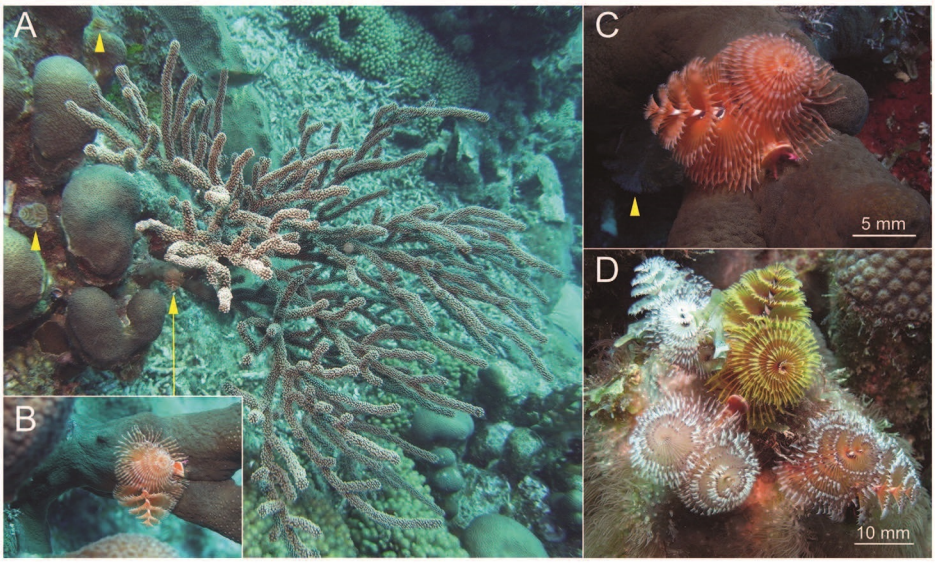
Bull Mar Sci. 91(4):000–000. 2015
http://dx.doi.org/10.5343/bms.2015.1049

Octocorals as secondary hosts for Christmas tree worms off Curaçao

Bert W Hoeksema *, Yee Wah Lau, Harry A ten Hove

Department of Marine Zoology, Naturalis Biodiversity Center P.O. Box 9517, 2300 RA Leiden, Netherlands.
** Corresponding author email: <bert.hoeksema@naturalis.nl>.*



Christmas tree worms, *Spirobranchus* spp. (Serpulidae), are known for their wide range of stony host corals, being either scleractinians or milleporids (Hunte et al. 1990, Dai and Yang 1995, Floros et al. 2005, Montebon and Yap 2009, Hoeksema and ten Hove 2014). Reef-dwelling *Spirobranchus* worms usually settle on the host coral's surface, where they build tubes that can become overgrown by the live coral, except for the tube opening and operculum (Nishi 1996). Based on their position in relation to coral skeleton growth bands, *Spirobranchus* worms are estimated to reach longevities of 10–40 yrs (Nishi and Nishihira 1996). Additionally, it is known that coral-associated *Spirobranchus* species are able to settle on non-coral substrate (Skinner et al. 2012).

During reef surveys off the leeward side of Curaçao (2014 and 2015), Christmas tree worms of the species *Spirobranchus giganteus* (Pallas, 1766) were encountered on living and dead host corals. Octocorals (order Alcyonacea) were among the live host corals, which has not been recorded before. Several of these octocorals were *Erythropodium caribaeorum* (Duchassaing and Michelotti, 1860), found encrusting on dead coral (Panel D). A single worm was found in the stem of a black sea rod, *Plexaura homomalla* (Esper, 1792), growing on a scleractinian coral, *Orbicella annularis* (Ellis and Solander, 1786), at Sea Aquarium reef (Panels A–C), which was also host-

ing worms itself (Panels A, C: arrow heads). The *Plexaura* was identified by sclerite examination using the work of Bayer (1961).

The worm was embedded inside the *Plexaura*'s coenenchyme and appeared to have grown upward from the scleractinian substrate, where another worm occurred next to the octocoral's base (Panel C: arrow head). Apparently, octocorals overgrowing scleractinians act as secondary hosts for *Spirobranchus* worms, as observed in some sponges (Hoeksema et al. in press).

Acknowledgments

We thank CARMABI and Curaçao Sea Aquarium for their hospitality and logistic support. B Reijnen (Naturalis Biodiversity Center) confirmed the octocoral identities. This publication is Ocean Heritage Foundation / Curaçao Sea Aquarium / Substation Curaçao contribution OHF/CSA/SC#18.

Literature Cited

Bayer FM. 1961. The shallow-water Octocorallia of the West Indian region. Stud Fauna Curaçao Carib Is. 12(1):1–373. http://www.repository.naturalis.nl/record/506065

Dai CF, Yang HP. 1995. Distribution of *Spirobranchus giganteus corniculatus* (Hove) on the coral reefs of Southern Taiwan. Zool Stud. 34(2):117–125. http://zoolstud.sinica.edu.tw/Journals/34.2/117.pdf.

Floros CD, Samways MJ, Armstrong B. 2005. Polychaete (*Spirobranchus giganteus*) loading on South African corals. Aquat Conserv Mar Freshwat Ecosyst. 15(3):289–298. http://dx.doi.org/10.1002/aqc.666

Hoeksema BW, ten Hove HA. 2014. First record of a christmas tree worm in a mushroom coral (Loyalty Islands, Southwest Pacific). Coral Reefs. 33(3):717. http://dx.doi.org/10.1007/s00338-014-1175-9

Hoeksema BW, ten Hove HA, Berumen ML. In press. Christmas tree worms evade smothering by a coral-killing sponge in the Red Sea. Mar Biodiv. http://dx.doi.org/10.1007%2Fs12526-015-0339-3

Hunte W, Conlin BE, Marsden JR. 1990. Habitat selection in the tropical polychaete *Spirobranchus giganteus*. I. Distribution on corals. Mar Biol. 104(1):87–92. http://dx.doi.org/10.1007/BF01313161

Montebon ARF, Yap HT. 2009. Abundance, density, and size structure of *Spirobranchus gaymardi* (Polychaeta, Serpulidae) in Philippine coral reefs. Bull Mar Sci. 84(1):93–108.

Nishi E. 1996. Serpulid polychaetes associated with living and dead corals at Okinawa Island, southwest Japan. Publ Seto Mar Biol Lab. 37(3–6):305–318. http://hdl.handle.net/2433/176262.

Nishi E, Nishihira M. 1996. Age-estimation of the Christmas tree worm *Spirobranchus giganteus* (Polychaeta, Serpulidae) living buried in the coral skeleton from the coral-growth band of the host coral. Fish Sci. 62(3):400–403. https://www.jstage.jst.go.jp/article/fishsci1994/62/3/62_3_400/_pdf.

Skinner LF, Tenório AA, Penha FL, Soares D. 2012. First record of *Spirobranchus giganteus* (Pallas, 1766) (Polychaeta, Serpulidae) on Southeastern Brazilian coast: new biofouler and free to live without corals? Pan-Am J Aquat Sci. 7(3):117–124. http://www.panamjas.org/pdf_artigos/PANAMJAS_7(3)_117-124.pdf

Date Submitted: 27 July, 2015.
Date Accepted: 27 August, 2015.
Available Online: