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SHORT COMMUNICATION

FIRST RECORD OF *CERATASPIS MONSTROSA*, A LARVAL OCEANIC PENAEOID CRUSTACEAN, FROM THE GULF OF MEXICO

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INTRODUCTION

The genus *Cerataspis* (Gray, 1838) (Crustacea, Decapoda), assigned to the Penaeoidea by Burkenroad (1936) and Heegaard (1966), has circumglobal distribution between 40°N and 40°S (Morgan et al. 1985) and is represented in the Atlantic Ocean by two rarely collected species, *C. monstrosa* and *C. petiti*. Descriptions of both species are based on the larval forms since their adult form remain undescribed (Morgan et al. 1985). Although the larval development of *Cerataspis* is described by five mysis stages (I-V) (Heegaard 1966), the large larva is very un-mysid like and appears more like that of a megalops with the abdomen bend slightly toward the thorax. Other early developmental stages and life history aspects of *Cerataspis* are unknown. The bulky shape of the spectacular carapace with its various tubercles, horns, spines and large oil droplets contained in four pair of dorsal carapace tubercles most likely provide buoyancy for this pelagic life stage (Heegaard 1966, Morgan et al. 1985). Although larval *Cerataspis*, particularly the last three mysis stages, are typically pelagic, Heegaard (1966) suggested the adult form might be a reptant penaeoid which lives in the abyssal zone.

Heegaard (1966) reported 41 specimens of *Cerataspis* (26 *C. monstrosa*; 15 *C. petiti*) by mysis larval stage. Nine of the *C. monstrosa* (six from plankton samples; three from stomach contents of dolphinfish (*Coryphaena* spp.) and 13 of the *C. petiti* (all from plankton collections) were reported from the Atlantic Ocean. Morgan et al. (1985) further provided analysis of an additional 240 specimens of *Cerataspis* collected during surveys conducted off the southeastern United States, including Batts (1972), Manooch et al. (1983), and Manooch and Mason (1984). One of those specimens was collected by plankton net, and all others were found in the stomach contents of either yellowfin tuna (*Thunnus albacares*), blackfin tuna (*Thunnus atlanticus*), skipjack tuna (*Katsuwonus pelamis*) or dolphinfish (*Coryphaena hippurus*). To date, assessment of plankton collections and food habits of pelagic fishes from the Atlantic Ocean, inclusive of the Gulf of Mexico (GOM) (Heegaard 1966, Morgan et al. 1985), has provided no records of *Cerataspis* from the GOM. We report the first record of *C. monstrosa* from the GOM, one collected by plankton net and two collected from the esophagus of a wahoo, *Acanthocybium solandri*.

MATERIALS AND METHODS

A single specimen of *C. monstrosa* was collected from the GOM on 5 June 2004 at 1856 h by a Tucker trawl plankton net (1 m x 2 m, 0.333 mm mesh net) towed at 10m depth (Latitude 27° 18.7'N, Longitude 87° 28.5'W; GCRL Sta. 04011, Coll. 19-16). Water temperature and salinity at 10m were 27.8°C and 36.4 ppt., respectively.

Two specimens of *C. monstrosa* were removed from the esophagus of a wahoo at the Mississippi Gulf Coast Billfish Classic (Biloxi, Mississippi) fishing tournament on 5 June 1998. The 102 cm fork length and 13.4 kg total weight female wahoo was caught by surface trolled hook-and-line gear at 1530 h from the northern GOM (Latitude 28° 30' N, Longitude 86° 30' W) (Capt. Tripp Tolbert, pers. comm., Fort Walton Beach, Florida).

All specimens of *C. monstrosa* were photographed in fresh condition and fixed in 95% ethanol. Identification of *C. monstrosa* was based on morphometric characteristics of *Cerataspis* mysis larval stages (Heegaard 1966). The fixed specimens were measured (millimeters, mm) for carapace length (CL), carapace width (CW) and total length (TL) following Heegaard (1966) and Morgan et al. (1985).

RESULTS AND DISCUSSION

The specimen of *C. monstrosa* collected by plankton net (Figure 1, GCRL Museum catalog number GCRL2512) measured 8.0 mm CL, 6.0 mm CW, and 15.0 mm TL, and was assigned mysis stage III. This specimen represents the second published record of the genus *Cerataspis* collected by plankton net from the western Central Atlantic Ocean. The first record (mysis stage I) was reported from a 1862 Danish expedition to the West Indies (Heegaard 1966). The specimen reported here was alive when removed from the net and quickly placed in a container with seawater for observation. The remarkable larva exhibited hues of pink, lavender and purple, coloration characteristic of many neustonic organisms (Morgan et al. 1985), and its movements

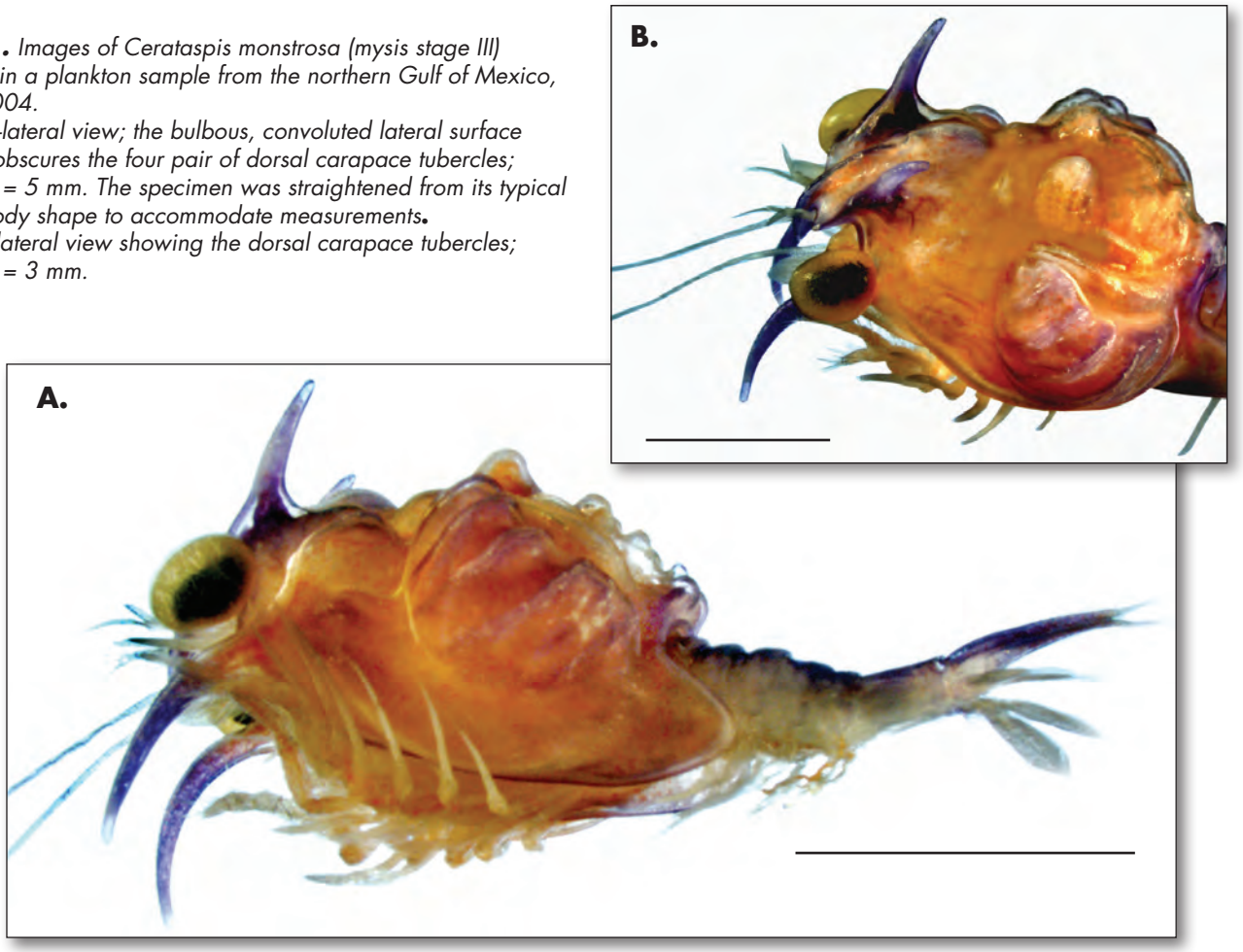

Figure 1. *Images of Cerataspis monstrosa (mysis stage III) collected in a plankton sample from the northern Gulf of Mexico, 5 June 2004.*
A. Ventro-lateral view; the bulbous, convoluted lateral surface partially obscures the four pair of dorsal carapace tubercles; scale bar = 5 mm. The specimen was straightened from its typical curved body shape to accommodate measurements.
B. Dorso-lateral view showing the dorsal carapace tubercles; scale bar = 3 mm.

(apparently the first recorded observations of live *Cerataspis*) can best be described as periodic, rapid flexing of the abdomen away from the thoracic region, followed by immediate resumption of the typical curved body shape. Movements were similar to the 'flipping' motion displayed by peneaid shrimp when removed from water. Unfortunately, it was not practical to rear the larva in the laboratory in an attempt to describe older developmental stages.

Mysis stage III *Cerataspis* most likely occur in surface waters (Morgan et al. 1985); however, the stage III specimen we reported here was collected at a depth of 10 m from the western boundary of the Loop Current. The Loop Current is characterized by convergences, upwellings and strong flow (current speed characteristically 50 cm/s) along its outer boundary where planktonic organisms, including larvae of Caribbean and southern GOM origins, can become entrained and transported into the northern GOM (Johnson et al. 1992, Gasca et al. 2001). The origin of the specimen collected from Loop Current waters, however, is unknown.

The two specimens of *C. monstrosa* collected from the esophagus of the wahoo (GCRL museum catalog number GCRL2513) measured 10.0 mm CL each, 6.0 and 7.0 mm CW, and 21.0 and 22.0 mm TL, respectively, and were assigned mysis stage IV. The specimens were collected ~6 h after capture of the wahoo, appeared in excellent condition, and displayed vivid coloration that suggested they were recent prey. Morgan et al. (1985) examined stomach contents records of 885 wahoo from the Atlantic Ocean and 1,315 from the Pacific Ocean and found no accounts of *Cerataspis*.

Magnuson and Heitz (1971) reported that volumes of pelagic crustaceans in the stomach contents of predatory fishes from the Pacific were inversely related to the mean gill raker gap, and that wahoo, which has no gill rakers, had no crustaceans among their stomach contents. Manooch and Hogarth (1983) suggested the absence of small items in the diet of wahoo was attributable to the lack of gill rakers. In contrast, Morgan et al. (1985) found stomach contents of pelagic fishes with small gill raker gaps (tunas) contained greater numbers of larval *Cerataspis* than stomach contents of pelagic fishes with large gill raker gaps (e.g., dolphin).

Morgan et al. (1985) reported that the pelagic macroalga *Sargassum* (Phaeophyceae) was found in the stomachs of yellowfin tuna which also contained *Cerataspis*, and further considered *Cerataspis* a member of the surface community associated with pelagic *Sargassum*. Pelagic *Sargassum*, recently designated as essential fish habitat (EFH) for wahoo (SAFMC 2003), accumulates in large mats and along oceanic

frontal boundaries in the northern GOM (Comyns et al. 2002). Unlike some pelagic fishes that primarily feed at or near the surface of the water, wahoo do not readily feed at the surface (Manooch and Hogarth 1983). Nevertheless, the wahoo with specimens of *C. monstrosa* reported here was caught on surface fishing gear towed adjacent to a *Sargassum* driftline (Capt. Tripp Tolbert, pers. comm., Fort Walton Beach, Florida) where the fish might have incidentally consumed the larvae.

Specimens of *C. monstrosa* reported here represent the first documented records of the genus *Cerataspis* from the GOM, as well as from wahoo. Furthermore, the specimen collected by plankton net represents the second published record of the genus *Cerataspis* collected by this method from the Western Central Atlantic Ocean. These collections expand the known range of *Cerataspis* to the GOM and contribute to the knowledge of penaeoid crustaceans in the wider Atlantic Ocean.

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