

***Mytilopsis sallei*** 正體中文

**System:** Marine

Kingdom	Phylum	Class	Order	Family
Animalia	Mollusca	Bivalvia	Veneroida	Dreissenidae

**Common name** false mussel (English), Caribbean black-striped mussel (English, Australia), Caribbean black-striped false mussel (English, Australia), caliche (Spanish, Venezuela), Santo Domingo false mussel (English), black striped mussel (English)

**Synonym** *Congeria gundlachi* , Dall, 1898  
*Congeria rossmasessleri* , Dall, 1898  
*Congeria sallei* , Dall, 1898  
*Dreissena domingensis* , Reculuz, 1852  
*Dreissena gundlachi* , Fischer, 1858  
*Dreissena morchiana* , Fischer, 1858  
*Dreissena pfeiferi* , Fischer, 1858  
*Dreissena riisei* , Dunker, 1855  
*Dreissena roosmassleri* , Fischer, 1858  
*Dreissena sallei* , Recluz, 1849  
*Dreissenia domingensis* , Dunker, 1855  
*Dreissenia gundlachii* , Dunker, 1855  
*Dreissenia moerchiana* , Dunker, 1855  
*Dreissenia pfeifferi* , Dunker, 1855  
*Dreissenia rossmaessleri* , Dunker, 1855  
*Dreissenia sallei* , Dunker, 1855  
*Mytilopsis allyneana* , Hertlein and Hanna, 1949  
*Mytilus domningensis* , Reeve, 1858  
*Mytilus morchianus* , Reeve, 1858  
*Mytilus rossmassleri* , Reeve, 1858  
*Mytilus sallei* , Reeve, 1858  
*Tichogonia domingensis* , Kuster, 1889  
*Tichogonia gundlachi* , Kuster, 1889  
*Tichogonia moerchiana* , Kuster, 1889  
*Tichogonia pfiefferi* , Dunker, 1853  
*Tichogonia riisei* , Dunker, 1853  
*Tichogonia rossmassleri* , Dunker, 1853  
*Tichogonia sallei* , Dunker, 1853

**Similar species** *Dreissena polymorpha*, *Mytilopsis leucophaeata*, *Dreissena bugensis*, *Brachidontes* spp.

**Summary** *Mytilopsis sallei*, commonly known as the black striped mussel, is an opportunistic r-strategist mussel species, which is found in intertidal and shallow waters. It has similar impacts to the zebra mussel *Dreissena polymorpha*. *Mytilopsis sallei* is a major fouling species, forming dense monocultures which can lead to a substantial reduction in biodiversity.



[view this species on IUCN Red List](https://www.iucn.org/species)

## Species Description

*Mytilopsis sallei* is a small, fingernail sized mussel, growing to an average size of 25mm, although sizes range from lengths of 8-25mm, with a maximum width of 9.68mm and a maximum height of 12.58mm. It has a varied shell colouration, from black through to a light colour, with some small individuals having a light and dark zig-zag pattern. The right valve overlaps the left valve, and is slightly larger. *M. sallei* settles in clusters, and is rarely seen as a single individual (NIMPIS, 2002).

## Lifecycle Stages

Juveniles grow rapidly, and are considered mature after one month. Maximum size is reached within six months, and mussels live for about 12-13 (max 20) months. *M. sallei* is ambi-sexual and individual mussels change sex at some stage during their lifetime (NIMPIS, 2002; CSIRO, 2001).

## Habitat Description

*Mytilopsis sallei* has wide temperature, salinity and oxygen tolerances. It also possesses a fast rate of growth, high fecundity and matures early. In its native habitat, *M. sallei* is a colonial surface dweller of sheltered waters, for example, shallow coastal lagoons. In its introduced habitat, it is found in intertidal and shallow waters, at a range of temperatures (10-35°C) and salinities (0-27 ppt), and preferring disturbed habitats and often settling on man-made structures. It has not been found any deeper than a few metres. It prefers to settle on vertical surfaces and objects, but is found on all types of substrata. It is capable of shedding its byssus and reattaching to new surfaces - younger mussels develop byssus apparatus at shorter intervals, and hence move more often, but adults are relatively passive (NIMPIS, 2002; CSIRO, 2001; Udhayakumar and Karande, 1989; Morton, 1981; Bax *et al.* 2002).

## Reproduction

*Mytilopsis sallei* has high fecundity, rapid growth and a fast maturity rate. During their lifespan, individuals change sex, with a proportion of mussels in any population present as hermaphrodites. Eggs and sperm are spawned into the water column, where external fertilisation takes place. Tens of thousands of eggs can be released. Spawning appears to be triggered by changes in salinity - in its native range *M. sallei* has two periods of intense spawning activity apparently stimulated by rapid drops in salinity resulting from seasonal freshwater outflow (Puyana, 1995; in Bax *et al.* 2002). A pelagic larva develops within a day of fertilisation and then settles (NIMPIS, 2002; CSIRO, 2001).

## Nutrition

*Mytilopsis sallei* is a suspension feeder, feeding on zooplankton, phytoplankton and other suspended particulate organic matter (NIMPIS, 2002).

## General Impacts

*Mytilopsis sallei* is an extremely prolific and fecund species, being ecologically similar to its relation the zebra mussel *Dreissena polymorpha*. It has been responsible for massive fouling on wharves and marinas, seawater systems (pumping stations, vessel ballast and cooling systems) and marine farms. In preferred habitats, it forms dense monospecific groups that exclude most other species, leading to a substantial reduction in biodiversity in infected areas (NIMPIS, 2002; CSIRO, 2001).

## Management Info

McEnnulty *et al.* (2002) suggest eight possible methods for the control of *M. sallei* in the [The Web-Based Rapid Response Toolbox](#): antifoulants (TBT and novel modern coatings), air exposure/dessication/freezing, changes to salinity, oxygen deprivation, copper compounds, endosulfan/endosulphan, chlorine or hydrocarbons.

## Pathway

Hull fouling is often an important factor in incursions, such as the introduction of *M. sallei* to Darwin Harbour, Australia in the 1990s (Hutchings *et al.* 2002). Spread *via* ballast water appears less likely because of the short duration of the larval stage (CSIRO, 2001).

**Principal source:** [NIMPIS. 2002. \*Mytilopsis sallei\* species summary. National Introduced Marine Pest Information System](#)

**Compiler:** IUCN/SSC Invasive Species Specialist Group (ISSG) with support from La Fondation d'entreprise Total

## Review:

**Publication date:** 2007-01-09

## ALIEN RANGE

[1] AUSTRALIA  
[2] HONG KONG  
[2] JAPAN  
[1] SINGAPORE

[1] FIJI  
[3] INDIA  
[1] MEXICO  
[1] TAIWAN

## BIBLIOGRAPHY

16 references found for *Mytilopsis sallei*

### Management information

[Bax, N., Hayes, K., Marshall, A., Parry, D. and Thresher, R. 2002. Man-made marinas as sheltered islands for alien marine organisms: Establishment and eradication of an alien invasive marine species. Pages 26-39 in Veitch, C.R. and Clout, M.N. \(Eds.\). \*Turning the tide: the eradication of invasive species\*. IUCN SSC Invasive Species Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.](#)

**Summary:** This paper discusses the incursion and subsequent eradication of *M. sallei* in Darwin Harbour, Northern Territory, Australia. Available from: [http://issg.appfa.auckland.ac.nz/database/species/reference\\_files/mytgal/Bax.pdf](http://issg.appfa.auckland.ac.nz/database/species/reference_files/mytgal/Bax.pdf) [Accessed 27 November 2006]

[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. Pheloung, 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](#) is available from [http://www.cefas.co.uk/media/118009/fisk\\_guide\\_v2.pdf](http://www.cefas.co.uk/media/118009/fisk_guide_v2.pdf) [Accessed 13 January 2009].

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

**Summary:** This website provides comprehensive information on *M. sallei*.

Available from: <http://crimp.marine.csiro.au/nimpis> [Accessed 14 November 2006]

### General information

[Anil, A.C., Venkat, K., Sawant, S.S., Dileepkumar, M., Dhargalkar, V.K., Ramaiah, N., Harkantra, S.N. and Ansari, Z.A. 2002. Marine bioinvasion: Concern for ecology and shipping. \*Current Science\*. 83 \(3\): 214-218.](#)

**Summary:** This paper reports on invasions of marine species, both in India and around the world.

[Chu, K.H., Tam, P.F., Fung, C.H. and Chen, Q.C. 1997. A biological survey of ballast water in container ships entering Hong Kong. \*Hydrobiologia\*. 352: 201-206.](#)

**Summary:** This paper discusses the species which have arrived in Hong Kong via ballast water in container ships.

[Commonwealth Scientific and Industrial Research Organisation \(CSIRO\), 2001. Black-striped mussel, \*Mytilopsis sallei\*. Marine pest information sheet 10.](#)

**Summary:** This information sheet provides basic information about *M. sallei*.

Available from: [http://www.marine.csiro.au/crimp/Reports/Infosht10\\_Mytil0201S3.pdf](http://www.marine.csiro.au/crimp/Reports/Infosht10_Mytil0201S3.pdf) [Accessed 29 November 2006]

Hewitt, C.L. 2002. Distribution and biodiversity of Australian tropical marine bioinvasions. *Pacific Science*. 56 (2): 213-222.

**Summary:** This paper discusses the invasive marine species found in Australia, including *M. sallei*.

Hutchings, P.A., Hilliard, R.W. and Coles, S.L. 2002. Species introductions and potential for marine pest invasions into tropical marine communities, with special reference to the Indo-Pacific (1). *Pacific Science*. 56 (2): 223.

**Summary:** This paper discusses marine invasions in the Pacific region, and includes references to *M. sallei*.

Kimura, T. and Horii, N. 2004. *Mytilopsis sallei* (Bivalvia: Dreissenidae) introduced into Ise Bay. *Chiribotan*. 35 (2): 37-43.

**Summary:** This paper outlines the introduction of *M. sallei* to Ise Bay in Japan.

Marelli, D.C. and Berrend, R.E. 1978. *Mytilopsis sallei* new record in Central America. Mollusca Pelecypoda. *Veliger*. 21 (1): 144.

**Summary:** This paper reports a new record for *M. sallei* in Mexico.

Mohan, P.C. and Prakash, R.R. 1998. Concentration of petroleum hydrocarbons in bivalve *Mytilopsis sallei* and in the harbour waters of Visakhapatnam, east coast of India. *Indian Journal of Marine Sciences*. 27 (3-4): 496-498.

**Summary:** This paper examines the effects of petroleum hydrocarbons on *M. sallei* in Visakhapatnam Harbour in India.

Morton, B. 1981. The biology and functional morphology of *Mytilopsis sallei* Bivalvia Dreissenacea fouling Visakhapatnam Harbor, Andhra Pradesh India.

**Summary:** This paper discusses the morphology of *M. sallei* in Visakhapatnam Harbour in India.

Morton, B. 1989. Life-history characteristics and sexual strategy of *Mytilopsis sallei* (Bivalvia: Dreissenacea), introduced into Hong Kong. *Journal of Zoology*. 219 (3): 469-485.

**Summary:** This paper provides a great deal of information about the life history of *M. sallei* in Hong Kong.

Sin, Y.M., Wong, M.K., Chou, L.M. and Alias, N.B. 1991. A study of the heavy metal concentrations of the Singapore River. *Environmental Monitoring and Assessment*. 19: 481-494.

**Summary:** This paper reports on the species present in the Singapore River subsequent to attempts to clean up pollution in the river.

Subba Rao, D.V. 2005. Comprehensive review of the records of the biota of the Indian Seas and introduction of non-indigenous species. *Aquatic Conservation: Marine and Freshwater Ecosystems*. 15: 117-146.

**Summary:** This paper provides information about the invasive marine species in Indian waters.

Udhayakumar, M. and Karande, A.A. 1989. Byssal threads of *Mytilopsis sallei* Recluz and their adhesive strength. *Proceedings of the Indian Academy of Sciences Animal Sciences*. 98 (1): 65-76.

**Summary:** This paper discusses details of the byssal threads of *M. sallei*.