Hypoconcha spp. – shellback crabs and their larval stages

Classification

Kingdom Animalia
Phylum Arthropoda
Subphylum Crustacea
Class Malacostraca
Subclass Eumalacostraca
Superorder Eucarida
Order Decapoda
Infraorder Brachyura
Superfamily Dromioidea
Family Dromiidae
Genus *Hypoconcha*

What are they?

Hypoconcha sp. (shellback crabs) are among some of the most interesting decapod crustaceans. As members of the Dromiidae family, these crabs have fourth and fifth walking legs that are modified to secure a bivalve shell on their back for protection. They can bear a fragment or a whole shell that is larger than their body size. Perhaps aided by pressure of its body against the shell, *Hypoconcha* sp. cling so tightly that removal from the shell without crushing it is almost impossible (Williams, 1984).

Figure 1. *Hypoconcha parasitica* (left), and *Hypoconcha arcuata* (right) without their attached shells.

Figure 2. A female rough shellback crab, *Hypoconcha parasitica* in her shell.

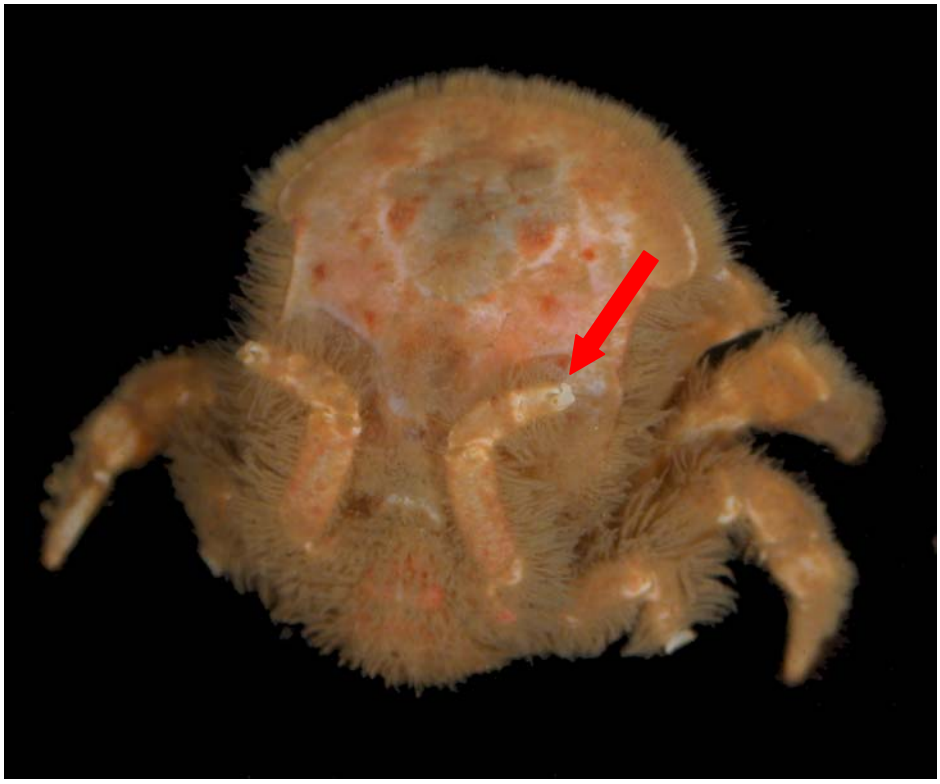

Figure 3. Dorsal view of *Hypoconcha arcuata*, showing the modified fourth and fifth walking legs. Note the hooked dactyl for grasping bivalve shells.

Distribution and habitat

Western Atlantic *Hypoconcha* sp. are distributed in the coastal marine environment from shallow water to depths of more than 100 feet, living on sand or shelly bottoms. There are three species occurring in the eastern coast of the US: *Hypoconcha arcuata, Hypoconcha parasitica* and *Hypoconcha spinosissima.*

Life cycle

Larval crabs of *Hypoconcha* species (and most brachyurans) look very different from the adults. They pass through four larval stages: three stages of zoea and one transitional stage named "megalopa" or "glaucothoe". During the larval period they live in the plankton and are prey of fishes and larger planktonic invertebrates. After the megalopa stage they molt to a small juvenile crab. During the juvenile and adult period they inhabit the sand and coral bottoms from coastal areas, eating small invertebrates. Females carry eggs in the abdomen during the warmer months of the year.

Figure 4. Megalopa of *Hypoconcha spinosissima*.

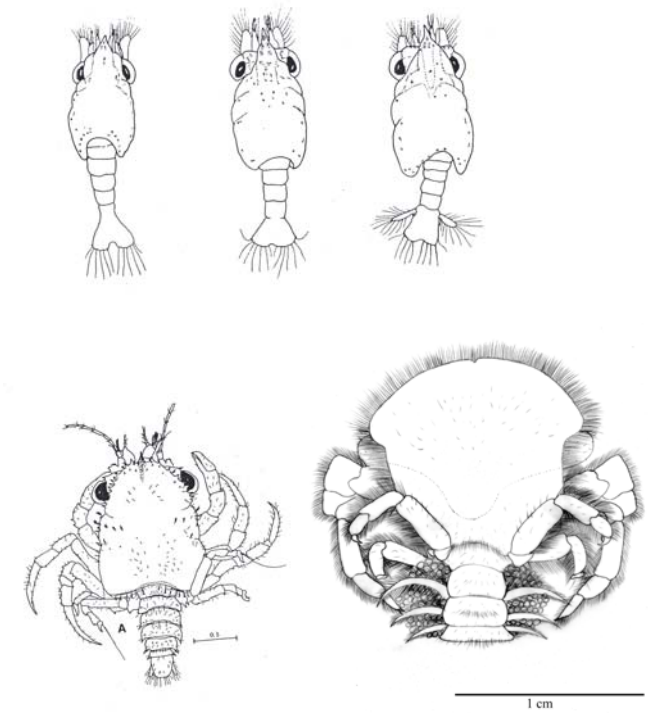

Figure 5. Dorsal views of *Hypoconcha parasitica*: zoea 1,2 and 3 (top, left to right); megalopa (bottom left) (from Lang & Young, 1980); adult (bottom right) (author's drawing)

Among the three mentioned species, *Hypoconcha spinosissima* is very interesting as it has several spines distributed on the body that may be seen in ventral view. Thus, one can easily recognize *H. spinosissima* by searching for the spines on the chelipeds (first claw) or covering the ventral portion of the carapace. These features can be seen even in a very small juvenile.

Figure 6. Juvenile stages of *Hypoconcha spinosissima*. The juvenile crab (right) is using a small fragment of a shell for protection.

When walking on the beach during low tidelooking for shells to add to your collection you may find a *Hypoconcha* crab nestled under an old clam shell. Do not remove it from its protective shell, but enjoy the interesting shape and nature of this curious crab.

Authors:

Dr. Maria Lucia Negreiros Fransozo, Visiting Scientist, Depto. Zoologia, Instituto de Biociencias, UNESP, Universidad Estadual Paulista, Sao Paulo, Brasil

Susan Thornton-DeVictor, Wildlife Biologist II, Southeastern Regional Taxonomic Center, Charleston, SC

Images: Adilson Fransozo and Susan Thornton-Devictor

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