



MarLIN

Marine Information Network

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

A colonial sea squirt (*Morchellium argus*)

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/1373>]. All terms and the MarESA methodology are outlined on the website (<https://www.marlin.ac.uk>)

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Colonies of *Morchellium argus*.
 Photographer: Paul Newland
 Copyright: Paul Newland

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 Dr Keith Hiscock

Refereed by

This information is not
 refereed.

Authority (Milne Edwards, 1841)

**Other common
 names** -

Synonyms -

Summary

🔍 Description

Clumps of pink or red lobes each about 4 cm long and consisting of many zooids. Distinguished from other polyclinids especially by the sand coating on the column.

📍 Recorded distribution in Britain and Ireland

Recorded from all around the coasts of Britain and Ireland except parts of the eastern coast of England and parts of the eastern and southern coasts of Ireland. Few records from Shetland.

📍 Global distribution

Known from Britain and Ireland and parts of the French Atlantic coast.

🏠 Habitat

Present on the shore mainly on vertical surfaces, under overhangs and in caves. In the sublittoral, often conspicuous amongst foliose algae in the lower infralittoral especially in wave sheltered areas.

↓ Depth range

+1 to -10 m chart datum

Q Identifying features

- Colonies of pink or red lobes joined at the base.
- Each lobe is about 4 cm long with a stalk diameter of about 1 cm.
- Each lobe has a long firm sand-coated stalk and a wider rounded head.
- The zooid has eight lobes on the oral siphon and a small pointed atrial languet with four red spots on the base of the oral siphon.

Additional information

No text entered

✓ Listed by

Further information sources

Search on:

   

Biology review

Taxonomy

Phylum	Chordata	Sea squirts, fish, reptiles, birds and mammals
Class	Ascidiacea	Sea squirts
Order	Aplousobranchia	
Family	Polyclinidae	
Genus	Morchellium	
Authority	(Milne Edwards, 1841)	
Recent Synonyms	-	

Biology

Typical abundance	Moderate density
Male size range	4cm
Male size at maturity	
Female size range	Small-medium(3-10cm)
Female size at maturity	
Growth form	Cushion
Growth rate	
Body flexibility	
Mobility	
Characteristic feeding method	Active suspension feeder, Non-feeding
Diet/food source	
Typically feeds on	Suspended organic matter.
Sociability	
Environmental position	Epifaunal
Dependency	Independent.
Supports	None
Is the species harmful?	Yes Moderate levels of toxicity were found against invertebrate larvae by Teo & Ryland (1995).

Biology information

-none-

Habitat preferences

Physiographic preferences	Open coast, Offshore seabed, Strait / sound, Sea loch / Sea lough, Ria / Voe, Estuary, Enclosed coast / Embayment
Biological zone preferences	Lower eulittoral, Lower infralittoral, Sublittoral fringe, Upper infralittoral
Substratum / habitat preferences	Bedrock, Large to very large boulders, Small boulders

Tidal strength preferences	Moderately Strong 1 to 3 knots (0.5-1.5 m/sec.), Strong 3 to 6 knots (1.5-3 m/sec.), Very Weak (negligible), Weak < 1 knot (<0.5 m/sec.)
Wave exposure preferences	Exposed, Extremely sheltered, Moderately exposed, Sheltered, Ultra sheltered, Very sheltered
Salinity preferences	Full (30-40 psu), Variable (18-40 psu)
Depth range	+1 to -10 m chart datum
Other preferences	
Migration Pattern	Non-migratory / resident

Habitat Information

No text entered

Life history

Adult characteristics

Reproductive type	Permanent (synchronous) hermaphrodite
Reproductive frequency	
Fecundity (number of eggs)	100-1,000
Generation time	<1 year
Age at maturity	
Season	June - October
Life span	1-2 years

Larval characteristics

Larval/propagule type	-
Larval/juvenile development	Lecithotrophic
Duration of larval stage	< 1 day
Larval dispersal potential	100 -1000 m
Larval settlement period	Insufficient information

Life history information

Eggs are about 0.34 mm diameter. Larvae are held in the atrial cavity and have a trunk about 0.8 mm long. The free-swimming period of the larva is about 2-3 hours. Berrill (1950) suggests that brooding colonies are present in September and October but records in the Plymouth Marine Fauna suggest breeding June to September.

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.

A Physical Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Substratum Loss	High	High	Moderate	High
Colonies are sessile and will therefore be lost along with their substratum. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.				
Smothering	High	High	Moderate	Moderate
Colonies rely on being able to pump water for respiration and feeding and cannot extend to any great extent to above layer of smothering sediment. Whilst they may survive for a little time in conditions where they are unable to draw water through the siphons, it is expected that they would be killed by smothering that lasts more than a few days. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.				
Increase in suspended sediment	Low	High	Low	Moderate
Colonies produce mucous which is shed to remove deposited silt. Colonies live in areas where high suspended sediment levels commonly occur and it is therefore expected that intolerance is low. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.				
Decrease in suspended sediment				
Dessication	High	High	Moderate	Moderate
Colonies are likely to dry and be damaged by exposure to air and especially sunshine in non-damp situations on the shore. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.				
Increase in emergence regime	Intermediate	High	Low	Low
Colonies live in the intertidal only in locations where damp conditions prevail (under overhangs and under boulders). In such a situation, there will be some tolerance to increased emersion times but it is likely that colonies will not survive during periods of hot drying weather. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.				
Decrease in emergence regime				
Increase in water flow rate	Low	High	Low	Low
<i>Morchellium argus</i> lives in a wide range of flow regimes. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.				
Decrease in water flow rate				

Increase in temperature **Low** **Very high** **Very Low** **Moderate**

Morchellium is in the middle of its geographical range in Britain and Ireland suggesting that it will survive slightly higher and lower temperatures.

Decrease in temperature **Intermediate** **High** **Low** **Moderate**

Morchellium is in the middle of its geographical range in Britain and Ireland suggesting that it will survive slightly higher and lower temperatures. Crisp (1964) did not record any specific effects on *Morchellium* following the severe cold winter of 1962/63 but noted that compound ascidians were slower to recover from winter de-differentiation, or may have been killed in North Wales.

Increase in turbidity **Low** **High** **Low** **Low**

Morchellium lives in areas such as the entrances to estuaries where highly turbid conditions occur from time-to-time especially as a result of river run-off. *Morchellium* does not rely on light penetration and so, although populations seem to be restricted to shallow depths, is unlikely to be affected by changes in light levels.

Decrease in turbidity

Increase in wave exposure **Low** **High** **Low** **Low**

Morchellium lives in a wide range of flow regimes although vigorous wave action may detach colonies. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.

Decrease in wave exposure

Noise **Tolerant** **Not relevant** **Not sensitive** **High**

Tunicates are not known to have organs sensitive to noise.

Visual Presence **Tolerant** **Not relevant** **Not sensitive** **High**

Tunicates are not known to respond to visual presence.

Abrasion & physical disturbance **Intermediate** **High** **Low** **Moderate**

Colonies are very flexible and soft providing a buffer against external abrasion from such factors as a fishing pot landing on a colony. *Morchellium* lives in a wide range of flow regimes although high currents or vigorous wave action may detach colonies. However, individuals and colonies may be scraped off the rock by an anchor or passing dredge. Intolerance is therefore assessed as intermediate. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.

Displacement **High** **High** **Moderate** **Moderate**

The colonies are attached permanently to the substratum and will not re-attach so that displacement, even if to a suitable habitat, would most likely result in mortality. *Morchellium* lives in a wide range of flow regimes although high currents or vigorous wave action may detach colonies. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.

Chemical Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Synthetic compound contamination		Not relevant		Not relevant

Heavy metal contamination		Not relevant		Not relevant
Hydrocarbon contamination		Not relevant		Not relevant
Radionuclide contamination		Not relevant		Not relevant

Changes in nutrient levels **Tolerant** Not relevant **Not sensitive** **Moderate**

Morchellium occurs where nutrient levels are likely to reach high levels (at the entrance to estuaries). The species is dependant on food sources that are not likely to be affected by local nutrient concentrations.

Increase in salinity **Intermediate** **High** **Low** **Low**

Colonies occur in full and variable salinity conditions suggesting significant tolerance to at least lowered salinity. Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.

Decrease in salinity

Changes in oxygenation Not relevant Not relevant

Biological Pressures

Intolerance Recoverability Sensitivity Confidence

Introduction of microbial pathogens/parasites Not relevant Not relevant

Introduction of non-native species Not relevant Not relevant

Extraction of this species **Intermediate** **High** **Low** **Moderate**

Larvae disperse in the water column so that, providing colonies survive nearby, recovery will occur following the late summer larval dispersal phase.

Extraction of other species **Intermediate** **High** **Low**

where extraction of other species from under boulder habitats results in the stones being left downside up, there will be significant damage to *Morchellium* colonies. However, most other forms of extraction of species that co-occur with *Morchellium* (especially deployment of pots or creels to catch shellfish) are unlikely to cause damage to *Morchellium*.

Additional information

Importance review

Policy/legislation

- no data -

Status

National (GB)
importance -

Global red list
(IUCN) category -

Non-native

Native -

Origin -

Date Arrived -

Importance information

-none-

Bibliography

- Berrill, N.J., 1950. *The Tunicata with an account of the British species*. London: Ray Society.
- Crisp, D.J. (ed.), 1964. The effects of the severe winter of 1962-63 on marine life in Britain. *Journal of Animal Ecology*, **33**, 165-210.
- Crisp, D.J., Southward, A.J. & Southward, E.C., 1981. On the distribution of the intertidal barnacles *Chthamalus stellatus*, *Chthamalus montagui* and *Euraphia depressa*. *Journal of the Marine Biological Association of the United Kingdom*, **61**, 359-380.
- 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.]
- JNCC (Joint Nature Conservation Committee), 1999. *Marine Environment Resource Mapping And Information Database (MERMAID): Marine Nature Conservation Review Survey Database*. [on-line] <http://www.jncc.gov.uk/mermaid>
- MBA (Marine Biological Association), 1957. *Plymouth Marine Fauna*. Plymouth: Marine Biological Association of the United Kingdom.
- Picton, B.E. & Costello, M.J., 1998. *BioMar* biotope viewer: a guide to marine habitats, fauna and flora of Britain and Ireland. [CD-ROM] *Environmental Sciences Unit, Trinity College, Dublin*.
- Teo, S.L.-M. & Ryland, J.S., 1995. Potential antifouling mechanisms using toxic chemicals in some British ascidians. *Journal of Experimental Marine Biology and Ecology*, **188**, 49-62.

Datasets

- Centre for Environmental Data and Recording, 2018. Ulster Museum Marine Surveys of Northern Ireland Coastal Waters. Occurrence dataset <https://www.nmni.com/CEDaR/CEDaR-Centre-for-Environmental-Data-and-Recording.aspx> accessed via NBNAAtlas.org on 2018-09-25.
- Dorset Environmental Records Centre, 2018. Ross Coral Mapping Project - NBN South West Pilot Project Case Studies. Occurrence dataset: <https://doi.org/10.15468/mnlzxc> accessed via GBIF.org on 2018-09-25.
- Fenwick, 2018. Aphotomarine. Occurrence dataset <http://www.aphotomarine.com/index.html> Accessed via NBNAAtlas.org on 2018-10-01
- Kent Wildlife Trust, 2018. Kent Wildlife Trust Shoresearch Intertidal Survey 2004 onwards. Occurrence dataset: <https://www.kentwildlifetrust.org.uk/> accessed via NBNAAtlas.org on 2018-10-01.
- Manx Biological Recording Partnership, 2018. Isle of Man historical wildlife records 1990 to 1994. Occurrence dataset: <https://doi.org/10.15468/aru16v> accessed via GBIF.org on 2018-10-01.
- National Trust, 2017. National Trust Species Records. Occurrence dataset: <https://doi.org/10.15468/opc6g1> accessed via GBIF.org on 2018-10-01.
- NBN (National Biodiversity Network) Atlas. Available from: <https://www.nbnatlas.org>.
- Norfolk Biodiversity Information Service, 2017. NBIS Records to December 2016. Occurrence dataset: <https://doi.org/10.15468/jca5lo> accessed via GBIF.org on 2018-10-01.
- OBIS (Ocean Biogeographic Information System), 2019. Global map of species distribution using gridded data. Available from: Ocean Biogeographic Information System. www.iobis.org. Accessed: 2019-03-21
- South East Wales Biodiversity Records Centre, 2018. SEWBReC Marine and other Aquatic Invertebrates (South East Wales). Occurrence dataset: <https://doi.org/10.15468/zxy1n6> accessed via GBIF.org on 2018-10-02.