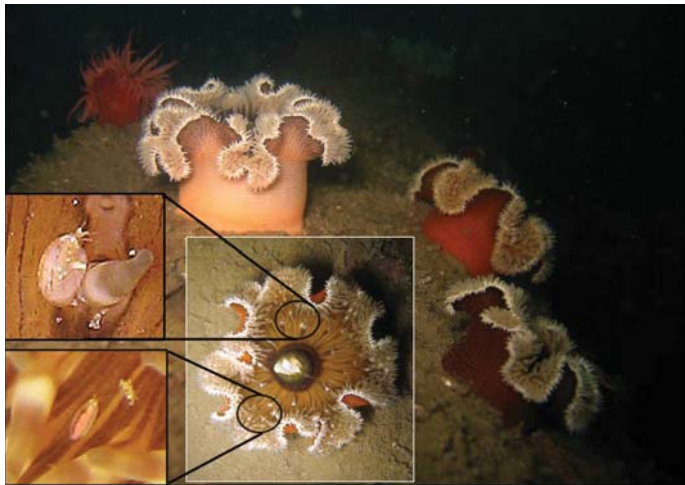


# CRUSTACEAN SYMBIONTS AT HOME IN SUSPENSION FEEDERS

When diving along the Chilean coast one is often overwhelmed by the sheer numbers and sizes of suspension-feeding invertebrates. Hundreds and thousands of sea anemones form dense carpets of tentacles reaching out for suspended particles, and huge accumulations of bivalves occur both in the intertidal and subtidal of exposed rocky shores. The Chilean coast is also home to the giant barnacle *Austromegabalanus psittacus*, the rapid growth of which had already impressed Charles Darwin (1854): 'At Coquimbo, in Chile, I procured a specimen of *B. psittacus*, attached to a chain cable which had been in the water only six months; this specimen measured 1.3 of an inch in basal diameter, and 0.8 in height: this shows a rapid rate of growth.'



**FIGURE 1.** *Antholoba achates* (sea anemone) with *Parametopella antholobae* (crustacean).

Given their ubiquity and beauty, many of these suspension-feeders attract the attention of divers. This frequently happens to us, when we take our camera under water to capture these fascinating creatures on screen. These large suspension feeders are also very attractive to a wide variety of crustacean symbionts, which use them as a microhabitat or as food supply. For example, the porcelanid crab *Allopetrolisthes spinifrons* uses the sea anemone *Phymactis papillosa* as an anchor in the exposed rocky intertidal, but it feeds on suspended particles that it obtains independently (Valdivia & Stotz, 2006). The small pinnotherid crab *Calyptraeothers* sp. lives in the mantle cavity of the suspension feeding gastropod *Calyptraea trochiformis*; and there are even a number of smaller crustaceans, including amphipods and isopods that frequently use these large suspension

feeders as hosts. To our great surprise we recently discovered one of these little inquilines on a photograph of a sea anemone from about 20 m water depth in Coquimbo, Chile. We had taken this photograph for the beauty of this sea anemone (*Antholoba achates*) and when we magnified the image, we suddenly noticed that there were small amphipods all over the oral surface of the sea anemone. After realizing this, we dug out an older sample of *A. achates* on which we had noticed many amphipods. We forwarded some individuals to the world authorities on these amphipods who recently described this as a species new to science (Krapp-Schickel & Vader, 2009). While we now can put a name to this species, a lot remains to be done to better understand this and other associations. What do the crustaceans gain from these suspension feeders? Do they obtain food from them, or do these larger invertebrates provide safe havens in benthic environments with many competitors and predators? We will have to go diving again.

**Florian Schneider, Ivan Hinojosa and Martin Thiel\***

Universidad Catolica del Norte, Larrondo 1281, Coquimbo, Chile  
\*E-mail: thiel@ucn.cl

## FURTHER READING

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Valdivia, N. & Stotz, W., 2006. Feeding behavior of the porcellanid crab *Allopetrolisthes spinifrons*, symbiont of the sea anemone *Phymactis papillosa*. *Journal of Crustacean Biology*, **26**, 308–315.

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Krapp, T. & Vader, V. A new *Parametopella* species (Crustacea: Amphipoda: Stenothoidae) from *Antholoba achates* (Anthozoa: Actiniaria) from Coquimbo, Chile (with remarks on *Parametopa alaskensis* (Holmes)). *JMBA*. Published online doi:10.1017/S0025315409000484.

**FIGURE 2.** (A) Giant barnacle *Austromegabalanus psittacus*; (B) sea anemone *Phymactis papillosa* with the porcelanid crab *Allopetrolisthes spinifrons*; (C) filter feeding snail *Calyptraea trochiformis*; (D) large ascidians *Pyura chilensis*.

