

# In situ observations on withdrawal behaviour of the sea pen *Virgularia mirabilis*

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Received: 2 April 2013 / Revised: 21 June 2013 / Accepted: 25 June 2013  
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Sessile marine organisms respond to environmental disturbance and predation by means of different adaptive strategies. Sea pens (Octocorallia, Pennatulacea) are colonial cnidarians adapted to survive on the muddy and sandy bottoms of the continental shelf and slope. Some of them can withdraw partially or completely into the sediment on an apparent rhythmic but unsynchronized procedure (Langton et al. 1990). Withdrawal into the sand or mud by sea pens tend to be preceded by the closure of the polyps and the expulsion of the water contained within the colony (Hoare and Wilson 1977). Only a few contractions are generally sufficient for the animal to hide into the mud and some colonies can withdraw into the sediment within few seconds if disturbed.

The reasons for such withdrawal and extension behaviour of sea pens are not well understood, and the existing information

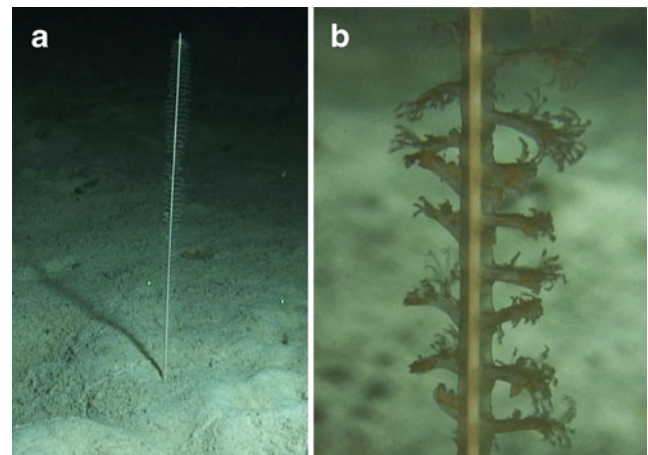
is equivocal. Hoare and Wilson (1977) described a possible tidal-based rhythm for *Virgularia mirabilis* while Wilson (1975), using time-lapse photography, found a 22- to 27-h rhythm for this species that was independent of lighting and tidal regime. Anyhow, there is a lack of in situ observations to provide evidence for this type of behaviour in the field. Here, observations are presented for the first time on the withdrawal behaviour of *Virgularia mirabilis* (for identification, see Greathead et al. 2007). They were made at ca 100 m depth by means of a Remotely Operated Vehicle (ROV) in the mobile bottoms of the continental shelf, showing that this species retracts smoothly and with the polyps fully expanded (see Fig. 1 and Online Resource 1).

**Electronic supplementary material** The online version of this article (doi:10.1007/s12526-013-0172-5) contains supplementary material, which is available to authorized users.

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**Fig. 1** **a** *Virgularia mirabilis* on the continental shelf of Menorca Channel (39°54'01"N, 3°22'01"W) **b** Close-up showing expanded polyps

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