	8330.0	5	53	26	50	27.8	28.7	25.1	33.6	36.1	36.2	.040	5.1	5.5	4.1	PN
00043	10/15/93	0555	2700.0	8300.0	5	33	16	30	27.8	28.3	28.2	34.9	35.7	35.8	.140	5.0	4.8	4.8	PN
00044	10/15/93	0927	2700.0	8230.0	5	11	5	8	26.8	26.8	26.8	35.1	35.1	35.1	.860	5.0	5.0	5.0	PN
00045	10/15/93	1315	2630.0	8230.0	4	22	11	19	27.5	27.4	28.1	35.0	35.0	35.7	.510	5.0	5.0	4.6	PN
00046	10/15/93	1641	2630.0	8300.0	4	40	20	37	28.0	28.2	28.5	33.9	35.5	35.9	.190	5.2	5.1	4.7	PN
00047	10/15/93	2016	2630.0	8330.0	4	59	30	51	27.9	27.9	23.2	33.9	35.9	36.2	.110	5.0	5.1	5.1	PN
00048	10/16/93	0031	2600.0	8330.0	4	65	32	59	28.1	26.9	22.3	34.2	36.1	36.3	.060	5.0	5.2	4.6	PN
00049	10/16/93	0447	2600.0	8300.0	4	45	22	40	28.0	28.9	27.3	33.9	35.3	36.2	.150	5.0	5.0	3.8	PN
00050	10/16/93	0902	2600.0	8230.0	4	25	12	24	28.0	28.3	28.7	34.2	34.6	35.7	.260	5.0	5.0	4.4	PN
00051	10/16/93	1256	2600.0	8200.0	4	14	7	11	27.7	27.7	27.7	35.2	35.2	35.2	1.510	4.9	4.9	4.9	PN
00052	10/16/93	1814	2530.0	8137.0	3	10	5	9	27.7	27.7	27.7	35.8	35.8	35.8	2.410	4.8	4.9	4.9	PN
00053	10/18/93	0016	2530.0	8330.0	3	71	35	66	28.0	26.1	22.6	34.2	36.1	36.3	.120	5.0	5.2	4.6	PN
00054	10/18/93	0444	2530.0	8300.0	3	52	26	50	27.9	29.1	23.5	33.8	35.6	36.2	.050	5.0	5.2	4.7	PN
00055	10/18/93	0900	2530.0	8230.0	3	33	16	31	27.8	28.7	29.0	33.8	35.1	35.6	.190	5.0	4.8	4.6	PN

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55092	10/ 5/93	0222	2930.0	8630.2	9	211	100	200	26.9	17.7	13.9	31.6	36.3	35.8	.125	5.9	3.7	3.5	PN
55093	10/ 5/93	0625	2912.2	8600.7	99	194	97	191	26.9	17.3	13.8	31.9	36.3	35.8	.383	5.5	3.8	3.6	PN
55094	10/ 5/93	0914	2930.1	8559.9	8	58	29	58	27.2	25.3	17.0	33.2	35.7	36.5		5.8	5.2	3.3	PN
55095	10/ 5/93	1250	3000.1	8600.0	9	31	15	30	26.8	26.7	25.9	32.5	32.5	35.4	.206	5.8	5.9	3.8	PN
55096	10/ 5/93	1558	2948.1	8530.3	8	19	10	19	26.8	26.9	27.1	32.8	33.0	33.2	1.655	5.9	5.9	5.9	PN
55097	10/ 5/93	1828	2930.4	8529.9	8	13	7	13	27.8	27.7	12.8	33.3	33.3	33.3	1.005	5.8	5.8	5.9	PN
55098	10/ 5/93	2143	2900.2	8530.0	8	70	35	69	27.3	22.3	18.5	32.8	36.2	36.5	.125	5.8	4.8	3.6	PN
55099	10/ 6/93	0016	2840.2	8529.9	8	178	89	176	26.9	18.1	14.3	32.4	36.4	35.9	.125	5.8	3.7	3.6	PN
55100	10/ 6/93	0343	2830.1	8500.5	8	104	51	104	27.1	20.2	15.4	33.1	36.4	36.0	.153	5.7	3.8	3.6	PN
55101	10/ 6/93	0718	2800.3	8500.1	99	251	100	200	27.6	19.1	15.2	35.7	36.5	36.0	.098	5.7	4.0	4.2	PN
55102	10/ 6/93	1102	2800.3	8430.0	6	76	39	75	27.1	24.2	15.7	33.3	36.0	36.1	.187	5.9	5.1	3.4	
55104	10/15/93	1926	2626.1	9700.0	21	33	16	33	28.1	27.9	28.4	34.5	34.6	36.3	.500	4.8	5.6	4.9	ST
55106	10/15/93	2044	2621.4	9658.1	21	32	16	32	28.0	28.0	28.4	34.5	34.5	36.3	.523	4.4	5.6	4.5	ST
55108	10/16/93	128	2601.0	9659.8	21	27	14	27	28.1	28.3	28.4	34.8	35.3	36.2	.244	5.5	5.2	4.1	ST/PN
55109	10/16/93	301	2602.1	9707.4	21	14	7	14	28.1	28.1	28.2	35.5	35.5	35.5	1.326	5.0	5.0	4.9	ST
55110	10/16/93	410	2604.2	9706.2	21	19	9	18	28.0	28.0	17.8	35.6	35.5	28.5	1.103	5.4	5.4	5.4	ST
55111	10/16/93	733	2608.2	9709.0	21	16	8	15	27.9	28.0	28.1	35.2	35.4	35.4	1.661	5.2	5.0	5.1	ST
55112	10/16/93	1025	2616.0	9640.6	21	45	25	45	27.4	28.1	29.9	33.7	36.1	36.3	.166	5.4	5.6	4.4	ST
55114	10/16/93	1339	2616.9	9633.2	21	52	26	52	27.7	28.1	24.0	33.9	36.1	36.3	.218	5.9	5.7	5.2	ST
55115	10/16/93	1559	2629.6	9629.9	21	82	42	82	27.9	28.1	18.6	35.1	36.2	36.5	.184	5.9	5.7	3.4	PN
55116	10/16/93	1930	2633.3	9639.9	21	65	32	64	27.7	28.1	22.4	33.7	36.1	36.4	.148	5.8	5.7	5.3	ST
55117	10/16/93	2216	2642.3	9655.0	21	46	23	46	27.9	27.9	28.2	34.1	34.4	36.3	.287	5.8	5.8	4.6	ST
55118	10/17/93	33	2638.9	9707.6	21	27	13	27	27.7	27.7	28.1	33.7	33.8	35.9	.286	3.9	5.5	4.5	ST
55120	10/17/93	207	2634.0	9713.0	21	17	9	17	27.7	27.7	27.9	33.5	33.4	35.1	.315	1.8	1.5	4.3	ST
55121	10/17/93	327	2638.0	9717.0	21	13	6	13	27.8	27.8	27.8	34.1	34.1	34.1	1.015	5.9	5.8	5.9	ST
55122	10/17/93	446	2648.0	9716.6	21	21	11	20	27.5	27.6	27.9	33.0	32.9	34.6	.592	5.7	5.7	4.0	ST
55124	10/17/93	805	2631.0	9714.3	21	12	6	11	27.8	27.8	27.8	34.8	34.8	34.9	3.578	5.2	5.3	5.3	ST
55125	10/17/93	842	2633.1	9711.0	21	18	9	18	27.5	27.5	28.2	33.8	33.8	35.7	.486	5.7	5.7	4.1	ST
55126	10/17/93	1028	2637.0	9709.3	21	22	11	22	27.6	27.6	28.2	33.8	33.8	35.7	.405	5.7	5.7	4.6	ST
55128	10/17/93	1321	2657.7	9703.1	21	36	18	36	27.6	27.9	27.6	32.9	34.3	36.1	.224	5.8	5.8	4.0	ST
55129	10/17/93	1523	2704.1	9705.7	20	32	16	32	27.3	27.9	28.0	30.1	34.1	36.1	.424	6.0	5.0	4.5	ST
55130	10/17/93	1725	2702.1	9642.3	20	85	44	84	27.7	27.6	19.6	33.3	36.2	36.5	.117	5.9	5.7	3.0	ST
55131	10/17/93	1957	2709.5	9639.2	20	82	41	81	27.6	27.3	19.9	32.7	36.2	36.8	.162	5.8	5.7	3.7	ST
55133	10/17/93	2341	2701.9	9634.3	20	115	57	114	27.6	24.4	17.5	33.3	36.3	36.3	.104	5.5	6.4	3.3	ST/PN
55134	10/18/93	0326	2651.5	9645.2	21	73	36	73	27.8	28.1	19.7	34.2	36.1	36.6	.243	5.6	5.5	3.6	ST
55135	10/18/93	705	2703.5	9653.2	20	54	27	53	27.5	28.1	22.5	33.1	36.0	36.8	.181	5.8	5.7	4.4	ST
55136	10/18/93	1019	2709.8	9705.3	20	31	15	30	27.2	27.8	27.9	31.2	34.2	36.1	.224	5.7	5.7	5.0	ST
55138	10/18/93	1134	2712.8	9700.4	20	38	19	38	27.1	28.1	27.9	30.0	35.4	36.1	.288	5.6	5.1	4.8	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55103	10/15/93	1702	2629.7	9659.8	21	34	18	33	28.0	28.0	28.2	33.9	34.5	36.2	.286	5.9	5.7	4.8	PN
55139	10/18/93	1435	2724.0	9711.2	20	20	10	19	27.5	27.5	28.0	31.4	31.7	35.4	.461	5.8	5.7	4.0	ST
55141	10/18/93	1518	2722.8	9707.1	20	28	14	27	27.3	27.5	28.0	29.8	33.3	36.0	.424	6.1	5.9	4.8	ST
55143	10/18/93	1733	2727.9	9712.9	20	18	9	16	27.6	27.6	27.9	31.7	31.7	35.2	.660	5.8	5.8	4.7	ST
55145	10/18/93	1939	2724.3	9711.7	20	21	10	18	27.6	27.6	27.9	31.7	31.7	34.5	.523	5.7	5.8	5.4	ST
55147	10/18/93	2357	2733.1	9650.1	20	37	16	35	27.1	27.6	28.0	30.1	33.8	35.9	.324	5.8	5.8	3.6	ST
55148	10/19/93	149	2742.8	9652.9	20	25	12	24	27.3	27.3	27.5	30.5	30.6	33.6	.393	5.7	5.7	4.8	ST
55149	10/19/93	505	2750.6	9659.3	20	13	7	11	27.2	27.9	27.3	30.9	30.9	31.5	.829	5.8	5.8	5.7	ST
55150	10/19/93	817	2748.2	9700.1	20	13	6	12	27.2	27.2	27.3	31.2	31.2	31.8	.854	5.4	5.5	5.5	ST
55151	10/19/93	1251	2742.5	9650.1	20	28	14	25	27.2	27.1	27.6	30.6	31.1	33.8	.517	5.1	5.7	4.8	ST
55152	10/19/93	1450	2740.2	9650.2	20	28	14	27	27.3	27.2	27.7	30.4	30.9	34.5	.474	5.9	5.8	4.1	ST
55153	10/19/93	1939	2752.7	9647.6	20	21	10	19	27.2	27.2	27.3	30.6	30.6	32.5	.492	6.0	6.0	4.4	ST
55154	10/19/93	2107	2745.1	9644.5	20	32	15	29	27.1	27.1	27.8	30.1	33.1	34.7	.361	5.8	5.8	4.9	ST
55155	10/20/93	220	2754.2	9627.1	20	35	17	35	27.0	27.6	27.8	29.1	34.6	36.0	.411	5.8	5.4	4.0	ST
55156	10/20/93	818	2747.2	9629.4	20	45	23	43	26.8	28.1	26.1	29.3	35.9	36.7	.424	5.9	3.8	5.2	ST
55157	10/20/93	1140	2752.4	9639.8	20	28	14	26	27.2	27.2	27.5	30.6	30.6	34.0	.623	5.9	5.9	5.0	ST
55158	10/20/93	1357	2758.5	9645.2	20	17	9	16	27.3	27.3	27.3	30.8	30.8	32.3	.789	5.5	5.7	4.3	ST
55159	10/20/93	1704	2800.5	9630.3	19	26	11	25	27.0	27.2	27.9	28.4	30.4	35.2	.617	6.0	5.9	4.6	PN
55160	10/21/93	26	2807.1	9629.7	19	22	11	21	26.7	27.1	27.3	29.3	31.6	33.8	.893	5.9	5.7	4.5	ST
55161	10/21/93	0457	2805.5	9628.1	19	22	11	21	26.6	26.7	27.3	30.2	31.2	33.8	.517	2.9	5.9	4.8	ST
55162	10/21/93	830	2802.9	9631.0	19	22	10	20	26.5	26.6	27.2	31.0	31.0	32.5	.617	5.9	5.8	5.2	ST
55163	10/21/93	1412	2816.1	9613.3	19	22	11	21	26.5	26.6	27.0	32.6	32.6	33.2	.631	5.7	5.7	5.5	ST
55164	10/21/93	1635	2815.3	9607.5	19	23	11	22	26.6	26.6	26.6	32.2	32.3	32.3	.537	5.8	5.8	5.7	ST
55165	10/21/93	2021	2831.5	9600.7	19	12	5	11	25.6	25.6	25.7	27.6	27.6	27.6	2.093	5.4	5.5	5.5	ST
55166	10/21/93	2209	2827.5	9607.1	19	14	7	14	25.5	25.5	25.9	27.1	27.0	27.5	1.378	3.8	4.9	5.1	ST
55167	10/22/93	128	2802.2	9619.3	19	32	16	32	26.5	26.5	27.6	33.3	33.3	35.0	.573	5.3	5.6	4.1	ST
55168	10/22/93	0542	2741.1	9614.1	20	84	42	81	26.9	27.3	21.1	34.1	36.1	36.4	.642	5.6	5.1	3.6	ST
55169	10/22/93	814	2739.7	9611.8	20	93	46	92	26.9	27.0	20.3	34.1	36.3	36.4	.343	5.7	5.2	3.7	ST
55171	10/22/93	1221	2742.7	9617.4	20	68	34	68	26.7	28.0	23.0	33.9	36.1	36.3	.299	5.9	5.6	5.0	ST
55172	10/22/93	1611	2807.8	9605.7	19	30	15	28	25.9	26.0	26.1	32.7	32.7	32.9	.712	6.0	5.9	5.7	ST
55173	10/22/93	1829	2759.9	9600.4	20	45	22	44	26.3	26.7	27.8	34.1	34.6	36.0	.324	5.9	5.7	4.3	PN
55174	10/22/93	2033	2806.6	9557.2	19	37	18	36	26.6	26.8	27.9	34.3	34.5	35.9	.349	5.7	5.7	4.7	ST
55175	10/22/93	2244	2809.7	9552.1	19	35	17	34	25.7	26.3	27.8	31.6	33.3	35.5	.804	5.9	5.7	4.7	ST
55178	10/23/93	455	2802.8	9521.7	19	55	27	54	26.8	26.8	26.1	35.5	35.5	36.2	.262	5.7	5.7	5.0	ST/PN
55179	10/23/93	0810	2751.6	9523.5	20	85	43	84	27.0	27.0	21.8	36.3	36.3	36.4	.162	5.1	5.7	5.0	ST
55180	10/23/93	1202	2755.9	9543.7	20	55	27	54	27.1	27.1	26.8	35.9	35.9	36.1	.224	5.6	5.6	5.5	ST
55182	10/23/93	1614	2807.8	9552.9	19	36	18	35	25.9	25.2	27.4	31.9	33.7	34.6	.798	5.9	5.6	4.5	ST
55183	10/23/93	1737	2817.5	9552.4	19	25	12	24	25.3	25.6	25.7	30.4	31.0	31.4	1.481	5.9	5.8	5.5	ST
55184	10/23/93	2206	2834.7	9528.9	19	24	12	24	25.1	25.1	25.2	30.1	30.1	30.1	.817	5.2	5.5	5.6	ST/PN

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55185	10/24/93	13	2833.5	9514.3	19	29	15	29	25.3	26.0	26.8	32.1	33.6	34.3	.785	5.8	5.7	4.9	ST
55186	10/24/93	237	2840.7	9527.6	19	19	9	19	24.1	24.2	24.6	26.7	26.9	27.7	2.218	6.1	6.1	5.6	ST
55187	10/24/93	436	2841.4	9542.1	19	12	6	11	23.5	23.5	23.5	25.4	25.4	25.5	1.620	6.3	6.3	6.3	ST
55188	10/24/93	803	2837.5	9549.5	19	8	4	7	23.4	23.4	23.4	25.9	25.9	25.9	3.177	6.0	6.0	6.0	ST
55189	10/24/93	1111	2843.6	9526.1	19	18	9	18	23.5	23.6	23.8	24.9	25.1	25.3	1.553	6.1	6.0	6.0	ST
55190	10/24/93	1342	2834.3	9512.2	19	29	15	29	25.1	26.0	25.9	30.5	33.8	33.9	1.383	5.6	5.7	5.6	ST
55191	10/24/93	1609	2820.8	9525.2	19	32	17	31	26.1	26.2	26.4	34.5	34.9	35.4	.380	5.9	5.8	5.7	ST
55192	10/24/93	1740	2815.2	9518.5	19	46	22	45	26.6	26.6	26.6	36.0	36.1	36.1	.224	5.8	5.7	5.7	ST
55193	10/24/93	2209	2823.4	9500.4	19	37	18	37	27.0	27.0	26.8	35.7	35.7	35.8	.729	5.1	5.4	5.4	ST/PN
55195	10/25/93	0253	2823.9	9441.9	18	40	20	40	26.5	26.6	26.6	35.8	35.8	35.8	.399	5.5	5.5	5.5	ST
55198	10/25/93	0835	2757.9	9500.3	19	82	41	82	26.5	26.6	22.9	36.1	36.1	36.3	.424	3.9	5.6	4.9	PN
55199	10/25/93	1104	2757.9	9448.5	18	96	48	96	26.5	26.5	21.3	36.2	36.2	36.3	.243	5.7	5.8	4.5	ST
55200	10/25/93	1241	2802.2	9445.7	18	74	37	74	26.3	26.3	23.6	36.1	36.1	36.3	.172	5.7	5.7	4.7	ST
55201	10/25/93	1523	2755.1	9442.0	18	119	60	119	26.5	25.6	19.5	36.2	36.9	36.4	.221	5.8	5.9	3.5	ST
55203	10/25/93	2113	2758.6	9429.8	18	75	37	75	26.6	26.6	22.8	36.2	36.2	36.3	.212	5.8	5.8	5.3	ST/PN
55205	10/26/93	0203	2756.5	9418.7	18	90	45	90	26.5	26.6	21.3	36.0	36.1	36.4	.224	5.7	5.8	4.4	ST
55207	10/26/93	0554	2801.7	9405.1	18	73	36	73	26.6	26.6	22.9	35.9	36.0	36.3	.193	5.7	5.8	4.9	ST
55208	10/26/93	0823	2759.4	9415.6	18	86	43	85	25.5	26.6	22.5	36.0	36.0	36.4	.430	5.2	5.7	5.0	ST
55209	10/26/93	1013	2803.1	9415.4	18	64	32	64	26.6	26.6	23.8	36.0	36.0	36.3	.312	5.5	5.8	5.2	ST
55212	10/26/93	1612	2829.9	9427.8	18	37	17	36	26.3	26.2	26.2	35.9	35.9	35.9	.491	5.8	5.8	5.7	ST/PN
55213	10/26/93	2031	2830.0	9400.5	18	41	20	40	26.4	26.4	26.3	36.0	36.0	36.1	.112	5.7	5.8	5.7	PN
55214	10/26/93	2210	2837.1	9400.4	18	34	17	33	26.2	26.3	26.3	35.8	35.8	35.9	.411	5.8	5.8	5.8	ST
55215	10/27/93	118	2859.6	9400.1	18	20	10	20	25.2	25.3	25.3	33.6	33.6	33.8	.536	5.9	5.9	5.7	PN
55216	10/27/93	427	2859.9	9429.1	18	18	9	17	24.8	24.8	24.9	33.2	33.2	33.4	.710	6.2	6.2	6.0	PN
55217	10/28/93	1744	2917.8	9431.3	18	15	8	14	22.7	22.6	24.4	26.9	27.0	32.1	7.289	8.6	8.4	5.5	ST
55218	10/28/93	2229	2849.8	9435.1	18	20	10	20	24.8	24.8	24.8	34.0	34.0	34.1	.424	6.3	6.4	6.4	ST
55219	10/29/93	206	2842.7	9458.7	18	25	12	24	24.3	24.5	25.2	32.7	33.6	34.7	1.202	6.2	6.5	6.3	ST
55220	10/29/93	0538	2859.5	9505.7	19	15	8	14	22.6	23.1	24.4	24.0	28.0	30.9	6.175	7.9	8.2	5.0	ST/PN
55221	10/29/93	801	2852.7	9504.8	19	19	9	19	22.5	23.6	24.1	24.1	30.5	32.0	5.233	7.6	7.2	6.0	ST
55222	10/29/93	1335	2854.8	9428.2	18	18	9	17	24.6	24.6	24.6	33.7	33.7	33.7	.336	6.3	6.3	6.3	ST
55224	10/29/93	1706	2841.7	9454.5	18	30	14	28	25.7	25.7	25.8	35.8	35.8	35.8	.598	5.7	6.0	6.0	ST
55225	10/29/93	2314	2915.7	9339.7	17	14	7	14	23.4	23.4	24.2	29.6	29.6	30.1	1.327	6.3	6.4	6.2	ST
55226	10/30/93	522	2922.2	9350.1	17	9	6	8	22.8	22.8	22.8	29.8	29.8	29.8	2.336	6.6	6.5	6.6	ST
55227	10/30/93	1021	2932.3	9406.3	18	10	5	10	21.8	21.7	21.8	26.7	26.3	26.6	6.355	6.0	4.5	5.7	ST
55228	10/30/93	1420	2920.4	9351.2	17	13	7	12	22.4	22.4	22.5	30.2	30.2	30.2	2.533	6.5	6.5	6.5	ST
55229	10/30/93	1712	2909.7	9340.2	17	18	9	17	23.1	23.1	23.3	31.1	31.1	31.2	1.973	6.4	6.4	6.3	ST
55230	10/30/93	1751	2914.0	9339.7	17	15	8	14	22.5	22.7	22.8	30.1	30.2	30.4	2.803	6.3	6.2	6.2	ST
55231	10/30/93	2136	2910.6	9354.2	17	16	8	16	22.7	22.7	22.7	29.3	31.7	31.7	1.474	6.6	6.5	6.6	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55232	10/31/93	213	2907.0	9310.4	17	21	10	20	23.6	23.6	25.1	32.5	32.5	34.3	1.015	6.2	6.2	5.4	ST
55233	10/31/93	407	2905.3	9306.3	17	23	12	21	23.5	23.5	24.5	32.6	32.6	34.2	.984	5.6	6.2	6.0	ST
55234	10/31/93	530	2906.0	9258.1	16	20	10	18	23.3	23.4	23.6	32.3	32.3	32.3	1.196	6.2	6.2	5.4	ST
55235	10/31/93	755	2904.4	9311.0	17	22	11	22	23.4	23.4	23.8	33.0	33.0	33.7	1.508	6.3	6.3	6.2	ST
55236	10/31/93	1008	2900.4	9321.8	17	20	10	20	23.3	23.3	23.3	33.4	33.4	33.5	1.051	6.3	6.2	6.3	ST/PN
55237	10/31/93	1420	2853.4	9306.4	17	24	12	24	23.0	23.3	23.9	33.9	34.3	35.2	.953	6.7	6.6	6.4	ST/PN
55238	10/31/93	1554	2848.5	9301.0	17	31	15	30	24.0	24.1	30.0	35.5	35.5	35.5	.305	6.3	6.3	6.3	ST
55240	10/31/93	2029	2842.1	9333.6	17	28	14	28	23.2	23.5	24.1	34.1	34.2	35.0	.380	6.7	6.6	6.3	ST
55242	10/31/93	2223	2830.1	9323.8	17	42	21	42	25.1	25.1	25.1	36.0	36.0	36.0	.274	6.2	6.2	6.1	ST/PN
55244	11/ 1/93	312	2825.7	9303.5	17	45	22	42	24.9	24.9	24.9	35.9	35.9	35.9	.280	6.0	6.0	6.0	ST
55245	11/ 1/93	0650	2838.1	9306.0	17	36	18	35	24.3	24.3	24.3	38.6	38.6		.355	6.6	6.7	6.7	ST
55247	11/ 1/93	936	2842.7	9258.0	16	33	16	33	23.9	23.9	23.9	35.7	35.7	35.7	.318	6.4	6.3	6.3	ST/PN
55248	11/ 1/93	1504	2810.6	9253.2	16	72	36	71	24.9	24.9	21.0	36.0	36.0	36.4	.255	6.3	6.3	4.8	ST/PN
55249	11/ 1/93	1906	2804.3	9313.4	17	92	46	89	24.8	24.8	19.6	35.9	35.9	36.5	.399	6.2	6.2	4.0	ST
55250	11/ 1/93	2045	2810.0	9308.1	17	72	36	72	24.9	24.9	20.5	36.0	36.0	36.6	.772	6.1	6.1	4.6	ST
55251	11/ 2/93	58	2815.0	9239.7	16	61	30	60	24.7	24.8	22.0	36.0	36.0	36.4	.393	6.2	6.3	5.1	ST
55252	11/ 2/93	356	2829.9	9230.1	16	51	25	49	24.7	24.7	24.2	36.0	36.0	36.1	.763	5.3	5.8	5.9	ST
55253	11/ 2/93	0703	2827.4	9219.2	16	54	27	52	24.8	24.4	23.1	36.0	36.0	36.3	.424	6.1	6.1	4.5	ST
55258	11/ 2/93	1324	2810.7	9219.6	16	74	37	73	25.0	25.1	20.1	36.0	36.0	36.4	.212	6.0	6.3	4.3	ST
55259	11/ 2/93	1626	2807.5	9208.5	16	92	46	87	25.9	25.8	19.8	36.2	36.2	36.5	.137	6.1	6.1	4.2	ST
55260	11/ 2/93	1933	2805.8	9222.1	16	90	45	88	25.2	25.2	19.3	36.0	36.0	36.5	.184	6.2	6.2	4.0	ST
55263	11/ 3/93	10	2817.5	9211.7	16	65	32	63	24.9	24.9	21.5	36.0	36.0	36.4	.698	6.3	6.2	5.1	ST
55264	11/ 3/93	451	2833.7	9235.6	16	40	20	39	24.4	24.4	24.4	35.9	35.9	35.9	.467	6.0	6.0	6.0	ST
55265	11/ 3/93	716	2833.8	9229.6	16	41	20	39	24.4	24.4	24.4	35.9	35.9	35.9	.730	6.1	6.1	6.0	ST/PN
55267	11/ 3/93	949	2832.1	9224.4	16	48	24	48	24.5	24.5	24.5	36.0	36.0	36.0	.530	6.2	6.2	6.2	ST
55268	11/ 3/93	1340	2832.0	9201.9	16	46	23	45	24.8	24.8	24.7	36.0	36.0	36.0	.573	6.1	6.1	6.1	ST/PN
55272	11/ 3/93	1850	2843.9	9223.1	16	37	18	35	24.2	24.3	24.4	35.2	35.5	35.8	1.542	6.1	6.2	6.1	ST
55273	11/ 3/93	2252	2839.9	9255.9	16	34	17	34	24.0	24.0	24.0	35.9	35.9	35.9	.660	6.4	6.4	6.4	ST
55274	11/ 4/93	219	2852.3	9234.0	16	30	15	29	23.1	23.6	23.9	33.8	34.8	35.5	4.966	6.9	6.7	6.3	ST
55275	11/ 4/93	0401	2857.0	9227.3	16	28	14	27	22.0	22.1	25.0	31.8	31.8	34.3	6.096	7.8	7.5	4.0	ST
55277	11/ 4/93	0554	2909.4	9217.2	16	12	6	10	19.7	20.4	20.7	26.4	28.9	30.3	4.465	7.2	6.7	6.5	ST
55278	11/ 4/93	656	2907.6	9218.0	16	15	7	13	19.8	20.8	21.3	27.2	30.2	31.7	4.205	6.9	6.7	6.3	ST
55279	11/ 4/93	836	2908.8	9228.0	16	18	9	18	20.3	20.8	21.0	29.4	30.1	31.0	4.361	7.0	7.1	6.0	ST
55280	11/ 4/93	1228	2931.3	9243.7	16	11	5	10	17.8	17.8	16.6	27.4	27.5	27.2	7.990	7.8	7.8	7.0	ST/PN
55281	11/ 4/93	1925	2900.0	9154.1	15	17	9	15	21.7	21.7	21.0	30.0	30.0	30.1	10.728	8.8	8.7		ST
55282	11/ 4/93	2128	2901.7	9201.3	16	18	9	18	21.9	21.9	21.4	30.7	30.7	31.0	7.557	8.1	8.0	6.3	ST/PN

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY

STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55283	11/ 5/93	34	2900.1	9219.6	16	24	12	24	22.2	22.3	21.9	31.1	31.5	31.8	7.831	7.5	7.8	5.9	ST
55285	11/ 5/93	0251	2850.3	9219.6	16	31	15	30	22.9	24.3	24.5	31.6	34.9	35.2	8.820	7.2	6.4	6.1	ST
55287	11/ 5/93	553	2840.0	9230.0	16	26	13	24	22.3	22.4	24.3	31.6	31.8	33.2	6.347	7.1	7.2	6.5	PN
55288	11/ 5/93	733	2852.1	9232.1	16	29	14	27	22.6	23.2	24.1	31.7	33.0	34.8	7.268	7.2	6.7	5.3	ST
55289	11/ 5/93	1037	2855.4	9214.0	16	26	13	26	23.1	23.3	24.8	31.9	32.8	34.5	6.479	7.3	7.3	4.8	ST
55290	11/ 5/93	1227	2848.5	9212.2	16	31	16	31	24.5	24.4	24.6	34.5	34.8	35.2	3.325	6.5	6.3	6.3	ST
55291	11/ 5/93	1623	2900.6	9146.4	15	14	7	13	21.6	21.4	23.0	29.7	29.7	31.4	10.876	8.3	7.7	3.7	ST
55292	11/ 5/93	1804	2853.6	9147.3	15	23	12	22	21.7	23.5	21.9	29.6	30.8	25.2	9.189	8.0	6.0	3.0	ST
55293	11/ 5/93	2020	2841.1	9149.0	15	34	17	32	21.6	25.5	24.8	28.7	35.2	35.5	15.862	8.9	5.1	6.2	ST
55294	11/ 5/93	2157	2836.2	9157.1	15	41	20	41	23.0	24.7	24.7	30.6	35.9	36.0	15.468	7.9	6.3	5.9	ST
55295	11/ 6/93	54	2819.6	9155.8	15	65	32	64	24.7	24.7	21.3	36.0	36.0	36.4	1.402	6.3	6.2	4.9	ST
55298	11/ 6/93	0808	2801.1	9206.1	16	108	55	98	25.7	23.2	19.2	36.2	36.5	36.4	.922	6.0	6.0	4.1	ST
55299	11/ 6/93	1324	2814.0	9149.5	15	76	38	75	24.9	24.9	19.8	36.0	36.0	36.4	.183	6.2	6.3	4.2	ST
55301	11/ 6/93	1838	2806.1	9132.3	15	114	57	100	25.7	25.6	18.9	36.2	36.2	36.4	.193	6.1	6.1	4.2	ST
55302	11/ 6/93	2310	2822.9	9112.1	15	56	28	56	23.0	25.0	22.4	33.0	36.0	37.2	3.458	7.2	6.2	6.1	ST
55303	11/ 7/93	100	2831.1	9114.6	15	35	17	34	23.4	23.5	24.8	34.1	34.0	35.2	4.579	6.2	6.2	4.7	ST
55304	11/ 7/93	0338	2834.6	9121.0	15	35	17	34	23.0	23.1	25.3	33.7	33.7	35.9	2.702	6.5	6.4	4.1	ST
55305	11/ 7/93	544	2848.4	9128.8	15	20	10	18	19.7	20.0	24.2	28.6	28.8	34.4	6.214	6.6	6.7	4.9	ST
55306	11/ 7/93	729	2847.5	9127.1	15	20	10	18	19.5	20.0	18.2	28.9	28.9	25.3	5.981	7.0	6.8	4.1	ST
55307	11/ 7/93	953	2836.3	9118.1	15	29	14	29	21.9	22.0	23.9	33.1	33.1	34.7	2.502	6.5	6.5	4.8	ST
55308	11/ 7/93	1050	2831.6	9116.6	15	38	19	37	23.6	23.7	24.9	34.5	34.6	35.9	2.181	6.2	6.1	4.9	ST
55310	11/ 7/93	1542	2810.1	9142.2	15	82	42	78	24.4	24.4	20.0	36.0	36.0	36.4	.174	6.3	6.3	4.3	ST
55311	11/ 7/93	1907	2829.4	9130.3	15	48	24	46	23.0	24.1	24.9	34.0	35.0	36.0	2.590	6.9	6.0	5.8	PN
55312	11/ 7/93	2330	2852.6	9118.5	15	12	6	12	19.7	19.7	21.1	31.4	31.5	32.0	5.586	6.5	6.5	5.2	ST/PN
55314	11/ 8/93	331	2847.5	9055.4	14	16	8	14	21.7	21.7	21.7	32.2	32.2	32.2	3.364	6.7	6.7	6.6	ST
55315	11/ 8/93	636	2852.2	9046.3	14	13	7	11	21.0	21.0	21.2	31.6	31.6	31.6	5.316	6.6	6.6	6.6	ST
55316	11/ 8/93	0859	2832.8	9042.1	14	26	13	26	22.8	22.8	22.8	32.5	32.5	32.7	7.022	6.9	6.9	6.8	ST
55317	11/ 8/93	1015	2831.5	9036.1	14	33	16	33	22.5	22.7	24.6	32.4	32.5	35.9	4.877	7.3	7.2	3.8	ST
55318	11/ 8/93	1106	2827.0	9035.8	14	41	21	41	22.7	24.0	24.9	32.5	33.6	35.4	5.005	7.2	6.4	5.1	ST
55320	11/ 8/93	1411	2824.9	9054.8	14	41	20	40	23.4	23.5	25.3	33.7	33.8	35.4	3.065	6.7	6.6	4.9	ST
55321	11/ 8/93	1637	2811.1	9040.9	14	95	47	93	24.7	24.8	17.1	36.0	36.1	36.3	.243	6.3	6.2	3.7	ST
55322	11/ 8/93	1946	2815.2	9059.3	14	74	37	71	24.3	24.3	19.9	36.0	36.0	36.7	.361	6.3	6.3	4.7	ST
55323	11/ 8/93	2309	2831.2	9059.9	14	36	18	36	23.2	23.2	24.5	33.1	33.4	34.7	3.167	6.6	6.7	5.2	ST/PN
55325	11/ 9/93	1	2834.4	9059.7	14	24	12	23	22.8	22.8	22.8	32.8	32.8	33.3	2.887	6.9	6.8	6.4	ST
55327	11/ 9/93	403	2843.3	9029.6	14	18	9	18	21.8	21.8	22.6	31.5	31.5	32.4	4.423	7.0	7.0	6.9	ST
55329	11/ 9/93	827	2855.6	9018.0	14	19	9	19	21.4	21.4	21.9	30.6	30.7	31.4	8.421	7.0	7.2	6.4	ST
55330	11/ 9/93	936	2854.2	9017.0	14	21	10	21	21.4	21.4	22.1	30.3	30.4	31.5	1.931	6.9	6.9	6.9	ST
55331	11/ 9/93	1104	2853.5	9012.1	14	24	12	24	21.3	21.4	22.1	29.9	30.1	31.4	.763	6.9	6.9	6.2	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)			TEMPERATURE, C			SALINITY, PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR		MID	MAX		
55332	11/ 9/93	1241	2848.3	9011.3	14	30	15	29	21.5	21.7	23.7	30.3	30.4	32.2	.694	6.8	6.9	5.0	ST	
55334	11/ 9/93	1545	2842.5	8958.1	13	54	27	53	22.5	25.3	20.8	32.1	35.5	36.3	1.425	6.5	5.2	3.0	ST	
55335	11/ 9/93	1633	2839.8	8957.4	13	66	36	61	23.6	25.1	20.2	33.6	35.7	36.4	3.691	6.4	5.2	3.8	ST	
55337	11/ 9/93	2149	2814.8	9024.5	14	73	36	73	24.2	24.8	19.3	34.3	35.4	36.4	2.068	6.1	5.3	3.4	ST	
55338	11/ 9/93	2258	2813.0	9027.1	14	78	34	78	23.8	24.6	19.0	34.5	34.9	36.4	1.570	6.2	5.9	3.5	ST	
55339	11/10/93	0140	2830.1	9029.9	14	39	19	37	23.6	24.3	24.2	34.3	34.9	35.1	3.302	6.3	6.2	6.1	PN	
55340	11/10/93	412	2837.1	9025.1	14	29	15	28	22.3	23.0	23.4	32.0	33.3	34.1	3.240	6.5	6.6	6.5	ST	
55341	11/10/93	846	2850.3	8948.8	13	55	27	55	21.9	23.4	20.7	31.4	33.4	36.3	1.190	6.5	6.4	3.4	ST	
55342	11/10/93	1159	2912.0	8958.0	13	9	4	9	19.5	19.4	19.4	30.8	30.8	30.8	9.179	6.8	6.8	6.8	ST	
55343	11/10/93	1226	2910.8	8956.3	13	13	6	11	20.3	20.2	20.1	30.9	31.0	31.1	4.336	7.3	7.3	6.9	ST	
55344	11/10/93	1426	2903.7	8947.1	13	31	15	30	20.2	21.4	24.1	28.9	30.5	35.0	1.857	7.4	7.0	1.8	ST	
55345	11/10/93	1640	2901.2	8936.2	13	21	11	20	20.3	20.3	20.1	28.9	29.0	24.5	4.911	7.9	7.6	4.3	ST	
55347	11/10/93	1738	2900.1	8929.9	13	15	7	14	20.1	20.2	23.3	29.6	29.6	32.8	7.305	7.6	7.6	5.0	PN	
55348	11/10/93	2154	2900.1	8900.0	13	68	34	68	15.9	23.7	19.8	24.2	34.9	36.9	2.658	7.8	6.5	3.2	PN	
55349	11/12/93	1819	3006.9	8832.0	11	17	8	16	19.4	19.4	19.4	32.6	32.7	32.7	.934	9.3	6.6	5.7	ST	
55350	11/12/93	2038	2957.8	8834.3	11	23	11	23	20.4	20.6	21.4	33.3	33.4	34.0	.675	5.5	6.4	6.4	ST	
55351	11/13/93	22	2958.6	8814.1	11	31	15	30	22.0	22.0	22.0	34.1	34.1	34.1	.623	4.5	6.1	6.6	ST	
55352	11/13/93	0156	3000.0	8801.1	11	24	12	23	21.3	21.3	21.3	33.6	33.6	33.6	.862	5.5	6.6	6.5	PN	
55353	11/13/93	422	2955.9	8814.8	11	34	17	33	22.1	22.1	22.0	34.2	34.2	34.2	1.578	5.1	6.5	6.5	ST	
55354	11/13/93	936	2915.1	8821.0	11	90	47	87	22.9	23.4	19.8	35.0	35.5	36.4	4.168	5.9	3.9	3.9	ST	
55355	11/13/93	1119	2914.9	8830.0	11	88	43	86	23.3	23.6	19.5	35.2	36.0	36.4	.642	5.7	4.2	3.6	ST	
55356	11/13/93	1801	2859.2	8931.9	13	20	9	20	20.7	20.7	24.3	24.9	30.5	28.5	.798	5.7	3.2	2.6	ST	
55357	11/13/93	1828	2857.8	8931.9	13	45	22	45	20.7	24.5	23.9	25.4	35.0	35.6	.312	5.4	5.2	4.8	ST	
55358	11/13/93	2210	2913.0	8949.9	13	13	6	13	21.0	21.0	19.7	29.6	29.8	31.0	1.252	6.3	5.6	5.5	ST	
55359	11/14/93	0041	2905.4	9001.0	14	16	8	15	21.8	21.8	21.8	30.6	30.6	31.0	.872	5.6	5.6	6.3	ST	
55360	11/14/93	0138	2900.6	9000.4	14	24	12	21	21.1	21.8	22.0	29.8	30.9	31.3	.488	5.0	6.6	6.1	PN	
55361	11/14/93	1313	2922.3	8808.0	11	66	32	64	23.2	23.8	20.9	35.0	36.0	36.4	.257	4.8	4.3	3.7	ST	
55362	11/14/93	1508	2931.9	8803.7	11	41	20	40	23.5	23.3	23.3	35.1	35.1	35.8	.789	5.8	6.3	4.5	ST	
55363	11/14/93	1625	2929.6	8759.9	11	47	23	46	23.4	23.4	22.9	35.0	35.4	36.0	.617	4.4	5.9	4.0	PN	
55364	11/14/93	1822	2922.6	8804.0	11	83	41	83	23.4	24.3	20.2	35.0	36.0	36.4	.240	4.6	6.1	3.6	ST	
55365	11/14/93	2054	2919.1	8815.0	11	80	39	78	23.0	23.7	20.1	34.9	35.8	36.4	.224	5.8	6.0	3.9	ST	
55366	11/14/93	2247	2914.3	8821.0	11	140	68	136	23.2	21.1	17.0	35.0	36.5	36.3	.592	8.0	4.5	3.8	ST	
55367	11/15/93	203	2911.4	8843.2	11	72	35	69	23.6	24.2	20.3	35.1	35.9	36.4	.252	5.0	6.0	3.2	ST	
55368	11/15/93	524	2908.2	8854.4	11	46	23	45	22.2	22.4	22.1	32.3	34.5	34.7	1.973	5.2	6.1	6.2	ST	
55370	11/15/93	810	2905.5	8858.8	11	25	13	23	18.5	21.5	20.8	31.1	34.4	34.1	4.361	5.1	6.4	6.4	ST	
55371	11/15/93	1058	2917.3	8838.0	11	65	32	63	23.7	23.2	21.9	35.0	35.2	36.3	1.439	6.6	6.2	2.8	ST	
55373	11/15/93	1501	2915.7	8852.1	11	55	26	52	22.4	22.0	22.0	33.0	34.6	34.6	3.177	5.4	6.4	6.3	ST	
55374	11/15/93	1737	2914.9	8857.3	11	25	12	25	22.3	22.6	21.3	32.9	34.4	33.3	2.990	4.9	6.1	6.3	ST	

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
55375	11/15/93	1838	2917.9	8852.2	11	45	22	42	22.5	22.4	22.3	31.6	34.8	34.7	8.182	5.6	6.2	6.3	ST
55376	11/15/93	2033	2924.3	8850.0	11	22	11	21	22.1	22.1	22.1	34.4	34.4	34.5	1.049	5.0	6.1	6.3	ST
55377	11/15/93	2146	2923.3	8847.0	11	37	18	37	22.4	22.2	22.4	34.4	34.5	34.6	.706	5.1	6.3	6.4	ST
55378	11/15/93	2241	2926.5	8848.0	11	19	9	18	22.0	22.0	22.1	34.2	34.2	34.3	6.043	4.9	6.3	6.4	ST
55379	11/15/93	2327	2927.4	8848.1	11	20	9	19	21.7	21.7	21.8	33.9	34.0	34.0	1.682	4.9	6.4	6.5	ST
55380	11/16/93	148	2932.0	8836.0	11	35	17	33	22.7	22.5	22.4	34.1	34.5	34.5	.257	6.1	5.4	6.1	ST
55381	11/16/93	234	2933.6	8834.0	11	46	22	44	22.9	22.5	22.6	34.6	34.7	23.8	.300	8.0	5.9	4.7	ST
55382	11/16/93	0405	2933.3	8823.2	11	47	24	46	23.2	23.1	23.5	34.6	35.2	35.8	.181	5.6	6.4	4.4	ST
55383	11/16/93	654	2934.0	8830.1	11	46	23	46	23.0	22.7	22.6	34.5	35.0	35.3	.166	4.7	5.8	4.6	ST
55386	11/16/93	1155	2923.0	8847.0	11	38	19	38	22.8	22.4	22.3	34.2	34.4	34.4	.862	5.6	6.4	6.3	ST
55387	11/16/93	1323	2931.0	8840.7	11	24	12	23	22.8	22.6	22.2	34.3	34.4	34.2	.274	5.2	5.7	6.3	ST
55388	11/16/93	1423	2934.0	8837.0	11	27	14	27	23.0	22.8	22.8	34.5	34.6	34.6	.581	5.0	4.9	6.1	ST
55389	11/16/93	1546	2937.2	8830.0	11	40	19	38	23.5	23.0	22.9	34.7	34.6	34.8	.187	5.4	5.1	5.6	ST
55390	11/16/93	1802	2954.1	8833.7	11	27	13	26	22.6	22.5	22.4	34.3	34.3	34.5	2.224	5.2	5.3	6.1	ST
55391	11/16/93	2052	3008.6	8850.6	11	13	6	13	19.2	19.0	18.8	31.5	31.7	31.9	.976	5.1	5.2	6.0	ST
55392	11/17/93	16	3011.2	8827.0	11	9	5	9	20.3	19.8	19.6	31.8	32.3	32.5	1.632	5.8	7.1	6.3	ST
55393	11/17/93	109	3005.6	8824.0	11	18	9	18	22.1	22.1	20.8	33.3	33.8	33.7	.623	4.1	4.4	5.7	ST
55394	11/17/93	0426	3009.5	8807.1	11	12	6	12	19.7	19.7	20.2	29.6	31.4	32.5	1.049	6.0	5.0	6.2	ST
55395	11/17/93	657	3009.6	8807.0	11	14	7	13	19.7	19.3	19.8	30.0	31.4	32.8	2.455	5.3	6.4	6.3	ST
55396	11/17/93	0723	3008.6	8807.6	11	16	8	16	19.8	19.3	20.7	30.0	33.0	32.9	2.471	5.5	6.6	5.9	ST
55397	11/17/93	935	3008.3	8817.3	11	18	9	18	21.0	20.9	20.2	33.0	33.0	33.1	.942	5.1	6.2	6.3	ST
55398	11/17/93	1101	3008.3	8821.7	11	15	6	13	20.4	20.5	20.5	30.5	32.5	33.2	1.142	5.5	5.2	5.3	ST
55399	11/17/93	1205	3003.0	8824.1	11	20	10	19	21.7	21.8	21.5	33.7	33.7	33.7	.732	4.8	6.3	6.2	ST
55400	11/17/93	1407	3001.3	8814.0	11	24	12	23	21.9	21.6	21.1	33.5	33.7	33.6	.492	7.0	5.4	6.0	ST
55401	11/17/93	1611	2957.8	8804.0	11	27	13	26	22.2	21.6	21.5	33.7	33.7	33.8	.336	4.8	6.3	6.3	ST
55402	11/18/93	646	2948.5	8825.4	11	35	17	35	22.4	22.4	22.4	34.2	34.2	34.4	.336	5.5	6.2	5.7	ST
55403	11/18/93	758	2954.1	8832.2	11	27	13	26	22.0	22.0	22.4	34.1	34.1	34.3	.547	5.2	6.3	6.1	ST
55404	11/18/93	1026	2949.9	8846.0	11	11	5	10	19.3	19.3	19.3	31.8	32.1	32.3	1.020	7.7	5.6	5.8	ST
55405	11/18/93	1246	3005.6	8839.9	11	16	8	15	19.5	19.2	19.1	32.1	32.3	32.2	1.153	7.0	5.6	6.0	ST

Table 2. Selected environmental parameters (continued)

A.E. VERRILL, FALL SHRIMP/GROUNDFISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
23001	10/25/93	0847	3010.5	8807.8	11	13	7	13	23.8	23.9	24.5	32.1	32.2	32.7		6.5	6.3	5.9	ST
23002	10/25/93	0953	3012.2	8807.5	11	11	6	11	24.0	24.1	24.9	32.1	32.1	32.7		6.0	6.0	5.8	ST
23003	10/25/93	1141	3008.0	8816.7	11	13	7	13	24.8	24.8	24.8	33.4	33.4	33.4		6.3	6.2	6.2	ST
23004	10/25/93	1302	3008.6	8821.8	11	15	8	15	24.5	24.5	24.6	32.9	32.9	32.9		6.3	6.3	6.2	ST
23005	10/25/93	1402	3003.2	8824.0	11	20	10	20	25.0	25.0	25.0	33.6	33.6	33.6		6.3	6.2	6.2	ST
23006	10/25/93	1815	3014.3	8812.0	11	7	4	7	23.2	23.2	23.9	31.1	31.1	31.6		6.6	6.6	5.9	ST
23007	10/25/93	1925	3009.7	8807.4	11	12	6	12	24.1	24.1	24.1	32.7	32.7	32.7		6.4	6.4	6.4	ST
23008	10/27/93	1007	3001.6	8813.4	11	24	12	24	24.6	24.6	24.8	33.5	33.5	33.6		6.5	6.5	6.4	ST
23009	10/27/93	1100	2959.5	8813.7	11	28	14	28	24.9	24.9	24.9	33.7	33.7	33.7		6.4	6.4	6.3	ST

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, FALL SHRIMP/GROUNDFISH SURVEY

STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
17001	10/28/93	2130	3009.9	8850.7	11	11	5	10	23.2	23.0	23.0	31.9	31.9	31.9	1.832	6.6	6.8	6.6	ST
17002	10/29/93	0031	3014.1	8843.7	11	5	2	4	22.4	22.4	22.4	31.6	31.6	31.6	1.196	8.6	7.0	7.0	ST
17003	10/29/93	0255	3011.3	8826.6	11	10	5	9	22.6	22.7	23.3	30.9	31.1	32.4	.710	6.9	6.8	6.5	ST
17004	10/29/93	0433	3011.7	8825.6	11	7	3	6	22.5	23.1	23.4	30.9	31.9	32.4	.748	7.0	6.8	6.6	ST
17005	10/29/93	0555	3008.8	8824.4	11	17	8	16	23.1	23.3	23.7	32.3	32.4	33.4	.598	6.8	6.7	6.7	ST
17006	10/29/93	0850	3000.0	8830.0	11	26	12	24	24.7	24.8	25.3	34.1	34.1	34.1	.606	6.4	6.3	6.2	PN
17007	10/29/93	1025	2954.1	8830.7	11	28	13	27	24.7	24.8	24.9	34.1	34.3	34.2	.633	5.8	6.0	6.0	ST
17008	10/29/93	1241	2951.1	8825.4	11	33	16	32	25.2	25.1	25.1	34.1	34.2	34.2	.710	6.4	6.4	6.3	ST
17009	11/ 1/93	1836	2926.8	8847.8	11	18	8	17	22.7	22.1	23.4	33.2	33.1	34.0	.860	6.8	7.0	6.4	ST
17010	11/ 1/93	1944	2926.5	8847.2	11	21	10	20	22.6	22.4	23.5	33.3	33.3	34.1	.841	6.6	6.8	7.5	ST
17011	11/ 1/93	2136	2923.1	8846.4	11	34	16	33	23.6	23.5	23.6	33.8	34.3	35.5	.785	6.8	6.6	4.6	ST
17012	11/ 2/93	0010	2924.0	8850.0	11	22	11	21	22.0	23.7	23.1	31.9	34.0	34.5	.692	6.8	6.8	6.5	ST
17013	11/ 2/93	0223	2917.7	8852.0	11	47	23	46	19.5	23.7	17.6	27.8	35.0	36.4	1.047	7.5	5.9	5.3	ST
17014	11/ 2/93	0534	2914.4	8856.6	11	28	14	27	15.1	23.9	23.3	17.5	34.2	35.5	2.187	9.0	6.2	5.3	ST
17015	11/ 2/93	0847	2915.4	8851.2	11	57	27	55	19.4	23.8	17.2	28.0	34.6	36.4	.972	6.2	5.7	5.5	ST
17016	11/ 2/93	1252	2923.2	8847.0	11	37	18	36	23.4	24.0	23.1	33.2	33.9	36.4	.748	6.6	6.3	4.5	ST
17017	11/ 2/93	1450	2931.4	8840.1	11	24	12	23	21.7	21.5	21.4	33.8	33.6	33.6	1.346	7.2	6.8	6.7	ST
17018	11/ 2/93	1701	2934.3	8838.0	11	26	13	25	21.9	21.7	21.6	33.8	33.9	33.9	1.477	7.1	6.9	6.9	ST
17019	11/ 2/93	1853	2932.1	8835.9	11	36	17	35	22.8	22.7	20.8	33.5	33.6	36.3	1.589	6.6	6.6	3.9	ST
17020	11/ 2/93	2059	2930.1	8830.1	11	51	25	50	24.2	24.2	20.8	34.3	35.1	36.4	.766	6.5	6.7	5.4	PN
17021	11/ 2/93	2226	2934.5	8832.9	11	39	19	38	23.4	23.4	20.8	33.8	33.9	36.4	.710	6.9	7.5	4.9	ST
17022	11/ 3/93	0142	2954.2	8834.7	11	24	12	23	23.3	23.2	22.9	34.6	34.7	34.7	.841	6.5	6.5	6.5	ST
17023	11/ 3/93	0633	2939.4	8829.7	11	37	18	36	22.0	22.7	21.5	33.8	34.2	36.4	1.121	6.8		4.4	ST
17024	11/ 3/93	1101	2936.4	8858.9	11	6	2	5	18.5	17.9	17.9	31.5	31.7	32.3	.878	7.8	6.8	7.1	ST
17025	11/ 3/93	1225	2938.9	8855.2	11	8	4	7	17.6	18.6	19.6	30.9	32.2	32.7	1.477	8.2	7.7	7.8	ST
17026	11/ 3/93	1510	2946.1	8851.3	11	4	2	3	19.3	17.8	18.5	31.6	31.7	32.1	1.570	7.7	7.7	7.7	ST
17027	11/ 3/93	1619	2950.3	8847.2	11	10	5	9	21.4	20.9	20.9	33.4	33.3	33.4	1.402	7.0	6.8	6.7	ST

Table 2. Selected environmental parameters (continued)

ARANSAS BAY, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
31001	11/ 3/93	0846	2755.4	9653.3	20	14	7	14	19.9	19.5	20.4	28.9	30.2	31.1			8.0	ST	
31002	11/ 3/93	0922	2757.3	9652.3	20	13	7	13	20.0	20.6	20.7	28.7	30.4	29.9			9.0	ST	
31003	11/ 3/93	0954	2757.3	9650.5	20	15	8	15	20.2	21.6	22.2	28.9	30.4	31.1	8.0	8.0	5.0	ST	
31004	11/ 3/93	1035	2754.3	9647.4	20	20	10	20	21.8	21.8	22.0	30.9	31.9	32.1	7.0	7.0	7.0	ST	
31005	11/ 3/93	1124	2748.2	9654.2	20	20	10	20	21.4	21.6	21.6	30.9	31.6	31.3	8.0	8.0	7.0	ST	
31006	11/ 3/93	1201	2749.2	9656.4	20	17	9	17	21.1	21.9	21.6	30.1	31.6	31.5	8.0	8.0	7.0	ST	
31007	11/ 3/93	1237	2745.3	9658.2	20	20	10	20	21.2	21.2	21.7	30.2	31.1	30.3	7.0	7.0	6.0	ST	
31008	11/ 3/93	1313	2743.3	9659.3	20	20	10	20	21.0	21.1	21.6	30.0	30.8	31.4	5.0	6.0	7.0	ST	
31009	11/22/93	0810	2748.6	9702.4	20	8	4	8	17.3	15.8	15.6	28.5	28.5	28.6	6.0	8.0	8.0	ST	
31010	11/22/93	0845	2747.4	9703.5	20	9	5	9	17.3	15.3	15.2	28.6	28.6	28.6	5.0	7.0	6.0	ST	
31011	11/22/93	0939	2738.5	9707.5	20	14	7	14	16.6	15.4	15.3	29.3	29.3	29.3	2.0	5.0	6.0	ST	
31012	11/22/93	1044	2736.5	9704.6	20	20	10	20	18.1	17.3	17.3	30.7	31.0	31.1	7.0		7.0	ST	
31013	11/22/93	1139	2737.8	9701.4	20	22	11	22	18.4	17.5	17.9	31.3	31.4	32.0	6.0	5.0	7.0	ST	
31014	11/22/93	1230	2740.4	9702.6	20	19	10	19	18.1	17.4	17.4	30.4	30.6	30.8	7.0	6.0	9.0	ST	
31015	11/22/93	1315	2743.5	9702.5	20	16	8	16	17.7	17.0	17.0	29.3	29.7	29.7	5.0	5.0	9.0	ST	
31016	11/22/93	1347	2744.5	9703.5	20	14	7	14	17.6	16.9	17.1	28.9	29.1	29.2	4.0	9.0	8.0	ST	

Table 2. Selected environmental parameters (continued)

MATAGORDA BAY, FALL SHRIMP/GROUNDFISH SURVEY

STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
32001	11/ 1/93	1030	2821.4	9608.8	19	19	10	19	20.8	20.8	21.9	29.6	29.7	31.1		7.1	7.1	7.1	ST
32002	11/ 1/93	1127	2818.5	9614.4	19	20	10	20	21.2	21.2	21.8	29.5	30.3	29.6		6.8	6.8	6.3	ST
32003	11/ 1/93	1231	2815.6	9617.6	19	22	11	22	21.9	21.9	21.8	29.8	30.0	31.3		6.7	6.8	6.8	ST
32004	11/ 1/93	1318	2814.7	9622.5	19	21	10	21	22.0	22.0	22.0	30.2	30.1	35.3		6.6	6.8	6.5	ST
32005	11/ 1/93	1415	2812.6	9626.5	19	18	9	18	21.4	21.4	23.0	29.4	29.4	35.0		6.6	6.7	4.4	ST
32006	11/ 1/93	1521	2818.7	9622.6	19	14	7	14	20.9	20.9	20.5	28.9	29.0	34.6		6.9	6.9	6.4	ST
32007	11/ 1/93	1552	2818.6	9621.6	19	16	8	16	21.0	21.1	20.4	29.0	29.2	29.7		7.0	6.9	6.1	ST
32008	11/ 1/93	1634	2819.7	9618.5	19	18	9	18	21.5	21.5	21.2	29.6	29.7	30.0		6.7	6.8	6.6	ST
32009	11/19/93	0945	2825.6	9615.3	19	11	6	11	18.0	17.9	18.2	27.4	27.6	28.4		8.5	8.3	7.3	ST
32010	11/19/93	1019	2824.5	9613.5	19	15	7	15	18.1	20.2	20.7	28.1	28.3	29.8			8.2	9.8	ST
32011	11/19/93	1112	2824.4	9607.5	19	17	8	17	18.5	18.5	19.6	28.1	29.6	30.0		8.0	7.2	9.3	ST
32012	11/19/93	1146	2826.5	9606.6	19	16	8	16	18.6	18.4	18.6	27.7	28.9	29.6		7.9	7.7	9.9	ST
32013	11/19/93	1228	2828.5	9604.4	19	15	7	15	18.3	18.4	18.8	27.2	28.6	30.0		7.1	7.3	8.2	ST
32014	11/19/93	1302	2828.4	9605.5	19	14	7	14	19.5	18.1	18.5	27.5	28.6	29.7		8.1	7.9	8.7	ST
32015	11/19/93	1340	2829.5	9607.5	19	12	6	12	18.9	18.0	18.7	27.4	27.7	29.0		8.1	8.4	6.2	ST
32016	11/19/93	1421	2827.5	9609.5	19	13	7	13	18.7	18.1	18.6	27.4	27.8	28.2		8.3	8.5	8.7	ST

Table 2. Selected environmental parameters (continued)

LAGUNA MADRE, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE MM/DD/YY	TIME	POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
			LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
33001	11/ 3/93	0852	2602.6	9705.5	21	18	9	18	21.0	24.6	22.3	30.3	31.4	33.8		6.4	5.3	4.4	ST
33002	11/ 3/93	0935	2601.3	9706.6	21	16	8	16	20.8	22.4	24.2	30.2	31.1	33.0		5.8	5.7	4.6	ST
33003	11/ 3/93	1014	2600.4	9708.5	21	8	4	8	20.9	20.9	20.9	30.6	30.6	30.7		6.0	4.7	5.6	ST
33004	11/ 3/93	1057	2600.6	9705.4	21	18	9	18	21.5	22.0	22.3	30.7	31.2	33.8		5.8	5.7	5.7	ST
33005	11/ 3/93	1205	2605.5	9702.6	21	22	11	22	22.0	22.2	24.8	31.0	31.2	32.8		5.7	5.6	4.6	ST
33006	11/ 3/93	1304	2609.5	9701.5	21	24	12	24	21.8	22.0	24.3	30.7	33.6	31.1		6.4	6.3	5.8	ST
33007	11/ 3/93	1348	2608.6	9703.6	21	20	10	20	21.8	21.9	24.6	30.9	31.9	32.9		6.5	6.1	5.2	ST
33008	11/ 3/93	1432	2605.6	9706.6	21	18	9	18	21.6	22.6	23.7	30.9	31.6	33.4		6.5	6.1	5.2	ST
33009	11/18/93	0907	2609.4	9703.6	21	6	3	6	20.5	20.4	20.4	30.7	30.7	30.8		13.1	13.3	13.5	ST
33010	11/18/93	0944	2610.4	9705.6	21	6	3	6	20.5	20.4	20.4	30.7	30.7	30.7		13.5	13.7	13.8	ST
33011	11/18/93	1027	2613.4	9704.4	21	5	3	5	20.3	20.2	20.2	30.6	30.5	30.5		13.5	15.4	13.4	ST
33012	11/18/93	1122	2618.3	9703.4	21	6	3	6	20.9	21.2	21.5	31.2	32.3	32.4		13.0	13.4	12.3	ST
33013	11/18/93	1210	2620.4	9703.5	21	6	3	6	21.8	21.7	21.7	32.9	33.0	33.1		12.6	12.8	13.7	ST
33014	11/18/93	1241	2621.2	9703.6	21	7	3	7	21.9	21.7	22.1	33.0	33.0	33.2		12.4	12.8	12.8	ST
33015	11/18/93	1334	2615.5	9707.5	21	5	3	5	20.3	20.0	20.2	30.3	30.3	30.4		13.5	14.0	14.4	ST
33016	11/18/93	1414	2615.3	9710.5	21	10	5	10	20.8	20.8	20.2	30.4	30.5	30.5		13.6	14.4	14.8	ST

Table 2. Selected environmental parameters (continued)

GALVESTON BAY, FALL SHRIMP/GROUNDFISH SURVEY

STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
34001	11/11/93	1014	2923.1	9441.7	18	5	3	5	15.7	15.7	15.2	25.2	25.2	25.2		6.0	5.7	5.7	ST
34002	11/11/93	1057	2926.0	9437.6	18	5	2	5	15.4	15.4	15.0	24.8	24.7	24.8		5.6	5.7	5.9	ST
34003	11/11/93	1118	2927.4	9436.3	18	5	3	5	16.2	15.7	15.7	24.8	24.8	24.8		5.8	5.9	5.8	ST
34004	11/11/93	1154	2926.5	9434.6	18	7	3	7	16.5	16.5	16.8	25.9	25.8	25.8		5.2	4.8	5.0	ST
34005	11/11/93	1226	2923.9	9435.4	18	9	5	9	16.1	16.1	17.0	25.9	25.9	25.8		5.8	5.7	5.0	ST
34006	11/11/93	1255	2923.6	9433.9	18	11	6	11	16.7	16.4	16.9	26.3	26.4	26.5		5.3	5.4	4.8	ST
34007	11/11/93	1327	2922.8	9433.4	18	11	6	11	16.8	16.8	16.8	26.8	26.8	26.9		5.6	5.8	5.7	ST
34008	11/11/93	1354	2921.3	9433.9	18	12	6	12	17.8	17.6	17.5	27.7	27.6	27.8		5.5	5.4	5.4	ST
34009	11/17/93	0959	2918.8	9440.4	18	10	5	10	16.8	17.4	17.5	19.3	20.9	19.4		7.9	7.4	6.8	ST
34010	11/17/93	1056	2918.2	9445.2	18	3	1	3	17.3	17.2	17.8	25.9	26.0	26.2		7.7	7.7	7.4	ST
34011	11/17/93	1135	2915.8	9446.5	18	7	3	7	17.4	17.4	18.5	26.4	27.6	26.4		7.8	7.7	7.2	ST
34012	11/17/93	1207	2914.5	9450.8	18	4	2	4	17.6	17.6	18.0	26.9	27.8	26.9		7.9	7.6	7.3	ST
34013	11/17/93	1248	2909.7	9445.8	18	16	8	16	17.7	17.8	18.1	26.0	26.4	30.0		7.1	6.7	6.0	ST
34014	11/17/93	1341	2913.7	9439.8	18	15	8	15	17.4	17.6	17.9	22.5	23.0	27.1		7.4	6.6	6.2	ST
34015	11/17/93	1432	2919.2	9434.7	18	12	6	12	17.2	17.2	18.7	24.0	24.2	24.7		9.9	9.7	7.5	ST
34016	11/17/93	1458	2920.3	9433.8	18	12	6	12	17.2	17.2	18.6	24.0	24.1	28.4		9.2	9.1	6.7	ST

Table 2. Selected environmental parameters (continued)

SABINE, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
40001	11/11/93	0724	2933.5	9353.5	17	9	4	9	16.1	16.1	16.2	27.0	27.0	27.3		8.1	8.0	7.7	ST
40002	11/11/93	0801	2935.4	9356.1	17	7	4	7	15.0	15.0	15.1	25.8	25.8	26.1		8.8	8.8	8.5	ST
40003	11/11/93	0838	2936.3	9357.3	17	6	3	6	15.4	15.3	15.3	25.5	25.5	25.6		8.6	8.9	8.7	ST
40004	11/11/93	0914	2937.5	9358.4	17	6	3	6	15.0	15.4	15.5	25.7	25.6	26.4		9.0	8.7	7.6	ST
40005	11/11/93	1006	2938.5	9403.6	18	5	2	5	15.7	15.6	15.5	26.2	26.1	26.3		12.0	11.8	10.5	ST
40006	11/11/93	1121	2939.5	9404.5	18	4	2	4	15.9	15.9	15.9	25.7	25.7	25.7		8.9	8.5	7.2	ST
40007	11/11/93	1211	2939.4	9402.1	18	3	2	3	16.0	16.0	16.3	25.8	25.8	25.8		9.7	9.7	8.9	ST
40008	11/11/93	1332	2939.5	9354.8	17	3	2	3	16.2	16.2	16.2	25.6	25.8	25.8		9.7	9.6	8.3	ST
40009	11/18/93	0817	2944.1	9339.3	17	3	2	3	16.5	16.5	16.5	22.0	22.1	22.0		10.7	10.6	10.0	ST
40010	11/18/93	0848	2943.3	9338.1	17	5	2	5	16.9	16.9	17.1	21.1	21.6	24.8		10.4	10.3	10.0	ST
40011	11/18/93	0939	2943.5	9337.8	17	5	2	5	16.9	17.0	17.8	21.1	21.2	24.5		10.4	10.0	8.7	ST
40012	11/18/93	1020	2943.6	9335.2	17	5	2	5	17.0	17.0	17.3	21.5	21.9	22.2		10.8	10.3	9.5	ST
40013	11/18/93	1106	2939.5	9335.4	17	9	4	9	17.6	17.5	18.2	19.6	20.7	28.2		10.6	9.6	7.3	ST
40014	11/18/93	1208	2937.6	9343.2	17	9	4	9	17.9	17.6	17.6	21.2	21.9	22.2		11.9	11.3	10.5	ST
40015	11/18/93	1247	2937.6	9345.5	17	8	4	8	18.0	17.6	18.0	21.7	22.0	27.3		12.4	7.3	8.0	ST
40016	11/18/93	1342	2936.5	9352.7	17	5	2	5	17.9	17.7	18.1	20.5	22.6	23.4		11.7	11.2	9.9	ST

Table 2. Selected environmental parameters (continued)

PELICAN, FALL SHRIMP/GROUNDFISH SURVEY																			
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE,C			SALINITY,PPT			CL, SUR	DISSOLVED OXYGEN			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX		SUR	MID	MAX	
37055	11/29/93	1133	2900.0	9030.0	14	10	5	10	18.0	17.9	21.2	28.5	28.4	32.2	14.195	11.2	9.8	4.7	PN
37056	11/29/93	1502	2900.0	9100.0	15	6	3	6	17.2	17.3	17.3	28.7	28.7	28.8	4.528	11.7	10.5	8.4	PN
37057	11/29/93	1820	2851.3	9115.8	15	8	4	8	17.9	17.8	17.8	30.4	30.5	30.5	2.415	9.5	9.7	9.6	ST
37058	11/29/93	2054	2835.4	9120.3	15	30	14	30	18.8	21.2	23.8	30.1	33.3	36.0	2.415	12.5	8.4	6.4	ST
37059	11/30/93	0752	2900.0	9130.0	15	10	5	10	14.9	17.2	19.1	15.1	28.5	31.0	3.692	9.5	9.5	7.0	PN
37060	11/30/93	1040	2852.0	9116.2	15	8	4	8	17.5	17.5	17.5	30.0	30.0	30.0	4.652	9.9	9.7	9.7	ST
37061	11/30/93	1329	2836.9	9120.3	15	28	14	28	19.4	21.7	23.8	30.4	33.1	36.0	11.807	11.2	8.1	5.7	ST
37062	11/30/93	2214	2852.5	9018.1	14	21	9	21	18.6	21.6	22.1	24.9	33.5	34.4	11.167	11.2	7.7	6.6	ST
37063	12/ 1/93	0056	2859.9	9011.5	14	16	8	16	17.3	19.0	22.0	21.9	28.0	33.5	19.765	12.5	11.2	5.9	ST
37064	12/ 1/93	0217	2859.8	9008.4	14	17	8	17	17.3	20.2	22.0	21.8	29.1	33.7	18.094	12.0	8.1	6.0	ST
37065	12/ 1/93	0427	2847.2	9008.7	14	32	15	32	20.1	22.5	23.4	30.4	34.3	35.5	6.950	9.4	7.3	5.6	ST
37066	12/ 1/93	0803	2847.1	9009.0	14	32	15	32	19.5	23.0	23.4	29.1	34.6	35.5	11.854	9.7	5.0	5.9	ST
37067	12/ 1/93	1030	2852.5	9018.6	14	21	11	21	18.1	21.7	22.1	24.3	33.6	34.3	19.523	12.8	7.4	6.6	ST
37068	12/ 1/93	1256	2859.4	9011.5	14	15	6	15	17.6	20.0	21.9	21.5	28.3	33.3	12.257	12.9	9.4	6.4	ST
37069	12/ 1/93	1457	2858.4	9008.6	14	16	7	16	18.6	19.3	21.9	24.5	28.9	33.5	13.686	12.9	10.4	6.9	ST
37070	12/ 1/93	1812	2900.0	8957.4	13	26	12	26	18.1	19.6	23.7	24.0	29.3	32.3	12.627	13.3	8.5	3.4	ST
37071	12/ 1/93	2001	2902.6	8955.8	13	25	12	25	18.2	18.8	22.6	26.4	28.7	34.1	16.975	13.1	9.8	4.3	ST
37072	12/ 1/93	2203	2907.6	8952.3	13	20	10	20	18.5	18.7	23.5	26.0	28.5	34.8	21.407	13.1	10.6	2.5	ST
37073	12/ 2/93	0006	2912.5	8943.8	13	12	6	12	18.9	18.9	22.8	27.9	27.9	33.8	14.835	12.5	10.2	4.5	ST
37074	12/ 2/93	0754	2912.6	8943.8	13	11	5	11	18.5	18.8	22.4	27.0	27.9	33.3	15.783	11.7	11.9	2.9	ST
37075	12/ 2/93	0948	2907.7	8952.1	13	19	10	19	18.0	18.5	23.5	23.7	27.6	34.6	24.305	13.3	12.7	.4	ST
37076	12/ 2/93	1114	2902.8	8955.2	13	25	12	25	18.4	19.0	23.1	26.4	28.8	34.7	16.767	12.9	9.4	2.6	ST
37077	12/ 2/93	1225	2900.0	8957.1	13	26	14	26	18.8	20.5	23.6	26.4	30.4	34.9	14.356	12.6	7.5	2.7	ST
37078	12/ 2/93	1342	2900.0	9000.0	14	24	11	24	18.9	19.5	23.3	26.7	29.4	34.8	10.997	12.4	8.5	3.5	PN
37079	12/ 2/93	1544	2901.8	8947.4	13	33	16	33	18.2	19.8	23.9	24.8	30.2	35.8	20.083	12.8	7.6	1.7	ST
37080	12/ 2/93	1817	2901.8	8947.4	13	34	16	34	18.5	21.1	23.9	26.4	31.9	35.9	8.569	12.8	7.1	1.6	ST
37081	12/ 3/93	0410	2900.9	8931.1	13	14	6	14	17.6	19.5	22.3	19.2	29.7	34.0	11.879	13.0	8.4	3.5	ST
37082	12/ 3/93	0747	2859.9	8929.9	13	15	6	15	17.5	20.2	23.1	19.5	31.6	34.8	12.522	14.1	7.9	3.9	PN
37083	12/ 3/93	0839	2901.0	8931.0	13	14	7	14	17.5	20.1	22.1	19.5	30.3	33.3	13.919	12.1	7.0	4.1	ST

Table 3. 1993 Spring Louisiana Trawl Survey species composition list, 24 trawl stations, for those vessels that used a 40-ft. trawl. Species with a total weight of less than 0.0227 kg (0.05 lbs) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<u>Finfishes</u>					
<i>Micropogonias undulatus</i>	Atlantic croaker	23395	61.8	19	79.2
<i>Anchoa mitchilli</i>	bay anchovy	2226	8.1	14	58.3
<i>Cynoscion nothus</i>	silver seatrout	832	18.5	18	75.0
<i>Anchoa nasuta</i>	longnose anchovy	776	15.0	10	41.7
<i>Cynoscion arenarius</i>	sand seatrout	677	26.1	19	79.2
<i>Sphoeroides parvus</i>	least puffer	533	4.2	20	83.3
<i>Syacium gunteri</i>	shoal flounder	468	7.4	19	79.2
<i>Bollmannia communis</i>	ragged goby	440	1.6	11	45.8
<i>Trichiurus lepturus</i>	Atlantic cutlassfish	416	11.3	23	95.8
<i>Symphurus plagiusa</i>	blackcheek tonguefish	389	7.5	22	91.7
<i>Prionotus longispinosus</i>	bigeye searobin	303	3.7	17	70.8
<i>Etropus crossotus</i>	fringed flounder	278	3.9	21	87.5
<i>Prionotus rubio</i>	blackwing searobin	276	2.0	5	20.8
<i>Diplectrum bivittatum</i>	dwarf sand perch	181	5.7	10	41.7
<i>Antennarius radiosus</i>	singlespot frogfish	127	.2	16	66.7
<i>Arius felis</i>	hardhead catfish	120	24.7	8	33.3
<i>Centropristis philadelphica</i>	rock sea bass	96	1.7	15	62.5
<i>Urophycis floridana</i>	southern hake	87	4.0	13	54.2
<i>Peprilus burti</i>	gulf butterfish	87	5.0	13	54.2
<i>Leiostomus xanthurus</i>	spot	79	5.5	12	50.0
<i>Anchoviella perfasciata</i>	flat anchovy	77	2.0	3	12.5
<i>Stellifer lanceolatus</i>	star drum	71	1.7	5	20.8
<i>Serranus atrobranchus</i>	blackear bass	64	.6	3	12.5
<i>Halieutichthys aculeatus</i>	pancake batfish	59	.4	13	54.2
<i>Larimus fasciatus</i>	banded drum	55	.9	8	33.3
<i>Synodus foetens</i>	inshore lizardfish	46	2.2	5	20.8
<i>Lepophidium brevibarbe</i>	blackedge cusk-eel	41	1.0	6	25.0
<i>Prionotus tribulus</i>	bighead searobin	40	.5	10	41.7
<i>Citharichthys spilopterus</i>	bay whiff	38	.5	10	41.7
<i>Saurida brasiliensis</i>	largescale lizardfish	34	.4	4	16.7
<i>Menticirrhus americanus</i>	southern kingfish	32	6.5	6	25.0
<i>Trinectes maculatus</i>	hogchoker	28	.5	5	20.8
<i>Scorpaena calcarata</i>	smoothhead scorpionfish	25	.2	3	12.5
<i>Anchoa hepsetus</i>	striped anchovy	23	.4	5	20.8

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Cyclopsetta chittendeni</i>	Mexican flounder	21	1.9	2	8.3
<i>Porichthys plectrodon</i>	Atlantic midshipman	21	.5	5	20.8
<i>Stenotomus caprinus</i>	longspine porgy	18	.3	4	16.7
<i>Gymnothorax ocellatus</i>	ocellated moray	13	1.3	2	8.3
<i>Hildebrandia flava</i>	yellow conger	12	.2	4	16.7
<i>Archosargus probatocephalus</i>	sheepshead	10	17.6	5	20.8
<i>Peprilus alepidotus</i>	harvestfish	10	.6	3	12.5
<i>Pristipomoides aquilonaris</i>	wenchman	9	.0	2	8.3
<i>Hoplunnis macrurus</i>	freckled pike-conger	8	.1	2	8.3
<i>Bregmaceros atlanticus</i>	antenna codlet	6	.0	2	8.3
<i>Bairdiella chrysoura</i>	silver perch	6	.2	1	4.2
<i>Ophidion welschi</i>	crested cusk-eel	6	.3	4	16.7
<i>Paralichthys lethostigma</i>	southern flounder	6	1.9	3	12.5
<i>Selene setapinnis</i>	Atlantic moonfish	5	.2	1	4.2
<i>Cynoscion nebulosus</i>	spotted seatrout	5	.1	1	4.2
<i>Monacanthus hispidus</i>	planehead filefish	4	.0	3	12.5
<i>Gymnothorax saxicola</i>	honeycomb moray	3	.2	2	8.3
<i>Selene vomer</i>	lookdown	3	.1	2	8.3
<i>Trachurus lathami</i>	rough scad	3	.0	1	4.2
<i>Citharichthys macrops</i>	spotted whiff	3	.1	3	12.5
<i>Engyophrys senta</i>	spiny flounder	3	.0	2	8.3
<i>Urophycis cirrata</i>	gulf hake	2	.0	1	4.2
<i>Sphyaena guachancho</i>	guaguanche	2	.2	1	4.2
<i>Eucinostomus gula</i>	silver jenny	2	.0	1	4.2
<i>Upeneus parvus</i>	dwarf goatfish	2	.0	1	4.2
<i>Chaetodipterus faber</i>	Atlantic spadefish	2	.1	1	4.2
<i>Raja texana</i>	roundel skate	1	.0	1	4.2
<i>Brevoortia patronus</i>	gulf menhaden	1	.2	1	4.2
<i>Sardinella aurita</i>	Spanish sardine	1	.0	1	4.2
<i>Anguilla rostrata</i>	American eel	1	.1	1	4.2
<i>Gymnothorax nigromarginatus</i>	blackedge moray	1	.1	1	4.2
<i>Ophichthus</i> spp.	snake eels	1	.1	1	4.2
<i>Lutjanus synagris</i>	lane snapper	1	.0	1	4.2
<i>Pogonias cromis</i>	black drum	1	9.5	1	4.2
<i>Ancylopsetta quadrocellata</i>	ocellated flounder	1	.0	1	4.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF		%FREQUENCY OF OCCURRENCE
				TOWS WHERE CAUGHT		
<u>Crustaceans</u>						
Trachypenaeus similis	roughback shrimp	8919	37.1	21		87.5
Sicyonia dorsalis	lesser rock shrimp	1180	3.0	18		75.0
Trachypenaeus constrictus	roughneck shrimp	995	3.1	4		16.7
Squilla empusa	mantis shrimp	808	8.8	19		79.2
Portunus gibbesii	iridescent swimming crab	661	3.5	18		75.0
Callinectes similis	lesser blue crab	638	10.0	22		91.7
Penaeus setiferus	white shrimp	178	7.4	20		83.3
Ovalipes stephensoni	coarsehand lady crab	157	.4	11		45.8
Portunus spinimanus	blotched swimming crab	113	1.0	6		25.0
Sicyonia brevirostris	brown rock shrimp	92	.6	7		29.2
Squilla chydarea	mantis shrimp	91	.5	9		37.5
Portunus spinicarpus	longspine swimming crab	28	.0	2		8.3
Hepatus epheliticus	calico crab	22	.3	5		20.8
Penaeus duorarum	pink shrimp	17	.4	6		25.0
Libinia dubia	longnose spider crab	14	1.4	5		20.8
Penaeus aztecus	brown shrimp	8	.1	6		25.0
Callinectes sapidus	blue crab	5	.5	2		8.3
Alpheidae	snapping shrimps	4	.0	2		8.3
Calappa sulcata	yellow box crab	4	.4	3		12.5
Speocarcinus lobatus	gulf squareback crab	4	.0	1		4.2
Panopeus herbstii	Atlantic mud crab	3	.0	2		8.3
Persephona mediterranea	mottled purse crab	2	.0	2		8.3
Xiphopenaeus kroyeri	seabob	1	.0	1		4.2
Solenocera vioscai	humpback shrimp	1	.0	1		4.2
Libinia emarginata	portly spider crab	1	.5	1		4.2
Xanthidae	mud crabs	1	.0	1		4.2
Stenorhynchus seticornis	yellowline arrow crab	1	.0	1		4.2
<u>Others</u>						
Lolliguncula brevis	Atlantic brief squid	1281	14.9	21		87.5
Loligo pealeii	longfin squid	15	.7	4		16.7

Table 4a
 Statistical Zone 13
 40-ft trawls

Summary of dominant organisms taken in statistical zone 13 during the 1993 Spring Louisiana Trawl Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 11 fm or greater than 20 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	.0	.00	.0	.00	0	.0	.00	.0	.00	0	938.8	486.66	4.4	1.54	4
Squilla spp.	.0	.00	.0	.00	0	.0	.00	.0	.00	0	197.7	42.47	2.6	1.25	4
Trachypenaeus constrictus	.0	.00	.0	.00	0	.0	.00	.0	.00	0	141.0	141.00	.5	.55	4
Sicyonia dorsalis	.0	.00	.0	.00	0	.0	.00	.0	.00	0	89.9	28.07	.3	.07	4
Callinectes similis	.0	.00	.0	.00	0	.0	.00	.0	.00	0	51.2	17.92	.5	.11	4
Portunus gibbesii	.0	.00	.0	.00	0	.0	.00	.0	.00	0	14.8	11.15	.1	.10	4
Bollmannia communis	.0	.00	.0	.00	0	.0	.00	.0	.00	0	313.6	183.07	1.0	.65	4
Syacium gunteri	.0	.00	.0	.00	0	.0	.00	.0	.00	0	260.6	85.78	3.3	1.02	4
Cynoscion nothus	.0	.00	.0	.00	0	.0	.00	.0	.00	0	92.8	51.04	2.3	1.24	4
Anchoa nasuta	.0	.00	.0	.00	0	.0	.00	.0	.00	0	79.7	67.04	1.8	1.54	4
Anchoa mitchilli	.0	.00	.0	.00	0	.0	.00	.0	.00	0	68.7	65.39	.2	.20	4
Serranus atrobranchus	.0	.00	.0	.00	0	.0	.00	.0	.00	0	73.4	72.21	.7	.68	4
Cynoscion arenarius	.0	.00	.0	.00	0	.0	.00	.0	.00	0	58.0	25.99	4.0	3.00	4
Diplectrum bivittatum	.0	.00	.0	.00	0	.0	.00	.0	.00	0	45.8	13.54	1.3	.43	4
Squid	.0	.00	.0	.00	0	.0	.00	.0	.00	0	343.8	175.69	3.2	1.39	4

Table 4b
 Statistical Zone 13
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Spring Louisiana Trawl Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 11 fm or greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	0	.0	.00	0	32.1	7.56	4	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	.0	.00	0	.0	.00	0	20.7	6.10	4	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	.0	.00	0	.0	.00	0	8.6	1.83	4	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	.0	.00	0	.0	.00	0	3.4	1.51	4	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	.0	.00	0	16.9	.00	1	16.3	.31	4	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	.0	.00	0	17.8	.00	1	17.3	.25	4	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	.0	.00	0	19.0	.00	1	19.1	.14	4	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	.0	.00	0	23.0	.00	1	20.2	1.92	4	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	.0	.00	0	32.0	.00	1	31.3	.46	4	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	.0	.00	0	34.0	.00	1	34.7	.42	4	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	.0	.00	0	.6	.00	1	2.8	.66	4	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	.0	.00	0	9.7	.00	1	9.8	.27	4	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	.0	.00	0	7.0	.00	1	6.8	.27	4	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	.0	.00	0	5.5	.00	1	5.2	.23	4	.0	.00	0	.0	.00	0	.0	.00	0

Table 5a
 Statistical Zone 14
 40-ft trawls

Summary of dominant organisms taken in statistical zone 14 during the 1993 Spring Louisiana Trawl Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	720.0	.00	1.4	.00	1	534.2	408.62	1.3	.97	7	989.6	538.18	4.2	2.24	6
Trachypenaeus constrictus	27.0	.00	.1	.00	1	2.6	2.57	.0	.01	7	294.3	294.33	.9	.88	6
Squilla spp.	6.0	.00	.0	.00	1	85.5	71.95	.8	.71	7	103.3	49.70	.8	.36	6
Callinectes similis	60.0	.00	.4	.00	1	11.0	6.09	.1	.06	7	120.6	43.75	1.7	.70	6
Portunus gibbesii	84.0	.00	.5	.00	1	9.1	2.73	.0	.01	7	80.3	45.49	.5	.29	6
Ovalipes stephensoni	21.0	.00	.1	.00	1	8.8	7.82	.0	.00	7	42.7	27.01	.1	.07	6
Anchoa mitchilli	18.0	.00	.0	.00	1	745.6	242.45	2.8	.95	7	40.3	24.50	.1	.09	6
Micropogonias undulatus	882.0	.00	7.6	.00	1	469.0	353.90	4.2	2.80	7	18.4	3.90	.8	.12	6
Anchoa nasuta	.0	.00	.0	.00	1	128.7	68.53	2.2	1.28	7	76.7	51.23	1.5	1.00	6
Cynoscion nothus	.0	.00	.0	.00	1	184.7	137.40	3.7	2.54	7	115.4	85.31	2.6	1.77	6
Spherooides parvus	30.0	.00	.5	.00	1	7.7	2.71	.3	.26	7	143.5	88.19	.9	.49	6
Prionotus rubio	.0	.00	.0	.00	1	.9	.86	.0	.00	7	90.7	87.48	.7	.61	6
Trichiurus lepturus	6.0	.00	.3	.00	1	50.0	30.84	1.3	.94	7	38.0	33.20	1.3	1.04	6
Symphurus plagiosa	27.0	.00	.5	.00	1	19.0	8.09	.3	.14	7	62.2	31.57	1.3	.73	6
Squid	3.0	.00	.0	.00	1	118.1	52.94	1.6	.67	7	134.0	33.14	1.9	.74	6

Table 5b
 Statistical Zone 14
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Spring Louisiana Trawl Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	25.9	.00	1	42.1	18.12	7	32.0	6.08	6	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	21.8	.00	1	36.4	15.99	7	20.4	5.68	6	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	5.5	.00	1	3.9	1.91	7	9.8	3.42	6	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	.0	.00	1	1.4	.62	7	1.8	.78	6	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	17.4	.29	3	16.8	.44	8	17.3	.98	4	19.6	.00	1	.0	.00	0	.0	.00	0
Midwater temperature	17.1	.63	3	17.2	.31	8	18.1	.53	4	19.1	.00	1	.0	.00	0	.0	.00	0
Bottom temperature	16.9	.15	3	18.1	.16	8	19.0	.16	4	19.5	.00	1	.0	.00	0	.0	.00	0
Surface salinity	21.6	2.47	3	24.7	1.52	8	27.4	2.41	4	24.4	.00	1	.0	.00	0	.0	.00	0
Midwater salinity	24.6	.14	3	29.4	.47	8	32.3	1.05	4	34.8	.00	1	.0	.00	0	.0	.00	0
Bottom salinity	27.4	1.20	3	32.0	.41	8	34.7	.40	4	35.7	.00	1	.0	.00	0	.0	.00	0
Surface chlorophyll	4.1	.25	3	5.8	2.25	7	1.0	.18	4	2.2	.00	1	.0	.00	0	.0	.00	0
Midwater chlorophyll	2.9	.82	2	2.5	1.25	7	.3	.20	3	1.3	.00	1	.0	.00	0	.0	.00	0
Bottom chlorophyll	2.0	.08	2	1.8	.77	7	.5	.36	2	.5	.00	1	.0	.00	0	.0	.00	0
Surface oxygen	9.7	.92	3	9.3	.32	8	8.3	.33	4	8.7	.00	1	.0	.00	0	.0	.00	0
Midwater oxygen	9.4	.52	3	8.4	.34	8	7.1	.17	4	6.7	.00	1	.0	.00	0	.0	.00	0
Bottom oxygen	8.3	.58	3	6.9	.29	8	5.4	.15	4	5.1	.00	1	.0	.00	0	.0	.00	0

Table 6a
 Statistical Zone 15
 40-ft trawls

Summary of dominant organisms taken in statistical zone 15 during the 1993 Spring Louisiana Trawl Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm or greater than 20 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	.0	.00	.0	.00	0	748.0	572.00	2.2	1.77	2	2229.7	1079.05	10.5	4.45	4
Sicyonia dorsalis	.0	.00	.0	.00	0	19.0	13.00	.0	.05	2	726.2	283.96	1.9	.65	4
Portunus gibbesii	.0	.00	.0	.00	0	75.0	75.00	.5	.55	2	199.1	122.56	.9	.49	4
Squilla spp.	.0	.00	.0	.00	0	154.0	146.00	1.4	1.32	2	98.9	65.47	1.3	1.02	4
Callinectes similis	.0	.00	.0	.00	0	29.0	3.00	.1	.05	2	108.4	40.76	2.8	.97	4
Sicyonia brevirostris	.0	.00	.0	.00	0	5.0	5.00	.0	.05	2	28.4	21.28	.2	.13	4
Micropogonias undulatus	.0	.00	.0	.00	0	22320.0	22142.00	49.6	48.36	2	1.3	1.30	.0	.00	4
Cynoscion arenarius	.0	.00	.0	.00	0	484.0	482.00	9.7	9.68	2	60.7	27.87	5.6	1.94	4
Anchoa mitchilli	.0	.00	.0	.00	0	193.0	193.00	.9	.91	2	2.0	1.96	.0	.00	4
Bollmannia communis	.0	.00	.0	.00	0	.0	.00	.0	.00	2	114.4	64.69	.5	.23	4
Diplectrum bivittatum	.0	.00	.0	.00	0	.0	.00	.0	.00	2	89.0	32.60	2.9	1.19	4
Symphurus plagiosa	.0	.00	.0	.00	0	1.0	1.00	.0	.05	2	87.6	55.86	1.6	.94	4
Trichiurus lepturus	.0	.00	.0	.00	0	87.0	85.00	2.1	2.00	2	18.8	6.36	.3	.15	4
Cynoscion nothus	.0	.00	.0	.00	0	1.0	1.00	.0	.00	2	71.0	47.42	1.7	1.00	4
Squid	.0	.00	.0	.00	0	156.0	156.00	1.6	1.64	2	139.9	81.07	1.4	.99	4

Table 6b
 Statistical Zone 15
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Spring Louisiana Trawl Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 6 fm or greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	0	75.5	72.73	2	49.8	15.48	4	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	.0	.00	0	68.2	66.36	2	29.5	9.63	4	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	.0	.00	0	5.9	5.00	2	19.1	8.01	4	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	.0	.00	0	1.8	1.82	2	1.5	1.12	4	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	18.0	.04	2	18.2	.00	2	19.0	.23	5	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	18.0	.05	2	18.2	.00	2	18.5	.08	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	18.1	.04	2	17.7	.05	2	19.4	.03	5	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	28.1	1.48	2	30.0	.04	2	32.6	.14	5	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	28.1	1.48	2	30.2	.09	2	33.3	.13	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	28.8	1.80	2	30.7	.05	2	35.7	.05	5	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	27.4	8.72	2	18.0	5.12	2	4.5	1.02	5	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	22.1	.38	2	7.3	.79	2	2.1	.62	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	6.1	3.06	2	5.3	.06	2	1.4	.36	5	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	9.3	.50	2	9.0	.15	2	8.8	.27	5	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	9.3	.10	2	8.3	.15	2	6.9	.07	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	7.7	.50	2	6.9	.05	2	5.1	.31	5	.0	.00	0	.0	.00	0	.0	.00	0

Table 7. 1993 Summer Shrimp/Groundfish Survey species composition list, 299 trawl stations, for those vessels that used a 40-ft. trawl. Species with a total weight of less than 0.0227 kg (0.05 lbs) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<u>Finfishes</u>					
Micropogonias undulatus	Atlantic croaker	75469	2015.8	136	45.5
Chloroscombrus chrysurus	Atlantic bumper	58608	649.2	77	25.8
Stenotomus caprinus	longspine porgy	57240	1178.7	192	64.2
Peprilus burti	gulf butterfish	41482	1406.3	170	56.9
Prionotus longispinosus	bigeye searobin	15573	160.7	137	45.8
Prionotus rubio	blackwing searobin	12874	101.6	50	16.7
Leiostomus xanthurus	spot	7676	417.7	61	20.4
Trichiurus lepturus	Atlantic cutlassfish	6263	192.7	101	33.8
Serranus atrobranchus	blackear bass	5609	49.7	78	26.1
Centropristis philadelphica	rock sea bass	5570	126.8	145	48.5
Trachurus lathami	rough scad	4450	72.7	86	28.8
Cynoscion arenarius	sand seatrout	3986	203.5	108	36.1
Saurida brasiliensis	largescale lizardfish	3748	27.7	105	35.1
Synodus foetens	inshore lizardfish	3531	361.3	160	53.5
Anchoa hepsetus	striped anchovy	3432	54.5	72	24.1
Opisthonema oglinum	Atlantic thread herring	3135	88.2	32	10.7
Harengula jaguana	scaled sardine	3083	57.4	52	17.4
Prionotus stearnsi	shortwing searobin	2867	28.3	85	28.4
Pristipomoides aquilonaris	wenchman	2800	170.0	101	33.8
Bollmannia communis	ragged goby	2665	13.5	37	12.4
Steindachneria argentea	luminous hake	2502	13.4	10	3.3
Etrumeus teres	round herring	2360	27.1	50	16.7
Lagodon rhomboides	pinfish	2130	98.6	108	36.1
Sphoeroides parvus	least puffer	2115	13.6	104	34.8
Diplectrum bivittatum	dwarf sand perch	2056	50.6	97	32.4
Prionotus paralatus	Mexican searobin	2041	54.3	57	19.1
Cynoscion nothus	silver seatrout	2009	98.9	44	14.7
Upeneus parvus	dwarf goatfish	1972	35.9	103	34.4
Halieutichthys aculeatus	pancake batfish	1762	13.8	116	38.8
Lepophidium brevibarbe	blackedge cusk-eel	1580	46.5	76	25.4
Arius felis	hardhead catfish	1569	187.5	35	11.7
Syacium gunteri	shoal flounder	1515	29.8	89	29.8
Cynoscion spp.	seatrouts	1496	15.7	29	9.7
Anchoa mitchilli	bay anchovy	1408	5.1	28	9.4
Brevoortia patronus	gulf menhaden	1369	49.9	11	3.7
Porichthys plectrodon	Atlantic midshipman	1013	20.9	88	29.4

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Peprilus alepidotus</i>	harvestfish	977	15.0	32	10.7
<i>Etropus crossotus</i>	fringed flounder	894	12.3	67	22.4
<i>Stellifer lanceolatus</i>	star drum	835	11.0	15	5.0
<i>Selene setapinnis</i>	Atlantic moonfish	827	36.0	47	15.7
<i>Urophycis floridana</i>	southern hake	823	57.9	59	19.7
<i>Trichopsetta ventralis</i>	sash flounder	795	22.6	41	13.7
<i>Anchoa nasuta</i>	longnose anchovy	726	3.0	8	2.7
<i>Syacium</i> spp.	lefteye flounders	585	9.7	33	11.0
<i>Chaetodipterus faber</i>	Atlantic spadefish	552	1.9	21	7.0
<i>Lutjanus campechanus</i>	red snapper	542	35.3	78	26.1
<i>Scorpaena calcarata</i>	smoothhead scorpionfish	506	9.3	24	8.0
<i>Lagocephalus laevigatus</i>	smooth puffer	418	17.5	62	20.7
<i>Polydactylus octonemus</i>	Atlantic threadfin	414	16.5	17	5.7
<i>Decapterus punctatus</i>	round scad	385	26.4	19	6.4
<i>Symphurus plagiosa</i>	blackcheek tonguefish	350	5.2	29	9.7
<i>Synodus poeyi</i>	offshore lizardfish	349	4.1	38	12.7
<i>Monacanthus hispidus</i>	planehead filefish	344	7.2	67	22.4
<i>Mullus auratus</i>	red goatfish	339	16.0	32	10.7
<i>Larimus fasciatus</i>	banded drum	309	14.2	18	6.0
<i>Bellator militaris</i>	horned searobin	249	2.8	17	5.7
<i>Prionotus tribulus</i>	bighead searobin	235	11.7	29	9.7
<i>Menticirrhus americanus</i>	southern kingfish	233	30.1	21	7.0
<i>Scomber japonicus</i>	chub mackerel	233	9.5	16	5.4
<i>Cyclopsetta chittendeni</i>	Mexican flounder	219	24.4	45	15.1
<i>Eucinostomus gula</i>	silver jenny	206	6.2	22	7.4
<i>Citharichthys spilopterus</i>	bay whiff	202	2.9	33	11.0
<i>Engraulis eurystole</i>	silver anchovy	194	.5	6	2.0
<i>Hoplunnis macrurus</i>	freckled pike-conger	187	3.9	28	9.4
<i>Scomberomorus maculatus</i>	Spanish mackerel	186	6.5	16	5.4
<i>Hildebrandia flava</i>	yellow conger	185	12.5	26	8.7
<i>Bagre marinus</i>	gafftopsail catfish	183	1.6	2	.7
<i>Urophycis cirrata</i>	gulf hake	180	6.6	16	5.4
<i>Symphurus civitatus</i>	offshore tonguefish	176	3.0	11	3.7
<i>Ancylopsetta dilecta</i>	three-eye flounder	174	9.8	27	9.0
<i>Etropus cycloquamus</i>	shelf flounder	155	.9	13	4.3
<i>Syacium papillosum</i>	dusky flounder	144	10.3	23	7.7
<i>Sardinella aurita</i>	Spanish sardine	141	8.7	13	4.3
<i>Kathetostoma albigutta</i>	lancer stargazer	138	5.9	30	10.0
<i>Ophidion welshi</i>	crested cusk-eel	133	5.1	12	4.0

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF	
				TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<i>Dorosoma petenense</i>	threadfin shad	127	1.5	2	.7
<i>Selar crumenophthalmus</i>	bigeye scad	126	8.3	20	6.7
<i>Antennarius radiosus</i>	singlespot frogfish	119	3.6	31	10.4
<i>Engyophrys senta</i>	spiny flounder	110	.6	22	7.4
<i>Anchoa lyolepis</i>	dusky anchovy	106	.4	7	2.3
<i>Symphurus diomedianus</i>	spottedfin tonguefish	96	1.8	16	5.4
<i>Etropus</i> spp.	lefteye flounders	95	.7	5	1.7
<i>Raja texana</i>	roundel skate	94	33.7	33	11.0
<i>Sphyræna guachancho</i>	guaguanche	94	13.3	23	7.7
<i>Paraconger caudilimbatus</i>	margintail conger	92	6.6	4	1.3
<i>Brotula barbata</i>	bearded brotula	86	11.8	30	10.0
<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark	84	33.7	13	4.3
<i>Equetus umbrosus</i>	cubbyu	83	5.9	15	5.0
<i>Ogcocephalus</i> spp.	batfishes	76	1.0	16	5.4
<i>Diplectrum formosum</i>	sand perch	70	4.9	9	3.0
<i>Saurida caribbaea</i>	smallscale lizardfish	69	.9	15	5.0
<i>Lutjanus synagris</i>	lane snapper	69	6.1	18	6.0
<i>Ogcocephalus parvus</i>	roughback batfish	69	3.2	18	6.0
<i>Ophidion holbrookii</i>	bank cusk-eel	63	5.4	5	1.7
<i>Ogcocephalus pantostictus</i>	spotted batfish	59	1.1	8	2.7
<i>Pontinus longispinis</i>	longspine scorpionfish	57	2.0	9	3.0
<i>Gymnachirus texae</i>	fringed sole	57	1.1	19	6.4
<i>Prionotus alatus</i>	spiny searobin	54	.1	5	1.7
<i>Anchoa</i> spp.	anchovies	53	.0	2	.7
<i>Prionotus roseus</i>	bluespotted searobin	53	1.3	9	3.0
<i>Caulolatilus intermedius</i>	anchor tilefish	51	4.2	18	6.0
<i>Neobythites gillii</i>	cusk-eel	46	.3	7	2.3
<i>Caranx crysos</i>	blue runner	43	6.0	7	2.3
<i>Orthopristis chrysoptera</i>	pigfish	42	3.0	9	3.0
<i>Prionotus</i> spp.	searobins	41	.1	3	1.0
<i>Bregmaceros atlanticus</i>	antenna codlet	38	.0	14	4.7
<i>Centropristis ocyura</i>	bank sea bass	37	1.0	7	2.3
<i>Neomerinthe hemingwayi</i>	spinycheek scorpionfish	35	4.9	3	1.0
<i>Balistes capriscus</i>	gray triggerfish	35	9.7	19	6.4
<i>Peristedion gracile</i>	slender searobin	34	.6	5	1.7
<i>Trachinocephalus myops</i>	snakefish	33	2.2	5	1.7
<i>Ancyllopsetta quadrocellata</i>	ocellated flounder	31	2.9	16	5.4
<i>Ogcocephalus radiatus</i>	polka-dot batfish	31	2.2	4	1.3
<i>Paralichthys lethostigma</i>	southern flounder	28	5.4	16	5.4

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Gymnothorax nigromarginatus</i>	blackedge moray	27	3.2	11	3.7
<i>Prionotus ophryas</i>	bandtail searobin	26	1.2	9	3.0
<i>Equetus wamotoi</i>	blackbar drum	26	3.5	7	2.3
<i>Priacanthus arenatus</i>	bigeye	25	5.1	12	4.0
<i>Ogcocephalus declivirostris</i>	slantbrow batfish	25	.3	4	1.3
<i>Apogon pseudomaculatus</i>	twospot cardinalfish	24	.2	2	.7
<i>Sphoeroides dorsalis</i>	marbled puffer	24	1.2	8	2.7
<i>Gymnothorax saxicola</i>	honeycomb moray	23	2.2	9	3.0
<i>Rhomboplites aurorubens</i>	vermilion snapper	21	2.2	7	2.3
<i>Conodon nobilis</i>	barred grunt	20	.4	3	1.0
<i>Lepophidium jeannae</i>	mottled cusk-eel	19	1.4	2	.7
<i>Haemulon aurolineatum</i>	tomtate	18	1.7	6	2.0
<i>Astroscopus y-graecum</i>	southern stargazer	18	.1	2	.7
<i>Chilomycterus schoepfi</i>	striped burrfish	18	2.0	9	3.0
<i>Menticirrhus littoralis</i>	gulf kingfish	17	4.7	3	1.0
<i>Prionotus scitulus</i>	leopard searobin	16	.4	4	1.3
<i>Scomberomorus cavalla</i>	king mackerel	16	2.8	8	2.7
<i>Lactophrys quadricornis</i>	scrawled cowfish	16	1.6	5	1.7
<i>Mustelus canis</i>	smooth dogfish	13	19.5	11	3.7
<i>Dasyatis say</i>	bluntnose stingray	12	10.6	3	1.0
<i>Bairdiella chrysoura</i>	silver perch	12	.5	4	1.3
<i>Trinectes maculatus</i>	hogchoker	12	.1	5	1.7
<i>Rhinoptera bonasus</i>	cownose ray	11	58.3	4	1.3
<i>Hemanthias aureorubens</i>	streamer bass	11	.4	1	.3
<i>Synagrops bellus</i>	blackmouth bass	11	.0	1	.3
<i>Opistognathus</i> spp.	jawfishes	11	.3	1	.3
<i>Mugil curema</i>	white mullet	10	.0	1	.3
<i>Narcine brasiliensis</i>	lesser electric ray	9	1.0	4	1.3
<i>Ophichthus gomesi</i>	shrimp eel	9	1.1	6	2.0
<i>Rypticus saponaceus</i>	greater soapfish	9	.4	1	.3
<i>Lophius gastrophysus</i>	blackfin goosefish	9	.3	1	.3
<i>Echiophis</i> spp.	snake eels	8	.9	1	.3
<i>Cyclosetta fimbriata</i>	spotfin flounder	8	.9	4	1.3
Ogcocephalidae	batfishes	8	.1	1	.3
<i>Carcharhinus limbatus</i>	blacktip shark	7	1.3	2	.7
<i>Selene vomer</i>	lookdown	7	.0	4	1.3
<i>Halichoeres bivittatus</i>	slippery dick	7	.6	1	.3
<i>Decodon puellaris</i>	red hogfish	7	.9	3	1.0
<i>Syacium micrurum</i>	channel flounder	7	.3	1	.3

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Paralichthys albigutta</i>	gulf flounder	7	.4	4	1.3
<i>Antennarius striatus</i>	striated frogfish	7	.2	3	1.0
<i>Hirundichthys rondeleti</i>	blackwing flyingfish	5	.3	1	.3
<i>Prionotus martis</i>	barred searobin	5	.0	1	.3
<i>Serraniculus pumilio</i>	pygmy sea bass	5	.0	3	1.0
<i>Ariomma bondi</i>	silver-rag	5	.1	1	.3
<i>Opsanus beta</i>	gulf toadfish	5	.3	3	1.0
<i>Squatina dumeril</i>	Atlantic angel shark	4	4.5	4	1.3
<i>Carcharhinus acronotus</i>	blacknose shark	4	3.5	4	1.3
<i>Hippocampus erectus</i>	lined seahorse	4	.0	4	1.3
<i>Seriola dumerili</i>	greater amberjack	4	1.6	1	.3
<i>Ophidion</i> spp.	cusks-eels	4	.0	2	.7
<i>Gymnachirus melas</i>	naked sole	4	.0	1	.3
<i>Sphyrna tiburo</i>	bonnethead	3	15.7	2	.7
<i>Urophycis regia</i>	spotted hake	3	.1	2	.7
<i>Scorpaena dispar</i>	hunchback scorpionfish	3	.0	1	.3
<i>Cynoscion nebulosus</i>	spotted seatrout	3	.3	1	.3
<i>Equetus acuminatus</i>	high-hat	3	.0	2	.7
<i>Citharichthys macrops</i>	spotted whiff	3	.0	2	.7
<i>Paralichthys squamilentus</i>	broad flounder	3	.6	3	1.0
<i>Symphurus</i> spp.	tonguefishes	3	.0	1	.3
<i>Echiophis intertinctus</i>	spotted spoon-nose eel	2	.8	2	.7
<i>Fistularia petimba</i>	red cornetfish	2	.8	2	.7
<i>Fistularia tabacaria</i>	bluespotted cornetfish	2	.0	1	.3
Sphyraenidae	barracudas	2	.0	1	.3
<i>Rypticus maculatus</i>	whitespotted soapfish	2	.2	2	.7
Apogonidae	cardinalfishes	2	.0	1	.3
<i>Synagrops spinosus</i>	keelcheek bass	2	.1	1	.3
<i>Pomatomus saltatrix</i>	bluefish	2	.5	2	.7
<i>Seriola zonata</i>	banded rudderfish	2	.1	1	.3
<i>Trachinotus carolinus</i>	Florida pompano	2	.5	2	.7
<i>Calamus leucosteus</i>	whitebone porgy	2	1.3	2	.7
<i>Lonchopisthus micrognathus</i>	swordtail jawfish	2	.1	2	.7
<i>Ophidion grayi</i>	blotched cusk-eel	2	.1	1	.3
<i>Dactylopterus volitans</i>	flying gurnard	2	.1	2	.7
<i>Etropus microstomus</i>	smallmouth flounder	2	.0	2	.7
<i>Achirus lineatus</i>	lined sole	2	.0	1	.3
<i>Monacanthus ciliatus</i>	fringed filefish	2	.1	1	.3
<i>Mustelus norrisi</i>	Florida smoothhound	1	1.1	1	.3

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Sphyrna lewini</i>	scalloped hammerhead	1	.3	1	.3
<i>Gymnothorax kolpos</i>	blacktail moray	1	.1	1	.3
<i>Hoplunnis</i> spp.	pike-congers	1	.0	1	.3
<i>Conger oceanicus</i>	conger eel	1	1.2	1	.3
<i>Ophichthus ophis</i>	spotted snake eel	1	.8	1	.3
<i>Parexocoetus brachypterus</i>	sailfin flyingfish	1	.0	1	.3
<i>Cypselurus exsiliens</i>	bandwing flyingfish	1	.0	1	.3
<i>Prognichthys gibbifrons</i>	bluntnose flyingfish	1	.0	1	.3
<i>Syngnathus louisianae</i>	chain pipefish	1	.0	1	.3
<i>Scorpaena</i> spp.	scorpionfishes	1	.2	1	.3
<i>Serranus subligarius</i>	belted sandfish	1	.0	1	.3
<i>Hemanthias leptus</i>	longtail bass	1	.0	1	.3
<i>Apogon aurolineatus</i>	bridle cardinalfish	1	.0	1	.3
<i>Rachycentron canadum</i>	cobia	1	.0	1	.3
<i>Seriola rivoliana</i>	almaco jack	1	.2	1	.3
<i>Coryphaena hippurus</i>	dolphin	1	.1	1	.3
Lutjanidae	snappers	1	.0	1	.3
<i>Calamus penna</i>	sheepshead porgy	1	.1	1	.3
<i>Bembrops gobioides</i>	goby flathead	1	.0	1	.3
<i>Etropus rimosus</i>	gray flounder	1	.0	1	.3
<i>Gastropsetta frontalis</i>	shrimp flounder	1	.1	1	.3
<i>Bothus</i> spp.	left-eye flounders	1	.0	1	.3
<i>Aluterus monoceros</i>	unicorn filefish	1	1.4	1	.3
<i>Aluterus schoepfi</i>	orange filefish	1	.5	1	.3
<i>Opsanus pardus</i>	leopard toadfish	1	.0	1	.3
<i>Lophius americanus</i>	goosefish	1	1.4	1	.3
<i>Histrio histrio</i>	sargassumfish	1	.0	1	.3
<i>Ogcocephalus corniger</i>	longnose batfish	1	.0	1	.3
<u>Crustaceans</u>					
<i>Trachypenaeus similis</i>	roughback shrimp	75373	272.9	114	38.1
<i>Callinectes similis</i>	lesser blue crab	28118	255.9	210	70.2
<i>Penaeus aztecus</i>	brown shrimp	16582	231.9	217	72.6
<i>Squilla empusa</i>	mantis shrimp	12324	134.0	147	49.2
<i>Sicyonia brevirostris</i>	brown rock shrimp	11946	128.0	98	32.8
<i>Portunus spinicarpus</i>	longspine swimming crab	10229	67.1	86	28.8
<i>Sicyonia dorsalis</i>	lesser rock shrimp	3350	9.1	66	22.1
<i>Portunus gibbesii</i>	iridescent swimming crab	3247	19.5	117	39.1
<i>Parapenaeus politus</i>	deepwater rose shrimp	2673	6.8	13	4.3

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<i>Xiphopenaeus kroyeri</i>	seabob	2262	9.5	13	4.3
<i>Penaeus duorarum</i>	pink shrimp	1970	32.5	72	24.1
<i>Squilla chydrea</i>	mantis shrimp	1640	12.9	65	21.7
<i>Trachypenaeus</i> spp.	roughneck shrimps	1333	6.0	10	3.3
<i>Solenocera vioscai</i>	humpback shrimp	1015	4.4	22	7.4
<i>Callinectes sapidus</i>	blue crab	873	98.3	63	21.1
<i>Penaeus setiferus</i>	white shrimp	801	33.4	52	17.4
<i>Portunus spinimanus</i>	blotched swimming crab	501	11.7	47	15.7
<i>Callinectes</i> spp.	swimming crabs	274	2.2	1	.3
<i>Trachypenaeus constrictus</i>	roughneck shrimp	259	3.5	13	4.3
<i>Ovalipes floridanus</i>	Florida lady crab	244	.8	31	10.4
<i>Anasimus latus</i>	stilt spider crab	205	1.7	32	10.7
<i>Solenocera</i> spp.	humpback shrimps	185	.4	7	2.3
<i>Calappa sulcata</i>	yellow box crab	138	38.4	50	16.7
<i>Raninoides louisianensis</i>	gulf frog crab	90	1.3	14	4.7
<i>Hepatus epheliticus</i>	calico crab	85	3.5	23	7.7
<i>Libinia emarginata</i>	portly spider crab	66	6.0	18	6.0
<i>Sicyonia burkenroadi</i>	spiny rock shrimp	47	.0	1	.3
<i>Glypturus</i> spp.	ghost shrimps	46	.1	2	.7
<i>Squilla neglecta</i>	mantis shrimp	44	.3	8	2.7
<i>Leiolambrus nitidus</i>	white elbow crab	38	.1	9	3.0
<i>Plesionika longicauda</i>	pandalid shrimp	35	.1	6	2.0
<i>Libinia dubia</i>	longnose spider crab	35	2.0	13	4.3
<i>Portunus sayi</i>	sargassum swimming crab	35	.1	6	2.0
<i>Arenaeus cribrarius</i>	speckled swimming crab	33	1.5	4	1.3
<i>Speocarcinus lobatus</i>	gulf squareback crab	32	.1	11	3.7
<i>Squilla</i> spp.	mantis shrimps	28	.4	1	.3
<i>Persephona mediterranea</i>	mottled purse crab	28	.2	12	4.0
<i>Raninoides loevis</i>	furrowed frog crab	28	.2	4	1.3
<i>Myropsis quinquespinosa</i>	fivespine purse crab	20	.1	5	1.7
<i>Parthenope granulata</i>	bladetooth elbow crab	18	.0	4	1.3
<i>Parthenope serrata</i>	sawtooth elbow crab	16	.0	3	1.0
<i>Pagurus bullisi</i>	hermit crab	13	.1	3	1.0
<i>Ovalipes stephensoni</i>	coarsehand lady crab	13	.2	3	1.0
<i>Calappa flammea</i>	flame box crab	13	1.7	9	3.0
<i>Petrochirus diogenes</i>	giant hermit crab	12	.3	4	1.3
<i>Speocarcinus</i> spp.	squareback crabs	10	.1	4	1.3
<i>Paguristes triangulatus</i>	hermit crab	9	.2	2	.7
<i>Scyllarides nodifer</i>	ridged slipper lobster	9	3.1	5	1.7

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
Xanthidae	mud crabs	8	.3	2	.7
Dardanus insignis	red brocade hermit	7	.1	3	1.0
Persephona crinita	pink purse crab	7	.0	3	1.0
Acanthocarpus alexandri	gladiator box crab	7	.1	3	1.0
Podochela sidneyi	shortfinger neck crab	6	.0	3	1.0
Pagurus pollicaris	flatclaw hermit crab	5	.0	3	1.0
Menippe adina	Gulf stone crab	5	.2	1	.3
Solenocera atlantidis	dwarf humpback shrimp	4	.0	2	.7
Sicyonia spp.	rock shrimps	4	.0	2	.7
Scyllarus chacei	chace slipper lobster	4	.0	1	.3
Majidae	spider crabs	4	.0	2	.7
Pyromaia arachna	needlenose pear crab	4	.0	1	.3
Stenorhynchus seticornis	yellowline arrow crab	4	.0	2	.7
Porcellana sayana	spotted porcelain crab	4	.0	1	.3
Upogebia affinis	coastal mud shrimp	3	.0	1	.3
Scyllarides spp.	slipper lobsters	3	.0	1	.3
Lysiosquilla scabricauda	mantis shrimp	2	.0	1	.3
Decapoda	decapods	2	.0	1	.3
Dardanus fucosus	bareye hermit	2	.0	1	.3
Portunus spp.	swimming crabs	2	.0	1	.3
Collodes leptocheles	spider crab	2	.0	1	.3
Stenocionops coelata	spider crab	2	.1	2	.7
Porcellana sigsbeiana	striped porcelain crab	2	.0	2	.7
Parapenaeus spp.	penaeid shrimps	1	.0	1	.3
Leander tenuicornis	brown grass shrimp	1	.0	1	.3
Stenopus spp.	coral shrimps	1	.0	1	.3
Axianassa arenaria	mud shrimp	1	.1	1	.3
Galatheidae	squat lobsters	1	.0	1	.3
Metoporphaphis spp.	false arrow crab	1	.0	1	.3
Metoporphaphis calcarata	false arrow crab	1	.0	1	.3
Ranilia muricata	muricate frog crab	1	.0	1	.3
<u>Others</u>					
Loligo spp.	squids	7974	202.6	95	31.8
Loligo pealeii	longfin squid	5658	101.5	73	24.4
Lolliguncula brevis	Atlantic brief squid	2151	24.8	97	32.4
Amusium papyraceum	paper scallop	1800	15.8	45	15.1
Loligo pleii	arrow squid	1580	17.6	19	6.4
Astropecten duplicatus	spiny beaded sea star	839	.8	40	13.4

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF	
				TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<i>Renilla mulleri</i>	short-stemmed sea pansy	513	3.4	24	8.0
<i>Chrysaora quinquecirrha</i>	sea nettle	398	11.5	17	5.7
<i>Astropecten cingulatus</i>	starfish	345	3.4	29	9.7
<i>Luidia clathrata</i>	sea star	246	3.0	22	7.4
Asteroidea	starfishes	223	3.3	18	6.0
Anthozoa	anthozoans	171	.5	4	1.3
<i>Encope aberrans</i>	sand dollar	131	3.5	4	1.3
<i>Aurelia</i> spp.	jellyfishes	118	3.0	11	3.7
<i>Astropecten</i> spp.	sea stars	107	.1	5	1.7
<i>Astropecten articulatus</i>	plated-margined sea star	101	.0	9	3.0
<i>Paranthus rapiformis</i>	onion anemone	88	.4	14	4.7
<i>Schizaster orbignyanus</i>	heart urchin	76	.5	4	1.3
Hydroidae	hydras	75	.0	1	.3
<i>Polystira albida</i>	white giant turris	50	.7	8	2.7
<i>Ophiolepis elegans</i>	brittle star	46	.2	10	3.3
<i>Moira atropos</i>	mud heart-urchin	43	.1	3	1.0
<i>Protankyra grayi</i>	sea cucumber	40	.3	4	1.3
<i>Anadara baughmani</i>	Baughman's ark	38	.7	7	2.3
<i>Pitar cordatus</i>	Schwengel's pitar	29	.5	7	2.3
<i>Clypeaster ravenelii</i>	cake urchin	29	2.7	7	2.3
<i>Luidia</i> spp.	sea stars	28	.1	4	1.3
<i>Stylocidaris affinis</i>	sea urchin	18	.2	2	.7
<i>Pentamera pulcherrima</i>	sea cucumber	18	.6	7	2.3
Tunicata	tunicates	17	.5	5	1.7
<i>Chione clenchi</i>	Clench venus	16	.1	3	1.0
Echinoidea	echinoderms	16	.9	3	1.0
<i>Eucidaris tribuloides</i>	slate-pencil urchin	15	.9	1	.3
<i>Tethyaster grandis</i>	starfish	13	1.0	5	1.7
<i>Muricanthus fulvescens</i>	giant eastern murex	11	.0	5	1.7
<i>Calliactris tricolor</i>	common sea anemone	11	.3	4	1.3
Holothuroidea	sea cucumbers	11	.2	5	1.7
<i>Polystira tellea</i>	delicate giant turret	10	.1	5	1.7
Gorgonidae	gorgonians	10	.6	1	.3
<i>Sargassum</i> spp.	sargassum	10	24.6	3	1.0
<i>Laevicardium sybariticum</i>	delicate eggcockle	9	.7	3	1.0
<i>Macoma brevifrons</i>	short macoma	9	.2	1	.3
<i>Clypeaster prostratus</i>	sea biscuit	9	1.2	1	.3
<i>Sconsia striata</i>	royal bonnet	8	.1	2	.7
Porifera	sponges	8	.8	2	.7

Table 7. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT(KG)	NUMBER OF	
				TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<i>Stomolophus meleagris</i>	many-mouthed sea jelly	7	2.1	1	.3
<i>Distorsio clathrata</i>	Atlantic distorsio	6	.1	3	1.0
<i>Cidaris</i> spp.	sea urchins	6	.0	1	.3
<i>Sinum perspectivum</i>	white baby-ear	5	.0	5	1.7
<i>Vermicularia knorri</i>	triton	4	.0	1	.3
<i>Cantharus cancellarius</i>	cancellate cantharus	4	.0	3	1.0
<i>Echinaster</i> spp.	thorny sea stars	4	.0	2	.7
<i>Anthenoides piercei</i>	starfish	4	.7	2	.7
Ophiuroidea	brittlestars	4	.0	1	.3
<i>Tonna galea</i>	giant tun	3	.8	3	1.0
<i>Pecten raveneli</i>	Ravenel's scallop	3	.0	1	.3
<i>Arcinella cornuta</i>	Florida spiny jewelbox	3	.0	1	.3
<i>Semirossia tenera</i>	lesser shining bobtail	3	.0	3	1.0
<i>Mellita quinquiesperforata</i>	five-slotted sand dollar	3	.0	1	.3
<i>Molpadia cubana</i>	sea cucumber	3	.0	2	.7
<i>Molgula</i> spp.	sea squirts	2	.0	1	.3
<i>Aurelia aurita</i>	moon jellyfish	2	.0	1	.3
Scyphozoa	jellyfishes	2	.8	2	.7
<i>Glycera</i> spp.	bloodworms	2	.0	1	.3
Mollusca	molluscs	1	.0	1	.3
Gastropoda	snails	1	.0	1	.3
<i>Murex</i> spp.	murexes	1	.0	1	.3
<i>Murex bellegladeensis</i>	Belleglade murex	1	.0	1	.3
<i>Cancellaria reticulata</i>	common nutmeg	1	.0	1	.3
<i>Pleurobranchus</i> spp.	sidegill slugs	1	.0	1	.3
<i>Anadara ovalis</i>	blood ark	1	.0	1	.3
<i>Atrina serrata</i>	sawtooth penshell	1	.1	1	.3
<i>Chlamys benedicti</i>	Benedict scallop	1	.0	1	.3
<i>Laevicardium laevigatum</i>	egg cockle	1	.0	1	.3
<i>Laevicardium pictum</i>	painted eggcockle	1	.0	1	.3
<i>Macoma pulleyi</i>	pulley macoma	1	.1	1	.3
<i>Lepidochelys kempfi</i>	Atlantic ridley	1	41.1	1	.3
<i>Styela plicata</i>	tunicate	1	.0	1	.3
<i>Tamoya haplonema</i>	sea wasp	1	.0	1	.3
Polychaeta	bristleworms	1	.0	1	.3
<i>Chloeia viridis</i>	red-tipped fire worm	1	.0	1	.3
<i>Notomastus</i> spp.	threadworms	1	.0	1	.3
<i>Ophioderma</i> spp.	brittle stars	1	.0	1	.3
<i>Ophiothrix angulata</i>	angular brittle star	1	.0	1	.3

Table 8. 1993 Summer Shrimp/Groundfish Survey species composition list, 80 trawl stations, for those vessels that used a 20-ft. trawl. Species with a total weight of less than 0.0227 kg (0.05 lbs) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF	%FREQUENCY OF OCCURRENCE
				TOWS WHERE CAUGHT	
<u>Finfishes</u>					
Micropogonias undulatus	Atlantic croaker	5239	98.6	48	60.0
Chloroscombrus chrysurus	Atlantic bumper	1397	13.5	42	52.5
Cynoscion nothus	silver seatrout	728	25.3	38	47.5
Arius felis	hardhead catfish	412	11.5	15	18.8
Leiostomus xanthurus	spot	342	8.0	21	26.3
Syacium gunteri	shoal flounder	333	3.3	31	38.8
Larimus fasciatus	banded drum	332	8.8	19	23.8
Peprilus burti	gulf butterfish	281	7.5	21	26.3
Stellifer lanceolatus	star drum	237	4.2	12	15.0
Cynoscion arenarius	sand seatrout	167	3.4	26	32.5
Prionotus longispinosus	bigeye searobin	137	.6	14	17.5
Trichiurus lepturus	Atlantic cutlassfish	123	4.7	15	18.8
Upeneus parvus	dwarf goatfish	104	.9	17	21.3
Lagodon rhomboides	pinfish	85	1.6	24	30.0
Polydactylus octonemus	Atlantic threadfin	69	1.9	20	25.0
Stenotomus caprinus	longspine porgy	61	.5	8	10.0
Peprilus alepidotus	harvestfish	39	.1	10	12.5
Prionotus rubio	blackwing searobin	33	.3	12	15.0
Lagocephalus laevigatus	smooth puffer	28	.3	16	20.0
Harengula jaguana	scaled sardine	27	.5	7	8.8
Diplectrum bivittatum	dwarf sand perch	27	.3	10	12.5
Synodus poeyi	offshore lizardfish	15	.1	2	2.5
Selene vomer	lookdown	15	.0	5	6.3
Citharichthys spilopterus	bay whiff	13	.1	7	8.8
Anchoa mitchilli	bay anchovy	12	.0	8	10.0
Etropus crossotus	fringed flounder	12	.0	9	11.3
Lutjanus campechanus	red snapper	11	.3	4	5.0
Selene setapinnis	Atlantic moonfish	10	.0	7	8.8
Anchoa nasuta	longnose anchovy	9	.0	2	2.5
Conodon nobilis	barred grunt	9	.2	5	6.3
Menticirrhus americanus	southern kingfish	9	.6	6	7.5
Anchoa hepsetus	striped anchovy	8	.0	6	7.5
Prionotus tribulus	bighead searobin	8	.0	5	6.3
Chaetodipterus faber	Atlantic spadefish	7	.0	4	5.0
Symphurus plagiusa	blackcheek tonguefish	7	.1	5	6.3
Narcine brasiliensis	lesser electric ray	6	2.1	3	3.8

Table 8. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Synodus foetens</i>	inshore lizardfish	6	.4	6	7.5
<i>Menticirrhus littoralis</i>	gulf kingfish	6	.5	4	5.0
<i>Trinectes maculatus</i>	hogchoker	6	.1	3	3.8
<i>Sardinella aurita</i>	Spanish sardine	5	.2	1	1.3
<i>Hippocampus erectus</i>	lined seahorse	5	.0	3	3.8
<i>Ancylopsetta quadrocellata</i>	ocellated flounder	5	.0	4	5.0
<i>Brevoortia patronus</i>	gulf menhaden	4	.2	4	5.0
<i>Centropristis philadelphica</i>	rock sea bass	4	.0	3	3.8
<i>Bairdiella chrysoura</i>	silver perch	4	.2	4	5.0
<i>Monacanthus hispidus</i>	planehead filefish	3	.0	3	3.8
<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark	2	.4	2	2.5
<i>Alosa chrysochloris</i>	skipjack herring	2	.0	2	2.5
<i>Saurida brasiliensis</i>	largescale lizardfish	2	.1	2	2.5
<i>Lutjanus synagris</i>	lane snapper	2	.0	2	2.5
<i>Orthopristis chrysoptera</i>	pigfish	2	.1	2	2.5
<i>Ancylopsetta dilecta</i>	three-eye flounder	2	.0	1	1.3
<i>Porichthys plectrodon</i>	Atlantic midshipman	2	.0	1	1.3
<i>Ogcocephalus radiatus</i>	polka-dot batfish	2	.1	1	1.3
<i>Dasyatis sabina</i>	Atlantic stringray	1	.2	1	1.3
<i>Gymnura micrura</i>	smooth butterfly ray	1	.1	1	1.3
<i>Rhinoptera bonasus</i>	cownose ray	1	1.6	1	1.3
<i>Etrumeus teres</i>	round herring	1	.0	1	1.3
<i>Ophichthus gomesi</i>	shrimp eel	1	.0	1	1.3
<i>Hippocampus zosterae</i>	dwarf seahorse	1	.0	1	1.3
<i>Serranus atrobranchus</i>	blackear bass	1	.0	1	1.3
<i>Priacanthus arenatus</i>	bigeye	1	.0	1	1.3
<i>Pomatomus saltatrix</i>	bluefish	1	.2	1	1.3
<i>Trachinotus carolinus</i>	Florida pompano	1	.0	1	1.3
<i>Trachinotus falcatus</i>	permit	1	.0	1	1.3
<i>Menticirrhus saxatilis</i>	northern kingfish	1	.0	1	1.3
<i>Aluterus schoepfi</i>	orange filefish	1	.0	1	1.3
<i>Sphoeroides parvus</i>	least puffer	1	.0	1	1.3
<i>Opsanus beta</i>	gulf toadfish	1	.0	1	1.3
<i>Antennarius striatus</i>	striated frogfish	1	.0	1	1.3
<i>Halieutichthys aculeatus</i>	pancake batfish	1	.0	1	1.3

Table 8. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF	%FREQUENCY OF OCCURRENCE
				TOWS WHERE CAUGHT	
<u>Crustaceans</u>					
<i>Callinectes similis</i>	lesser blue crab	1089	5.5	57	71.3
<i>Penaeus aztecus</i>	brown shrimp	697	5.5	36	45.0
<i>Xiphopenaeus kroyeri</i>	seabob	203	2.0	12	15.0
<i>Penaeus duorarum</i>	pink shrimp	137	1.7	12	15.0
<i>Trachypenaeus similis</i>	roughback shrimp	92	.1	14	17.5
<i>Callinectes sapidus</i>	blue crab	54	6.5	19	23.8
<i>Squilla empusa</i>	mantis shrimp	52	.5	23	28.8
<i>Penaeus setiferus</i>	white shrimp	51	1.8	16	20.0
<i>Portunus gibbesii</i>	iridescent swimming crab	46	.5	15	18.8
<i>Sicyonia dorsalis</i>	lesser rock shrimp	45	.0	19	23.8
<i>Arenaeus cribrarius</i>	speckled swimming crab	45	1.6	3	3.8
<i>Pagurus pollicaris</i>	flatclaw hermit crab	29	.5	15	18.8
<i>Sicyonia brevirostris</i>	brown rock shrimp	28	.2	7	8.8
<i>Persephona crinita</i>	pink purse crab	22	.0	9	11.3
<i>Portunus spinimanus</i>	blotched swimming crab	22	.5	10	12.5
<i>Persephona mediterranea</i>	mottled purse crab	21	.2	10	12.5
<i>Dromidia antillensis</i>	hairy sponge crab	20	.0	8	10.0
<i>Libinia dubia</i>	longnose spider crab	16	.0	12	15.0
<i>Podochela sidneyi</i>	shortfinger neck crab	11	.0	4	5.0
<i>Petrochirus diogenes</i>	giant hermit crab	8	.6	4	5.0
<i>Ovalipes floridanus</i>	Florida lady crab	7	.1	4	5.0
<i>Speocarcinus lobatus</i>	gulf squareback crab	7	.0	2	2.5
<i>Calappa sulcata</i>	yellow box crab	6	.5	4	5.0
<i>Porcellana sigsbeiana</i>	striped porcelain crab	4	.0	2	2.5
<i>Porcellana sayana</i>	spotted porcelain crab	4	.0	1	1.3
<i>Hepatus epheliticus</i>	calico crab	4	.0	2	2.5
<i>Trachypenaeus</i> spp.	roughneck shrimps	3	.0	2	2.5
<i>Trachypenaeus constrictus</i>	roughneck shrimp	2	.0	1	1.3
<i>Pagurus longicarpus</i>	longwrist hermit crab	2	.0	2	2.5
<i>Libinia emarginata</i>	portly spider crab	2	.1	2	2.5
<i>Portunus sayi</i>	sargassum swimming crab	2	.0	2	2.5
<i>Eurypanopeus depressus</i>	flatback mud crab	1	.0	1	1.3
<i>Panopeus simpsoni</i>	oystershell mudcrab	1	.0	1	1.3
<i>Glypturus acanthochirus</i>	ghost shrimp	1	.0	1	1.3
Paguridae	right-handed hermit crabs	1	.0	1	1.3
<i>Pagurus impressus</i>	dimpled hermit	1	.0	1	1.3
<i>Dardanus fucosus</i>	bareye hermit	1	.0	1	1.3

Table 8. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF	
				TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<i>Dardanus venosus</i>	stareye hermit	1	.0	1	1.3
Xanthidae	mud crabs	1	.0	1	1.3
<i>Pinnotheres maculatus</i>	squatter pea crab	1	.0	1	1.3
<i>Chasmocarcinus mississippiensis</i>	roughwrist soft crab	1	.0	1	1.3
<i>Parthenope serrata</i>	sawtooth elbow crab	1	.0	1	1.3
<u>Others</u>					
<i>Renilla mulleri</i>	short-stemmed sea pansy	1705	10.2	28	35.0
<i>Lolliguncula brevis</i>	Atlantic brief squid	618	10.5	51	63.8
<i>Loligo pealeii</i>	longfin squid	60	1.3	14	17.5
<i>Luidia clathrata</i>	sea star	59	1.0	20	25.0
Holothuriidae	sea cucumbers	59	.0	6	7.5
Sargassaceae	sargassum	45	12.5	45	56.3
Actinidae	sea anemones	35	.0	21	26.3
<i>Chrysaora quinquecirrha</i>	sea nettle	32	8.0	19	23.8
Porifera	sponges	14	.0	4	5.0
<i>Cantharus cancellarius</i>	cancellate cantharus	12	.0	5	6.3
<i>Holothuria</i> spp.	sea cucumbers	11	.0	1	1.3
<i>Neverita duplicata</i>	shark eye	8	.1	5	6.3
<i>Argopecten gibbus</i>	calico scallop	8	.2	2	2.5
Ascidiacea	sea squirts	5	.1	1	1.3
Ctenophora	comb jellies	5	.1	3	3.8
<i>Busycon sinistrum</i>	lightning whelk	3	.2	3	3.8
<i>Chione clenchi</i>	Clench venus	3	.0	3	3.8
Asteroidea	starfishes	3	.0	3	3.8
<i>Luidia alternata</i>	banded luidia	3	.2	3	3.8
<i>Ophiura</i> spp.	brittle stars	3	.0	1	1.3
Algae	algae	3	.2	3	3.8
<i>Astropecten duplicatus</i>	spiny beaded sea star	2	.0	2	2.5
<i>Ophiolepis elegans</i>	brittle star	2	.0	1	1.3
<i>Mellita quinquesperforata</i>	five-slotted sand dollar	2	.0	2	2.5
<i>Strombus alatus</i>	Florida fighting conch	1	.0	1	1.3
<i>Phalium granulatum</i>	scotch bonnet	1	.0	1	1.3
Ranillidae	sea pansies	1	.0	1	1.3
<i>Muricanthus fulvescens</i>	giant eastern murex	1	.0	1	1.3
<i>Fasciolaria lilium</i>	banded tulip	1	.0	1	1.3
<i>Armina tigrina</i>	tiger armina	1	.0	1	1.3

Table 8. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
Anadara transversa	transverse ark	1	.0	1	1.3
Tellina alternata	alternate tellin	1	.0	1	1.3
Macrocallista maculata	calico clam	1	.0	1	1.3
Loligo pleii	arrow squid	1	.0	1	1.3
Octopus vulgaris	common Atlantic octopus	1	.0	1	1.3
Stomolophus meleagris	many-mouthed sea jelly	1	.0	1	1.3

Table 9a
 Statistical Zone 11
 40-ft trawls

Summary of dominant organisms taken in statistical zone 11 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	18.2	18.16	.0	.04	4	73.1	71.72	.2	.22	10	624.5	221.74	2.1	.78	21
Parapenaeus politus	.0	.00	.0	.00	4	.0	.00	.0	.00	10	4.3	4.29	.0	.00	21
Portunus spinicarpus	1.1	1.07	.0	.00	4	.0	.00	.0	.00	10	78.6	30.92	.1	.05	21
Callinectes similis	16.9	15.47	.1	.14	4	14.9	13.91	.1	.11	10	423.9	394.24	1.4	.97	21
Sicyonia dorsalis	.0	.00	.0	.00	4	3.9	1.75	.0	.01	10	227.4	73.12	.4	.11	21
Portunus gibbesii	86.1	86.05	.3	.25	4	145.7	141.37	.3	.31	10	66.2	40.44	.2	.18	21
Stenotomus caprinus	6.2	3.56	.1	.07	4	211.3	74.21	1.3	.55	10	974.4	357.41	5.8	1.79	21
Micropogonias undulatus	66.1	57.10	1.3	1.11	4	.3	.24	.0	.02	10	.5	.32	.0	.03	21
Prionotus longispinosus	623.3	613.33	2.9	2.80	4	197.5	185.95	.5	.49	10	135.8	41.83	.8	.23	21
Trachurus lathamii	.0	.00	.0	.00	4	17.8	14.76	.2	.14	10	195.5	111.61	1.6	.85	21
Serranus atrobranchus	.0	.00	.0	.00	4	.0	.00	.0	.00	10	235.8	80.97	1.1	.41	21
Steindachneria argentea	.0	.00	.0	.00	4	.0	.00	.0	.00	10	.0	.00	.0	.00	21
Etrumeus teres	.0	.00	.0	.00	4	4.9	4.71	.0	.03	10	98.1	81.47	1.1	.96	21
Saurida brasiliensis	1.5	1.50	.0	.00	4	43.7	24.79	.2	.08	10	90.4	38.54	.4	.19	21
Squid	58.6	46.47	.3	.19	4	169.3	67.83	1.7	.78	10	422.7	119.38	8.5	3.18	21

Table 9a (continued)
 Statistical Zone 11
 40-ft trawls

Summary of dominant organisms taken in statistical zone 11 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Trachypenaeus similis</i>	55.4	43.46	.2	.21	8	166.1	155.67	.9	.84	6	3.6	3.56	.0	.02	3
<i>Parapenaeus politus</i>	.0	.00	.0	.00	8	598.8	546.74	1.0	.96	6	1264.6	1056.61	4.0	3.52	3
<i>Portunus spinicarpus</i>	71.1	44.36	.2	.15	8	228.5	135.80	1.3	.52	6	611.0	480.81	6.4	5.32	3
<i>Callinectes similis</i>	.0	.00	.0	.00	8	32.5	31.12	.4	.36	6	3.6	3.56	.0	.02	3
<i>Sicyonia dorsalis</i>	1.3	1.32	.0	.00	8	69.3	69.33	.2	.24	6	.0	.00	.0	.00	3
<i>Portunus gibbesii</i>	.8	.54	.0	.00	8	.0	.00	.0	.00	6	.0	.00	.0	.00	3
<i>Stenotomus caprinus</i>	955.4	296.18	21.2	5.58	8	346.4	188.80	14.7	8.28	6	368.4	126.27	18.7	5.59	3
<i>Micropogonias undulatus</i>	10.9	6.93	.5	.34	8	2211.1	2082.59	51.2	43.17	6	899.7	524.24	57.6	31.28	3
<i>Prionotus longispinosus</i>	25.2	13.59	.4	.23	8	49.7	33.08	2.5	1.57	6	56.3	33.46	5.9	3.83	3
<i>Trachurus lathamii</i>	1.1	1.13	.0	.01	8	1.0	1.00	.1	.09	6	.0	.00	.0	.00	3
<i>Serranus atrobranchus</i>	8.2	6.09	.0	.02	8	55.0	33.11	.7	.45	6	106.4	55.46	1.8	1.18	3
<i>Steindachneria argentea</i>	.0	.00	.0	.00	8	627.5	561.70	3.7	3.37	6	66.6	42.36	.5	.39	3
<i>Etrumeus teres</i>	.0	.00	.0	.00	8	6.1	2.75	.1	.07	6	1.3	1.33	.0	.02	3
<i>Saurida brasiliensis</i>	27.4	24.35	.1	.10	8	11.8	4.79	.1	.06	6	.0	.00	.0	.00	3
<i>Squid</i>	47.2	25.58	.6	.26	8	75.2	27.03	1.2	.36	6	2.2	2.22	.0	.00	3

Table 9b
 Statistical Zone 11
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	16.7	4.88	4	9.0	1.94	10	43.7	4.38	21	38.0	5.12	8	125.8	45.56	6	138.3	52.96	3
Total finfish kg	8.8	4.42	4	4.8	1.31	10	25.3	3.19	21	33.5	4.90	8	118.3	46.80	6	125.7	46.50	3
Total crustacean kg	2.2	2.15	4	1.6	.90	10	9.6	2.66	21	3.3	1.38	8	6.4	3.86	6	12.4	8.91	3
Total others kg	5.8	3.70	4	2.4	.85	10	8.9	3.19	21	1.1	.34	8	1.5	.50	6	.0	.00	3
Surface temperature	26.8	.68	5	28.9	.51	9	28.2	.28	22	27.4	.13	6	28.7	.80	4	29.1	.87	6
Midwater temperature	24.8	.33	5	26.2	.83	9	23.6	.45	22	24.6	.87	6	23.2	1.04	4	22.3	.48	6
Bottom temperature	24.8	.35	4	23.7	.82	9	21.8	.28	22	21.7	.34	6	20.2	.96	4	18.1	.61	6
Surface salinity	25.5	.77	5	23.8	.70	9	24.0	1.56	21	29.1	3.18	6	24.5	3.22	3	28.8	3.19	6
Midwater salinity	28.4	1.50	5	29.6	1.27	9	35.3	.20	22	35.9	.13	6	36.2	.03	3	36.2	.02	6
Bottom salinity	31.5	1.32	4	33.3	1.07	9	35.8	.26	22	36.2	.07	6	36.3	.06	3	36.2	.16	6
Surface chlorophyll	2.0	.00	1	3.0	2.06	6	6.9	2.15	19	5.4	4.21	6	9.8	8.34	4	8.6	4.99	5
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	7.9	.44	5	8.0	.68	9	8.9	.53	21	9.2	1.23	6	7.8	1.54	3	7.0	.52	6
Midwater oxygen	6.7	.04	5	6.8	.19	9	6.2	.18	21	6.4	.47	6	5.5	.38	3	6.3	.64	6
Bottom oxygen	6.0	.38	4	5.0	.52	9	4.7	.26	21	4.9	.21	6	4.2	.71	3	4.3	.20	6

Table 10a
 Statistical Zone 13
 40-ft trawls

Summary of dominant organisms taken in statistical zone 13 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	.0	.00	.0	.00	3	.0	.00	.0	.00	5	5241.0	2395.87	24.5	11.21	14
Squilla spp.	.0	.00	.0	.00	3	15.3	15.33	.0	.03	5	547.3	154.48	4.4	1.49	14
Callinectes similis	1.1	1.11	.0	.00	3	.0	.00	.0	.00	5	285.9	107.73	2.2	.85	14
Penaeus aztecus	4.7	4.71	.1	.05	3	.0	.00	.0	.00	5	159.7	48.59	2.2	.55	14
Portunus spinicarpus	.0	.00	.0	.00	3	.0	.00	.0	.00	5	.0	.00	.0	.00	14
Sicyonia brevirostris	.0	.00	.0	.00	3	.0	.00	.0	.00	5	44.6	44.57	.1	.06	14
Prionotus rubio	.0	.00	.0	.00	3	.0	.00	.0	.00	5	3422.3	2639.29	22.4	15.87	14
Trichiurus lepturus	52.3	26.28	1.2	.68	3	.0	.00	.0	.00	5	1382.5	648.70	19.2	12.71	14
Prionotus longispinosus	.0	.00	.0	.00	3	.0	.00	.0	.00	5	311.5	222.67	1.9	1.34	14
Bollmannia communis	.0	.00	.0	.00	3	.0	.00	.0	.00	5	715.1	353.56	3.5	1.72	14
Centropristis philadelphia	.0	.00	.0	.00	3	.0	.00	.0	.00	5	275.6	155.50	2.3	1.05	14
Micropogonias undulatus	474.8	333.86	14.4	9.66	3	.0	.00	.0	.00	5	16.9	6.22	1.2	.41	14
Anchoa mitchilli	23.3	8.31	.1	.05	3	3.4	2.68	.0	.00	5	289.4	187.44	1.1	.76	14
Spherooides parvus	1.0	.95	.0	.00	3	.0	.00	.0	.00	5	182.4	81.18	.6	.21	14
Squid	1.9	1.90	.0	.04	3	2.6	2.11	.0	.02	5	203.8	75.88	2.6	1.09	14

Table 10a (continued)
 Statistical Zone 13
 40-ft trawls

Summary of dominant organisms taken in statistical zone 13 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	4954.7	.00	21.4	.00	1	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Squilla spp.	1196.8	.00	10.3	.00	1	204.0	.00	2.5	.00	1	.0	.00	.0	.00	0
Callinectes similis	186.3	.00	2.0	.00	1	24.0	.00	1.1	.00	1	.0	.00	.0	.00	0
Penaeus aztecus	189.5	.00	2.2	.00	1	12.0	.00	.3	.00	1	.0	.00	.0	.00	0
Portunus spinicarpus	.0	.00	.0	.00	1	654.0	.00	4.6	.00	1	.0	.00	.0	.00	0
Sicyonia brevirostris	.0	.00	.0	.00	1	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Prionotus rubio	.0	.00	.0	.00	1	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Trichiurus lepturus	.0	.00	.0	.00	1	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Prionotus longispinosus	1957.9	.00	17.4	.00	1	474.0	.00	13.6	.00	1	.0	.00	.0	.00	0
Bollmannia communis	893.7	.00	2.7	.00	1	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Centropristis philadelphia	438.9	.00	4.0	.00	1	114.0	.00	9.0	.00	1	.0	.00	.0	.00	0
Micropogonias undulatus	3.2	.00	.3	.00	1	3342.0	.00	183.3	.00	1	.0	.00	.0	.00	0
Anchoa mitchilli	.0	.00	.0	.00	1	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Sphaeroides parvus	186.3	.00	1.3	.00	1	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Squid	12.6	.00	.0	.00	1	.0	.00	.0	.00	1	.0	.00	.0	.00	0

Table 10b
 Statistical Zone 13
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 40 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	67.2	33.00	3	.6	.63	5	125.0	40.96	14	77.5	.00	1	242.7	.00	1	.0	.00	0
Total finfish kg	65.6	32.62	3	.6	.63	5	86.9	34.90	14	41.6	.00	1	231.8	.00	1	.0	.00	0
Total crustacean kg	1.0	.49	3	.0	.00	5	35.0	13.14	14	35.9	.00	1	10.9	.00	1	.0	.00	0
Total others kg	.0	.00	3	.0	.00	5	2.4	1.16	14	.0	.00	1	.0	.00	1	.0	.00	0
Surface temperature	30.0	.94	3	30.6	.29	7	30.5	.10	13	.0	.00	0	28.7	1.00	2	.0	.00	0
Midwater temperature	29.6	.23	3	28.3	.37	7	27.6	.19	13	.0	.00	0	23.0	.93	2	.0	.00	0
Bottom temperature	28.8	1.65	3	25.7	.17	7	24.3	.50	13	.0	.00	0	20.6	.84	2	.0	.00	0
Surface salinity	9.4	1.84	3	16.0	1.85	7	21.1	.77	13	.0	.00	0	24.7	2.57	2	.0	.00	0
Midwater salinity	17.2	5.46	3	30.5	1.70	7	35.2	.13	13	.0	.00	0	35.9	.23	2	.0	.00	0
Bottom salinity	22.4	6.20	3	35.3	.18	7	35.9	.05	13	.0	.00	0	36.3	.05	2	.0	.00	0
Surface chlorophyll	15.4	1.70	3	7.6	2.09	7	10.0	2.48	13	.0	.00	0	6.2	2.43	2	.0	.00	0
Midwater chlorophyll	.0	.00	0	5.8	5.34	2	.9	.17	10	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	1.2	.75	2	.8	.25	10	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	5.6	.35	3	7.5	.64	7	7.2	.62	13	.0	.00	0	6.6	.65	2	.0	.00	0
Midwater oxygen	5.4	.70	3	4.0	.36	7	4.6	.42	13	.0	.00	0	5.4	.10	2	.0	.00	0
Bottom oxygen	3.8	1.03	3	1.6	.15	7	2.3	.22	13	.0	.00	0	4.6	1.05	2	.0	.00	0

Table 11a
 Statistical Zone 14
 40-ft trawls

Summary of dominant organisms taken in statistical zone 14 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	.0	.00	.0	.00	1	5.4	3.87	.0	.00	7	540.0	331.70	1.4	.79	13
Squilla spp.	.0	.00	.0	.00	1	22.6	10.03	.1	.03	7	256.7	143.58	2.0	1.36	13
Penaeus aztecus	1608.0	.00	12.0	.00	1	187.4	116.55	1.8	1.13	7	178.6	66.36	2.0	.73	13
Portunus spinicarpus	.0	.00	.0	.00	1	.0	.00	.0	.00	7	1.5	1.46	.0	.01	13
Callinectes similis	.0	.00	.0	.00	1	42.0	33.49	.4	.34	7	61.3	27.61	.8	.32	13
Portunus gibbesii	.0	.00	.0	.00	1	18.3	12.46	.1	.07	7	51.9	30.42	.2	.11	13
Micropogonias undulatus	7398.0	.00	200.5	.00	1	145.7	90.90	6.3	3.90	7	781.2	716.43	42.4	39.16	13
Prionotus longispinosus	234.0	.00	2.7	.00	1	115.4	114.76	.9	.92	7	340.6	210.22	2.6	1.41	13
Peprilus burti	.0	.00	.0	.00	1	6.3	5.35	.4	.31	7	21.9	10.51	.9	.49	13
Anchoa hepsetus	18.0	.00	.0	.00	1	8.3	4.44	.0	.03	7	.1	.13	.0	.00	13
Centropristis philadelphia	.0	.00	.0	.00	1	48.0	37.92	.5	.41	7	220.6	140.02	2.1	1.35	13
Steindachneria argentea	.0	.00	.0	.00	1	.0	.00	.0	.00	7	.0	.00	.0	.00	13
Prionotus rubio	.0	.00	.0	.00	1	6.6	5.30	.1	.06	7	219.1	143.04	1.4	.88	13
Stenotomus caprinus	.0	.00	.0	.00	1	2.0	2.00	.0	.01	7	101.8	55.33	.6	.29	13
Squid	.0	.00	.0	.00	1	7.7	5.26	.2	.14	7	44.1	24.14	.2	.09	13

Table 11a (continued)
 Statistical Zone 14
 40-ft trawls

Summary of dominant organisms taken in statistical zone 14 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Trachypenaeus similis</i>	191.2	182.45	1.2	1.06	3	.0	.00	.0	.00	3	.0	.00	.0	.00	3
<i>Squilla</i> spp.	389.5	380.78	2.7	2.58	3	78.5	58.12	.8	.57	3	30.0	30.00	.4	.36	3
<i>Penaeus aztecus</i>	218.7	182.11	3.9	3.43	3	23.0	7.00	1.4	.39	3	4.9	2.89	.4	.24	3
<i>Portunus spinicarpus</i>	110.5	80.29	.5	.38	3	1031.0	934.95	5.6	4.48	3	11.4	9.28	.2	.15	3
<i>Callinectes similis</i>	77.2	46.02	2.8	1.45	3	4.0	4.00	.4	.36	3	2.0	2.00	.0	.00	3
<i>Portunus gibbesii</i>	25.6	21.98	.2	.13	3	4.0	4.00	.1	.09	3	14.0	14.00	.1	.09	3
<i>Micropogonias undulatus</i>	2.0	2.04	.1	.13	3	60.0	51.26	3.6	2.64	3	68.2	65.18	7.9	7.60	3
<i>Prionotus longispinosus</i>	123.7	123.67	2.4	2.36	3	124.0	90.04	4.2	2.01	3	48.8	47.62	4.8	4.69	3
<i>Peprilus burti</i>	654.7	549.38	20.9	19.30	3	32.5	16.71	2.3	1.53	3	7.5	5.40	.6	.51	3
<i>Anchoa hepsetus</i>	1015.1	866.96	19.2	16.07	3	.0	.00	.0	.00	3	.0	.00	.0	.00	3
<i>Centropristis philadelphia</i>	31.8	17.71	1.3	.64	3	83.0	34.04	6.0	2.47	3	77.1	72.51	7.9	7.52	3
<i>Steindachneria argentea</i>	14.7	14.69	.1	.06	3	2416.0	2416.00	9.7	9.73	3	148.0	148.00	2.2	2.18	3
<i>Prionotus rubio</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	3	.0	.00	.0	.00	3
<i>Stenotomus caprinus</i>	27.0	23.14	.4	.39	3	151.0	56.93	7.7	3.27	3	62.6	34.18	3.9	2.21	3
<i>Squid</i>	442.0	163.47	10.7	4.54	3	249.0	234.16	2.5	2.28	3	751.9	329.93	9.6	4.37	3

Table 11b
 Statistical Zone 14
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	425.5	.00	1	24.5	11.28	7	72.3	41.66	13	80.9	13.45	3	82.3	27.45	3	69.4	27.30	3
Total finfish kg	392.7	.00	1	18.0	8.27	7	64.5	41.48	13	57.6	17.63	3	68.2	22.41	3	56.4	27.00	3
Total crustacean kg	32.7	.00	1	6.1	3.66	7	7.2	2.65	13	12.4	8.62	3	9.8	6.18	3	2.1	1.69	3
Total others kg	.0	.00	1	.1	.13	7	.2	.25	13	10.9	4.65	3	3.2	2.24	3	9.9	4.74	3
Surface temperature	30.4	.09	4	29.9	.15	7	29.8	.20	13	29.6	.42	2	29.9	.12	5	29.9	.02	2
Midwater temperature	29.6	.45	4	28.4	.25	7	27.4	.13	13	27.4	1.46	2	23.0	.32	5	21.3	.06	2
Bottom temperature	28.3	.64	4	26.4	.31	7	24.2	.38	13	21.8	.42	2	19.1	.35	5	16.6	1.00	2
Surface salinity	17.1	.66	4	19.9	.35	7	22.7	.56	13	28.7	4.69	2	25.8	1.34	5	30.4	.94	2
Midwater salinity	26.3	3.03	4	31.9	1.11	7	34.4	.28	13	33.9	.93	2	36.1	.04	5	36.2	.00	2
Bottom salinity	30.0	4.09	4	35.0	.20	7	35.8	.07	13	36.1	.07	2	36.4	.10	5	36.1	.15	2
Surface chlorophyll	14.9	2.14	4	4.9	1.01	6	3.7	.60	13	.9	.61	2	2.2	.81	5	2.4	1.58	2
Midwater chlorophyll	3.7	.93	3	1.2	.31	3	1.2	.30	5	.3	.00	1	.0	.00	0	.0	.00	0
Bottom chlorophyll	9.6	2.26	3	2.7	.45	3	1.4	.46	5	1.9	.00	1	.0	.00	0	.0	.00	0
Surface oxygen	8.0	.27	4	6.8	.53	7	6.2	.26	13	6.3	.45	2	5.3	.21	5	5.4	.00	2
Midwater oxygen	6.4	.53	4	4.2	.65	7	4.8	.29	13	6.1	.55	2	5.4	.25	5	5.6	.05	2
Bottom oxygen	3.1	1.51	4	1.8	.38	7	2.2	.19	13	2.0	.65	2	3.7	.11	5	4.0	.10	2

Table 12a
 Statistical Zone 15
 40-ft trawls

Summary of dominant organisms taken in statistical zone 15 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	.0	.00	.0	.00	3	.0	.00	.0	.00	5	217.0	203.51	.9	.86	9
Portunus spinicarpus	.0	.00	.0	.00	3	.0	.00	.0	.00	5	.0	.00	.0	.00	9
Squilla spp.	3.9	2.31	.0	.00	3	.4	.43	.0	.02	5	145.8	94.92	1.6	1.14	9
Sicyonia brevirostris	.0	.00	.0	.00	3	.0	.00	.0	.00	5	2.2	2.22	.1	.06	9
Penaeus aztecus	217.3	114.14	1.9	.96	3	6.4	6.40	.1	.07	5	71.4	55.91	.9	.69	9
Xiphopenaeus kroyeri	964.0	961.00	3.7	3.67	3	.0	.00	.0	.00	5	.0	.00	.0	.00	9
Peprilus burti	2.5	2.50	.1	.06	3	.0	.00	.0	.00	5	36.7	22.94	.7	.45	9
Stenotomus caprinus	.0	.00	.0	.00	3	.8	.80	.0	.00	5	74.8	39.77	.7	.32	9
Micropogonias undulatus	1308.5	227.94	34.9	8.97	3	.2	.20	.0	.00	5	1720.4	1718.45	60.5	60.46	9
Prionotus longispinosus	112.6	40.36	.9	.50	3	.0	.00	.0	.00	5	794.6	785.21	7.9	7.85	9
Serranus atrobranchus	.0	.00	.0	.00	3	.0	.00	.0	.00	5	15.3	15.08	.2	.16	9
Centropristis philadelphia	.0	.00	.0	.00	3	1.2	1.20	.0	.02	5	69.3	67.35	1.1	1.09	9
Prionotus paralatus	.0	.00	.0	.00	3	.0	.00	.0	.00	5	.0	.00	.0	.00	9
Prionotus stearnsi	.0	.00	.0	.00	3	.0	.00	.0	.00	5	.0	.00	.0	.00	9
Squid	2.6	1.29	.0	.00	3	.0	.00	.0	.00	5	339.3	221.81	6.0	4.01	9

Table 12a (continued)
 Statistical Zone 15
 40-ft trawls

Summary of dominant organisms taken in statistical zone 15 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	4857.2	4850.16	19.5	19.44	3	14.5	8.55	.1	.12	5	.0	.00	.0	.00	1
Portunus spinicarpus	4.7	4.67	.1	.12	3	845.2	342.38	6.7	3.00	5	38.6	.00	.1	.00	1
Squilla spp.	623.8	621.83	8.8	8.80	3	39.7	16.90	.3	.15	5	25.7	.00	.1	.00	1
Sicyonia brevirostris	54.8	44.29	.5	.33	3	482.7	177.86	6.0	2.26	5	7.1	.00	.1	.00	1
Penaeus aztecus	305.5	291.88	4.3	3.87	3	23.8	4.85	1.2	.30	5	48.6	.00	2.6	.00	1
Xiphopenaeus kroyeri	.0	.00	.0	.00	3	.0	.00	.0	.00	5	.0	.00	.0	.00	1
Peprilus burti	1234.7	726.98	69.1	37.40	3	1402.1	855.04	64.6	39.21	5	12.9	.00	.3	.00	1
Stenotomus caprinus	2000.7	1928.03	19.4	16.79	3	341.6	98.52	12.7	3.30	5	388.6	.00	22.1	.00	1
Micropogonias undulatus	7.8	7.34	.4	.35	3	3.9	1.67	.5	.21	5	12.9	.00	1.3	.00	1
Prionotus longispinosus	1144.3	1130.87	11.5	11.30	3	17.4	11.21	1.0	.71	5	20.0	.00	.6	.00	1
Serranus atrobranchus	127.3	122.82	.9	.90	3	164.5	91.59	1.3	.61	5	90.0	.00	1.3	.00	1
Centropristis philadelphia	102.1	64.25	3.6	1.87	3	86.9	36.30	3.7	1.49	5	110.0	.00	7.1	.00	1
Prionotus paralatus	71.3	68.81	.4	.36	3	108.8	68.14	.9	.42	5	12.9	.00	.3	.00	1
Prionotus stearnsi	4.7	4.67	.1	.12	3	27.1	17.90	.3	.13	5	478.6	.00	3.9	.00	1
Squid	131.8	5.69	3.6	.43	3	63.5	26.94	1.9	.58	5	38.6	.00	.1	.00	1

Table 12b
 Statistical Zone 15
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	78.0	22.25	3	4.6	2.84	5	105.3	89.72	9	172.9	51.22	3	117.2	28.64	5	53.9	.00	1
Total finfish kg	57.2	6.16	3	4.2	2.90	5	90.4	83.11	9	130.1	17.34	3	98.6	32.54	5	49.4	.00	1
Total crustacean kg	12.7	8.68	3	.4	.36	5	8.5	6.92	9	38.8	37.57	3	15.3	5.73	5	3.2	.00	1
Total others kg	8.2	8.18	3	.0	.00	5	6.0	3.98	9	3.7	.36	3	2.9	.87	5	.6	.00	1
Surface temperature	29.9	.41	6	29.8	.18	6	29.5	.19	8	29.3	.08	5	30.4	.75	2	29.4	.00	1
Midwater temperature	29.9	.18	6	28.9	.14	6	27.5	.36	8	26.0	.87	5	22.3	.02	2	23.5	.00	1
Bottom temperature	28.5	.50	6	25.2	.79	6	22.6	.29	8	21.1	.16	5	20.3	.00	2	18.7	.00	1
Surface salinity	17.4	1.10	6	21.9	.96	6	22.6	.85	8	23.6	.63	5	23.6	.56	2	31.5	.00	1
Midwater salinity	19.7	1.34	6	24.0	1.32	6	30.7	.84	8	34.4	.44	5	35.2	.11	2	35.3	.00	1
Bottom salinity	25.6	3.13	6	34.2	.17	6	35.6	.17	8	36.1	.02	5	36.6	.39	2	36.3	.00	1
Surface chlorophyll	11.9	2.49	6	2.2	.59	6	1.9	.48	8	1.3	.08	5	1.1	.29	2	.3	.00	1
Midwater chlorophyll	11.8	3.11	2	2.3	1.18	2	.4	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	10.1	5.79	2	5.0	.05	2	1.7	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	6.0	.78	6	6.3	.39	6	6.0	.26	8	5.6	.15	5	4.2	1.65	2	5.5	.00	1
Midwater oxygen	5.7	.56	6	5.7	.12	6	4.4	.53	8	4.8	.43	5	4.0	.70	2	5.3	.00	1
Bottom oxygen	3.3	1.19	6	1.1	.17	6	2.0	.31	8	3.2	.18	5	3.3	.35	2	3.8	.00	1

Table 13a
 Statistical Zone 16
 40-ft trawls

Summary of dominant organisms taken in statistical zone 16 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	.0	.00	.0	.00	2	.0	.00	.0	.00	7	58.9	46.11	.4	.30	11
Squilla spp.	.0	.00	.0	.00	2	6.8	5.21	.0	.02	7	208.9	121.74	2.0	1.10	11
Penaeus aztecus	984.3	838.57	9.5	8.77	2	5.9	3.91	.0	.03	7	15.3	9.87	.3	.23	11
Sicyonia brevirostris	.0	.00	.0	.00	2	.0	.00	.0	.00	7	28.1	19.11	.3	.19	11
Callinectes similis	57.1	45.71	.6	.58	2	2.9	2.42	.0	.02	7	28.9	14.17	.3	.15	11
Xiphopenaeus kroyeri	430.0	90.00	1.4	.78	2	.0	.00	.0	.00	7	.0	.00	.0	.00	11
Stenotomus caprinus	.0	.00	.0	.00	2	7.1	7.14	.1	.06	7	1430.7	649.11	11.3	5.73	11
Peprilus burti	.0	.00	.0	.00	2	41.5	40.59	.7	.71	7	155.8	153.55	5.1	5.08	11
Chloroscombrus chrysurus	.0	.00	.0	.00	2	3807.1	3793.83	28.0	27.98	7	15.8	15.55	.5	.52	11
Saurida brasiliensis	.0	.00	.0	.00	2	.0	.00	.0	.00	7	.5	.45	.0	.00	11
Micropogonias undulatus	1261.4	964.29	23.8	21.10	2	7.1	7.14	.2	.19	7	10.6	9.01	.4	.26	11
Synodus foetens	.0	.00	.0	.00	2	.0	.00	.0	.00	7	8.8	5.91	.6	.38	11
Trachurus lathami	.0	.00	.0	.00	2	.0	.00	.0	.00	7	59.9	59.51	.8	.78	11
Prionotus stearnsi	.0	.00	.0	.00	2	.0	.00	.0	.00	7	.0	.00	.0	.00	11
Squid	54.3	48.57	.8	.84	2	37.5	33.08	.2	.23	7	37.6	25.92	1.0	.51	11

Table 13a (continued)
 Statistical Zone 16
 40-ft trawls

Summary of dominant organisms taken in statistical zone 16 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Trachypenaeus similis</i>	1753.7	1078.86	9.7	6.09	5	.0	.00	.0	.00	4	.0	.00	.0	.00	6
<i>Squilla</i> spp.	104.6	59.14	1.4	.76	5	2.5	2.50	.0	.03	4	13.4	11.30	.1	.06	6
<i>Penaeus aztecus</i>	25.2	6.23	.5	.11	5	22.2	8.33	1.0	.43	4	8.7	2.80	.6	.16	6
<i>Sicyonia brevirostris</i>	111.1	61.98	1.3	.78	5	33.1	8.42	.5	.19	4	1.1	1.14	.0	.02	6
<i>Callinectes similis</i>	126.6	45.98	2.4	1.09	5	.0	.00	.0	.00	4	.0	.00	.0	.00	6
<i>Xiphopenaeus kroyeri</i>	.0	.00	.0	.00	5	.0	.00	.0	.00	4	.0	.00	.0	.00	6
<i>Stenotomus caprinus</i>	1399.4	385.54	24.5	6.92	5	403.0	65.12	17.3	3.11	4	294.1	63.80	15.5	3.20	6
<i>Peprilus burti</i>	962.1	700.98	39.4	28.11	5	305.0	191.94	21.5	14.23	4	151.5	40.01	12.0	3.09	6
<i>Chloroscombrus chrysurus</i>	.0	.00	.0	.00	5	.0	.00	.0	.00	4	.0	.00	.0	.00	6
<i>Saurida brasiliensis</i>	88.6	49.33	.6	.43	5	317.3	58.57	2.1	.67	4	8.5	5.68	.1	.03	6
<i>Micropogonias undulatus</i>	7.3	4.34	.6	.43	5	37.5	25.43	3.0	1.95	4	1.6	1.15	.3	.18	6
<i>Synodus foetens</i>	114.9	51.64	10.1	5.17	5	49.9	10.97	7.6	1.42	4	26.0	11.03	4.6	2.04	6
<i>Trachurus lathami</i>	50.3	47.83	.8	.79	5	30.8	15.41	.8	.40	4	8.3	3.92	.3	.12	6
<i>Prionotus stearnsi</i>	27.2	13.24	.2	.03	5	159.1	48.87	1.5	.48	4	23.0	14.82	.3	.22	6
<i>Squid</i>	35.6	28.69	.7	.55	5	50.1	48.49	1.9	1.44	4	166.7	157.98	1.9	1.77	6

Table 13b
 Statistical Zone 16
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	117.5	35.71	2	41.8	34.87	7	29.8	13.03	11	114.7	42.28	5	77.0	19.97	4	76.6	10.40	6
Total finfish kg	55.8	31.17	2	41.3	34.58	7	24.9	11.99	11	96.9	44.96	5	72.3	18.95	4	71.4	10.50	6
Total crustacean kg	38.3	5.84	2	.0	.00	7	3.6	1.55	11	16.9	6.25	5	1.9	.31	4	1.1	.41	6
Total others kg	22.7	9.74	2	.3	.32	7	1.1	.50	11	1.0	.53	5	2.7	1.40	4	3.7	1.71	6
Surface temperature	29.3	.30	3	29.1	.21	6	28.9	.08	11	29.8	.09	3	28.8	.00	1	28.9	.07	6
Midwater temperature	29.4	.49	3	28.8	.17	6	28.6	.14	11	27.1	.15	3	25.0	.00	1	22.9	.60	6
Bottom temperature	29.0	.75	3	25.8	1.00	6	23.5	.69	11	20.5	.41	3	20.0	.00	1	18.2	.21	6
Surface salinity	18.9	1.95	3	21.6	.62	6	23.3	.48	11	26.0	1.28	3	33.4	.00	1	33.2	.21	6
Midwater salinity	18.8	1.93	3	22.3	.75	6	28.9	.36	11	33.8	.11	3	34.8	.00	1	35.6	.14	6
Bottom salinity	20.8	3.55	3	28.9	1.86	6	34.8	.15	11	35.7	.05	3	36.0	.00	1	36.4	.02	6
Surface chlorophyll	5.6	2.17	3	1.8	.35	6	1.0	.08	11	1.0	.40	3	.1	.00	1	.4	.26	6
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	3.8	.00	1	2.6	1.50	5	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	5.7	.15	3	6.0	.20	6	6.0	.09	11	6.2	.25	3	6.1	.00	1	5.7	.24	6
Midwater oxygen	5.7	.12	3	6.0	.22	6	5.4	.19	11	6.2	.29	3	6.3	.00	1	6.7	.29	6
Bottom oxygen	4.4	1.18	3	2.0	.60	6	2.1	.26	11	2.8	.03	3	4.1	.00	1	4.3	.02	6

Table 14a
 Statistical Zone 17
 40-ft trawls

Summary of dominant organisms taken in statistical zone 17 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Sicyonia brevirostris</i>	.0	.00	.0	.00	5	.0	.00	.0	.00	6	691.8	397.39	5.4	2.98	12
<i>Penaeus aztecus</i>	956.4	766.16	5.5	4.37	5	8.0	5.29	.0	.05	6	64.8	23.63	1.4	.56	12
<i>Portunus spinicarpus</i>	.0	.00	.0	.00	5	.0	.00	.0	.00	6	3.2	2.95	.0	.02	12
<i>Trachypenaeus similis</i>	.0	.00	.0	.00	5	2.0	2.00	.0	.00	6	468.4	300.28	2.1	1.39	12
<i>Callinectes similis</i>	75.2	36.45	.2	.15	5	42.9	35.90	.2	.17	6	186.2	89.29	2.2	1.18	12
<i>Squilla spp.</i>	.0	.00	.0	.00	5	9.8	5.39	.0	.02	6	159.1	72.55	1.6	.65	12
<i>Micropogonias undulatus</i>	5040.3	2242.49	98.8	61.64	5	112.8	107.12	3.8	3.61	6	361.3	246.63	13.2	8.96	12
<i>Stenotomus caprinus</i>	1.6	1.60	.0	.00	5	1.0	1.00	.0	.00	6	1118.6	312.09	23.3	5.79	12
<i>Leiostomus xanthurus</i>	1055.6	618.83	13.3	6.27	5	4.3	3.95	.4	.41	6	468.2	267.36	37.4	21.70	12
<i>Peprilus burti</i>	1.6	1.60	.1	.11	5	18.8	9.34	.4	.22	6	359.3	264.67	17.7	11.78	12
<i>Chloroscombrus chrysurus</i>	32.8	13.70	.2	.07	5	348.3	280.69	11.2	8.99	6	204.5	140.96	6.6	4.47	12
<i>Serranus atrobranchus</i>	.0	.00	.0	.00	5	.0	.00	.0	.00	6	240.3	202.07	.5	.41	12
<i>Cynoscion arenarius</i>	463.6	193.37	6.5	4.02	5	.0	.00	.0	.00	6	8.4	7.39	.8	.74	12
<i>Brevoortia patronus</i>	620.8	260.99	10.0	4.56	5	.0	.00	.0	.00	6	.0	.00	.0	.00	12
<i>Squid</i>	27.1	19.22	.3	.23	5	41.0	27.82	.1	.07	6	97.2	43.89	1.9	.64	12

Table 14a (continued)
 Statistical Zone 17
 40-ft trawls

Summary of dominant organisms taken in statistical zone 17 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Sicyonia brevisrostris	513.2	158.10	6.3	2.10	5	181.0	.00	3.0	.00	1	.0	.00	.0	.00	0
Penaeus aztecus	42.6	11.50	1.8	.53	5	60.0	.00	2.7	.00	1	.0	.00	.0	.00	0
Portunus spinicarpus	119.4	88.81	1.1	.87	5	932.0	.00	3.0	.00	1	.0	.00	.0	.00	0
Trachypenaeus similis	23.1	14.65	.1	.09	5	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Callinectes similis	98.5	23.27	1.6	.38	5	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Squilla spp.	16.0	11.38	.3	.20	5	42.0	.00	.6	.00	1	.0	.00	.0	.00	0
Micropogonias undulatus	27.9	24.10	2.8	2.52	5	6.0	.00	.4	.00	1	.0	.00	.0	.00	0
Stenotomus caprinus	558.4	150.62	23.7	7.87	5	569.0	.00	25.5	.00	1	.0	.00	.0	.00	0
Leiostomus xanthurus	1.4	1.40	.1	.07	5	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Peprilus burti	17.4	15.02	.9	.80	5	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Chloroscombrus chrysurus	.0	.00	.0	.00	5	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Serranus atrobranchus	26.4	6.60	.1	.07	5	97.0	.00	.6	.00	1	.0	.00	.0	.00	0
Cynoscion arenarius	.0	.00	.0	.00	5	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Brevoortia patronus	.0	.00	.0	.00	5	.0	.00	.0	.00	1	.0	.00	.0	.00	0
Squid	28.7	14.39	3.5	2.23	5	36.0	.00	1.2	.00	1	.0	.00	.0	.00	0

Table 14b
 Statistical Zone 17
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 40 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	175.7	64.09	5	54.0	22.46	6	149.0	51.32	12	70.9	13.66	5	65.9	.00	1	.0	.00	0
Total finfish kg	156.8	62.86	5	45.4	23.18	6	131.8	51.05	12	53.8	12.74	5	52.7	.00	1	.0	.00	0
Total crustacean kg	16.1	7.96	5	.3	.17	6	14.7	6.69	12	12.8	2.91	5	10.5	.00	1	.0	.00	0
Total others kg	2.7	2.50	5	7.4	6.89	6	2.6	.62	12	4.3	2.09	5	2.7	.00	1	.0	.00	0
Surface temperature	29.2	.15	5	29.0	.09	6	29.2	.08	9	28.9	.16	6	28.6	.00	1	28.2	.00	1
Midwater temperature	29.4	.09	5	28.8	.18	6	28.4	.19	9	27.0	.37	6	23.3	.00	1	23.6	.00	1
Bottom temperature	29.0	.17	5	27.7	.31	6	23.5	.61	9	21.5	.30	6	20.1	.00	1	19.6	.00	1
Surface salinity	19.1	1.61	5	24.8	1.04	6	25.8	.58	9	29.4	1.23	6	33.9	.00	1	34.1	.00	1
Midwater salinity	19.6	1.55	5	25.2	1.13	6	29.7	.54	9	33.8	.23	6	35.7	.00	1	35.6	.00	1
Bottom salinity	21.1	1.81	5	28.3	.93	6	34.9	.55	9	35.9	.03	6	36.1	.00	1	36.2	.00	1
Surface chlorophyll	7.4	1.21	5	3.0	.81	6	.7	.12	9	.3	.06	6	.1	.00	1	.1	.00	1
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	4.9	.00	1	5.2	1.51	6	1.2	.38	3	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	6.4	.20	5	6.5	.15	6	6.2	.06	9	6.1	.13	6	5.8	.00	1	6.7	.00	1
Midwater oxygen	6.4	.19	5	5.9	.39	6	5.6	.31	9	6.2	.13	6	6.0	.00	1	7.6	.00	1
Bottom oxygen	6.0	.24	5	2.8	.98	6	4.5	.30	9	5.6	.25	6	5.2	.00	1	5.8	.00	1

Table 15a
 Statistical Zone 18
 40-ft trawls

Summary of dominant organisms taken in statistical zone 18 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus spinicaopus	.0	.00	.0	.00	1	.0	.00	.0	.00	3	.0	.00	.0	.00	2
Sicyonia brevirostris	.0	.00	.0	.00	1	.0	.00	.0	.00	3	52.0	52.00	.1	.09	2
Penaeus aztecus	58.2	.00	.0	.00	1	295.3	277.53	3.6	3.29	3	3.4	.60	.1	.02	2
Callinectes similis	60.0	.00	.1	.00	1	100.7	39.72	.4	.10	3	67.0	53.02	.2	.07	2
Portunus spinimanus	.0	.00	.0	.00	1	61.3	58.36	1.1	.94	3	.7	.70	.0	.00	2
Squilla spp.	12.4	.00	.0	.00	1	15.1	7.52	1.3	.88	3	9.7	8.30	.1	.09	2
Micropogonias undulatus	3019.4	.00	54.4	.00	1	5507.5	5505.23	143.9	143.50	3	.0	.00	.0	.00	2
Stenotomus caprinus	.0	.00	.0	.00	1	181.1	176.48	1.4	1.33	3	1327.2	1318.81	37.1	36.94	2
Peprilus burti	.0	.00	.0	.00	1	.0	.00	.0	.00	3	186.5	32.53	3.4	.05	2
Upeneus parvus	.0	.00	.0	.00	1	.0	.00	.0	.00	3	17.0	17.00	.1	.09	2
Cynoscion arenarius	17.6	.00	.1	.00	1	158.0	158.00	3.5	3.47	3	.0	.00	.0	.00	2
Pristipomoides aquilonaris	.0	.00	.0	.00	1	.0	.00	.0	.00	3	9.7	8.30	.2	.03	2
Prionotus paralatus	.0	.00	.0	.00	1	.0	.00	.0	.00	3	.0	.00	.0	.00	2
Synodus foetens	.0	.00	.0	.00	1	.0	.00	.0	.00	3	76.7	61.33	6.6	5.47	2
Squid	.0	.00	.0	.00	1	66.4	24.24	1.1	.65	3	139.0	87.02	2.7	2.51	2

Table 15a (continued)
 Statistical Zone 18
 40-ft trawls

Summary of dominant organisms taken in statistical zone 18 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus spinicarpus	259.9	175.07	1.5	.68	6	42.4	33.50	.4	.34	4	9.0	7.02	.1	.03	3
Sicyonia brevirostris	195.5	63.88	2.6	.79	6	35.1	24.48	.4	.20	4	.0	.00	.0	.00	3
Penaeus aztecus	41.1	10.46	1.8	.46	6	20.8	12.14	.7	.58	4	8.3	5.16	.4	.19	3
Callinectes similis	8.3	3.68	.2	.10	6	1.1	1.13	.0	.02	4	.0	.00	.0	.00	3
Portunus spinimanus	.3	.33	.0	.01	6	.0	.00	.0	.00	4	.0	.00	.0	.00	3
Squilla spp.	9.7	8.11	.2	.23	6	1.1	1.13	.0	.02	4	.8	.77	.0	.00	3
Micropogonias undulatus	.7	.71	.1	.15	6	.0	.00	.0	.00	4	.0	.00	.0	.00	3
Stenotomus caprinus	343.3	76.75	15.5	3.22	6	378.5	101.23	19.0	6.46	4	110.1	11.88	3.8	1.33	3
Peprilus burti	3.5	3.50	.2	.17	6	418.0	397.22	14.0	12.52	4	24.3	16.52	1.3	.66	3
Upeneus parvus	45.2	13.12	.9	.31	6	73.3	29.00	2.1	.95	4	35.5	3.49	1.8	.21	3
Cynoscion arenarius	.3	.33	.1	.12	6	.0	.00	.0	.00	4	.0	.00	.0	.00	3
Pristipomoides aquilonaris	33.6	11.28	1.3	.70	6	49.4	24.51	4.5	2.92	4	56.9	45.00	6.1	4.91	3
Prionotus paralatus	39.1	16.46	.8	.39	6	29.4	14.29	.8	.47	4	60.4	60.38	5.8	5.79	3
Synodus foetens	42.4	11.85	4.7	1.40	6	22.4	11.63	3.0	1.52	4	19.2	9.62	2.7	1.75	3
Squid	13.9	4.93	.4	.12	6	36.6	14.34	1.5	.65	4	46.7	24.94	1.5	.75	3

Table 15b
 Statistical Zone 18
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	59.4	.00	1	173.0	154.46	3	63.3	49.39	2	39.7	5.09	6	56.6	12.34	4	35.2	11.37	3
Total finfish kg	57.0	.00	1	162.3	149.98	3	59.3	51.65	2	32.5	5.14	6	53.6	12.00	4	32.2	11.27	3
Total crustacean kg	.8	.00	1	9.9	5.11	3	.8	.14	2	6.6	1.39	6	1.5	1.11	4	1.0	.31	3
Total others kg	2.4	.00	1	1.6	.82	3	2.9	2.85	2	.7	.11	6	2.0	.88	4	1.8	.39	3
Surface temperature	27.5	.00	1	29.0	.10	4	29.2	.09	4	28.7	.00	1	28.2	.15	6	28.5	.07	5
Midwater temperature	27.3	.00	1	28.4	.27	4	26.5	1.05	4	26.8	.00	1	25.9	.63	6	22.0	.48	5
Bottom temperature	26.9	.00	1	27.5	.71	4	22.9	.71	4	21.2	.00	1	20.1	.21	6	18.9	.35	5
Surface salinity	26.9	.00	1	24.8	.82	4	25.9	2.20	4	30.3	.00	1	33.6	.36	6	32.1	.24	5
Midwater salinity	28.1	.00	1	26.3	.82	4	31.2	.26	4	34.9	.00	1	34.9	.12	6	36.0	.12	5
Bottom salinity	30.0	.00	1	28.5	1.39	4	34.6	.44	4	36.0	.00	1	36.1	.03	6	36.2	.02	5
Surface chlorophyll	9.0	.00	1	1.0	.17	4	1.1	.09	4	.1	.00	1	.1	.01	6	.1	.01	5
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	3.9	.00	1	6.6	.29	4	7.0	.04	4	6.4	.00	1	6.3	.12	6	6.3	.14	5
Midwater oxygen	2.0	.00	1	5.9	.33	4	6.1	.21	4	6.6	.00	1	6.5	.30	6	6.6	.30	5
Bottom oxygen	1.7	.00	1	4.4	.77	4	3.3	.43	4	6.0	.00	1	5.6	.17	6	5.3	.20	5

Table 16a
 Statistical Zone 19
 40-ft trawls

Summary of dominant organisms taken in statistical zone 19 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	.0	.00	.0	.00	1	.0	.00	.0	.00	7	1247.7	573.61	3.4	1.23	19
Callinectes similis	660.0	.00	8.6	.00	1	71.4	34.50	.4	.20	7	531.4	318.65	4.1	2.53	19
Penaeus aztecus	9.2	.00	.0	.00	1	95.7	55.60	1.0	.65	7	151.0	59.68	2.0	.81	19
Squilla spp.	87.7	.00	.2	.00	1	16.7	7.37	.3	.19	7	102.5	32.96	1.3	.39	19
Penaeus duorarum	.0	.00	.0	.00	1	3.2	1.64	.1	.04	7	48.3	21.43	.7	.30	19
Sicyonia dorsalis	.0	.00	.0	.00	1	.0	.00	.0	.00	7	10.4	8.21	.0	.02	19
Chloroscombrus chrysurus	49121.5	.00	295.4	.00	1	1965.3	1017.76	28.9	15.28	7	456.7	306.06	8.1	5.05	19
Micropogonias undulatus	803.1	.00	11.5	.00	1	3783.5	1867.79	80.8	41.10	7	4.3	2.56	.1	.07	19
Peprilus burti	87.7	.00	1.7	.00	1	493.7	465.85	13.4	12.06	7	411.2	234.58	9.3	5.62	19
Stenotomus caprinus	.0	.00	.0	.00	1	.0	.00	.0	.00	7	201.4	65.75	2.3	1.10	19
Harengula jaguana	.0	.00	.0	.00	1	365.3	323.34	4.9	3.89	7	24.9	10.99	.6	.24	19
Opisthonema oglinum	115.4	.00	1.7	.00	1	397.9	392.28	3.7	3.11	7	.6	.46	.0	.02	19
Prionotus longispinosus	.0	.00	.0	.00	1	74.8	72.90	.6	.58	7	70.5	26.84	.5	.18	19
Cynoscion spp.	.0	.00	.0	.00	1	89.4	58.93	1.7	1.09	7	43.1	24.22	.4	.21	19
Squid	27.7	.00	.4	.00	1	54.5	17.99	1.0	.45	7	126.7	22.19	2.1	.36	19

Table 16a (continued)
 Statistical Zone 19
 40-ft trawls

Summary of dominant organisms taken in statistical zone 19 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	126.7	120.66	.5	.48	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Callinectes similis	17.4	5.12	.4	.25	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Penaeus aztecus	6.7	3.02	.1	.03	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Squilla spp.	17.6	14.60	.3	.25	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Penaeus duorarum	60.1	44.68	.9	.61	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Sicyonia dorsalis	29.4	26.21	.0	.03	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Chloroscombrus chrysurus	1.9	1.06	.0	.03	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Micropogonias undulatus	.0	.00	.0	.00	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Peprilus burti	256.9	140.95	5.4	2.74	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Stenotomus caprinus	186.2	45.21	4.9	1.28	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Harengula jaguana	14.4	7.41	.4	.21	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Opisthonema oglinum	.0	.00	.0	.00	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Prionotus longispinosus	5.4	4.78	.1	.05	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Cynoscion spp.	.0	.00	.0	.00	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Squid	80.6	29.28	2.3	.91	7	.0	.00	.0	.00	0	.0	.00	.0	.00	0

Table 16b
 Statistical Zone 19
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 30 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	339.9	.00	1	170.6	50.28	7	43.3	7.51	19	25.4	3.68	7	.0	.00	0	.0	.00	0
Total finfish kg	321.0	.00	1	162.3	48.39	7	29.0	7.94	19	20.9	3.34	7	.0	.00	0	.0	.00	0
Total crustacean kg	12.6	.00	1	6.7	2.35	7	12.0	4.02	19	2.1	1.51	7	.0	.00	0	.0	.00	0
Total others kg	6.3	.00	1	1.6	.54	7	2.2	.38	19	2.3	.94	7	.0	.00	0	.0	.00	0
Surface temperature	29.5	.00	1	28.8	.16	8	28.8	.12	17	28.4	.18	4	28.2	.00	1	.0	.00	0
Midwater temperature	29.4	.00	1	28.3	.11	8	27.9	.11	17	26.8	.12	4	26.6	.00	1	.0	.00	0
Bottom temperature	27.6	.00	1	27.2	.25	8	24.6	.42	17	22.2	.26	4	21.4	.00	1	.0	.00	0
Surface salinity	23.5	.00	1	23.4	.40	8	25.4	.45	17	29.5	.27	4	29.2	.00	1	.0	.00	0
Midwater salinity	23.6	.00	1	25.9	.65	8	28.6	.54	17	32.4	.50	4	34.5	.00	1	.0	.00	0
Bottom salinity	27.6	.00	1	29.1	.59	8	33.3	.47	17	35.9	.15	4	36.1	.00	1	.0	.00	0
Surface chlorophyll	1.6	.00	1	2.2	.34	8	1.0	.14	17	.3	.04	4	.5	.00	1	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	7.3	.00	1	7.2	.15	8	6.8	.11	17	6.6	.12	4	5.5	.00	1	.0	.00	0
Midwater oxygen	7.2	.00	1	5.7	.62	8	6.0	.16	17	6.2	.31	4	5.6	.00	1	.0	.00	0
Bottom oxygen	2.0	.00	1	4.2	.67	8	4.0	.26	17	5.1	.13	4	3.1	.00	1	.0	.00	0

Table 17a
 Statistical Zone 20
 40-ft trawls

Summary of dominant organisms taken in statistical zone 20 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Callinectes similis	.0	.00	.0	.00	0	1293.4	1150.51	8.0	6.78	3	436.9	187.41	1.9	.63	12
Trachypenaeus similis	.0	.00	.0	.00	0	.0	.00	.0	.00	3	686.4	345.08	1.1	.46	12
Penaeus aztecus	.0	.00	.0	.00	0	193.7	147.06	1.8	1.38	3	260.5	69.81	2.6	.73	12
Squilla spp.	.0	.00	.0	.00	0	18.9	9.94	.1	.03	3	56.3	20.70	.9	.40	12
Portunus spinicarpus	.0	.00	.0	.00	0	.0	.00	.0	.00	3	.0	.00	.0	.00	12
Portunus gibbesii	.0	.00	.0	.00	0	141.2	134.34	.9	.89	3	3.5	1.67	.1	.09	12
Peprilus burti	.0	.00	.0	.00	0	121.5	108.90	4.3	3.42	3	443.1	173.44	9.9	4.82	12
Chloroscombrus chrysurus	.0	.00	.0	.00	0	972.6	753.02	12.0	8.98	3	724.0	485.89	9.1	5.94	12
Micropogonias undulatus	.0	.00	.0	.00	0	1336.1	533.48	41.7	9.09	3	469.7	388.22	11.1	9.05	12
Stenotomus caprinus	.0	.00	.0	.00	0	.0	.00	.0	.00	3	52.1	27.32	.6	.34	12
Lagodon rhomboides	.0	.00	.0	.00	0	151.2	129.90	3.5	3.30	3	8.6	2.44	.4	.17	12
Pristipomoides aquilonaris	.0	.00	.0	.00	0	.0	.00	.0	.00	3	11.0	7.87	.3	.18	12
Leiostomus xanthurus	.0	.00	.0	.00	0	305.7	153.73	9.0	4.55	3	.0	.00	.0	.00	12
Cynoscion nothus	.0	.00	.0	.00	0	32.2	27.85	1.5	1.10	3	49.6	31.79	1.8	1.09	12
Squid	.0	.00	.0	.00	0	13.1	5.00	.9	.45	3	106.0	27.08	2.4	.87	12

Table 17a (continued)
 Statistical Zone 20
 40-ft trawls

Summary of dominant organisms taken in statistical zone 20 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Callinectes similis</i>	123.8	64.42	2.1	1.23	4	17.6	14.22	.2	.14	4	1.1	1.05	.0	.00	3
<i>Trachypenaeus similis</i>	423.2	226.58	1.8	.99	4	.0	.00	.0	.00	4	.0	.00	.0	.00	3
<i>Penaeus aztecus</i>	104.3	45.35	1.3	.48	4	50.7	35.85	1.4	.71	4	28.4	8.99	2.0	.19	3
<i>Squilla</i> spp.	62.0	25.06	1.1	.44	4	30.2	19.80	.4	.28	4	1.4	.96	.1	.12	3
<i>Portunus spinicarpus</i>	.0	.00	.0	.00	4	168.3	122.74	.9	.47	4	11.6	11.58	.1	.06	3
<i>Portunus gibbesii</i>	.8	.85	.0	.00	4	.0	.00	.0	.00	4	.0	.00	.0	.00	3
<i>Peprilus burti</i>	667.7	656.47	13.0	12.94	4	66.5	61.61	2.3	2.13	4	215.3	215.29	10.7	10.75	3
<i>Chloroscombrus chrysurus</i>	.8	.85	.0	.00	4	.8	.81	.0	.00	4	.0	.00	.0	.00	3
<i>Micropogonias undulatus</i>	.0	.00	.0	.00	4	3.8	3.81	.3	.30	4	.0	.00	.0	.00	3
<i>Stenotomus caprinus</i>	69.0	35.82	2.7	1.37	4	74.3	39.40	3.2	1.58	4	97.3	21.84	3.4	.90	3
<i>Lagodon rhomboides</i>	59.5	17.19	2.2	.67	4	12.2	8.92	1.2	.91	4	3.4	2.43	.5	.36	3
<i>Pristipomoides aquilonaris</i>	68.6	26.40	1.7	.72	4	35.3	21.85	1.8	.69	4	113.4	56.52	24.6	12.37	3
<i>Leiostomus xanthurus</i>	.0	.00	.0	.00	4	.0	.00	.0	.00	4	.0	.00	.0	.00	3
<i>Cynoscion nothus</i>	.0	.00	.0	.00	4	.0	.00	.0	.00	4	.0	.00	.0	.00	3
Squid	35.7	10.01	1.2	.17	4	40.9	26.59	1.2	.81	4	10.9	7.27	1.0	.66	3

Table 17b
 Statistical Zone 20
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 6 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	0	115.3	17.41	3	60.1	14.04	12	32.7	9.44	4	27.9	12.02	4	62.2	28.39	3
Total finfish kg	.0	.00	0	92.0	9.59	3	48.8	13.33	12	23.8	11.69	4	23.1	9.53	4	57.2	28.13	3
Total crustacean kg	.0	.00	0	22.6	11.77	3	8.8	2.32	12	7.9	3.16	4	4.4	1.79	4	3.6	.82	3
Total others kg	.0	.00	0	1.0	.20	3	2.6	.92	12	1.1	.10	4	1.2	.84	4	1.6	.79	3
Surface temperature	.0	.00	0	28.3	.12	3	28.4	.08	12	28.1	.04	4	27.8	.08	4	28.2	.14	3
Midwater temperature	.0	.00	0	28.3	.08	3	27.2	.35	12	25.6	.96	4	26.7	.26	4	22.6	.69	3
Bottom temperature	.0	.00	0	27.7	.26	3	25.6	.40	12	22.4	.36	4	22.4	.56	4	19.3	.99	3
Surface salinity	.0	.00	0	25.0	1.06	3	24.9	.52	12	29.9	1.11	4	31.4	.71	4	30.7	.90	3
Midwater salinity	.0	.00	0	25.2	.97	3	29.2	.34	12	34.0	.89	4	35.3	.25	4	36.2	.06	3
Bottom salinity	.0	.00	0	27.9	1.30	3	33.0	.53	12	35.8	.28	4	36.1	.01	4	36.3	.08	3
Surface chlorophyll	.0	.00	0	2.9	.38	3	2.0	.21	12	.4	.17	4	.1	.01	4	.3	.11	3
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	.0	.00	0	7.2	.20	3	7.3	.11	12	6.8	.15	4	6.6	.05	4	6.6	.15	3
Midwater oxygen	.0	.00	0	6.9	.18	3	6.3	.12	12	5.9	.77	3	6.9	.06	4	6.9	.45	3
Bottom oxygen	.0	.00	0	5.0	.27	3	4.6	.34	12	5.7	.36	3	6.1	.37	4	5.3	.50	3

Table 18a
 Statistical Zone 21
 40-ft trawls

Summary of dominant organisms taken in statistical zone 21 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Callinectes similis</i>	7056.0	.00	56.5	.00	1	2698.7	1081.15	24.0	11.23	6	854.8	389.88	6.2	2.66	9
<i>Trachypenaeus similis</i>	.0	.00	.0	.00	1	13.2	13.18	.0	.02	6	319.2	261.99	.9	.79	9
<i>Penaeus aztecus</i>	240.0	.00	1.9	.00	1	68.7	23.96	.3	.12	6	721.9	257.47	6.5	2.23	9
<i>Sicyonia brevirostris</i>	.0	.00	.0	.00	1	3.9	2.54	.0	.00	6	794.6	651.98	6.6	5.20	9
<i>Trachypenaeus spp.</i>	.0	.00	.0	.00	1	26.0	26.00	.0	.02	6	254.1	198.44	.8	.70	9
<i>Penaeus duorarum</i>	42.0	.00	1.1	.00	1	31.9	16.68	.5	.27	6	248.8	143.78	3.6	2.44	9
<i>Chloroscombrus chrysurus</i>	14988.0	.00	75.0	.00	1	5231.0	3442.82	39.6	19.85	6	4279.2	3193.73	44.3	32.03	9
<i>Micropogonias undulatus</i>	9702.0	.00	213.8	.00	1	1522.5	592.28	38.2	10.59	6	1499.0	1049.44	14.4	7.52	9
<i>Peprilus burti</i>	126.0	.00	3.5	.00	1	294.1	144.64	6.0	3.06	6	107.5	70.57	1.7	.98	9
<i>Harengula jaguana</i>	.0	.00	.0	.00	1	14.3	7.48	.3	.12	6	92.9	42.22	1.5	.81	9
<i>Leiostomus xanthurus</i>	246.0	.00	8.7	.00	1	189.7	60.32	3.6	1.45	6	29.3	15.44	1.7	.81	9
<i>Lagodon rhomboides</i>	36.0	.00	.8	.00	1	30.7	7.14	.5	.22	6	97.8	56.52	1.8	.84	9
<i>Pristipomoides aquilonaris</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	6	8.5	5.29	.1	.06	9
<i>Upeneus parvus</i>	.0	.00	.0	.00	1	72.2	56.13	.3	.22	6	85.3	69.82	.3	.24	9
<i>Squid</i>	18.0	.00	.3	.00	1	65.1	24.89	.7	.31	6	84.5	37.02	1.9	.87	9

Table 18a (continued)
 Statistical Zone 21
 40-ft trawls

Summary of dominant organisms taken in statistical zone 21 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Callinectes similis</i>	126.5	99.53	2.3	1.79	5	5.5	5.45	.0	.00	2	.0	.00	.0	.00	1
<i>Trachypenaeus similis</i>	1194.5	1181.24	1.2	1.18	5	.0	.00	.0	.00	2	.0	.00	.0	.00	1
<i>Penaeus aztecus</i>	159.6	110.18	2.9	1.65	5	33.8	31.66	1.2	1.07	2	.8	.00	.0	.00	1
<i>Sicyonia brevirostris</i>	18.5	14.22	.1	.06	5	.0	.00	.0	.00	2	.0	.00	.0	.00	1
<i>Trachypenaeus spp.</i>	.0	.00	.0	.00	5	.0	.00	.0	.00	2	.0	.00	.0	.00	1
<i>Penaeus duorarum</i>	.9	.65	.0	.03	5	.0	.00	.0	.00	2	.0	.00	.0	.00	1
<i>Chloroscombrus chrysurus</i>	.8	.52	.0	.01	5	.0	.00	.0	.00	2	.0	.00	.0	.00	1
<i>Micropogonias undulatus</i>	.0	.00	.0	.00	5	.0	.00	.0	.00	2	.0	.00	.0	.00	1
<i>Peprilus burti</i>	1377.8	888.51	22.0	12.30	5	139.1	139.09	5.2	5.21	2	4.6	.00	.2	.00	1
<i>Harengula jaguana</i>	46.5	31.53	1.1	.65	5	10.9	10.91	.9	.87	2	.0	.00	.0	.00	1
<i>Leiostomus xanthurus</i>	.0	.00	.0	.00	5	.0	.00	.0	.00	2	.0	.00	.0	.00	1
<i>Lagodon rhomboides</i>	21.3	8.12	1.0	.37	5	29.4	25.13	2.7	2.28	2	.0	.00	.0	.00	1
<i>Pristipomoides aquilonaris</i>	46.2	25.11	1.0	.38	5	19.4	8.47	1.9	1.36	2	30.4	.00	4.5	.00	1
<i>Upeneus parvus</i>	3.1	1.96	.0	.00	5	17.7	12.27	1.0	.04	2	4.6	.00	.0	.00	1
<i>Squid</i>	110.9	41.24	1.6	.39	5	122.5	41.10	2.4	2.04	2	116.2	.00	.9	.00	1

Table 18b
 Statistical Zone 21
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	422.7	.00	1	144.2	24.83	6	111.5	34.65	9	40.5	10.56	5	30.6	14.03	2	11.1	.00	1
Total finfish kg	360.0	.00	1	115.5	22.63	6	75.4	33.87	9	31.2	12.28	5	26.4	10.80	2	10.2	.00	1
Total crustacean kg	62.7	.00	1	27.5	11.34	6	33.7	12.98	9	7.4	5.38	5	1.2	1.24	2	.0	.00	1
Total others kg	.0	.00	1	.6	.39	6	1.7	.94	9	1.7	.36	5	3.0	1.99	2	1.0	.00	1
Surface temperature	27.7	.00	1	27.7	.02	5	27.7	.08	11	28.4	.48	3	27.7	.43	2	27.5	.00	1
Midwater temperature	27.7	.00	1	27.7	.02	5	27.3	.06	11	27.3	.38	3	23.9	.02	2	24.7	.00	1
Bottom temperature	27.8	.00	1	27.4	.01	5	26.8	.30	11	24.9	1.42	3	21.0	.35	2	15.3	.00	1
Surface salinity	30.2	.00	1	30.5	.31	5	29.0	.18	11	29.5	.83	3	31.7	3.94	2	35.8	.00	1
Midwater salinity	30.5	.00	1	30.6	.27	5	31.1	.47	11	32.4	1.41	3	36.1	.20	2	36.5	.00	1
Bottom salinity	30.6	.00	1	31.1	.15	5	32.7	.44	11	34.9	.81	3	36.3	.04	2	36.0	.00	1
Surface chlorophyll	.9	.00	1	1.3	.12	5	1.2	.11	11	.6	.11	3	.4	.24	2	.2	.00	1
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	6.9	.00	1	6.4	.27	5	7.1	.10	11	7.1	.03	3	7.1	.15	2	6.9	.00	1
Midwater oxygen	6.9	.00	1	6.3	.28	5	6.5	.10	11	6.7	.12	3	7.7	.15	2	7.7	.00	1
Bottom oxygen	6.9	.00	1	5.5	.27	5	6.1	.14	11	6.1	.35	3	6.3	.20	2	4.6	.00	1

Table 19a
 Statistical Zone 17
 20-ft trawls

Summary of dominant organisms taken in statistical zone 17 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 10 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	239.4	90.57	1.9	.69	10	58.5	45.59	.5	.46	4	.0	.00	.0	.00	0
Xiphopenaeus kroyeri	61.2	38.73	.6	.39	10	60.0	58.02	.7	.68	4	.0	.00	.0	.00	0
Callinectes similis	45.6	38.33	.1	.11	10	24.0	20.05	.1	.07	4	.0	.00	.0	.00	0
Callinectes sapidus	16.8	7.94	1.4	.70	10	1.5	1.50	.0	.00	4	.0	.00	.0	.00	0
Penaeus setiferus	9.6	4.21	.3	.14	10	18.0	18.00	.5	.55	4	.0	.00	.0	.00	0
Pagurus pollicaris	4.8	4.18	.1	.05	10	6.0	3.46	.1	.08	4	.0	.00	.0	.00	0
Micropogonias undulatus	588.6	372.87	9.9	6.49	10	2034.0	860.71	31.8	15.03	4	.0	.00	.0	.00	0
Arius felis	183.6	75.89	4.0	1.31	10	15.0	9.33	.7	.42	4	.0	.00	.0	.00	0
Cynoscion nothus	38.4	37.09	1.3	1.28	10	198.0	117.29	7.1	4.42	4	.0	.00	.0	.00	0
Stellifer lanceolatus	30.0	14.97	.5	.28	10	192.0	180.12	3.3	3.09	4	.0	.00	.0	.00	0
Larimus fasciatus	10.8	10.80	.3	.33	10	172.5	102.28	4.8	2.84	4	.0	.00	.0	.00	0
Cynoscion arenarius	23.4	10.79	.4	.19	10	78.0	72.12	2.7	2.57	4	.0	.00	.0	.00	0
Polydactylus octonemus	3.0	1.61	.1	.04	10	13.5	5.12	.3	.13	4	.0	.00	.0	.00	0
Leiostomus xanthurus	2.4	.98	.0	.00	10	10.5	8.62	.2	.13	4	.0	.00	.0	.00	0
Squid	.6	.60	.0	.00	10	70.5	19.03	1.0	.23	4	.0	.00	.0	.00	0

Table 19b
 Statistical Zone 17
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 10 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	23.5	9.11	10	55.9	24.00	4	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	16.9	7.96	10	51.8	22.90	4	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	4.6	1.58	10	2.0	2.05	4	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	1.1	.45	10	1.4	.79	4	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	29.5	.20	11	29.6	.42	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	29.3	.21	11	29.4	.45	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	28.9	.15	11	29.0	.18	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	9.8	.24	11	10.2	.49	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	11.5	.83	11	15.0	1.84	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	15.1	1.37	11	20.0	2.41	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	17.4	2.51	11	12.6	2.11	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	8.4	.32	11	8.8	.73	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	7.8	.24	11	8.2	.67	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	7.1	.24	11	7.3	.47	3	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0

Table 20a
 Statistical Zone 18
 20-ft trawls

Summary of dominant organisms taken in statistical zone 18 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 10 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Penaeus aztecus</i>	40.8	32.56	.4	.37	5	7.4	6.90	.1	.06	13	.0	.00	.0	.00	0
<i>Xiphopenaeus kroyeri</i>	56.4	36.67	.5	.33	5	.5	.46	.0	.00	13	.0	.00	.0	.00	0
<i>Callinectes similis</i>	4.8	2.94	.0	.00	5	10.2	5.01	.1	.06	13	.0	.00	.0	.00	0
<i>Pagurus pollicaris</i>	8.4	5.88	.2	.11	5	2.3	1.08	.0	.03	13	.0	.00	.0	.00	0
<i>Penaeus setiferus</i>	9.6	9.60	.3	.33	5	.5	.46	.0	.02	13	.0	.00	.0	.00	0
<i>Persephona crinita</i>	9.6	8.18	.1	.05	5	.0	.00	.0	.00	13	.0	.00	.0	.00	0
<i>Micropogonias undulatus</i>	759.6	409.15	14.3	7.89	5	139.4	71.62	2.6	1.29	13	.0	.00	.0	.00	0
<i>Cynoscion nothus</i>	54.0	45.54	1.9	1.65	5	96.9	84.27	3.9	3.46	13	.0	.00	.0	.00	0
<i>Peprilus burti</i>	2.4	2.40	.1	.05	5	113.1	81.02	3.1	2.27	13	.0	.00	.0	.00	0
<i>Arius felis</i>	111.6	69.13	4.7	3.00	5	.5	.46	.0	.04	13	.0	.00	.0	.00	0
<i>Trichiurus lepturus</i>	6.0	3.79	.2	.13	5	29.1	29.08	1.3	1.26	13	.0	.00	.0	.00	0
<i>Chloroscombrus chrysurus</i>	6.0	4.65	.1	.11	5	22.6	9.42	.4	.19	13	.0	.00	.0	.00	0
<i>Stellifer lanceolatus</i>	67.2	54.21	1.2	1.01	5	.0	.00	.0	.00	13	.0	.00	.0	.00	0
<i>Polydactylus octonemus</i>	4.8	4.80	.1	.11	5	10.2	10.15	.3	.29	13	.0	.00	.0	.00	0
<i>Squid</i>	21.6	11.00	.4	.16	5	48.9	32.87	.9	.70	13	.0	.00	.0	.00	0

Table 20b
 Statistical Zone 18
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 10 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	27.3	13.05	5	13.8	9.20	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	25.1	12.27	5	12.0	8.46	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	1.6	1.09	5	.2	.21	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	.0	.00	5	1.3	.85	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	27.8	.80	7	27.2	.48	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	27.5	.78	7	27.0	.49	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	27.2	.83	7	26.6	.54	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	15.2	1.35	7	18.6	.39	10	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	16.0	1.33	7	21.9	1.00	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	19.7	1.32	7	25.1	.80	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	11.0	3.88	7	4.3	.74	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	8.0	.68	7	6.8	.15	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	7.5	.54	7	6.3	.13	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	6.1	.98	7	4.7	.43	11	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0

Table 21a
 Statistical Zone 19
 20-ft trawls

Summary of dominant organisms taken in statistical zone 19 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Callinectes similis	85.5	66.61	.3	.26	4	152.6	52.22	.5	.21	7	231.6	67.95	.9	.27	5
Trachypenaeus similis	.0	.00	.0	.00	4	40.3	35.39	.0	.04	7	39.6	28.18	.1	.05	5
Penaeus aztecus	57.0	57.00	.3	.27	4	3.4	2.21	.0	.00	7	19.2	3.50	.2	.07	5
Squilla spp.	3.0	3.00	.1	.07	4	13.7	6.24	.1	.08	7	6.0	1.90	.0	.00	5
Xiphopenaeus kroyeri	18.0	14.28	.1	.14	4	.0	.00	.0	.00	7	1.2	1.20	.0	.00	5
Penaeus setiferus	4.5	4.50	.1	.14	4	1.7	1.11	.1	.05	7	.0	.00	.0	.00	5
Chloroscombrus chrysurus	93.0	73.38	.8	.73	4	534.0	427.62	4.6	3.84	7	439.2	229.56	4.5	2.35	5
Micropogonias undulatus	154.5	154.50	3.5	3.55	4	96.0	55.99	1.7	1.16	7	45.6	30.16	1.0	.67	5
Cynoscion nothus	49.5	49.50	1.6	1.57	4	2.6	1.78	.0	.00	7	76.8	29.36	2.2	1.15	5
Prionotus longispinosus	.0	.00	.0	.00	4	35.1	17.88	.2	.08	7	24.0	4.24	.1	.05	5
Syacium gunteri	.0	.00	.0	.00	4	.9	.86	.0	.00	7	55.2	13.87	.6	.16	5
Larimus fasciatus	28.5	28.50	.8	.75	4	19.7	18.73	.5	.43	7	.0	.00	.0	.00	5
Cynoscion arenarius	.0	.00	.0	.00	4	18.9	12.86	.2	.12	7	21.6	9.02	.3	.12	5
Leiostomus xanthurus	19.5	14.15	.5	.39	4	13.7	12.74	.3	.27	7	.0	.00	.0	.00	5
Squid	52.5	42.80	.7	.45	4	30.0	14.58	.5	.30	7	316.8	56.07	6.2	1.21	5

Table 21b
 Statistical Zone 19
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	19.8	14.32	4	16.4	4.45	7	21.8	3.56	5	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	7.5	6.62	4	7.4	3.65	7	10.9	3.86	5	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	1.4	.79	4	.8	.50	7	1.1	.67	5	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	10.2	6.62	4	7.8	3.00	7	9.8	1.09	5	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	27.3	.72	4	27.4	.33	7	27.9	.05	5	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	27.1	.65	4	27.2	.32	7	27.1	.13	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	27.0	.65	4	26.6	.42	7	26.8	.04	5	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	25.1	.53	4	27.7	.30	7	29.0	.12	5	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	25.5	.37	4	28.0	.33	7	29.4	.26	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	26.0	.25	4	29.3	.75	7	30.8	.44	5	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	8.8	3.38	4	1.8	.34	7	.2	.02	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	7.3	.32	4	6.6	.12	7	6.3	.04	5	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	7.2	.31	4	6.6	.14	7	6.0	.17	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	7.2	.40	4	6.1	.56	7	6.0	.12	5	.0	.00	0	.0	.00	0	.0	.00	0

Table 22a
 Statistical Zone 20
 20-ft trawls

Summary of dominant organisms taken in statistical zone 20 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Callinectes similis	84.0	.00	.5	.00	1	201.8	56.39	1.3	.42	11	187.5	31.31	.9	.20	4
Penaeus aztecus	.0	.00	.0	.00	1	54.0	30.68	.3	.19	11	13.5	7.89	.1	.08	4
Squilla spp.	.0	.00	.0	.00	1	10.9	4.70	.1	.06	11	6.0	2.45	.1	.07	4
Penaeus duorarum	.0	.00	.0	.00	1	8.2	5.32	.1	.08	11	1.5	1.50	.0	.00	4
Callinectes sapidus	6.0	.00	1.1	.00	1	7.6	3.04	1.3	.45	11	1.5	1.50	.1	.14	4
Penaeus setiferus	.0	.00	.0	.00	1	4.9	2.40	.2	.11	11	.0	.00	.0	.00	4
Micropogonias undulatus	126.0	.00	3.8	.00	1	844.4	172.21	18.8	4.22	11	151.5	100.44	3.7	2.72	4
Leiostomus xanthurus	246.0	.00	4.4	.00	1	134.2	49.76	3.4	1.24	11	.0	.00	.0	.00	4
Chloroscombrus chrysurus	132.0	.00	1.1	.00	1	112.9	39.62	1.0	.29	11	78.0	29.70	1.0	.39	4
Cynoscion nothus	60.0	.00	1.6	.00	1	68.7	26.54	2.2	.88	11	55.5	11.32	1.8	.53	4
Larimus fasciatus	60.0	.00	1.6	.00	1	68.2	38.57	1.6	.84	11	.0	.00	.0	.00	4
Syacium gunteri	.0	.00	.0	.00	1	18.5	6.84	.1	.06	11	88.5	27.10	.8	.32	4
Prionotus longispinosus	.0	.00	.0	.00	1	36.0	21.34	.1	.09	11	15.0	8.66	.1	.08	4
Upeneus parvus	.0	.00	.0	.00	1	1.6	1.17	.0	.02	11	39.0	16.34	.4	.18	4
Squid	6.0	.00	.0	.00	1	42.5	9.99	.8	.16	11	81.0	16.34	1.4	.39	4

Table 22b
 Statistical Zone 20
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	24.5	.00	1	36.9	4.07	11	17.7	3.61	4	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	16.4	.00	1	28.5	4.42	11	9.5	2.36	4	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	2.7	.00	1	3.5	.83	11	1.4	.79	4	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	5.5	.00	1	4.0	.57	11	8.2	3.69	4	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	28.5	.00	1	27.4	.19	9	27.7	.20	6	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	27.6	.00	1	26.8	.17	9	27.2	.21	6	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	27.4	.00	1	26.4	.11	9	26.8	.15	6	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	27.5	.00	1	29.0	.45	9	27.8	.55	6	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	27.5	.00	1	29.7	.31	9	28.1	.51	6	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	27.5	.00	1	30.2	.31	9	28.4	.65	6	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	2.3	.00	1	1.1	.24	9	.8	.09	6	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	8.4	.00	1	7.2	.15	9	7.8	.10	5	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	7.0	.00	1	7.0	.03	4	6.6	.24	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	6.0	.00	1	6.4	.29	9	6.3	.21	6	.0	.00	0	.0	.00	0	.0	.00	0

Table 23a
 Statistical Zone 21
 20-ft trawls

Summary of dominant organisms taken in statistical zone 21 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus duorarum	.0	.00	.0	.00	2	71.4	68.75	.9	.87	10	2.0	2.00	.0	.00	3
Arenaeus cribrarius	129.0	63.00	4.5	.95	2	1.2	1.20	.1	.08	10	.0	.00	.0	.00	3
Penaeus aztecus	.0	.00	.0	.00	2	16.8	11.34	.2	.12	10	26.0	17.78	.3	.16	3
Portunus gibbesii	.0	.00	.0	.00	2	16.8	8.24	.2	.13	10	14.0	5.29	.1	.09	3
Callinectes similis	9.0	9.00	.1	.14	2	13.8	4.98	.2	.06	10	16.0	2.00	.3	.16	3
Sicyonia dorsalis	.0	.00	.0	.00	2	9.0	3.00	.0	.00	10	26.0	12.17	.0	.00	3
Syacium gunteri	.0	.00	.0	.00	2	63.6	16.74	.7	.18	10	122.0	17.09	1.2	.09	3
Lagodon rhomboides	6.0	6.00	.0	.00	2	27.6	19.00	.5	.36	10	.0	.00	.0	.00	3
Upeneus parvus	.0	.00	.0	.00	2	13.8	8.81	.1	.05	10	48.0	45.03	.3	.27	3
Micropogonias undulatus	15.0	15.00	.1	.14	2	23.4	23.40	.4	.35	10	.0	.00	.0	.00	3
Stenotomus caprinus	.0	.00	.0	.00	2	8.4	5.60	.1	.06	10	32.0	14.00	.2	.09	3
Diplectrum bivittatum	.0	.00	.0	.00	2	10.2	7.59	.1	.04	10	14.0	5.29	.3	.16	3
Leiostomus xanthurus	18.0	6.00	.1	.14	2	5.4	3.63	.1	.06	10	.0	.00	.0	.00	3
Selene vomer	33.0	3.00	.0	.00	2	.6	.60	.0	.00	10	.0	.00	.0	.00	3
Squid	12.0	12.00	.1	.14	2	10.8	4.08	.1	.06	10	8.0	8.00	.1	.09	3

Table 23b
 Statistical Zone 21
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	15.0	1.36	2	6.0	2.56	10	4.5	.91	3	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	9.5	1.36	2	2.5	1.25	10	2.7	.00	3	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	5.5	.00	2	3.0	1.60	10	2.7	1.57	3	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	1.4	1.36	2	.0	.00	10	.0	.00	3	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	25.1	.90	2	26.4	.31	10	25.5	.32	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	24.2	.05	2	25.3	.29	10	23.6	.66	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	24.0	.05	2	24.4	.39	10	22.7	.42	3	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	35.2	.09	2	34.3	.32	10	35.1	.06	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	35.3	.03	2	34.8	.27	10	35.5	.23	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	35.6	.36	2	35.3	.15	10	35.8	.25	3	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	.6	.29	2	.2	.04	10	.2	.08	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	6.2	.75	2	6.1	.21	10	5.0	.70	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	6.4	.05	2	6.2	.06	10	6.1	.36	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	5.6	.70	2	6.0	.18	10	5.5	.41	3	.0	.00	0	.0	.00	0	.0	.00	0

Table 24a
 Statistical Zone 22
 20-ft trawls

Summary of dominant organisms taken in statistical zone 22 during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 11 fm or greater than 20 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Sicyonia dorsalis</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	30.0	.00	.0	.00	1
<i>Portunus gibbesii</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	18.0	.00	.0	.00	1
<i>Penaeus aztecus</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	12.0	.00	.0	.00	1
<i>Portunus spinimanus</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	6.0	.00	.3	.00	1
<i>Penaeus duorarum</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	6.0	.00	.0	.00	1
<i>Stenotomus caprinus</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	180.0	.00	1.4	.00	1
<i>Syacium gunteri</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	156.0	.00	1.4	.00	1
<i>Upeneus parvus</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	60.0	.00	.5	.00	1
<i>Synodus poeyi</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	48.0	.00	.3	.00	1
<i>Lutjanus synagris</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	6.0	.00	.0	.00	1
<i>Diplectrum bivittatum</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	6.0	.00	.0	.00	1
<i>Etropus crossotus</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	6.0	.00	.0	.00	1
<i>Lagodon rhomboides</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	6.0	.00	.3	.00	1
<i>Squid</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	0	84.0	.00	.8	.00	1

Table 24b
 Statistical Zone 22
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Summer Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 11 fm or greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	0	.0	.00	0	5.5	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	.0	.00	0	.0	.00	0	2.7	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	.0	.00	0	.0	.00	0	.0	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	.0	.00	0	.0	.00	0	.0	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	.0	.00	0	.0	.00	0	24.8	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	.0	.00	0	.0	.00	0	24.7	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	.0	.00	0	.0	.00	0	22.1	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	.0	.00	0	.0	.00	0	35.2	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	.0	.00	0	.0	.00	0	35.3	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	.0	.00	0	.0	.00	0	36.0	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	.0	.00	0	.0	.00	0	.3	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	.0	.00	0	.0	.00	0	5.0	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	.0	.00	0	.0	.00	0	5.1	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	.0	.00	0	.0	.00	0	4.1	.00	1	.0	.00	0	.0	.00	0	.0	.00	0

Table 25. 1993 Fall Shrimp/Groundfish Survey species composition list, 331 trawl stations, for those vessels that used a 40-ft. trawl. Species with a total weight of less than 0.0227 kg (0.05 lbs) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT(KG)	NUMBER OF	
				TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<u>Finfishes</u>					
Micropogonias undulatus	Atlantic croaker	67782	4070.2	259	78.2
Stenotomus caprinus	longspine porgy	43420	1347.0	174	52.6
Chloroscombrus chrysurus	Atlantic bumper	37535	791.3	152	45.9
Peprilus burti	gulf butterfish	16506	838.5	170	51.4
Arius felis	hardhead catfish	15893	2085.0	131	39.6
Prionotus longispinosus	bigeye searobin	7588	225.7	207	62.5
Leiostomus xanthurus	spot	6408	703.1	177	53.5
Trichiurus lepturus	Atlantic cutlassfish	6371	225.9	131	39.6
Cynoscion spp.	seatrouts	5383	22.0	52	15.7
Cynoscion nothus	silver seatrout	5342	190.8	124	37.5
Serranus atrobranchus	blackear bass	5002	60.7	92	27.8
Cynoscion arenarius	sand seatrout	4966	408.8	192	58.0
Centropristis philadelphica	rock sea bass	4409	177.3	200	60.4
Harengula jaguana	scaled sardine	4344	121.3	83	25.1
Steindachneria argentea	luminous hake	4189	30.1	6	1.8
Lagodon rhomboides	pinfish	3849	208.0	169	51.1
Trachurus lathami	rough scad	3833	115.1	93	28.1
Synodus foetens	inshore lizardfish	3537	435.7	218	65.9
Diplectrum bivittatum	dwarf sand perch	3003	38.7	114	34.4
Anchoa hepsetus	striped anchovy	2680	32.7	88	26.6
Syacium gunteri	shoal flounder	2511	41.9	123	37.2
Upeneus parvus	dwarf goatfish	2155	57.9	105	31.7
Lutjanus campechanus	red snapper	1981	119.4	158	47.7
Pristipomoides aquilonaris	wenchman	1949	130.1	58	17.5
Sphoeroides parvus	least puffer	1719	10.4	128	38.7
Prionotus paralatus	Mexican searobin	1634	64.9	48	14.5
Opisthonema oglinum	Atlantic thread herring	1575	62.2	72	21.8
Peprilus alepidotus	harvestfish	1322	13.0	54	16.3
Stellifer lanceolatus	star drum	1122	16.9	27	8.2
Etropus crossotus	fringed flounder	1101	18.4	94	28.4
Prionotus stearnsi	shortwing searobin	1062	10.1	44	13.3
Halieutichthys aculeatus	pancake batfish	1000	6.0	124	37.5
Lepophidium brevibarbe	blackedge cusk-eel	903	33.0	87	26.3
Porichthys plectrodon	Atlantic midshipman	881	11.6	83	25.1
Mullus auratus	red goatfish	865	51.8	34	10.3
Balistes capriscus	gray triggerfish	842	123.0	99	29.9

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Symphurus plagiosa</i>	blackcheek tonguefish	772	14.9	40	12.1
<i>Chaetodipterus faber</i>	Atlantic spadefish	732	44.6	117	35.3
<i>Selene setapinnis</i>	Atlantic moonfish	723	23.9	80	24.2
<i>Eucinostomus gula</i>	silver jenny	717	12.6	70	21.1
<i>Anchoa mitchilli</i>	bay anchovy	592	1.4	25	7.6
<i>Trichopsetta ventralis</i>	sash flounder	584	17.2	45	13.6
<i>Bollmannia communis</i>	ragged goby	504	2.2	27	8.2
<i>Prionotus rubio</i>	blackwing searobin	495	13.2	43	13.0
<i>Lutjanus synagris</i>	lane snapper	470	32.3	72	21.8
<i>Citharichthys spilopterus</i>	bay whiff	457	8.3	66	19.9
<i>Menticirrhus americanus</i>	southern kingfish	441	27.0	39	11.8
<i>Cyclopsetta chittendeni</i>	Mexican flounder	434	39.2	80	24.2
<i>Syacium</i> spp.	lefteye flounders	433	5.6	19	5.7
<i>Saurida brasiliensis</i>	largescale lizardfish	430	3.7	57	17.2
<i>Caranx crysos</i>	blue runner	347	33.7	51	15.4
<i>Sardinella aurita</i>	Spanish sardine	341	9.8	19	5.7
<i>Rhomboplites aurorubens</i>	vermillion snapper	317	22.0	22	6.6
<i>Scorpaena calcarata</i>	smoothhead scorpionfish	315	3.9	38	11.5
<i>Lagocephalus laevigatus</i>	smooth puffer	248	26.6	74	22.4
<i>Haemulon aurolineatum</i>	tomtate	237	17.1	15	4.5
<i>Anchoa lyolepis</i>	dusky anchovy	231	.3	4	1.2
<i>Brevoortia patronus</i>	gulf menhaden	213	31.1	34	10.3
<i>Orthopristis chrysoptera</i>	pigfish	206	20.0	30	9.1
<i>Larimus fasciatus</i>	banded drum	206	9.1	27	8.2
<i>Decapterus punctatus</i>	round scad	193	7.7	15	4.5
<i>Scomberomorus maculatus</i>	Spanish mackerel	182	32.8	40	12.1
<i>Scomber japonicus</i>	chub mackerel	179	12.2	6	1.8
<i>Eucinostomus argenteus</i>	spotfin mojarra	178	3.0	11	3.3
<i>Monacanthus hispidus</i>	planehead filefish	167	4.8	38	11.5
<i>Sphyræna guachancho</i>	guaguanche	160	17.1	45	13.6
<i>Priacanthus arenatus</i>	bigeye	141	41.0	20	6.0
<i>Syacium papillosum</i>	dusky flounder	139	6.5	11	3.3
<i>Synodus poeyi</i>	offshore lizardfish	136	1.0	30	9.1
<i>Hildebrandia flava</i>	yellow conger	131	9.3	18	5.4
<i>Bagre marinus</i>	gafftopsail catfish	124	17.5	25	7.6
<i>Pontinus longispinis</i>	longspine scorpionfish	123	1.8	10	3.0
<i>Gymnachirus texae</i>	fringed sole	111	1.4	26	7.9
<i>Paralichthys lethostigma</i>	southern flounder	105	37.0	41	12.4
<i>Bellator militaris</i>	horned searobin	104	1.0	13	3.9

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF	
				TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<i>Hoplunnis macrurus</i>	freckled pike-conger	100	2.5	35	10.6
<i>Urophycis floridana</i>	southern hake	100	12.7	20	6.0
<i>Selene vomer</i>	lookdown	98	4.2	31	9.4
<i>Bairdiella chrysoura</i>	silver perch	97	3.2	9	2.7
<i>Ancylopsetta dilecta</i>	three-eye flounder	96	7.4	18	5.4
<i>Prionotus tribulus</i>	bighead searobin	91	4.4	16	4.8
<i>Scomberomorus cavalla</i>	king mackerel	90	17.9	30	9.1
<i>Anchoa</i> spp.	anchovies	80	.1	5	1.5
<i>Peristedion gracile</i>	slender searobin	69	2.3	2	.6
<i>Ogcocephalus</i> spp.	batfishes	68	3.1	19	5.7
<i>Etrumeus teres</i>	round herring	64	1.2	17	5.1
<i>Prionotus ophryas</i>	bandtail searobin	60	1.1	20	6.0
<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark	57	55.3	25	7.6
<i>Etropus cyclosquamus</i>	shelf flounder	57	.4	10	3.0
<i>Ophidion welshi</i>	crested cusk-eel	55	3.5	22	6.6
<i>Prionotus scitulus</i>	leopard searobin	54	1.8	8	2.4
<i>Kathetostoma albigutta</i>	lancer stargazer	54	2.5	16	4.8
<i>Caulolatilus intermedius</i>	anchor tilefish	48	7.3	13	3.9
<i>Ophidion grayi</i>	blotched cusk-eel	48	3.4	9	2.7
<i>Ancylopsetta quadrocellata</i>	ocellated flounder	46	7.4	19	5.7
<i>Seriola dumerili</i>	greater amberjack	45	21.4	3	.9
<i>Etropus rimosus</i>	gray flounder	45	.6	3	.9
<i>Gymnothorax nigromarginatus</i>	blackedge moray	44	3.8	12	3.6
<i>Ogcocephalus declivirostris</i>	slantbrow batfish	41	1.2	14	4.2
<i>Brotula barbata</i>	bearded brotula	40	14.6	18	5.4
<i>Selar crumenophthalmus</i>	bigeye scad	38	2.5	16	4.8
<i>Antennarius radiosus</i>	singlespot frogfish	37	1.4	14	4.2
<i>Symphurus diomedianus</i>	spottedfin tonguefish	36	.9	9	2.7
<i>Polydactylus octonemus</i>	Atlantic threadfin	35	2.1	10	3.0
<i>Engyophrys senta</i>	spiny flounder	34	.5	10	3.0
<i>Symphurus civitatus</i>	offshore tonguefish	33	.5	7	2.1
<i>Prionotus roseus</i>	bluespotted searobin	32	.6	3	.9
<i>Centropristis ocyura</i>	bank sea bass	32	1.6	4	1.2
<i>Rachycentron canadum</i>	cobia	32	20.6	21	6.3
<i>Sphoeroides spengleri</i>	bandtail puffer	31	.2	2	.6
<i>Equetus umbrosus</i>	cubbyu	26	.9	8	2.4
<i>Decodon puellaris</i>	red hogfish	25	1.2	5	1.5
<i>Raja texana</i>	roundel skate	24	9.3	16	4.8
<i>Pristigenys alta</i>	short bigeye	24	1.5	8	2.4

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT(KG)	NUMBER OF TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<i>Equetus wamotoi</i>	blackbar drum	23	2.1	8	2.4
<i>Lepophidium jeannae</i>	mottled cusk-eel	22	1.0	3	.9
<i>Etropus microstomus</i>	smallmouth flounder	22	.7	4	1.2
<i>Trachinocephalus myops</i>	snakefish	20	1.5	6	1.8
<i>Citharichthys macrops</i>	spotted whiff	19	.2	6	1.8
<i>Narcine brasiliensis</i>	lesser electric ray	18	8.3	5	1.5
<i>Myrophis punctatus</i>	speckled worm eel	18	2.3	7	2.1
<i>Neomerinthe hemingwayi</i>	spinycheek scorpionfish	18	6.1	9	2.7
<i>Etropus spp.</i>	lefteye flounders	18	.2	4	1.2
<i>Diplectrum formosum</i>	sand perch	17	1.9	8	2.4
<i>Ogcocephalus pantostictus</i>	spotted batfish	16	.4	7	2.1
<i>Bathyanthias mexicanus</i>	yellowtail bass	15	.3	2	.6
<i>Sphyrna tiburo</i>	bonnethead	14	13.8	9	2.7
<i>Raja olseni</i>	spreadfin skate	14	2.0	2	.6
<i>Citharichthys cornutus</i>	horned whiff	14	.0	3	.9
<i>Equetus acuminatus</i>	high-hat	12	.9	4	1.2
<i>Ophidion holbrookii</i>	bank cusk-eel	12	1.0	3	.9
<i>Syacium micrurum</i>	channel flounder	12	.3	1	.3
<i>Anchoa nasuta</i>	longnose anchovy	11	.0	3	.9
<i>Prionotus martis</i>	barred searobin	11	.2	2	.6
<i>Apogon pseudomaculatus</i>	twospot cardinalfish	11	.1	3	.9
<i>Caranx hippos</i>	crevalle jack	11	1.6	3	.9
<i>Mustelus norrisi</i>	Florida smoothhound	9	19.3	5	1.5
<i>Dorosoma petenense</i>	threadfin shad	9	.7	3	.9
<i>Saurida caribbaea</i>	smallscale lizardfish	9	.0	5	1.5
<i>Raja eglanteria</i>	clearnose skate	8	8.1	4	1.2
<i>Ophichthus gomesi</i>	shrimp eel	8	1.1	5	1.5
<i>Pomatomus saltatrix</i>	bluefish	8	2.4	6	1.8
<i>Echeneis naucrates</i>	sharksucker	8	3.7	7	2.1
<i>Menticirrhus littoralis</i>	gulf kingfish	8	1.7	3	.9
<i>Mulloidichthys martinicus</i>	yellow goatfish	8	.6	2	.6
<i>Dasyatis sabina</i>	Atlantic stringray	7	3.7	3	.9
<i>Mugil curema</i>	white mullet	7	.5	6	1.8
<i>Prionotus alatus</i>	spiny searobin	7	.2	1	.3
<i>Uraspis secunda</i>	cottonmouth jack	7	.0	2	.6
<i>Cyclopsetta fimbriata</i>	spotfin flounder	7	.8	2	.6
<i>Gymnachirus melas</i>	naked sole	7	.0	2	.6
<i>Lactophrys quadricornis</i>	scrawled cowfish	7	1.0	6	1.8
<i>Uroconger syringinus</i>	threadtail conger	6	.3	1	.3

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Bregmaceros atlanticus</i>	antenna codlet	6	.0	3	.9
<i>Scorpaena brasiliensis</i>	barbfish	6	1.5	4	1.2
<i>Serraniculus pumilio</i>	pygmy sea bass	6	.0	2	.6
<i>Trachinotus carolinus</i>	Florida pompano	6	1.6	3	.9
<i>Pogonias cromis</i>	black drum	6	19.7	2	.6
<i>Chilomycterus schoepfi</i>	striped burrfish	6	.7	5	1.5
<i>Engraulis eurystole</i>	silver anchovy	5	.0	1	.3
<i>Hippocampus erectus</i>	lined seahorse	5	.0	4	1.2
<i>Sphyræna borealis</i>	northern sennet	5	.8	4	1.2
<i>Epinephelus flavolimbatus</i>	yellowedge grouper	5	.7	5	1.5
<i>Hemicaranx amblyrhynchus</i>	bluntnose jack	5	.7	3	.9
<i>Calamus leucosteus</i>	whitebone porgy	5	1.7	2	.6
<i>Gymnothorax saxicola</i>	honeycomb moray	4	.5	3	.9
<i>Echiopsis punctifer</i>	snapper eel	4	.0	1	.3
<i>Hyporhamphus unifasciatus</i>	halfbeak	4	.1	2	.6
<i>Mycteroperca microlepis</i>	gag	4	.8	2	.6
<i>Rypticus saponaceus</i>	greater soapfish	4	.1	1	.3
<i>Rypticus maculatus</i>	whitespotted soapfish	4	.3	4	1.2
<i>Pagrus pagrus</i>	red porgy	4	.5	2	.6
<i>Achirus lineatus</i>	lined sole	4	.0	2	.6
<i>Trinectes maculatus</i>	hogchoker	4	.0	2	.6
<i>Aluterus schoepfi</i>	orange filefish	4	.2	2	.6
Pisces	fishes	3	.0	1	.3
<i>Mustelus canis</i>	smooth dogfish	3	3.3	3	.9
<i>Dasyatis say</i>	bluntnose stingray	3	1.7	2	.6
<i>Rhinoptera bonasus</i>	cownose ray	3	25.1	1	.3
<i>Anchoviella perfasciata</i>	flat anchovy	3	.0	1	.3
<i>Elops saurus</i>	ladyfish	3	.6	1	.3
<i>Urophycis cirrata</i>	gulf hake	3	.2	2	.6
<i>Scorpaena</i> spp.	scorpionfishes	3	.0	2	.6
<i>Scorpaena dispar</i>	hunchback scorpionfish	3	.1	1	.3
<i>Serranus phoebe</i>	tattler	3	.1	2	.6
<i>Priacanthus cruentatus</i>	glasseye snapper	3	.1	1	.3
<i>Apogon</i> spp.	cardinalfishes	3	.0	1	.3
<i>Remora remora</i>	remora	3	3.3	2	.6
<i>Archosargus probatocephalus</i>	sheepshead	3	2.3	3	.9
<i>Chaetodon sedentarius</i>	reef butterflyfish	3	.1	1	.3
<i>Bembrops gobioides</i>	goby flathead	3	.2	1	.3
<i>Neobythites gillii</i>	cusk-eel	3	.0	1	.3

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT(KG)	NUMBER OF		%FREQUENCY OF OCCURRENCE
				TOWS WHERE CAUGHT		
Euthynnus alletteratus	little tunny	3	1.4	1		.3
Ophidiidae	cusks-eels	3	.3	1		.3
Paralichthys squamilentus	broad flounder	3	.9	3		.9
Monacanthus setifer	pygmy filefish	3	.2	1		.3
Sphoeroides dorsalis	marbled puffer	3	.1	1		.3
Dasyatis americana	southern stingray	2	1.6	2		.6
Brevoortia gunteri	finestale menhaden	2	.2	1		.3
Urophycis regia	spotted hake	2	.2	1		.3
Physiculus fulvus	metallic codling	2	.0	2		.6
Hemanthias leptus	longtail bass	2	.1	1		.3
Seriola rivoliana	almaco jack	2	1.2	1		.3
Sciaenops ocellatus	red drum	2	10.3	2		.6
Pseudupeneus maculatus	spotted goatfish	2	.0	1		.3
Opistognathus spp.	jawfishes	2	.1	1		.3
Symphurus urospilus	spottail tonguefish	2	.0	1		.3
Aluterus monoceros	unicorn filefish	2	1.2	1		.3
Squatina dumeril	Atlantic angel shark	1	.3	1		.3
Carcharhinus acronotus	blacknose shark	1	1.6	1		.3
Ginglymostoma cirratum	nurse shark	1	.3	1		.3
Alosa chrysochloris	skipjack herring	1	.0	1		.3
Synodus spp.	lizardfishes	1	.0	1		.3
Echiophis intertinctus	spotted spoon-nose eel	1	.2	1		.3
Syngnathus louisianae	chain pipefish	1	.0	1		.3
Zenopsis conchifera	buckler dory	1	.1	1		.3
Synagrops spinosus	keelcheek bass	1	.1	1		.3
Alectis ciliaris	African pompano	1	.0	1		.3
Oligoplites saurus	leatherjack	1	.0	1		.3
Seriola fasciata	lesser amberjack	1	.3	1		.3
Lutjanus griseus	grey snapper	1	3.8	1		.3
Eucinostomus spp.	mojarra	1	.0	1		.3
Conodon nobilis	barred grunt	1	.1	1		.3
Menticirrhus saxatilis	northern kingfish	1	.2	1		.3
Chaetodon ocellatus	spotfin butterflyfish	1	.1	1		.3
Ariomma bondi	silver-rag	1	.1	1		.3
Lepophidium spp.	cusks-eels	1	.0	1		.3
Bothus robinsi	twospot flounder	1	.0	1		.3
Paralichthys spp.	flounders	1	.0	1		.3
Lactophrys spp.	boxfishes	1	.0	1		.3
Antennarius striatus	striated frogfish	1	.0	1		.3

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
Ogcocephalus parvus	roughback batfish	1	.1	1	.3
Ogcocephalus radiatus	polka-dot batfish	1	.6	1	.3
<u>Crustaceans</u>					
Squilla empusa	mantis shrimp	20700	136.7	136	41.1
Trachypenaeus similis	roughback shrimp	13019	33.8	98	29.6
Callinectes similis	lesser blue crab	11672	156.5	209	63.1
Penaeus aztecus	brown shrimp	9872	208.5	258	77.9
Portunus gibbesii	iridescent swimming crab	8956	46.0	188	56.8
Sicyonia brevirostris	brown rock shrimp	6277	85.2	79	23.9
Sicyonia dorsalis	lesser rock shrimp	4066	7.0	77	23.3
Portunus spinicarpus	longspine swimming crab	3979	32.6	64	19.3
Penaeus setiferus	white shrimp	3970	86.3	138	41.7
Penaeus duorarum	pink shrimp	1834	24.2	86	26.0
Trachypenaeus constrictus	roughneck shrimp	1037	1.8	28	8.5
Parapenaeus politus	deepwater rose shrimp	1028	1.8	11	3.3
Squilla chydadea	mantis shrimp	866	6.3	50	15.1
Solenocera vioscai	humpback shrimp	694	3.1	30	9.1
Solenocera spp.	humpback shrimps	299	1.4	4	1.2
Portunus spinimanus	blotched swimming crab	263	5.0	59	17.8
Calappa sulcata	yellow box crab	227	20.7	56	16.9
Callinectes sapidus	blue crab	116	16.1	33	10.0
Trachypenaeus spp.	roughneck shrimps	86	.4	1	.3
Xiphopenaeus kroyeri	seabob	68	.5	3	.9
Anasimus latus	stilt spider crab	66	.6	15	4.5
Raninoides louisianensis	gulf frog crab	56	.6	15	4.5
Persephona mediterranea	mottled purse crab	38	.2	10	3.0
Hepatus epheliticus	calico crab	37	2.7	9	2.7
Sicyonia spp.	rock shrimps	29	.1	1	.3
Porcellana sayana	spotted porcelain crab	23	.0	4	1.2
Parthenope granulata	bladetooth elbow crab	15	.0	9	2.7
Libinia emarginata	portly spider crab	14	1.8	9	2.7
Libinia dubia	longnose spider crab	13	.6	5	1.5
Podochela sidneyi	shortfinger neck crab	12	.0	4	1.2
Speocarcinus spp.	squareback crabs	12	.1	5	1.5
Paguridae	right-handed hermit crabs	10	.0	1	.3
Pagurus bullisi	hermit crab	9	.0	3	.9
Paguristes triangulatus	hermit crab	9	.0	3	.9

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Petrochirus diogenes</i>	giant hermit crab	9	.4	5	1.5
Xanthidae	mud crabs	9	.0	6	1.8
<i>Ovalipes floridanus</i>	Florida lady crab	8	.3	4	1.2
<i>Sicyonia burkenroadi</i>	spiny rock shrimp	7	.0	4	1.2
<i>Stenorhynchus seticornis</i>	yellowline arrow crab	6	.1	4	1.2
<i>Squilla neglecta</i>	mantis shrimp	5	.0	2	.6
<i>Plesionika longicauda</i>	pandalid shrimp	5	.0	2	.6
<i>Sicyonia typica</i>	kinglet rock shrimp	5	.0	4	1.2
Reptantia	lobsters	5	.0	3	.9
<i>Arenaeus cribrarius</i>	speckled swimming crab	5	.3	3	.9
<i>Stenocionops coelata</i>	spider crab	5	.5	1	.3
<i>Leiolambrus nitidus</i>	white elbow crab	5	.0	2	.6
<i>Parapenaeus</i> spp.	penaeid shrimps	4	.0	1	.3
<i>Alpheus</i> spp.	snapping shrimps	4	.0	1	.3
<i>Dardanus insignis</i>	red brocade hermit	4	.0	2	.6
<i>Persephona crinita</i>	pink purse crab	4	.0	3	.9
<i>Speocarcinus lobatus</i>	gulf squareback crab	4	.1	2	.6
<i>Solenocera atlantidis</i>	dwarf humpback shrimp	3	.0	1	.3
<i>Stenocionops spinosissimus</i>	tenspine spider crab	3	.3	1	.3
<i>Metoporphaphis calcarata</i>	false arrow crab	3	.0	2	.6
<i>Plesionika</i> spp.	pandalid shrimps	2	.0	1	.3
<i>Myropsis quinquespinosa</i>	fivespine purse crab	2	.0	1	.3
<i>Scyllarides nodifer</i>	ridged slipper lobster	2	1.4	2	.6
<i>Porcellana sigsbeiana</i>	striped porcelain crab	2	.0	1	.3
<i>Nerocila acuminata</i>	parasitic isopod	1	.0	1	.3
<i>Podochela</i> spp.	neck crabs	1	.0	1	.3
<i>Dromidia antillensis</i>	hairy sponge crab	1	.0	1	.3
<i>Raninoides loevis</i>	furrowed frog crab	1	.0	1	.3
<i>Parthenope serrata</i>	sawtooth elbow crab	1	.0	1	.3
<u>Others</u>					
<i>Loligo</i> spp.	squids	3551	25.8	69	20.8
<i>Aurelia aurita</i>	moon jellyfish	3162	1337.8	82	24.8
<i>Lolliguncula brevis</i>	Atlantic brief squid	2300	25.9	104	31.4
<i>Loligo pleii</i>	arrow squid	2151	11.2	57	17.2
<i>Amusium papyraceum</i>	paper scallop	1373	14.4	51	15.4
<i>Luidia clathrata</i>	sea star	1047	10.7	39	11.8
<i>Aurelia</i> spp.	jellyfishes	794	337.4	21	6.3

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Loligo pealeii</i>	longfin squid	683	34.5	52	15.7
<i>Astropecten duplicatus</i>	spiny beaded sea star	661	1.5	46	13.9
<i>Renilla mulleri</i>	short-stemmed sea pansy	321	1.5	22	6.6
<i>Chrysaora quinquecirrha</i>	sea nettle	248	12.8	17	5.1
<i>Astropecten cingulatus</i>	starfish	224	4.1	40	12.1
<i>Anadara baughmani</i>	Baughman's ark	102	1.1	13	3.9
<i>Ophiolepis elegans</i>	brittle star	81	.3	20	6.0
<i>Mellita quinquesperforata</i>	five-slotted sand dollar	45	.2	8	2.4
<i>Clypeaster ravenelii</i>	cake urchin	33	4.2	7	2.1
Anthozoa	anthozoans	30	.3	4	1.2
<i>Styela plicata</i>	tunicate	27	.1	6	1.8
<i>Pitar cordatus</i>	Schwengel's pitar	26	.5	7	2.1
<i>Luidia</i> spp.	sea stars	26	.2	1	.3
Actinidae	sea anemones	22	.1	3	.9
<i>Neverita duplicata</i>	shark eye	20	.5	5	1.5
<i>Polystira albida</i>	white giant turris	20	.1	5	1.5
Tunicata	tunicates	20	.2	5	1.5
Gorgonidae	gorgonians	19	.3	8	2.4
<i>Pecten raveneli</i>	Ravenel's scallop	12	.1	2	.6
<i>Luidia alternata</i>	banded luidia	12	.1	4	1.2
<i>Polystira tellea</i>	delicate giant turret	10	.1	4	1.2
Porifera	sponges	10	1.8	6	1.8
<i>Pteria colymbus</i>	Atlantic wing-oyster	8	.2	4	1.2
<i>Tethyaster grandis</i>	starfish	8	.5	3	.9
<i>Clypeaster</i> spp.	cake urchins	8	.3	3	.9
Holothuroidea	sea cucumbers	8	.3	3	.9
<i>Calliactris tricolor</i>	common sea anemone	7	.0	2	.6
<i>Distorsio clathrata</i>	Atlantic distorsio	6	.1	4	1.2
<i>Narcissia trigonaria</i>	starfish	5	.3	3	.9
<i>Muricanthus fulvescens</i>	giant eastern murex	5	.2	1	.3
<i>Macoma brevifrons</i>	short macoma	5	.0	2	.6
<i>Echinaster serpentarius</i>	starfish	5	.0	2	.6
<i>Astrophyton muricatum</i>	basket star	5	.7	1	.3
<i>Arbacia punctulata</i>	purple sea-urchin	5	.0	2	.6
<i>Molpadia cubana</i>	sea cucumber	5	.2	2	.6
<i>Siratus beauii</i>	beau's murex	4	.1	1	.3
Myopsida	squids	4	.0	1	.3
<i>Tamoya haplonema</i>	sea wasp	4	.5	3	.9
<i>Goniaster tessellatus</i>	starfish	4	.2	3	.9

Table 25. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<i>Asteroporpa annulata</i>	starfish	4	.0	2	.6
<i>Cantharus cancellarius</i>	cancellate cantharus	3	.0	2	.6
<i>Conus austini</i>	cone shell	3	.0	1	.3
Ascidacea	sea squirts	3	.0	1	.3
<i>Diopatra cuprea</i>	tube worm	3	.0	1	.3
Asteroidea	starfishes	3	.1	3	.9
<i>Centrostephanus</i> spp.	sea urchins	3	.0	1	.3
<i>Encope aberrans</i>	sand dollar	3	.1	2	.6
<i>Molpadia barbouri</i>	sea cucumber	3	.1	2	.6
<i>Fasciolaria liliun</i>	banded tulip	2	.1	1	.3
<i>Argopecten gibbus</i>	calico scallop	2	.0	1	.3
<i>Laevicardium sybariticum</i>	delicate eggcockle	2	.0	1	.3
<i>Nemocardium transversum</i>	transverse micro-cockle	2	.2	1	.3
<i>Circomphalus strigillinus</i>	empress venus	2	.0	1	.3
Scyphozoa	jellyfishes	2	.0	1	.3
<i>Astropecten americanus</i>	starfish	2	.0	2	.6
Echinoidea	echinoderms	2	.1	1	.3
Gastropoda	snails	1	.0	1	.3
<i>Thais haemastoma</i>	rocksnail	1	.0	1	.3
<i>Chicoreus florifer</i>	lace murex	1	.0	1	.3
<i>Busycotypus spiratus</i>	pearwhelk	1	.1	1	.3
<i>Scaphella dubia</i>	dubious volute	1	.1	1	.3
<i>Conus</i> spp.	cone shells	1	.0	1	.3
<i>Anadara ovalis</i>	blood ark	1	.0	1	.3
<i>Anadara transversa</i>	transverse ark	1	.0	1	.3
<i>Aequipecten muscosus</i>	rough scallop	1	.0	1	.3
<i>Anomia simplex</i>	common jingle	1	.0	1	.3
<i>Ostreola equestris</i>	crested oyster	1	.0	1	.3
<i>Chama congregata</i>	corrugate jewelbox	1	.0	1	.3
<i>Hiatella</i> spp.	hiatella	1	.0	1	.3
<i>Distaplia bermudensis</i>	bermuda tunicate	1	.0	1	.3
<i>Paranthus rapiformis</i>	onion anemone	1	.0	1	.3
Aphroditidae	tube worms	1	.0	1	.3
<i>Hermodice carunculata</i>	green fire worm	1	.0	1	.3
Maldanidae	polychaetes	1	.0	1	.3
<i>Hemipholis elongata</i>	brittle star	1	.0	1	.3
<i>Clypeaster prostratus</i>	sea biscuit	1	.1	1	.3

Table 26. 1993 Fall Shrimp/Groundfish Survey species composition list, 80 trawl stations, for those vessels that used a 20-ft. trawl. Species with a total weight of less than 0.0227 kg (0.05 lbs) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT(KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<u>Finfishes</u>					
Peprilus alepidotus	harvestfish	371	3.0	38	47.5
Selene setapinnis	Atlantic moonfish	325	1.0	30	37.5
Cynoscion nothus	silver seatrout	301	4.8	31	38.8
Cynoscion arenarius	sand seatrout	278	6.3	45	56.3
Syacium gunteri	shoal flounder	221	2.8	29	36.3
Stellifer lanceolatus	star drum	146	.5	17	21.3
Peprilus burti	gulf butterfish	132	1.2	26	32.5
Chloroscombrus chrysurus	Atlantic bumper	101	.6	16	20.0
Symphurus plagiosa	blackcheek tonguefish	72	1.3	21	26.3
Harengula jaguana	scaled sardine	58	1.3	11	13.8
Chaetodipterus faber	Atlantic spadefish	48	.4	21	26.3
Arius felis	hardhead catfish	44	.4	5	6.3
Lutjanus campechanus	red snapper	43	.3	7	8.8
Selene vomer	lookdown	42	.0	25	31.3
Etropus crossotus	fringed flounder	40	.4	19	23.8
Lagodon rhomboides	pinfish	39	1.1	16	20.0
Prionotus rubio	blackwing searobin	29	.2	12	15.0
Sphoeroides parvus	least puffer	27	.0	16	20.0
Prionotus tribulus	bighead searobin	20	.1	11	13.8
Centropristis philadelphica	rock sea bass	19	.3	7	8.8
Bairdiella chrysoura	silver perch	17	.2	5	6.3
Menticirrhus americanus	southern kingfish	16	.7	10	12.5
Micropogonias undulatus	Atlantic croaker	16	.6	12	15.0
Lagocephalus laevigatus	smooth puffer	14	.0	6	7.5
Synodus foetens	inshore lizardfish	13	.4	7	8.8
Citharichthys spilopterus	bay whiff	13	.2	10	12.5
Anchoa mitchilli	bay anchovy	11	.0	5	6.3
Larimus fasciatus	banded drum	10	.0	6	7.5
Trichiurus lepturus	Atlantic cutlassfish	9	.0	4	5.0
Hemicaranx amblyrhynchus	bluntnose jack	8	.0	3	3.8
Narcine brasiliensis	lesser electric ray	7	3.1	5	6.3
Menticirrhus littoralis	gulf kingfish	7	.2	5	6.3
Anchoa hepsetus	striped anchovy	6	.0	2	2.5
Trinectes maculatus	hogchoker	6	.0	4	5.0
Eucinostomus argenteus	spotfin mojarra	5	.0	5	6.3
Leiostomus xanthurus	spot	5	.6	4	5.0

Table 26. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF		%FREQUENCY OF OCCURRENCE
				TOWS WHERE CAUGHT		
Hippocampus erectus	lined seahorse	3	.0	2		2.5
Scorpaena calcarata	smoothhead scorpionfish	3	.0	3		3.8
Scomberomorus maculatus	Spanish mackerel	3	.1	1		1.3
Monacanthus hispidus	planehead filefish	3	.0	3		3.8
Halieutichthys aculeatus	pancake batfish	3	.0	3		3.8
Dasyatis sabina	Atlantic stringray	2	1.6	2		2.5
Saurida caribbaea	smallscale lizardfish	2	.0	1		1.3
Prionotus longispinosus	bigeye searobin	2	.0	2		2.5
Eucinostomus gula	silver jenny	2	.0	2		2.5
Orthopristis chrysoptera	pigfish	2	.1	2		2.5
Cyclopsetta chittendeni	Mexican flounder	2	.0	1		1.3
Ancylopsetta quadrocellata	ocellated flounder	2	.1	1		1.3
Bothus robinsi	twospot flounder	2	.0	1		1.3
Ogcocephalus radiatus	polka-dot batfish	2	.0	2		2.5
Rhinobatos lentiginosus	Atlantic guitarfish	1	.0	1		1.3
Brevoortia patronus	gulf menhaden	1	.0	1		1.3
Dorosoma petenense	threadfin shad	1	.0	1		1.3
Saurida brasiliensis	largescale lizardfish	1	.0	1		1.3
Urophycis floridana	southern hake	1	.0	1		1.3
Sphyraena guachancho	guaguanche	1	.0	1		1.3
Diplectrum bivittatum	dwarf sand perch	1	.0	1		1.3
Serranus atrobranchus	blackear bass	1	.0	1		1.3
Caranx hippos	crevalle jack	1	.0	1		1.3
Upeneus parvus	dwarf goatfish	1	.0	1		1.3
Astroscopus y-graecum	southern stargazer	1	.0	1		1.3
Ophidion grayi	blotched cusk-eel	1	.0	1		1.3
Achirus lineatus	lined sole	1	.0	1		1.3
Gymnachirus texae	fringed sole	1	.0	1		1.3
Symphurus urospilus	spottail tonguefish	1	.0	1		1.3
Ogcocephalus pantostictus	spotted batfish	1	.0	1		1.3
<u>Crustaceans</u>						
Xiphopenaeus kroyeri	seabob	3560	11.5	18		22.5
Penaeus setiferus	white shrimp	993	5.9	38		47.5
Portunus gibbesii	irridescent swimming crab	173	.7	39		48.8
Callinectes similis	lesser blue crab	94	.7	29		36.3
Sicyonia brevirostris	brown rock shrimp	69	.4	10		12.5

Table 26. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	%FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OF OCCURRENCE
<i>Penaeus duorarum</i>	pink shrimp	61	.9	13	16.3
<i>Sicyonia dorsalis</i>	lesser rock shrimp	59	.0	17	21.3
<i>Squilla empusa</i>	mantis shrimp	57	.5	23	28.8
<i>Sicyonia typica</i>	kinglet rock shrimp	45	.1	7	8.8
<i>Trachypenaeus similis</i>	roughback shrimp	35	.0	15	18.8
<i>Dyspanopeus texana</i>	gulf grassflat crab	35	.0	2	2.5
<i>Penaeus aztecus</i>	brown shrimp	32	.2	13	16.3
<i>Trachypenaeus constrictus</i>	roughneck shrimp	30	.0	9	11.3
<i>Pagurus pollicaris</i>	flatclaw hermit crab	30	.4	13	16.3
<i>Portunus spinimanus</i>	blotched swimming crab	30	.2	12	15.0
<i>Callinectes sapidus</i>	blue crab	25	.2	11	13.8
<i>Podochela sidneyi</i>	shortfinger neck crab	17	.0	7	8.8
<i>Portunus anceps</i>	delicate swimming crab	9	.0	3	3.8
<i>Calappa sulcata</i>	yellow box crab	8	.6	5	6.3
<i>Hepatus epheliticus</i>	calico crab	7	.3	4	5.0
<i>Arenaeus cribrarius</i>	speckled swimming crab	6	.2	4	5.0
<i>Alpheus</i> spp.	snapping shrimps	5	.0	1	1.3
<i>Libinia dubia</i>	longnose spider crab	5	.0	5	6.3
<i>Portunus sayi</i>	sargassum swimming crab	5	.0	4	5.0
<i>Persephona mediterranea</i>	mottled purse crab	4	.0	4	5.0
<i>Petrochirus diogenes</i>	giant hermit crab	3	.2	2	2.5
<i>Porcellana sigsbeiana</i>	striped porcelain crab	3	.0	1	1.3
<i>Porcellana sayana</i>	spotted porcelain crab	3	.0	3	3.8
<i>Parthenope serrata</i>	sawtooth elbow crab	3	.0	3	3.8
<i>Dromidia antillensis</i>	hairy sponge crab	2	.0	2	2.5
<i>Persephona crinita</i>	pink purse crab	1	.0	1	1.3
<i>Ovalipes floridanus</i>	Florida lady crab	1	.0	1	1.3
<i>Petrolisthes armatus</i>	green porcelain crab	1	.0	1	1.3
<i>Calappa flammea</i>	flame box crab	1	.3	1	1.3
<u>Others</u>					
<i>Lolliguncula brevis</i>	Atlantic brief squid	561	5.5	57	71.3
<i>Renilla mulleri</i>	short-stemmed sea pansy	255	.5	26	32.5
<i>Loligo pealeii</i>	longfin squid	160	1.5	21	26.3
<i>Chrysaora quinquecirrha</i>	sea nettle	137	6.5	31	38.8
<i>Luidia clathrata</i>	sea star	56	.4	15	18.8
Actinidae	sea anemones	32	.0	13	16.3
<i>Neverita duplicata</i>	shark eye	23	.2	12	15.0

Table 26. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF	%FREQUENCY OF OCCURRENCE
				TOWS WHERE CAUGHT	
<i>Stomolophus meleagris</i>	many-mouthed sea jelly	18	13.3	4	5.0
<i>Luidia alternata</i>	banded luidia	16	.1	7	8.8
<i>Astropecten duplicatus</i>	spiny beaded sea star	12	.0	6	7.5
<i>Calliactris tricolor</i>	common sea anemone	9	.0	3	3.8
Algae	algae	7	.0	7	8.8
<i>Aurelia aurita</i>	moon jellyfish	6	1.6	4	5.0
Sargassaceae	sargassum	6	.0	6	7.5
Gorgonidae	gorgonians	4	.0	4	5.0
<i>Busycon sinistrum</i>	lightning whelk	2	.2	2	2.5
<i>Beroe ovata</i>	comb jelly	2	.6	2	2.5
<i>Architectonica nobilis</i>	common sundial	1	.0	1	1.3
<i>Thais haemastoma</i>	rocksnail	1	.0	1	1.3
<i>Cantharus cancellarius</i>	cancellate cantharus	1	.0	1	1.3
<i>Loligo pleii</i>	arrow squid	1	.0	1	1.3
<i>Molgula</i> spp.	sea squirts	1	.0	1	1.3
Porifera	sponges	1	.0	1	1.3

Table 27a
 Statistical Zone 11
 40-ft trawls

Summary of dominant organisms taken in statistical zone 11 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	.0	.00	.0	.00	9	8.0	7.35	.0	.01	17	117.9	58.59	.3	.13	37
Callinectes similis	37.4	31.44	.5	.32	9	18.7	6.98	.3	.11	17	93.7	44.55	1.8	.72	37
Portunus gibbesii	81.7	56.14	.5	.27	9	48.8	25.24	.2	.11	17	85.8	30.85	.7	.25	37
Squilla spp.	25.2	14.20	.2	.13	9	35.0	11.09	.3	.10	17	122.7	76.36	1.0	.56	37
Portunus spinicarpus	.0	.00	.0	.00	9	.4	.37	.0	.01	17	.0	.00	.0	.00	37
Penaeus aztecus	30.1	20.59	.5	.41	9	19.0	8.21	.4	.17	17	109.6	54.03	1.5	.56	37
Micropogonias undulatus	115.9	47.79	6.0	2.33	9	538.6	149.98	39.4	15.15	17	432.4	150.10	30.4	10.89	37
Chloroscombrus chrysurus	369.7	349.31	3.5	3.30	9	49.7	31.48	.5	.30	17	260.5	167.02	4.2	2.13	37
Arius felis	860.7	785.67	114.9	101.48	9	429.6	313.41	75.6	55.40	17	184.3	108.45	43.0	25.08	37
Stenotomus caprinus	.0	.00	.0	.00	9	1.0	.78	.0	.03	17	154.3	64.43	3.3	1.32	37
Steindachneria argentea	.0	.00	.0	.00	9	.0	.00	.0	.00	17	.0	.00	.0	.00	37
Serranus atrobranchus	.0	.00	.0	.00	9	.0	.00	.0	.00	17	75.8	38.25	.6	.30	37
Lagodon rhomboides	225.7	217.57	10.0	9.75	9	54.9	47.85	2.9	2.55	17	55.4	16.48	3.1	.97	37
Peprilus burti	80.2	33.26	3.7	2.34	9	11.9	4.39	.4	.19	17	26.9	11.44	2.2	.99	37
Squid	428.4	248.89	2.7	1.23	9	16.6	7.34	1.1	.82	17	16.4	3.82	.4	.12	37

Table 27a (continued)
 Statistical Zone 11
 40-ft trawls

Summary of dominant organisms taken in statistical zone 11 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	286.1	251.05	.8	.76	10	1.3	1.31	.0	.00	5	.0	.00	.0	.00	3
Callinectes similis	166.8	132.11	3.8	2.97	10	4.0	2.13	.1	.06	5	.0	.00	.0	.00	3
Portunus gibbesii	47.4	32.65	.3	.20	10	.6	.44	.0	.00	5	.0	.00	.0	.00	3
Squilla spp.	97.4	74.29	.5	.37	10	16.9	14.62	.1	.07	5	.0	.00	.0	.00	3
Portunus spinicarpus	6.3	3.47	.0	.01	10	316.0	258.24	2.2	1.68	5	263.3	188.68	2.5	1.75	3
Penaeus aztecus	25.6	7.03	.5	.18	10	21.8	12.32	.6	.31	5	1.2	1.18	.1	.05	3
Micropogonias undulatus	134.3	87.21	8.8	5.54	10	81.3	71.64	6.8	5.94	5	.0	.00	.0	.00	3
Chloroscombrus chrysurus	.4	.41	.0	.00	10	.0	.00	.0	.00	5	.0	.00	.0	.00	3
Arius felis	.0	.00	.0	.00	10	.0	.00	.0	.00	5	.0	.00	.0	.00	3
Stenotomus caprinus	241.4	164.66	10.6	7.11	10	256.8	154.50	12.6	9.13	5	114.0	58.87	7.3	3.36	3
Steindachneria argentea	369.9	350.32	1.9	1.83	10	.0	.00	.0	.00	5	2.4	2.35	.1	.05	3
Serranus atrobranchus	218.0	103.70	2.4	1.09	10	79.9	76.08	1.2	1.11	5	7.9	5.18	.2	.10	3
Lagodon rhomboides	37.0	16.03	2.0	.86	10	6.2	4.73	.6	.52	5	.0	.00	.0	.00	3
Peprilus burti	125.9	82.32	11.1	7.23	10	47.8	29.01	3.8	2.25	5	308.0	308.00	28.8	28.82	3
Squid	6.1	2.15	.2	.11	10	4.5	3.11	.0	.02	5	18.8	9.44	.2	.10	3

Table 27b
 Statistical Zone 11
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	395.1	181.82	9	236.9	64.58	17	138.6	29.96	37	71.0	10.47	10	60.4	17.18	5	85.6	26.97	3
Total finfish kg	155.9	100.48	9	148.7	55.56	17	120.8	27.37	37	61.7	10.48	10	53.4	15.37	5	77.7	24.67	3
Total crustacean kg	2.9	1.21	9	2.6	.66	17	6.5	2.08	37	7.4	4.55	10	5.0	2.80	5	3.0	1.86	3
Total others kg	236.6	173.88	9	86.0	40.64	17	11.2	6.79	37	1.8	.88	10	1.5	1.49	5	6.3	4.08	3
Surface temperature	20.9	.68	9	21.7	.47	19	22.4	.32	34	22.8	.31	13	22.5	1.04	4	23.1	.08	5
Midwater temperature	20.7	.75	9	21.6	.48	19	22.8	.21	34	23.0	.17	13	23.7	.19	4	23.2	.55	5
Bottom temperature	21.1	.75	9	21.8	.51	19	22.6	.23	34	22.0	.43	13	20.1	1.01	4	19.3	.60	5
Surface salinity	31.5	.26	9	32.1	.29	19	33.3	.49	34	33.5	.56	13	33.3	1.77	4	35.0	.06	5
Midwater salinity	31.9	.22	9	32.6	.17	19	34.0	.06	34	34.8	.11	13	35.4	.33	4	36.0	.17	5
Bottom salinity	32.3	.18	9	32.9	.15	19	34.4	.14	34	34.5	.92	13	36.4	.03	4	36.4	.03	5
Surface chlorophyll	1.2	.13	8	1.6	.38	14	1.1	.16	31	1.5	.61	13	.7	.29	4	1.2	.75	5
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	2.2	.00	1	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	7.3	.29	9	6.2	.26	19	5.9	.17	34	5.9	.29	13	5.7	.44	4	6.0	.55	5
Midwater oxygen	7.0	.13	9	6.0	.16	19	6.2	.08	33	6.2	.15	13	5.6	.43	4	4.9	.46	5
Bottom oxygen	6.8	.21	9	6.1	.08	19	6.1	.13	34	5.3	.23	13	3.8	.60	4	3.8	.07	5

Table 28a
 Statistical Zone 13
 40-ft trawls

Summary of dominant organisms taken in statistical zone 13 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths between 31-40 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Squilla spp.	4.3	.00	.0	.00	1	491.1	201.42	3.7	1.62	6	2133.9	768.20	12.1	4.35	16
Trachypenaeus similis	4.3	.00	.0	.00	1	495.2	358.18	.9	.72	6	866.4	345.73	2.0	.87	16
Callinectes similis	12.9	.00	.0	.00	1	288.3	97.57	1.8	.55	6	400.6	144.19	4.3	1.57	16
Portunus gibbesii	4.3	.00	.0	.00	1	310.7	118.00	1.1	.36	6	267.2	73.00	1.2	.37	16
Sicyonia dorsalis	.0	.00	.0	.00	1	929.0	891.59	.5	.45	6	32.1	14.84	.0	.02	16
Penaeus setiferus	291.4	.00	2.5	.00	1	230.9	36.53	3.6	.58	6	46.6	15.02	.9	.29	16
Trichiurus lepturus	544.3	.00	4.3	.00	1	506.7	463.01	12.1	11.15	6	164.7	91.82	2.9	1.68	16
Micropogonias undulatus	415.7	.00	23.2	.00	1	101.9	48.25	4.9	2.15	6	258.3	79.53	15.3	4.44	16
Cynoscion nothus	.0	.00	.0	.00	1	300.2	260.51	1.7	1.09	6	240.0	166.72	1.4	1.04	16
Cynoscion arenarius	132.9	.00	4.7	.00	1	270.4	188.77	4.2	2.38	6	132.7	67.84	3.0	1.12	16
Cynoscion spp.	.0	.00	.0	.00	1	.0	.00	.0	.00	6	595.6	507.68	1.4	1.08	16
Leiostomus xanthurus	171.4	.00	9.9	.00	1	91.6	37.32	5.8	2.28	6	49.7	18.68	4.0	1.43	16
Steindachneria argentea	.0	.00	.0	.00	1	.0	.00	.0	.00	6	.0	.00	.0	.00	16
Sphoeroides parvus	.0	.00	.0	.00	1	91.2	33.10	.5	.17	6	66.1	20.02	.3	.11	16
Squid	90.0	.00	.8	.00	1	87.5	51.46	1.4	.90	6	78.8	29.48	.7	.27	16

Table 28a (continued)
 Statistical Zone 13
 40-ft trawls

Summary of dominant organisms taken in statistical zone 13 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths between 31-40 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Squilla spp.	.0	.00	.0	.00	2	.0	.00	.0	.00	0	402.0	.00	5.5	.00	1
Trachypenaeus similis	62.8	38.77	.1	.01	2	.0	.00	.0	.00	0	54.0	.00	.3	.00	1
Callinectes similis	.0	.00	.0	.00	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1
Portunus gibbesii	1.2	1.15	.0	.00	2	.0	.00	.0	.00	0	24.0	.00	.0	.00	1
Sicyonia dorsalis	4.6	4.62	.0	.00	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1
Penaeus setiferus	21.5	21.50	.8	.75	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1
Trichiurus lepturus	150.2	131.77	7.3	5.37	2	.0	.00	.0	.00	0	162.0	.00	5.5	.00	1
Micropogonias undulatus	282.8	268.77	15.4	15.05	2	.0	.00	.0	.00	0	24.0	.00	1.4	.00	1
Cynoscion nothus	.0	.00	.0	.00	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1
Cynoscion arenarius	10.7	7.73	1.6	1.11	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1
Cynoscion spp.	.0	.00	.0	.00	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1
Leiostomus xanthurus	173.0	157.00	23.2	20.97	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1
Steindachneria argentea	4.3	.31	.0	.02	2	.0	.00	.0	.00	0	3696.0	.00	70.4	.00	1
Sphoeroides parvus	.0	.00	.0	.00	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1
Squid	4.6	4.62	.4	.37	2	.0	.00	.0	.00	0	.0	.00	.0	.00	1

Table 28b
 Statistical Zone 13
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths between 31-40 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	77.9	.00	1	95.9	28.17	6	59.9	10.53	16	68.1	46.26	2	.0	.00	0	253.6	.00	1
Total finfish kg	48.7	.00	1	54.7	13.25	6	36.9	6.29	16	60.6	43.29	2	.0	.00	0	210.0	.00	1
Total crustacean kg	3.9	.00	1	11.8	2.79	6	21.8	6.11	16	6.8	2.67	2	.0	.00	0	40.9	.00	1
Total others kg	27.3	.00	1	29.4	25.36	6	.5	.25	16	.5	.52	2	.0	.00	0	2.7	.00	1
Surface temperature	19.5	.00	1	19.6	.84	10	20.7	.95	13	21.7	.54	3	19.8	3.85	2	.0	.00	0
Midwater temperature	19.4	.00	1	20.4	.72	10	21.8	.96	13	24.4	.56	3	24.4	.73	2	.0	.00	0
Bottom temperature	19.4	.00	1	22.7	.69	10	24.1	.53	13	21.8	1.05	3	20.0	.20	2	.0	.00	0
Surface salinity	30.8	.00	1	24.6	1.54	10	25.2	.72	13	29.6	2.11	3	28.9	4.68	2	.0	.00	0
Midwater salinity	30.8	.00	1	28.8	.77	10	29.7	.63	13	34.6	.61	3	35.3	.39	2	.0	.00	0
Bottom salinity	30.8	.00	1	33.0	.46	10	33.5	.94	13	36.1	.22	3	36.6	.26	2	.0	.00	0
Surface chlorophyll	9.2	.00	1	10.8	2.25	10	10.3	1.98	13	1.0	.34	3	3.2	.52	2	.0	.00	0
Midwater chlorophyll	.0	.00	0	9.6	2.41	7	7.2	2.14	10	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	5.6	.00	1	4.9	.74	9	2.8	.68	13	2.1	.00	1	.0	.00	0	.0	.00	0
Surface oxygen	6.8	.00	1	10.6	.91	10	10.7	.76	13	6.1	.37	3	7.1	.70	2	.0	.00	0
Midwater oxygen	6.8	.00	1	8.6	.71	10	7.7	.50	13	5.6	.40	3	5.8	.65	2	.0	.00	0
Bottom oxygen	6.8	.00	1	4.1	.54	10	2.6	.24	13	3.7	.55	3	3.5	.30	2	.0	.00	0

Table 29a
 Statistical Zone 14
 40-ft trawls

Summary of dominant organisms taken in statistical zone 14 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Callinectes similis	.0	.00	.0	.00	0	101.5	54.09	.6	.31	19	65.2	41.79	.9	.35	20
Trachypenaeus similis	.0	.00	.0	.00	0	111.1	56.37	.3	.15	19	24.9	17.08	.1	.05	20
Portunus gibbesii	.0	.00	.0	.00	0	74.2	39.65	.3	.13	19	39.7	18.04	.3	.11	20
Squilla spp.	.0	.00	.0	.00	0	53.1	25.70	.3	.18	19	16.4	8.73	.1	.02	20
Penaeus setiferus	.0	.00	.0	.00	0	40.8	11.56	.9	.21	19	18.8	7.02	.6	.22	20
Penaeus aztecus	.0	.00	.0	.00	0	12.9	3.33	.2	.06	19	19.7	5.97	.3	.10	20
Micropogonias undulatus	.0	.00	.0	.00	0	1467.0	639.70	84.3	36.07	19	3502.7	892.73	212.1	59.79	20
Arius felis	.0	.00	.0	.00	0	433.9	160.96	28.8	9.35	19	28.7	11.01	6.8	2.89	20
Trichiurus lepturus	.0	.00	.0	.00	0	79.6	43.73	2.2	1.02	19	170.8	59.49	7.1	2.34	20
Prionotus longispinosus	.0	.00	.0	.00	0	50.5	17.47	1.3	.46	19	119.6	39.57	2.4	.75	20
Stenotomus caprinus	.0	.00	.0	.00	0	7.9	4.68	.2	.11	19	45.3	21.55	.7	.34	20
Cynoscion arenarius	.0	.00	.0	.00	0	50.9	17.01	5.6	1.88	19	48.9	12.34	5.3	1.52	20
Leiostomus xanthurus	.0	.00	.0	.00	0	25.4	9.17	2.5	.87	19	74.1	48.28	8.2	5.56	20
Chloroscombrus chrysurus	.0	.00	.0	.00	0	61.0	26.67	1.9	.84	19	1.9	.84	.1	.05	20
Squid	.0	.00	.0	.00	0	38.3	16.25	.4	.16	19	92.8	59.43	.4	.23	20

Table 29a (continued)
 Statistical Zone 14
 40-ft trawls

Summary of dominant organisms taken in statistical zone 14 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Callinectes similis	1.4	.00	.1	.00	1	1.5	1.54	.1	.07	2	.0	.00	.0	.00	2
Trachypenaeus similis	.0	.00	.0	.00	1	.0	.00	.0	.00	2	.0	.00	.0	.00	2
Portunus gibbesii	1.4	.00	.0	.00	1	.0	.00	.0	.00	2	.0	.00	.0	.00	2
Squilla spp.	2.8	.00	.1	.00	1	13.4	.40	.3	.02	2	.0	.00	.0	.00	2
Penaeus setiferus	.0	.00	.0	.00	1	.0	.00	.0	.00	2	.0	.00	.0	.00	2
Penaeus aztecus	11.2	.00	.3	.00	1	59.5	28.19	2.6	1.27	2	13.2	1.20	.5	.25	2
Micropogonias undulatus	85.1	.00	7.0	.00	1	11.9	1.14	2.0	.38	2	.0	.00	.0	.00	2
Arius felis	2.8	.00	1.4	.00	1	.0	.00	.0	.00	2	.0	.00	.0	.00	2
Trichiurus lepturus	115.8	.00	10.5	.00	1	.0	.00	.0	.00	2	1.2	1.20	.1	.11	2
Prionotus longispinosus	.0	.00	.0	.00	1	28.1	7.26	2.1	.82	2	30.3	20.70	1.6	1.21	2
Stenotomus caprinus	4.2	.00	.1	.00	1	454.0	229.43	21.3	14.07	2	547.2	244.80	27.7	11.74	2
Cynoscion arenarius	7.0	.00	1.5	.00	1	50.2	.60	8.9	.22	2	29.1	21.90	5.1	3.11	2
Leiostomus xanthurus	.0	.00	.0	.00	1	34.6	34.62	5.2	5.21	2	.0	.00	.0	.00	2
Chloroscombrus chrysurus	.0	.00	.0	.00	1	.0	.00	.0	.00	2	.0	.00	.0	.00	2
Squid	12.6	.00	.2	.00	1	.0	.00	.0	.00	2	9.6	9.60	.2	.16	2

Table 29b
 Statistical Zone 14
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 6 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	0	169.2	43.11	19	267.8	66.67	20	39.3	.00	1	55.3	2.83	2	55.5	14.05	2
Total finfish kg	.0	.00	0	136.5	37.45	19	254.1	65.32	20	38.1	.00	1	51.3	4.44	2	53.0	13.77	2
Total crustacean kg	.0	.00	0	2.9	.85	19	2.5	.59	20	.6	.00	1	3.6	1.26	2	.5	.55	2
Total others kg	.0	.00	0	29.8	16.49	19	10.9	5.49	20	.6	.00	1	.0	.00	2	2.5	.27	2
Surface temperature	25.2	2.40	4	23.3	.99	17	23.0	.77	20	24.4	1.19	4	24.2	.06	2	24.3	.43	2
Midwater temperature	25.0	2.34	4	23.8	.84	17	23.8	.64	20	24.9	1.00	4	24.6	.26	2	24.7	.05	2
Bottom temperature	25.7	1.49	4	24.6	.74	17	24.2	.46	20	24.7	.21	4	19.6	.29	2	18.1	.95	2
Surface salinity	27.2	.61	4	26.6	.92	17	31.2	.74	20	34.1	.68	4	35.2	.84	2	35.3	.76	2
Midwater salinity	28.2	.45	4	29.2	.68	17	33.1	.44	20	34.5	.51	4	35.7	.31	2	35.5	.60	2
Bottom salinity	29.7	.88	4	32.4	.41	17	34.3	.37	20	35.5	.20	4	36.6	.17	2	36.3	.06	2
Surface chlorophyll	8.2	2.13	4	8.4	1.24	17	5.0	1.14	20	2.9	1.01	4	1.2	.85	2	.9	.66	2
Midwater chlorophyll	9.5	2.51	4	6.2	1.08	12	2.5	1.57	11	.0	.00	1	.0	.00	0	.0	.00	0
Bottom chlorophyll	6.8	1.31	4	5.0	1.07	17	2.5	.43	19	2.3	.00	1	.0	.00	0	.0	.00	0
Surface oxygen	9.3	.64	4	9.1	.55	17	8.0	.47	20	6.8	.21	4	6.2	.10	2	6.3	.05	2
Midwater oxygen	8.8	.36	4	8.0	.38	17	7.0	.15	20	6.6	.19	4	5.8	.50	2	6.1	.15	2
Bottom oxygen	6.7	1.16	4	5.7	.30	17	5.4	.26	20	4.8	.58	4	4.1	.65	2	3.6	.10	2

Table 30a
 Statistical Zone 15
 40-ft trawls

Summary of dominant organisms taken in statistical zone 15 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	42.5	18.73	.5	.25	4	20.0	11.55	.1	.12	3	318.6	90.23	4.8	1.79	11
Callinectes similis	93.2	81.08	.5	.27	4	196.6	102.22	1.1	.59	3	334.6	205.02	3.5	1.61	11
Trachypenaeus similis	42.5	42.50	.1	.14	4	2.2	2.22	.0	.00	3	146.7	112.07	.6	.46	11
Penaeus setiferus	88.6	61.67	2.2	1.41	4	98.6	76.42	1.5	1.05	3	71.2	30.91	2.4	.89	11
Sicyonia dorsalis	2.5	2.50	.0	.00	4	.0	.00	.0	.00	3	114.9	89.63	.4	.29	11
Portunus gibbesii	60.1	56.65	.3	.24	4	48.6	27.36	.6	.45	3	71.3	39.47	.4	.26	11
Micropogonias undulatus	302.5	183.05	16.7	10.23	4	3014.4	2798.19	151.2	144.96	3	1466.3	369.13	83.7	23.85	11
Stenotomus caprinus	3.5	2.06	.0	.03	4	386.2	366.91	4.1	3.93	3	868.3	484.68	14.4	9.94	11
Prionotus longispinosus	31.5	17.63	.2	.09	4	28.9	25.63	.7	.67	3	322.3	190.68	6.2	3.24	11
Arius felis	86.7	32.59	3.8	1.17	4	1247.0	979.32	81.1	51.91	3	8.7	7.19	.4	.32	11
Centropristis philadelphia	5.0	2.08	.1	.04	4	44.4	37.97	1.3	1.33	3	124.8	49.15	2.4	.85	11
Cynoscion nothus	209.5	200.24	1.4	1.32	4	61.7	24.55	2.2	1.17	3	53.0	13.91	5.0	1.73	11
Trichiurus lepturus	5.5	3.40	.1	.09	4	24.1	12.17	.5	.45	3	149.8	67.75	3.9	1.92	11
Peprilus burti	44.5	37.44	1.6	1.52	4	.0	.00	.0	.00	3	105.1	101.71	4.1	3.97	11
Squid	32.5	12.71	.6	.22	4	40.7	16.75	.9	.15	3	56.1	27.02	.4	.19	11

Table 30a (continued)
 Statistical Zone 15
 40-ft trawls

Summary of dominant organisms taken in statistical zone 15 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Penaeus aztecus</i>	241.3	177.29	3.0	1.35	3	47.6	13.05	1.9	.52	6	12.9	8.88	.5	.34	2
<i>Callinectes similis</i>	31.6	10.82	.9	.21	3	12.3	5.12	.2	.10	6	.0	.00	.0	.00	2
<i>Trachypenaeus similis</i>	14.0	8.40	.2	.13	3	.0	.00	.0	.00	6	.0	.00	.0	.00	2
<i>Penaeus setiferus</i>	.6	.65	.1	.06	3	.0	.00	.0	.00	6	.0	.00	.0	.00	2
<i>Sicyonia dorsalis</i>	13.0	9.51	.1	.10	3	1.0	1.00	.0	.01	6	.0	.00	.0	.00	2
<i>Portunus gibbesii</i>	24.2	22.74	.2	.20	3	3.1	2.91	.0	.01	6	.0	.00	.0	.00	2
<i>Micropogonias undulatus</i>	432.0	87.84	28.1	6.24	3	14.9	9.55	1.6	.98	6	1.4	1.36	.2	.25	2
<i>Stenotomus caprinus</i>	382.9	166.95	8.6	4.51	3	273.4	92.18	9.6	2.87	6	175.8	15.12	8.3	.52	2
<i>Prionotus longispinosus</i>	30.7	9.89	1.9	.76	3	28.5	12.33	1.5	.54	6	17.6	14.91	2.2	1.98	2
<i>Arius felis</i>	3.9	3.87	1.6	1.64	3	.0	.00	.0	.00	6	.0	.00	.0	.00	2
<i>Centropristis philadelphica</i>	61.8	17.39	2.2	.71	3	50.5	20.86	3.3	1.56	6	20.5	15.07	1.6	1.33	2
<i>Cynoscion nothus</i>	31.9	11.14	3.6	.90	3	.0	.00	.0	.00	6	.0	.00	.0	.00	2
<i>Trichiurus lepturus</i>	.0	.00	.0	.00	3	3.3	1.68	.2	.15	6	.0	.00	.0	.00	2
<i>Peprilus burti</i>	.0	.00	.0	.00	3	5.9	3.13	.4	.24	6	17.7	17.73	1.1	1.12	2
<i>Squid</i>	.0	.00	.0	.00	3	34.1	32.72	.5	.42	6	4.1	4.09	.0	.00	2

Table 30b
 Statistical Zone 15
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	33.5	12.99	4	289.6	145.21	3	154.0	32.00	11	69.6	6.37	3	37.3	9.07	6	33.5	9.95	2
Total finfish kg	28.9	11.83	4	260.6	120.66	3	139.9	32.51	11	62.0	6.87	3	31.3	7.61	6	31.5	9.18	2
Total crustacean kg	3.9	1.83	4	4.0	1.54	3	13.3	2.65	11	6.5	.72	3	4.8	1.27	6	1.1	.16	2
Total others kg	.5	.27	4	24.6	23.84	3	.5	.23	11	.8	.14	3	1.2	.42	6	1.2	1.16	2
Surface temperature	21.9	1.91	8	21.0	.63	3	22.7	.98	12	23.2	.20	3	23.8	.86	2	25.0	.38	3
Midwater temperature	22.1	1.78	8	20.9	.61	3	23.7	.86	12	24.2	.30	3	24.9	.14	2	25.0	.37	3
Bottom temperature	22.4	1.71	8	21.7	.66	3	24.0	.68	12	24.8	.06	3	21.8	.56	2	19.6	.34	3
Surface salinity	25.8	1.70	8	30.4	.53	3	31.5	.68	12	33.0	1.20	3	34.5	1.51	2	36.1	.07	3
Midwater salinity	27.5	.76	8	30.4	.55	3	32.8	.63	12	35.2	.38	3	36.0	.00	2	36.1	.07	3
Bottom salinity	28.2	.74	8	31.2	.58	3	33.8	1.16	12	36.0	.03	3	36.8	.41	2	36.4	.00	3
Surface chlorophyll	5.5	1.06	8	9.1	1.74	3	5.6	1.32	12	6.7	4.36	3	2.4	1.03	2	.2	.01	3
Midwater chlorophyll	7.7	2.86	8	.0	.00	0	1.8	.46	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	7.5	2.62	8	6.6	.58	3	1.7	.22	11	.9	.00	1	.0	.00	0	.0	.00	0
Surface oxygen	9.6	.33	8	7.9	.70	3	8.0	.57	12	7.0	.49	3	6.8	.45	2	6.2	.06	3
Midwater oxygen	9.2	.28	8	7.6	.64	3	6.7	.25	12	6.1	.09	3	6.2	.00	2	6.2	.07	3
Bottom oxygen	8.0	.44	8	4.4	.75	2	4.4	.38	12	5.5	.32	3	5.5	.60	2	4.2	.03	3

Table 31a
 Statistical Zone 16
 40-ft trawls

Summary of dominant organisms taken in statistical zone 16 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Sicyonia brevirostris</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	3	20.6	13.30	.4	.23	13
<i>Portunus spinicarpus</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	3	1.1	1.11	.0	.01	13
<i>Penaeus aztecus</i>	.0	.00	.0	.00	1	36.5	11.13	.2	.12	3	86.2	31.02	2.0	.58	13
<i>Penaeus setiferus</i>	118.2	.00	2.1	.00	1	96.3	86.97	2.2	2.09	3	1.7	.87	.1	.04	13
<i>Callinectes similis</i>	12.4	.00	.2	.00	1	10.0	6.23	.1	.06	3	6.9	2.44	.2	.07	13
<i>Squilla</i> spp.	3.5	.00	.0	.00	1	22.9	22.86	.1	.06	3	4.3	2.42	.1	.09	13
<i>Stenotomus caprinus</i>	1.8	.00	.1	.00	1	50.7	50.71	.8	.84	3	833.1	145.09	20.5	3.45	13
<i>Micropogonias undulatus</i>	.0	.00	.0	.00	1	16.5	4.92	1.3	.66	3	824.2	248.85	43.4	12.34	13
<i>Peprilus burti</i>	82.9	.00	1.3	.00	1	323.3	157.15	15.1	7.40	3	163.7	61.83	8.7	3.14	13
<i>Leiostomus xanthurus</i>	.0	.00	.0	.00	1	4.0	2.49	.4	.29	3	54.8	18.66	5.4	1.72	13
<i>Chloroscombrus chrysurus</i>	1.8	.00	.1	.00	1	58.4	54.18	.4	.35	3	130.3	69.74	3.7	1.80	13
<i>Arius felis</i>	.0	.00	.0	.00	1	494.8	242.70	45.0	41.48	3	24.7	13.36	5.8	3.06	13
<i>Synodus foetens</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	3	20.5	5.01	2.9	.66	13
<i>Prionotus paralatus</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	3	.0	.00	.0	.00	13
<i>Squid</i>	15.9	.00	.2	.00	1	158.4	79.97	1.3	.65	3	22.1	15.33	.3	.28	13

Table 31a (continued)
 Statistical Zone 16
 40-ft trawls

Summary of dominant organisms taken in statistical zone 16 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Sicyonia brevirostris</i>	199.7	192.14	3.0	2.88	7	111.4	70.43	1.3	.77	8	.6	.56	.0	.00	3
<i>Portunus spinicarpus</i>	18.9	17.91	.2	.22	7	91.6	52.31	.7	.42	8	265.6	129.52	2.5	1.25	3
<i>Penaeus aztecus</i>	17.7	5.93	.8	.24	7	33.8	11.14	1.5	.53	8	4.8	2.48	.3	.17	3
<i>Penaeus setiferus</i>	.0	.00	.0	.00	7	.0	.00	.0	.00	8	.0	.00	.0	.00	3
<i>Callinectes similis</i>	8.8	4.18	.4	.17	7	4.2	2.07	.2	.07	8	.0	.00	.0	.00	3
<i>Squilla</i> spp.	.0	.00	.0	.00	7	4.1	2.74	.1	.05	8	5.0	5.00	.1	.08	3
<i>Stenotomus caprinus</i>	636.8	47.19	24.7	2.86	7	294.4	50.37	12.3	1.90	8	246.7	65.50	12.6	2.98	3
<i>Micropogonias undulatus</i>	32.6	10.54	3.6	1.25	7	1.1	.52	.1	.06	8	.0	.00	.0	.00	3
<i>Peprilus burti</i>	430.9	218.17	23.6	12.04	7	114.8	53.21	6.7	2.68	8	5.8	3.13	.7	.40	3
<i>Leiostomus xanthurus</i>	269.3	251.66	32.2	29.99	7	7.4	3.82	.9	.44	8	.0	.00	.0	.00	3
<i>Chloroscombrus chrysurus</i>	9.3	7.38	.9	.73	7	.0	.00	.0	.00	8	.0	.00	.0	.00	3
<i>Arius felis</i>	.0	.00	.0	.00	7	.0	.00	.0	.00	8	.0	.00	.0	.00	3
<i>Synodus foetens</i>	33.8	7.43	5.6	1.02	7	39.0	9.07	6.7	1.27	8	16.0	2.08	2.0	.35	3
<i>Prionotus paralatus</i>	5.9	4.33	.1	.08	7	19.9	12.37	.4	.25	8	177.0	91.84	10.9	5.97	3
Squid	12.5	3.58	.1	.08	7	5.4	1.94	.4	.20	8	18.3	10.14	.8	.54	3

Table 31b
 Statistical Zone 16
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	10.4	.00	1	88.0	36.82	3	115.9	15.76	13	137.1	40.45	7	43.1	3.47	8	57.5	20.39	3
Total finfish kg	4.8	.00	1	79.3	39.44	3	112.0	15.88	13	132.0	37.53	7	38.1	3.59	8	52.1	18.21	3
Total crustacean kg	2.4	.00	1	2.9	2.45	3	3.5	.85	13	4.4	3.26	7	3.9	1.69	8	2.8	1.04	3
Total others kg	3.2	.00	1	5.2	3.28	3	.4	.30	13	.5	.33	7	1.2	.19	8	1.8	.94	3
Surface temperature	.0	.00	0	19.9	.65	5	23.2	.24	12	24.6	.07	6	24.9	.07	4	25.6	.21	3
Midwater temperature	.0	.00	0	20.3	.68	5	23.4	.23	12	24.5	.06	6	24.9	.07	4	24.7	.78	3
Bottom temperature	.0	.00	0	20.2	.92	5	24.1	.23	12	24.3	.23	6	21.1	.40	4	19.4	.18	3
Surface salinity	.0	.00	0	28.2	.79	5	33.1	.52	12	36.0	.02	6	36.0	.01	4	36.1	.07	3
Midwater salinity	.0	.00	0	29.5	.58	5	33.7	.49	12	36.0	.02	6	36.0	.00	4	36.2	.13	3
Bottom salinity	.0	.00	0	30.3	.78	5	34.5	.40	12	36.0	.05	6	36.4	.02	4	36.5	.03	3
Surface chlorophyll	.0	.00	0	5.7	.84	5	4.6	.87	12	.6	.06	6	.4	.11	4	.4	.25	3
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	5.7	1.71	5	2.4	.84	10	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	.0	.00	0	7.4	.23	5	6.9	.16	12	6.0	.14	6	6.2	.07	4	6.1	.06	3
Midwater oxygen	.0	.00	0	7.3	.27	5	6.8	.16	12	6.0	.06	6	6.3	.02	4	6.1	.06	3
Bottom oxygen	.0	.00	0	6.4	.17	5	5.8	.22	12	5.8	.26	6	4.8	.19	4	4.1	.06	3

Table 32a
 Statistical Zone 17
 40-ft trawls

Summary of dominant organisms taken in statistical zone 17 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm or between 31-40 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Sicyonia brevirostris</i>	.0	.00	.0	.00	0	3.3	3.33	.0	.02	6	25.9	21.65	.5	.32	8
<i>Penaeus aztecus</i>	.0	.00	.0	.00	0	28.1	13.91	.6	.33	6	39.8	24.72	1.1	.65	8
<i>Portunus spinicarpus</i>	.0	.00	.0	.00	0	.0	.00	.0	.00	6	.0	.00	.0	.00	8
<i>Callinectes similis</i>	.0	.00	.0	.00	0	9.4	4.20	.2	.09	6	7.8	5.87	.1	.06	8
<i>Portunus gibbesii</i>	.0	.00	.0	.00	0	5.8	2.13	.1	.03	6	10.2	7.88	.1	.06	8
<i>Penaeus duorarum</i>	.0	.00	.0	.00	0	11.6	3.86	.3	.12	6	6.0	4.49	.2	.22	8
<i>Stenotomus caprinus</i>	.0	.00	.0	.00	0	333.9	215.06	7.7	4.97	6	1110.7	330.54	27.5	7.10	8
<i>Micropogonias undulatus</i>	.0	.00	.0	.00	0	259.7	130.46	13.7	6.80	6	315.2	134.79	17.8	6.95	8
<i>Chloroscombrus chrysurus</i>	.0	.00	.0	.00	0	204.4	128.44	3.8	2.35	6	89.4	49.01	3.2	1.53	8
<i>Arius felis</i>	.0	.00	.0	.00	0	208.6	69.11	31.0	7.49	6	38.4	25.83	8.3	4.79	8
<i>Prionotus longispinosus</i>	.0	.00	.0	.00	0	108.1	38.92	2.4	.87	6	45.1	23.58	1.5	.92	8
<i>Cynoscion nothus</i>	.0	.00	.0	.00	0	79.0	55.76	6.2	4.35	6	77.5	69.84	5.8	5.25	8
<i>Peprilus burti</i>	.0	.00	.0	.00	0	100.8	74.37	6.0	4.42	6	46.5	22.21	2.6	1.23	8
<i>Opisthonema oglinum</i>	.0	.00	.0	.00	0	107.7	72.90	3.3	2.20	6	9.3	7.73	.3	.19	8
<i>Squid</i>	.0	.00	.0	.00	0	16.2	7.22	.4	.15	6	42.2	9.82	.3	.14	8

Table 32a (continued)
 Statistical Zone 17
 40-ft trawls

Summary of dominant organisms taken in statistical zone 17 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm or between 31-40 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Sicyonia brevirostris</i>	671.0	98.73	10.1	1.36	3	.0	.00	.0	.00	0	4.5	4.47	.1	.15	2
<i>Penaeus aztecus</i>	88.3	5.34	3.4	.14	3	.0	.00	.0	.00	0	30.7	8.88	1.9	.54	2
<i>Portunus spinicarpus</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	0	204.8	107.97	2.2	.92	2
<i>Callinectes similis</i>	9.6	2.06	.3	.18	3	.0	.00	.0	.00	0	.0	.00	.0	.00	2
<i>Portunus gibbesii</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	0	.0	.00	.0	.00	2
<i>Penaeus duorarum</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	0	.0	.00	.0	.00	2
<i>Stenotomus caprinus</i>	622.6	158.15	26.4	4.87	3	.0	.00	.0	.00	0	223.7	5.40	11.0	1.95	2
<i>Micropogonias undulatus</i>	68.7	34.34	5.6	2.60	3	.0	.00	.0	.00	0	1.3	1.28	.5	.46	2
<i>Chloroscombrus chrysurus</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	0	.0	.00	.0	.00	2
<i>Arius felis</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	0	.0	.00	.0	.00	2
<i>Prionotus longispinosus</i>	23.3	12.02	1.1	.55	3	.0	.00	.0	.00	0	17.5	7.99	.9	.39	2
<i>Cynoscion nothus</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	0	.0	.00	.0	.00	2
<i>Peprilus burti</i>	1.0	1.00	.1	.09	3	.0	.00	.0	.00	0	.0	.00	.0	.00	2
<i>Opisthonema oglinum</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	0	.0	.00	.0	.00	2
Squid	10.0	5.77	.1	.06	3	.0	.00	.0	.00	0	7.9	1.06	.8	.30	2

Table 32b
 Statistical Zone 17
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 6 fm or between 31-40 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	0	99.3	20.99	6	97.0	15.06	8	79.8	9.75	3	.0	.00	0	46.0	3.88	2
Total finfish kg	.0	.00	0	86.1	18.52	6	94.0	14.38	8	64.8	8.30	3	.0	.00	0	39.5	2.29	2
Total crustacean kg	.0	.00	0	1.4	.29	6	2.1	.89	8	14.3	1.14	3	.0	.00	0	4.8	1.04	2
Total others kg	.0	.00	0	11.7	7.73	6	1.2	.59	8	.7	.33	3	.0	.00	0	1.8	.54	2
Surface temperature	22.8	.00	1	22.8	.18	5	23.5	.15	8	25.0	.12	2	24.9	.00	1	24.8	.00	1
Midwater temperature	22.8	.00	1	22.9	.17	5	23.6	.13	8	25.0	.12	2	24.9	.00	1	24.8	.00	1
Bottom temperature	22.8	.00	1	23.1	.30	5	24.9	.76	8	25.0	.11	2	20.5	.00	1	19.6	.00	1
Surface salinity	29.8	.00	1	30.1	.31	5	34.2	.72	8	35.9	.04	2	36.0	.00	1	35.9	.00	1
Midwater salinity	29.8	.00	1	30.6	.38	5	33.6	.41	7	35.9	.05	2	36.0	.00	1	35.9	.00	1
Bottom salinity	29.8	.00	1	30.7	.31	5	35.0	.57	8	35.9	.05	2	36.6	.00	1	36.5	.00	1
Surface chlorophyll	2.3	.00	1	2.0	.29	5	.8	.15	8	.3	.00	2	.8	.00	1	.4	.00	1
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	2.1	.00	1	2.6	.41	5	1.5	.39	7	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	6.6	.00	1	6.4	.06	5	6.3	.13	8	6.1	.10	2	6.1	.00	1	6.2	.00	1
Midwater oxygen	6.5	.00	1	6.4	.05	5	6.4	.07	8	6.1	.10	2	6.1	.00	1	6.2	.00	1
Bottom oxygen	6.6	.00	1	6.4	.08	5	6.2	.13	8	6.1	.05	2	4.6	.00	1	4.0	.00	1

Table 33a
 Statistical Zone 18
 40-ft trawls

Summary of dominant organisms taken in statistical zone 18 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Sicyonia brevirostris	.0	.00	.0	.00	0	.0	.00	.0	.00	4	35.3	33.95	.4	.35	3
Penaeus aztecus	.0	.00	.0	.00	0	8.3	5.62	.1	.08	4	30.6	12.88	.8	.42	3
Callinectes similis	.0	.00	.0	.00	0	4.1	4.09	.0	.03	4	22.7	12.21	.4	.34	3
Penaeus setiferus	.0	.00	.0	.00	0	27.0	16.04	.5	.34	4	.0	.00	.0	.00	3
Squilla spp.	.0	.00	.0	.00	0	2.0	1.31	.1	.06	4	.0	.00	.0	.00	3
Portunus spinicarpus	.0	.00	.0	.00	0	.0	.00	.0	.00	4	.0	.00	.0	.00	3
Stenotomus caprinus	.0	.00	.0	.00	0	.4	.44	.0	.00	4	526.6	453.74	12.6	10.91	3
Peprilus burti	.0	.00	.0	.00	0	387.1	382.00	20.9	20.69	4	8.1	4.05	.5	.24	3
Micropogonias undulatus	.0	.00	.0	.00	0	13.0	11.54	.7	.57	4	416.7	298.75	28.4	19.36	3
Trachurus lathami	.0	.00	.0	.00	0	.0	.00	.0	.00	4	12.4	6.30	.5	.42	3
Leiostomus xanthurus	.0	.00	.0	.00	0	1.4	.98	.2	.19	4	124.5	107.22	13.5	11.56	3
Upeneus parvus	.0	.00	.0	.00	0	.0	.00	.0	.00	4	35.9	20.12	.8	.47	3
Chloroscombrus chrysurus	.0	.00	.0	.00	0	29.8	28.34	.5	.49	4	23.6	23.64	.5	.50	3
Pristipomoides aquilonaris	.0	.00	.0	.00	0	.0	.00	.0	.00	4	.0	.00	.0	.00	3

Table 33a (continued)
 Statistical Zone 18
 40-ft trawls

Summary of dominant organisms taken in statistical zone 18 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Sicyonia brevirostris</i>	250.9	155.77	2.3	1.18	4	3.1	1.31	.0	.02	4	1.5	1.50	.0	.00	5
<i>Penaeus aztecus</i>	76.5	32.13	3.0	1.17	4	6.0	1.72	.2	.05	4	23.0	11.21	1.2	.65	5
<i>Callinectes similis</i>	22.3	15.45	.5	.31	4	.0	.00	.0	.00	4	.0	.00	.0	.00	5
<i>Penaeus setiferus</i>	.0	.00	.0	.00	4	.0	.00	.0	.00	4	.0	.00	.0	.00	5
<i>Squilla spp.</i>	14.1	8.85	.3	.20	4	.0	.00	.0	.00	4	.0	.00	.0	.00	5
<i>Portunus spinicarpus</i>	1.3	1.25	.0	.01	4	1.3	1.25	.0	.01	4	15.2	8.98	.1	.05	5
<i>Stenotomus caprinus</i>	370.8	101.19	15.8	5.25	4	445.1	157.37	18.2	5.76	4	341.1	106.40	14.2	5.15	5
<i>Peprilus burti</i>	36.5	36.50	2.0	1.95	4	166.8	49.00	7.4	1.85	4	153.5	138.00	5.6	4.63	5
<i>Micropogonias undulatus</i>	40.0	2.12	3.5	.14	4	.0	.00	.0	.00	4	.0	.00	.0	.00	5
<i>Trachurus lathami</i>	.5	.50	.0	.03	4	200.5	111.13	5.8	2.85	4	26.6	20.58	.9	.74	5
<i>Leiostomus xanthurus</i>	263.4	238.80	25.9	23.23	4	4.5	4.17	.5	.52	4	20.0	15.69	2.6	2.03	5
<i>Upeneus parvus</i>	5.4	3.60	.1	.08	4	110.5	94.38	1.6	1.33	4	74.2	39.66	2.5	1.51	5
<i>Chloroscombrus chrysurus</i>	73.0	73.00	2.2	2.22	4	3.2	3.21	.1	.13	4	.0	.00	.0	.00	5
<i>Pristipomoides aquilonaris</i>	.0	.00	.0	.00	4	49.9	49.25	3.4	3.45	4	108.7	43.38	9.2	3.93	5
Squid	1.8	1.18	.2	.13	4	1.5	.96	.0	.05	4	4.6	2.45	.4	.22	5

Table 33b
 Statistical Zone 18
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 6 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	0	73.8	21.20	4	81.1	31.79	3	89.5	29.66	4	55.6	12.97	4	61.5	14.49	5
Total finfish kg	.0	.00	0	37.2	21.01	4	79.6	32.09	3	82.6	31.37	4	54.5	13.06	4	58.1	13.75	5
Total crustacean kg	.0	.00	0	1.2	.57	4	1.8	.77	3	6.6	3.02	4	.2	.13	4	2.0	.57	5
Total others kg	.0	.00	0	35.5	26.15	4	.0	.00	3	.2	.13	4	.6	.29	4	2.0	.87	5
Surface temperature	21.8	.00	1	24.0	.68	3	25.4	.33	6	26.5	.05	2	26.5	.09	3	26.3	.20	5
Midwater temperature	21.7	.00	1	24.0	.68	3	25.5	.30	6	26.5	.06	2	26.5	.11	3	26.4	.20	5
Bottom temperature	21.8	.00	1	24.6	.15	3	25.6	.24	6	26.4	.14	2	23.4	.29	3	21.5	.58	5
Surface salinity	26.7	.00	1	31.3	2.18	3	34.7	.56	6	35.9	.12	2	36.0	.06	3	36.1	.05	5
Midwater salinity	26.3	.00	1	31.3	2.17	3	34.8	.47	6	35.9	.13	2	36.0	.06	3	36.3	.15	5
Bottom salinity	26.6	.00	1	33.1	.49	3	35.0	.40	6	35.9	.15	2	36.3	.02	3	36.4	.02	5
Surface chlorophyll	6.4	.00	1	2.8	2.26	3	.6	.12	6	.3	.14	2	.2	.04	3	.3	.04	5
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	6.0	.00	1	7.0	.78	3	6.0	.10	6	5.6	.10	2	5.6	.07	3	5.6	.11	5
Midwater oxygen	4.5	.00	1	7.0	.72	3	6.1	.13	6	5.7	.15	2	5.8	.03	3	5.8	.03	5
Bottom oxygen	5.7	.00	1	5.9	.23	3	6.0	.12	6	5.6	.10	2	4.9	.15	3	4.5	.31	5

Table 34a
 Statistical Zone 19
 40-ft trawls

Summary of dominant organisms taken in statistical zone 19 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Squilla</i> spp.	32.3	.00	.2	.00	1	491.1	235.94	3.9	1.90	7	27.9	9.60	.2	.09	16
<i>Callinectes</i> <i>similis</i>	32.3	.00	.0	.00	1	22.3	5.85	.1	.04	7	97.2	53.37	.9	.43	16
<i>Trachypenaeus</i> <i>similis</i>	106.2	.00	.0	.00	1	48.0	26.36	.1	.03	7	131.9	54.96	.4	.18	16
<i>Penaeus</i> <i>aztecus</i>	.0	.00	.0	.00	1	38.9	18.96	.5	.31	7	104.1	41.11	1.8	.62	16
<i>Portunus</i> <i>gibbesii</i>	27.7	.00	.2	.00	1	39.2	23.86	.1	.05	7	82.9	42.44	.3	.13	16
<i>Sicyonia</i> <i>dorsalis</i>	.0	.00	.0	.00	1	8.8	5.88	.0	.00	7	66.0	32.45	.2	.09	16
<i>Chloroscombrus</i> <i>chrysurus</i>	4.6	.00	.0	.00	1	62.0	60.50	1.2	1.18	7	1582.1	812.02	31.2	15.32	16
<i>Peprilus</i> <i>burti</i>	.0	.00	.0	.00	1	29.0	15.62	1.2	.66	7	135.2	91.51	6.1	3.90	16
<i>Cynoscion</i> spp.	193.8	.00	.8	.00	1	416.1	127.86	2.0	.53	7	15.6	8.81	.1	.03	16
<i>Micropogonias</i> <i>undulatus</i>	18.5	.00	.8	.00	1	8.2	2.06	.3	.08	7	192.6	63.31	10.2	2.92	16
<i>Stenotomus</i> <i>caprinus</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	7	6.7	6.56	.3	.34	16
<i>Harengula</i> <i>jaguana</i>	.0	.00	.0	.00	1	21.4	13.27	.2	.11	7	108.6	93.56	2.9	2.37	16
<i>Syacium</i> <i>gunteri</i>	4.6	.00	.0	.00	1	27.0	7.92	.4	.16	7	100.5	32.37	1.3	.37	16
<i>Diplectrum</i> <i>bivittatum</i>	.0	.00	.0	.00	1	1.8	1.23	.0	.01	7	64.3	14.24	.8	.17	16
<i>Squid</i>	13.8	.00	.0	.00	1	121.2	43.98	.7	.22	7	62.3	16.77	.5	.14	16

Table 34a (continued)
 Statistical Zone 19
 40-ft trawls

Summary of dominant organisms taken in statistical zone 19 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Squilla spp.	28.5	17.48	.4	.28	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Callinectes similis	190.7	137.61	4.1	3.01	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Trachypenaeus similis	.0	.00	.0	.00	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Penaeus aztecus	117.8	47.97	4.0	1.53	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Portunus gibbesii	4.0	2.61	.1	.03	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Sicyonia dorsalis	14.3	11.74	.1	.04	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Chloroscombrus chrysurus	40.9	40.93	2.0	2.00	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Peprilus burti	358.9	356.29	16.5	16.43	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Cynoscion spp.	.0	.00	.0	.00	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Micropogonias undulatus	8.8	5.02	.9	.34	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Stenotomus caprinus	508.0	102.13	18.9	5.70	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Harengula jaguana	.0	.00	.0	.00	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Syacium gunteri	35.5	18.37	.4	.21	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Diplectrum bivittatum	5.0	3.32	.1	.04	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Squid	.0	.00	.0	.00	4	.0	.00	.0	.00	0	.0	.00	.0	.00	0

Table 34b
 Statistical Zone 19
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 30 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	44.1	.00	1	32.8	6.17	7	72.6	21.64	16	66.9	10.99	4	.0	.00	0	.0	.00	0
Total finfish kg	33.6	.00	1	13.1	3.15	7	66.6	21.94	16	56.3	14.07	4	.0	.00	0	.0	.00	0
Total crustacean kg	4.2	.00	1	7.5	1.88	7	4.5	1.08	16	10.5	4.12	4	.0	.00	0	.0	.00	0
Total others kg	4.2	.00	1	12.1	4.73	7	1.3	.37	16	.0	.00	4	.0	.00	0	.0	.00	0
Surface temperature	23.4	.00	1	23.9	.48	7	26.1	.16	17	26.7	.10	2	.0	.00	0	26.5	.00	1
Midwater temperature	23.4	.00	1	24.2	.38	7	26.3	.15	17	26.7	.11	2	.0	.00	0	26.6	.00	1
Bottom temperature	23.4	.00	1	24.5	.34	7	26.9	.19	17	26.3	.24	2	.0	.00	0	22.9	.00	1
Surface salinity	25.9	.00	1	25.7	.55	7	31.8	.47	17	35.8	.28	2	.0	.00	0	36.1	.00	1
Midwater salinity	25.9	.00	1	27.2	.68	7	32.7	.39	17	35.8	.27	2	.0	.00	0	36.1	.00	1
Bottom salinity	25.9	.00	1	28.1	.95	7	33.8	.39	17	36.2	.05	2	.0	.00	0	36.3	.00	1
Surface chlorophyll	3.2	.00	1	2.9	.74	7	.7	.07	17	.2	.02	2	.0	.00	0	.4	.00	1
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	6.0	.00	1	6.2	.52	7	5.6	.18	17	5.8	.05	2	.0	.00	0	3.9	.00	1
Midwater oxygen	6.0	.00	1	6.3	.41	7	5.7	.03	17	5.7	.00	2	.0	.00	0	5.6	.00	1
Bottom oxygen	6.0	.00	1	5.6	.18	7	5.1	.13	17	5.3	.35	2	.0	.00	0	4.9	.00	1

Table 35a
 Statistical Zone 20
 40-ft trawls

Summary of dominant organisms taken in statistical zone 20 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Penaeus aztecus</i>	6.2	.00	.2	.00	1	169.6	109.72	1.9	1.75	3	191.9	82.73	2.2	.73	14
<i>Portunus gibbesii</i>	171.7	.00	.6	.00	1	85.8	56.44	.2	.04	3	239.7	81.00	1.0	.32	14
<i>Trachypenaeus similis</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	3	226.3	119.76	.5	.22	14
<i>Callinectes similis</i>	62.1	.00	.3	.00	1	1.5	1.54	.0	.00	3	105.0	37.37	1.7	.53	14
<i>Penaeus setiferus</i>	1034.5	.00	12.4	.00	1	55.7	42.57	1.4	1.36	3	26.2	11.53	.6	.30	14
<i>Sicyonia dorsalis</i>	2.1	.00	.0	.00	1	1.2	1.18	.0	.00	3	43.9	22.83	.1	.03	14
<i>Chloroscombrus chrysurus</i>	136.6	.00	.5	.00	1	1911.2	499.14	37.9	13.75	3	1049.2	301.22	24.4	6.83	14
<i>Peprilus burti</i>	6.2	.00	.2	.00	1	52.5	21.17	1.1	.45	3	153.3	111.72	3.6	2.47	14
<i>Harengula jaguana</i>	22.8	.00	.0	.00	1	744.6	286.93	15.2	7.77	3	224.9	114.51	4.7	2.33	14
<i>Cynoscion spp.</i>	1862.1	.00	9.3	.00	1	752.6	670.80	3.5	3.19	3	18.3	6.74	.1	.05	14
<i>Stenotomus caprinus</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	3	.0	.00	.0	.00	14
<i>Syacium gunteri</i>	.0	.00	.0	.00	1	22.1	9.88	.3	.17	3	127.4	37.00	2.0	.72	14
<i>Micropogonias undulatus</i>	4.1	.00	.2	.00	1	15.7	15.71	.8	.78	3	139.7	47.23	9.3	3.28	14
<i>Pristipomoides aquilonaris</i>	.0	.00	.0	.00	1	.0	.00	.0	.00	3	.1	.12	.0	.00	14
<i>Squid</i>	57.9	.00	1.0	.00	1	439.3	161.02	2.2	1.02	3	189.8	68.35	1.1	.36	14

Table 35a (continued)
 Statistical Zone 20
 40-ft trawls

Summary of dominant organisms taken in statistical zone 20 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Penaeus aztecus</i>	45.7	41.93	.4	.38	3	5.3	2.73	.2	.08	3	9.9	5.14	.5	.25	6
<i>Portunus gibbesii</i>	8.9	7.03	.0	.02	3	.3	.33	.0	.00	3	2.7	2.73	.0	.02	6
<i>Trachypenaeus similis</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	3	.0	.00	.0	.00	6
<i>Callinectes similis</i>	87.9	85.67	1.9	1.88	3	1.7	1.67	.0	.03	3	.5	.45	.0	.01	6
<i>Penaeus setiferus</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	3	.0	.00	.0	.00	6
<i>Sicyonia dorsalis</i>	19.6	17.83	.1	.07	3	.0	.00	.0	.00	3	.0	.00	.0	.00	6
<i>Chloroscombrus chrysurus</i>	31.5	19.79	1.4	1.10	3	14.7	14.67	.7	.74	3	.0	.00	.0	.00	6
<i>Peprilus burti</i>	424.9	361.54	11.3	8.32	3	87.9	66.52	3.6	2.49	3	108.1	72.90	4.9	3.36	6
<i>Harengula jaguana</i>	12.8	12.80	.5	.55	3	.0	.00	.0	.00	3	.0	.00	.0	.00	6
<i>Cynoscion spp.</i>	.0	.00	.0	.00	3	.0	.00	.0	.00	3	.0	.00	.0	.00	6
<i>Stenotomus caprinus</i>	148.0	142.04	5.4	5.31	3	129.0	53.13	4.2	1.82	3	168.6	37.31	9.0	1.93	6
<i>Syacium gunteri</i>	14.4	7.23	.1	.02	3	.0	.00	.0	.00	3	1.2	1.17	.0	.01	6
<i>Micropogonias undulatus</i>	13.6	12.42	1.3	1.29	3	.3	.33	.1	.14	3	.2	.23	.0	.03	6
<i>Pristipomoides aquilonaris</i>	1.6	1.60	.0	.00	3	7.7	4.02	.2	.06	3	154.4	39.01	13.0	4.72	6
<i>Squid</i>	116.8	75.91	.7	.49	3	94.6	16.80	.5	.17	3	16.8	10.63	1.1	.66	6

Table 35b
 Statistical Zone 20
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	41.4	.00	1	104.8	10.14	3	69.8	10.62	14	40.8	19.02	3	25.1	4.05	3	52.7	6.72	6
Total finfish kg	24.5	.00	1	84.5	11.46	3	59.2	10.92	14	37.5	17.81	3	23.8	3.95	3	49.9	6.45	6
Total crustacean kg	15.0	.00	1	4.8	3.98	3	7.5	1.43	14	2.7	2.46	3	.2	.15	3	.8	.31	6
Total others kg	1.9	.00	1	15.5	7.72	3	3.0	1.52	14	.9	.66	3	1.1	.14	3	1.6	.68	6
Surface temperature	.0	.00	0	27.3	.10	4	27.3	.05	13	27.0	.19	5	26.7	.00	1	27.3	.16	6
Midwater temperature	.0	.00	0	27.5	.17	4	27.4	.07	13	27.6	.30	5	28.0	.00	1	26.8	.49	6
Bottom temperature	.0	.00	0	27.4	.16	4	27.8	.06	13	26.2	1.00	5	23.0	.00	1	20.0	.59	6
Surface salinity	.0	.00	0	31.1	.21	4	30.5	.19	13	32.5	1.24	5	33.9	.00	1	34.0	.51	6
Midwater salinity	.0	.00	0	31.2	.21	4	32.3	.43	13	35.6	.26	5	36.1	.00	1	36.2	.04	6
Bottom salinity	.0	.00	0	32.7	.85	4	34.9	.32	13	36.3	.16	5	36.3	.00	1	36.5	.07	6
Surface chlorophyll	.0	.00	0	.8	.04	4	.4	.03	13	.3	.04	5	.3	.00	1	.3	.08	6
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	.0	.00	0	5.6	.10	4	5.8	.07	13	5.8	.07	5	5.9	.00	1	5.6	.12	6
Midwater oxygen	.0	.00	0	5.7	.07	4	5.7	.07	13	5.2	.36	5	5.6	.00	1	5.6	.19	6
Bottom oxygen	.0	.00	0	5.1	.33	4	4.6	.14	13	4.8	.23	5	5.0	.00	1	3.7	.28	6

Table 36a
 Statistical Zone 21
 40-ft trawls

Summary of dominant organisms taken in statistical zone 21 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus duorarum	.0	.00	.0	.00	1	222.2	94.67	1.6	.61	7	123.5	64.99	1.3	.73	6
Portunus gibbesii	.0	.00	.0	.00	1	117.8	49.34	.4	.10	7	109.8	30.78	.3	.12	6
Penaeus aztecus	.0	.00	.0	.00	1	2.0	1.98	.0	.00	7	56.4	32.77	1.2	.85	6
Solenocera spp.	.0	.00	.0	.00	1	.0	.00	.0	.00	7	.0	.00	.0	.00	6
Sicyonia dorsalis	.0	.00	.0	.00	1	.8	.78	.0	.00	7	10.8	5.15	.0	.03	6
Callinectes similis	.0	.00	.0	.00	1	2.6	2.64	.1	.06	7	21.9	9.51	.3	.15	6
Chloroscombrus chrysurus	7902.0	.00	174.5	.00	1	249.9	124.80	7.2	3.97	7	222.4	132.17	5.8	3.30	6
Diplectrum bivittatum	.0	.00	.0	.00	1	146.8	138.33	.8	.62	7	155.0	73.61	1.1	.44	6
Anchoa hepsetus	162.0	.00	2.7	.00	1	209.2	129.99	2.5	1.58	7	13.8	7.84	.2	.11	6
Eucinostomus gula	.0	.00	.0	.00	1	163.8	95.27	1.8	1.27	7	49.0	24.82	.8	.55	6
Peprilus burti	.0	.00	.0	.00	1	.0	.00	.0	.00	7	78.8	77.90	2.0	2.03	6
Serranus atrobranchus	.0	.00	.0	.00	1	.0	.00	.0	.00	7	4.0	2.85	.0	.02	6
Sardinella aurita	.0	.00	.0	.00	1	149.4	136.20	3.0	2.60	7	11.4	11.39	.2	.23	6
Anchoa lyolepis	.0	.00	.0	.00	1	137.3	121.75	.1	.12	7	.0	.00	.0	.00	6

Table 36a (continued)
 Statistical Zone 21
 40-ft trawls

Summary of dominant organisms taken in statistical zone 21 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 40 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Penaeus duorarum</i>	.3	.29	.0	.00	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Portunus gibbesii</i>	.9	.88	.0	.00	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Penaeus aztecus</i>	26.2	23.44	.8	.79	4	64.4	.00	2.5	.00	1	.0	.00	.0	.00	0
<i>Solenocera</i> spp.	.0	.00	.0	.00	4	292.7	.00	1.7	.00	1	.0	.00	.0	.00	0
<i>Sicyonia dorsalis</i>	32.6	32.27	.1	.15	4	17.6	.00	.1	.00	1	.0	.00	.0	.00	0
<i>Callinectes similis</i>	12.6	9.60	.3	.23	4	8.8	.00	.3	.00	1	.0	.00	.0	.00	0
<i>Chloroscombrus chrysurus</i>	138.1	82.05	5.2	3.03	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Diplectrum bivittatum</i>	19.1	19.12	.1	.11	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Anchoa hepsetus</i>	1.3	.94	.0	.00	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Eucinostomus gula</i>	1.3	.23	.1	.02	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Peprilus burti</i>	20.1	10.65	1.6	.85	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Serranus atrobranchus</i>	40.1	38.79	.5	.46	4	289.8	.00	3.4	.00	1	.0	.00	.0	.00	0
<i>Sardinella aurita</i>	.3	.27	.0	.01	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Anchoa lyolepis</i>	.0	.00	.0	.00	4	.0	.00	.0	.00	1	.0	.00	.0	.00	0
<i>Squid</i>	224.2	69.35	1.1	.26	4	30.7	.00	.3	.00	1	.0	.00	.0	.00	0

Table 36b
 Statistical Zone 21
 40-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 40 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	180.0	.00	1	27.7	6.50	7	39.7	18.02	6	16.9	3.17	4	16.6	.00	1	.0	.00	0
Total finfish kg	180.0	.00	1	23.9	6.71	7	35.4	17.51	6	14.3	3.58	*4	11.3	.00	1	.0	.00	0
Total crustacean kg	.0	.00	1	2.1	.77	7	3.9	1.50	6	1.3	1.17	4	5.3	.00	1	.0	.00	0
Total others kg	.0	.00	1	1.1	.61	7	.7	.30	6	1.4	.32	4	.0	.00	1	.0	.00	0
Surface temperature	.0	.00	0	27.8	.08	7	27.8	.08	8	27.7	.12	3	27.7	.06	2	27.9	.00	1
Midwater temperature	.0	.00	0	27.9	.08	7	27.9	.09	8	28.0	.07	3	28.1	.01	2	28.1	.00	1
Bottom temperature	.0	.00	0	26.5	1.46	7	28.2	.10	8	27.4	1.75	3	21.1	1.32	2	18.6	.00	1
Surface salinity	.0	.00	0	34.6	.32	7	33.9	.24	8	33.9	.11	3	34.0	.28	2	35.1	.00	1
Midwater salinity	.0	.00	0	34.7	.33	7	34.2	.25	8	35.6	.56	3	36.1	.01	2	36.2	.00	1
Bottom salinity	.0	.00	0	34.2	.96	7	35.9	.20	8	36.3	.01	3	36.5	.08	2	36.5	.00	1
Surface chlorophyll	.0	.00	0	1.4	.41	7	.4	.05	8	.2	.04	3	.2	.05	2	.2	.00	1
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	.0	.00	0	4.9	.53	7	5.2	.26	8	5.7	.15	3	5.7	.10	2	5.9	.00	1
Midwater oxygen	.0	.00	0	4.8	.56	7	5.6	.07	8	5.7	.06	3	5.6	.10	2	5.7	.00	1
Bottom oxygen	.0	.00	0	5.0	.24	7	4.4	.12	8	4.7	.24	3	4.4	.85	2	3.4	.00	1

Table 37a
 Statistical Zone 17
 20-ft trawls

Summary of dominant organisms taken in statistical zone 17 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 5 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	1042.2	349.98	3.4	1.16	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Penaeus setiferus	175.4	74.07	1.1	.50	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Callinectes similis	26.8	10.69	.1	.09	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Squilla spp.	11.5	6.43	.1	.07	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Pagurus pollicaris	8.3	6.39	.1	.08	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Callinectes sapidus	6.0	2.45	.1	.06	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Stellifer lanceolatus	48.5	29.07	.2	.08	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Cynoscion arenarius	28.2	5.45	.9	.28	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Symphurus plagiusa	25.8	10.09	.5	.19	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Arius felis	19.4	18.40	.2	.17	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Peprilus burti	18.0	7.81	.1	.05	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Peprilus alepidotus	14.8	8.00	.1	.05	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Chaetodipterus faber	10.2	5.86	.0	.02	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Selene vomer	5.1	.92	.0	.00	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0
Squid	28.6	10.51	.5	.17	13	.0	.00	.0	.00	0	.0	.00	.0	.00	0

Table 37b
 Statistical Zone 17
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 5 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	8.2	1.24	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	2.1	.63	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	5.0	1.51	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	.6	.45	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	16.6	.30	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	16.6	.26	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	16.8	.31	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	23.0	.71	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	23.4	.61	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	25.1	.58	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	10.2	.37	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	9.6	.33	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	8.8	.29	13	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0

Table 38a
 Statistical Zone 18
 20-ft trawls

Summary of dominant organisms taken in statistical zone 18 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 10 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	651.0	376.14	2.1	1.21	12	.0	.00	.0	.00	7	.0	.00	.0	.00	0
Penaeus setiferus	282.0	129.06	1.2	.46	12	.9	.86	.0	.00	7	.0	.00	.0	.00	0
Portunus gibbesii	11.5	4.21	.0	.02	12	2.6	1.78	.0	.00	7	.0	.00	.0	.00	0
Callinectes sapidus	5.5	2.61	.0	.03	12	.0	.00	.0	.00	7	.0	.00	.0	.00	0
Squilla spp.	3.5	1.56	.0	.00	12	.0	.00	.0	.00	7	.0	.00	.0	.00	0
Callinectes similis	3.5	2.15	.0	.02	12	.0	.00	.0	.00	7	.0	.00	.0	.00	0
Stellifer lanceolatus	20.5	9.36	.1	.05	12	.0	.00	.0	.00	7	.0	.00	.0	.00	0
Peprilus burti	14.0	9.41	.0	.02	12	2.6	2.57	.0	.04	7	.0	.00	.0	.00	0
Cynoscion arenarius	8.0	2.00	.0	.00	12	8.6	5.69	.4	.30	7	.0	.00	.0	.00	0
Selene vomer	11.5	3.09	.0	.00	12	.9	.86	.0	.00	7	.0	.00	.0	.00	0
Chaetodipterus faber	5.0	2.75	.0	.00	12	.0	.00	.0	.00	7	.0	.00	.0	.00	0
Peprilus alepidotus	2.5	1.16	.0	.00	12	4.3	4.29	.0	.04	7	.0	.00	.0	.00	0
Anchoa mitchilli	4.5	2.35	.0	.00	12	.0	.00	.0	.00	7	.0	.00	.0	.00	0
Prionotus tribulus	3.5	1.37	.0	.00	12	.0	.00	.0	.00	7	.0	.00	.0	.00	0
Squid	15.0	8.97	.1	.08	12	12.0	8.07	.2	.12	7	.0	.00	.0	.00	0

Table 38b
 Statistical Zone 18
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 10 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	10.5	5.73	12	.8	.78	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	.0	.00	12	.4	.39	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	3.2	1.67	12	.0	.00	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	6.6	5.64	12	.0	.00	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	16.4	.21	12	17.3	.16	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	16.4	.23	12	17.2	.19	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	16.6	.34	12	17.8	.29	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	25.2	.57	12	25.3	.70	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	25.5	.50	12	25.5	.65	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	25.3	.56	12	27.3	.63	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	7.5	.58	12	7.1	.70	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	7.3	.58	12	7.0	.66	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	6.9	.46	12	6.0	.33	7	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0

Table 39a
 Statistical Zone 19
 20-ft trawls

Summary of dominant organisms taken in statistical zone 19 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm or greater than 20 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Sicyonia dorsalis	.0	.00	.0	.00	0	.5	.50	.0	.00	12	46.5	15.95	.0	.00	4
Callinectes similis	.0	.00	.0	.00	0	7.5	3.06	.1	.07	12	6.0	3.46	.1	.07	4
Squilla spp.	.0	.00	.0	.00	0	6.0	3.98	.1	.05	12	6.0	2.45	.0	.00	4
Penaeus setiferus	.0	.00	.0	.00	0	3.5	1.16	.1	.04	12	4.5	2.87	.0	.00	4
Portunus gibbesii	.0	.00	.0	.00	0	2.5	1.56	.0	.00	12	6.0	3.46	.0	.00	4
Trachypenaeus similis	.0	.00	.0	.00	0	4.5	1.67	.0	.00	12	.0	.00	.0	.00	4
Peprilus alepidotus	.0	.00	.0	.00	0	83.5	25.40	.7	.23	12	.0	.00	.0	.00	4
Selene setapinnis	.0	.00	.0	.00	0	55.0	26.02	.1	.08	12	4.5	2.87	.0	.00	4
Syacium gunteri	.0	.00	.0	.00	0	9.5	4.40	.1	.05	12	127.5	5.12	1.4	.13	4
Cynoscion arenarius	.0	.00	.0	.00	0	31.0	12.42	.6	.25	12	12.0	6.48	.8	.64	4
Cynoscion nothus	.0	.00	.0	.00	0	23.5	8.44	.2	.08	12	27.0	10.54	.7	.26	4
Chloroscombrus chrysurus	.0	.00	.0	.00	0	25.5	20.88	.1	.11	12	4.5	2.87	.1	.07	4
Lutjanus campechanus	.0	.00	.0	.00	0	1.0	1.00	.0	.02	12	24.0	12.25	.2	.13	4
Lagodon rhomboides	.0	.00	.0	.00	0	6.0	3.91	.1	.07	12	6.0	6.00	.2	.20	4
Squid	.0	.00	.0	.00	0	107.0	28.07	1.1	.28	12	42.0	11.75	.5	.11	4

Table 39b
 Statistical Zone 19
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths less than 6 fm or greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	0	5.2	.92	12	6.1	1.72	4	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	.0	.00	0	2.5	.71	12	4.8	1.31	4	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	.0	.00	0	.2	.23	12	.0	.00	4	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	.0	.00	0	2.0	.59	12	.0	.00	4	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	.0	.00	0	19.6	.37	13	21.7	.25	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	.0	.00	0	19.5	.41	13	21.7	.25	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	.0	.00	0	19.9	.42	13	21.9	.07	3	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	.0	.00	0	28.3	.26	13	29.8	.21	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	.0	.00	0	28.8	.21	13	30.1	.11	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	.0	.00	0	30.4	.58	13	32.0	1.70	3	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	.0	.00	0	7.5	.20	12	6.7	.06	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	.0	.00	0	7.5	.18	13	6.8	.00	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	.0	.00	0	7.6	.46	13	6.5	.15	3	.0	.00	0	.0	.00	0	.0	.00	0

Table 40a
 Statistical Zone 20
 20-ft trawls

Summary of dominant organisms taken in statistical zone 20 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
<i>Penaeus setiferus</i>	3.0	3.00	.0	.00	2	3.8	2.99	.1	.07	8	29.0	17.89	.8	.50	6
<i>Portunus gibbesii</i>	.0	.00	.0	.00	2	11.3	6.36	.1	.04	8	11.0	4.49	.1	.06	6
<i>Trachypenaeus similis</i>	.0	.00	.0	.00	2	2.3	1.58	.0	.00	8	9.0	6.71	.0	.00	6
<i>Penaeus aztecus</i>	.0	.00	.0	.00	2	.8	.75	.0	.00	8	9.0	5.08	.1	.06	6
<i>Sicyonia dorsalis</i>	.0	.00	.0	.00	2	.8	.75	.0	.00	8	8.0	2.53	.0	.00	6
<i>Callinectes similis</i>	.0	.00	.0	.00	2	.8	.75	.0	.00	8	6.0	3.10	.0	.00	6
<i>Selene setapinnis</i>	39.0	33.00	.1	.14	2	135.8	103.54	.5	.40	8	4.0	2.00	.0	.00	6
<i>Peprilus alepidotus</i>	9.0	9.00	.1	.14	2	106.5	58.37	.9	.43	8	12.0	10.84	.0	.05	6
<i>Cynoscion nothus</i>	3.0	3.00	.0	.00	2	51.0	41.01	.5	.35	8	12.0	5.14	.4	.18	6
<i>Cynoscion arenarius</i>	.0	.00	.0	.00	2	34.5	19.73	.4	.24	8	33.0	23.89	.6	.33	6
<i>Syacium gunteri</i>	.0	.00	.0	.00	2	6.8	4.46	.1	.07	8	46.0	19.02	.7	.30	6
<i>Peprilus burti</i>	.0	.00	.0	.00	2	27.8	17.31	.3	.20	8	12.0	7.75	.3	.27	6
<i>Harengula jaguana</i>	.0	.00	.0	.00	2	4.5	2.47	.0	.03	8	32.0	30.82	.8	.77	6
<i>Lagodon rhomboides</i>	.0	.00	.0	.00	2	11.3	7.30	.4	.21	8	5.0	2.86	.2	.13	6
<i>Squid</i>	30.0	12.00	.4	.14	2	114.8	26.75	.9	.20	8	80.0	22.38	.7	.20	6

Table 40b
 Statistical Zone 20
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	9.5	1.36	2	5.5	1.03	8	6.4	1.52	6	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	.0	.00	2	3.8	1.02	8	4.1	1.36	6	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	.0	.00	2	.0	.00	8	.9	.57	6	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	9.5	1.36	2	1.7	.72	8	.5	.45	6	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	17.3	.00	2	18.9	.56	8	20.3	.66	6	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	15.6	.25	2	18.8	.86	8	20.1	.86	6	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	15.4	.20	2	19.0	.90	8	20.4	.88	6	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	28.5	.06	2	29.3	.22	8	30.7	.20	6	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	28.5	.04	2	30.1	.28	8	31.3	.17	6	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	28.6	.02	2	30.3	.32	8	31.4	.27	6	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	5.5	.50	2	5.7	.99	6	6.7	.42	6	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	7.5	.50	2	6.8	.70	6	6.6	.51	5	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	7.0	1.00	2	7.6	.53	8	6.8	.17	6	.0	.00	0	.0	.00	0	.0	.00	0

Table 41a
 Statistical Zone 21
 20-ft trawls

Summary of dominant organisms taken in statistical zone 21 during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 20 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus gibbesii	.0	.00	.0	.00	1	40.0	14.35	.2	.06	9	44.0	17.30	.2	.18	6
Sicyonia brevirostris	.0	.00	.0	.00	1	24.0	12.41	.2	.07	9	33.0	12.56	.2	.09	6
Penaeus duorarum	.0	.00	.0	.00	1	26.7	9.23	.4	.14	9	14.0	7.69	.2	.13	6
Sicyonia typica	.0	.00	.0	.00	1	4.0	2.24	.0	.00	9	39.0	14.59	.1	.06	6
Dyspanopeus texana	.0	.00	.0	.00	1	23.3	19.25	.0	.03	9	.0	.00	.0	.00	6
Portunus spinimanus	.0	.00	.0	.00	1	14.0	5.66	.1	.04	9	7.0	2.86	.1	.09	6
Cynoscion nothus	.0	.00	.0	.00	1	54.0	22.89	1.0	.53	9	65.0	55.95	1.3	1.07	6
Syacium gunteri	.0	.00	.0	.00	1	4.7	2.79	.1	.05	9	53.0	21.60	.7	.34	6
Cynoscion arenarius	.0	.00	.0	.00	1	27.3	25.12	.6	.45	9	1.0	1.00	.0	.00	6
Prionotus rubio	18.0	.00	.0	.00	1	12.0	7.81	.1	.09	9	5.0	1.84	.1	.09	6
Chloroscombrus chrysurus	.0	.00	.0	.00	1	10.0	8.60	.0	.03	9	11.0	7.33	.1	.09	6
Lutjanus campechanus	.0	.00	.0	.00	1	.0	.00	.0	.00	9	25.0	20.34	.1	.09	6
Harengula jaguana	.0	.00	.0	.00	1	10.7	9.21	.2	.21	9	.0	.00	.0	.00	6
Etropus crossotus	.0	.00	.0	.00	1	4.7	2.19	.0	.03	9	8.0	2.97	.1	.06	6
Squid	12.0	.00	.0	.00	1	48.0	16.49	.3	.15	9	57.0	16.95	.5	.13	6

Table 41b
 Statistical Zone 21
 20-ft trawls

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM), and the number (n) of samples taken during the 1993 Fall Shrimp/Groundfish Survey by depth stratum. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m³, and oxygen in ppm. No trawl samples were taken in depths greater than 20 fm.

Environmental category	0-5 fm			6-10 fm			11-20 fm			21-30 fm			31-40 fm			Over 40 fm		
	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n	X	SEM	n
Total catch kg	.0	.00	1	9.7	2.62	9	6.4	1.52	6	.0	.00	0	.0	.00	0	.0	.00	0
Total finfish kg	.0	.00	1	6.4	1.76	9	3.2	1.30	6	.0	.00	0	.0	.00	0	.0	.00	0
Total crustacean kg	.0	.00	1	1.2	.48	9	2.3	.45	6	.0	.00	0	.0	.00	0	.0	.00	0
Total others kg	.0	.00	1	2.1	1.49	9	.9	.57	6	.0	.00	0	.0	.00	0	.0	.00	0
Surface temperature	20.9	.20	9	21.2	.19	4	21.9	.07	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater temperature	20.8	.21	9	22.9	.58	4	22.0	.09	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom temperature	20.8	.25	9	23.1	.49	4	24.6	.15	3	.0	.00	0	.0	.00	0	.0	.00	0
Surface salinity	31.2	.35	9	30.5	.17	4	30.8	.09	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater salinity	31.3	.38	9	31.3	.10	4	32.2	.72	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom salinity	31.4	.39	9	33.5	.18	4	32.3	.58	3	.0	.00	0	.0	.00	0	.0	.00	0
Surface chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Midwater chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Bottom chlorophyll	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0	.0	.00	0
Surface oxygen	12.4	.81	9	6.1	.19	4	6.2	.25	3	.0	.00	0	.0	.00	0	.0	.00	0
Midwater oxygen	12.7	1.04	9	5.7	.16	4	6.0	.21	3	.0	.00	0	.0	.00	0	.0	.00	0
Bottom oxygen	12.7	.92	9	5.0	.30	4	5.2	.35	3	.0	.00	0	.0	.00	0	.0	.00	0

Table 42. 1993 Reef Fish Survey species composition list, 199 stations. Species with a total weight of less than 0.0227 kg (0.05 lbs) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT(KG)	NUMBER OF SETS WHERE CAUGHT	%FREQUENCY OF OCCURRENCE
<u>Finfishes</u>					
Lutjanus campechanus	red snapper	251	147.0	12	6.0
Pagrus pagrus	red porgy	214	68.9	31	15.6
Rhomboplites aurorubens	vermilion snapper	98	20.2	18	9.0
Balistes capriscus	gray triggerfish	56	30.9	9	4.5
Haemulon aurolineatum	tomtate	46	5.0	4	2.0
Centropristis ocyura	bank sea bass	27	3.1	6	3.0
Epinephelus morio	red grouper	13	17.6	11	5.5
Mycteroperca phenax	scamp	7	6.2	6	3.0
Calamus calamus	saucereye porgy	4	.6	2	1.0
Monacanthus setifer	pygmy filefish	3	.2	1	.5
Mycteroperca interstitialis	yellowmouth grouper	2	4.6	2	1.0
Haemulon plumieri	white grunt	2	.9	2	1.0
Holacanthus bermudensis	blue angelfish	2	1.4	2	1.0
Holacanthus ciliaris	queen angelfish	2	.1	1	.5
Diplectrum formosum	sand perch	1	.0	1	.5
Centropristis philadelphica	rock sea bass	1	.2	1	.5
Ocyurus chrysurus	yellowtail snapper	1	.5	1	.5
Calamus proridens	littlehead porgy	1	.4	1	.5
Chaetodipterus faber	Atlantic spadefish	1	.4	1	.5
Pomacanthus arcuatus	gray angelfish	1	.6	1	.5
Monacanthus ciliatus	fringed filefish	1	.0	1	.5
Aluterus scriptus	scrawled filefish	1	.5	1	.5

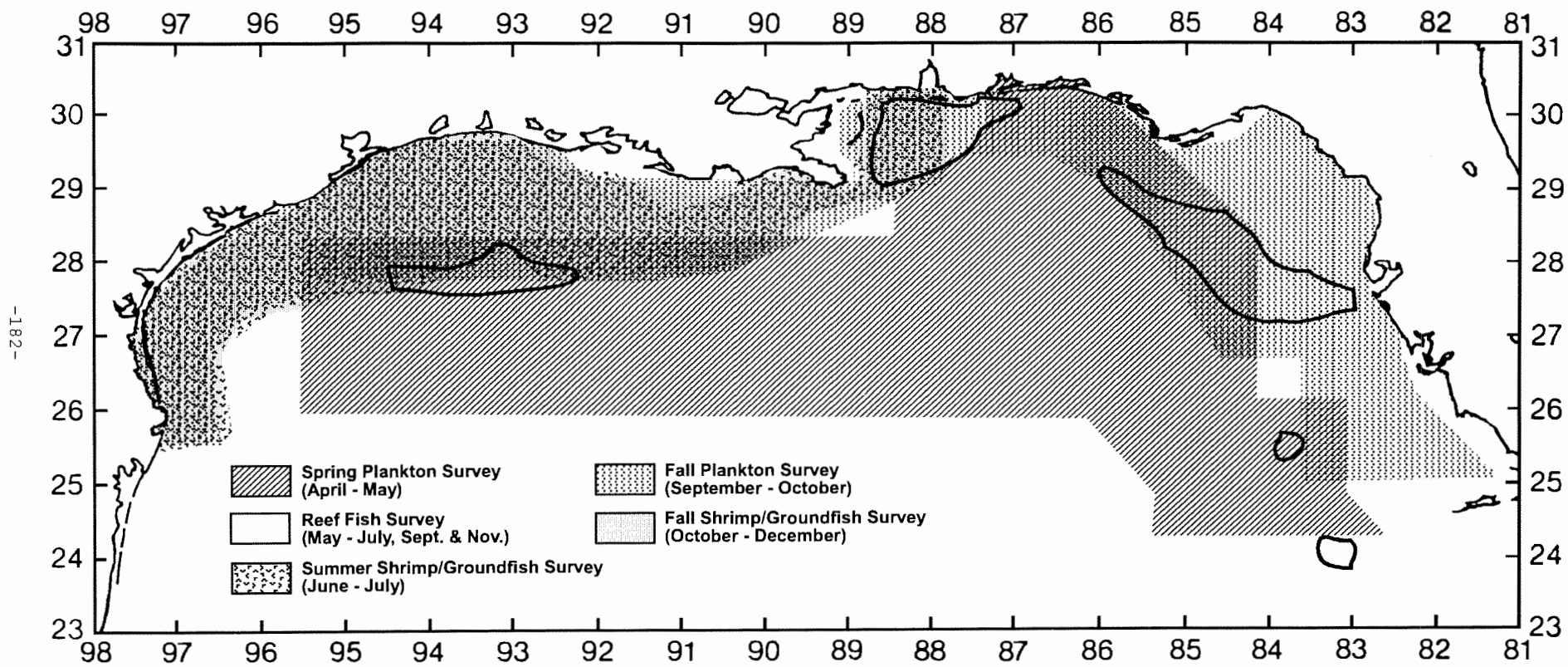


Figure 1. 1993 SEAMAP Surveys, Gulf of Mexico.

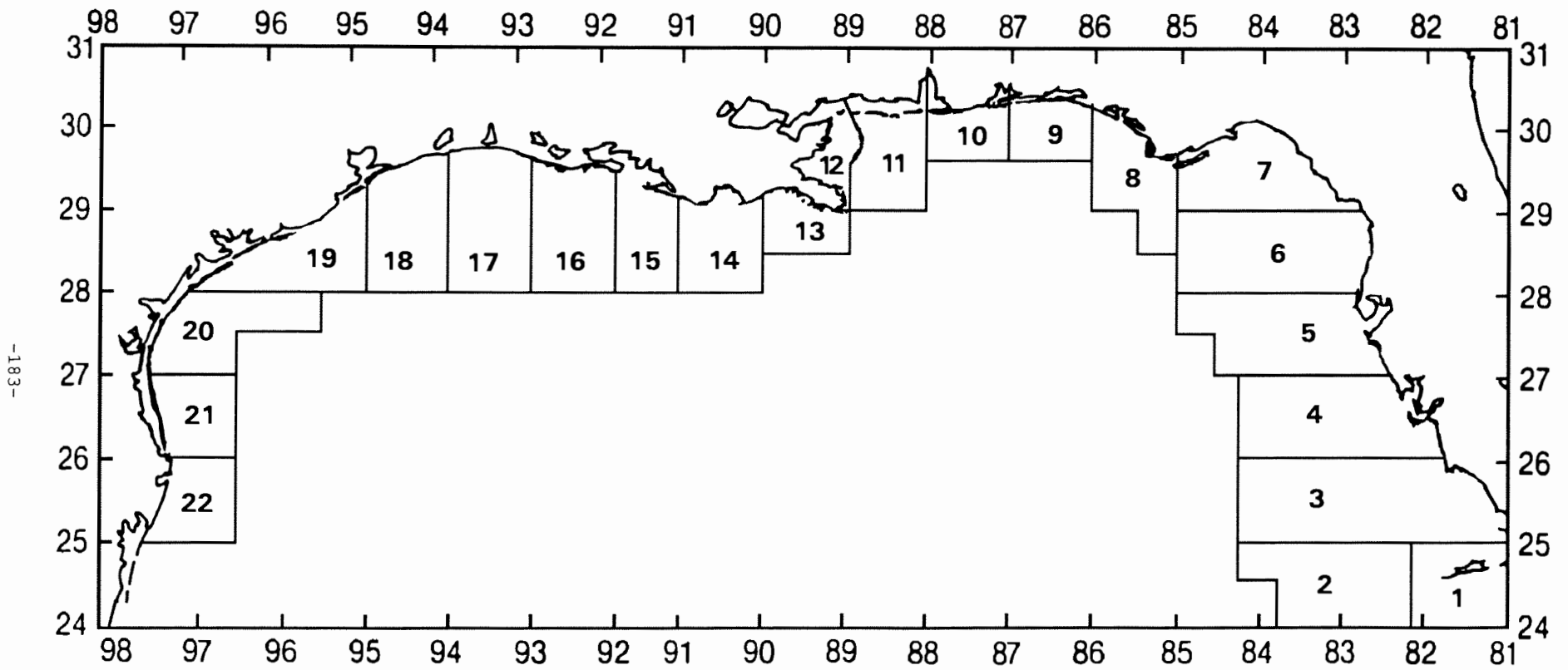


Figure 2. Statistical zones for shrimp in the Gulf of Mexico.

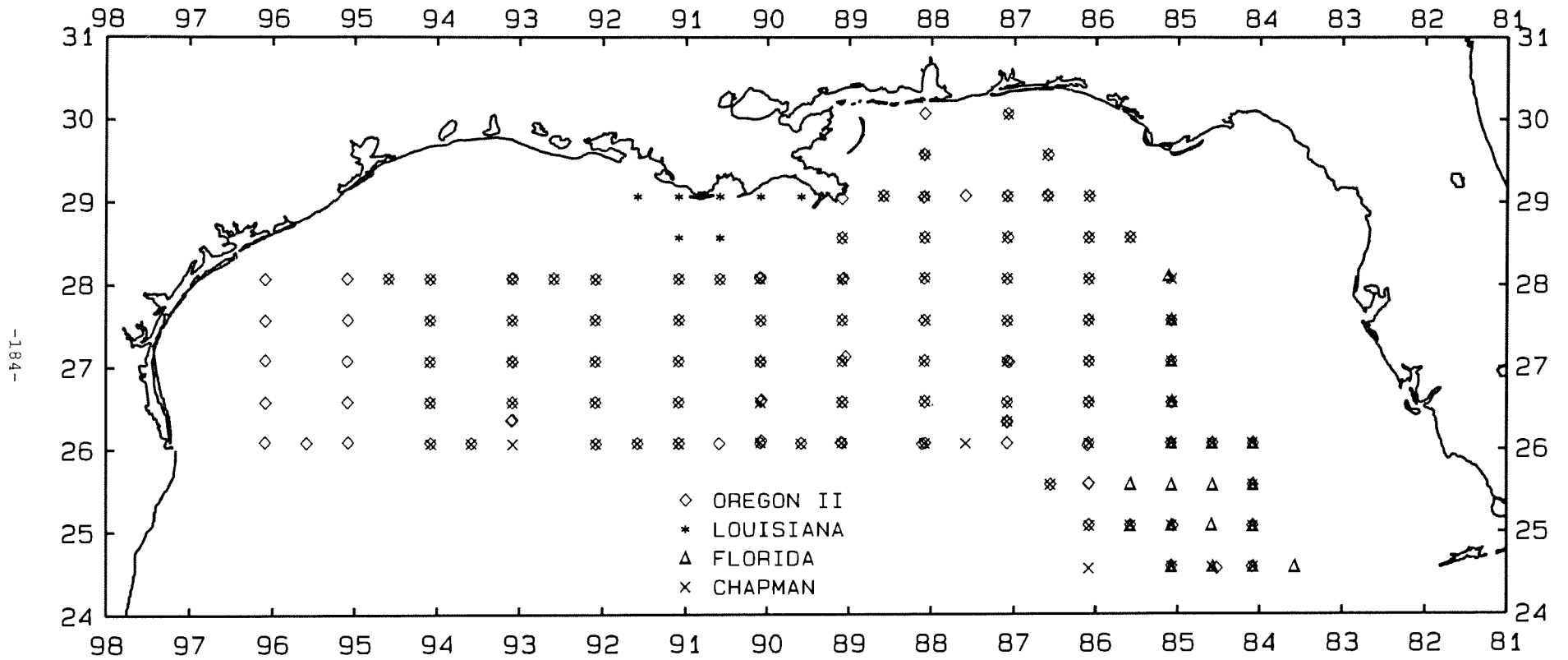


Figure 3. Locations of plankton and environmental stations during 1993 Spring Plankton Survey.

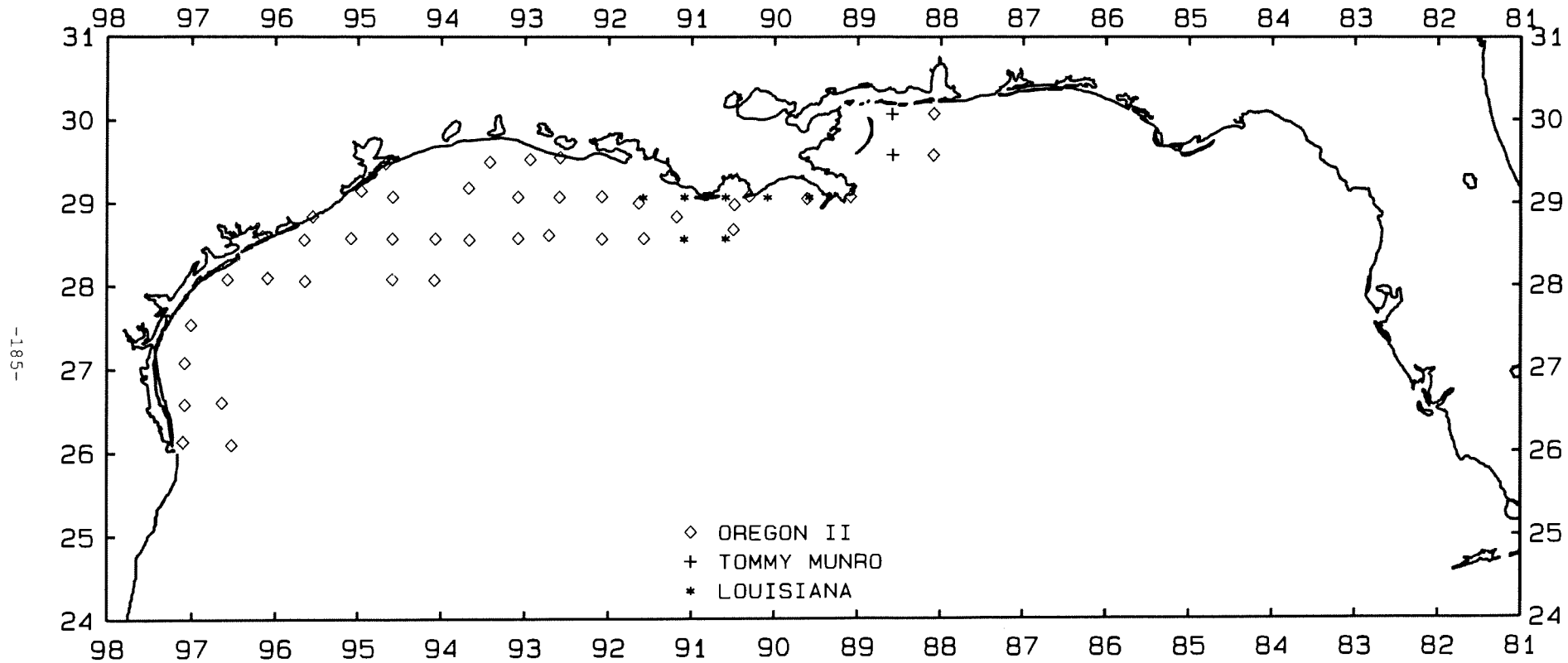


Figure 4. Locations of plankton stations during 1993 Summer Shrimp/Groundfish Survey.

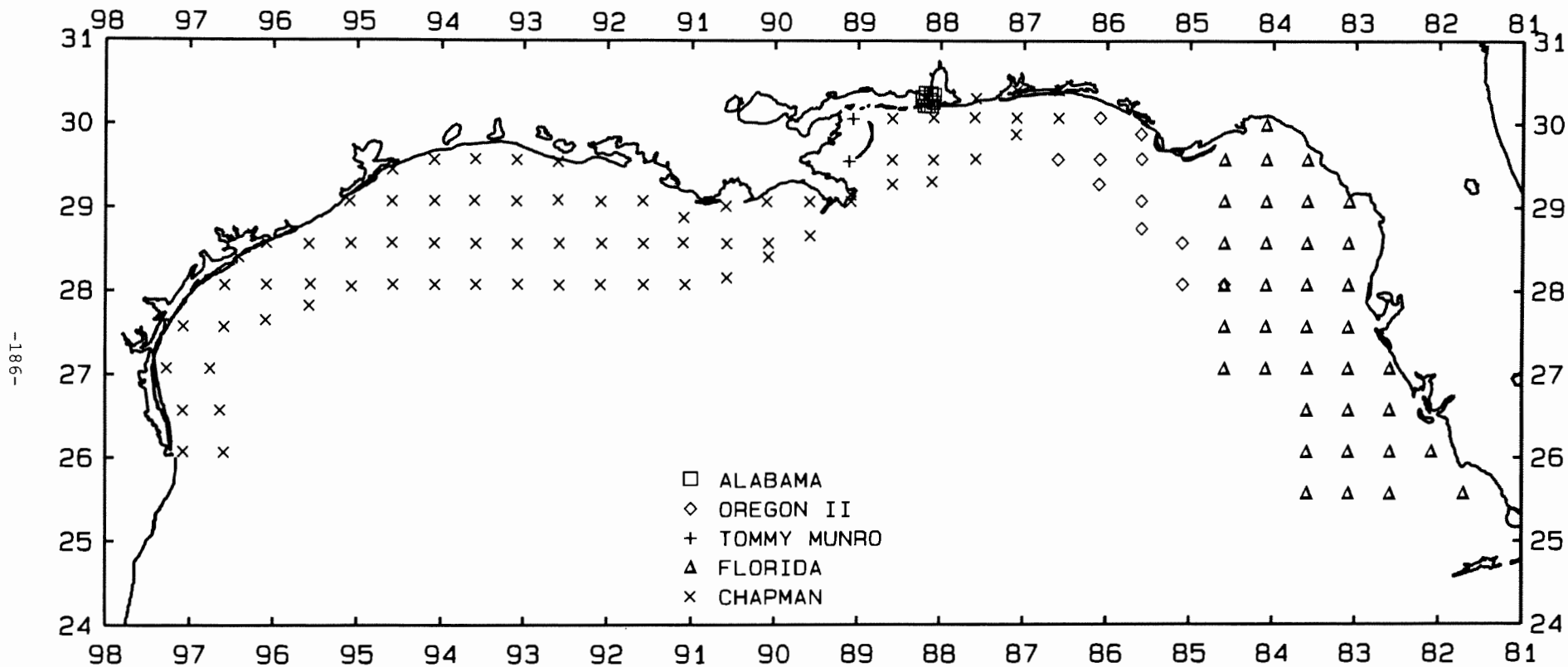


Figure 5. Locations of plankton and environmental stations during 1993 Fall Plankton Survey.

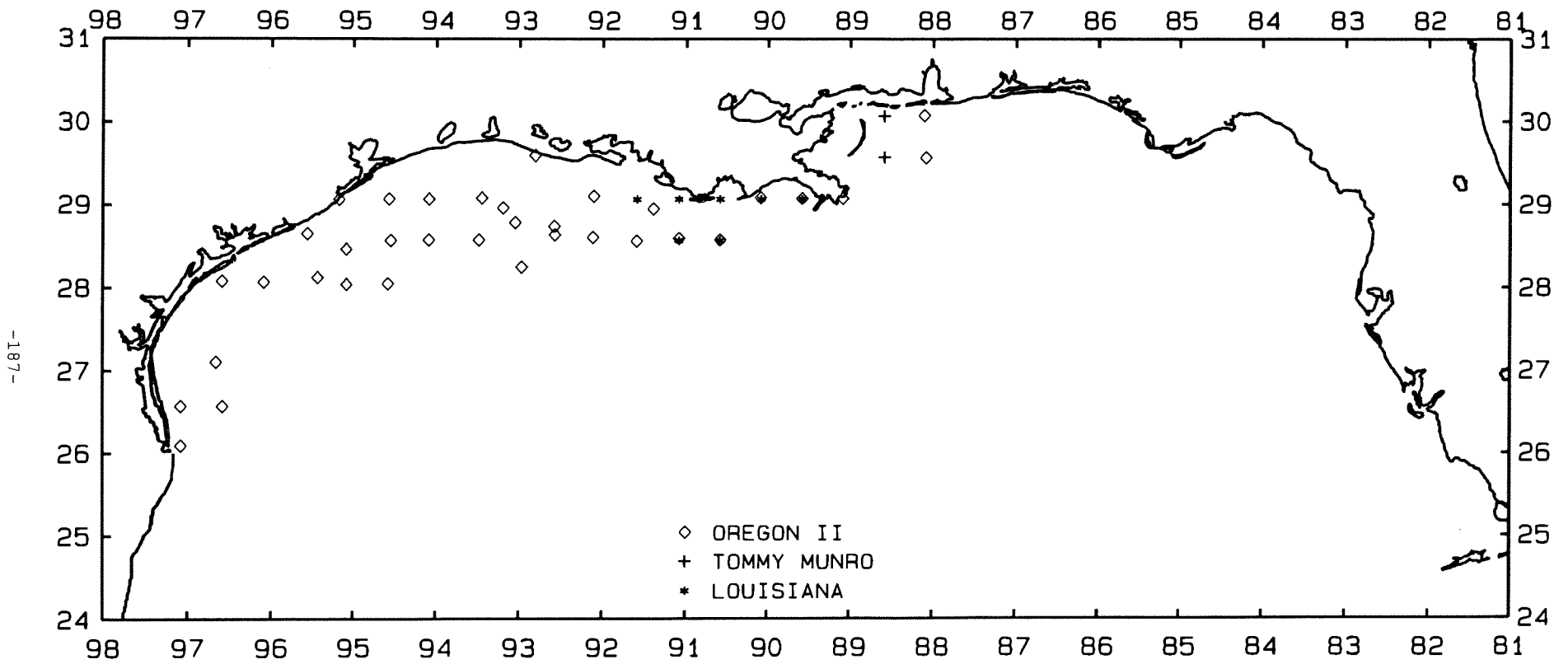


Figure 6. Locations of plankton stations during 1993 Fall Shrimp/Groundfish Survey.

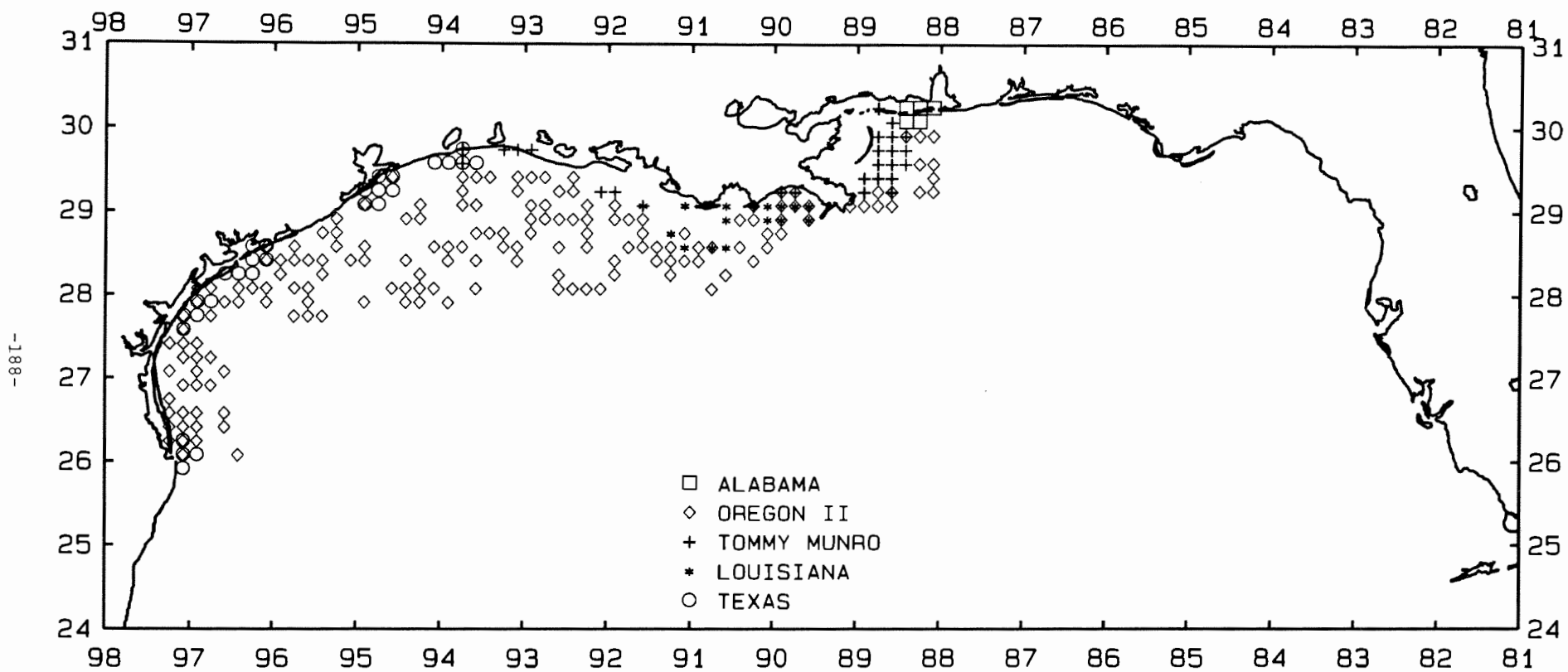


Figure 7. Locations of environmental stations during the 1993 Summer Shrimp/Groundfish Survey summarized by 10-minute squares.

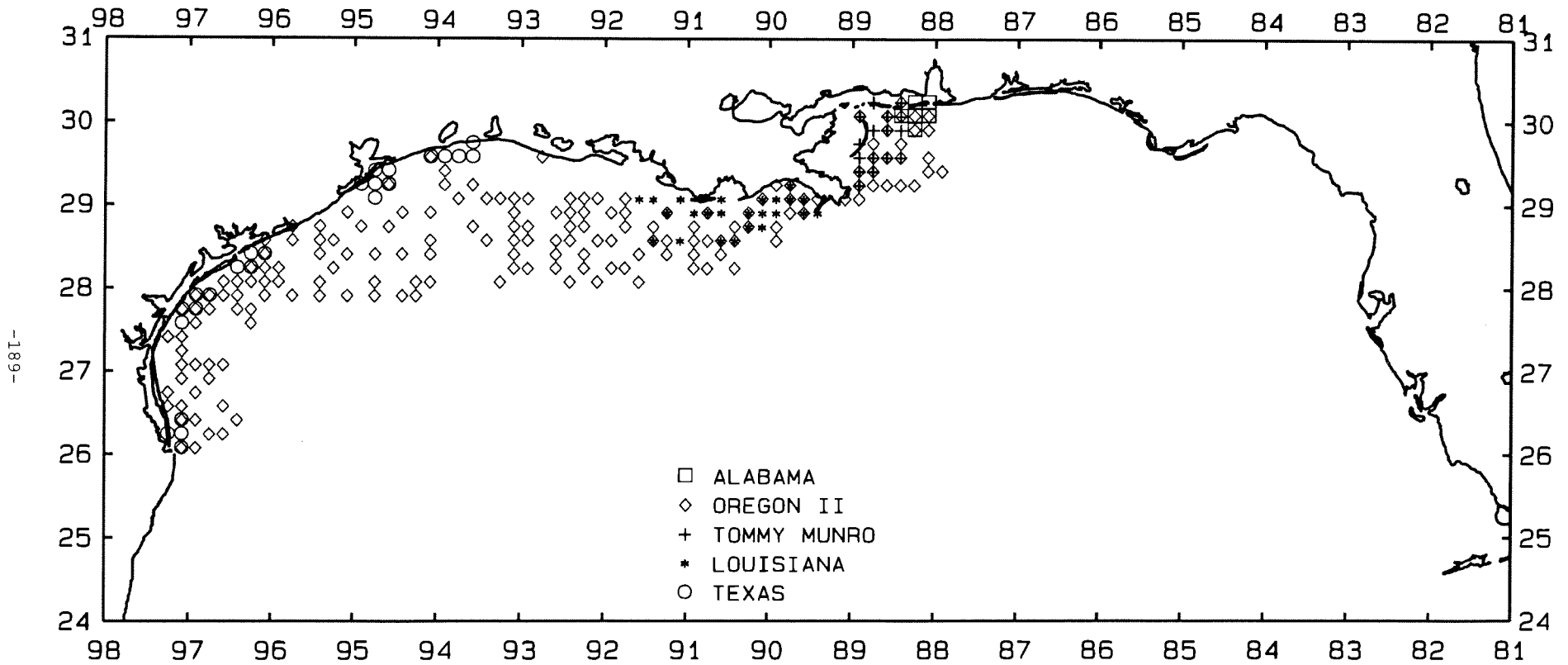


Figure 8. Locations of environmental stations during the 1993 Fall Shrimp/Groundfish Survey summarized by 10-minute squares.

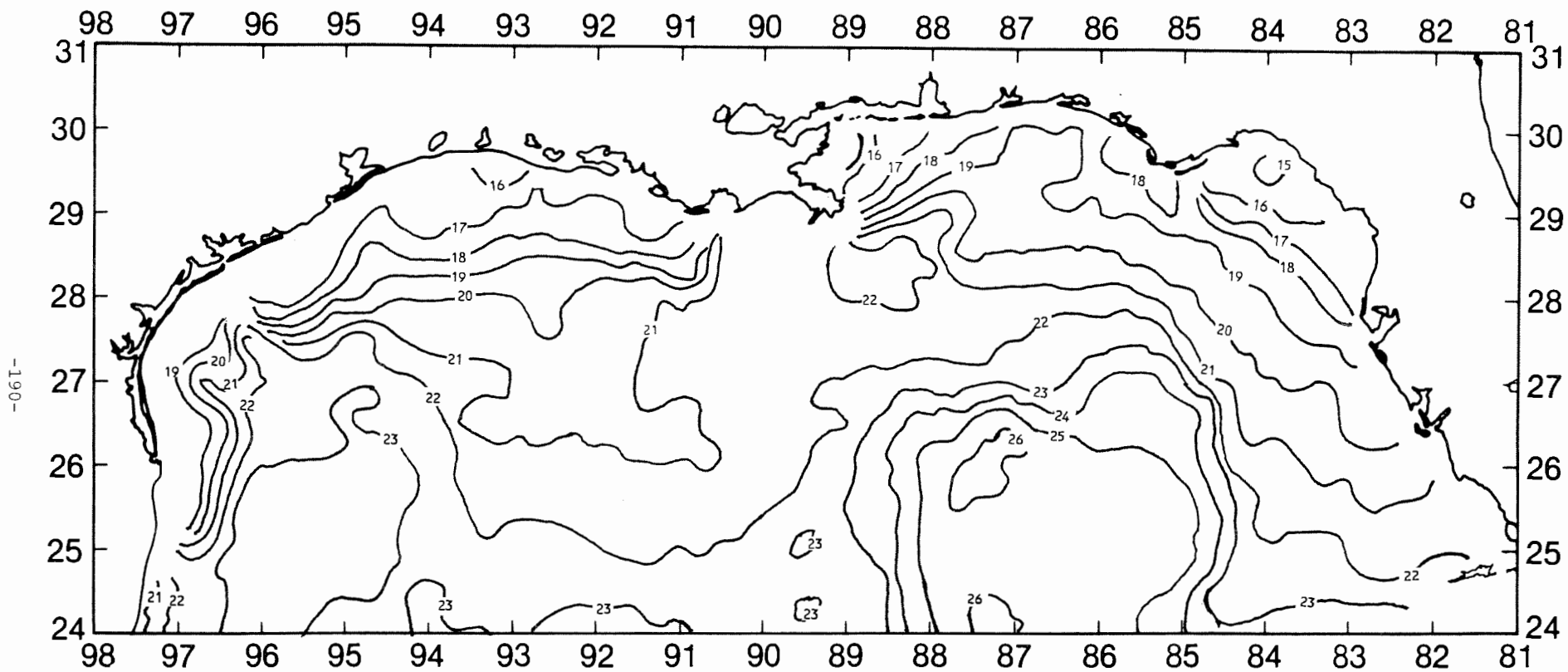


Figure 9. Satellite measurement of surface temperature ($^{\circ}\text{C}$) in the Gulf of Mexico, March 2, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

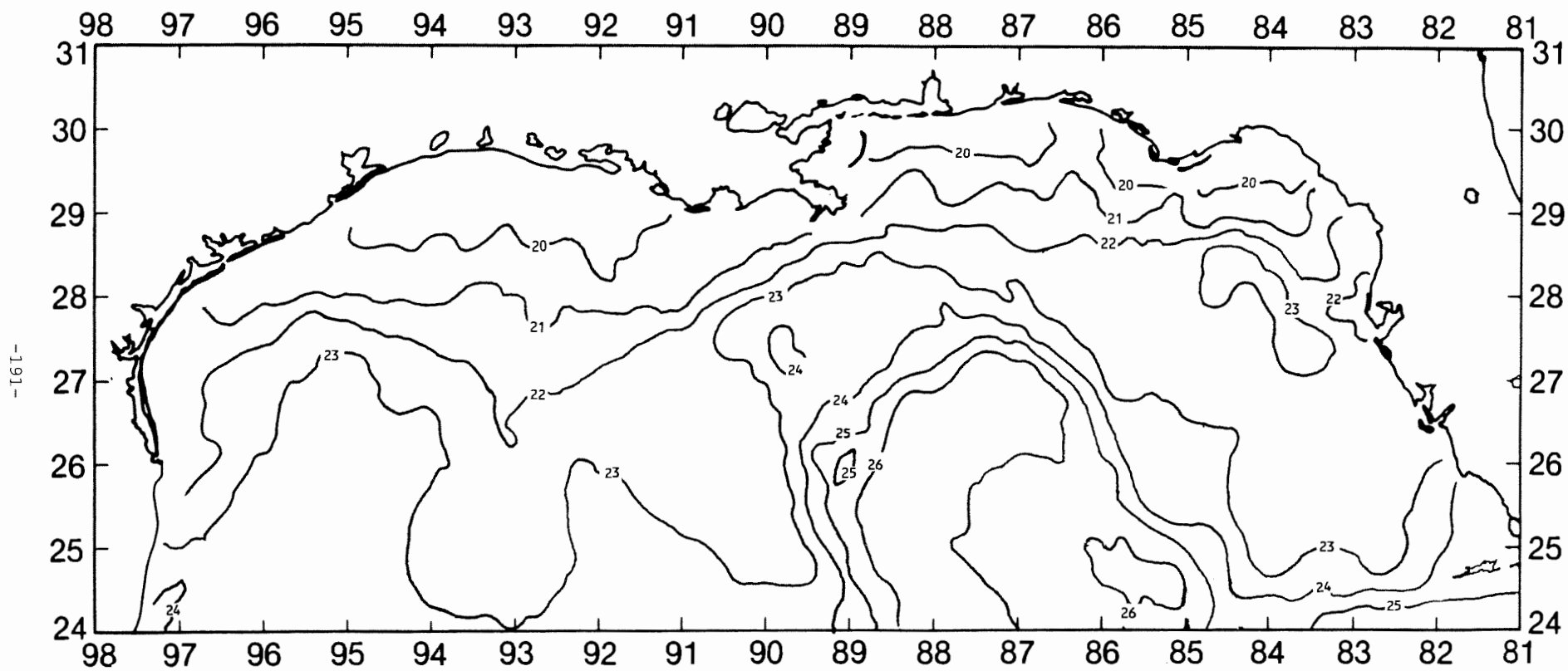


Figure 10. Satellite measurement of surface temperature (°C) in the Gulf of Mexico, April 18, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

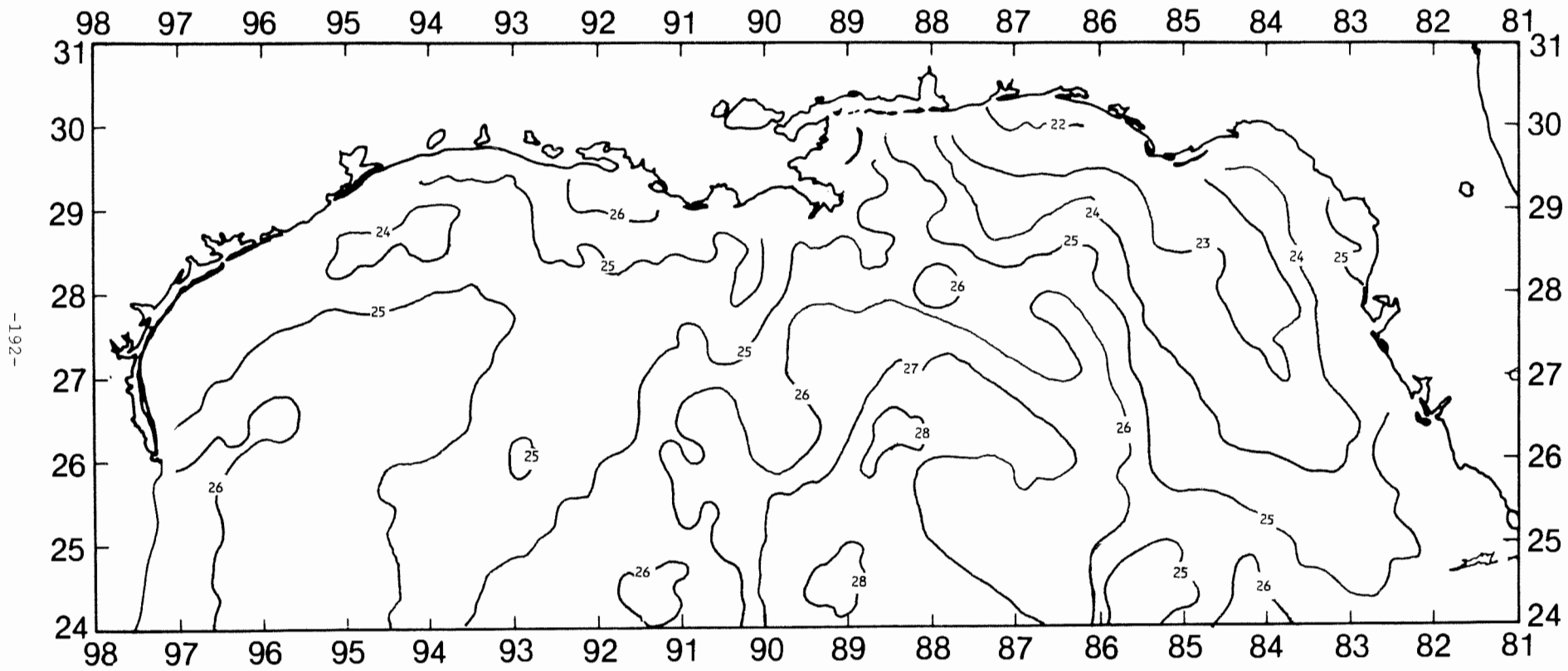


Figure 11. Satellite measurement of surface temperature (°C) in the Gulf of Mexico, May 11, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

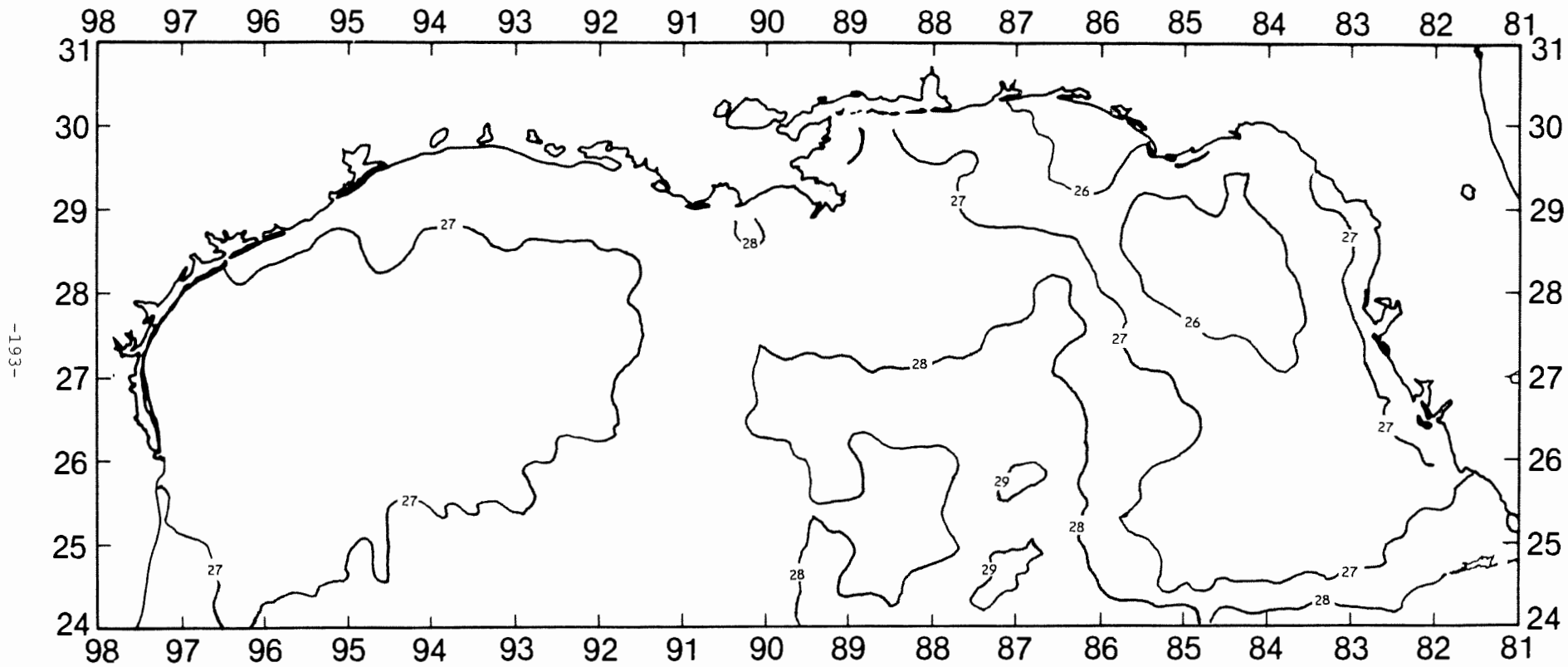


Figure 12. Satellite measurement of surface temperature ($^{\circ}\text{C}$) in the Gulf of Mexico, June 6, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

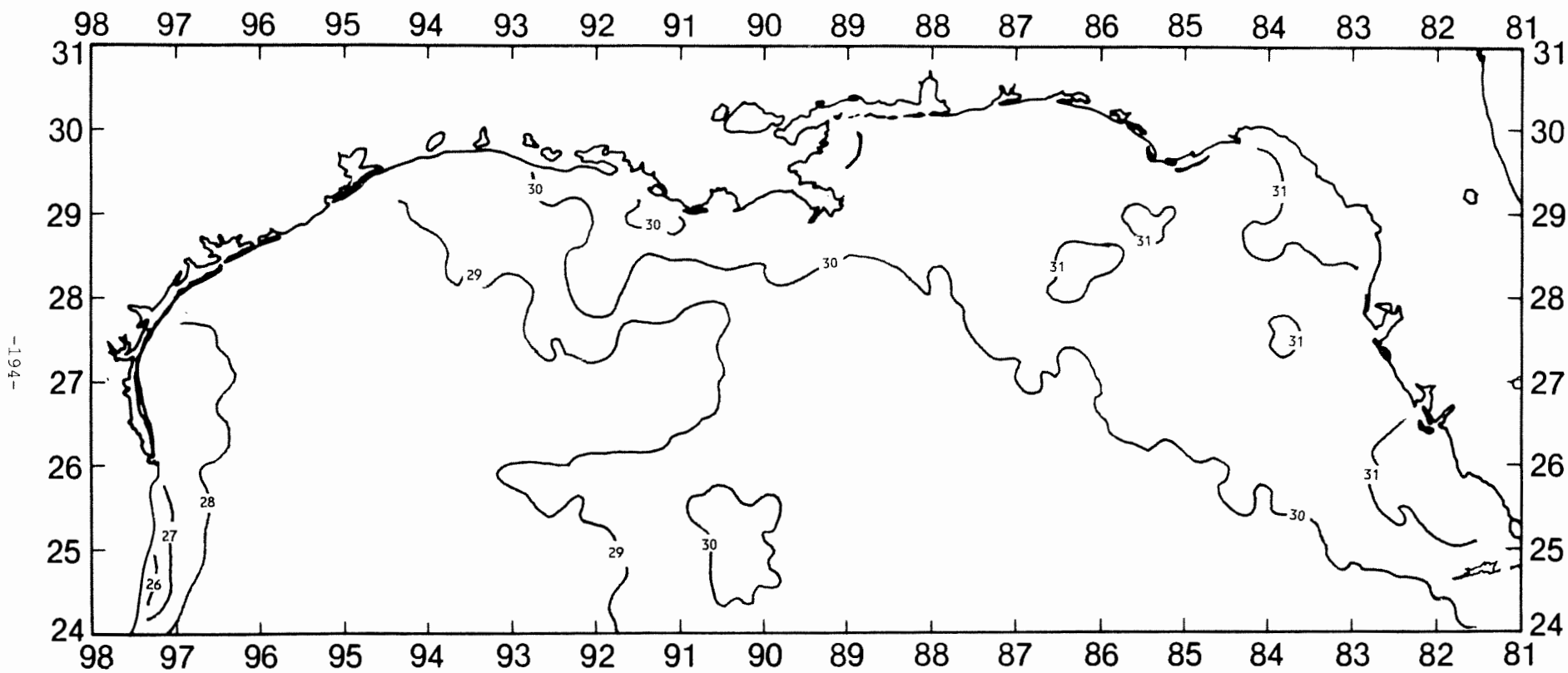


Figure 13. Satellite measurement of surface temperature (°C) in the Gulf of Mexico, July 13, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

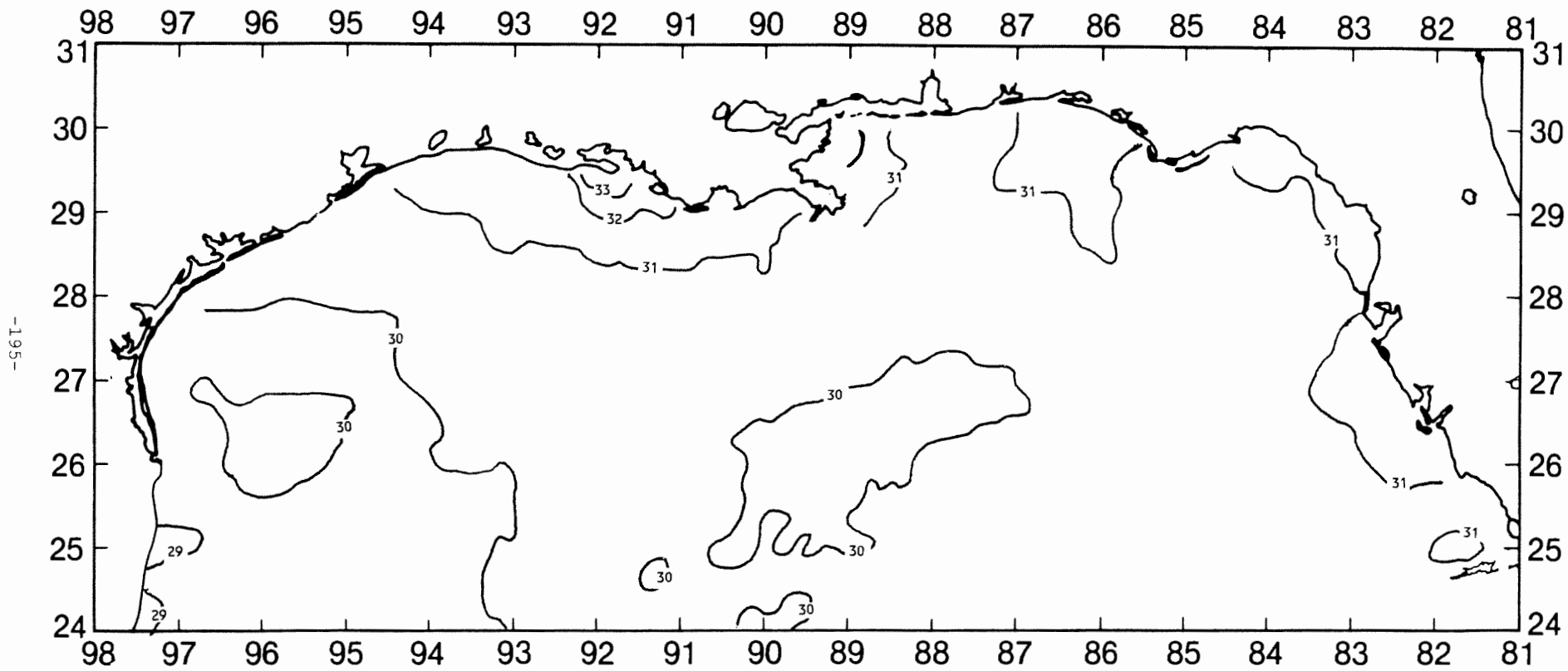


Figure 14. Satellite measurement of surface temperature ($^{\circ}\text{C}$) in the Gulf of Mexico, August 15, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

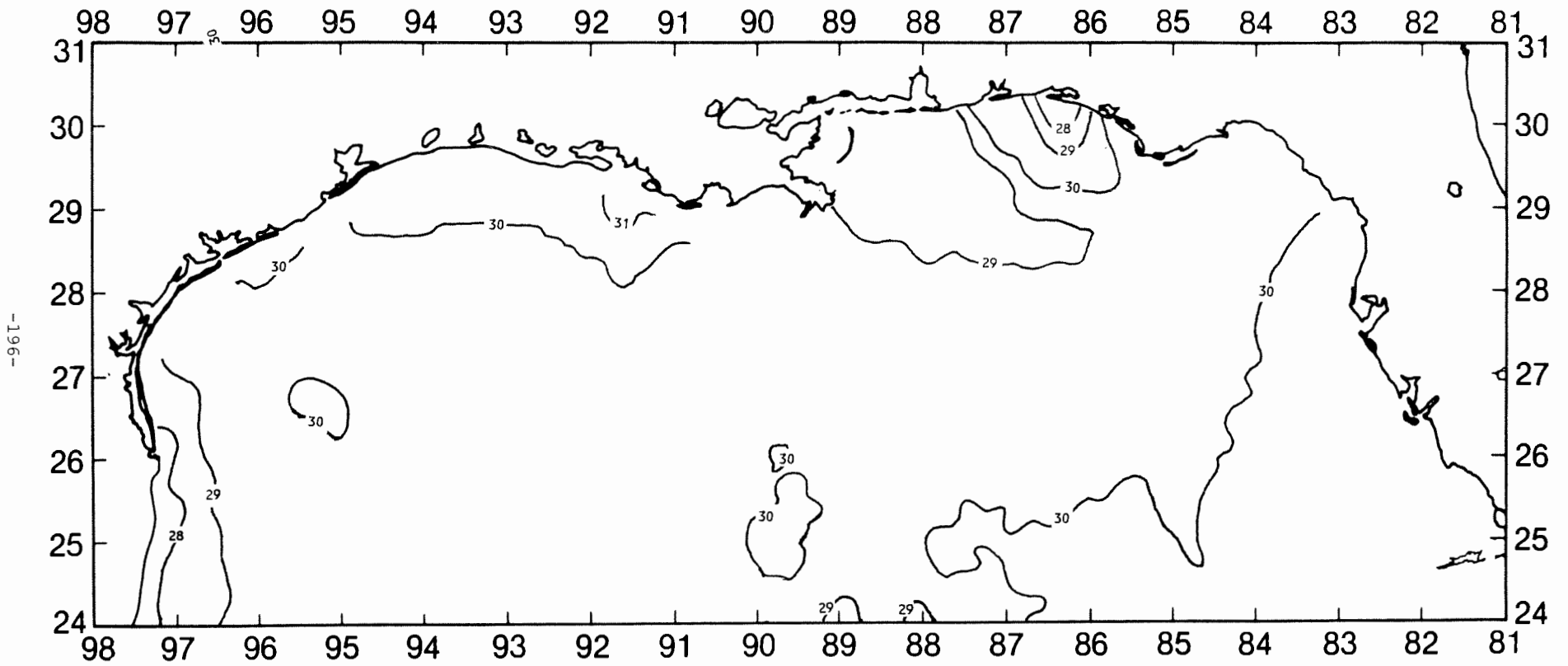


Figure 15. Satellite measurement of surface temperature ($^{\circ}\text{C}$) in the Gulf of Mexico, September 7, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

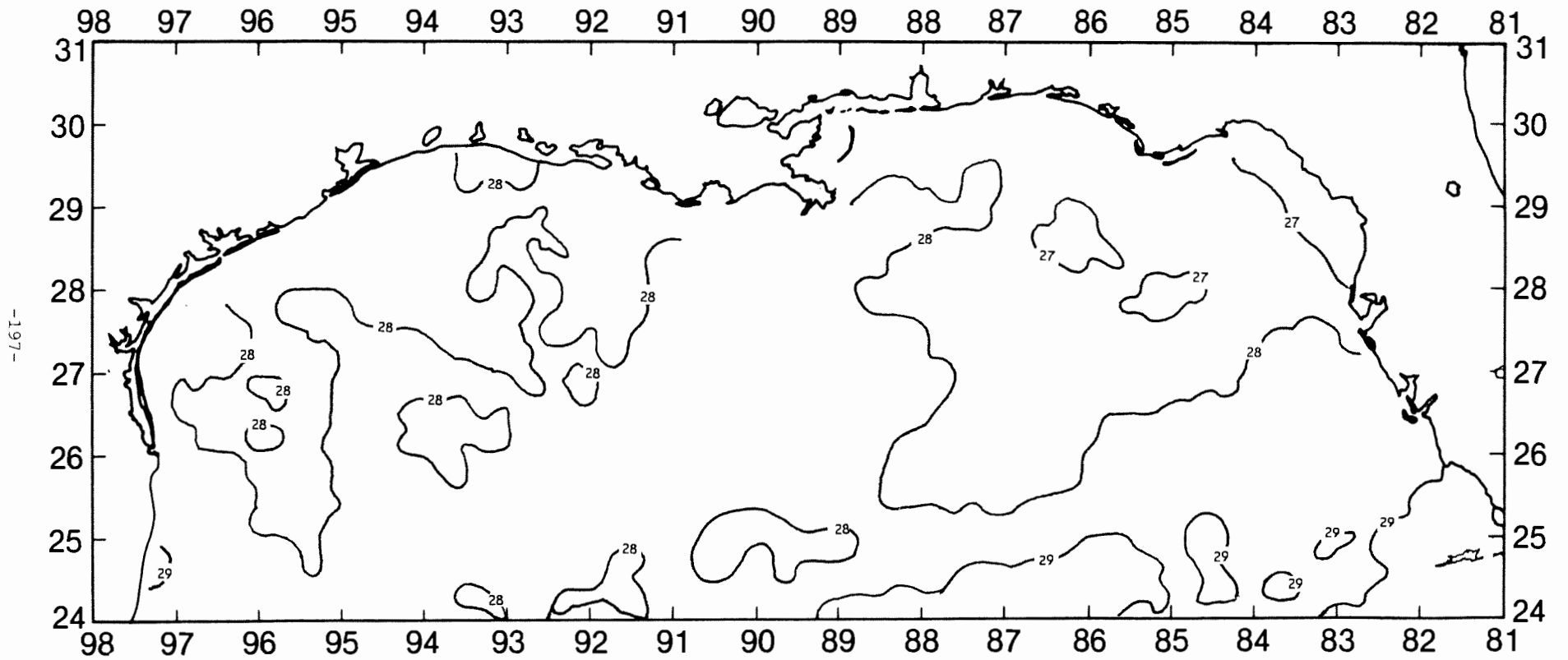


Figure 16. Satellite measurement of surface temperature ($^{\circ}\text{C}$) in the Gulf of Mexico, October 12, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

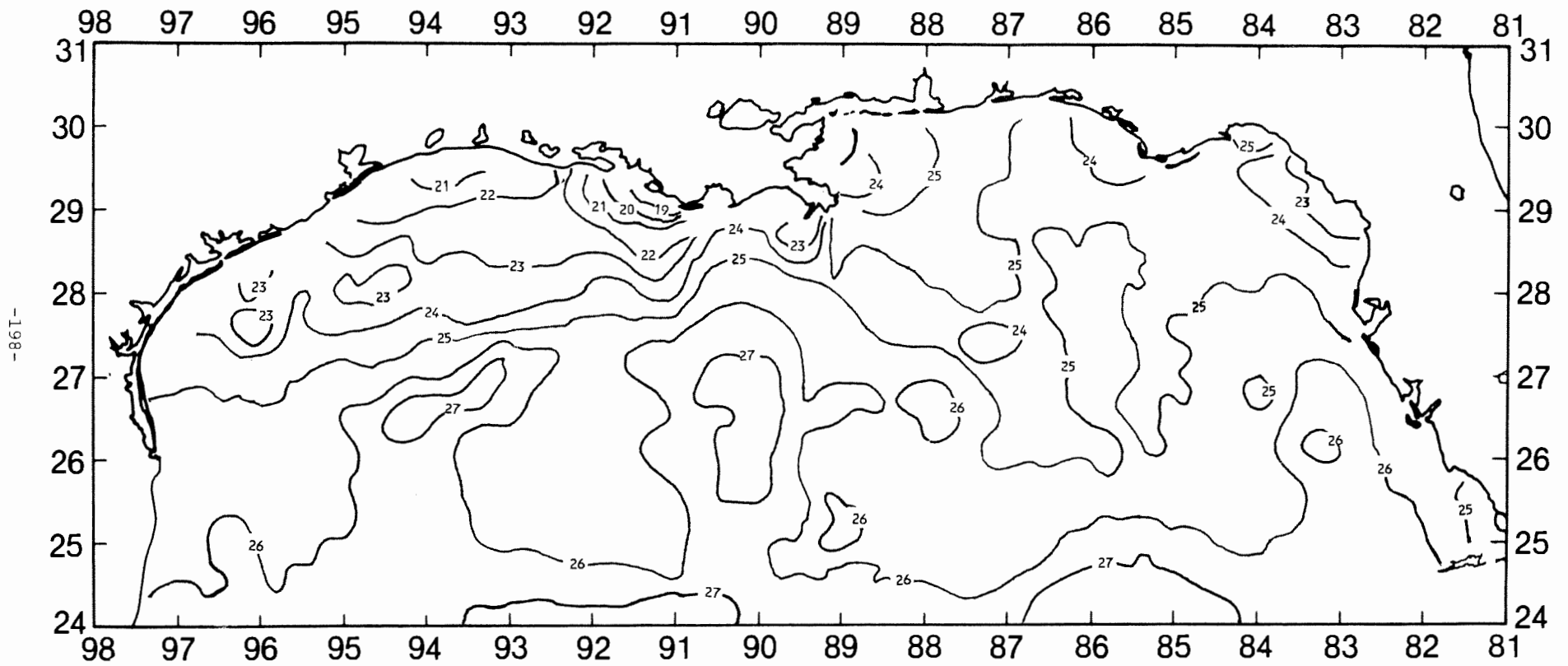


Figure 17. Satellite measurement of surface temperature ($^{\circ}\text{C}$) in the Gulf of Mexico, November 9, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

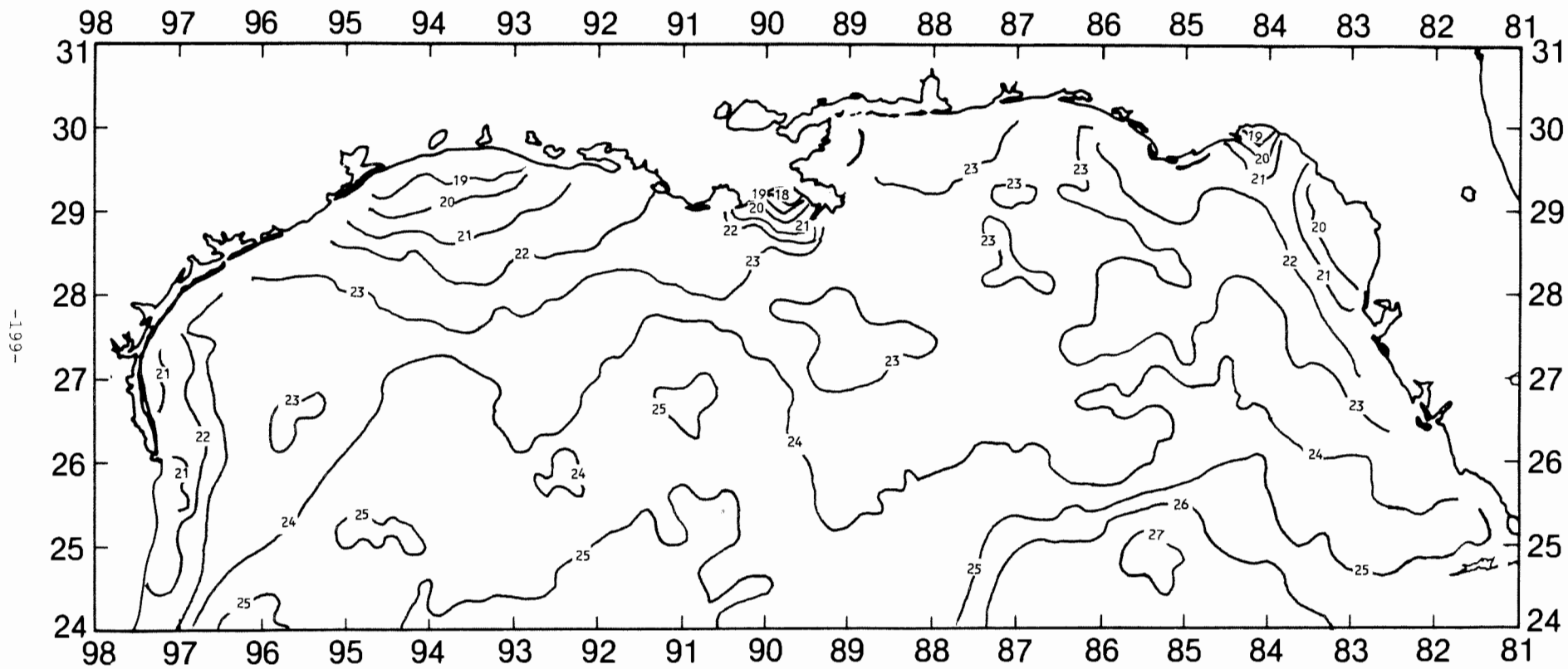


Figure 18. Satellite measurement of surface temperature ($^{\circ}\text{C}$) in the Gulf of Mexico, December 5, 1993 (modified from NWS/NESS Sea Surface Thermal Analysis).

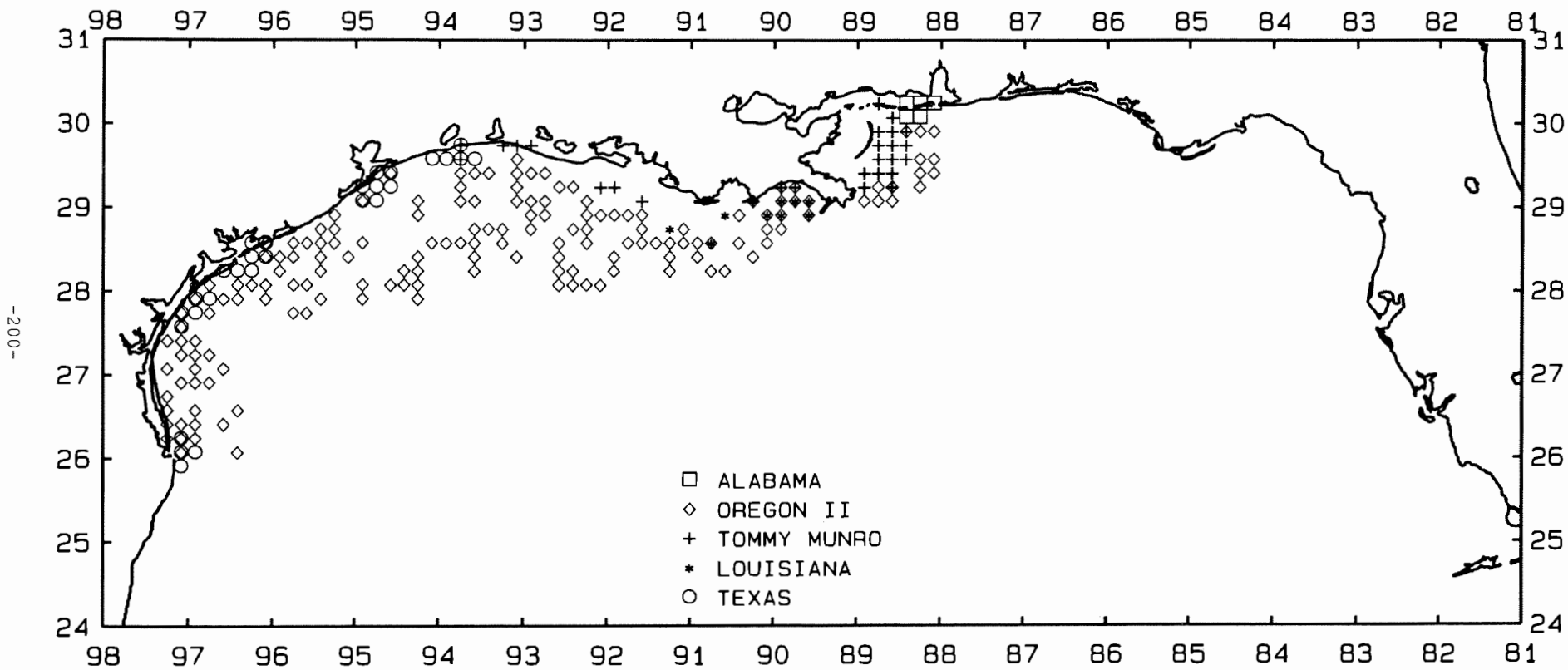


Figure 19. Locations of trawl stations during the 1993 Summer Shrimp/Groundfish Survey summarized by 10-minute squares.

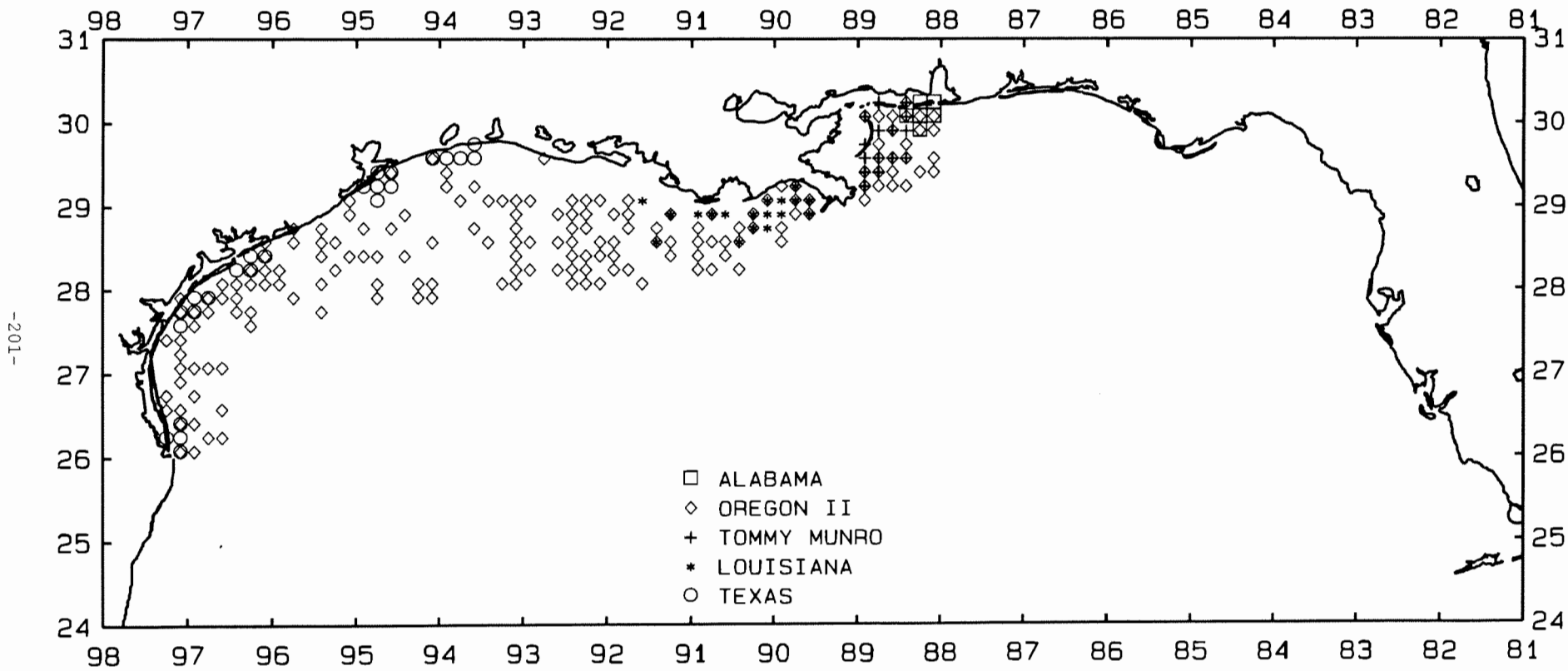


Figure 20. Locations of trawl stations during the 1993 Fall Shrimp/Groundfish Survey, summarized by 10-minute squares.

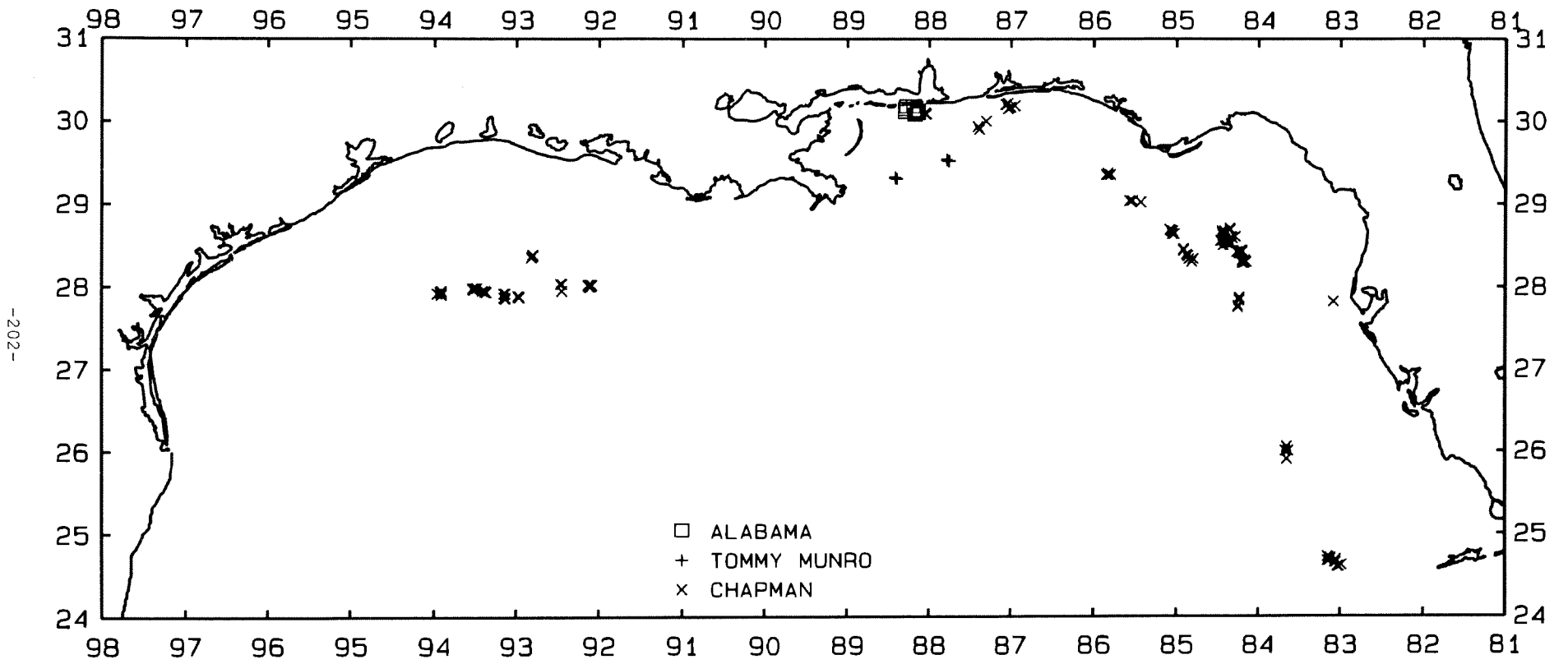


Figure 21. Locations of trap stations during 1993 Spring Reef Fish Survey.

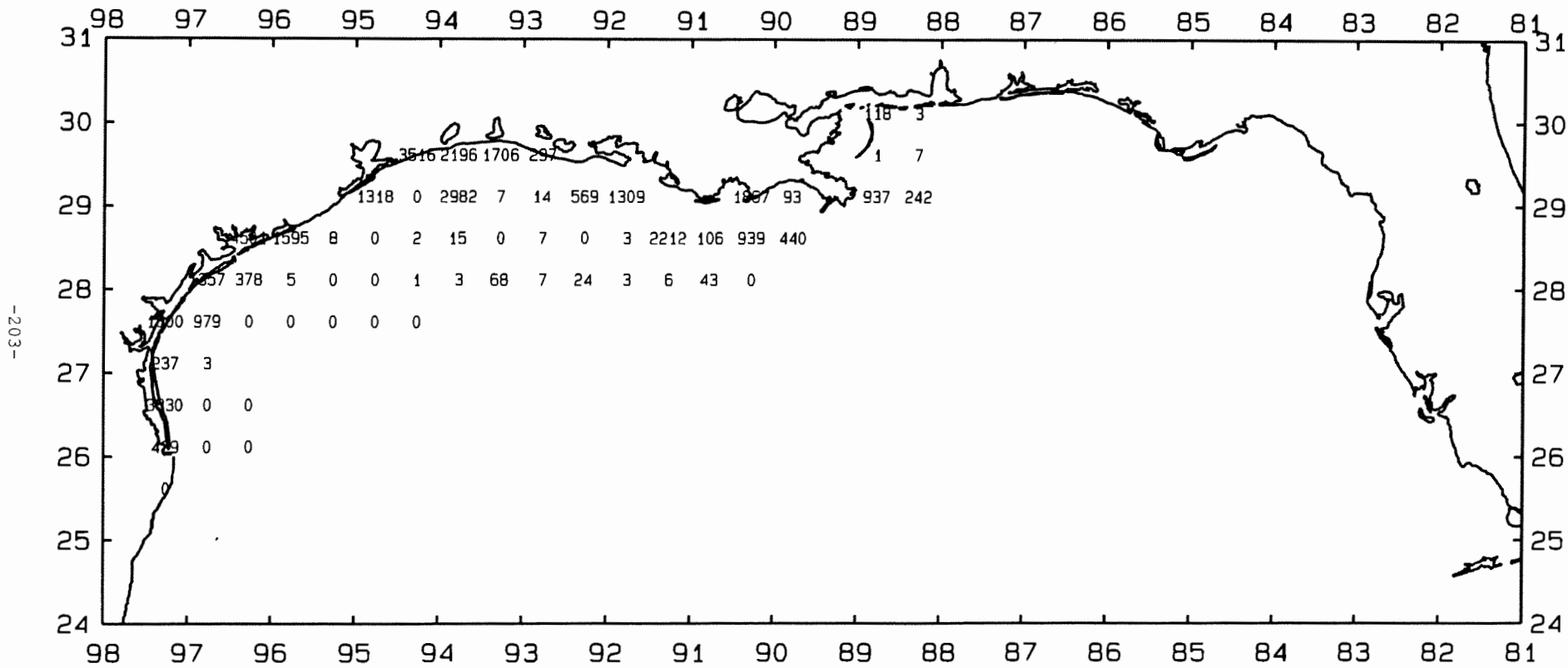


Figure 22. Atlantic croaker, *Micropogonias undulatus*, number/hour for June-July 1993.

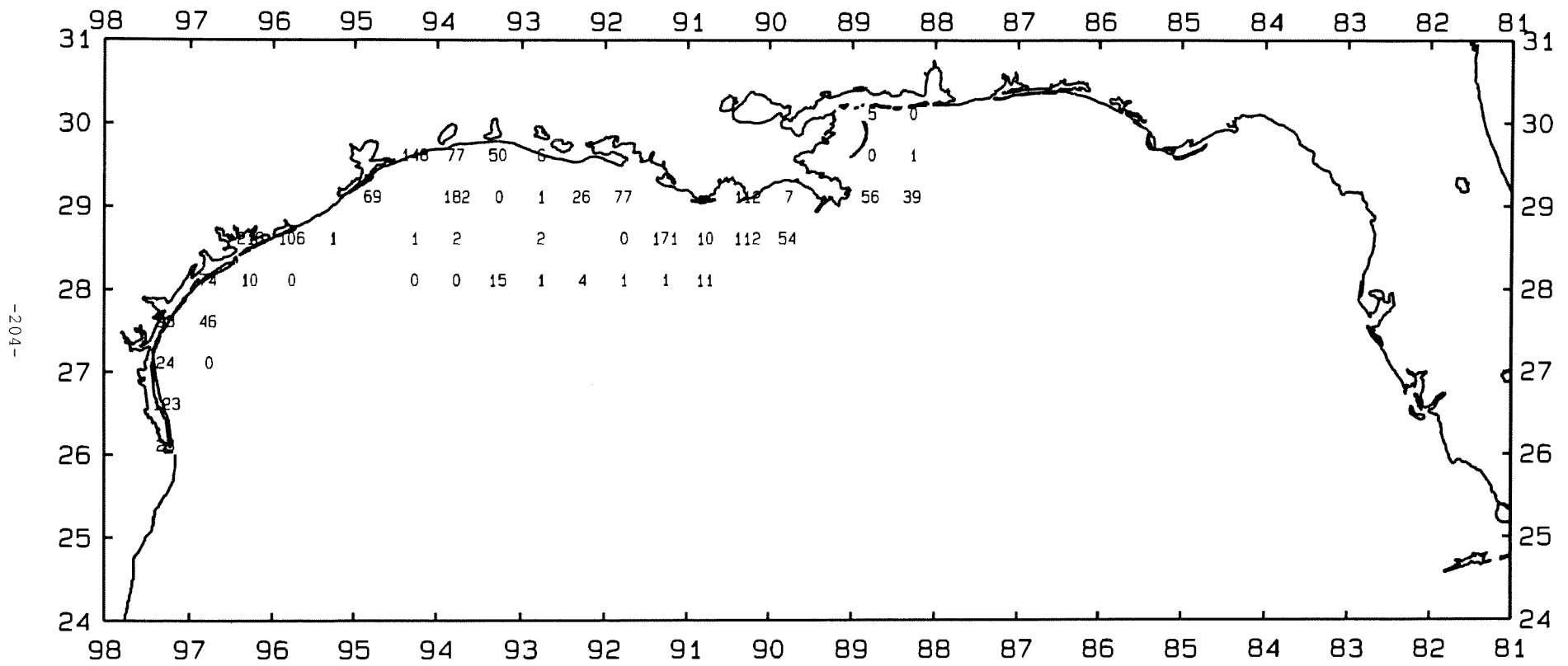


Figure 23. Atlantic croaker, *Micropogonias undulatus*, lb/hour for June-July 1993.

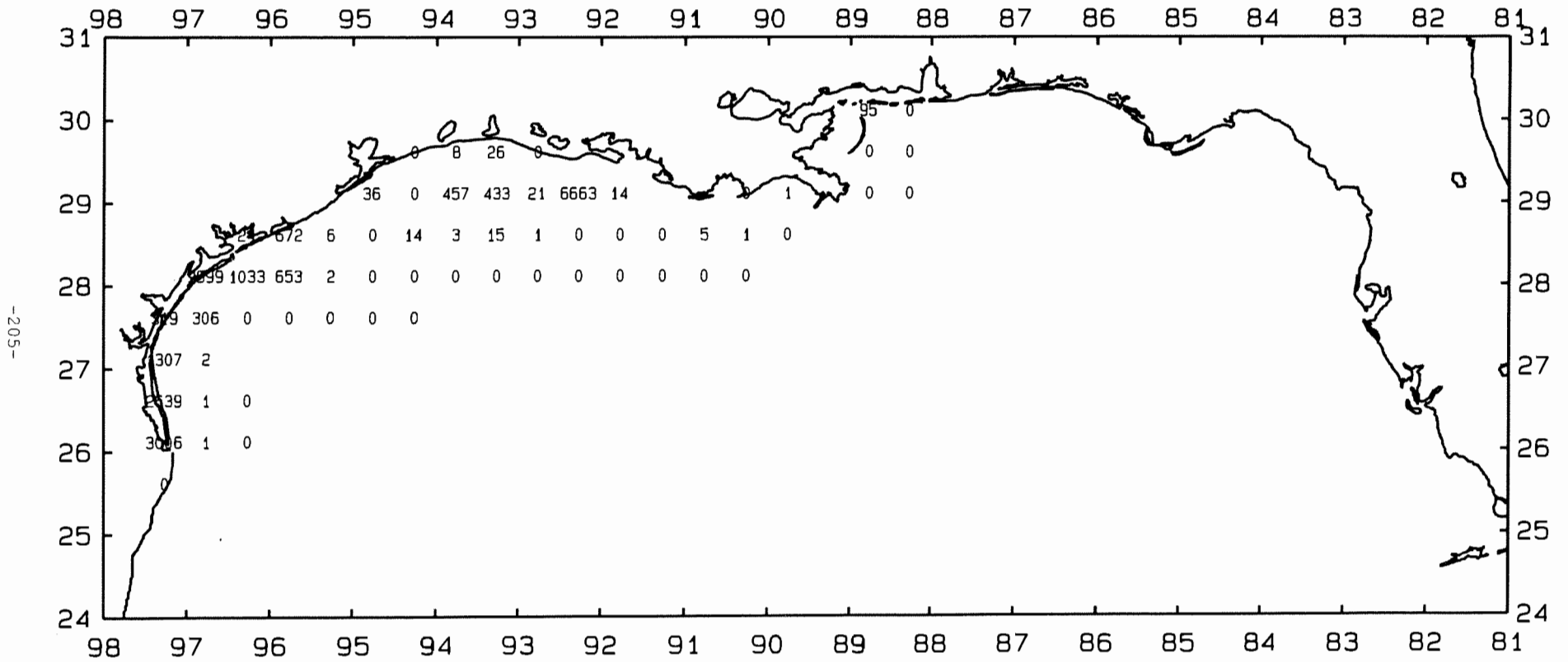


Figure 24. Atlantic bumper, *Chloroscombrus chrysurus*, number/hour for June-July 1993.

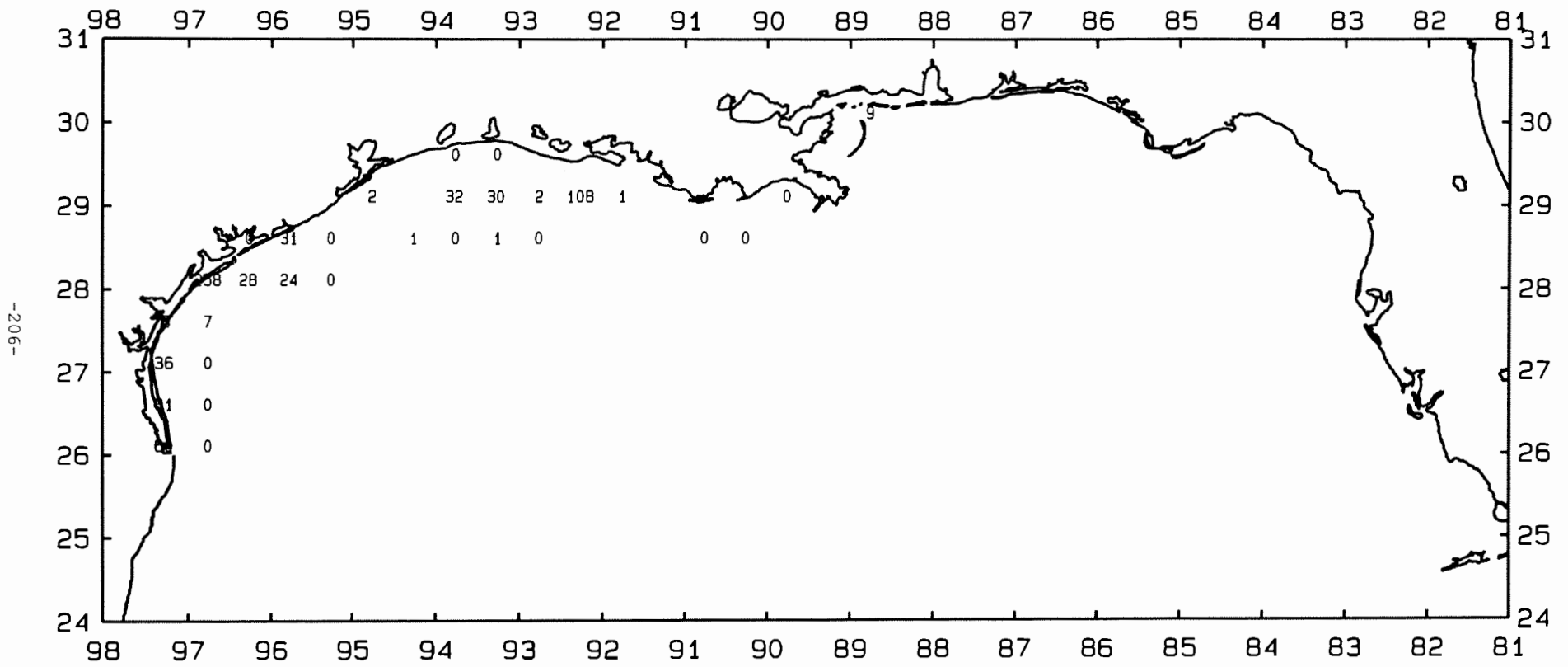


Figure 25. Atlantic bumper, *Chloroscombrus chrysurus*, lb/hour for June-July 1993.

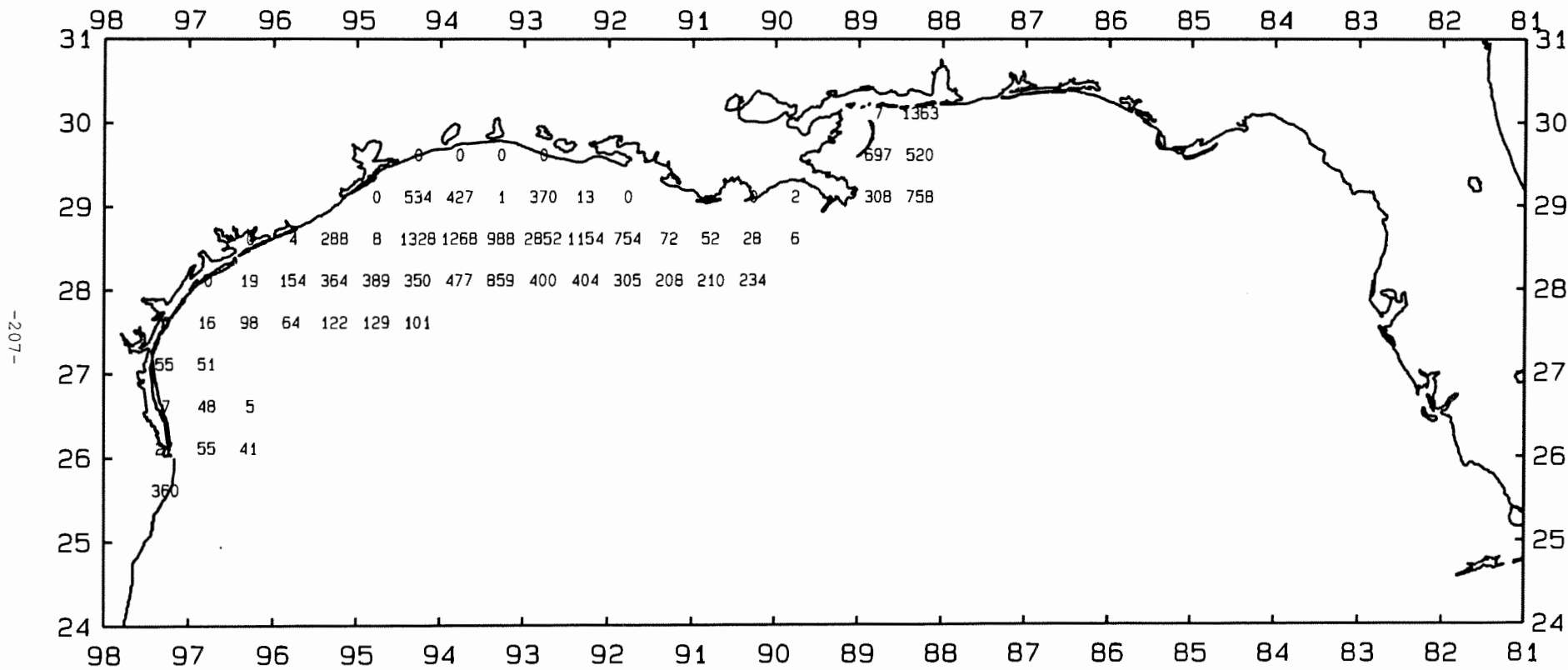


Figure 26. Longspine pogy, *Stenotomus caprinus*, number/hour for June-July 1993.

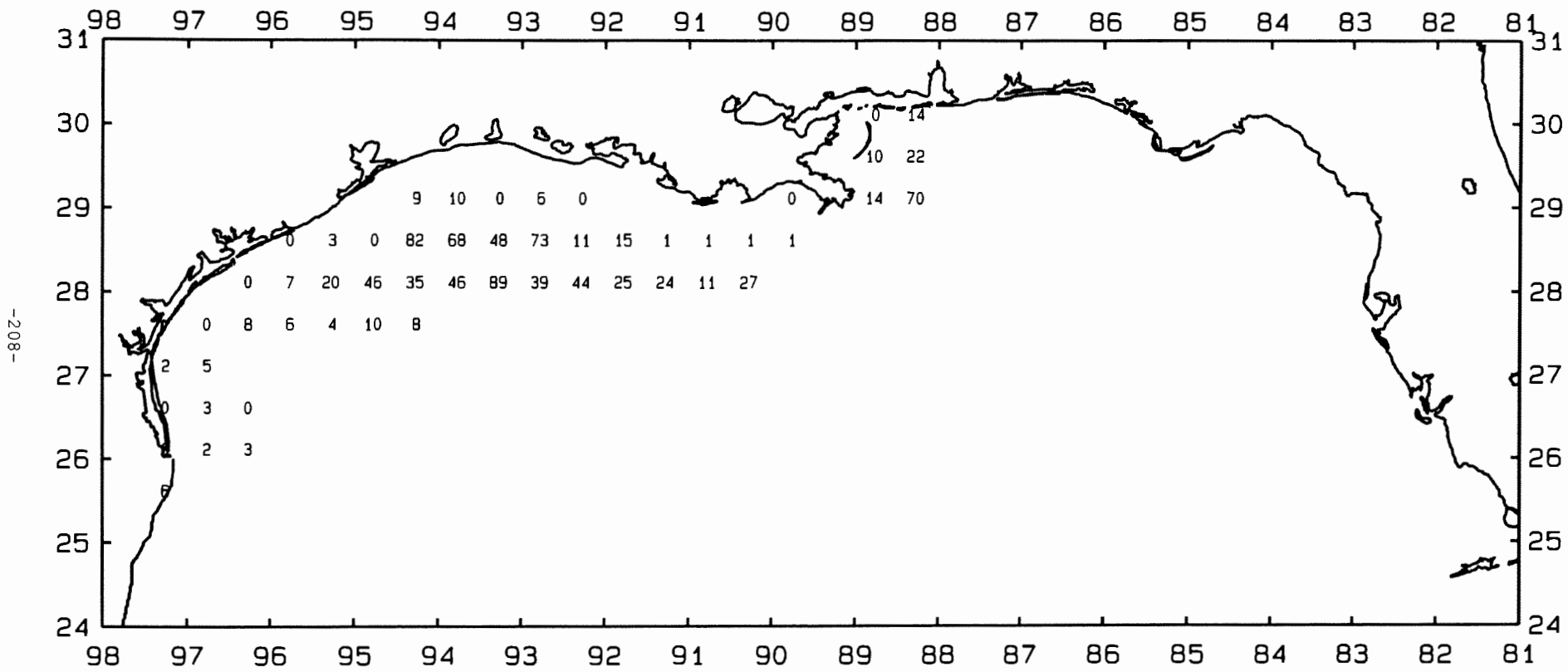


Figure 27. Longspine porgy, Stenotomus caprinus, lb/hour for June-July 1993.

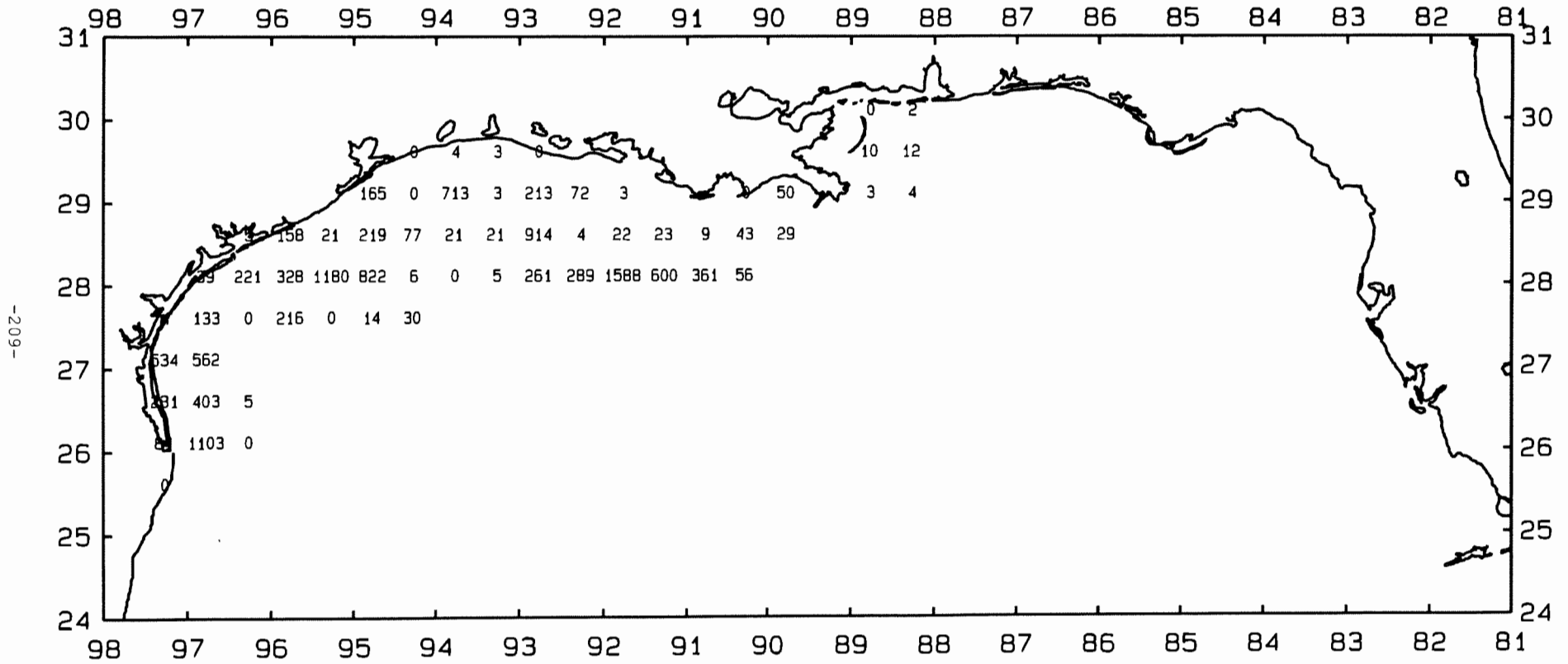


Figure 28. Gulf butterfish, *Peprilus burti*, number/hour for June-July 1993.

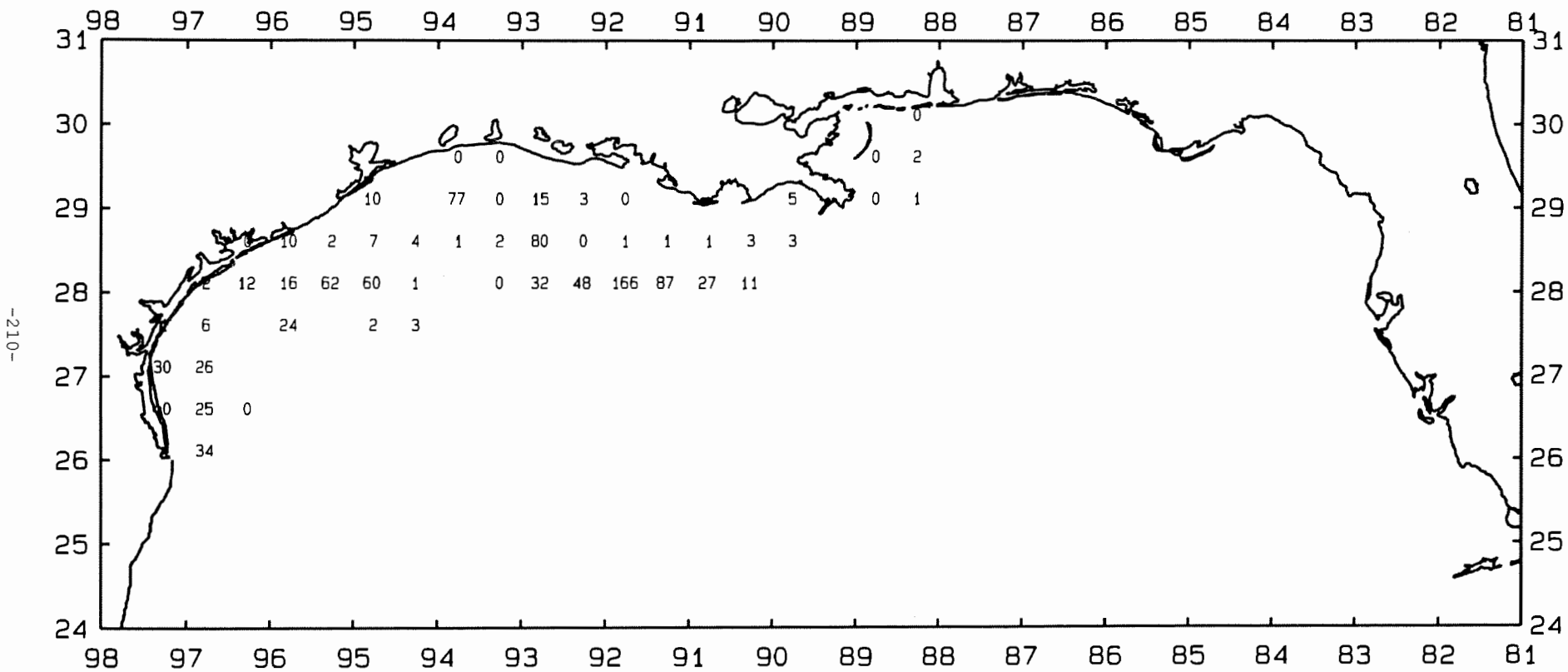


Figure 29. Gulf butterfish, *Peprilus burti*, lb/hour for June-July 1993.

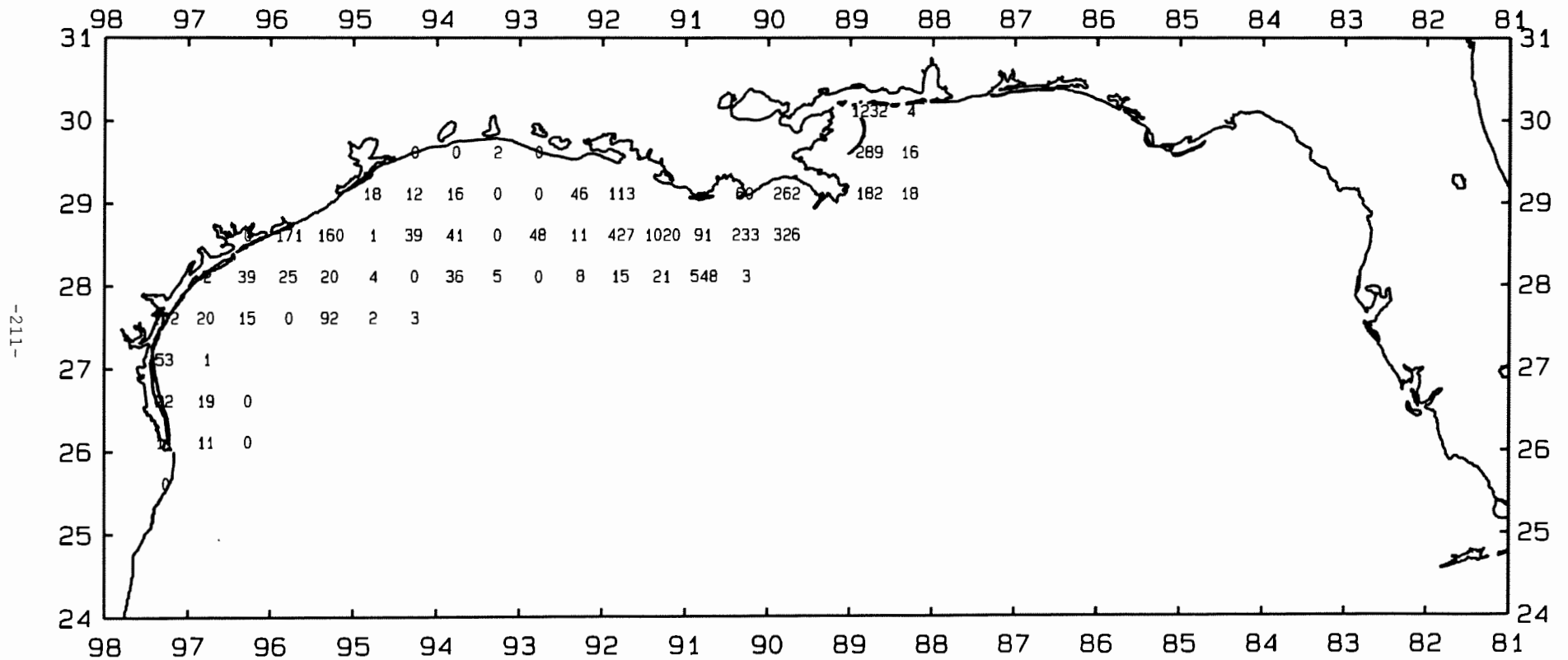


Figure 30. Bigeye searobin, *Prionotus longispinosus*, number/hour for June-July 1993.

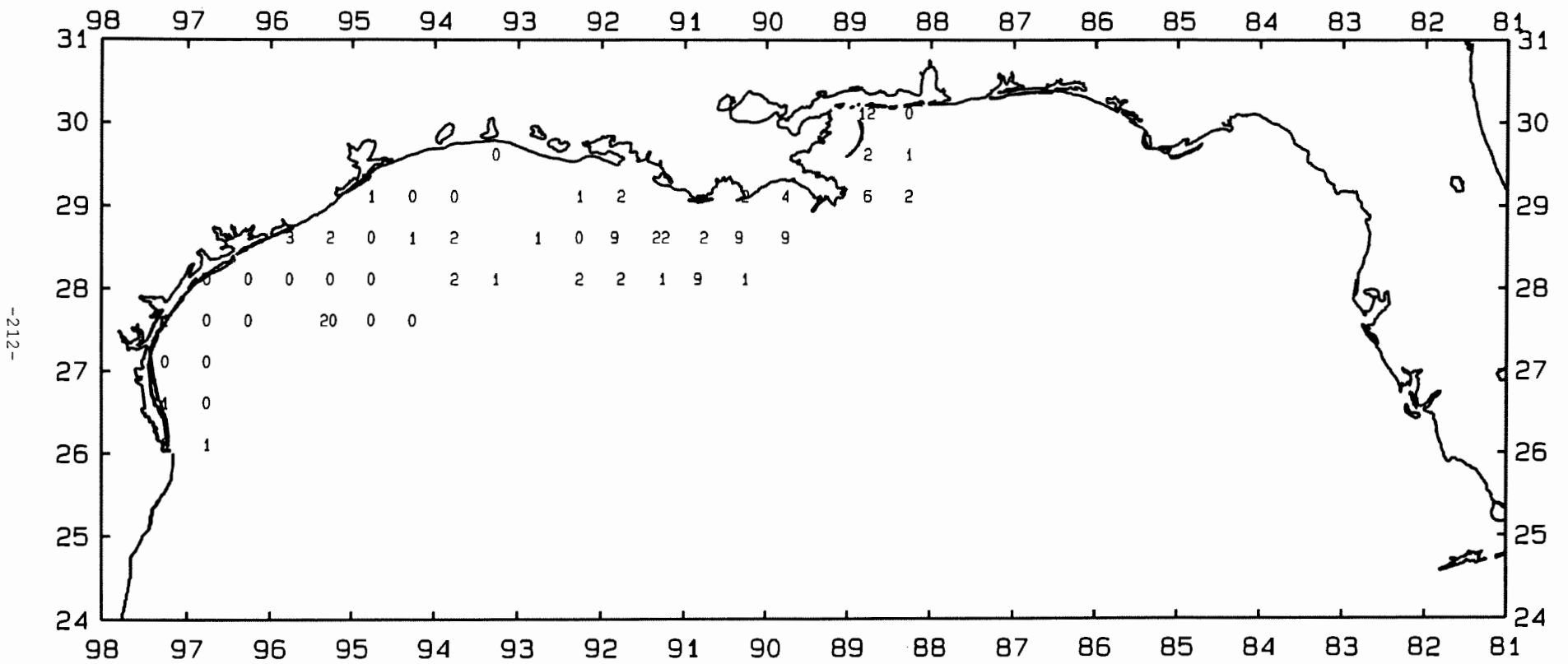


Figure 31. Bigeye searobin, *Prionotus longispinosus*, lb/hour for June-July 1993.

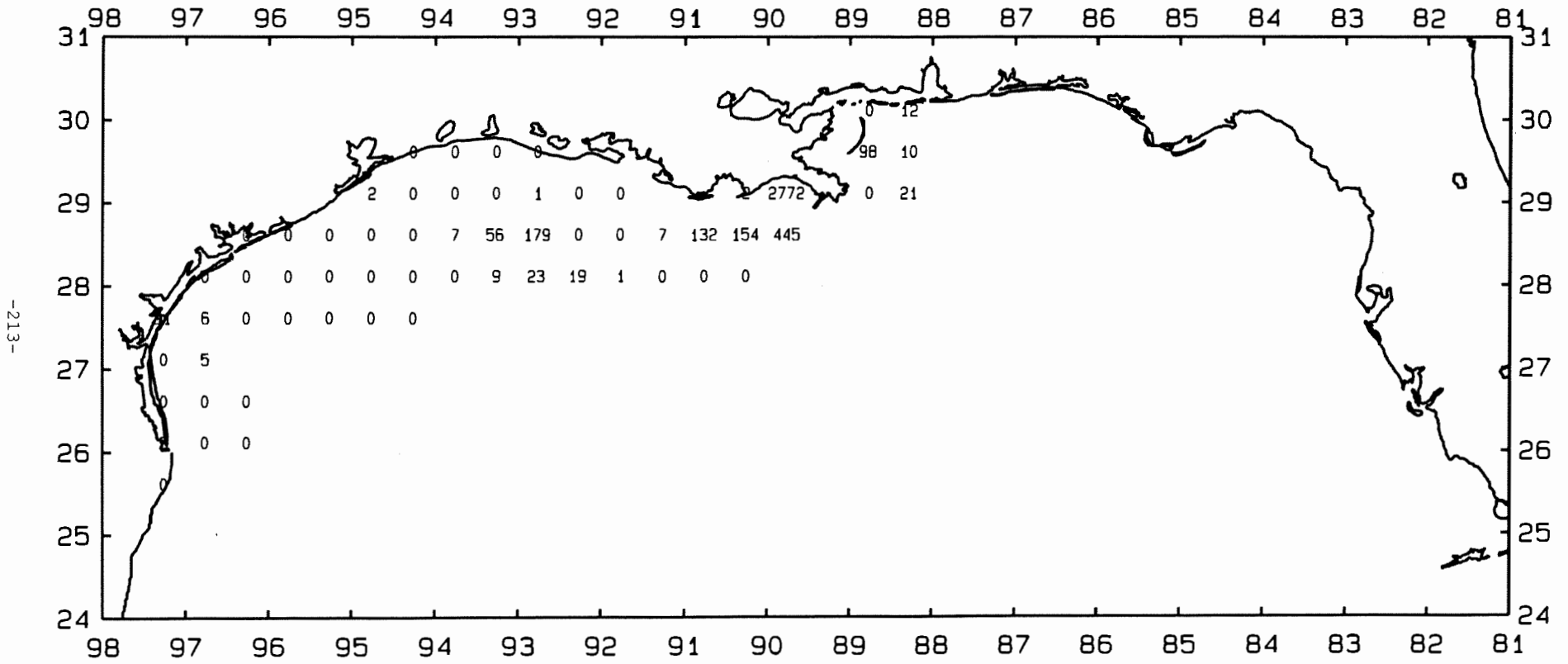


Figure 32. Blackwing searobin, *Prionotus rubio*, number/hour for June-July 1993.

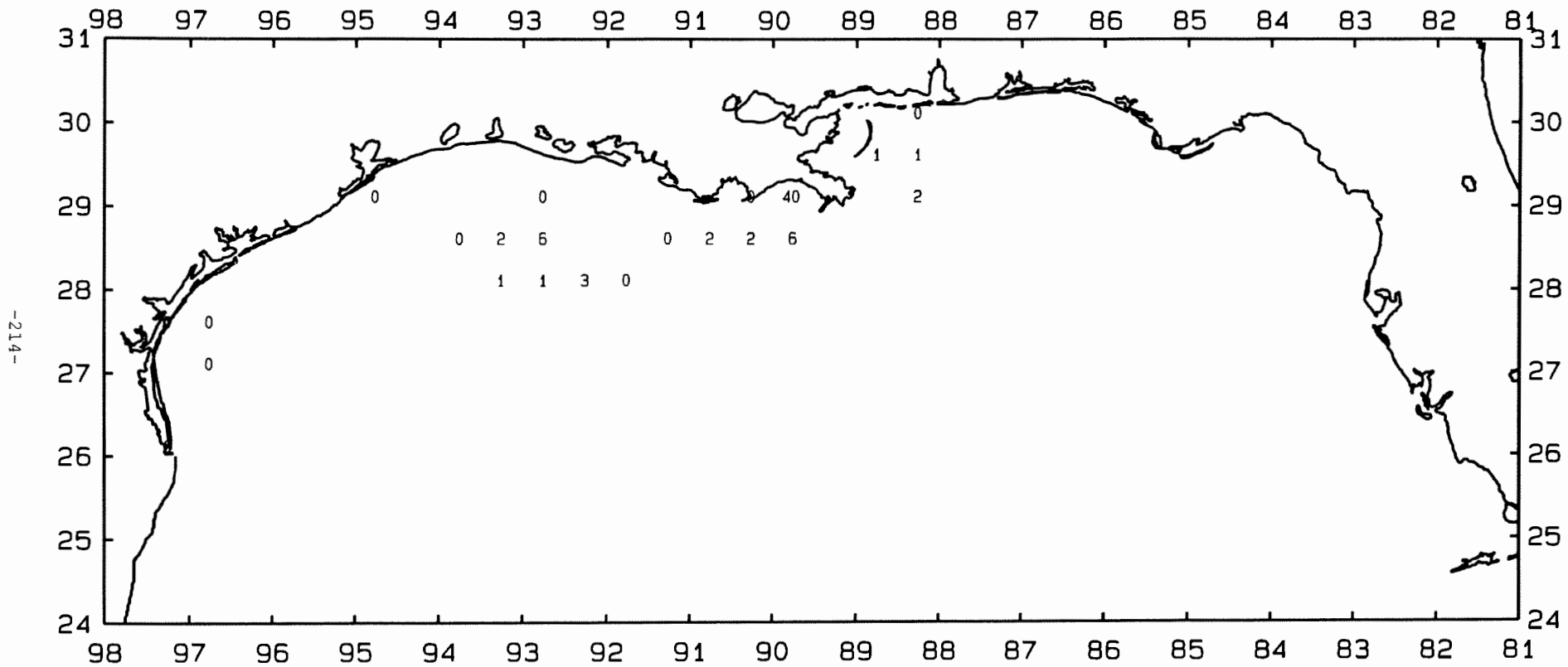


Figure 33. Blackwing searobin, *Prionotus rubio*, lb/hour for June-July 1993.

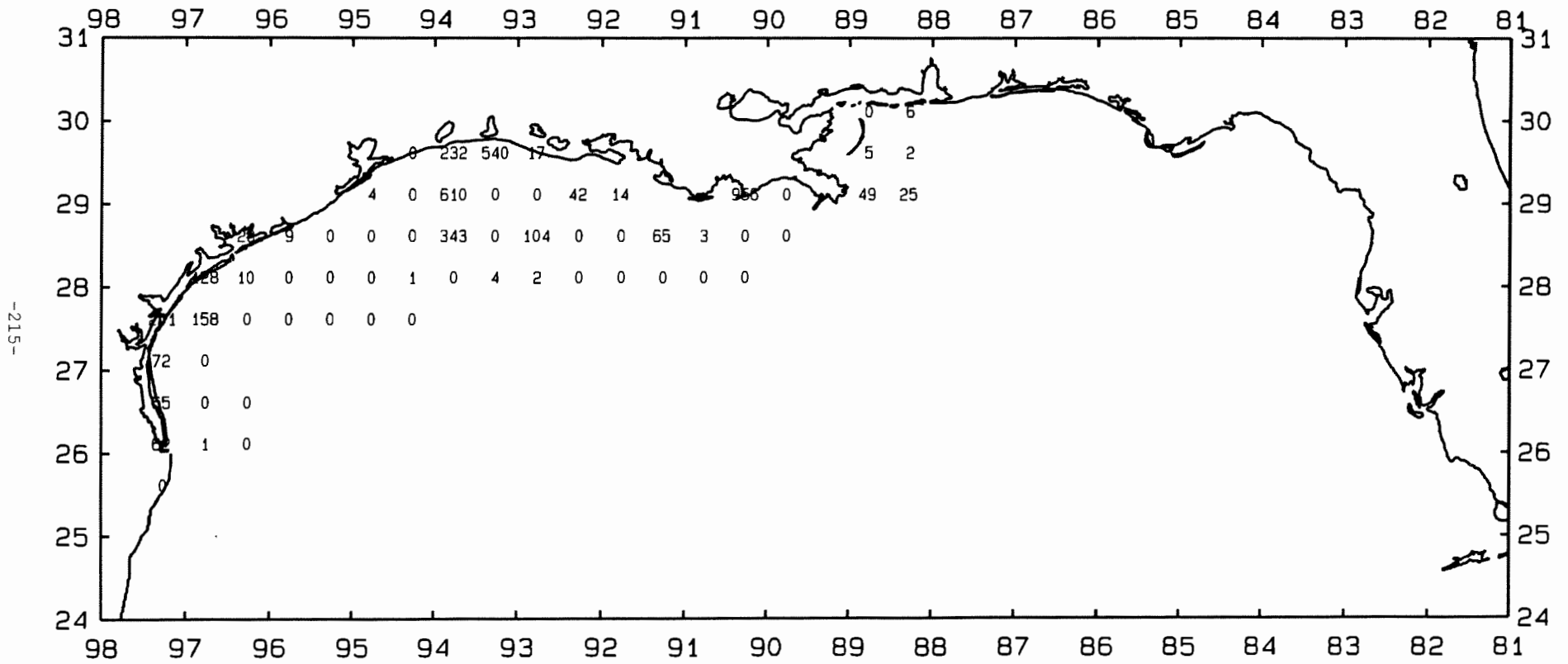


Figure 34. Spot, *Leiostomus xanthurus*, number/hour for June-July 1993.

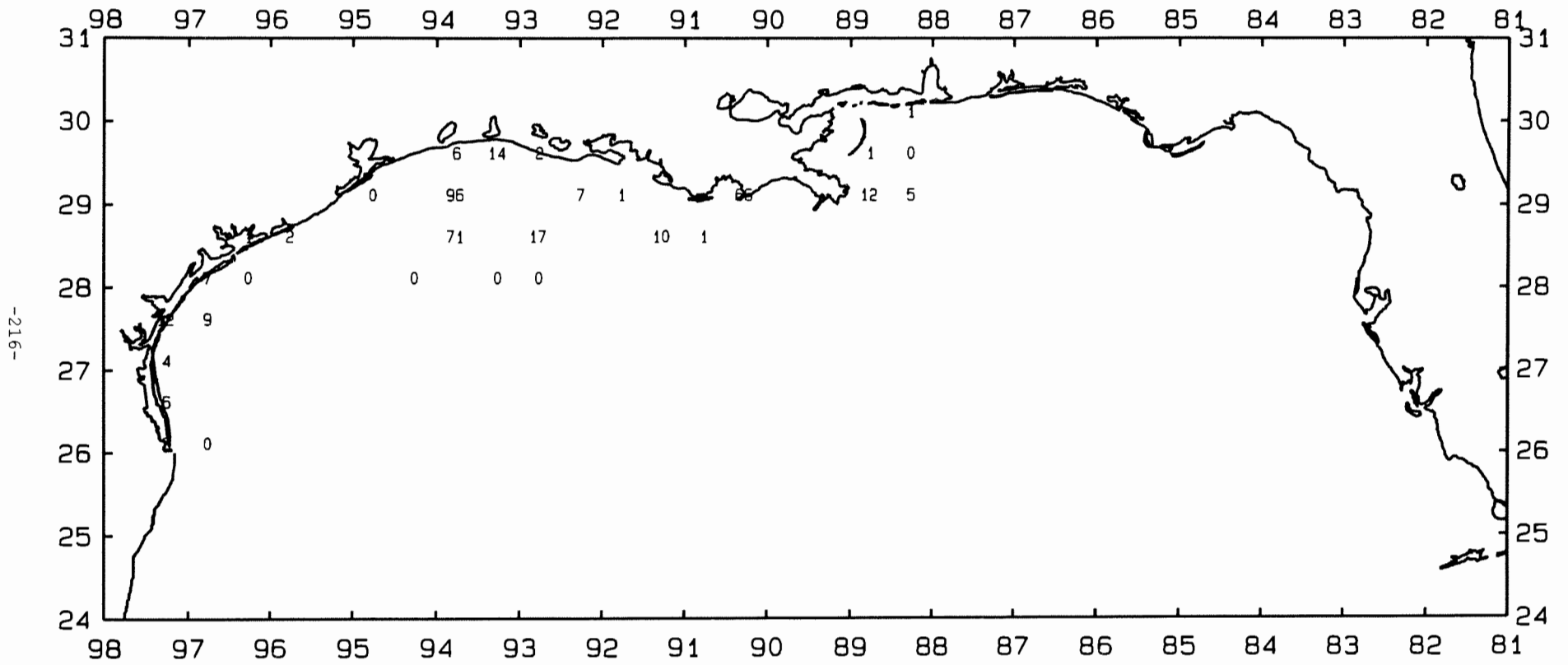


Figure 35. Spot, *Leiestomus xanthurus*, lb/hour for June-July 1993.

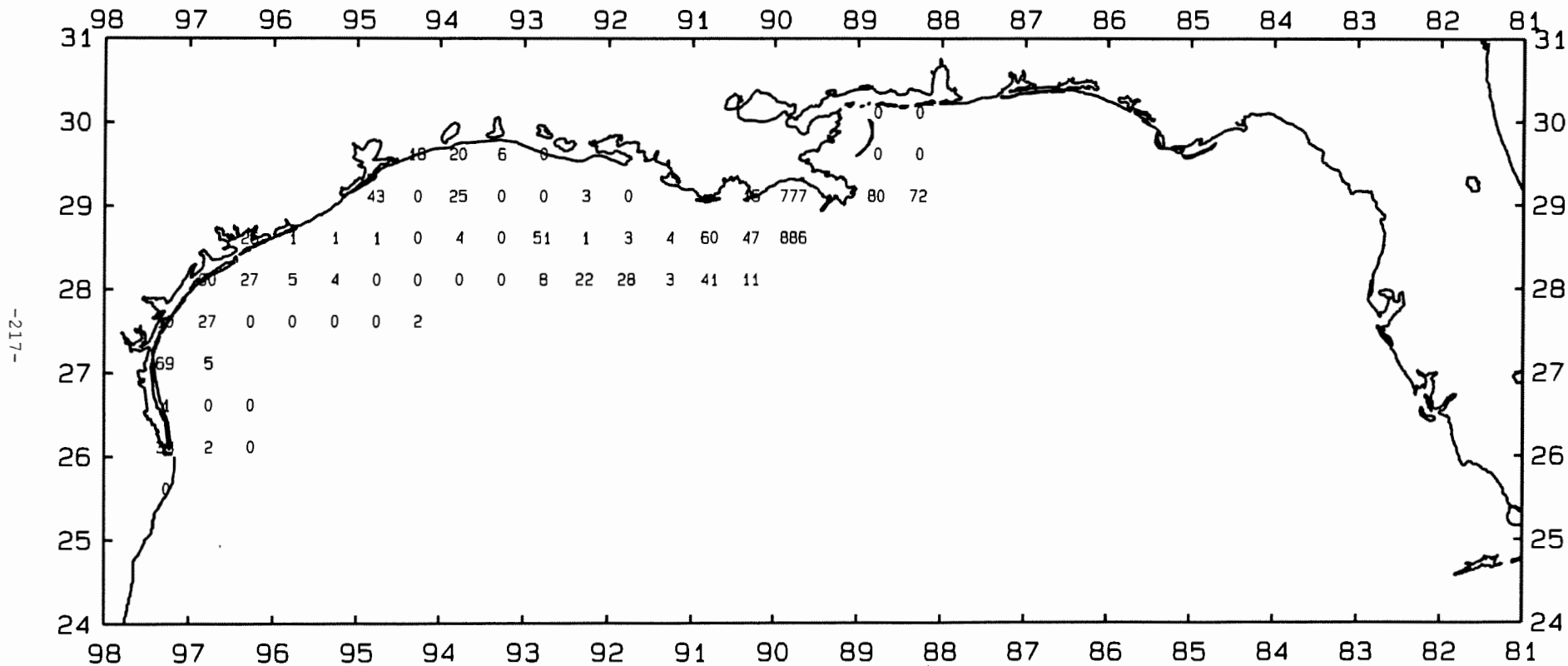


Figure 36. Atlantic cutlassfish, *Trichiurus lepturus*, number/hour for June-July 1993.

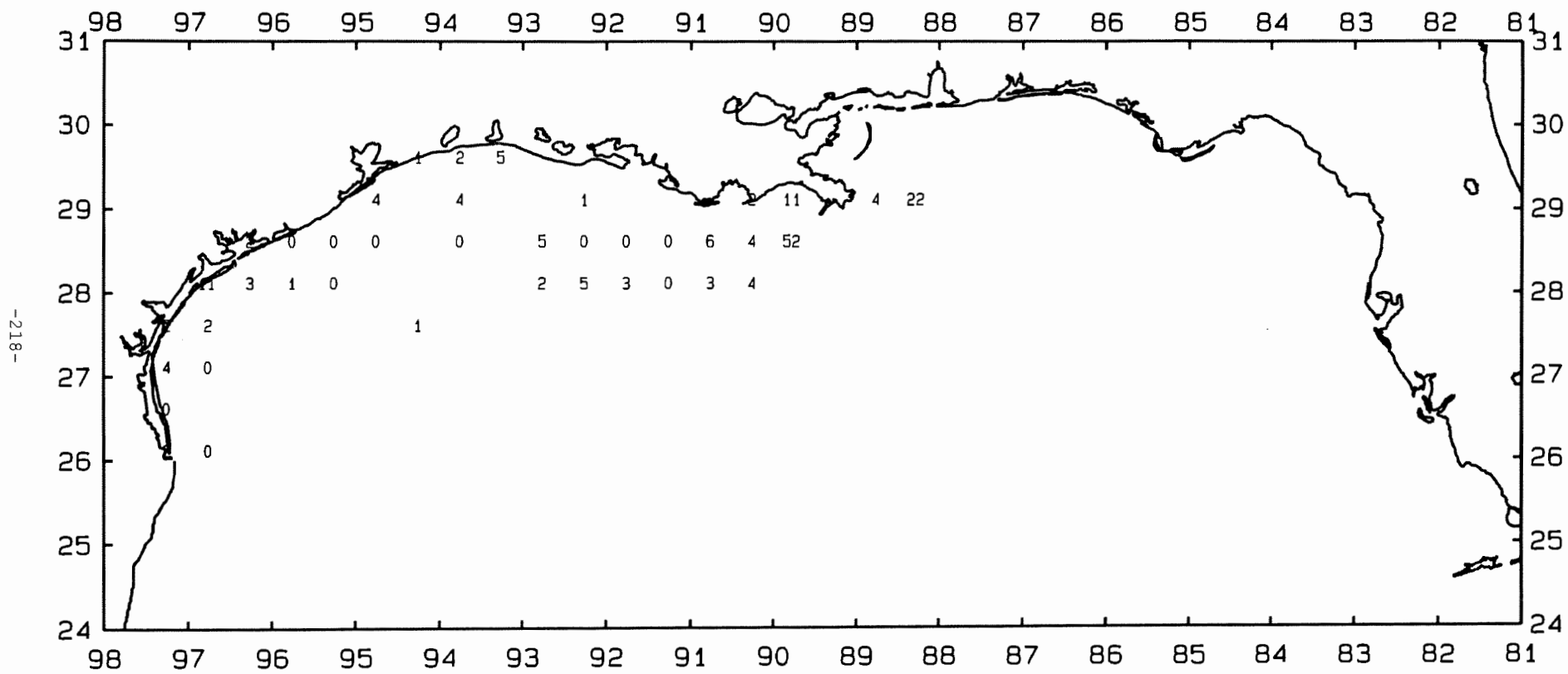


Figure 37. Atlantic cutlassfish, *Trichiurus lepturus*, lb/hour for June-July 1993.

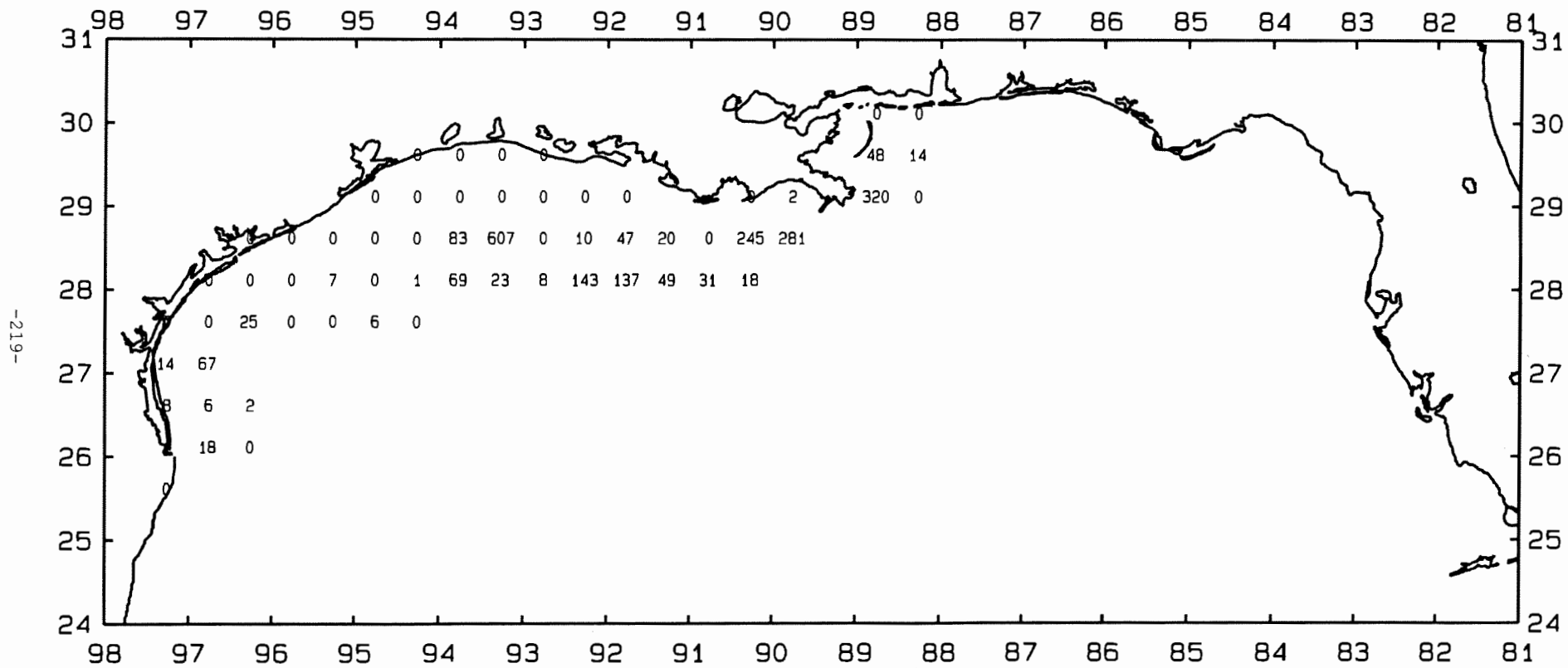


Figure 38. Blackear bass, *Serranus atrobranchus*, number/hour for June-July 1993.

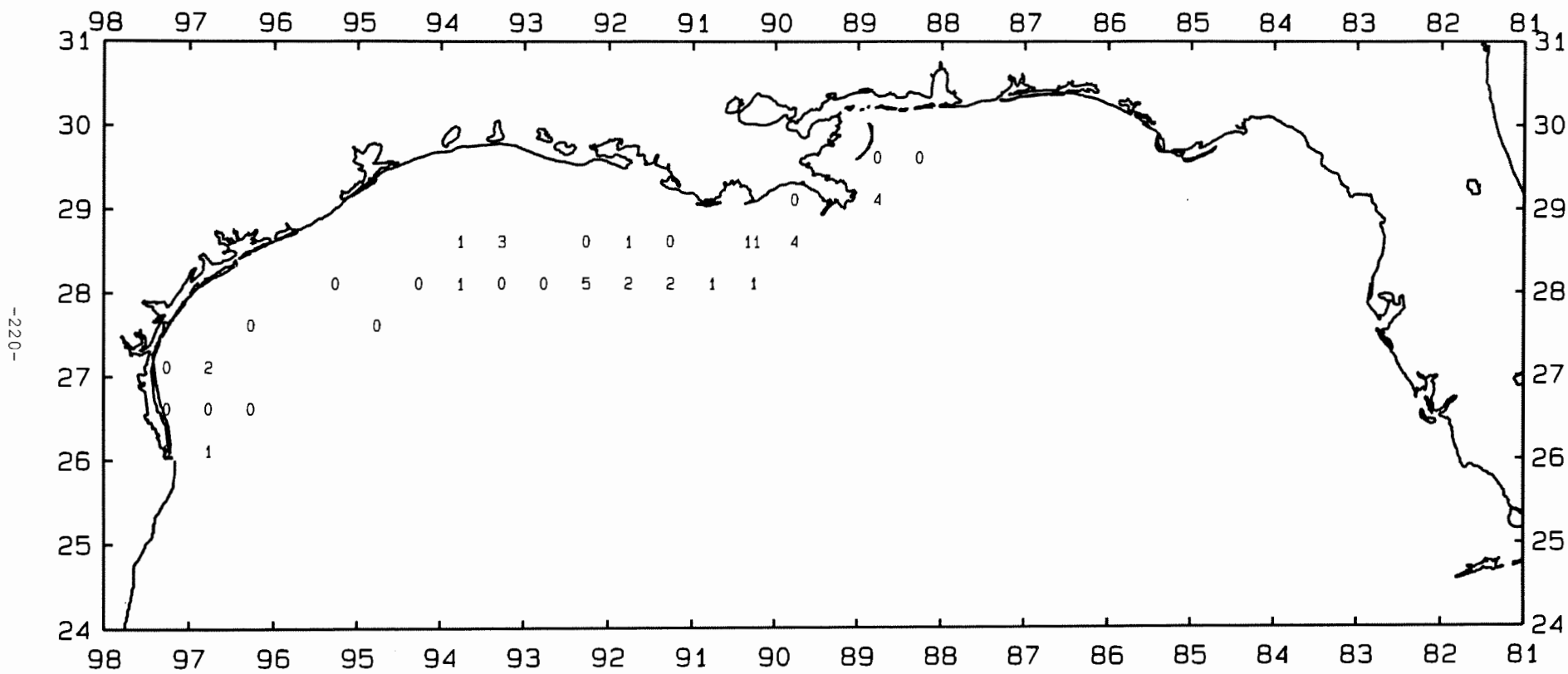


Figure 39. Blackear bass, *Serranus atrobranchus*, lb/hour for June-July 1993.

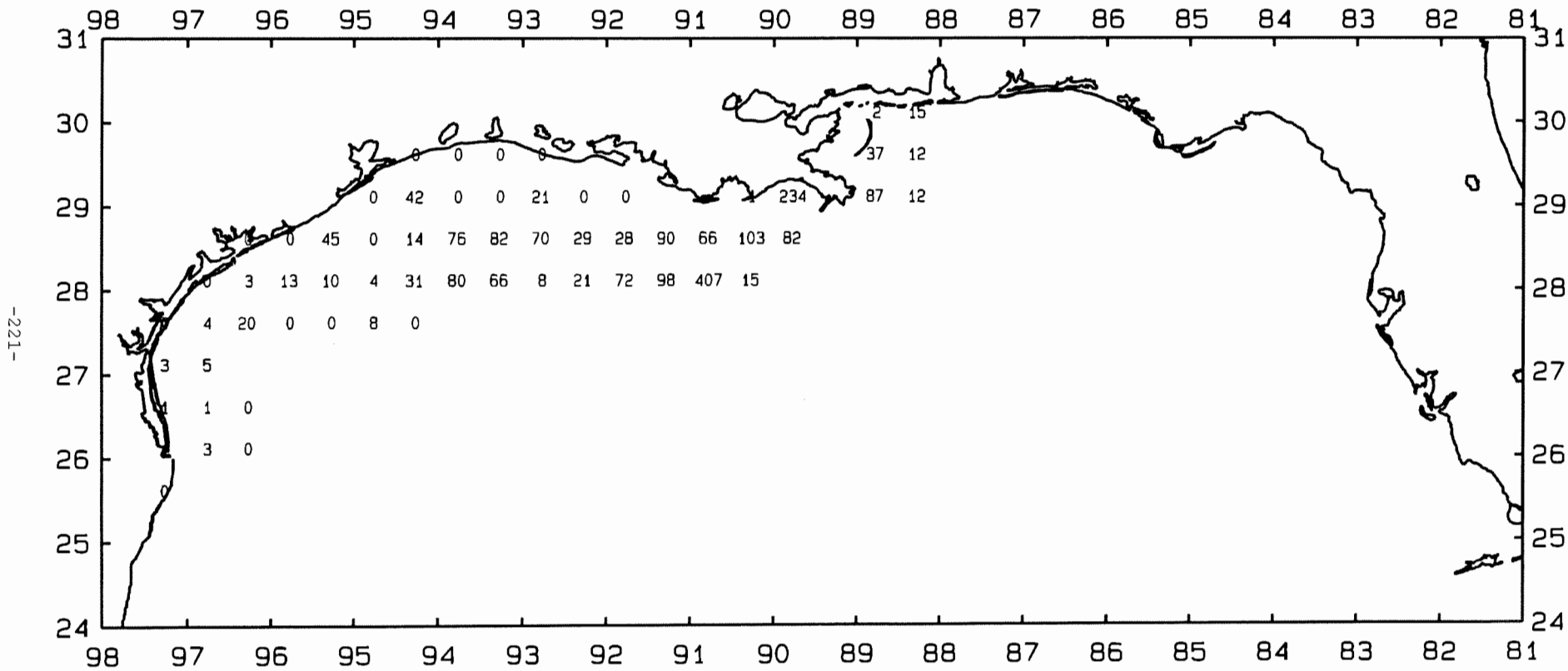


Figure 40. Rock sea bass, *Centropristis philadelphica*, number/hour for June-July 1993.

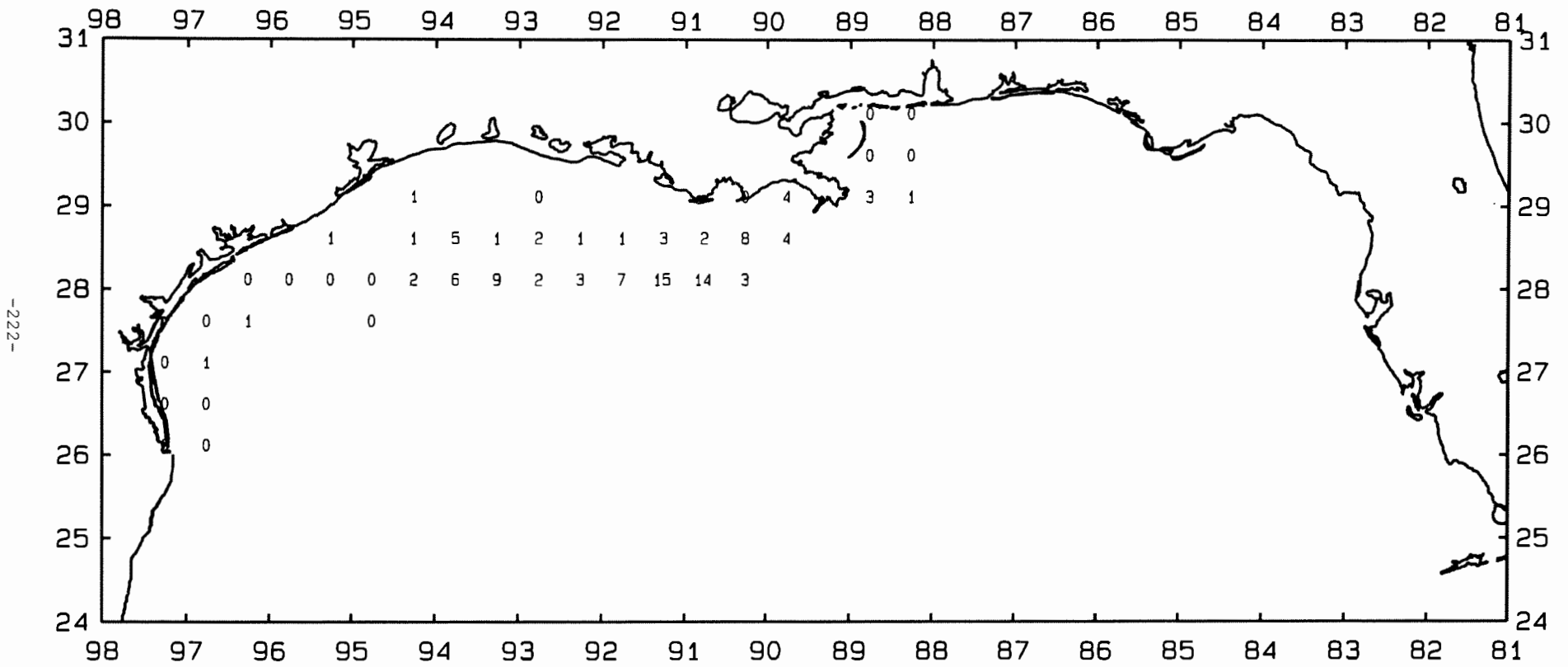


Figure 41. Rock sea bass, *Centropristis philadelphica*, lb/hour for June-July 1993.

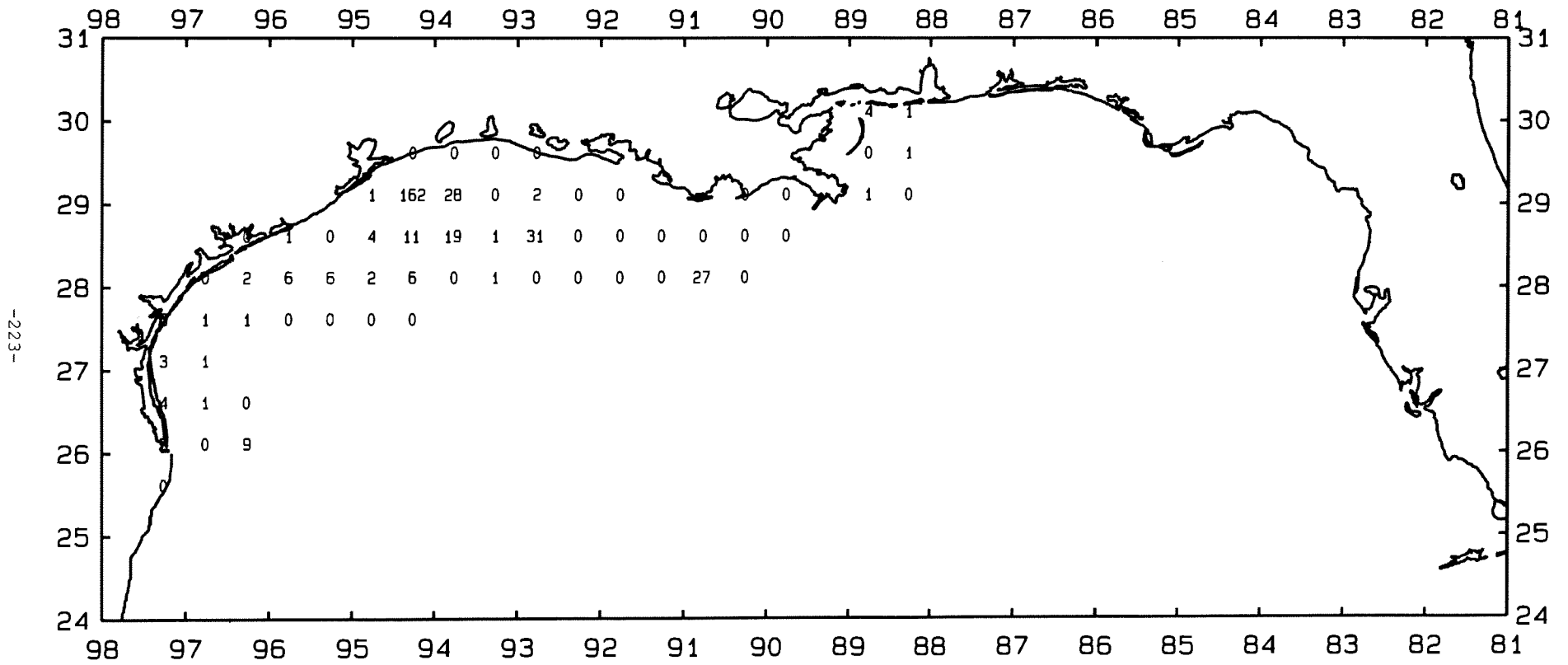


Figure 42. Red snapper, *Lutjanus campechanus*, number/hour for June-July 1993.

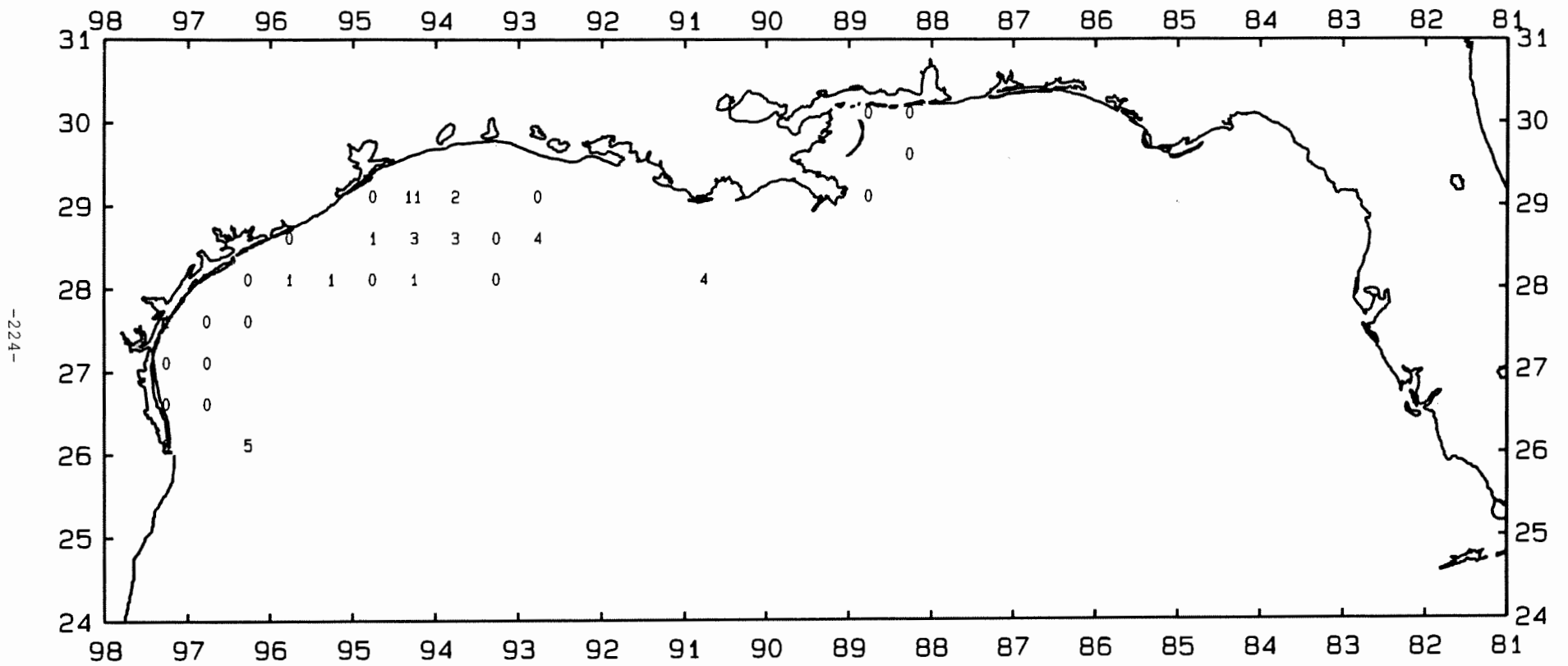


Figure 43. Red snapper, *Lutjanus campechanus*, lb/hour for June-July 1993.

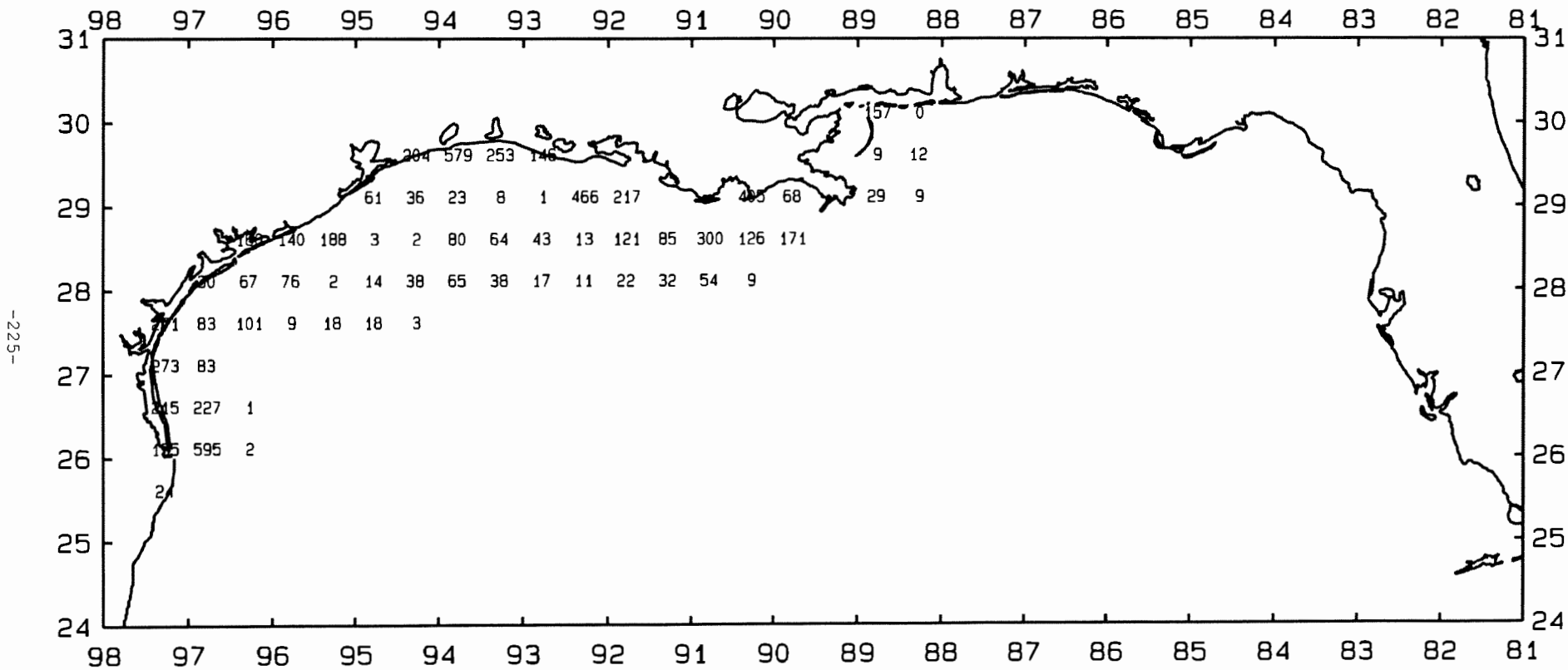


Figure 44. Brown shrimp, *Penaeus aztecus*, number/hour for June-July 1993.

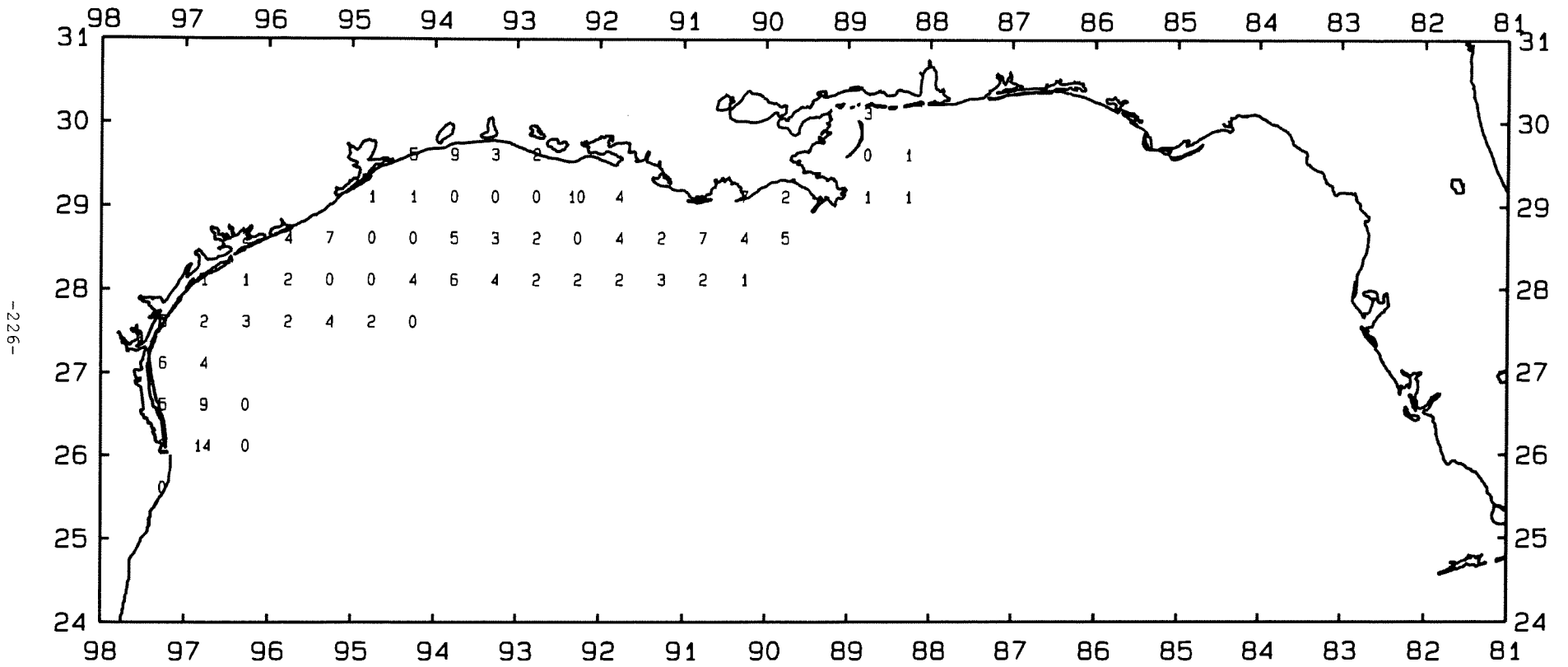


Figure 45. Brown shrimp, *Penaeus aztecus*, lb/hour for June-July 1993.

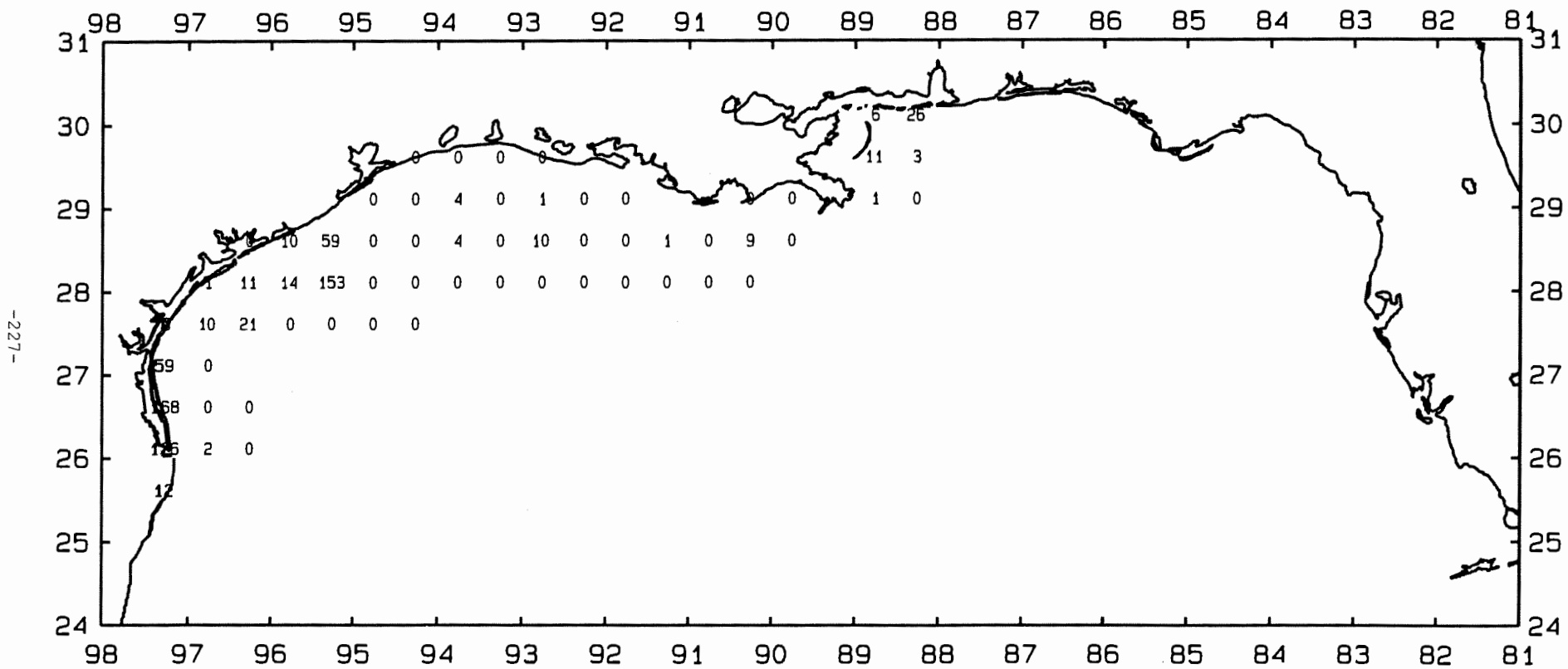


Figure 46. Pink shrimp, *Penaeus duorarum*, number/hour for June-July 1993.

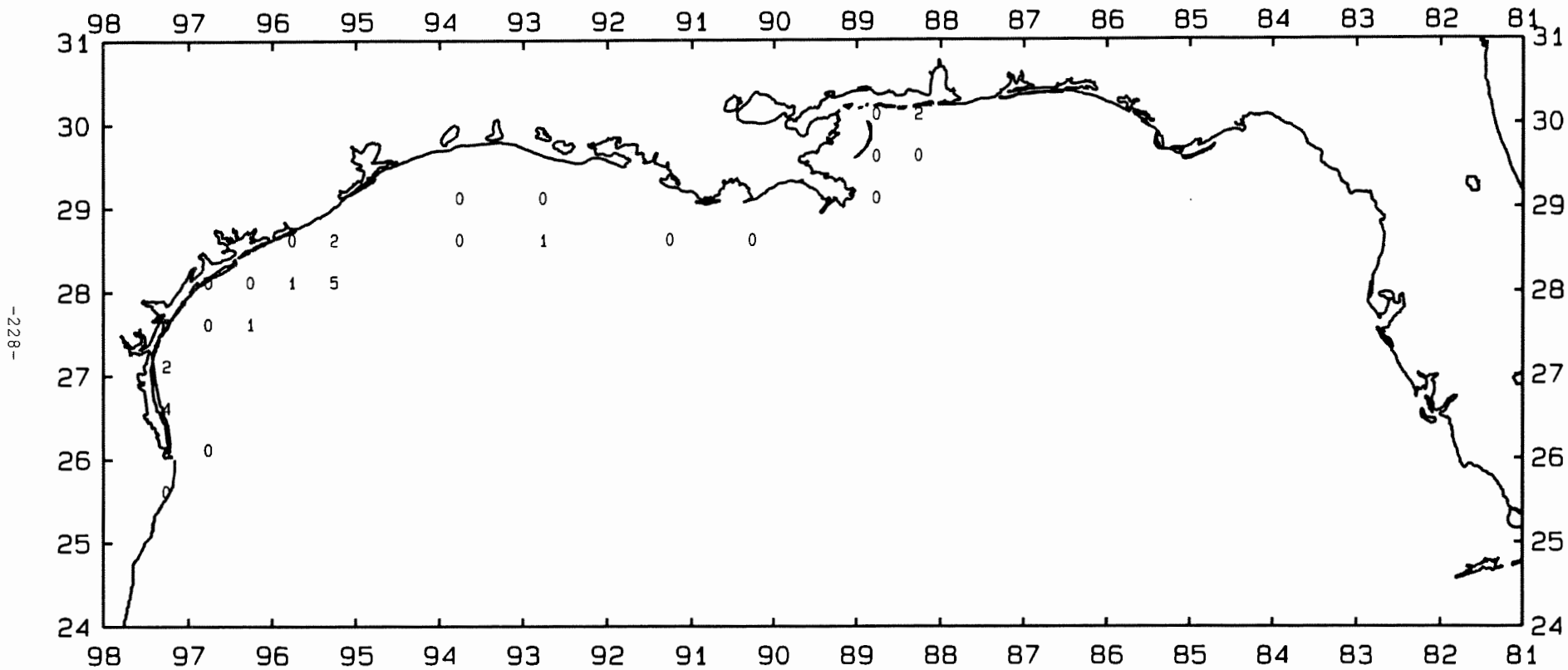


Figure 47. Pink shrimp, *Penaeus duorarum*, lb/hour for June-July 1993.

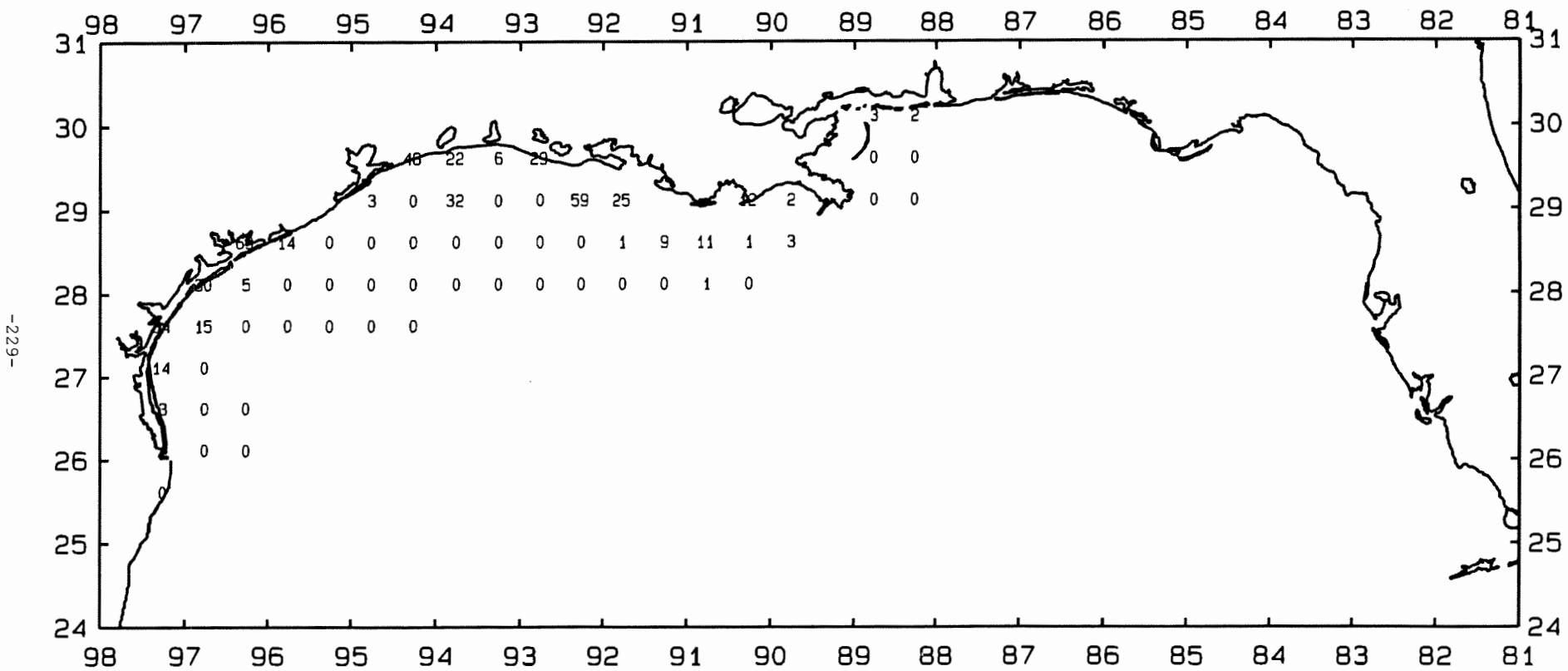


Figure 48. White shrimp, *Penaeus setiferus*, number/hour for June-July 1993.

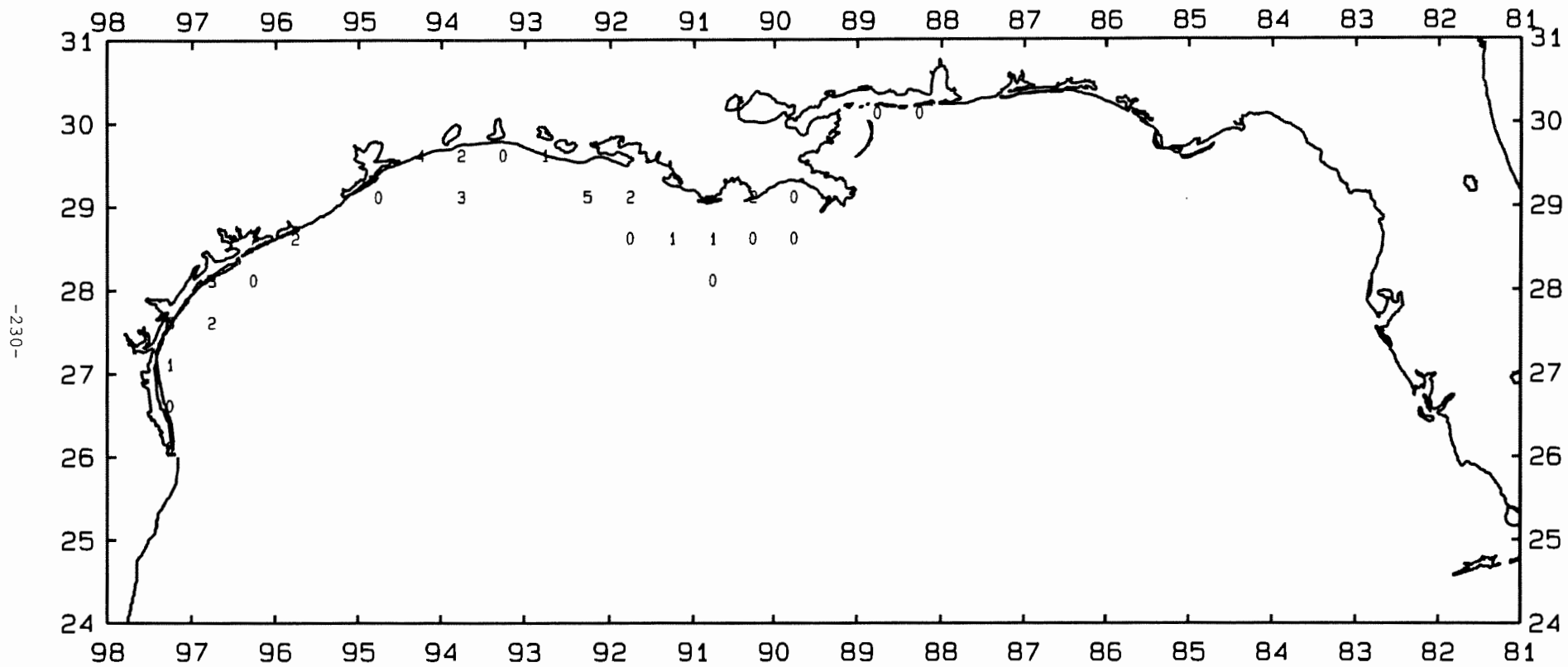


Figure 49. White shrimp, *Penaeus setiferus*, lb/hour for June-July 1993.

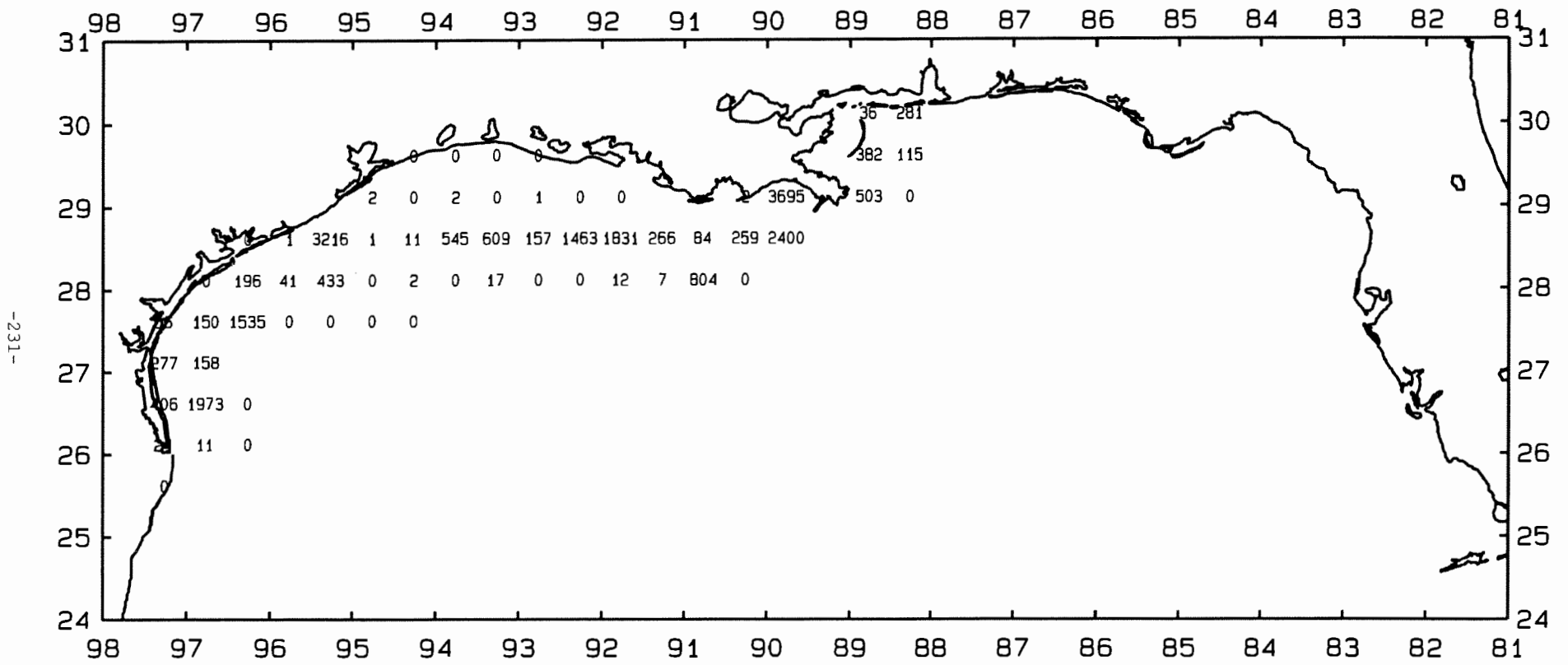


Figure 50. Roughback shrimp, *Trachypenaeus similis*, number/hour for June-July 1993.

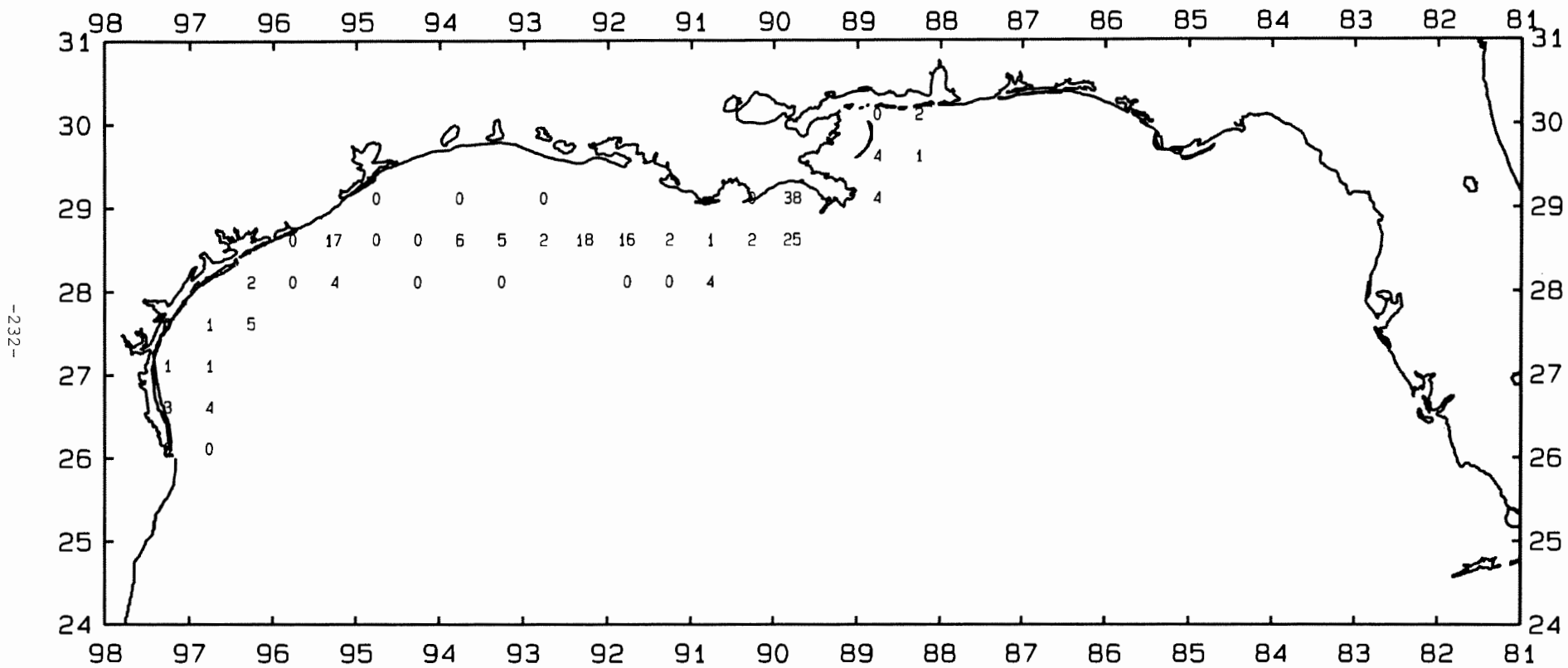


Figure 51. Roughback shrimp, *Trachypenaeus similis*, lb/hour for June-July 1993.

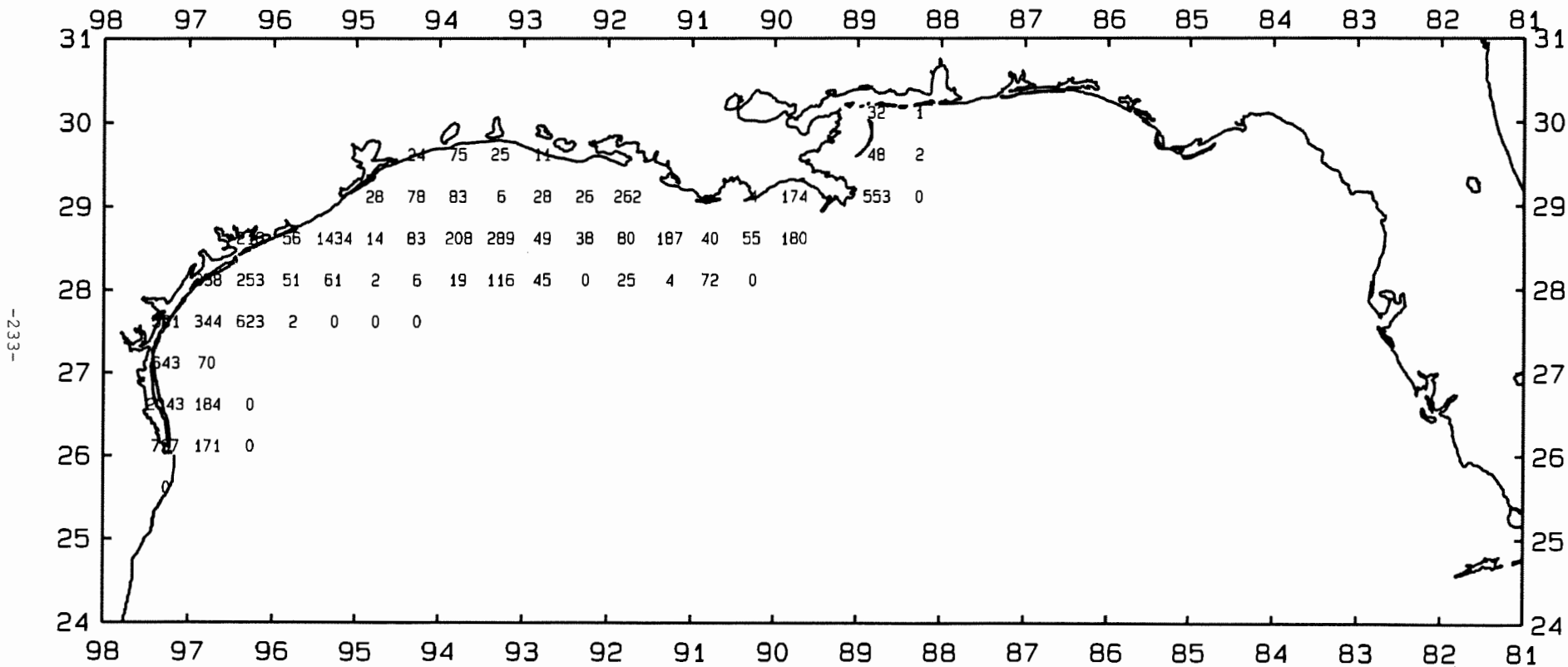


Figure 52. Lesser blue crab, *Callinectes similis*, number/hour for June-July 1993.

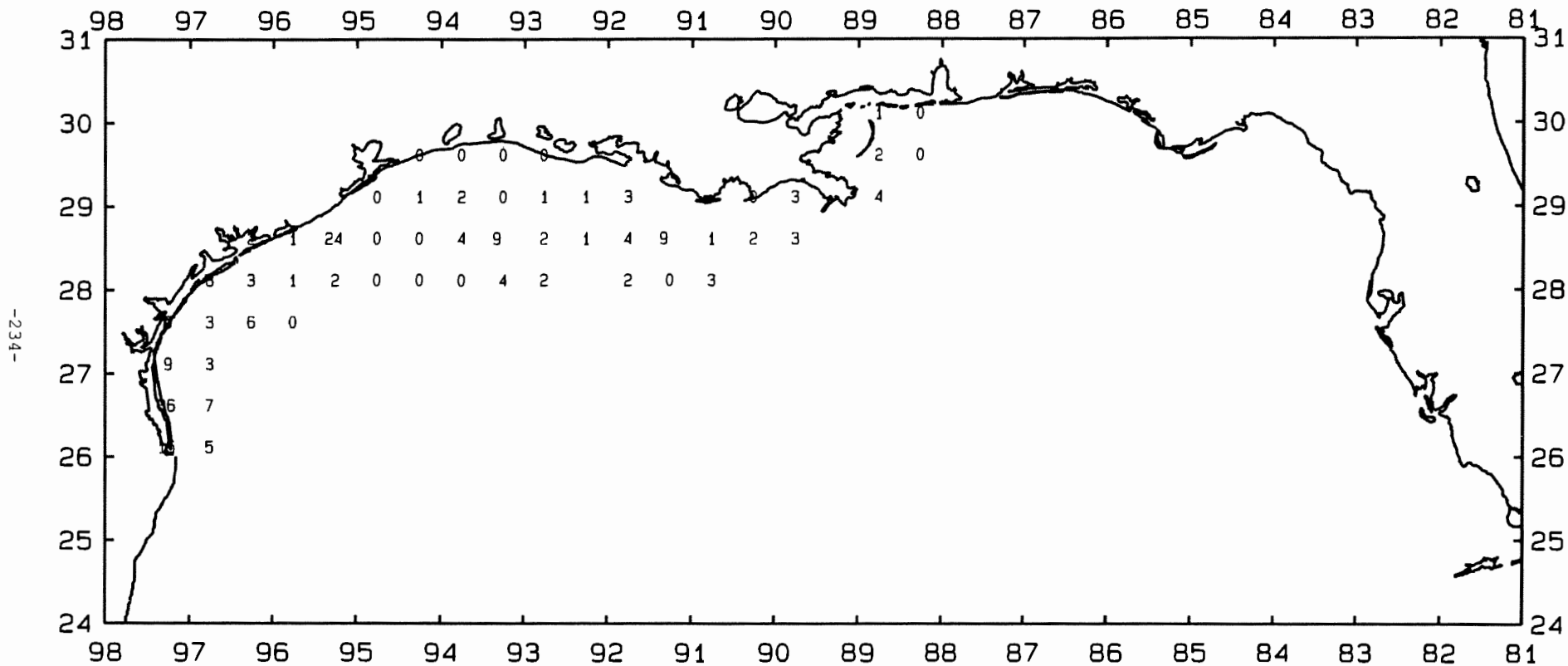


Figure 53. Lesser blue crab, *Callinectes similis*, lb/hour for June-July 1993.

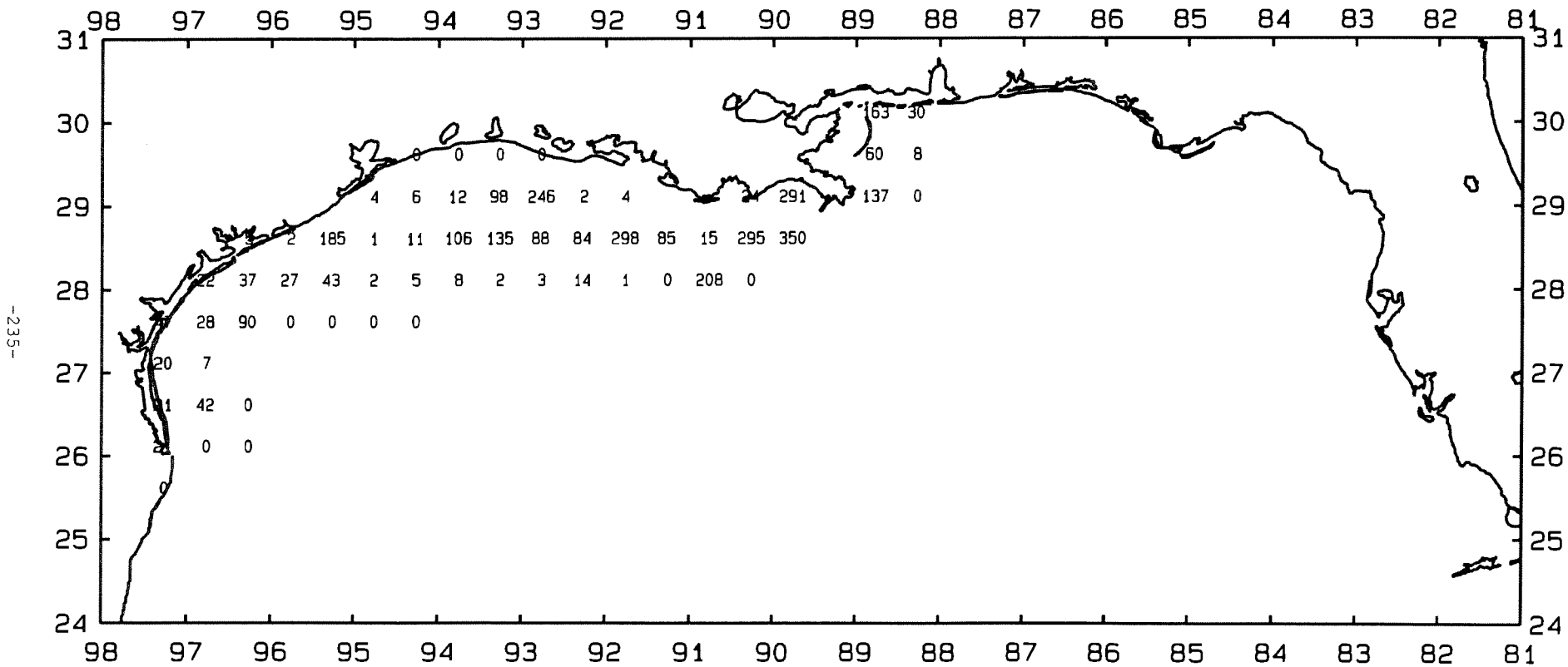


Figure 54. Mantis shrimp, *Squilla empusa*, number/hour for June-July 1993.

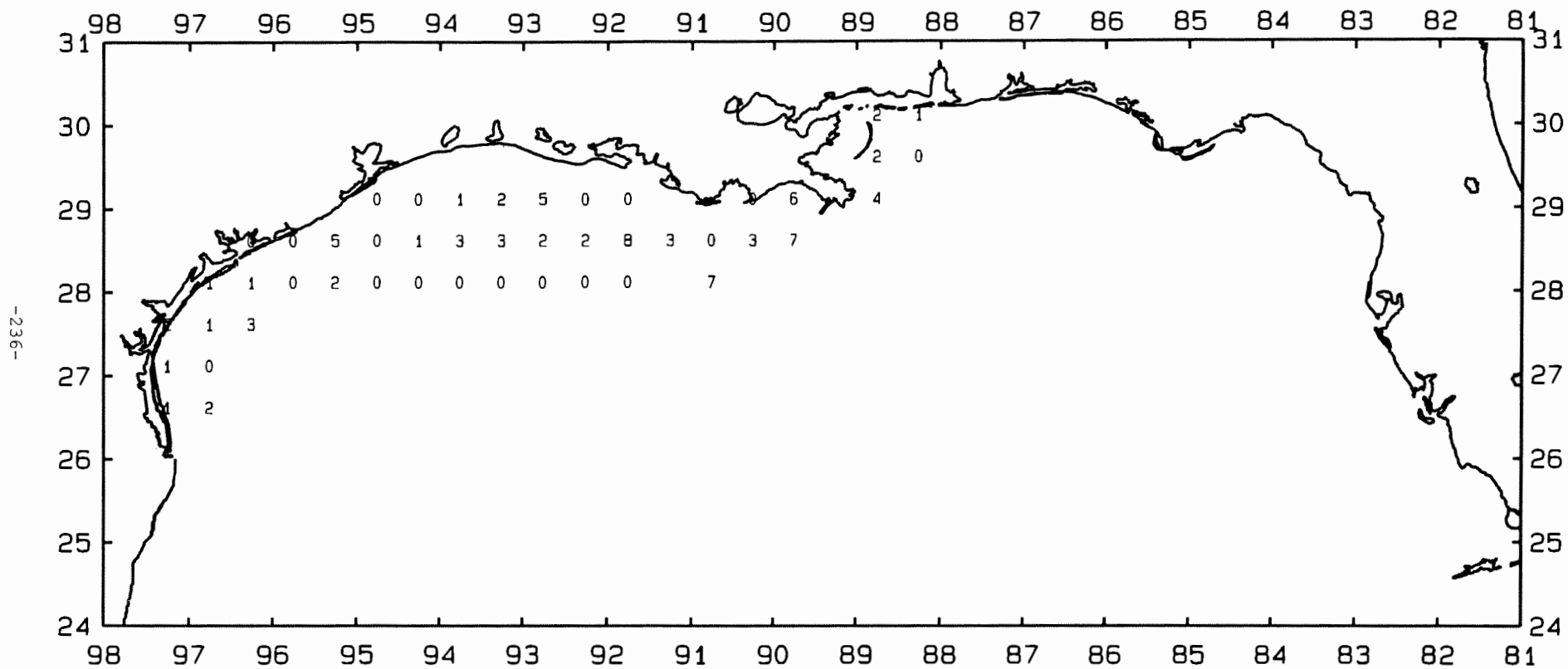


Figure 55. Mantis shrimp, *Squilla empusa*, lb/hour for June-July 1993.

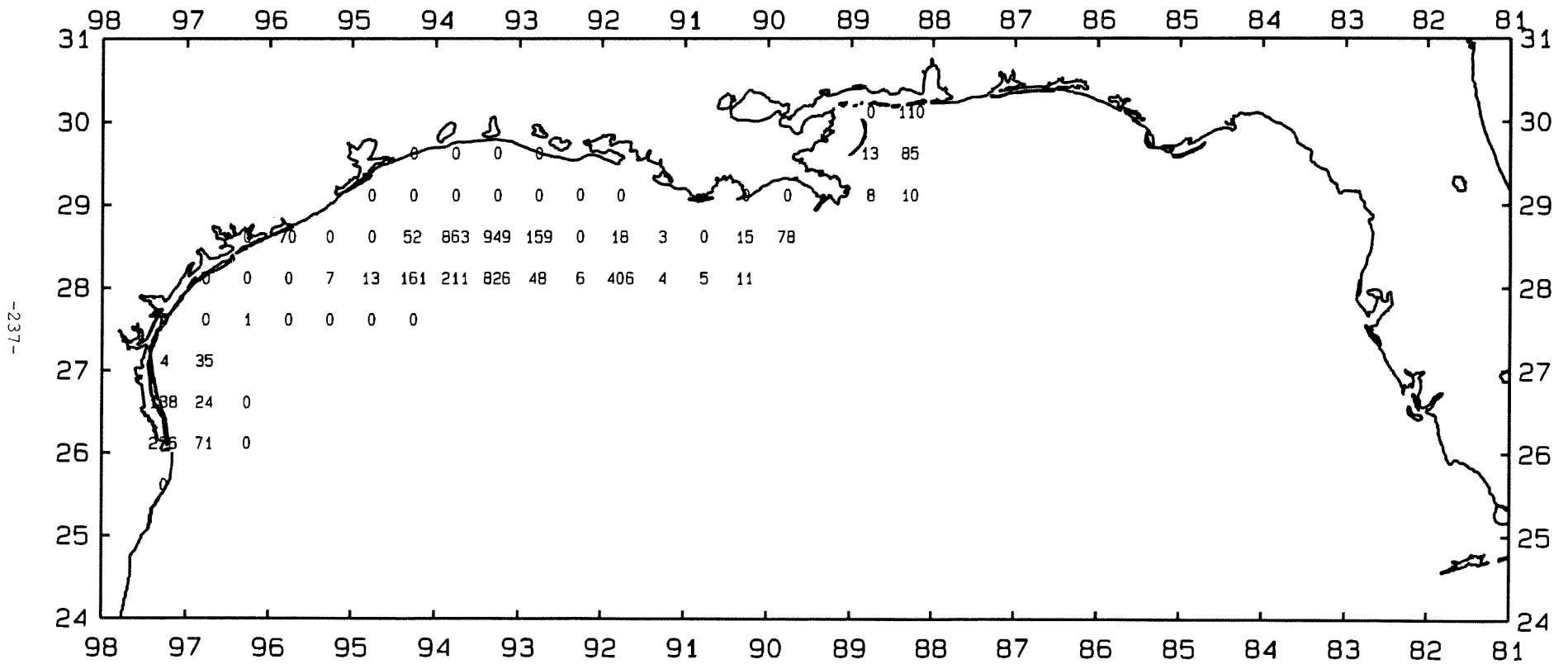


Figure 56. Brown rock shrimp, *Sicyonia brevirostris*, number/hour for June-July 1993.

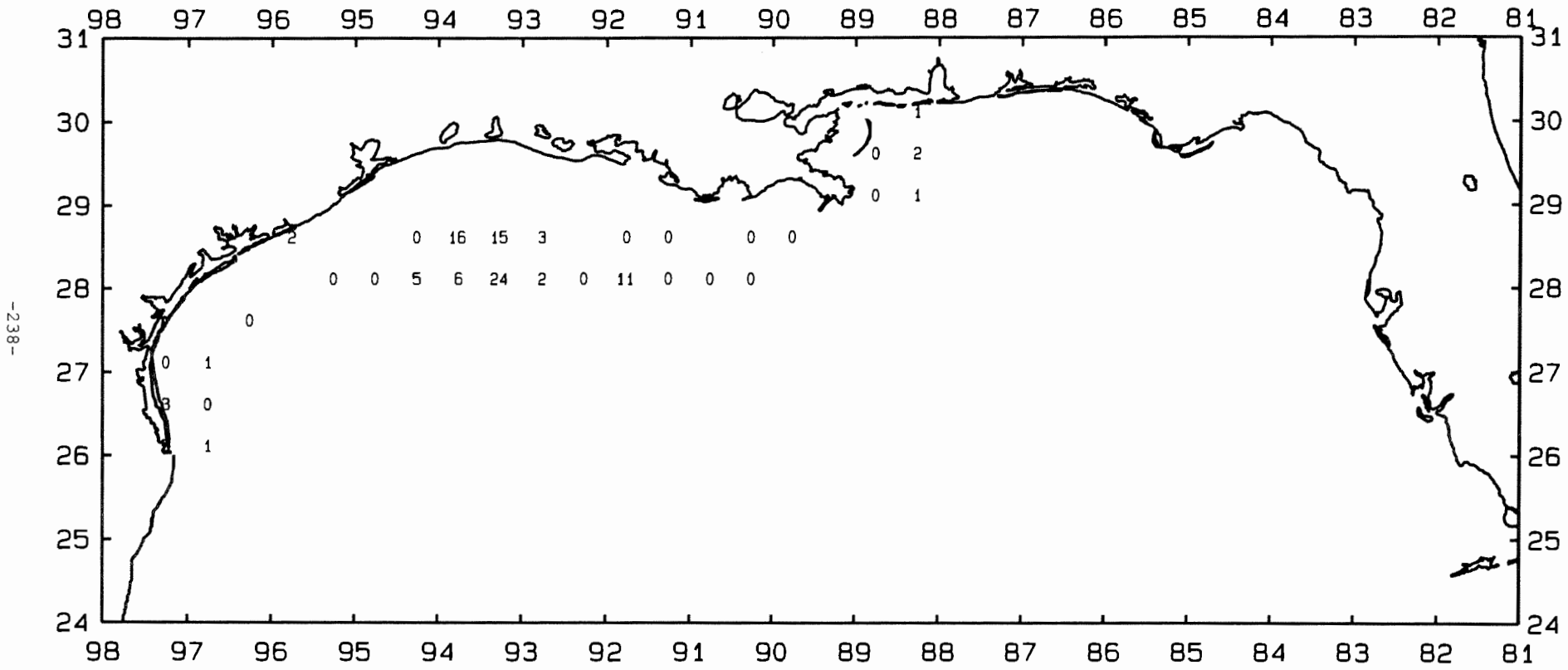


Figure 57. Brown rock shrimp, *Sicyonia brevirostris*, lb/hour for June-July 1993.

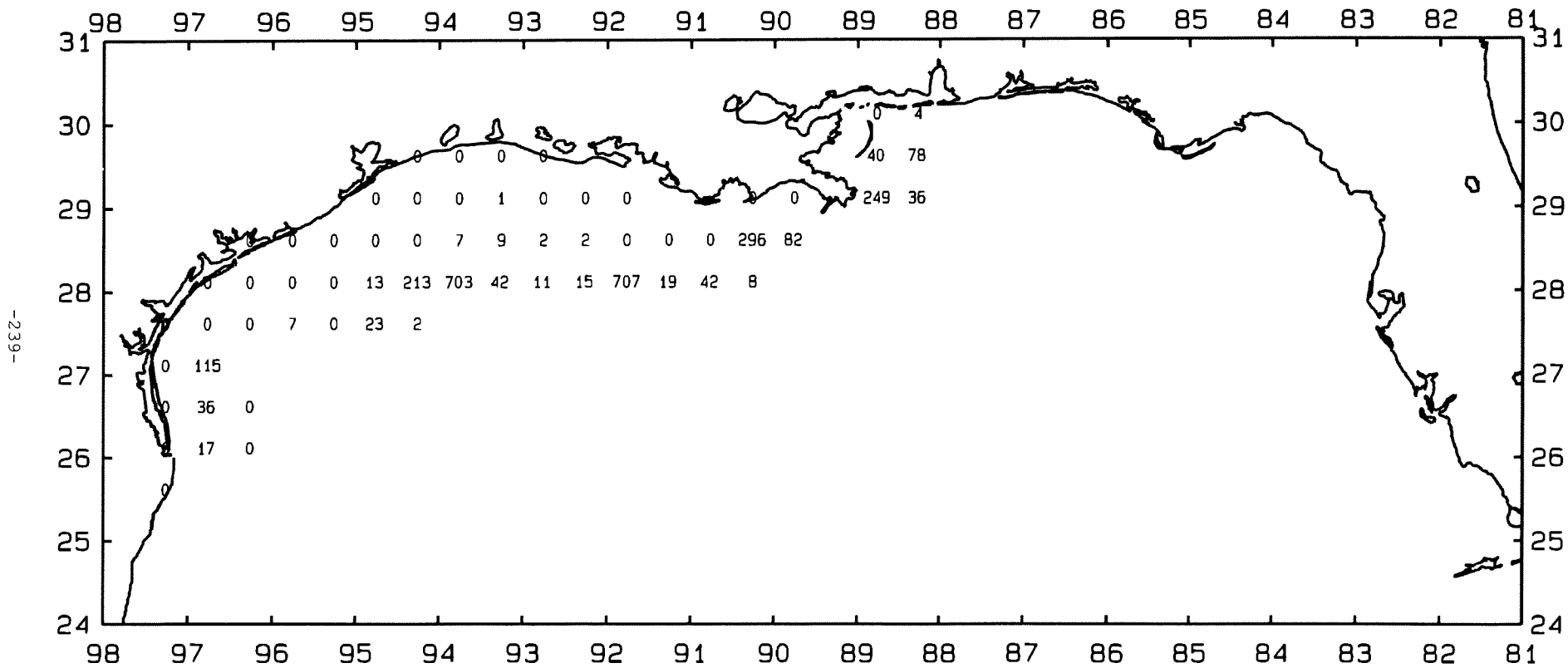


Figure 58. Longspine swimming crab, *Portunus spinicarpus*, number/hour for June-July 1993.

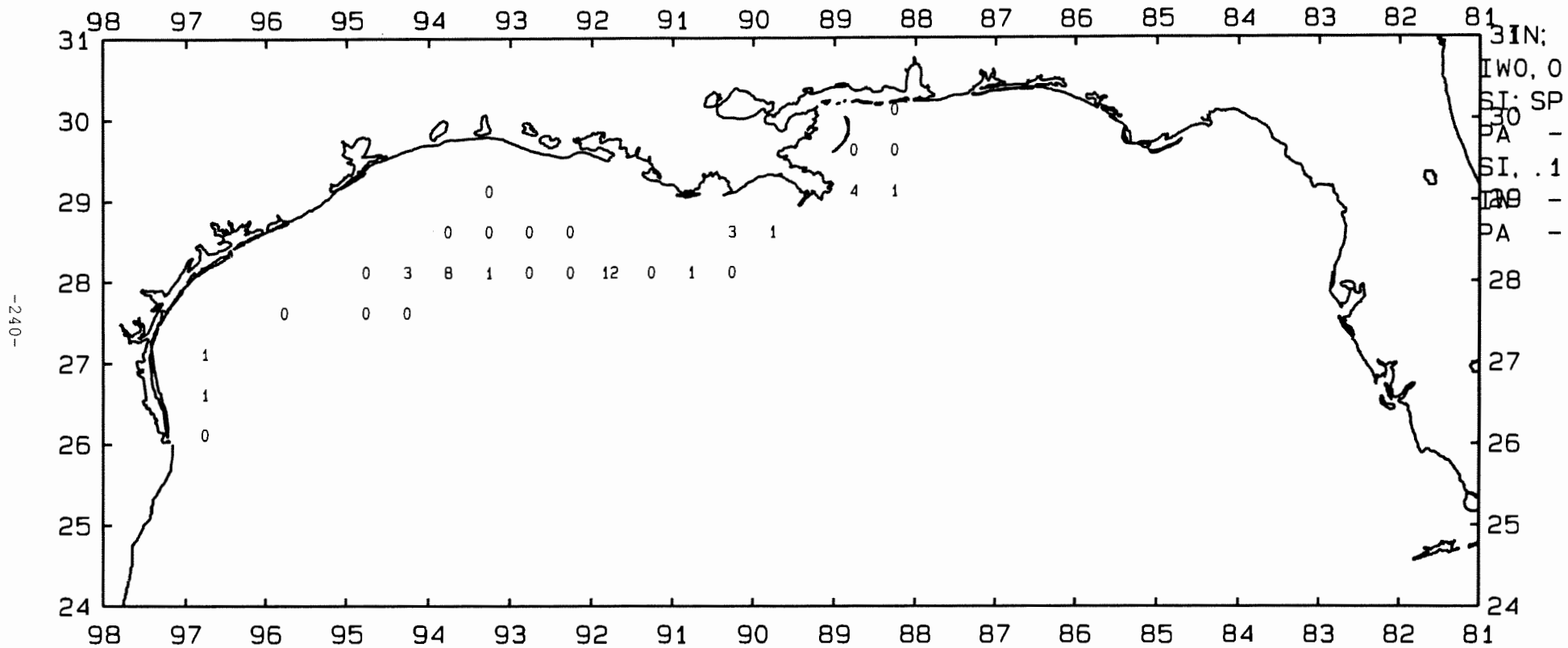


Figure 59. Longspine swimming crab, *Portunus spinicarpus*, lb/hour for June-July 1993.

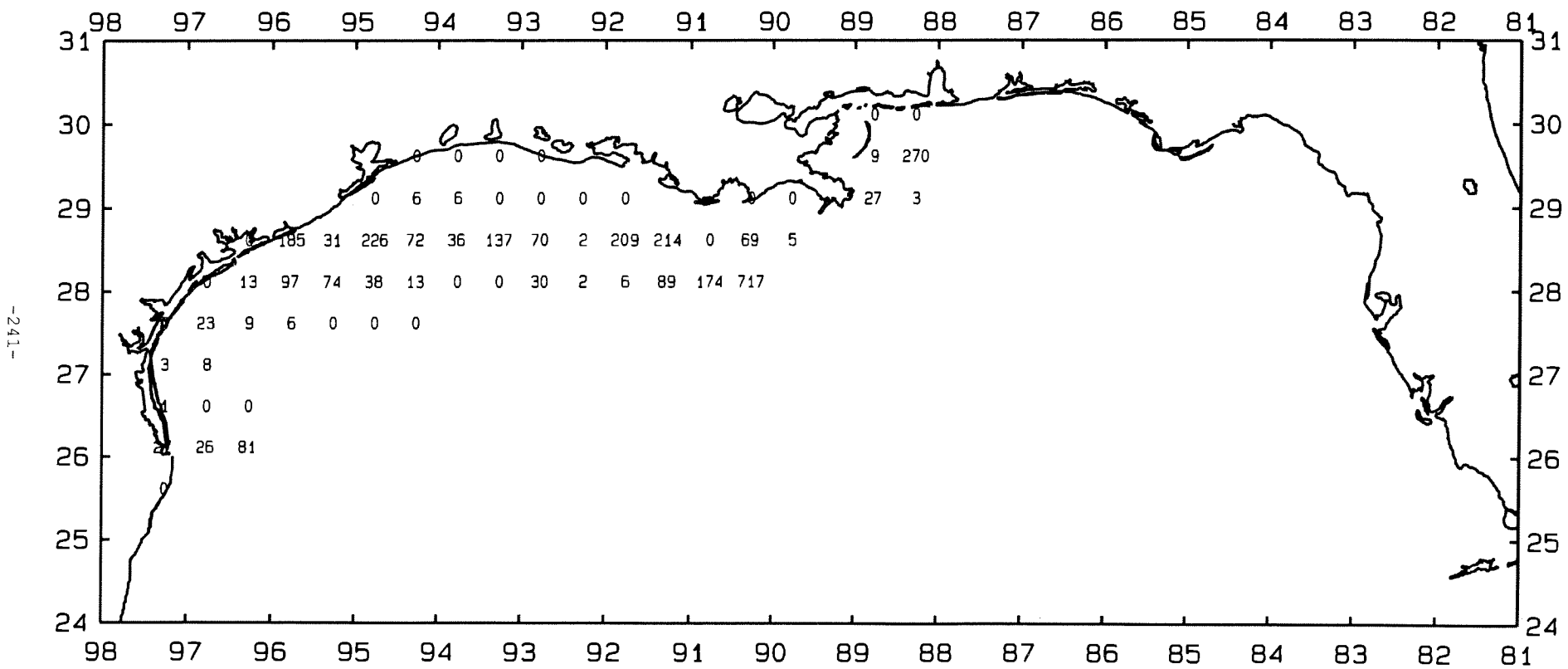


Figure 60. Squids, *Loligo* spp., number/hour for June-July 1993.

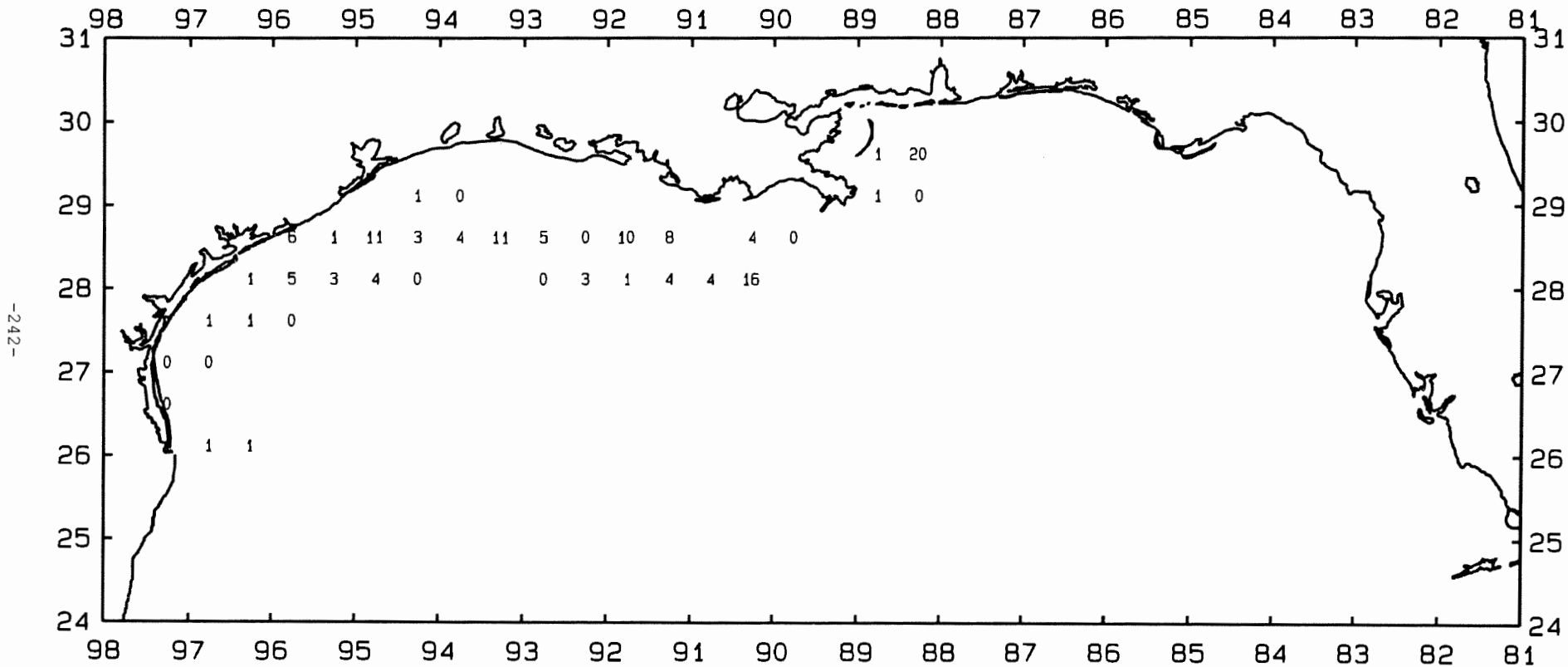


Figure 61. Squids, *Loligo spp.*, lb/hour for June-July 1993.

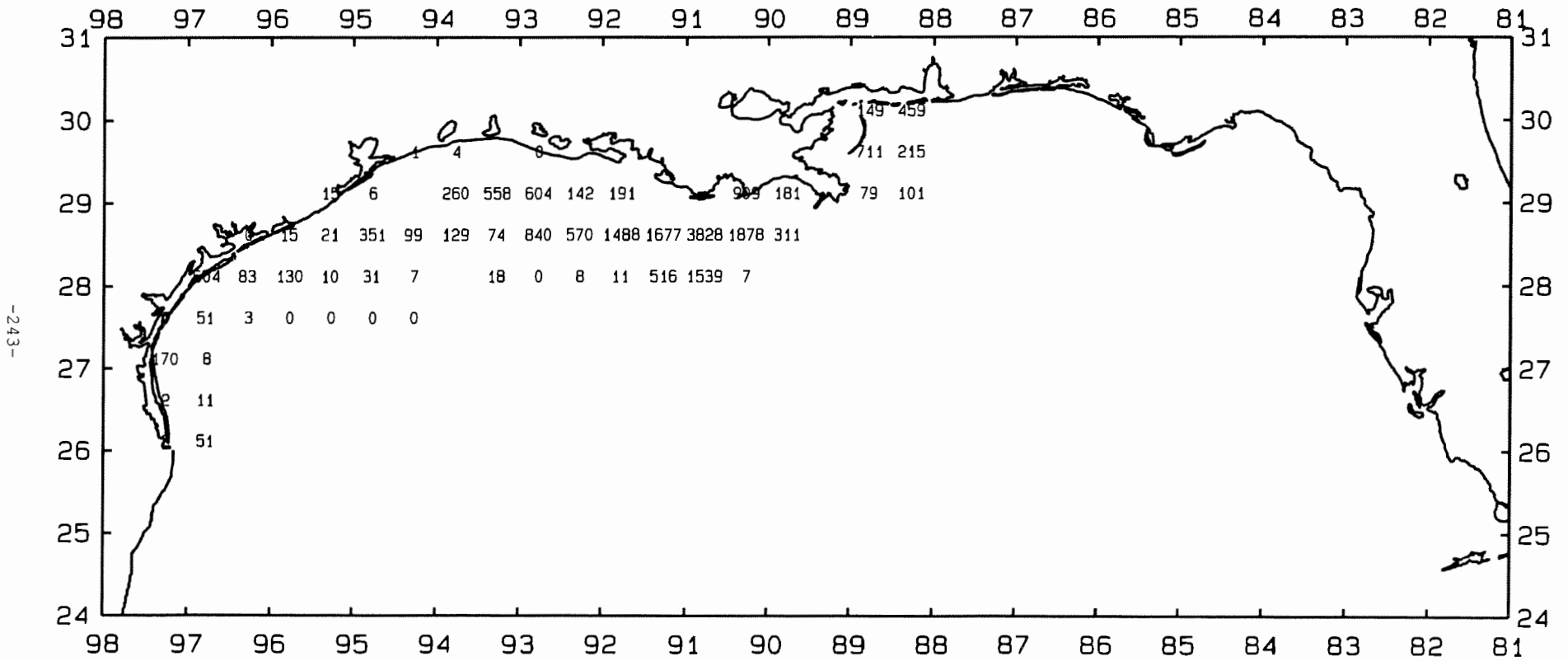


Figure 62. Atlantic croaker, *Micropogonias undulatus*, number/hour for October-December 1993.

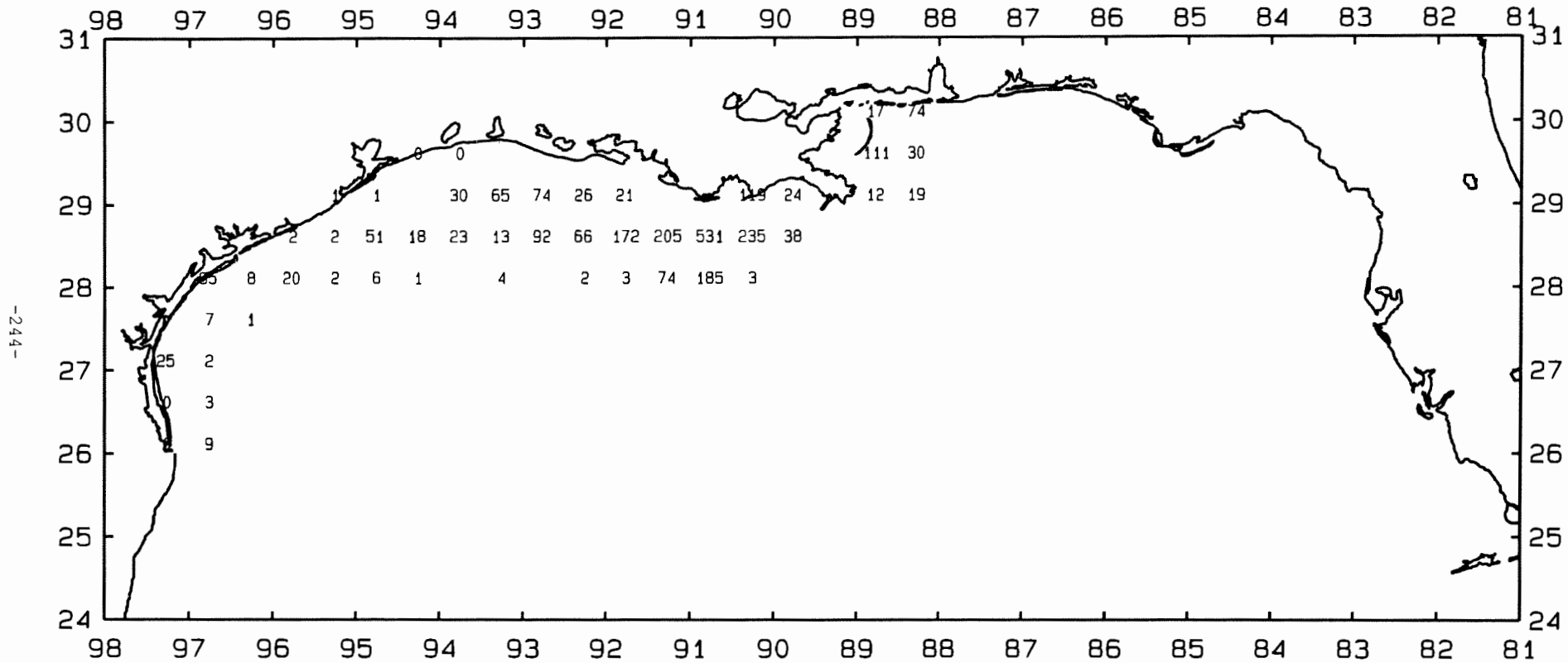


Figure 63. Atlantic croaker, *Micropogonias undulatus*, lb/hour for October-December 1993.

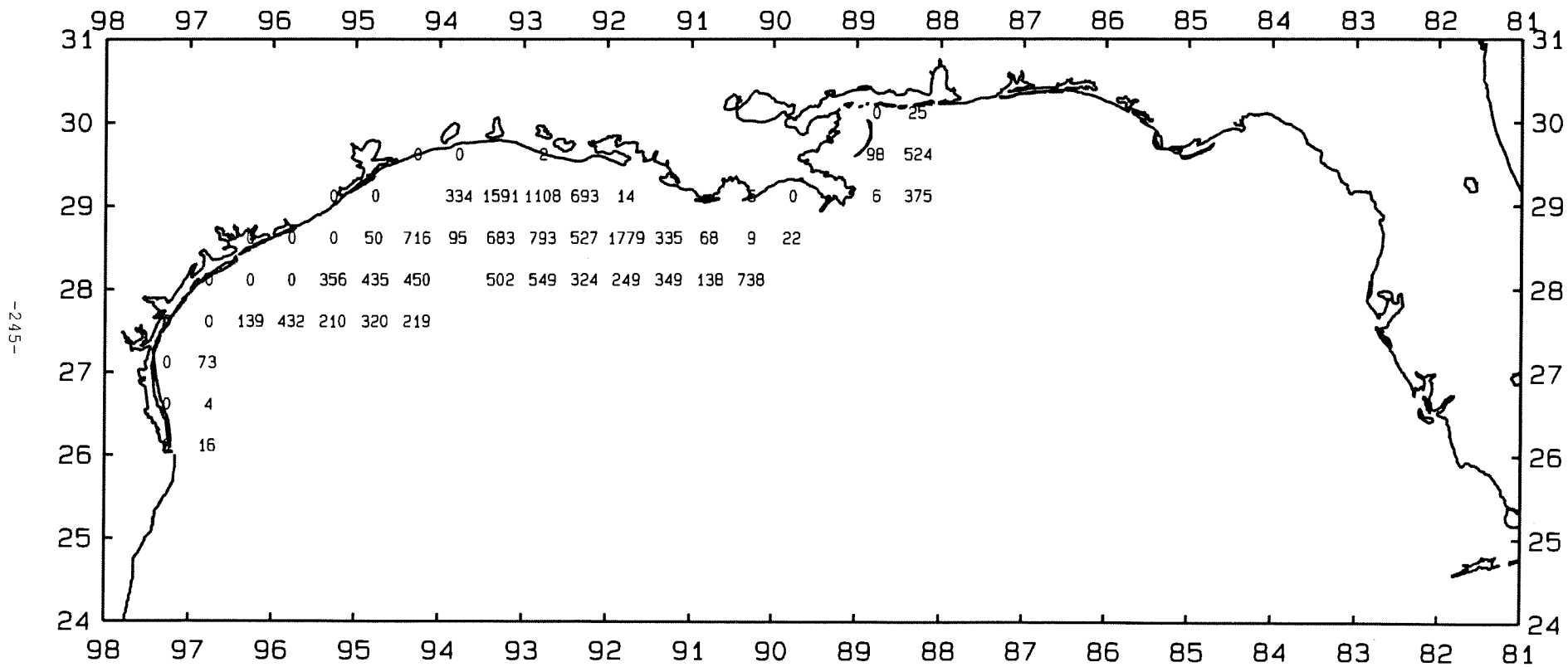


Figure 64. Longspine pogy, *Stenotomus caprinus*, number/hour for October-December 1993.

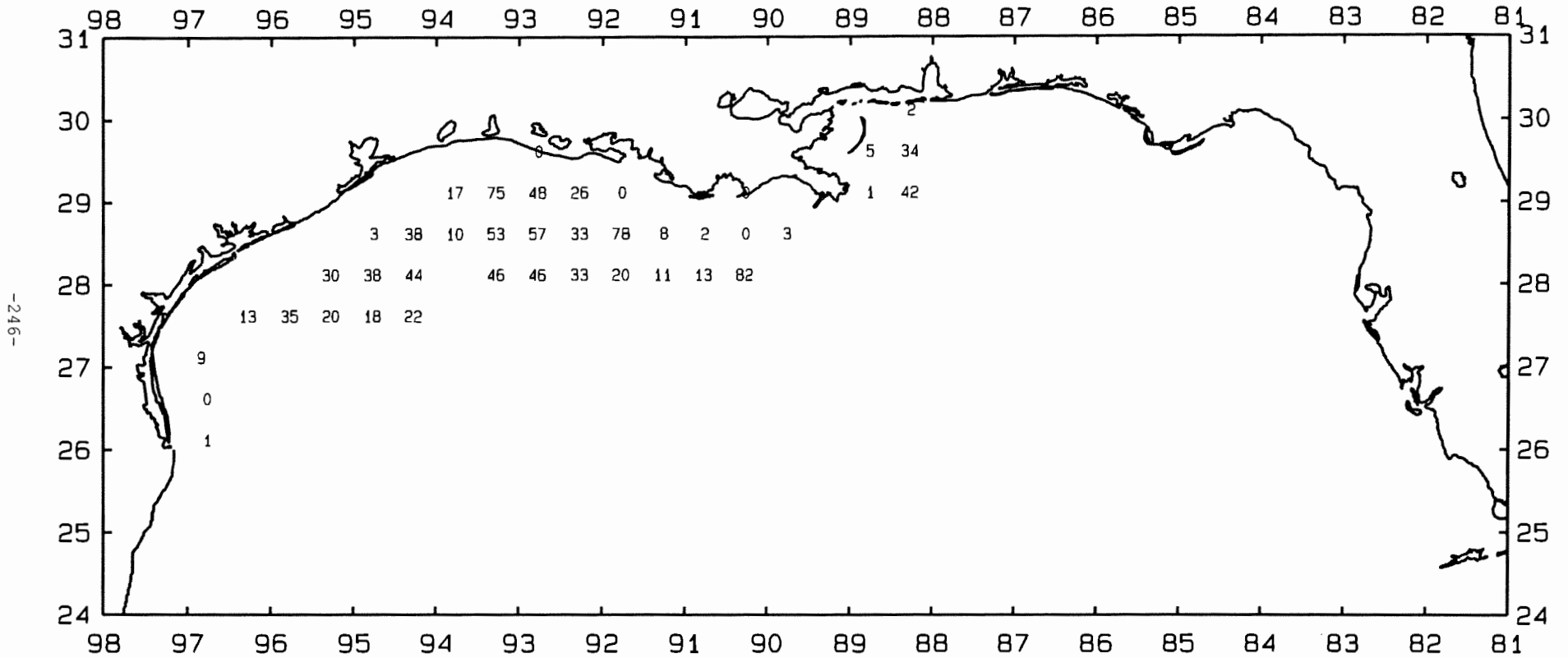


Figure 65. Longspine pogy, *Stenotomus caprinus*, lb/hour for October-December 1993.

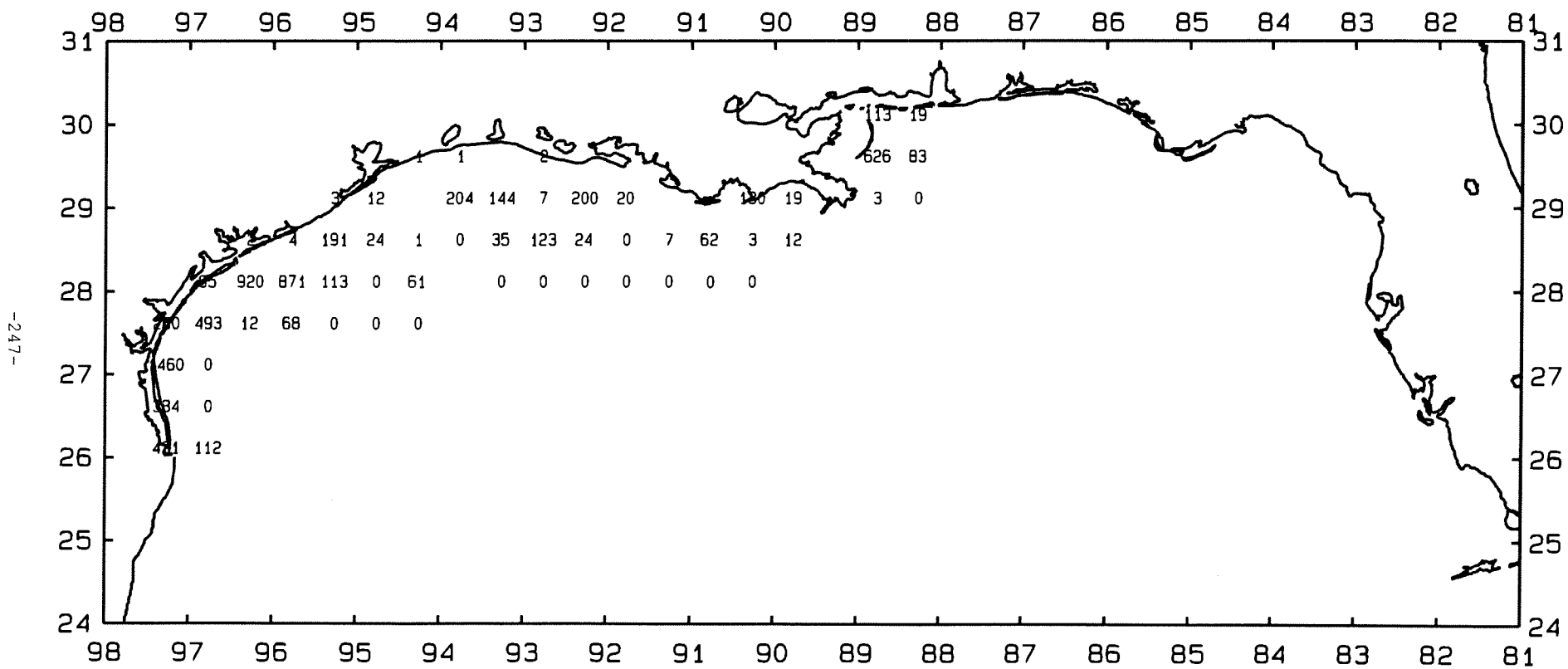
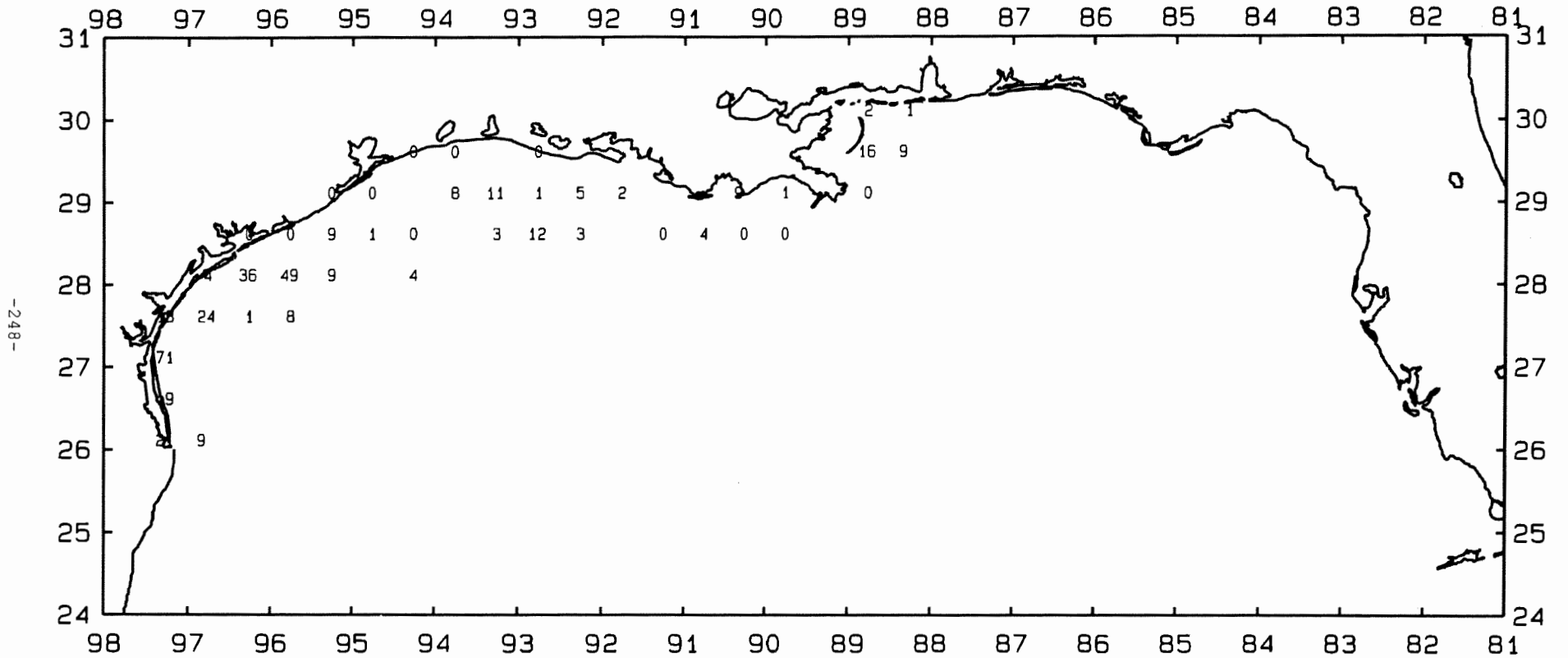


Figure 66. Atlantic bumper, *Chloroscombus chrysurus*, number/hour for October-December 1993.



-248-

Figure 67. Atlantic bumper, *Chloroscombrus chrysurus*, lb/hour for October-December 1993.

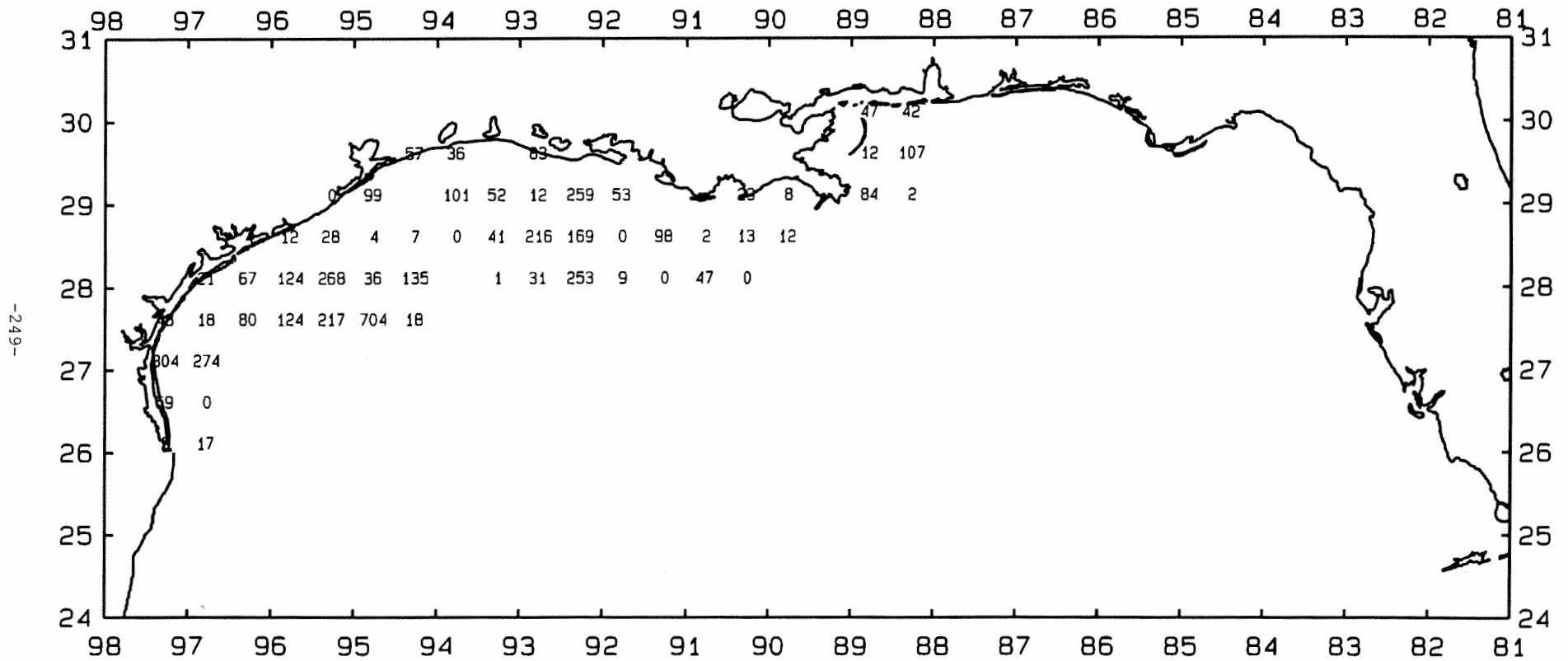


Figure 68. Gulf butterfish, *Peprilus burti*, number/hour for October-December 1993.

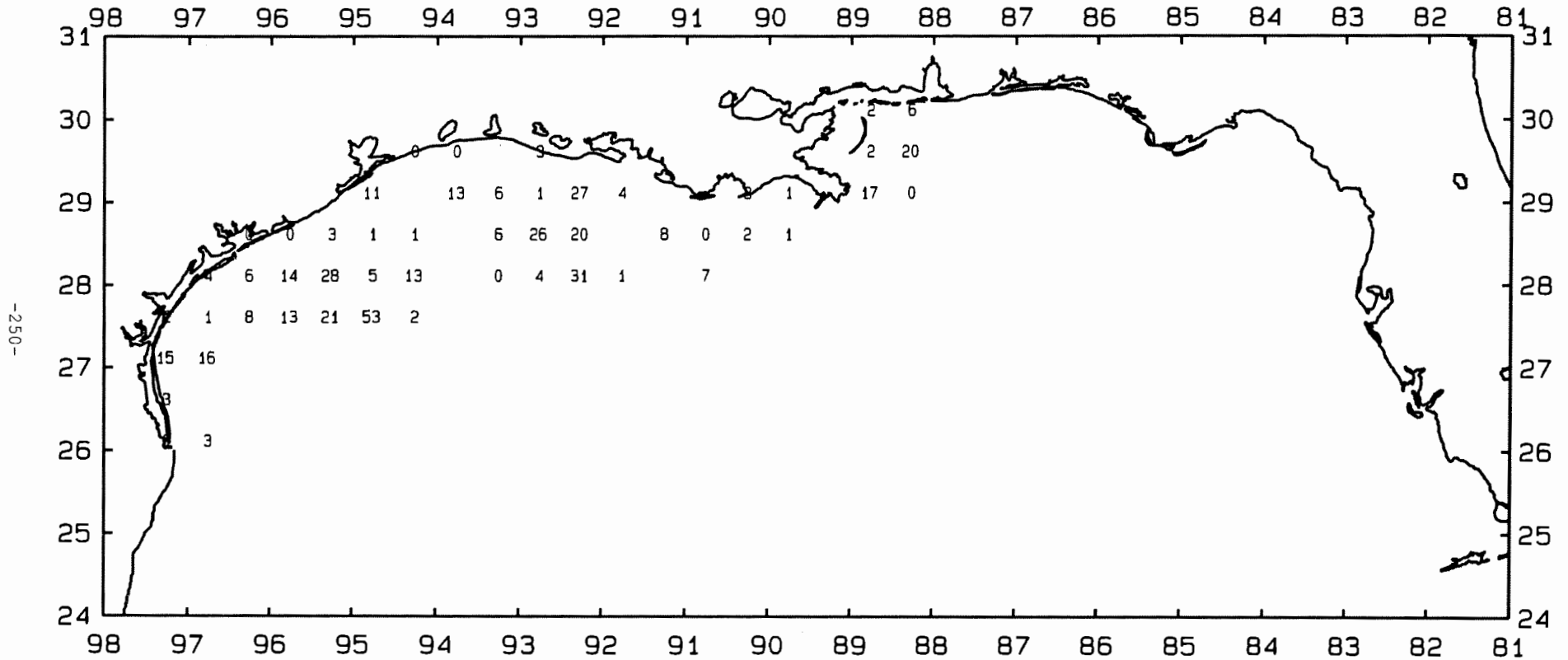


Figure 69. Gulf butterfish, *Peprilus burti*, lb/hour for October-December 1993.

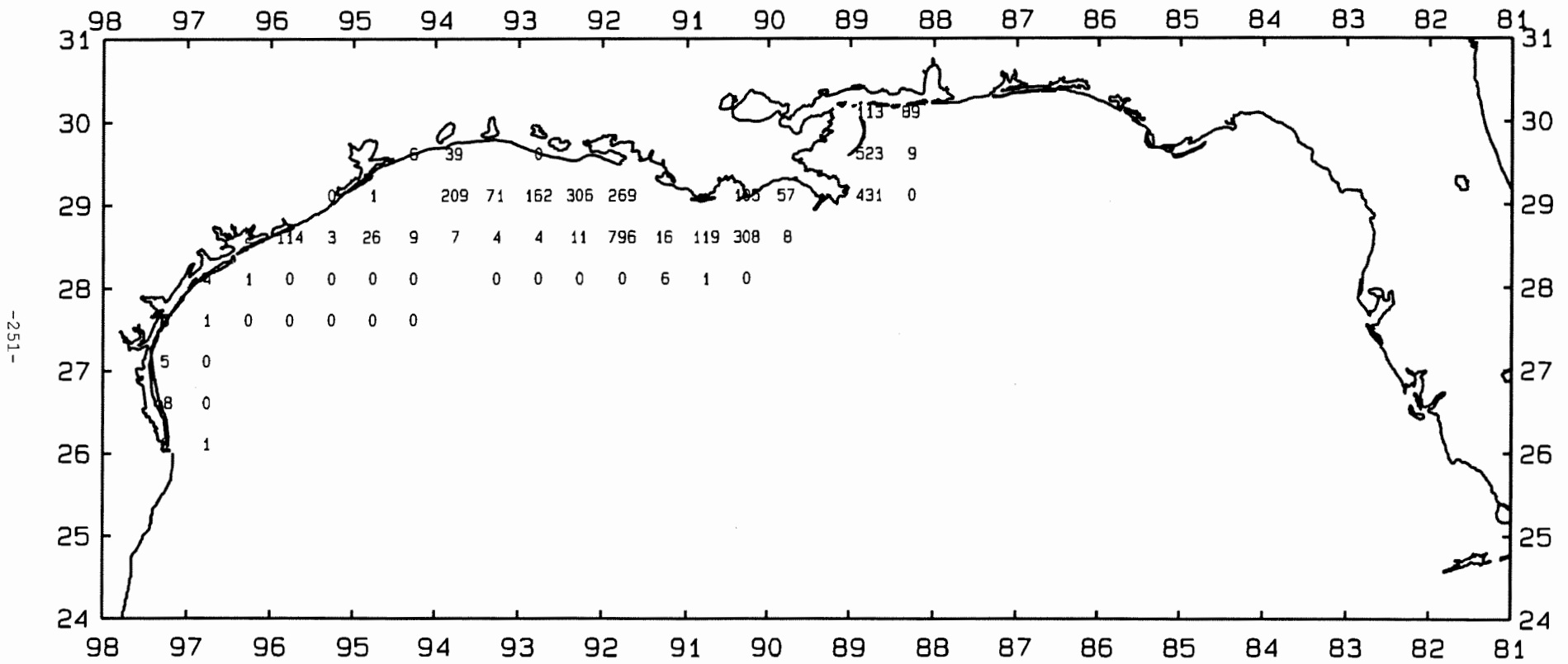


Figure 70. Hardhead catfish, *Arius felis*, number/hour for October-December 1993.

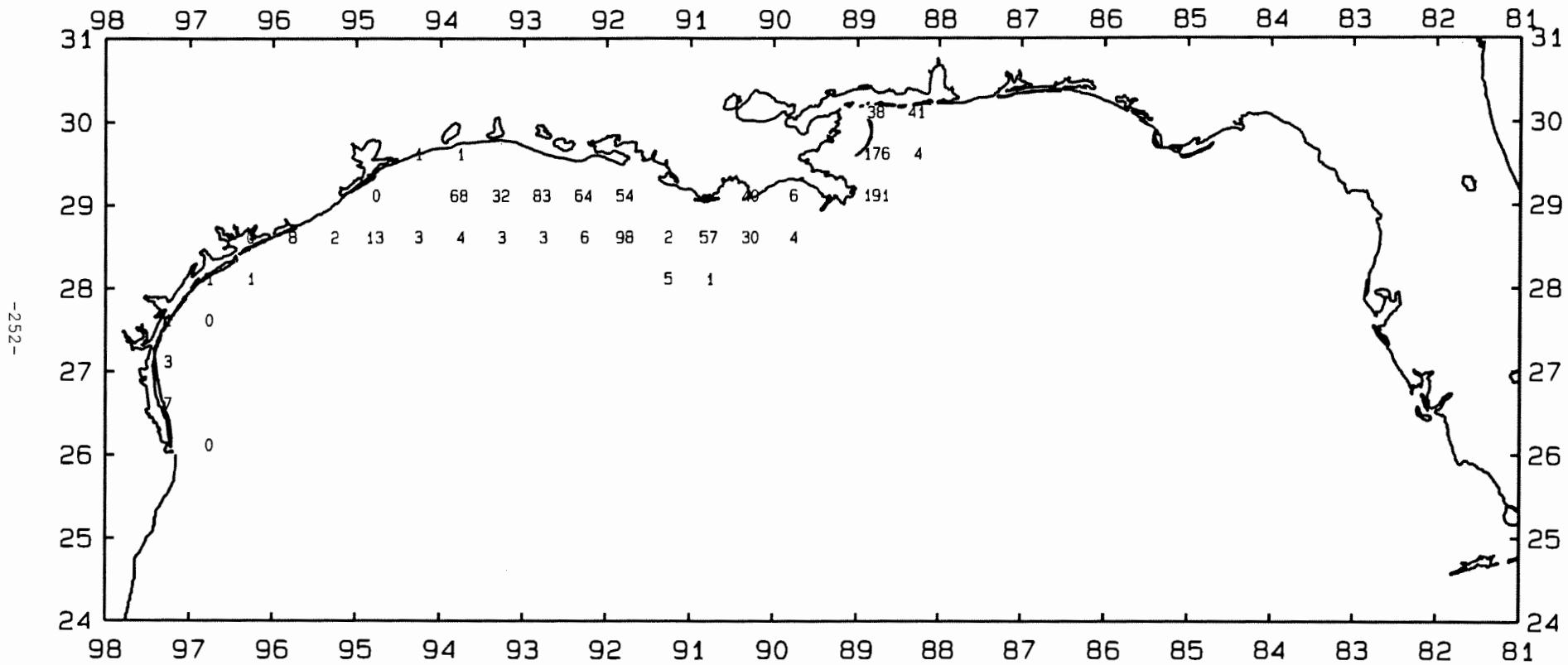


Figure 71. Hardhead catfish, *Arius felis*, lb/hour for October-December 1993.

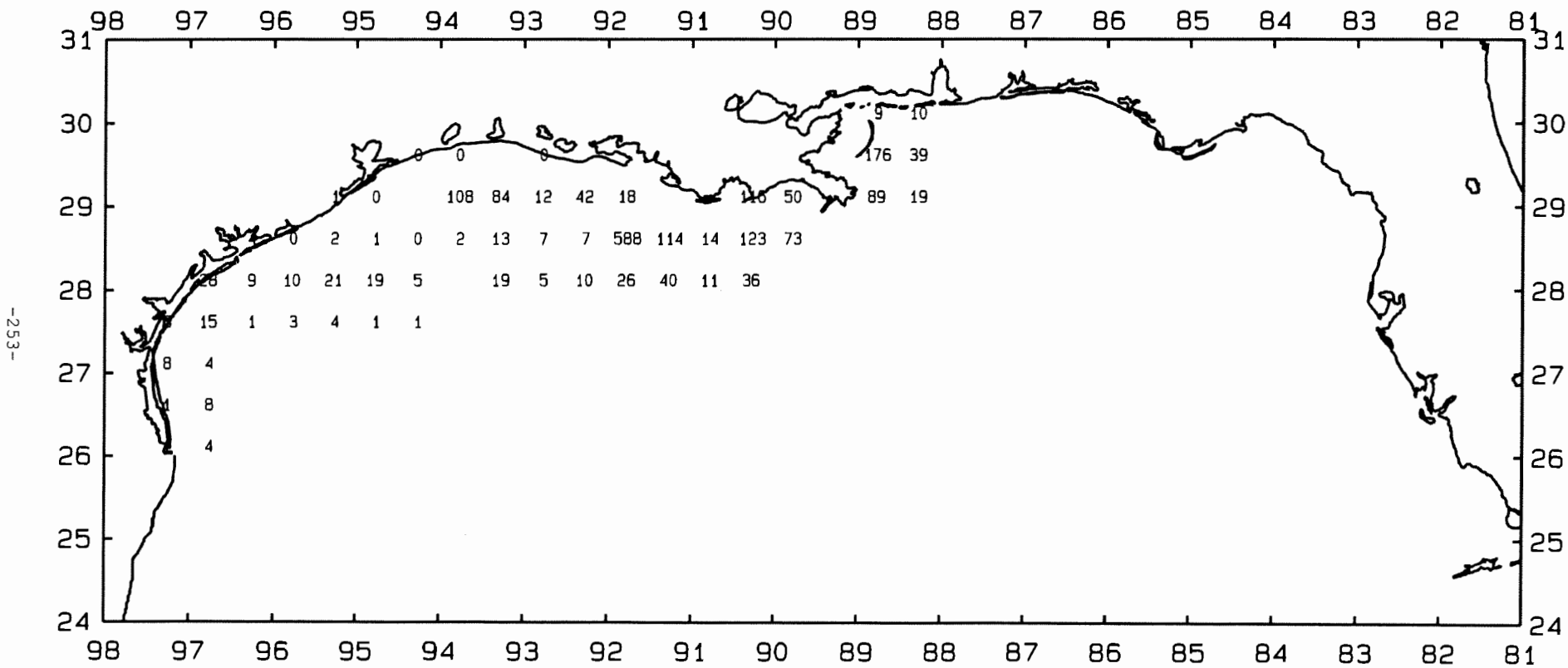


Figure 72. Bigeye searobin, *Prionotus longispinosus*, number/hour for October-December 1993.

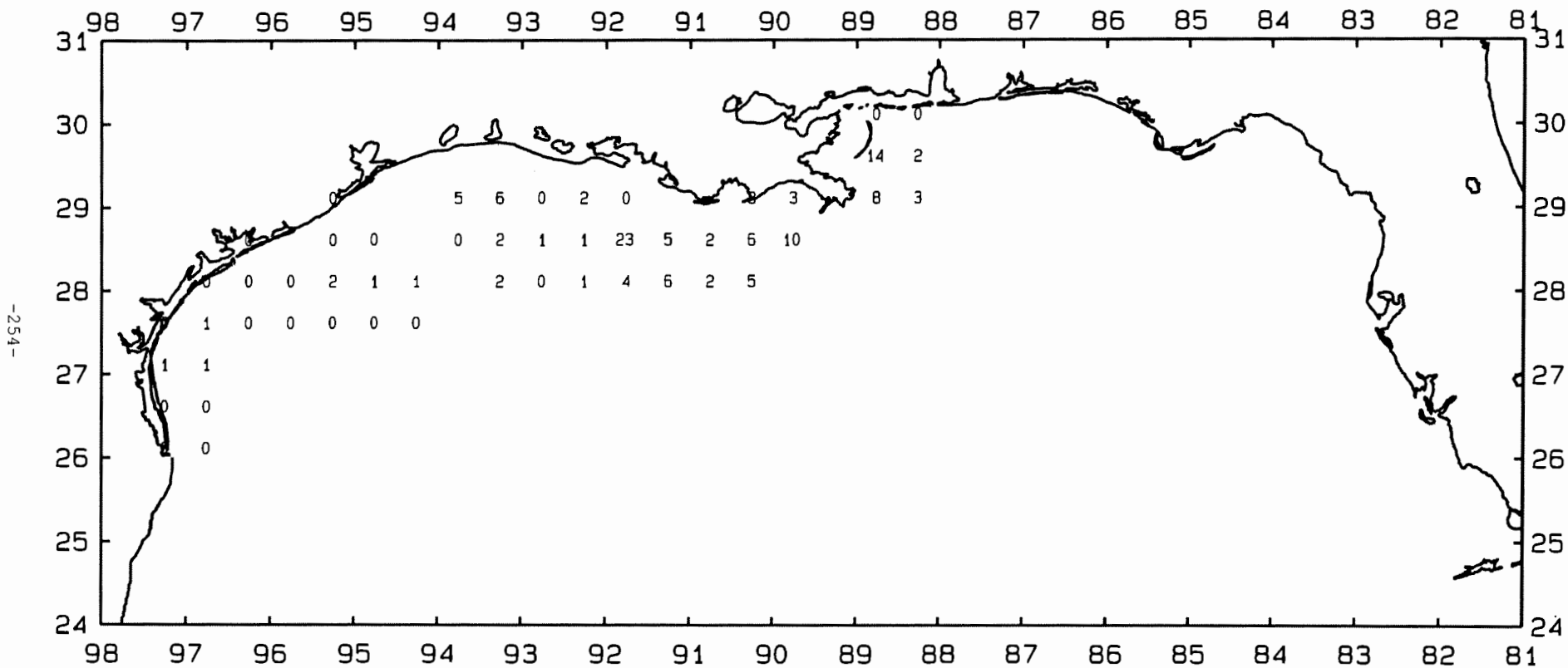


Figure 73. Bigeye searobin, *Prionotus longispinosus*, lb/hour for October-December 1993.

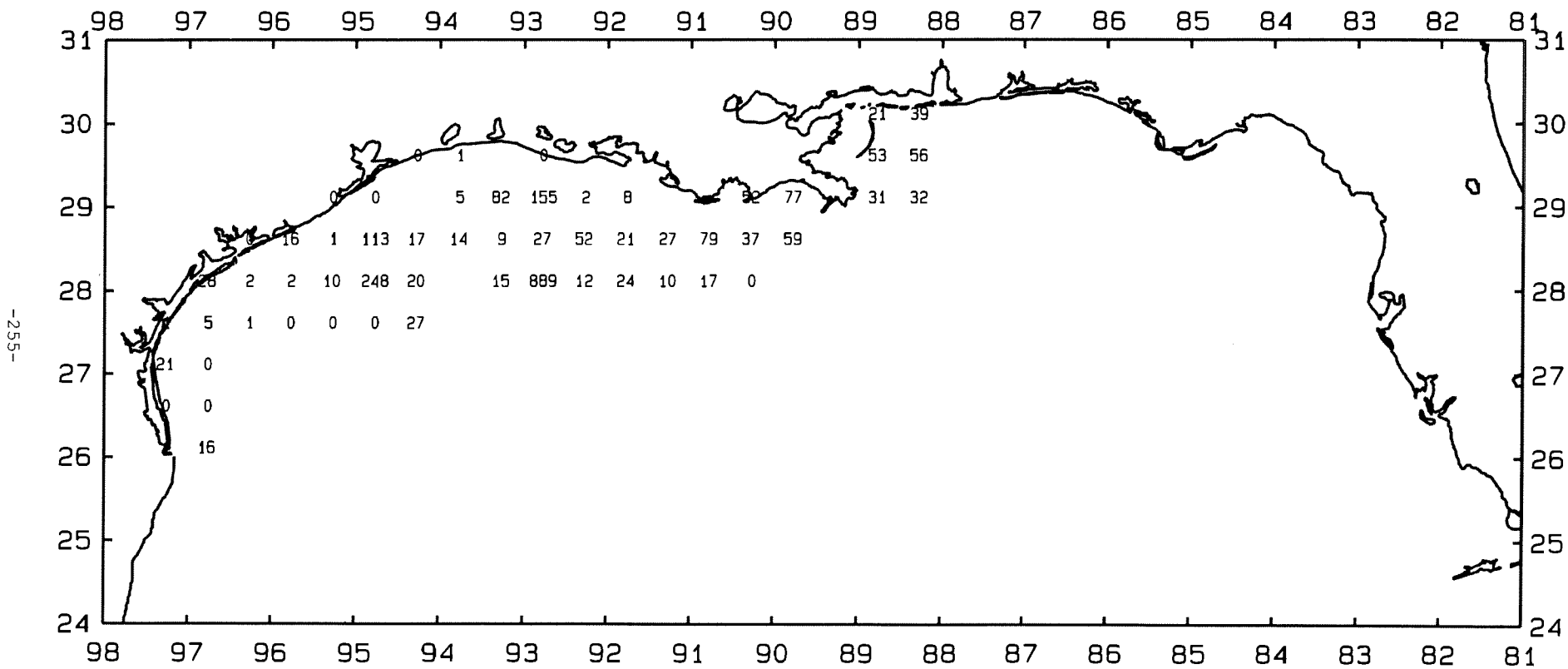


Figure 74. Spot, Leiestomus xanthurus, number/hour for October-December 1993.

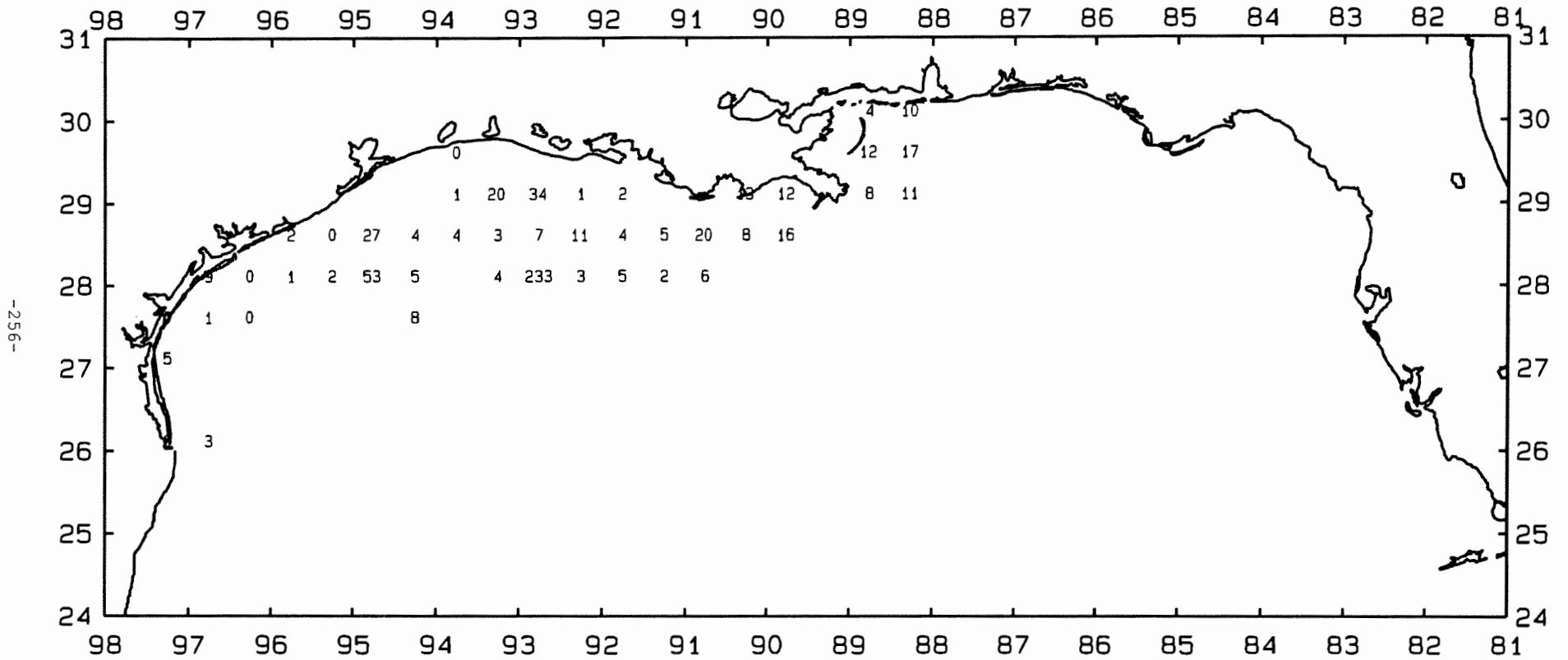


Figure 75. Spot, *Leioostomus xanthurus*, lb/hour for October-December 1993.

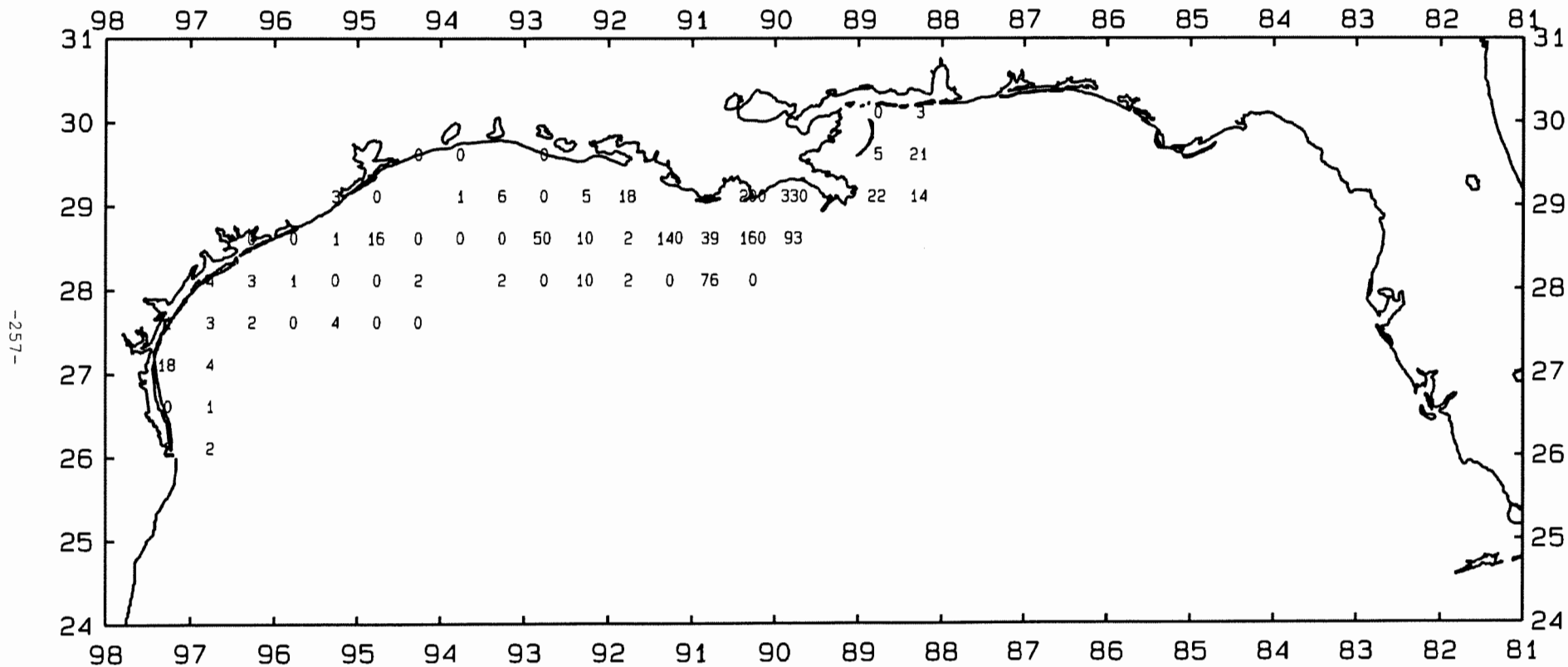


Figure 76. Atlantic cutlassfish, *Trichiurus lepturus*, number/hour for October-December 1993.

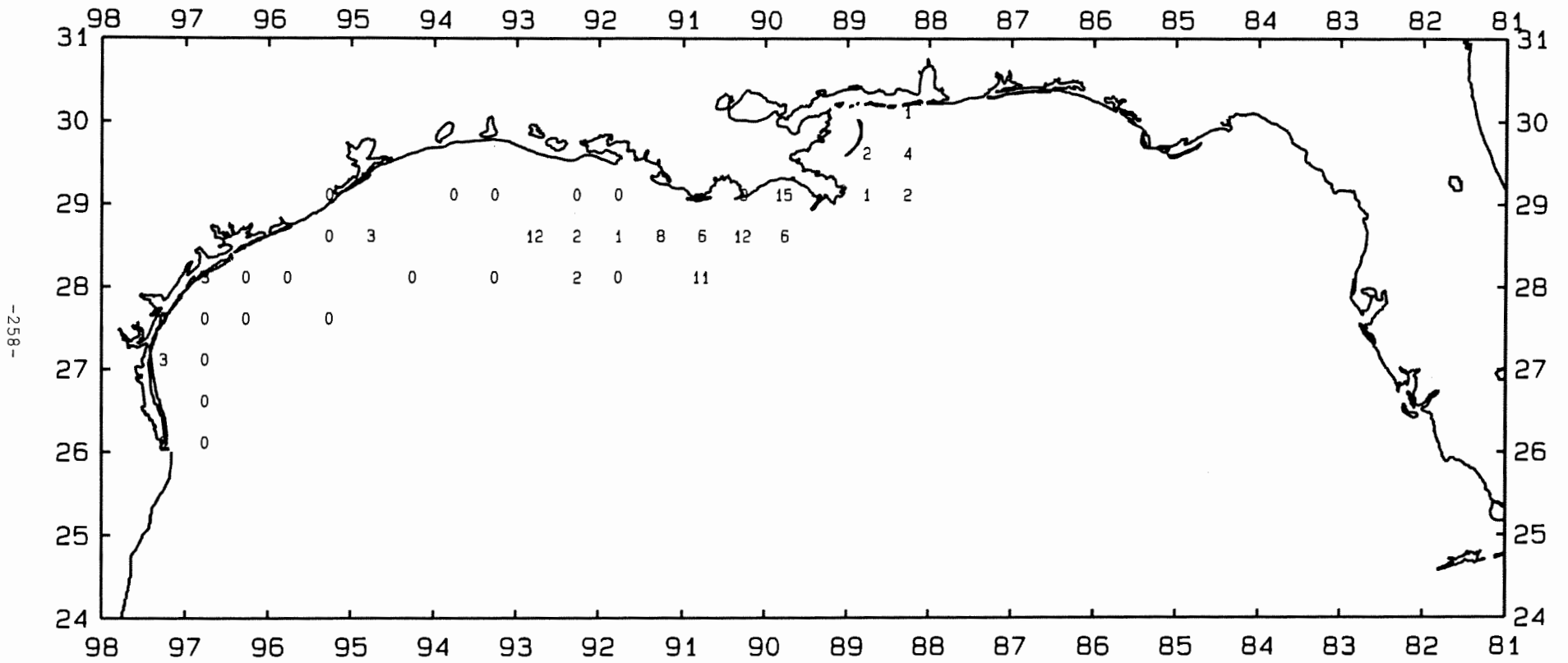


Figure 77. Atlantic cutlassfish, *Trichiurus lepturus*, lb/hour for October-December 1993.

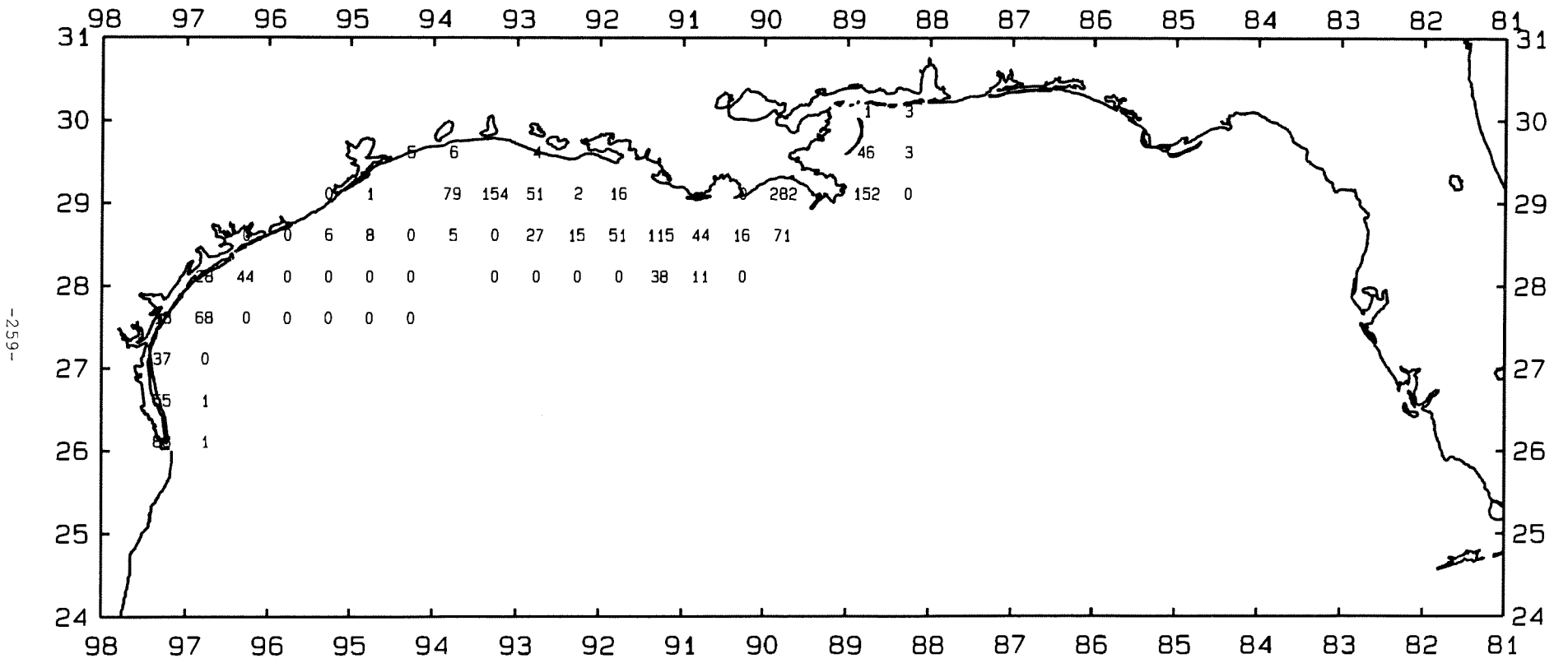


Figure 78. Sand seatrout, *Cynoscion arenarius*, number/hour for October-December 1993.

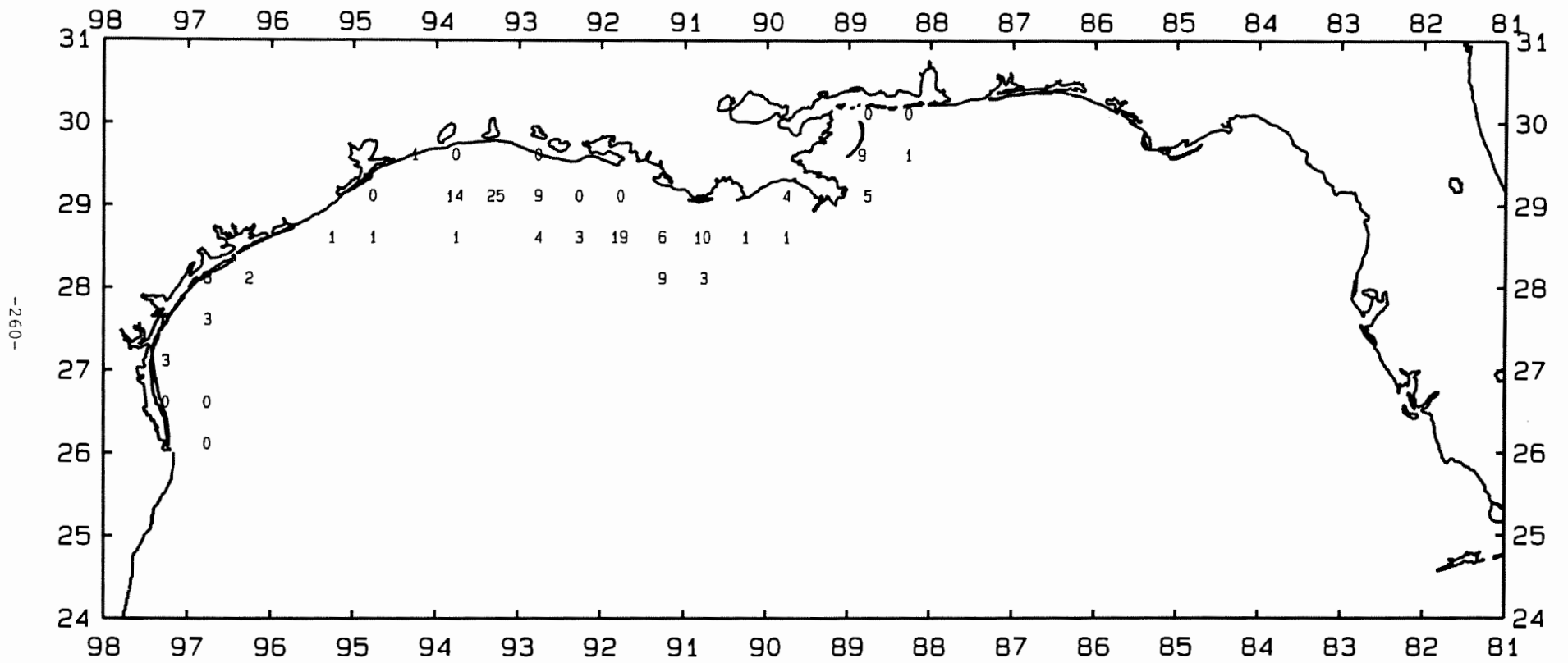


Figure 79. Sand seatrout, *Cynoscion arenarius*, lb/hour for October-December 1993.

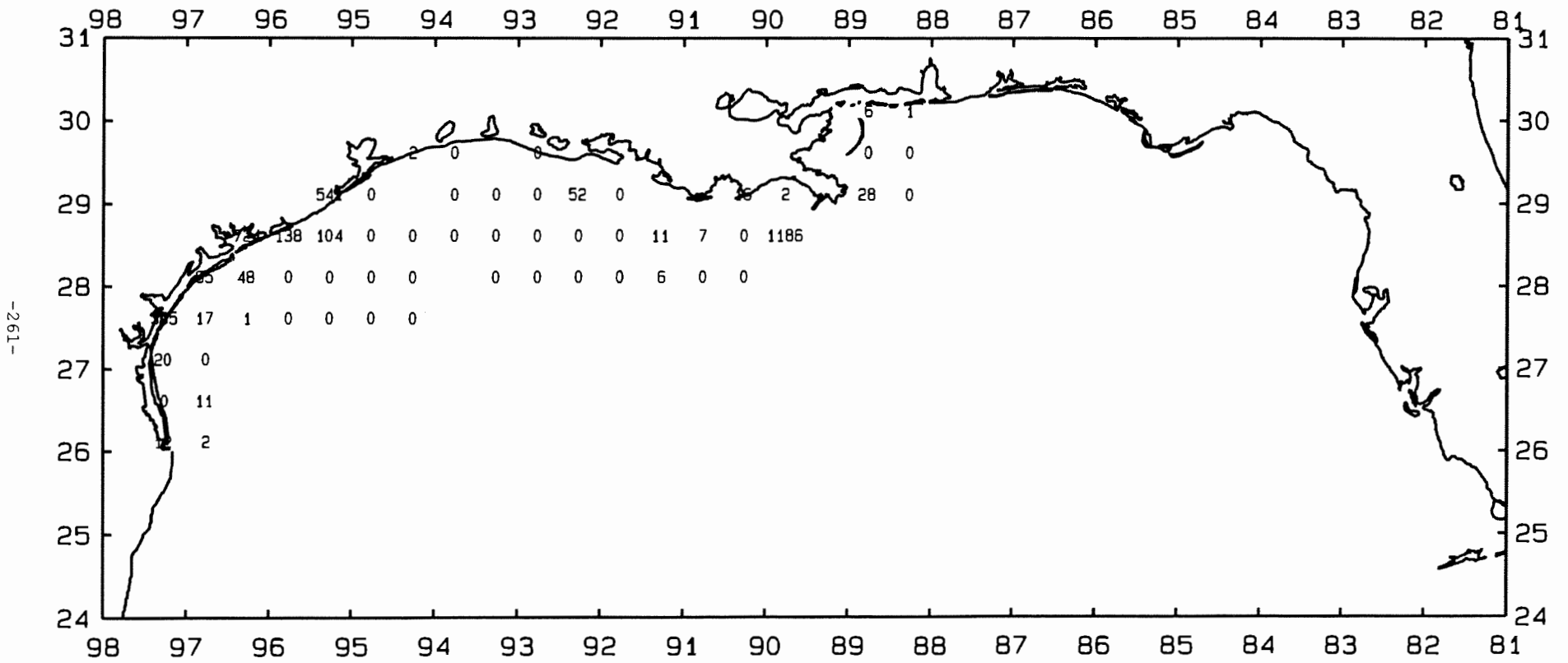


Figure 80. Seatrouts, Cynoscion spp., number/hour for October-December 1993.

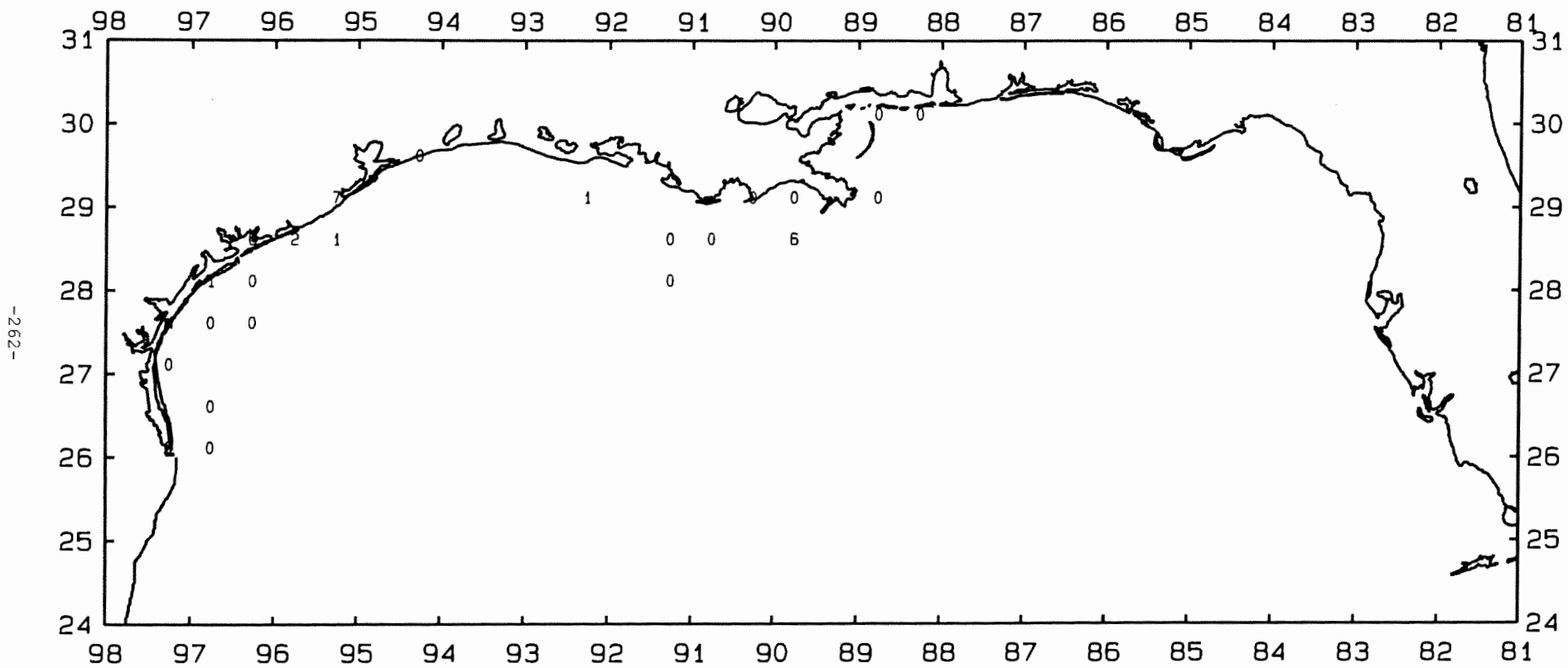


Figure 81. Seatrouts, *Cynoscion* spp., lb/hour for October-December 1993.

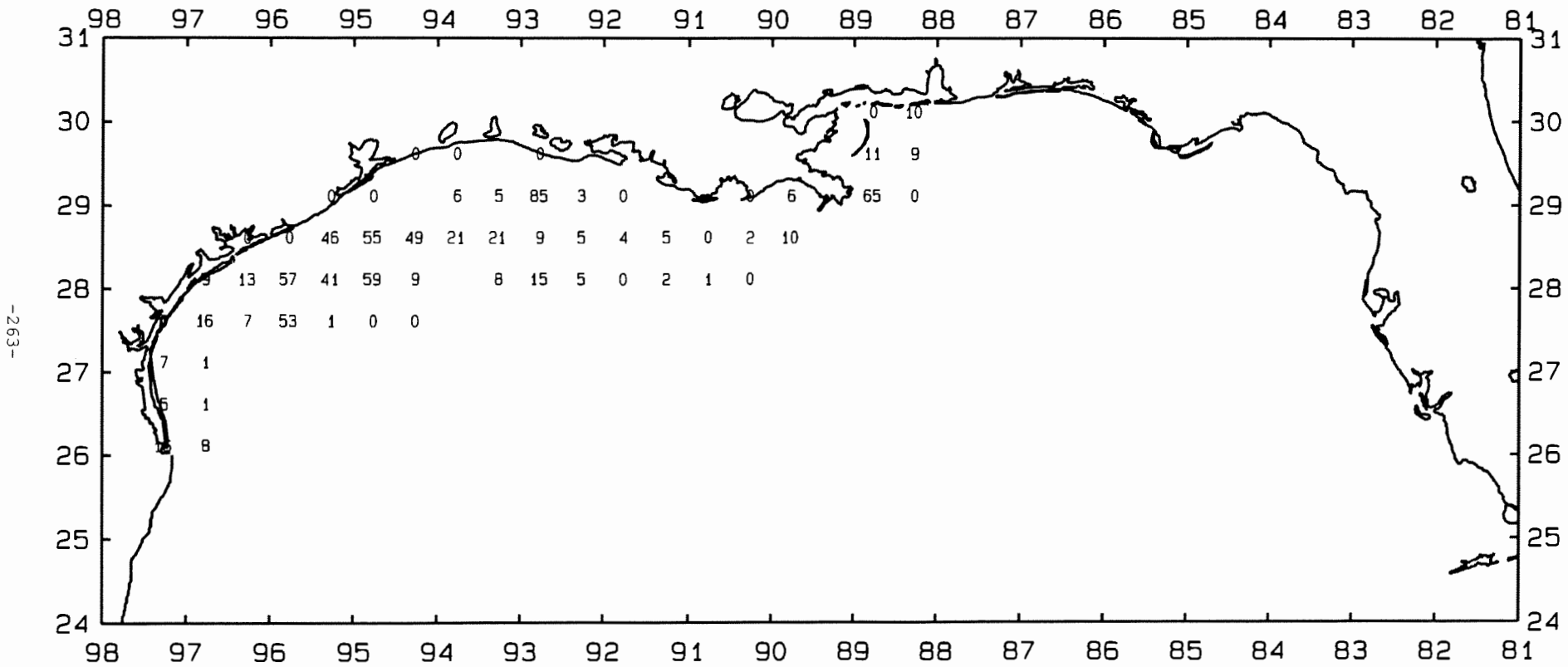


Figure 82. Red snapper, *Lutjanus campechanus*, number/hour for October-December 1993.

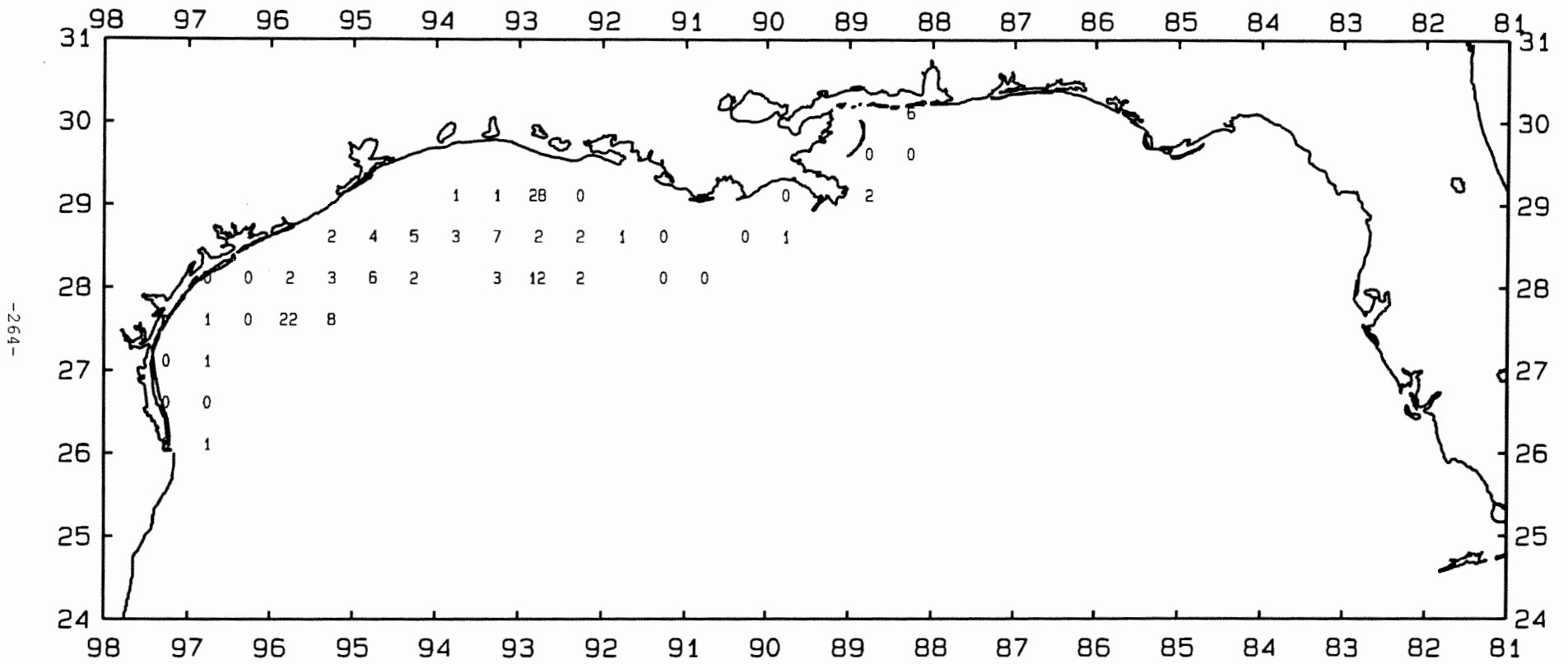


Figure 83. Red snapper, *Lutjanus campechanus*, lb/hour for October-December 1993.

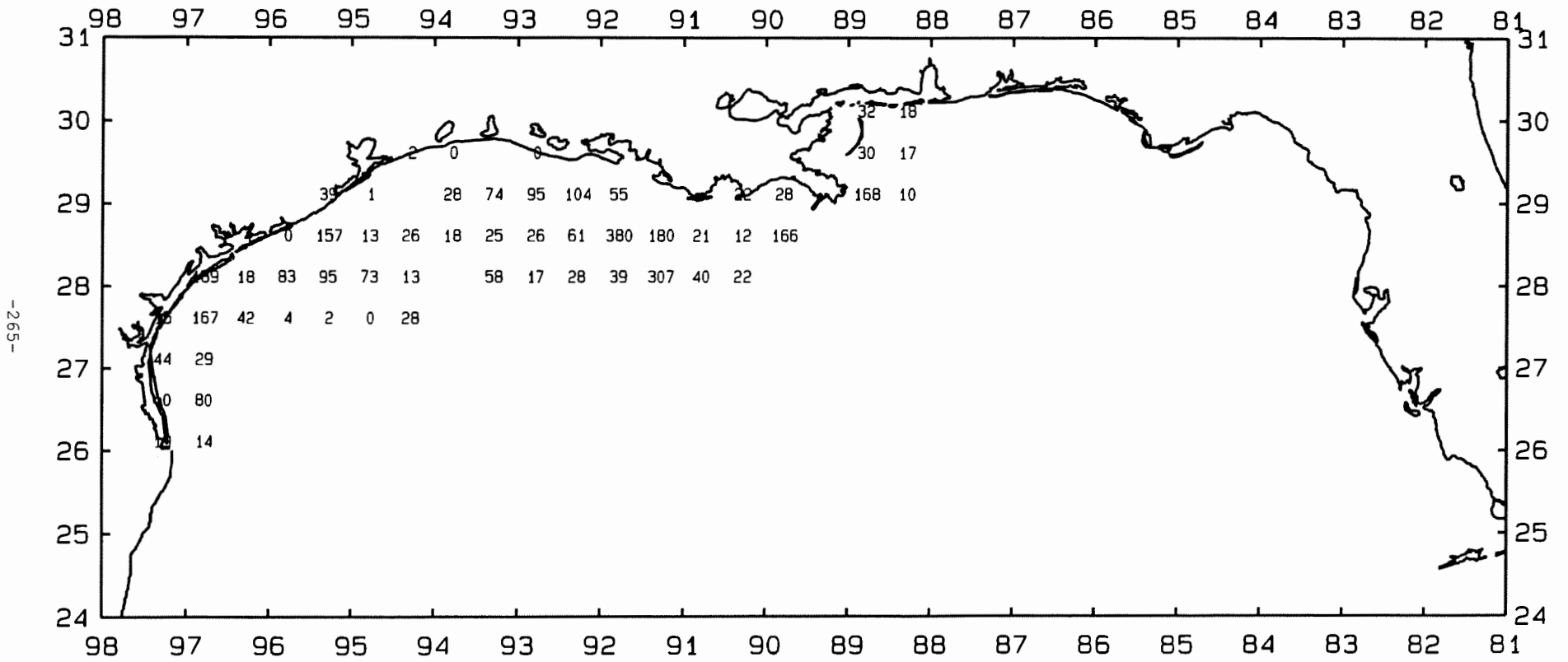
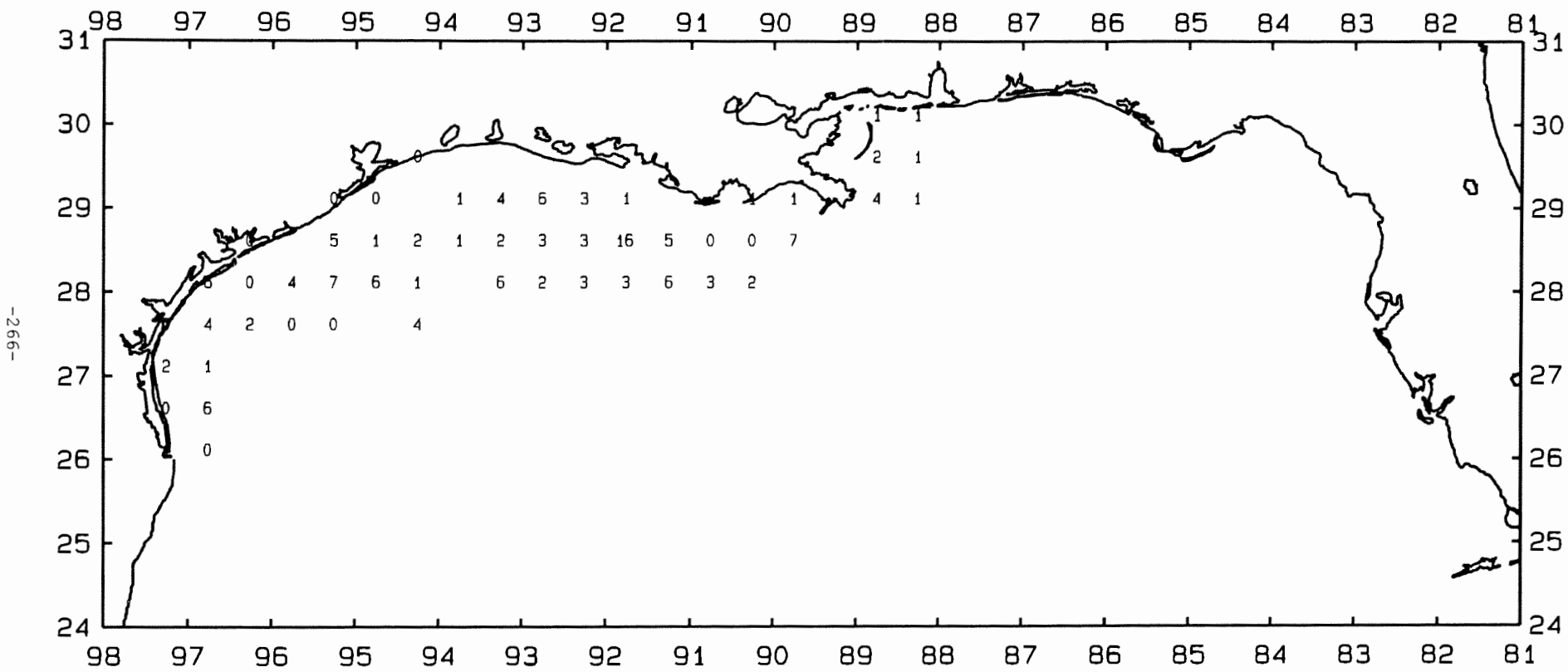


Figure 84. Brown shrimp, *Penaeus aztecus*, number/hour for October-December 1993.



-266-

Figure 85. Brown shrimp, *Penaeus aztecus*, lb/hour for October-December 1993.

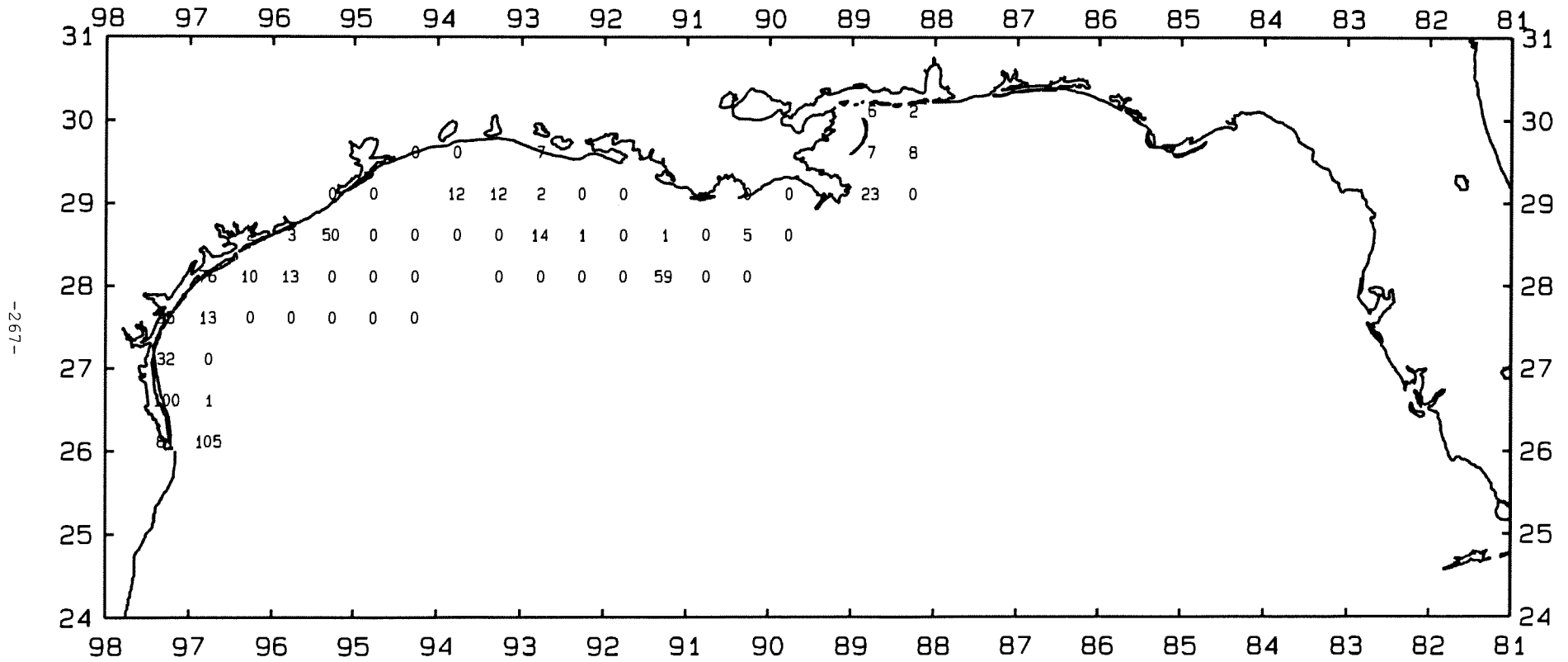


Figure 86. Pink shrimp, *Penaeus duorarum*, number/hour for October-December 1993.

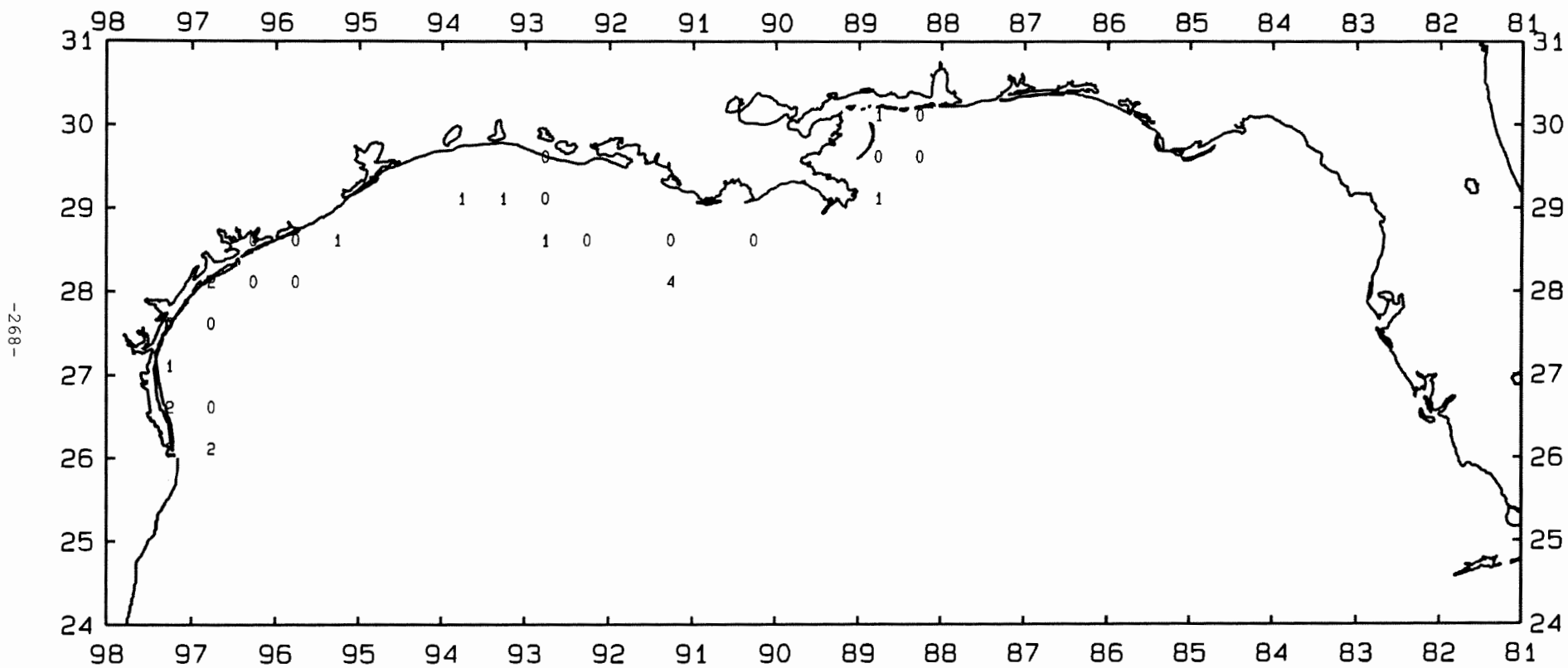


Figure 87. Pink shrimp, *Penaeus duorarum*, lb/hour for October-December 1993.

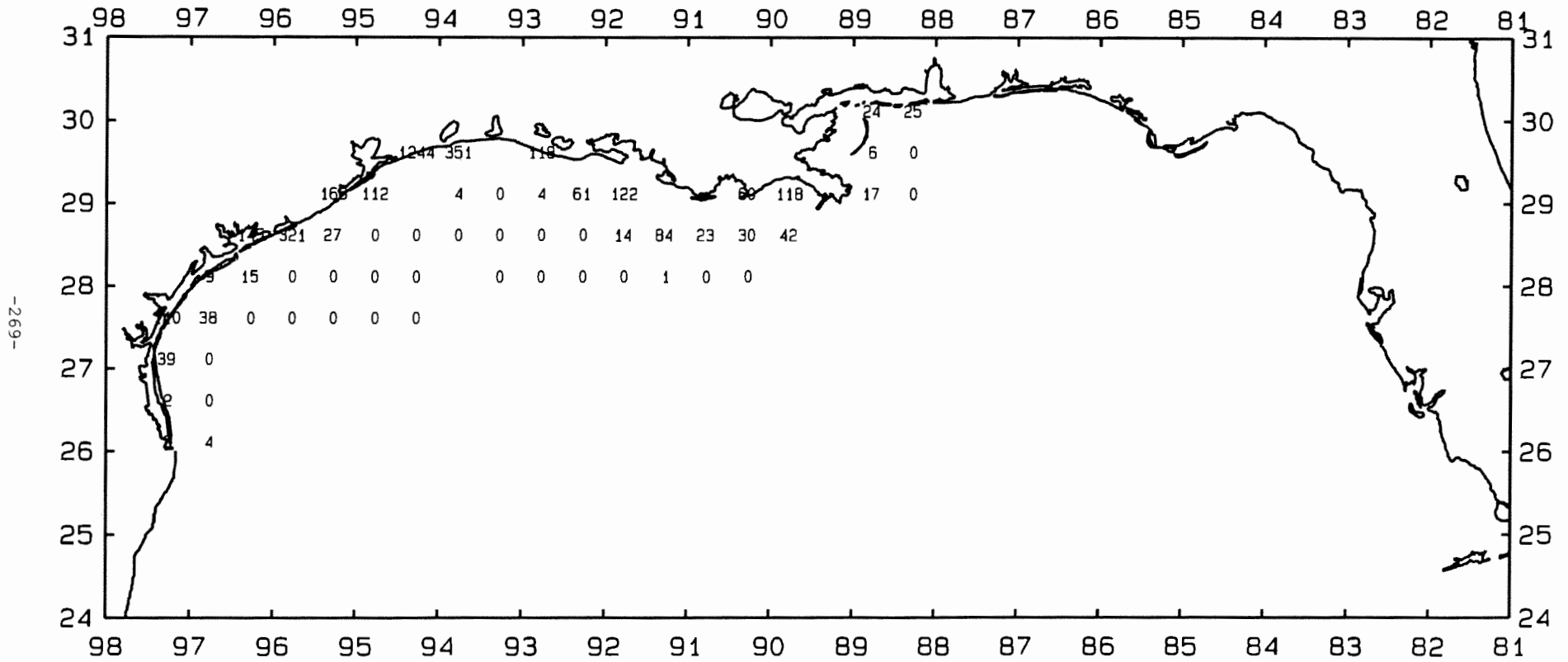


Figure 88. White shrimp, *Penaeus setiferus*, number/hour for October-December 1993.

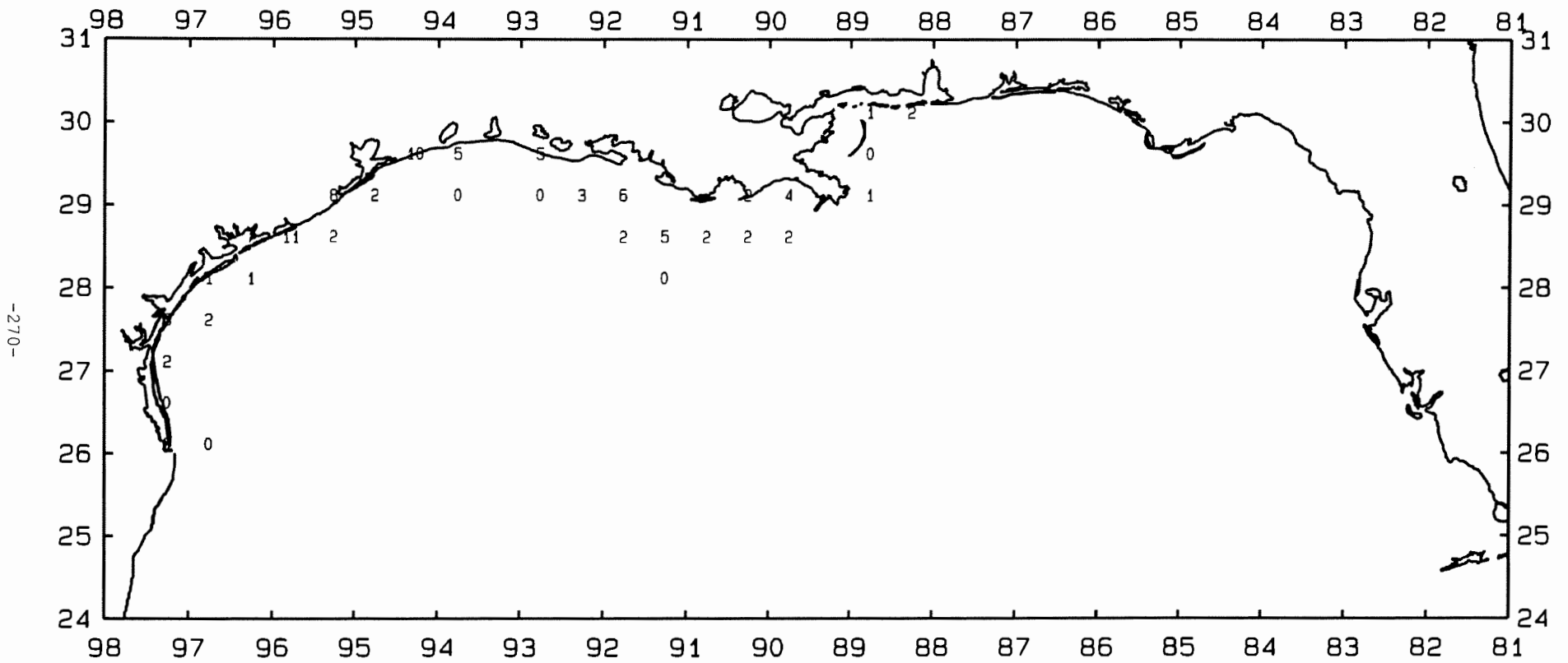


Figure 89. White shrimp, *Penaeus setiferus*, lb/hour for October-December 1993.

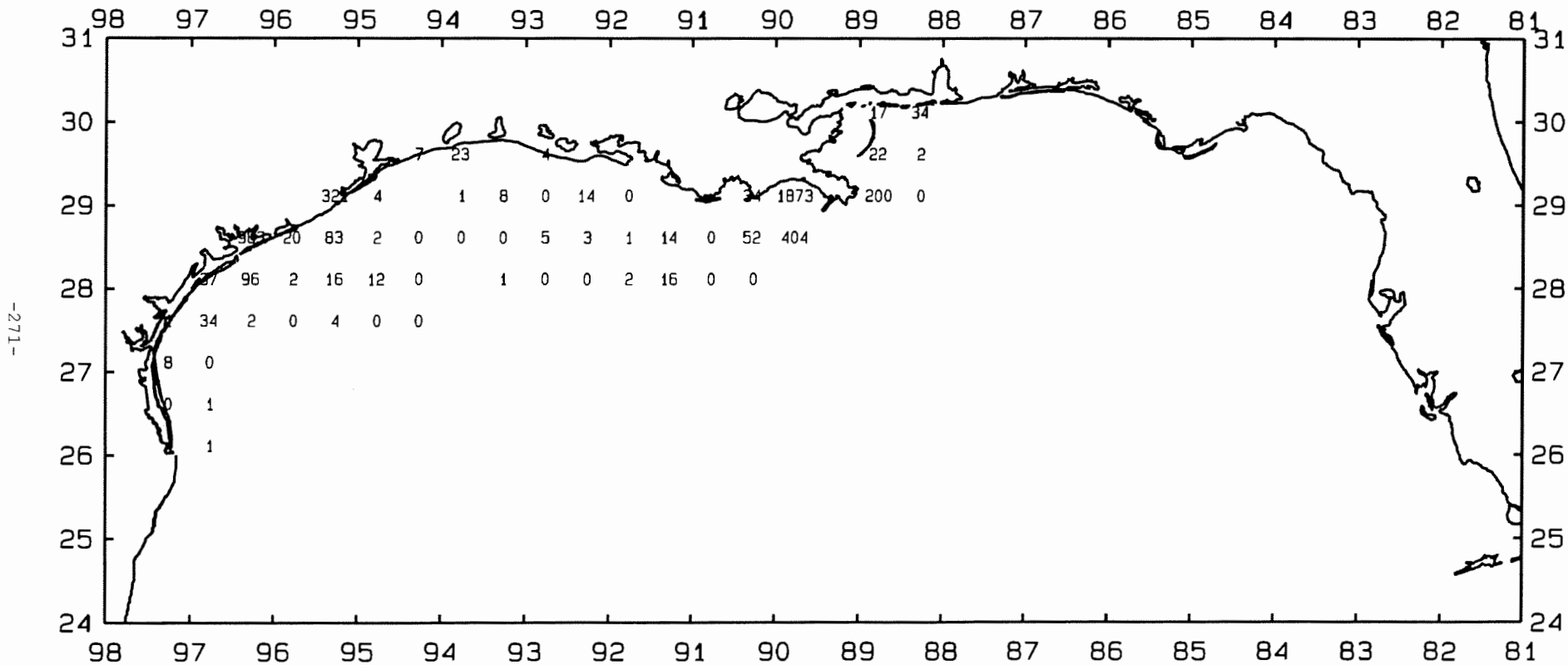


Figure 90. Mantis shrimps, *Squilla* spp., number/hour for October-December 1993.

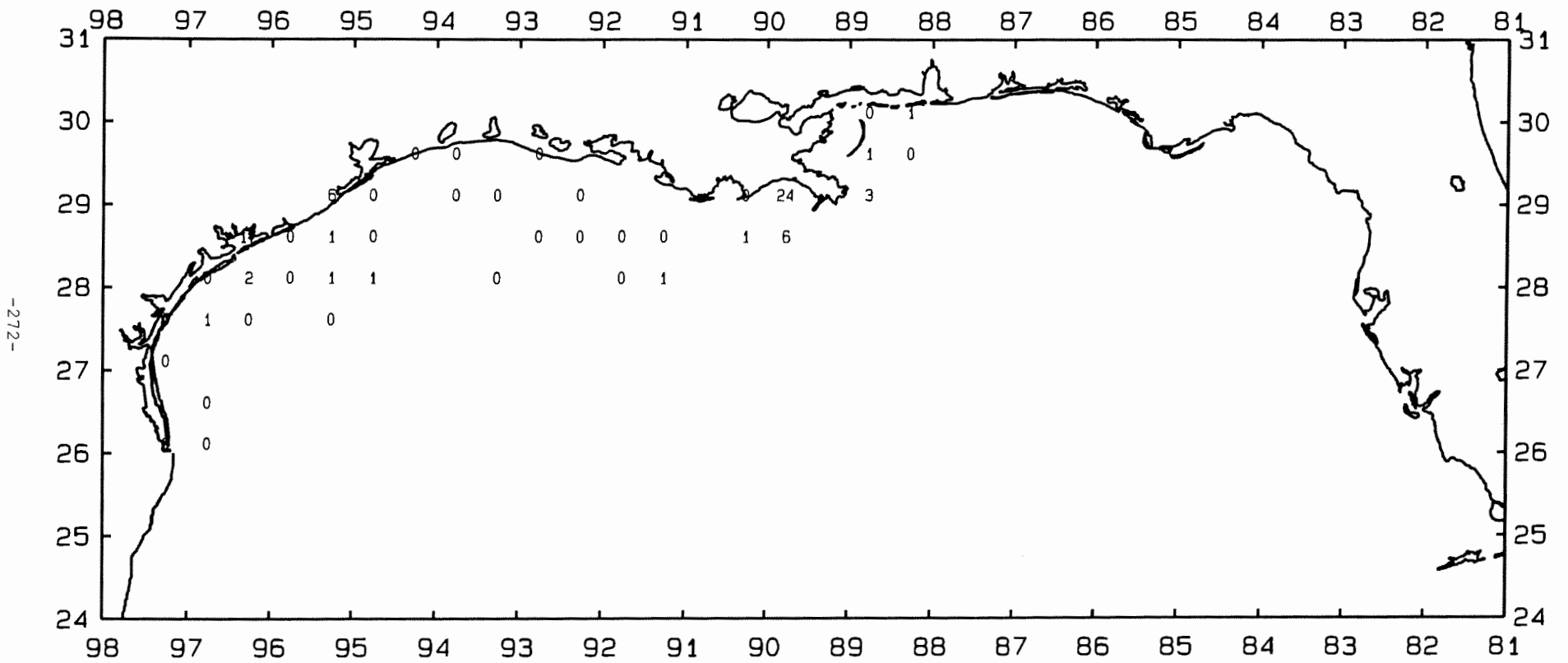


Figure 91. Mantis shrimps, *Squilla* spp., lb/hour for October-December 1993.

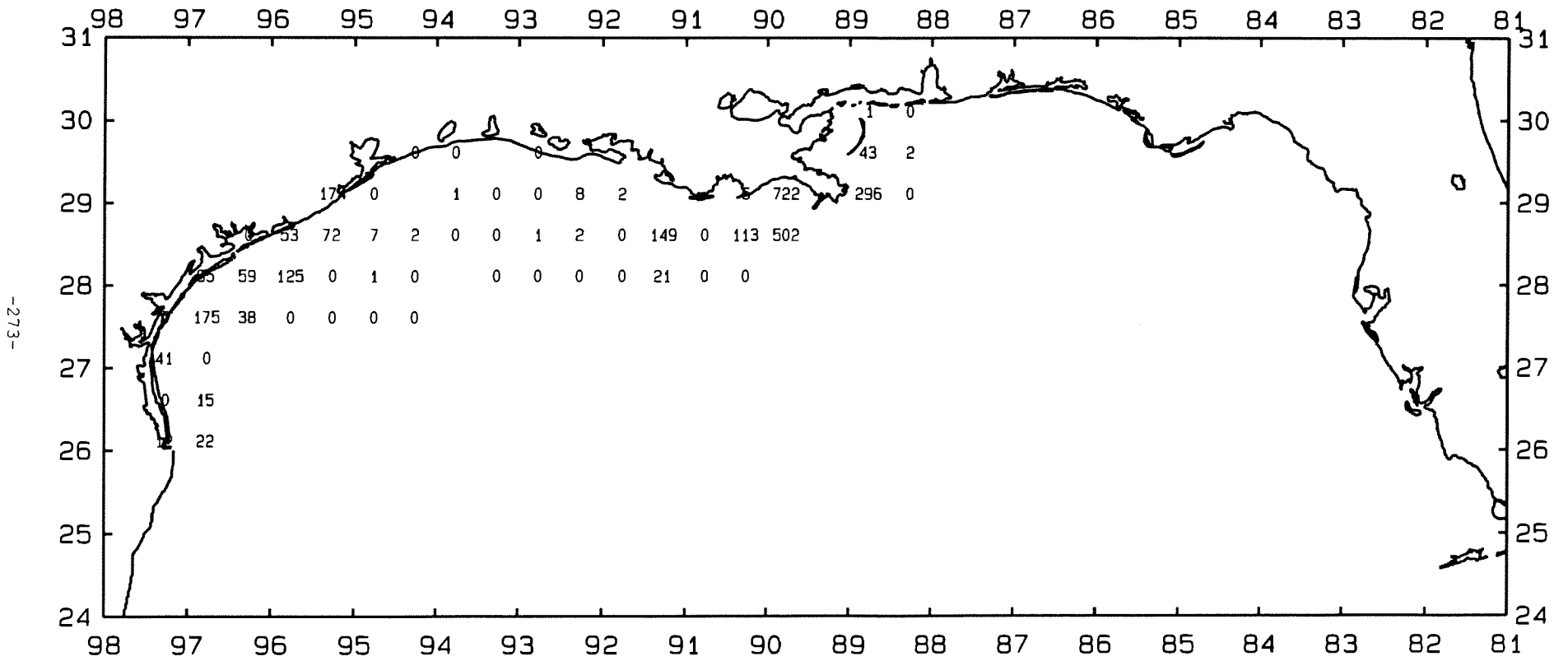


Figure 92. Roughback shrimp, *Trachypenaeus similis*, number/hour for October-December 1993.

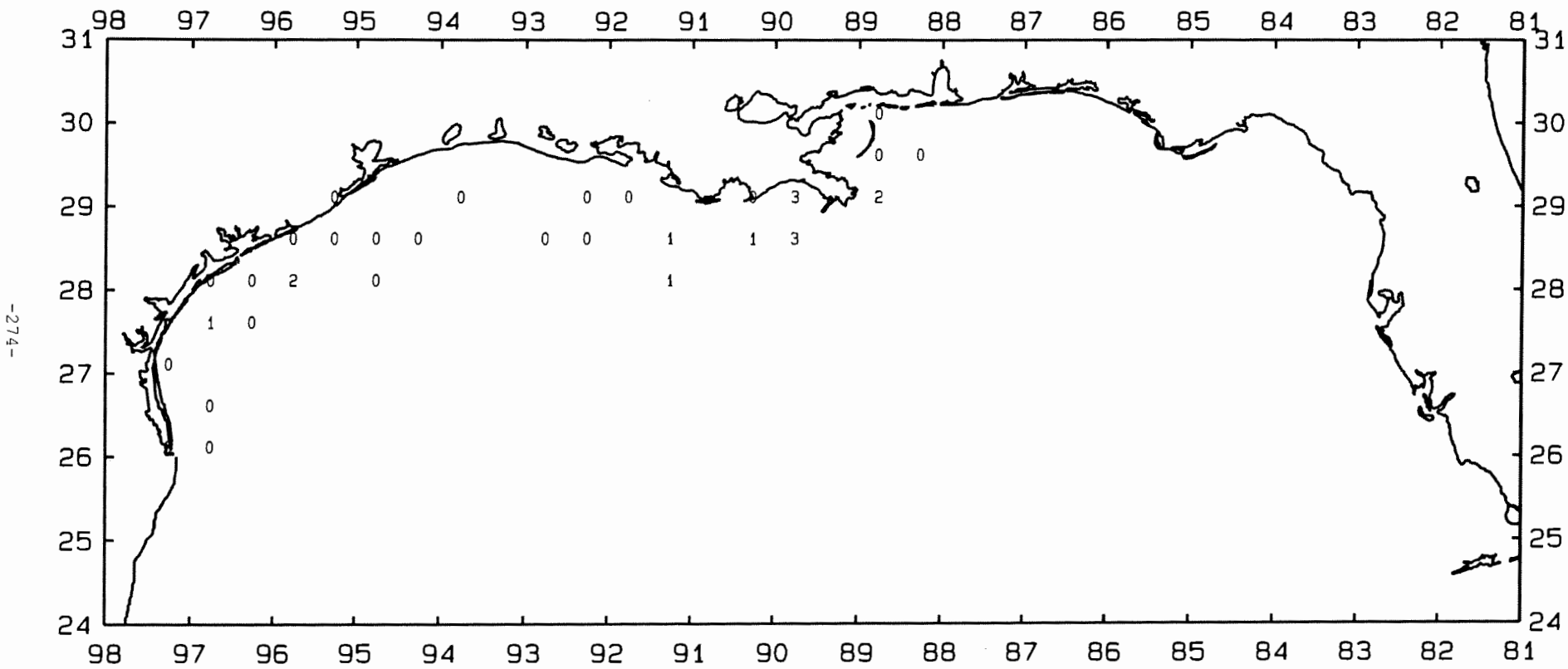


Figure 93. Roughback shrimp, *Trachypenaeus similis*, lb/hour for October-December 1993.

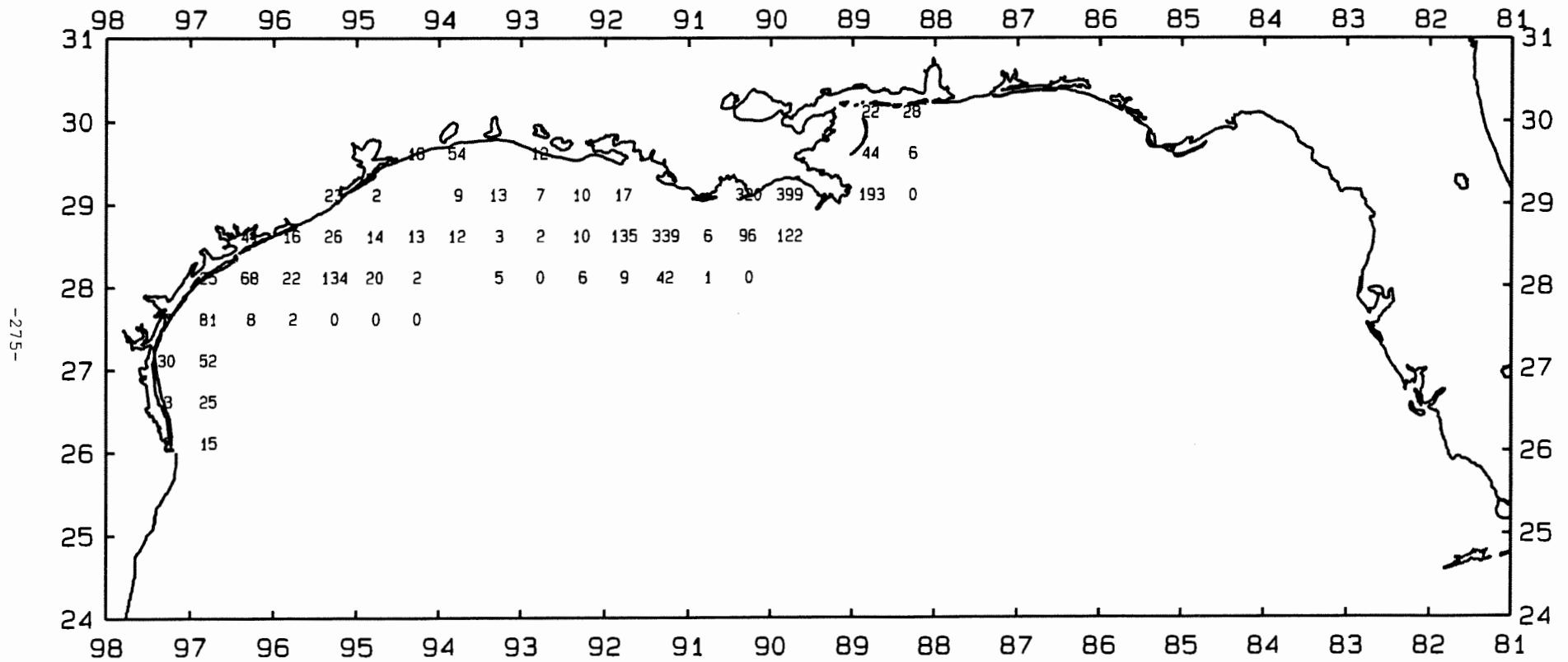


Figure 94. Lesser blue crab, *Callinectes similis*, number/hour for October-December 1993.

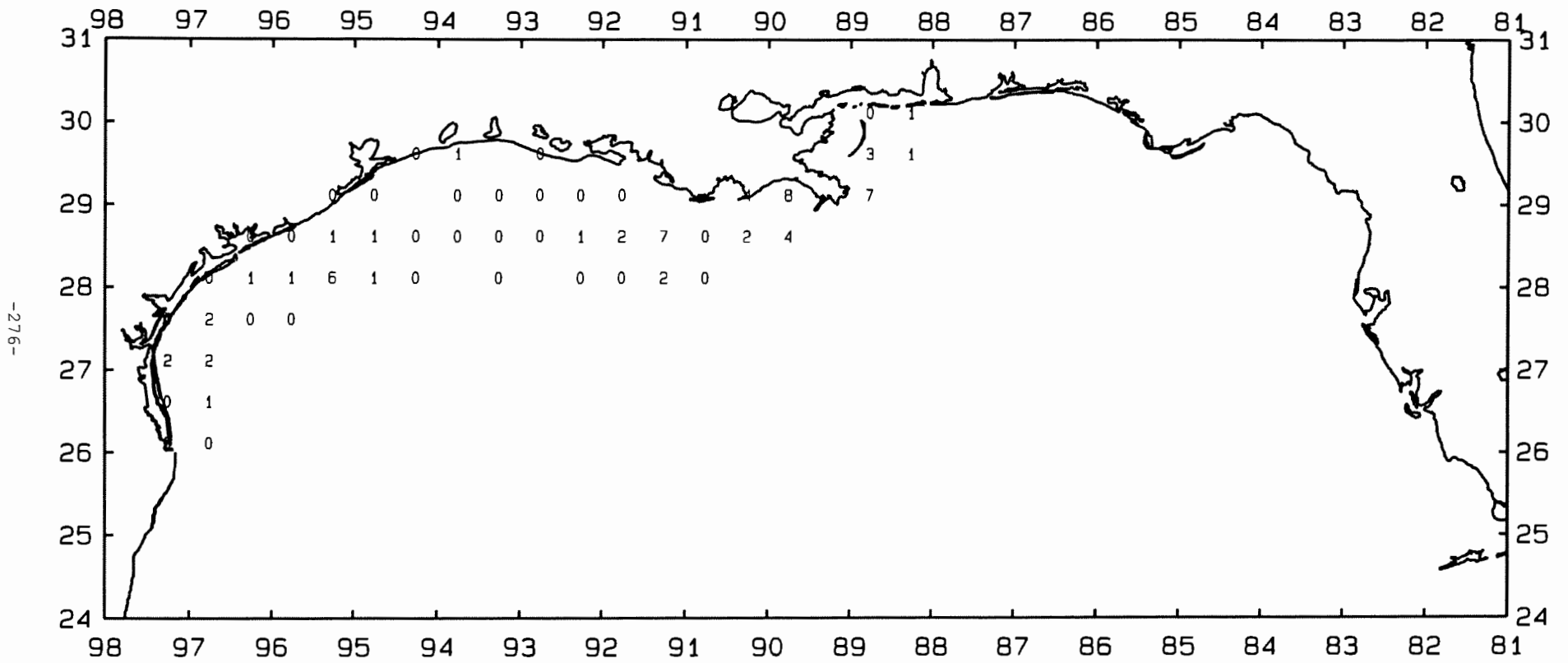


Figure 95. Lesser blue crab, *Callinectes similis*, lb/hour for October-December

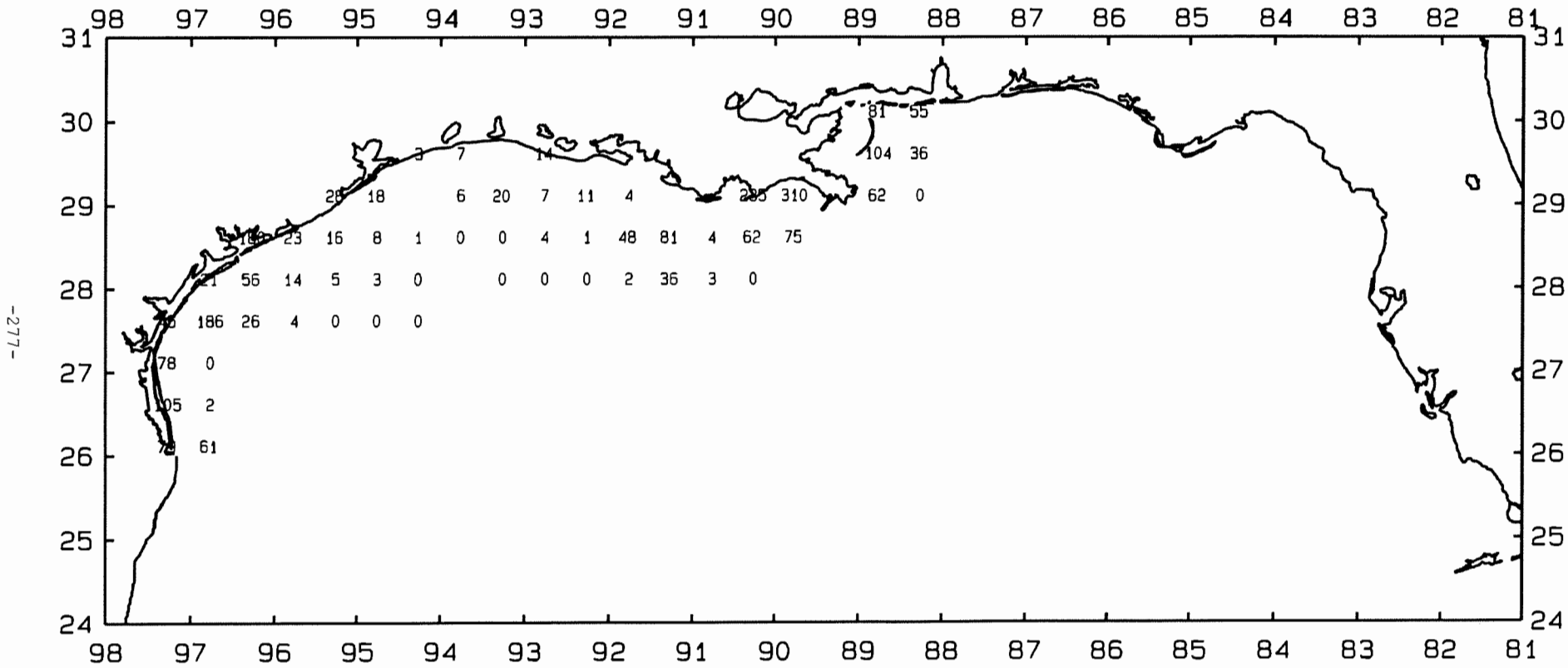


Figure 96. Iridescent swimming crab, *Portunus gibbesii*, number/hour for October-December 1993.

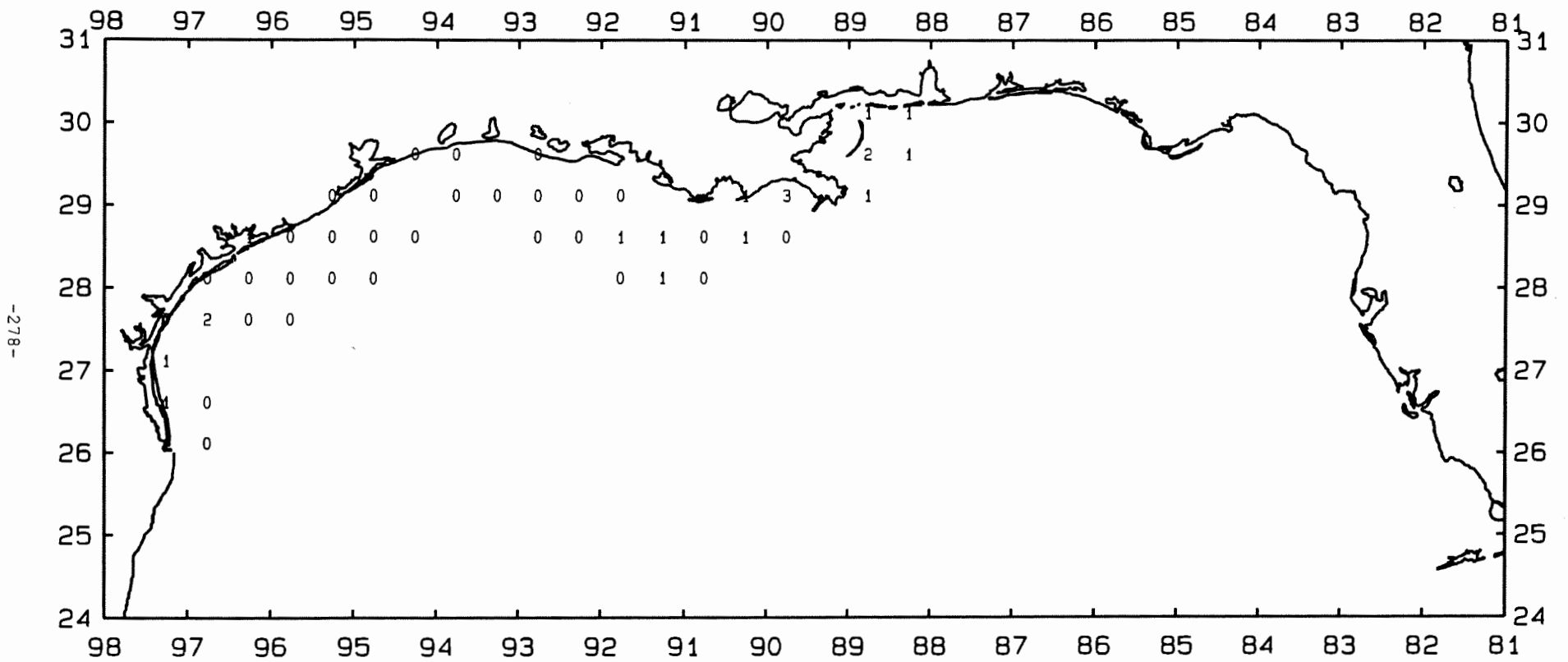


Figure 97. Irridescent swimming crab, *Portunus gibbesii*, lb/hour for October-December 1993.

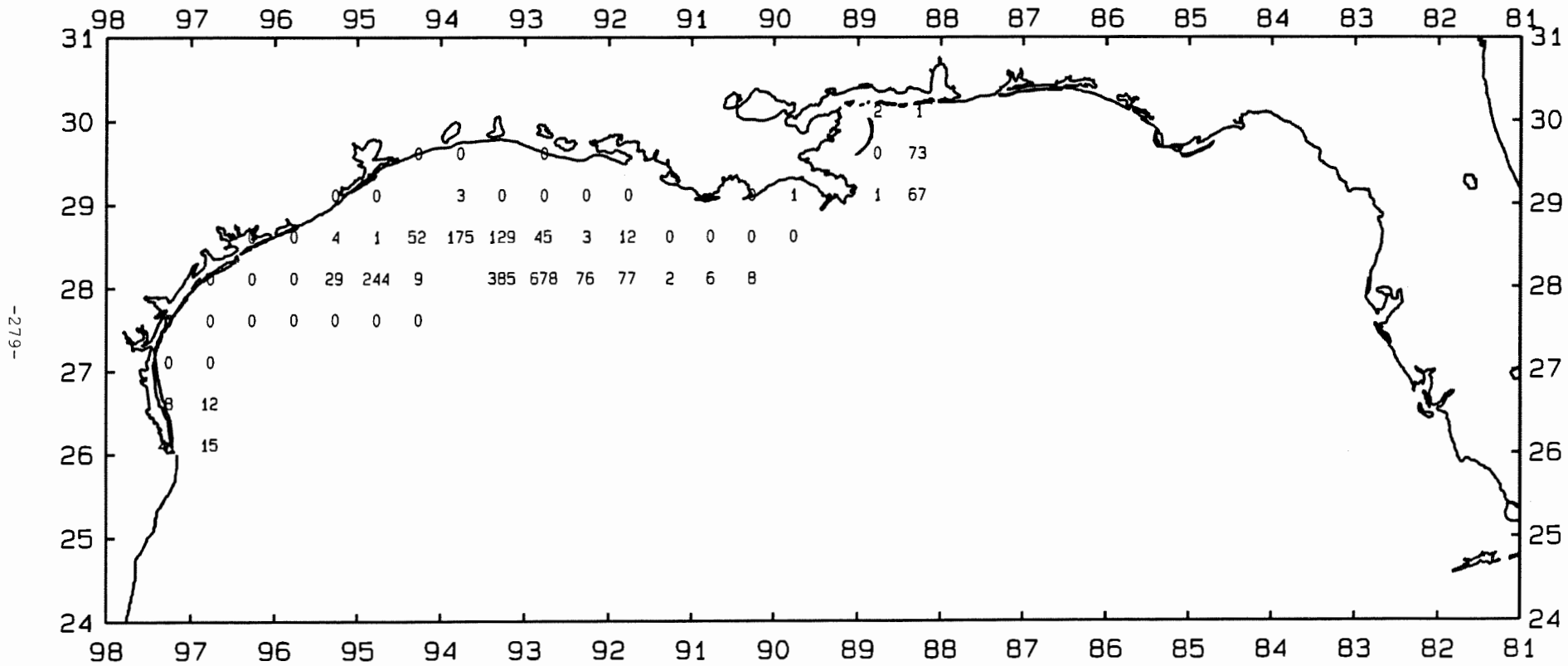


Figure 98. Brown rock shrimp, *Sicyonia brevirostris*, number/hour for October-December 1993.

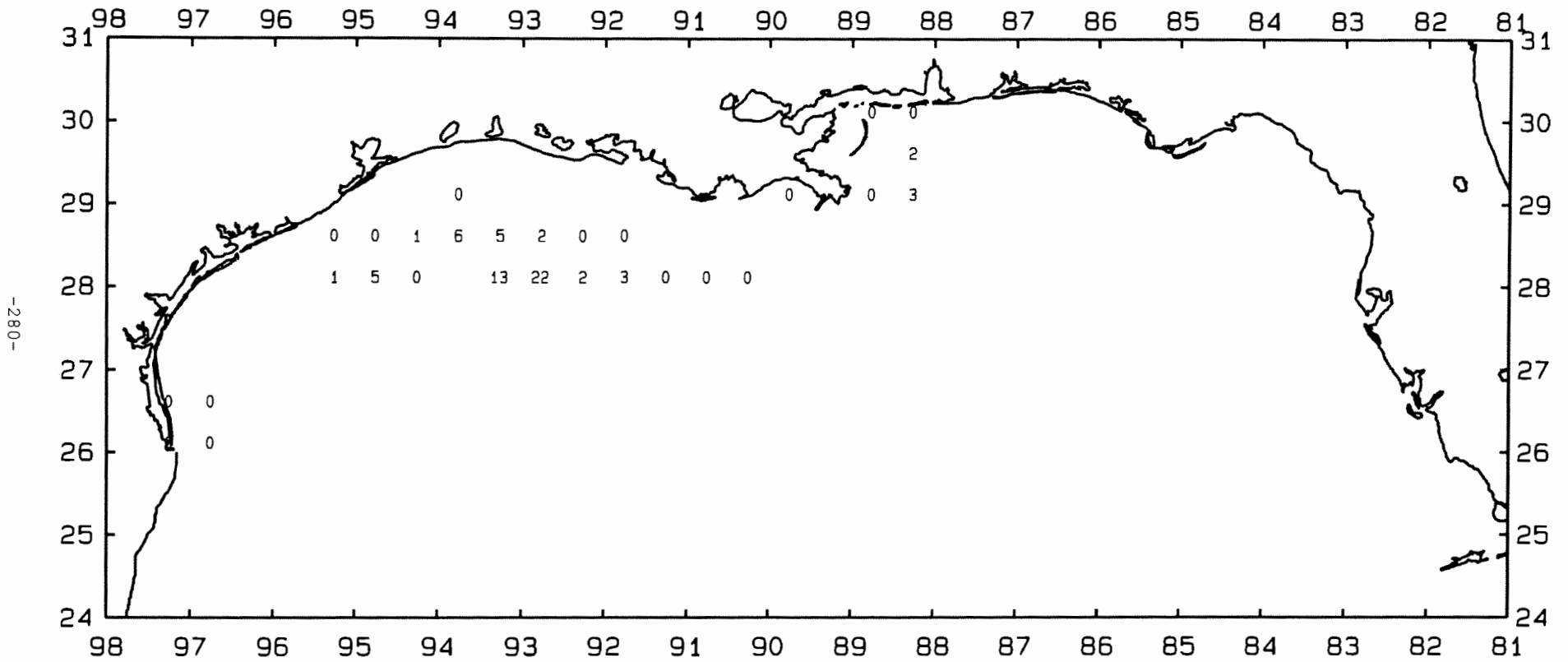


Figure 99. Brown rock shrimp, *Sicyonia brevirostris*, lb/hour for October-December 1993.

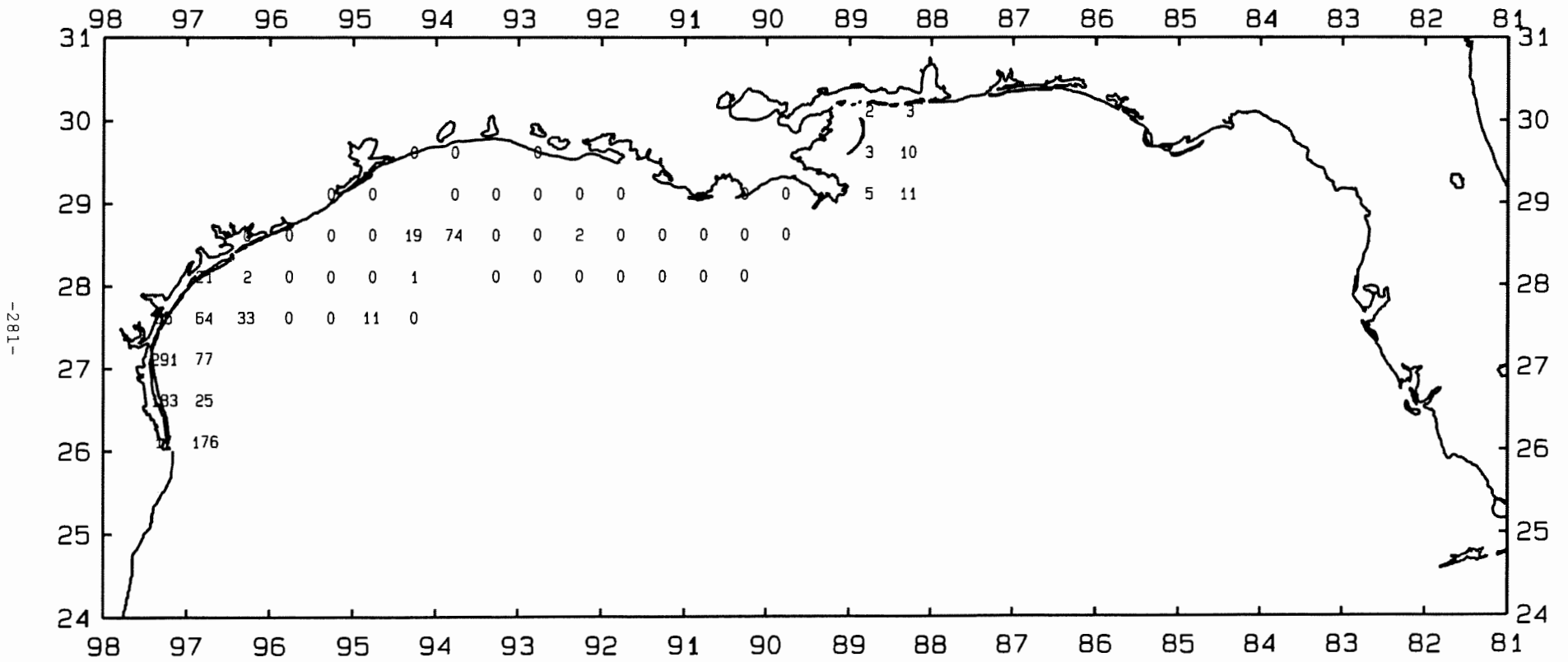


Figure 100. Squids, *Loligo* spp., number/hour for October-December 1993.

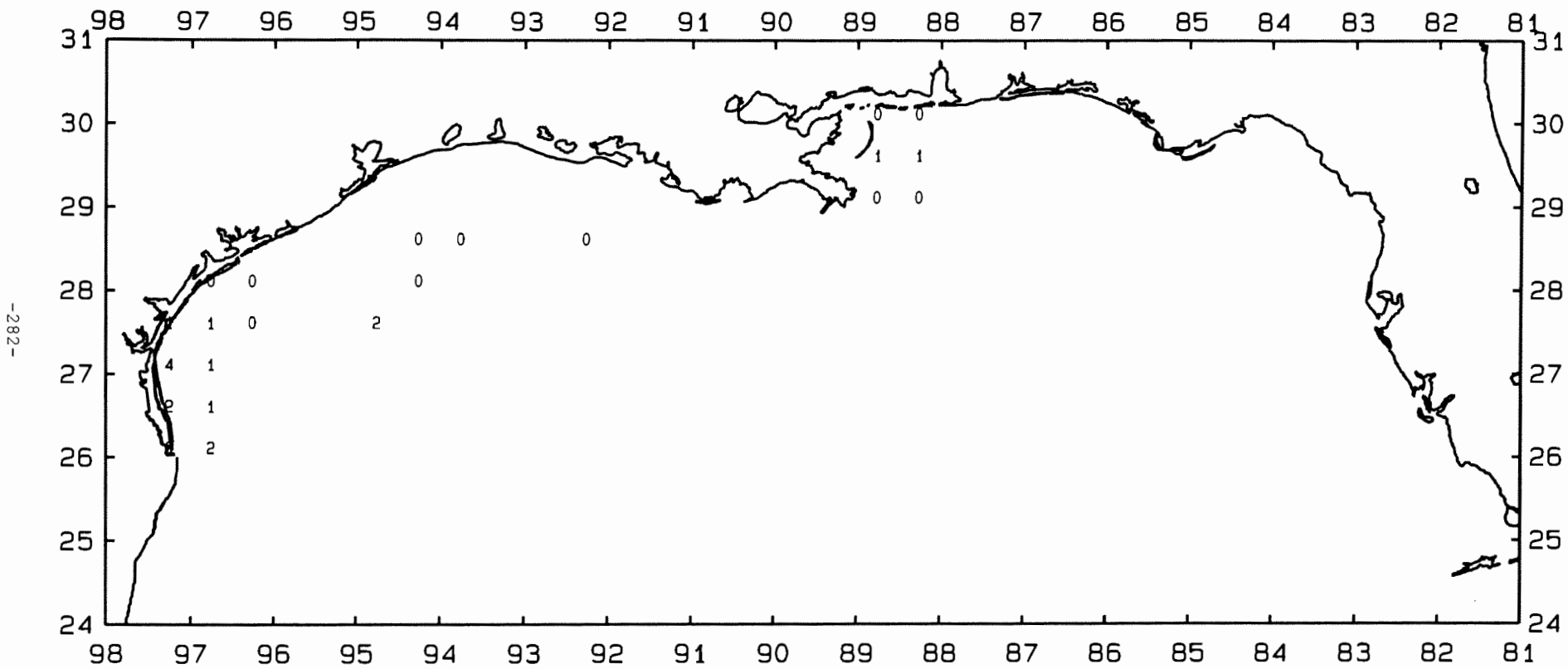


Figure 101. Squids, *Loligo* spp., lb/hour for October-December 1993.

LITERATURE CITED

- Atlantic States Marine Fisheries Commission. 1990. SEAMAP Management Plan: 1990-1995. Washington, DC: ASMFC. 56 p.
- Center for Wetland Resources. 1980. Management plan and final environmental impact statement for the shrimp fishery of the Gulf of Mexico, United States waters. Louisiana State Univ., Baton Rouge, Louisiana. 185 p.
- Donaldson, D.M., N.J. Sanders, and P.A. Thompson. 1993. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1991. Gulf States Marine Fisheries Commission. No. 29. 321 p.
- Donaldson, D.M., N.J. Sanders, and P.A. Thompson. 1994. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1992. Gulf States Marine Fisheries Commission. No. 30. 293 p.
- Eldridge, P.J. 1988. The Southeast Area Monitoring and Assessment Program (SEAMAP): A state-federal-university program for collection, management and dissemination of fishery-independent data and information in the southeast United States. *Mar. Fish. Rev.* 50(2): 29-39.
- Jeffrey, S.W. and G.F. Humphrey. 1975. New spectrophotometric equations for determining chlorophylls *a*, *b*, *c*₁ and *c*₂ in higher plants, algae and natural phytoplankton. *Biochem. Physiol. Pflanz* 167: 191-194.
- Grace, M., K.R. Rademacher and M. Russell. 1994. Pictorial guide to the groupers (Teleostei: Serranidae) of the western North Atlantic. NOAA Tech. Report. NMFS 118. 46p.
- Kelley, S., J.V. Gartner, Jr., W.J. Richards and L. Ejsymont. 1993. SEAMAP 1984 & 1985 - Ichthyoplankton. Larval distribution and abundance of Carangidae, Clupeidae, Coryphaenidae, Engraulididae, Gobiidae, Istiophoridae, Lutjanidae, Scombridae, Serranidae, and Xiphiidae in the Gulf of Mexico. NOAA Tech. Mem., NMFS-SESC-317.
- Kelley, S., J.V. Gartner, Jr., W.J. Richards and L. Ejsymont. 1990. SEAMAP 1986 - Ichthyoplankton. Larval distribution and abundance of Engraulididae, Carangidae, Clupeidae, Gobiidae, Lutjanidae, Serranidae, Coryphaenidae, Istiophoridae and Scombridae in the Gulf of Mexico. NOAA Tech. Mem., NMFS-SESC-245.
- Kelley, S., T. Potthoff, W.J. Richards, L. Ejsymont and J.V. Gartner. 1985. SEAMAP 1983 - Ichthyoplankton. Larval distribution and abundance of Engraulididae, Carangidae, Clupeidae, Lutjanidae, Serranidae, Scaenidae, Coryphaenidae, Istiophoridae, Xiphiidae and Scombridae in the Gulf of Mexico. NOAA Tech. Mem., NMFS-SEFC-167.
- Kramer, D., M.J. Kalin, E.G. Stevens, J.R. Thrailkill and J.R. Zweifel. 1972. Collecting and processing data on fish eggs and larvae in the California Current region. NOAA Technical Report. NMFS Circular 370. 38 p.
- Leming, T.D. and W.E. Stuntz. 1984. Zones of coastal hypoxia revealed by satellite scanning have implications for strategic fishing. *Nature*, 310 (5973): 131-138.
- McGowan, M.F. and W.J. Richards. 1986. Distribution and abundance of bluefin tuna (*Thunnus thynnus*) larvae in the Gulf of Mexico in 1982 and 1983 with estimates of the biomass and population size of the spawning stock from 1977, 1978, and 1981-1983. International Commission for the Conservation of Atlantic Tunas. Collective Volume of Scientific Papers. 24: 182-195.
- Nance, J.M. 1994. Biological review of the 1993 Texas Closure. NOAA Tech. Mem., NMFS-SEFSC-344.
- Nichols, S. 1982. Impacts of the 1981 and 1982 Texas closure on brown shrimp yields. NOAA, NMFS-SEFC. 44 p.
- Nichols, S. 1984. Impacts of the 1982 and 1983 closure of the Texas FCZ on brown shrimp yields. Report to the Gulf of Mexico Fishery Management Council.
- Nichols, S. and J.R. Poffenberger. 1987. Analysis of alternative closures for improving brown shrimp yield in the Gulf of Mexico. Report to the Gulf of Mexico Fishery Management Council.
- Posgay, J.A. and R.R. Marak. 1980. The MARMAP bongo zooplankton samplers. *J. Northw. Atl. Fish. Sci.* 1: 9-99.

LITERATURE CITED

- Richards, W.J., T. Potthoff, S. Kelley, M.F. McGowan, L. Ejsymont, J.H. Power and R.M. Olvera L. 1984. SEAMAP 1982 - Ichthyoplankton. Larval distribution and abundance of Engraulididae, Carangidae, Clupeidae, Lutjanidae, Serranidae, Sciaenidae, Coryphaenidae, Istiophoridae, Xiphiidae and Scombridae in the Gulf of Mexico. NOAA Tech. Mem., NMFS-SEFC-167.
- Sanders, N.J., P.A. Thompson and T. Van Devender. 1990a. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1986. Gulf States Marine Fisheries Commission. No. 20. 328 p.
- Sanders, N.J., P.A. Thompson and D.M. Donaldson. 1990b. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1987. Gulf States Marine Fisheries Commission. No. 22. 337 p.
- Sanders, N.J., D.M. Donaldson and P.A. Thompson. 1991a. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1988. Gulf States Marine Fisheries Commission. No. 23. 320 p.
- Sanders, N.J., D.M. Donaldson and P.A. Thompson. 1991b. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1989. Gulf States Marine Fisheries Commission. No. 25. 318 p.
- Sanders, N.J., D.M. Donaldson and P.A. Thompson. 1992. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1990. Gulf States Marine Fisheries Commission. No. 27. 311 p.
- Scott, G.P., S.C. Turner, C.B. Grimes, W.J. Richards, and E. B. Brothers. 1990. Indices of larval bluefin tuna (Thunnus thynnus) abundance from ichthyoplankton surveys in the Gulf of Mexico. SCRS/90/77 pages 257-270.
- Scott, G.P. and S.C. Turner. 1991. Updated indices of larval bluefin tuna (Thunnus thynnus) abundance from ichthyoplankton surveys in the Gulf of Mexico. SCRS/91/95.
- Sherman, K., R. Lasker, W. Richards and A.W. Kendall, Jr. 1983. Ichthyoplankton and fish recruitment studies in large marine ecosystems. Mar. Fish. Rev. 45 (10, 11, 12): 1-25.
- Smith, P.E. and S.L. Richardson, eds. 1977. Standard techniques for pelagic fish egg and larva surveys. FAO Fish. Tech. Paper 175. 100 p.
- Southeast Area Monitoring and Assessment Program (SEAMAP) Strategic Plan. 1981. Report to the Gulf States Marine Fisheries Commission. 50 p.
- Strickland, J.D.H. and T.R. Parsons. 1972. A practical handbook of seawater analysis. Ottawa: Fish. Res. Bd. Can. 310 p.
- Stuntz, W.E., C.E. Bryan, K. Savastano, R.S. Waller and P.A. Thompson. 1985. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1982. Gulf States Marine Fisheries Commission. 145 p.
- Thompson, P.A. and N. Bane. 1986a. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1983. Gulf States Marine Fisheries Commission. No. 13. 179 p.
- Thompson, P.A. and N. Bane. 1986b. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1984. Gulf States Marine Fisheries Commission. No. 15. 171 p.
- Thompson, P.A., T. Van Devender and N.J. Sanders, Jr. 1988. SEAMAP environmental and biological atlas of the Gulf of Mexico, 1985. Gulf States Marine Fisheries Commission. No. 17. 338 p.