A hydroid (*Pachycordyle navis*)

MarLIN – Marine Life Information Network
Biology and Sensitivity Key Information Review

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A report from:
The Marine Life Information Network, Marine Biological Association of the United Kingdom.

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/1152]. All terms and the MarESA methodology are outlined on the website (https://www.marlin.ac.uk)

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***Pachycordyle navis* on *Ruppia*, Goesse Meer, The Netherlands.**
Photographer: Marco Faasse
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See online review for distribution map

Distribution data supplied by the Ocean Biogeographic Information System (OBIS). To interrogate UK data visit the NBN Atlas.

Researched by	Nicola White	**Refereed by**	Dr Richard S.K. Barnes
Authority	(Millard, 1959)		
Other common names	-	**Synonyms**	*Clavopsella navis* (Millard, 1959), *Rhizorhagium navis* (Millard, 1959)

Summary

Description

A simple hydroid consisting of an erect, unbranched stem, up to 5 mm in height, with a single terminal polyp (hydranth) . Each upright stem rises from a creeping stolon (hydrorhiza). The stem is sheathed by a chitinous sheath, the perisarc. The perisarc is often wrinkled, especially near the base, and terminates below the hydranth. The hydranth bears 8 to 16 tentacles in 2 to 4 alternating whorls, depending on hydranth size. It is creamy white in colour, with hints of pink around the mouth of the hydranth. The reproductive bodies (gonophores) are borne on short stalks in an irregular spiral below the hydranth.

Recorded distribution in Britain and Ireland

Widewater lagoon, West Sussex.

Global distribution

Recorded from only 3 locations worldwide: Kiel Canal, Widewater lagoon in Sussex and attached to a ship's hull in South Africa.

Habitat

Grows on algae such as *Chaetomorpha*. It has only ever been recorded in the vicinity of ports and harbours.

Depth range

-

Identifying features

- Stem simple and unbranched bears a single terminal hydranth.
- Hydranth with 2-4 whorls of tentacles close to mouth.
- Gonophores in the form of fixed sporosacs.
- Planulae develop within apical part of gonophore.

Additional information

The systematic status of this species was revised by Stepanjants *et al.* (2000) who placed *Clavopsella navis* and *Clavopsella quadrangularia* in the new genus *Thieliana*. Subsequent revision by Schuchert (2004, 2007; cited in Calder, 2012) placed the species in the genus *Pachycordyle*.

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Biology review

Taxonomy

Phylum	Cnidaria	Sea anemones, corals, sea firs & jellyfish
Class	Hydrozoa	White weeds, sea firs, sea beard and siphonophores; hydroids
Order	Anthoathecata	
Family	Bougainvilliidae	
Genus	Pachycordyle	
Authority	(Millard, 1959)	
Recent Synonyms	Clavopsella navis (Millard, 1959)Rhizorhagium navis (Millard, 1959)	

Biology

Typical abundance	Data deficient
Male size range	0.39-1.29mm
Male size at maturity	
Female size range	Very small(< 1cm)
Female size at maturity	
Growth form	Turf
Growth rate	Data deficient
Body flexibility	
Mobility	
Characteristic feeding method	No information, Passive suspension feeder, Predator
Diet/food source	
Typically feeds on	
Sociability	
Environmental position	Epifaunal
Dependency	-
Supports	-
Is the species harmful?	Data deficient

Biology information

Size refers to length of hydranth.

Habitat preferences

Physiographic preferences	Isolated saline water (Lagoon)
Biological zone preferences	Data deficient
Substratum / habitat preferences	Macroalgae
Tidal strength preferences	Weak < 1 knot (<0.5 m/sec.)
Wave exposure preferences	Very sheltered
Salinity preferences	Reduced (18-30 psu)

Depth range	
Other preferences	No text entered
Migration Pattern	Non-migratory / resident

Habitat Information

Pachycordyle navis is presumed to be an introduced species since it has only ever been recorded in the vicinity of ports and harbours. It is probably transported on ships hulls. It was first recorded in the UK in 1973 in Widewater Lagoon, Shoreham, West Sussex (Eno *et al.*, 1997). It was last recorded there (as *Clavopsella navis*) by Sheader (1990) in 1990 when it was relatively abundant attached to algae. It is presumed extinct in South Africa as it has only been recorded from one ship's hull in 1959. The condition of the population in Kiel is not known.

Life history

Adult characteristics

Reproductive type	Gonochoristic (dioecious)
Reproductive frequency	
Fecundity (number of eggs)	2-10
Generation time	Insufficient information
Age at maturity	
Season	Insufficient information
Life span	Insufficient information

Larval characteristics

Larval/propagule type	-
Larval/juvenile development	
Duration of larval stage	No information
Larval dispersal potential	No information
Larval settlement period	

Life history information

Female gonophores contain about 8 eggs, which develop directly into planulae. There is no free-living medusoid stage.

Sensitivity review

This MarLIN sensitivity assessment has been superseded by the MarESA approach to sensitivity assessment. MarLIN assessments used an approach that has now been modified to reflect the most recent conservation imperatives and terminology and are due to be updated by 2016/17.

Physical Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Substratum Loss	High	None	Very High	Very low

Pachycordyle navis lives attached to algae, so would be removed with the algae upon substratum loss. There would be no recovery of the population because only two extant populations of *Pachycordyle navis* are known: Widewater lagoon, Sussex and Kiel Canal, Germany.

Smothering	Intermediate	Low	High	Very low

The species would be affected by smothering if the algae on which it lives is completely covered in the sediment. If the algae protrudes sufficiently above the sediment the hydroid may escape the effects of smothering.

Increase in suspended sediment	Intermediate	Very low / none	High	Very low

Pachycordyle navis is likely to have some tolerance to siltation as it inhabits lagoons where siltation frequently occurs. The algae on which the species lives will also lift the hydroid above the accumulation of silt. However, the heath of the host algae may be adversely affected by siltation.

Decrease in suspended sediment

Dessication	Intermediate	None	Very High	Very low

The species is vulnerable to desiccation because it is soft bodied and has no protection from the drying effects of sun and wind. Some of the population may be sheltered from desiccation if they are present on the underside of the algal frond. However, if the whole population is destroyed recoverability would be non-existent because only two populations of *Thieliana navis* occur worldwide.

Increase in emergence regime	Intermediate	None	Very High	Very low

The species is vulnerable to emergence because it is soft bodied and has no protection from desiccation. Some of the population may be sheltered from desiccation if they are present on the underside of the algal frond. However, if the whole population is destroyed recoverability would be very low because only two populations of *Pachycordyle navis* occur worldwide.

Decrease in emergence regime

Increase in water flow rate	Tolerant	Not relevant	Not sensitive	Very low

The species would probably not be affected by a change in water flow because it is permanently attached to the algae and may be able to withstand high water flow rates because they have been transported long distances on ships hulls.

Decrease in water flow rate

Increase in temperature		Not relevant		Very low

The temperature resistance of the *Pachycordyle navis* is not known.

Decrease in temperature

Increase in turbidity	Low	Moderate	Low	Very low

The species is unlikely to be affected by a change in turbidity as it is not dependant on light availability and it would not interfere with its feeding. However, the host algae may be adversely affected by a reduction in light availability.

Decrease in turbidity

Increase in wave exposure	Tolerant	Not relevant	Not sensitive	Very low

A change in wave exposure is unlikely to occur in a lagoon unless one of the lagoon boundaries is breached. The species would probably not be affected by an increase in wave exposure because it does not present a large surface area to wave action. However, it's host algae may be intolerant of wave exposure and may be washed away.

Decrease in wave exposure

Noise		Not relevant		Very low

Insufficient information

Visual Presence		Not relevant		Very low

Insufficient information

Abrasion & physical disturbance	High	Low	High	Very low

The species and its host algae are flexible so will 'give' under abrasion. However, they occur on top of the sediment and would probably be removed, along with surface substratum by a passing scallop dredge (or equivalent force). The impact is likely to be equivalent to substratum loss. Therefore, an intolerance of high has been recorded.

Hydroids are generally regarded as opportunistic species with good recruitment, the ability to reproduce asexually or sexually, colonize space rapidly and with good powers of recovery from damage (see Boero, 1984; Gili & Hughes, 1995). Hydroids can form highly resistant resting stages and recover or spread by fragmentation (Gili & Hughes 1995). Therefore, hydroids are likely to recover rapidly from physical disturbance from resting stages or pieces of hydrorhizae on the remaining substratum, or fragments. However, *Pachycordyle navis* releases planulae from its gonothecae that probably have limited dispersal capability (see Sommer, 1992; Gili & Hughes, 1995). It is an introduced species thought to have been transported by shipping, either on the hull or in the ballast water (Reise *et al.*, 1999) but has a very limited distribution, which suggests either a limited recruitment capability and/or a narrow range of environmental preferences. Although it was recorded in the Widewater lagoon in 1973, its has not been recorded from any other sites in the UK since. It seems unlikely that it can recruit from other areas, or extremely slowly, save by the chance anthropogenic introductions, e.g. via shipping. If the population was completely destroyed by physical disturbance then recovery is unlikely. Nevertheless, the population may recover from resting stages or fragments. Therefore, a recoverability of low has been recorded.

Displacement	High	None	Very High	Very low

Pachycordyle navis is permanently attached to algae and would be unable to re-attach itself if removed. If the whole population is destroyed recoverability would be very low because only two populations of *Pachycordyle navis* occur worldwide.

Chemical Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Synthetic compound contamination		Not relevant		Very low

Insufficient information

Heavy metal contamination		Not relevant		Not relevant

Insufficient information

Hydrocarbon contamination		Not relevant		Not relevant

Insufficient information

Radionuclide contamination		Not relevant		Not relevant

Insufficient information

Changes in nutrient levels		Not relevant		Not relevant

Insufficient information

Increase in salinity Not relevant Not relevant

Evidence suggests that the species is tolerant of fully saline conditions because it can survive on ships hulls. The species must be tolerant of reduced salinity because it occurs in lagoons but the tolerance of the species to very reduced salinities is not known.

Decrease in salinity

Changes in oxygenation Not relevant Not relevant

Insufficient information

Biological Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Introduction of microbial pathogens/parasites		Not relevant		Not relevant

Insufficient information

Introduction of non-native species Not relevant Not relevant

Insufficient information

Extraction of this species Not relevant Not relevant

Insufficient information

Extraction of other species Not relevant Not relevant

Insufficient information

Additional information

Importance review

Policy/legislation

Wildlife & Countryside Act	Schedule 5, section 9
UK Biodiversity Action Plan Priority	☑
Species of principal importance (England)	☑
Features of Conservation Importance (England & Wales)	☑

Status

National (GB) importance	Not rare/scarce	**Global red list (IUCN) category**	-

Non-native

Native	-		
Origin	-	**Date Arrived**	1973

Importance information

-none-

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