

## DEVELOPMENT OF THE CUBOMEDUSAE, CARYBDEA MARSUPIALIS

For the first time the life history of this common inshore species of Cubomedusae has been observed in entirety. Carybdea marsupialis is present the year around in bays, harbors and mangrove channels. The species is oviparous and a few ripe specimens may be found in any season. The polyps have been found on dead bivalve shells on the bottom of mangrove channels.

Settlement of planulae occurs about two days after fertilization of ova. Polyps attain the definitive complement of 24 tentacles in about 72 days at which time the body length is 1.5 mm. From the 12-tentacle stage on, the polyps produce, asexually, hydra-like buds near the mid column. These buds are shed with five to 12 tentacles and henceforth resemble the parent polyp in morphology and rate of development.

The chief features of the solitary polyp are its long, contractile, cone-shaped peristome; its solid, capitate tentacles which lack nematocysts except for a single large one at the tips; nematocysts unlike those found in the medusa; overall ciliation; and total and direct transformation of the polyp into a medusa. Unlike scyphopolyps, the cubopolyp is not tetramerous until metamorphosis and it lacks periderm, septa, longitudinal muscle bundles and peristomial pits.

Onset of metamorphosis to medusa is evidenced by shortening of the polyp tentacles and squaring of the crown. The polyp tentacles coalesce into four groups of

six as they are resorbed and ultimately become the four rhopalia, each with six pigment spots. Before resorption of polyp tentacles is complete, two medusa tentacles begin to form. Unlike polyp tentacles, these bear annular batteries of nematocysts. The calyx of the polyp swells and the peristome recedes within it to become the manubrium, and at the same time the hollow interior of the medusa bell is created. The stalk of the polyp rapidly decreases in size, but before it is completely resorbed, the two-tentacled medusa begins to pulsate and breaks loose from the substrate with the remnant of the stalk still present on the apex of the bell. About 10 days later two more tentacles appear, pedalia begin to form on the first two tentacles, the polyp stalk is completely resorbed, and the young medusa, except for size, resembles the adult sexual stage.

The several basic features by which the cubopolyp differs from either the hydro-polyp or scyphopolyp, together with morphological peculiarities of the medusa generation, suggest that the Cubomedusae may comprise a taxon comparable in rank to that of Scyphozoa and Hydrozoa.

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