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Occurrence of Chaceon Larvae in Plankton Samples from Slope Waters of the Northeastern Gulf of Mexico

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OCCURRENCE OF *CHACEON* LARVAE IN PLANKTON SAMPLES FROM SLOPE WATERS OF THE NORTHEASTERN GULF OF MEXICO

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ABSTRACT Geographic, seasonal, and bathymetric distributions of *Chaceon* larvae are described for the northeastern Gulf of Mexico.

INTRODUCTION

From 1986 to 1988 a cooperative research project to define geographic, seasonal and bathymetric distribution and abundance of geryonid crabs in the northeastern Gulf of Mexico was carried out by personnel of the University of Florida, the University of South Florida, and the Gulf Coast Research Laboratory (Lockhart *et al.* 1990).

Four seasonal cruises (May 1987, August 1987, December, 1987, and February 1988) were conducted in five distinct geographic sampling areas (Figure 1). Three depth contours (311, 494, and 677 m) were sampled in each area.

MATERIALS AND METHODS

Plankton tows were made at each depth contour in Areas 1 through 5. Oblique tows were taken with closing nets (1 meter diameter, 333 micron mesh) equipped with Niskin double-trip devices. Deployment rate was approximately 8 meters per minute. Tow depth and duration varied with station depth. The upper 200 meters of the water column were sampled at all depth contours (this was the only portion of the water column sampled at the 311 meter stations). At the 494 and 677 depth contours, bottom tow depth range was 200 to 400 meters and 200 to 500 meters, respectively. Samples were preserved in the field in 5% formalin and taken to Gulf Coast Research Laboratory for analysis.

Samples in May, August, November/December 1987

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and February 1988 were taken aboard the Gulf Coast Research Laboratory vessel R/V *TOMMY MUNRO*. An additional set of samples was taken in Area 5 in March 1988 by personnel of the University of South Florida aboard the R/V *SUNCOASTER* (Florida Institute of Oceanography).

RESULTS

Chaceon larvae occurred infrequently and in small numbers. Larvae of the red crab, *Chaceon quinquedens*, occurred in samples in February. Zoeal stages I, II, and III were identified from samples taken in the upper 200 meters of the water column (Table 1). Zoeae occurred in all areas except Area 4. The fourth zoeal stage and the megalopal stage were not collected.

Zoeae of *Chaceon fenneri* (Stuck *et al.* In manuscript) were more limited in distribution. Seven stage II zoeae were collected in a surface tow in Area 2 in February. All other occurrences were in Area 5 in March 1988; a single stage I zoea and two stage II zoeae were identified from surface samples, and one stage II zoea was taken in a bottom tow.

TABLE 1
Number of zoeae of *Chaceon quinquedens* by area and developmental stage.

Area	Zoea I	Zoea II	Zoea III
5		1	3
3	4	3	
2	6	6	1
1	9	4	1

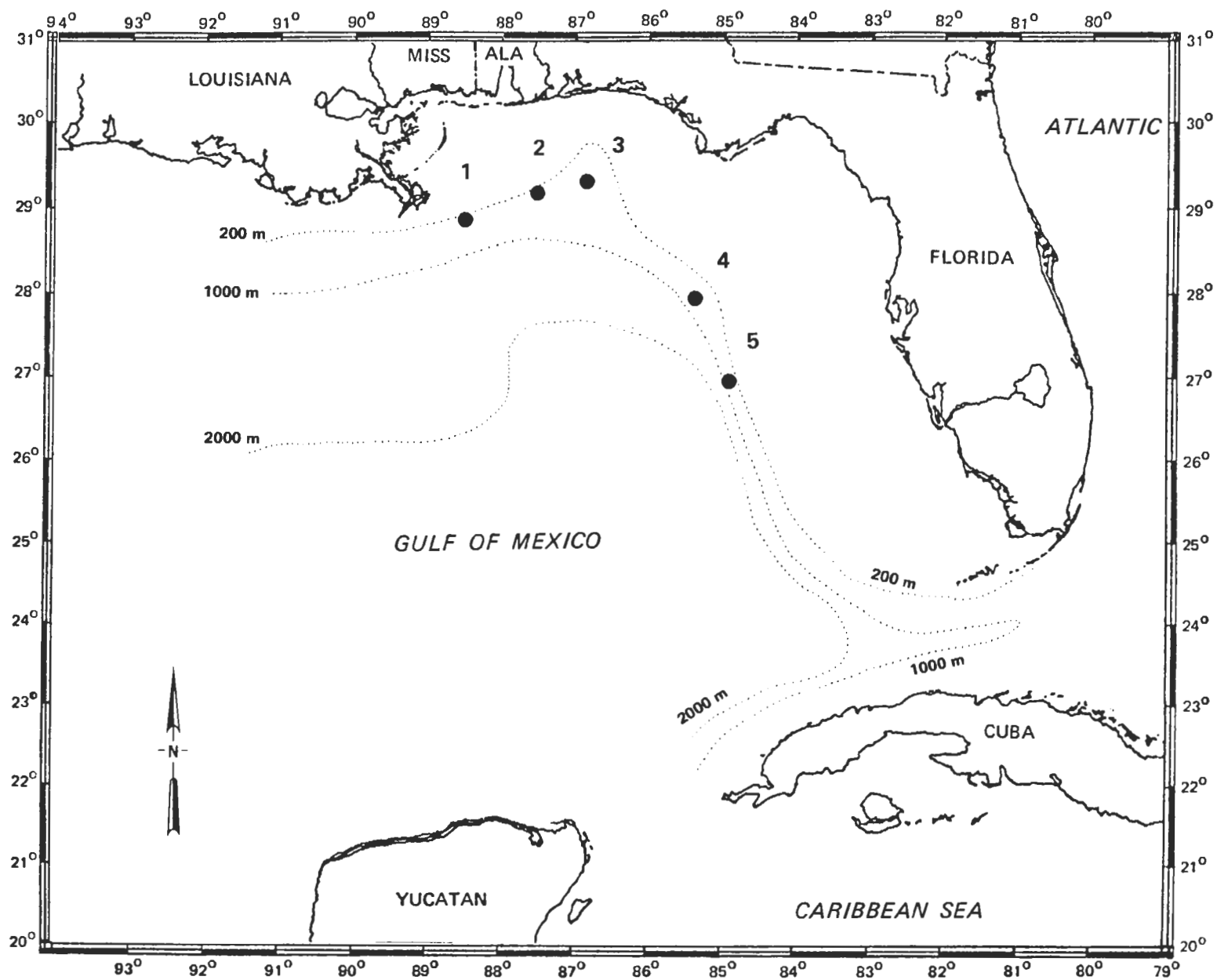


Figure 1. Locations of MARFIN-Chaceon sampling areas in the Gulf of Mexico.

DISCUSSION

Reproduction of *C. quinquegens* and *C. fenneri*, based on gross description of the intact ovary and histological examination of ovarian tissue, was discussed by Erdman *et al.* (In press) and Perry *et al.* (1989) for the eastern Gulf of Mexico. Both species exhibit an annual reproductive cycle. Oviposition in the red crab, *C. quinquegens*, begins in May with a brooding period of nine months. These data are similar to the data of Ganz and Hermann (1975) who suggest the same cycle for red crab in New England waters, though the timing of events occurs earlier in the Gulf of Mexico. Oviposition in the golden crab, *C. fenneri*, begins in late summer and the eggs are carried for six months. Reproduction of *C. fenneri* (Erdman *et al.* In press) corroborates the data of Hinsch (1988) for the eastern Gulf of Mexico, and was similar to that reported by Erdman and Blake (1988) for the Atlantic waters off southeast Florida.

Although oviposition occurs earlier in the red crab, hatching of larvae coincides in both species. Zoeae of *C. quinquegens* and *C. fenneri* occurred in plankton samples in February and March taken from slope waters of the eastern Gulf of Mexico. With a single exception, all larvae were taken in surface tows.

Field evidence (presence of egg remnants on pleopods), histological data, and the occurrence of larvae of both species support an annual cycle of reproduction for these species in the Gulf of Mexico with hatching of eggs in the late winter/early spring.

ACKNOWLEDGEMENTS

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