

Schizoporella unicornis

System: Marine

Kingdom	Phylum	Class	Order	Family
Animalia	Ectoprocta	Gymnolaemata	Cheilostomata	Schizoporellidae

Common name

Synonym

Lepralia unicornis , (Johnston, 1874)
Schizoporella unicornis , (Lagajiji, 1952)

Similar species

Summary

Schizoporella unicornis, or single horn bryozoan, is an encrusting bryozoan native to Japan. It has been unintentionally introduced along with the Pacific oyster (*Crassostrea gigas*), or by hull fouling, to several locations throughout the world. *Schizoporella unicornis* is an abundant fouling organism known to inhibit growth and settlement of native bryozoa.



[view this species on IUCN Red List](#)

Species Description

Schizoporella unicornis is an encrusting, colonial bryozoan. Colonies are commonly orange in color however initial growth is white to yellowish brown, later becoming dark brownish, while growing edges are yellow to light brown. Mature colonies are typically 1-4cm in diameter and may form on a wide variety of substrata such as shells, stone, kelp, vessel hulls, piers, overhangs, and other bryozoans. Inner zooids are hexagonal and outer zooids are rectangular in shape with an inflated frontal wall and wide aperture. They are arranged in alternate rows radiated from the center (NIMPIS, 2008; Ross & McCain, 1976; Hayes *et al.*, 2005).

Notes

Schizoporella unicornis is reported to have high mortality rates during "red tide" algal blooms (NIMPIS, 2004)

Lifecycle Stages

Coronate, free swimming larvae of *Schizoporella unicornis* settle to suitable substrata after 24-48 hours and metamorphose into a zooid which may settle to an existing colony or form a new colony. *S. unicornis* has high settlement and survival success rates. Settlement of larvae is positively correlated to existing colonies. *Schizoporella unicornis* is a long-lived perennial species (Prince William Sound Regional Citizens' Advisory Council, 2004; Hurlbut, 1991)

Habitat Description

Schizoporella unicornis occurs on hard substrates and is found in shallow waters of intertidal zones. It is tolerant of salinities 18-30‰ and temperatures 7-19°C. Preferred substrates are large flat shaded surfaces free from abrasion with adequate water flow. *S. unicornis* commonly occurs on shells, barnacles, algae, rocks, docks, hulls, pilings, and underwater debris (Ross & McCain, 1976; Prince William Sound Regional Citizens' Advisory Council, 2004)

Reproduction

Sexual. *Schizoporella unicornis* is a hermaphrodite. Reproduction may be seasonal or continuous depending on location. Its eggs are contained in their ovicells, or oecium. Sperm is released into the water column where it is collected by other zooids. Eggs are fertilized and brooded in the ovicells where they mature to free swimming larvae. Parts of existing colonies may start a new colony if separated (NIMPIS, 2004; Prince William Sound Regional Citizens' Advisory Council, 2004).

Nutrition

Single horn bryozoans are suspension feeders which consume phytoplankton, algae, and bacteria. Zooids feed with ciliated lophophores (tentacle structures) that they extend from their orifice to sweep particles into its mouth (Prince William Sound Regional Citizens' Advisory Council, 2004).

General Impacts

Schizoporella unicornis is an abundant fouling organism capable of encrusting on a wide variety of substrata. This fouling can be a nuisance to shipping and ports, and has potential to be a problem to industrial components, cooling vents, etc. as in the case with other bryozoans. Single horn bryozoans exclude or inhibit the settlement and growth of native species, thereby modifying natural communities. Their stolons are extensions that develop at colonial interfaces and have been demonstrated to redirect or reverse the growth of competitors (Prince William Sound Regional Citizens' Advisory Council, 2004; Ray, 2005).

Management Info

Preventative measures: Prevention of introduction is the only effective means of combating *Schizoporella unicornis*, as there is no known, effective means of controlling it once it has established. Regulations concerning oyster trade and shipping targeting hull fouling, may prevent the introduction of *S. unicornis* to new locations as these are the two primary means of its dispersal (Prince William Sound Regional Citizens' Advisory Council, 2004; Ross & McCain, 1976).

Principal source: [NIMPIS, 2002. *Schizoporella unicornis* species summary. National Introduced Marine Pest Information System \(Eds: Hewitt C.L., Martin R.B., Sliwa C., McEnulty, F.R., Murphy, N.E., Jones T. & Cooper, S.\)](#)
Ross, J.R.P and McCain, K.W., 1976. *Schizoporella unicornis* (Ectoprocta) in Coastal Waters of Northwestern United States and Canada.
[Prince William Sound Regional Citizens' Advisory Council. 2004. Non-indigenous Aquatic Species of Concern for Alaska. Fact Sheet 9. Single Horn Bryozoan.](#)
[Fuller, Pam., 2008. *Schizoporella unicornis*. USGS Nonindigenous Aquatic Species Database, Gainesville, FL.](#)

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review:

Publication date: 2007-01-17

ALIEN RANGE

[5] AUSTRALIA

[1] BRAZIL

[1] FRANCE

[1] IRELAND

[7] UNITED STATES

[1] BELGIUM

[1] CANADA

[1] GREECE

[1] UNITED KINGDOM

BIBLIOGRAPHY

20 references found for *Schizoporella unicornis*

Management information

[Centre for Environment, Fisheries & Aquaculture Science \(CEFAS\).](#), 2008. [Decision support tools-Identifying potentially invasive non-native marine and freshwater species: fish, invertebrates, amphibians.](#)

Summary: The electronic tool kits made available on the Cefas page for free download are Crown Copyright (2007-2008). As such, these are freeware and may be freely distributed provided this notice is retained. No warranty, expressed or implied, is made and users should satisfy themselves as to the applicability of the results in any given circumstance. Toolkits available include 1) FISK- Freshwater Fish Invasiveness Scoring Kit (English and Spanish language version); 2) MFISK- Marine Fish Invasiveness Scoring Kit; 3) MI-ISK- Marine invertebrate Invasiveness Scoring Kit; 4) FI-ISK- Freshwater Invertebrate Invasiveness Scoring Kit and AmphISK- Amphibian Invasiveness Scoring Kit. These tool kits were developed by Cefas, with new VisualBasic and computational programming by Lorenzo Vilizzi, David Cooper, Andy South and Gordon H. Copp, based on VisualBasic code in the original Weed Risk Assessment (WRA) tool kit of P.C. Sheloung, P.A. Williams & S.R. Halloy (1999).

The decision support tools are available from:

<http://cefas.defra.gov.uk/our-science/ecosystems-and-biodiversity/non-native-species/decision-support-tools.aspx> [Accessed 13 October 2011]

[The guidance document](http://www.cefas.co.uk/media/118009/fisk_guide_v2.pdf) is available from http://www.cefas.co.uk/media/118009/fisk_guide_v2.pdf [Accessed 13 January 2009].

[Hayes, K., Sliwa, C., Migus, S., McEnulty, F., Dunstan, P. 2005. National priority pests: Part II Ranking of Australian marine pests. An independent report undertaken for the Department of Environment and Heritage by CSIRO Marine Research.](#)

Summary: This report is the final report of a two year study designed to identify and rank introduced marine species found within Australian waters (potential domestic target species) and those that are not found within Australian waters (potential international target species).

Available from: <http://www.marine.csiro.au/crimp/reports/PriorityPestsFinalReport.pdf> [Accessed 25 May 2005]

[Prince William Sound Regional Citizens Advisory Council. 2004. Non-indigenous Aquatic Species of Concern for Alaska. Fact Sheet 9. Single Horn Bryozoan.](#)

Summary: A profile compiled on *Schizoporella unicornis* highlighting it as a species of concern for Alaska.

Available from: <http://www.pwsrcc.org/docs/d0015800.pdf> [Accessed 14 February 2008]

General information

Allen, F.E., 1953. Distribution of Marine Invertebrates by Ships. Australian Journal of Marine and Freshwater Research 4(2) 307 - 316

[Australian Museum Business Services \(AMBS\), 2002. Port Survey for Introduced Marine Species Sydney Harbour.](#)

Summary: Available from: http://www.livingharbour.net/pdf/final_report1.pdf [Accessed 14 February 2008]

[Bishop Museum. undated. Schizoporella unicornis](#)

Summary: A database providing a few records of *Schizoporella unicornis* on Oahu, Hawaii.

Available from: <http://www2.bishopmuseum.org/dargis/loclist.asp?Species=Schizoporella%20unicornis> [Accessed 6 May 2008]

[Boyd, Milton J., 2002. A Survey of Non-Indigenous Species in the Coastal and Estuarine Waters of California, CA Department of Fish & Game, 2002.](#)

Summary: Available from: http://www.dfg.ca.gov/ospr/report/exotic/h_bay_appendix_b.pdf [Accessed 14 February 2008]

[CONABIO. 2008. Sistema de información sobre especies invasoras en México. Especies invasoras - Otros invertebrados. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.](#)

Summary: English:

The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), under the section Novedades for information on updates.

Invasive species - Aquatic invertebrates is available from:

http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Otros_invertebrados [Accessed 30 July 2008]

Spanish:

La lista de especies del Sistema de información sobre especies invasoras de México cuenta actualmente con información acerca de nombre científico, familia, grupo y nombre común, así como hábitat, estado de la invasión en México, rutas de introducción y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la página de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualización, por favor consulte la portada (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), en la sección novedades, para conocer los cambios.

Especies invasoras - Otros invertebrados is available from:

http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Otros_invertebrados [Accessed 30 July 2008]

[Cummings, S. G. 1975. Zoid regression in Schizoporella unicornis floridana \(Bryozoa, Cheilostomata\), Chesapeake Science 16:93-103](#)

Summary: Available from: http://estuariesandcoasts.org/cdrom/CPSC1975_16_2_93_103.pdf [Accessed 14 February 2008]

[Fuller, Pam., 2008. Schizoporella unicornis. USGS Nonindigenous Aquatic Species Database, Gainesville, FL.](#)

Summary: Available from: <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=275> [Accessed 14 February 2008]

[Global Biodiversity Information Facility \(GBIF\), 2008. Schizoporella unicornis.](#)

Summary: Available from: <http://data.gbif.org/species/13726643/> [Accessed 15 June 2010]

[Hewitt, C.L. and Nelson, M.L. 1999. Historical and modern invasions to port Phillip Bay, Australia: The most invaded southern embayment? In Abstracts: First National Conference on Marine Bioinvasions, January 24 -27, 1999. Massachusetts Institute of Technology, Cambridge, MA](#)

Summary: Report on the invasions that have occurred at Port Phillip Bay.

Available from: <http://massbay.mit.edu/resources/pdf/MarinePDF/1999/MarineAbs5.pdf> [Accessed 14 February 2008]

[Hurlbut, C.J. 2001. Community recruitment: settlement and juvenile survival of seven co-occurring species of sessile marine invertebrates. Volume 109, Number 3 / October, 1991](#)

Summary: A detailed journal article concerning larval settlement of *Schizoporella unicornis*.

[ITIS \(Integrated Taxonomic Information System\), 2008. Online Database *Schizoporella unicornis* \(Johnston, 1874\)](#)

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=156294 [Accessed 14 February 2008]

[MarBEF Data System, 2008. ERMS taxon details *Schizoporella unicornis* \(Johnston, in Wood, 1844\)](#)

Summary: Available from: <http://www.marbef.org/data/aphia.php?p=taxdetails&id=111538> [Accessed 14 February 2008]

[NIMPIS, 2002. *Schizoporella unicornis* species summary. National Introduced Marine Pest Information System \(Eds: Hewitt C.L., Martin R.B., Sliwa C., McEnnulty, F.R., Murphy, N.E., Jones T. & Cooper, S.\).](#)

Summary: Available from: <http://www.marine.csiro.au/crimp/nimpis/spSummary.asp?txa=6943> [Accessed 14 February 2008]

[Ray, Gary.L., 2005. Invasive Marine and Estuarine Animals of the Pacific Northwest and Alaska ERDC/TN ANSRP-05-6 September 2005](#)

Summary: Available from: <http://el.erdc.usace.army.mil/elpubs/pdf/ansrp05-6.pdf> [Accessed 14 February 2008]

[Ross, J.R.P and McCain, K.W., 1976. *Schizoporella unicornis* \(Ectoprocta\) in Coastal Waters of Northwestern United States and Canada.](#)

Summary: Available from:

http://www.vetmed.wsu.edu/org_nws/NWSci%20journal%20articles/1970-1978/1976%20vol%2050/50-3/v50%20p160%20Ross%20and%20McCain.PDF [Accessed 14 February 2008]

[Washington State Exotics Expedition 2000: A Rapid Survey of Exotic Species in the Shallow Waters of Elliott Bay, Totten and Eld Inlets, and Willapa Bay. Prepared by: Andrew N. Cohen, Helen D. Berry, Claudia E. Mills, David Milne, Kevin Britton-Simmons, Marjorie J. Wonham, David L. Secord, Jessica A. Barkas, Brian Bingham, Betty E. Bookheim, James E. Byers, John W. Chapman, Jeff R. Cordell, Brett Dumbauld, Allan Fukuyama, Leslie H. Harris, Alan J. Kohn, Kevin Li, Thomas F. Mumford Jr., Vasily Radashevsky, Amy T. Sewell, Kathy Welch., For: The Nearshore Habitat Program Washington State Department of Natural Resources](#)

Summary: Available from: <http://www.sfei.org/bioinvasions/Reports/2001-2000WashingtonSrvy355.pdf> [Accessed 14 February 2008]

Wonham, Marjorie J. & James T. Carlton., 2005. Trends in marine biological invasions at local and regional scales: the Northeast Pacific Ocean as a model system. *Biological Invasions* (2005) 7: 369–392