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**NOTES ON TWO RARE SPECIES
OF ANGLERFISH *Himantolophus*
(CERATIOIDEI: HIMANTOLOPHIDAE)
COLLECTED IN THE EASTERN
GULF OF MEXICO.**

During cruises made in January 1986 and January 1987 to the eastern Gulf of Mexico near 27°N, 86°W, two specimens of the ceratioidei anglerfish genus *Himantolophus* were captured using a modified Tucker trawl system. These were identified as two rare species recently described by Bertelsen and Krefft (1988). Each specimen measured 42 mm standard length and both were collected alive and in excellent condition. The 1986 specimen represents a new geographic record for *H. multifurcatus* and is only the fourth known specimen. It was captured at night (0153-0253 hr CST) between 200-300 m. The 1987 specimen is the sixth record for *H. cornifer* and the second from the Gulf. It was collected in a deep, open-oblique sweep (0-700 m) during the day (1327-1658 hrs CST). Both specimens have been deposited in the Florida State Museum Ichthyology Collection (catalogue numbers UF 79364 and UF 79365, respectively).

Meristics and illicial characters of both species agreed closely with the descriptions in Bertelsen and Krefft (1988). Fin ray counts were as follows: D 5, A 4 (both species); P 16 (*H. cornifer*); P 17 (*H. multifurcatus*). The illicium of *H. multifurcatus* closely resembles that of the 43 mm paratype illustrated by Bertelsen and Krefft (1988:62 Fig. 25A); the illicium of *H. cornifer* is most similar to the figure of the 90 mm holotype of this species (Bertelsen and Krefft, 1988:66, Fig. 28A) except that the larger illicial branches have but a single bifurcation.

The specimen of *H. multifurcatus* was maintained in a 1 l container of seawater at 22°C and was observed for a

period of approximately 30 min and simultaneously videotaped. The body was maintained in a constant head down "dive" attitude, an escape response noted by others for a variety of midwater species (e.g., Barham, 1971, on myctophids). Swimming was sub-carangiform, derived solely from a nearly continuous and rapid side-to-side movement of the tail. A total of 30 time trials calculated from videotape playbacks gave a mean tail beat (one complete cycle) of 2.93 beats sec⁻¹. The dorsal and anal fins moved in conjunction with the tail. The pectoral fins were not used at all in swimming.

The specimen of *H. cornifer* (wet weight 7.762 g) was placed in a 575 ml respirometer at 7°C and its respiratory rate recorded using a computer data-logger system (for methodology, see Donnelly and Torres, 1988). After an initial period of activity due to the stress of capture, the animal remained quiescent for the duration of the experiment. Excluding the initial excitatory period, oxygen concentration within the chamber was measured continuously for approximately 4.5 hr and a wet-weight-specific respiration rate was calculated as 0.019 μ l O₂ mg wet weight⁻¹ hr⁻¹. Although no data are available in the literature for direct comparison, this rate falls within the range of values presented for other deep-living non-migratory midwater fishes (Torres *et al.*, 1979; Smith and Laver, 1981).

Previous discrete-depth capture records for similar sized individuals of *H. cornifer* (38 and 39 mm SL) and *H. multifurcatus* (43 and 48 mm SL) correspond well with our data (450-600 m and 180-360 m, respectively, Bertelsen and Krefft, 1988). The 7°C temperature used for determination of metabolic rate is well within the temperatures for *H. cornifer* in its bathymetric range. Thus, our respiration data for *H. cornifer* is a reasonable

78 Short papers and notes

estimate of routine metabolism for this species.

The 22°C temperature at which the visual observations were made is somewhat higher than *H. multifurcatus* would experience within the depth range of capture (in the eastern Gulf of Mexico, temperature is about 18°C at 200 m). However, our observations on *H. multifurcatus*, coupled with the relatively shallow depth of capture, suggest a capability for sustained, fairly rapid swimming activity despite the differences between experimental and environmental temperatures.

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