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A review of the physonect siphonophore genera *Halistemma* (Family Agalmatidae) and *Stephanomia* (Family Stephanomiidae)

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Abstract

Re-descriptions are given for all the known species in the siphonophore physonect genera *Halistemma* (Family Agalmatidae) and *Stephanomia* (Family Stephanomiidae fam. nov.) based almost entirely on specimens collected by submersibles or ROVs. A new *Halistemma* species, *H. maculatum* sp. nov., is also described. Until now two of the *Halistemma* species were known only from incomplete specimens, such that for one, *H. cupulifera* Lens & van Riemsdijk, only the tentilla had been described, while for the other, *H. striata* Totton, only the nectophores were known. The species *Stephanomia amphytridis* Lesueur & Petit, originally established on the basis of only an illustration of part of the siphosome, is poorly known and several descriptions in the past have been based on further siphosomal material that actually belonged to a species of *Halistemma*. A specimen of that species, which included the nectosoma, was recently described by Mapstone (2004) as *H. amphytridis*, but Pugh (2006) considered that it actually belonged to *H. foliacea* Quoy & Gaimard. That specimen has been re-examined for this study. The taxonomic position of the two genera is discussed. Although only distantly related the species of the two genera have a post-larval form referred to as the *Nectalia* stage. Haeckel (1888b) originally described a specimen at this stage as a separate species, *Nectalia loligo*. *Nectalia* stage specimens of two *Halistemma* species and of *S. amphytridis* were present in the material and their relationship with Haeckel's specimen is discussed.

Key words: Siphonophora, Physonectae, *Halistemma*, *Stephanomia*, *Nectalia*, Morphology, Taxonomy

Introduction

Lesueur & Petit (1807, Plate XXIX, fig. 5) (see Figure 1) illustrated, in the Atlas to the "Voyage de découvertes aux Terres Australes", part of the siphosome of a physonect siphonophore, to which they gave the name *Stephanomia Amphytridis*. The exact location where the specimen was collected is unknown and, as Totton (1954) pointed out, according to the narrative of the voyage it could have been anywhere between Le Havre and Mauritius. In the first volume of that narrative Péron & Lesueur (1807, p. 45¹) said, "What shall I say now of this other species of zoophyte, which, like a beautiful azure-coloured garland of crystal, floats at the surface of the water, regularly

1. Original quote: Que dirai-je maintenant de cette autre espèce de zoophyte, qui, semblable à une belle guirlande de cristal couleur d'azur, se promène à la surface des flots, soulève successivement ses folioles diaphanes, et qui ressemble à des feuilles de lierre! Ses beaux tentacules couleur de rose sont étendus au loin, cherchant par-tout la proie dont l'animal doit se nourrir. A peine elle est trouvée, que déjà ces tentacules l'ont enveloppée d'un réseau fatal. L'animal alors se resserre sur lui-même, en formant une espèce de cercle autour de la pâture qu'il vient de conquérir. Des milliers de suçoirs, semblables à de longues sangsues, s'élancent dans le même instant du dessous des folioles dont je viens de parler, et qui, dans l'état de repos, servent à les recouvrir et à les protéger... Quelques momens à peine se sont écoulés, et déjà la proie la plus volumineuse a disparu.... Dois-je insister sur cette admirable propriété phosphorique commune à la plupart des animaux de cette classe, mais qui dans celui dont je parle, se manifeste plus vive et plus éclatante encore, ce qui le fait paroître au milieu des ténèbres comme une belle guirlande de flammes et de phosphore!

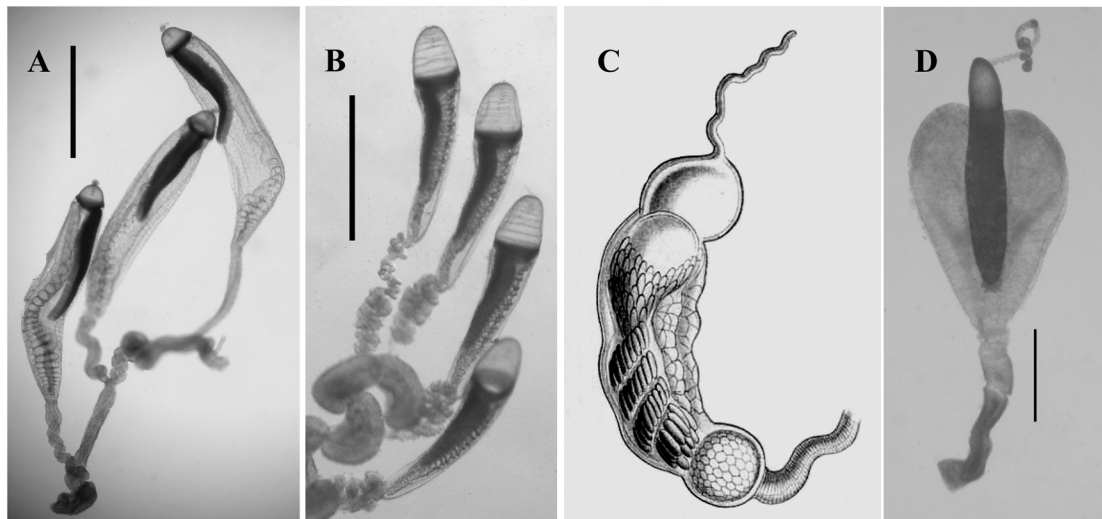


FIGURE 117. Comparison of larval tentilla from *Nectalia* post-larval stages of **A.** *Halistemma rubrum*, **B.** *Halistemma maculatum* sp. nov., **C.** *Nectalia loligo* Haeckel (1888b), and **D.** *Stephanomia amphytridis*. Scale bars, where known, 1 mm.

One possible way to home in on an identity might be to compare the size of the larval bracts, although it must be remembered that intraspecifically these can be quite variable in length. We know from the present descriptions that these larval bracts measured up to 15 mm in length for *Halistemma rubrum*, for both *H. transliratum* and *H. maculatum* sp. nov. they were up to 32.5 mm in length, while Haeckel (1888b) stated that his bracts were up to 25 mm in length. This indicates that Haeckel's specimen might belong to either of the last two species mentioned or, perhaps *H. cupulifera*. Haeckel's specimen came from the Canary Islands, in the N.E. Atlantic; while all the known specimens of *H. maculatum* sp. nov. came from the Bahamas. *H. transliratum* was also collected from The Bahamas, but other specimens have been found in the N.E. Atlantic, north of the Canary Islands; with one specimen from just south of the equator. The records for *H. cupulifera* are very patchy and many are difficult to verify, but it is known to occur in the Sargasso Sea. Thus, although there can be little doubt that Haeckel's *Nectalia loligo* is the post-larval form of a *Halistemma* species, probably we will never be able to establish to which species it belonged.

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