

U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Southeast Fisheries Center  
Pascagoula Facility  
P. O. Drawer 1207  
Pascagoula, MS 39567-0112

84-3

NOAA Ship OREGON II Cruise 143  
4/20-5/24/84

### INTRODUCTION

The NOAA ship OREGON II departed Pascagoula, Miss. on April 20, 1984 for a 35 day survey in the northern Gulf of Mexico. The first 28 days consisted of an ichthyoplankton survey across the northern Gulf of Mexico for billfish and tuna larvae, and the last 7 days included a reef fish survey south of Galveston, Tex. Two port calls were made, one in Key West, Fla. on May 1 and 2, and another in Galveston on May 17 and 18. The cruise terminated in Pascagoula on May 24.

### OBJECTIVES

- 1) Collect ichthyoplankton samples to determine abundance and distribution patterns of eggs and larvae of commercial and recreational fishes in depths to 200 meters (m).
- 2) Collect temperature, salinity, and dissolved oxygen data at the surface, mid-depth and maximum depths (not to exceed 200 m).
- 3) Obtain water temperature profiles (XBTs) for Minerals Management Service.
- 4) Test satellite communication system for use on subsequent cruises.
- 5) Collect insects to detect possible transgulf migrations (U. S. Department of Agriculture through contract with Louisiana State University).
- 6) Locate significant tilefish and yellowedge grouper concentrations for a subsequent submersible study in September, 1984.

### MATERIALS AND METHODS

Plankton samples were taken with standard MARMAP bongo and neuston samplers. The bongo sampler consisted of two conical 61 centimeter nets with a mesh size of 333 microns. Tows were made using the single oblique method with towing speed varying between 1.5 and 2.0 knots. Bongo nets were set at a pay-out rate of 30 m per minute (due to winch limitations) and retrieved at 20 m per minute. Sampling depth varied from a maximum of

200 m to within 5 m of the bottom in depths less than 200 m. A torpedo shaped, digital flow meter was used to determine the amount of water filtered. Neuston samples were taken with a 947 micron mesh net on a 1 by 2 m frame. Tows were of 10 minute duration with half the frame submerged.

Intensive 24 hour sampling occurred at two locations (Figure 1) where 24 tows were conducted (12 during daylight and 12 during night) to depths of 50, 100, 200, and 400 m.

Samples were initially preserved in 10% buffered formalin and after 24 hours were transferred to 70% ethyl alcohol for final preservations.

Temperature and salinity data were recorded with a CTD unit. To verify CTD data, XBTs were dropped and water samples taken for salinity determinations once a day. Dissolved oxygen measurements were taken with an oxygen meter.

At each station, observations of cloud cover, water color, secchi disk, barometric pressure, wave height, and wind speed and direction were recorded.

Insect collections were made using 6 conical nets, 2 black light traps, and 10 sticky traps.

The reef fish survey consisted of acoustical transects between 200 and 400 m from 94°01' W. to 94°56' W. Longlines of 200 fathom length with 100 #7 circle hooks, baited with squid, were set to determine the presence of yellowedge grouper (Epinephelus flavolimbatus) and tilefish (Lopholatilus chamaeleonticeps). Location of sets was determined with a chronoscope, and cruise track records were maintained with a Loran C plotter.

## RESULTS

### LEG I

One hundred forty-three ichthyoplankton stations were sampled during the first leg of the cruise (Figure 1). Environmental collections were returned to Pascagoula for interpretations. Collections included; 96 XBT drops (for Minerals Management Service), 56 cloud cover observations, 33 secchi disc readings, 31 water color measurements, 56 temperature/salinity profiles (CTD), 111 salinity samples, and 173 dissolved oxygen readings. On May 7 the hydrographic winch used to operate the CTD malfunctioned, and hydrocasts were made to obtain salinity and oxygen samples. Plankton samples were shipped to the Polish Sorting Center in Szczecin, Poland for sorting and identification.

Plans to rendezvous with the RV ONJUKU of the Instituto Nacional de Pesca for comparative plankton sampling were cancelled due to mechanical failures on that vessel which required her to return to port for shipyard repairs.

On four occasions the satellite communication system was tested in conjunction with the Bay St. Louis, Miss. Facility located at the National Space Technology Laboratory. After minor adjustments were made to the shore based receiving station, the system proved to be operational.

A total of 574 insect specimens were collected as follows: nets (418), sticky traps (76), light traps (56) and 24 insects were collected at various locations aboard ship.

#### LEG II

Approximately 500 nm of acoustic track line were run in the study area south of Galveston, Tex. From the transected areas, eleven sites were selected based on a combination of depth, bottom topography, apparent bottom type, and markings of fish on a color enhanced fathometer. The eleven sets produced generally small catches of tilefish, with a maximum catch rate of 11 fish per 100 hooks. Sets in the same area made in the late 1960's and early 1970's produced rates of 20 to 30 fish per 100 hooks. Catches of yellowedge grouper were also low, with a maximum catch rate of 5 fish per 100 hooks. Several commercial longliners were seen working in the area during the survey period.

#### Cruise Participants

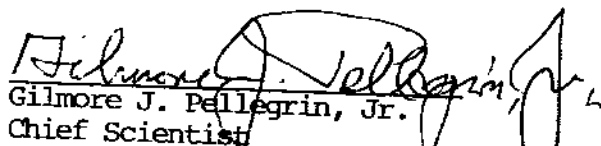
##### LEG I (4/20-5/17/84) 2/5

- G. Pellegrin, Jr., Chief Scientist, NMFS, Pascagoula, Miss.
- T. Potthoff, Principle Investigator, NMFS, Miami, Fla.
- D. Harper, Watch Leader, NMFS, Miami, Fla.
- A. Bertolino, Watch Leader, NMFS, Miami, Fla.
- J. Javech, NMFS, Miami, Fla.
- R. Jenkins, NMFS, Miami, Fla.
- M. Israel, Scientific Research Senior Specialist, LSU, Baton Rouge, La.


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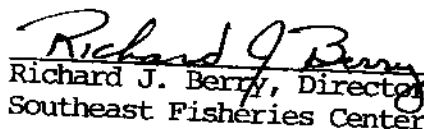
- W. Nelson, Chief Scientist, NMFS, Pascagoula, Miss.
- W. Stuntz, Watch Leader, NMFS, Pascagoula, Miss.
- D. Foster, Watch Leader, NMFS, Pascagoula, Miss.
- M. Russell, NMFS, Pascagoula, Miss.
- K. Lecke, Watch Leader, NMFS, Pascagoula, Miss.
- J. Barrett, NMFS, Pascagoula, Miss.
- T. Cody, Texas Parks and Wildlife, Rockport, Tex.

Submitted by:

  
Gilmore J. Pellegrin, Jr.  
Chief Scientist

Approved by:

  
Andrew J. Kenner, Director  
Mississippi Laboratories

  
Richard J. Berry, Director  
Southeast Fisheries Center

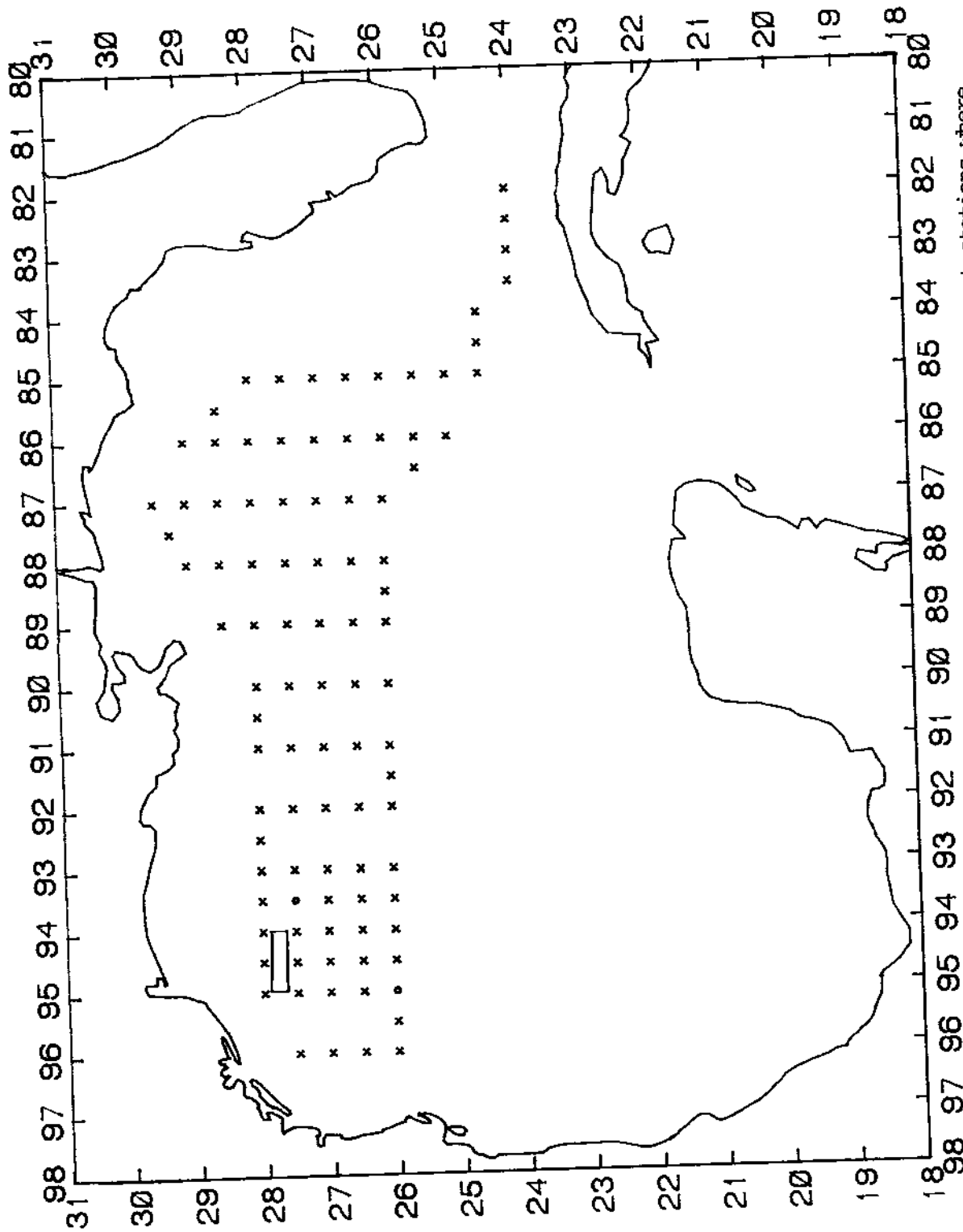


Figure 1. Station locations occupied during cruise 143. Circles represent stations where 24 hour intensive sampling occurred and x's represent stations where standard MARMAP bongo/neuston tows were made and temperature, salinity and dissolved oxygen data were collected.