**Mytilopsis sallei**

**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 rossmasseleri*, 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
- *Dreissena domingensis*, Dunker, 1855
- *Dreissena gundlachi*, Dunker, 1855
- *Dreissena morchiana*, Dunker, 1855
- *Dreissena pfeiferi*, Dunker, 1855
- *Dreissena roosmassleri*, Dunker, 1855
- *Dreissena sallei*, Dunker, 1855
- *Mytilopsis allyneana*, Hertlein and Hanna, 1949
- *Mytilus domningensis*, Reeve, 1858
- *Mytilus morchianus*, Reeve, 1858
- *Mytilus rossmasseleri*, Reeve, 1858
- *Mytilus sallei*, Reeve, 1858
- *Tichogonia domingensis*, Kuster, 1889
- *Tichogonia gundlachi*, Kuster, 1889
- *Tichogonia morchiana*, Kuster, 1889
- *Tichogonia pfeifferi*, Dunker, 1853
- *Tichogonia riisei*, Dunker, 1853
- *Tichogonia rossmassleri*, Dunker, 1853
- *Tichogonia sallei*, Dunker, 1853

**Similar species**
- *Dreissena polymorpha*, *Mytilopsis leucophaeata*, *Dreissena bugensis*, *Brachidontes*

**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.
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).


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] TAIWAN

**BIBLIOGRAPHY**

16 references found for *Mytilopsis sallei*

Management information


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 [Accessed 27 November 2006]

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 Villizi, 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. Haliday (1999).

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


General information


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 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 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 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.


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