

## Note

# First record of an association between a phyllosoma larva and a Prayid siphonophore

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**Abstract:** A scyllarid lobster phyllosoma larva was observed attached to the siphosome of a prayid siphonophore while SCUBA diving in the Canary Islands. The phyllosoma was straddling the siphosome, which was still alive, with one pereopodal endopodite per siphosomal cormidia and used its pereopodal exopodites to pull the siphosome through the water. It did not detach, even after repeated disturbances, and it is proposed that the phyllosoma may be using the prayid siphosome as both food and for protection from predators.

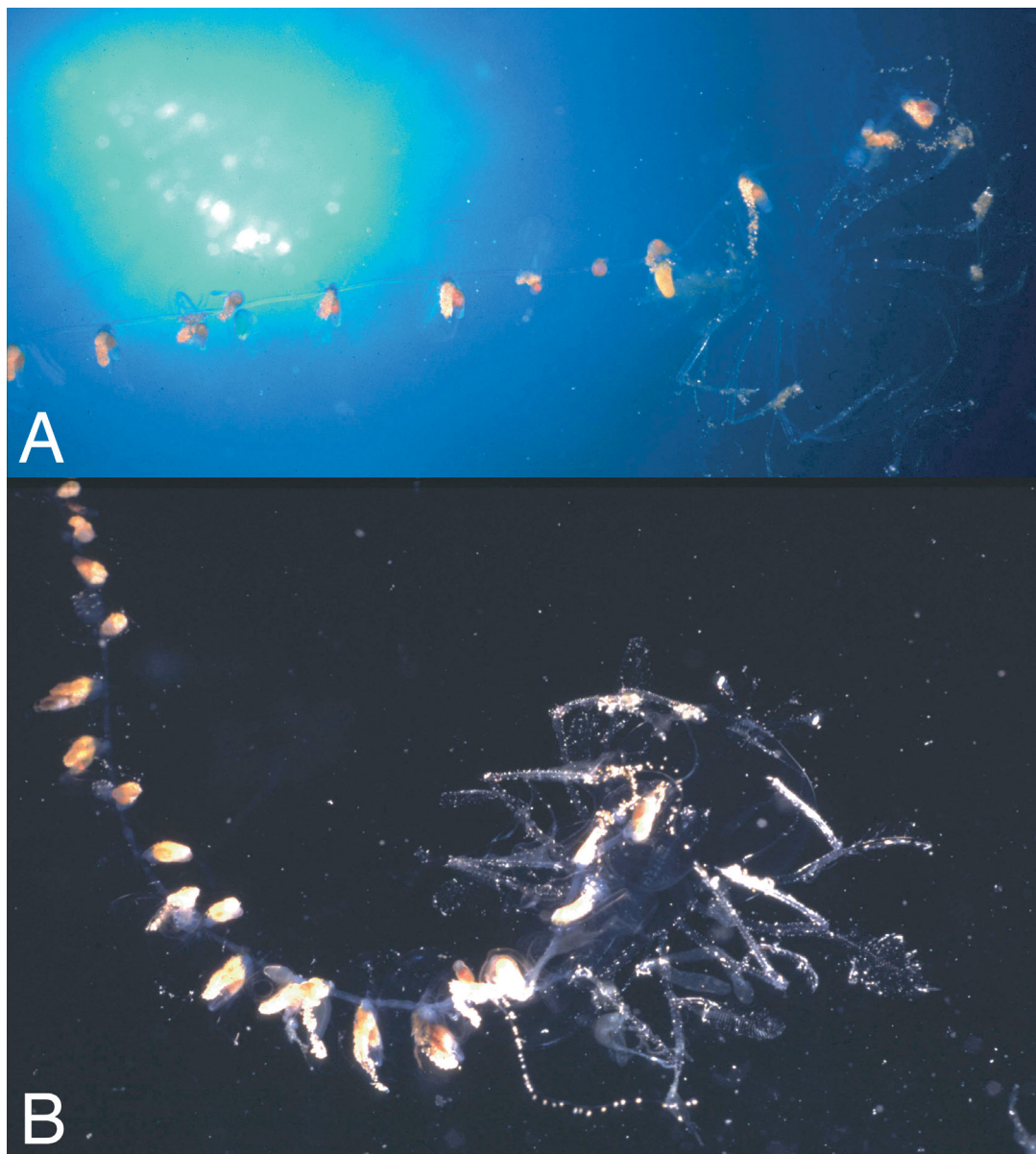
**Key words:** association, lobster, phyllosoma, Prayidae, *Scyllarus*, siphonophore.

There are several records in the literature of associations between the phyllosoma larvae of lobsters and pelagic members of the phylum Cnidaria. Shojima (1963) reported *Ibacus* and *Scyllarus* phyllosomas riding the scyphozoans *Aurelia aurita* (Linnaeus 1758) and *Chrysaora melanaster* Brandt 1838 (as *Dactylometra pacifica*) as well as hydrozoans belonging to the family Laodiceidae and *Liriope tetraphylla* (Chamisso & Eysenhardt 1821) in the harbour of Nagasaki (Japan). Thomas (1963) observed *Ibacus* phyllosomas on the scyphozoans *Pelagia noctiluca* (Forskål 1775) (as *Pelagia panopyra*) and *Catostylus mosaicus* (Quoy & Gaimard 1821) in New South Wales (Australia). Herrnkind et al. (1976) also reported *Scyllarus* phyllosomas together with *A. aurita* in the Caribbean. Barnett et al. (1986) collected many *Thenus* and *Scyllarus* phyllosoma larvae closely associated with medusae (probably scyphozoans). Interestingly, all of these phyllosoma larvae that have been reported “piggy-backing” on cnidarians are scyllarid lobsters of the genera *Ibacus*, *Scyllarus* or *Thenus*. No palinurid phyllosoma has yet been reported in such an association. *Panulirus longipes bipinosus* was recently reported to have hydrozoan cnidarian tissue in its gut based on 18S rDNA analysis of gut content, but this may have been an artefact of feeding within the cod end of the net on other plankton caught in the same haul (Suzuki et al. 2006). Evidence for predation of a phyllosoma larva (*Scyllarus* sp., stage VII?) on a physonect siphonophore (*Nanomia bijuga* or a closely related

species) has recently been reported in a larva caught by a mid-water trawl in the Pacific Ocean (Suzuki et al. 2006). This animal was found clinging to the net mesh rather than in the cod end so presumably the predation was real and not an artifact due to net-feeding. As far as we are aware there has as yet been only one record, in the form of a PhD thesis, reporting direct observations of associations between phyllosomas and siphonophores (Biggs 1976). In that dissertation, the phyllosoma larvae of lobsters were observed by SCUBA divers to ride on the siphonophores *Agalma okeni* (Physonectae, Agalmatidae) and *Diphyes dispar* (Calycophorae, Diphyidae) (Biggs 1976). The present report is the first to record a phyllosoma larva associated with a calycophoran siphonophore belonging to the family Prayidae.

During a prolonged safety stop at about 3 m depth after a scuba-dive near Gran Canaria (Pasito Blanco: 27°44.5'N, 15°39.9'W) on 13th February 1999 in broad daylight, the senior author observed something that superficially looked like a salp chain between 50 and 60 cm long coming towards him in a straight line at a slow speed. At first the source of the movement did not reveal itself, but each time after disturbing the “chain” it stretched out again to resume moving in the initial direction. Only after disturbing the colony about 6 times was a highly transparent phyllosoma larva noticed to be attached to it (Fig. 1A, B). This phyllosoma appeared to be attached to the colony by means of the endopodites of the pereopods, while using the exopods of the pereopods to pull the colony through the water column. Several in situ photographs of this associa-

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**Fig. 1.** In situ photographs of a *Scyllarus* lobster phyllosoma larva associated with the siphosome of a Prayid siphonophore. A, backlit, and B, darkfield.

tion were taken and subsequent examination has revealed that the colony was in fact the siphosome (stem) of a Prayid caly-cophoran siphonophore (Fig. 1A, B). The phyllosoma larva can be identified as belonging to a late-stage larva of *Scyllarus* sp. due to the following combination of characters: cephalon shape and morphology of antennae and pereiopods (Sekiguchi 1986, Sekiguchi & Inoue 2002). Each of the pereiopod endopodites of the phyllosoma was attached to a separate cormidium of the siphonophore, causing it to straddle the siphosome at one of its terminal ends. Although the definitive nectophores of this siphonophore do not seem to be attached to the remainder of the colony, the cormidia of some caly-cophoran siphonophores are known to contain nectophores used for propulsion (Dunn et al. 2005). Gonads are visible

within many of the siphosomal nectophores (thereby identifying them as true gonophores) in the present prayid species (Fig. 1B). The presence of these sexual products would greatly inhibit the propulsive abilities of these nectophores (gonophores) and, furthermore, the active beating of the exopods of the phyllosoma suggest that it, rather than the siphosome itself, was the instigator of motion.

Although this report is once again of an association between a scyllarid lobster phyllosoma and a cnidarian, these observations differ from published observations on the behaviour of phyllosoma larvae associated with other scyphozoans and hydrozoans (Shojima 1963, Thomas 1963). In these cases the phyllosomas obviously used their partners for transport and probably for protection and/or for food. The phyllosoma we

observed functioned as the active transport instead. It pulled its siphonophore through the water in a northeasterly direction and resumed doing so after having been severely disturbed and put on different, even opposite courses. The siphonophore was most probably being used for food, possibly also for protection, and perhaps for a combination of both.

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