

# MarLIN Marine Information Network

Information on the species and habitats around the coasts and sea of the British Isles

# Phosphorescent sea pen (Pennatula phosphorea)

MarLIN – Marine Life Information Network Marine Evidence-based Sensitivity Assessment (MarESA) Review

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**Please note**. This MarESA report is a dated version of the online review. Please refer to the website for the most up-to-date version [https://www.marlin.ac.uk/species/detail/1817]. All terms and the MarESA methodology are outlined on the website (https://www.marlin.ac.uk)

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## **Summary**



#### Description

Colonies are stout and fleshy and up to 40 cm long. The seapen is composed of a basal peduncle embedded in the substratum, from which arise leaf-like branches. Fused polyps form large triangular 'leaves' in alternate opposing lateral rows. The back of the peduncle is covered in inhalent polyps (siphonozooids). The flesh is translucent, yellowish or pale pink with white polyps. The colony may also be a deep reddish-pink owing to the presence of red skeletal plates in the tissue. The central axis of the colony is often bent-over at the tip like a shepherds crook.

#### 9 **Recorded distribution in Britain and Ireland**

Recorded in Scottish west coast sea lochs and the Shetlands. It has also been recorded in west Scotland, the Irish Sea including off the Welsh coast and is frequent in the North Sea, but not in southern England.

#### 9 **Global distribution**

Manual (1988) records the species as present widely in the north-east Atlantic and in the Mediterranean.

#### Habitat

Found in sandy and muddy substrata at depths of 10m-100 m.

### J Depth range

### **Q** Identifying features

- Feeding polyps separate.
- Upper regions of the body with red/pink colouration.
- The central axis of the colony is often bent over at the tip like a shepherds crook.
- Flesh is translucent, yellowish or pale pink with white polyps.

### **<u>m</u>** Additional information

*Pennatula phosphorea* luminesces in a blue/green colour when stimulated. The luminous waves proceed in either direction, with a measurable velocity, to the extremities of the animal. Light is emitted by the polyps, which are believed to be connected by a nerve net. There is a gradual increase in light intensity with increasing number of disturbances as a result of facilitation (Nicol, 1958). *Pennatula phosphorea* contracts when disturbed, and swells by up-taking water when unperturbed (Nicol, 1958). It is also capable of withdrawing into a tube below the mud surface (Mackie, 1998). Extracts from this species have been found to show narcotic and anorectic properties, acting as feeding deterrents for the octocoral's main predator the Dover sole, *Solea solea* (Mackie, 1998). They have stinging organelles like most sea anemones and all cnidarians, which are contained in polyps along the branches off the long peduncle.

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#### **%** Further information sources

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## **Bibliography**

Basford, D.J., Eleftheriou, A. & Raffaelli, D., 1989. The epifauna of the northern North-Sea (56-°-61°N). Journal of the Marine Biological Association of the United Kingdom, **69**, 387-407.

Howson, C.M. & Picton, B.E., 1997. The species directory of the marine fauna and flora of the British Isles and surrounding seas. Belfast: Ulster Museum. [Ulster Museum publication, no. 276.]

Mackie, A.M., 1998. Preliminary studies on the chemical defences of British octocorals Alcyonium digitatum and Pennatula phosphorea. Comparative Biochemistry and Physiology A- Physiology, **86**, 629-632.

Manuel, R.L., 1988. British Anthozoa. London: Academic Press. [Synopses of the British Fauna, no. 18.]

Nicol, J.A., 1958. Observations on the luminescence of *Pennatula phosphorea*, with a note on the luminescence of Virgularia mirabilis. Journal of the Marine Biological Association of the United Kingdom, **37**, 551-563.

#### Datasets

NBN (National Biodiversity Network) Atlas. Available from: https://www.nbnatlas.org.

OBIS (Ocean Biogeographic Information System), 2019. Global map of species distribution using gridded data. Available from: Ocean Biogeographic Information System. www.iobis.org. Accessed: 2019-03-12