

## Notes

**PEARLFISH (CARAPIDAE) IN *ACANTHASTER PLANCI* (L.).**<sup>1</sup>—Pearlfishes are symbionts with certain invertebrates, primarily with echinoderms as hosts. Two genera of pearlfishes have been collected on Guam (Mariana Islands) by Branch (1969) and Trott (1970) from a number of holothurian species and the cushion starfish, *Culcita novaeguineae* Müller and Troschel. The author has recently observed Guam pearlfishes inhabiting the crown-of-thorns starfish, *Acanthaster planci* (L.). One juvenile *Encheliophis (Jordanicus) gracilis* (Bleeker) and three adult specimens of *Carapus mourlani* (Petit) were collected while assessing the reproductive potential of *Acanthaster*. Three were taken as they emerged, apparently under oxygen stress, from the oral cavities of moribund starfish. One *C. mourlani* was found in the coelomic cavity of a dissected *Acanthaster*. No more than one pearlfish was recovered from each starfish host. The stomachs of all collected pearlfishes were empty and the fish and their starfish hosts appeared normal.

The juvenile and adult *E. gracilis* is usually associated with holothuroids and on Guam is not commonly seen in asteroid hosts. Branch (1969) recovered none from *Culcita* (n=49) and Trott (1970) obtained one from the samples he examined (n=11). Of 1776 specimens of holothuroids examined by Branch (1969), 10% contained one or more *E. gracilis*. Mature adults were found consistently in only one species, *Holothuria argus*. The larvae of *E. gracilis* are relatively non-specific and are not infrequently found in asteroid hosts (Trott, 1970).

The *C. mourlani* (University of Guam Museum Cat. No. 5789) had total lengths of 70 mm, 121 mm, and 124 mm. This species is usually associated with *Culcita* and holothuroids are apparently minor hosts. *C. mourlani* was reported to occur in 90% of the *Culcita* (n=11) sampled by Trott (1970) and in 45% of those (n=49) sampled by Branch (1969). The small number of *C. mourlani* specimens taken

from partly and completely dissected (n=450) and aquarium-held *Acanthaster* suggests that this starfish, despite its frequent but sporadic abundance, is not a major *C. mourlani* host. Our limited collections indicate that the *Acanthaster*-Carapidae associations do not differ from the form of endocommensalism found in other pearlfish-echinoderm relationships. *Acanthaster* and *Culcita* are both coral-eating starfish and share many of the same reef habitats; therefore, the probability of pearlfish infesting *Acanthaster* is probably maximized in dense and mixed *Acanthaster* and *Culcita* populations.

### REFERENCES

- Branch, J. B. 1969. Observations on the ecology and behavior of Guam pearlfishes (Carapidae). M. S. Thesis, University of Guam. 250 p.
- Trott, L. B. 1970. Contributions to the biology of Carapid fishes (Paracanthopterygii: Gadiformes). Univ. Calif. Pub. in Zool., Vol. 89. 60 p.
- DANIEL P. CHENEY, *The Marine Laboratory, University of Guam, Agaña, Guam 96910*
- THREE NEW SHARK RECORDS FROM GUAM, MARIANA ISLANDS.<sup>2</sup>—A shark fishing program was carried out on Guam between August, 1971 and March, 1972. The purpose of the study was to add to the species known from the island and to gain some insight as to their local distribution. Sharks are infrequently captured around Guam and very little taxonomic or ecological data exists.
- Records of sharks previously taken from Guam include *Ginglymostoma ferrugineum* (Orectolobidae), *Trienodon obesus* (Triakidae), *Carcharhinus menisorrah* (= *C. amblyrhynchos*), and *C. melanopterus* (Carcharhinidae) (Kami, Ikehara, and Deleon, 1968); *Alopias pelagicus* (Alopiidae), *Hexanchus griseus* (Hexanchidae), and *Sphyrna lewini* (Sphyrnidae) (Kami, 1971).

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The survey yielded three additional records all from the family Carcharhinidae. These were *Carcharhinus galapagensis* Snodgrass and Heller, *C. falciformis* Muller and Henle, and *Galeocerdo cuvieri* Lesueur.

Five specimens of Galapagos sharks (*C. galapagensis*) were taken. These included three females and two males. Four of these were caught in the daytime and near the bottom at depths of 150 to 300 m. One of these (239 cm TL) was attacked by a large tiger shark (*G. cuvieri*) while being pulled to the surface. The smallest Galapagos shark (115 cm TL) was caught at night on the surface in about 180 m of water.

Two pelagic silky sharks (*C. falciformis*) were caught. One female was taken in midwater at a depth of 75 m and near an actively feeding tuna school. The other silky, a male, was taken at dusk on the surface and farther inshore in waters about 50 m deep. The larger shark (226 cm TL) possessed a deformed second dorsal fin and the smaller (203 cm TL) a deformed first dorsal.

Two male tiger sharks (*G. cuvieri*) were taken

at depths of 152 and 304 m. The larger one (343 cm TL) contained a large green turtle in advanced stages of digestion. Both sharks were well marked with the dark transverse bars characteristic of tiger sharks.

On Guam, the Galapagos shark seems to be the most abundant shark captured in waters deeper than 70 m. This shark has not previously been recorded west of the Hawaiian Islands.

#### REFERENCES

- Kami, H. T., I. I. Ikehara, and F. P. DeLeon. 1968. Check-list of Guam fishes. *Micronesica* 4(1):95-131.
- Kami, H. T. 1971. Check-list of Guam fishes supplement 1. *Micronesica* 7(1-2):215-228.
- PATRICK G. BRYAN, *The Marine Laboratory, University of Guam, Agana, Guam 96910.*
- Addendum:* A fourth new record was collected while this paper was in press. *Carcharhinus albimarginatus* (77.5 cm TL), a juvenile female, distinctly marked with white margined fins, was caught at night on the surface over a school of akule (*Trachurops crumenophthalmus*) in water 65 m deep.