

Northern Pacific seastar

Asterias amurensis

Lutken, 1871

Phylum:	Echinodermata
Subphylum:	Asterozoa
Class:	Asteroidea
Order:	Forcipulatida
Family:	Asteriidae



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Description

Asterias amurensis is a large seastar with a small central disc and five distinct arms that taper to pointed tips. It is predominantly yellow in colour and often seen with purple or red detail on its upper surface. There are numerous small spines with sharp edges on the upper body surface that are arranged irregularly along the arm edges. On the underside of the body, these spines line the groove in which the tube feet lie, and join up at the mouth in a fan-like shape. The underside is a uniform yellow in colour. Fully grown individuals can reach 40-50 cm in diameter.

Reproduction & Growth

A. amurensis is capable of both sexual and asexual reproduction. Males and females are separate, releasing eggs and sperm into the water during winter. Females are capable of producing 10-25 million eggs per year. Fertilisation is external, and larvae can remain in the water column for about 120 days. The seastar is also capable of regeneration. This asexual reproduction is only possible if part of the central disc of the seastar is attached to the broken arm. The growth rate of *Asterias* is approximately 6mm per month in the first year, after which growth slows to about 1-2mm per month.

Habitat

A. amurensis is mainly found in coastal areas that are protected from wave action. It is found in intertidal and subtidal zones, and in its native Japan has been recorded at a depth of 200m. In Australia, it is not found at such depths, but on shallower (<25m) soft sediment habitats and reefs.

Feeding

Carnivore

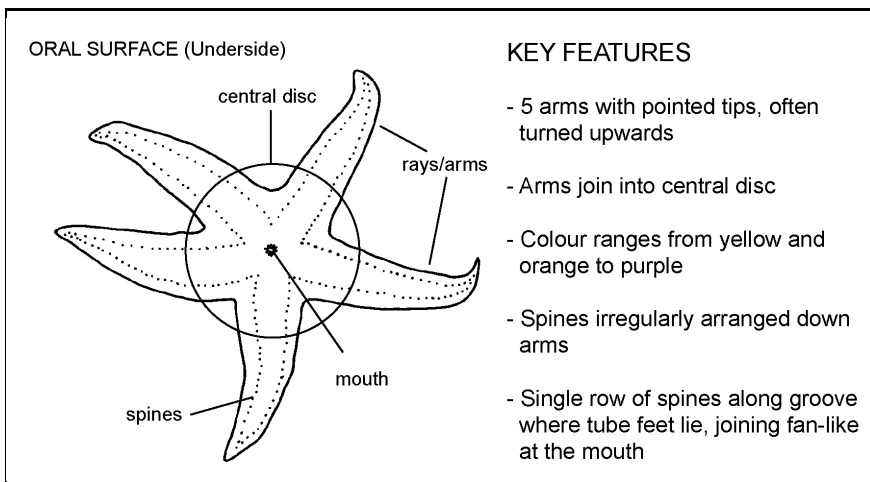
A. amurensis is a selective or opportunistic predator depending on the food that is available. Typically it feeds on large bivalves such as mussels, scallops and clams, as well as gastropods, crabs and barnacles. It has been observed feeding on dead seastars and fish.

Predators

In its native Japan, *Solaster paxillatus* (a sunstar) has been noted as a predator of *A. amurensis*. The predation of *A. amurensis* by king crabs in Alaskan aquaria has also been observed.

Impacts

A. amurensis is a voracious predator and in its native range is a major pest for the Japanese shellfish farming industry. In Australia, the seastar feeds on a wide range of native animals and can have a major effect on the recruitment of native shellfish populations that form important components of the marine food chain. Recent reports indicate that the seastar is now affecting oyster production on some marine farms in southeast Tasmania.

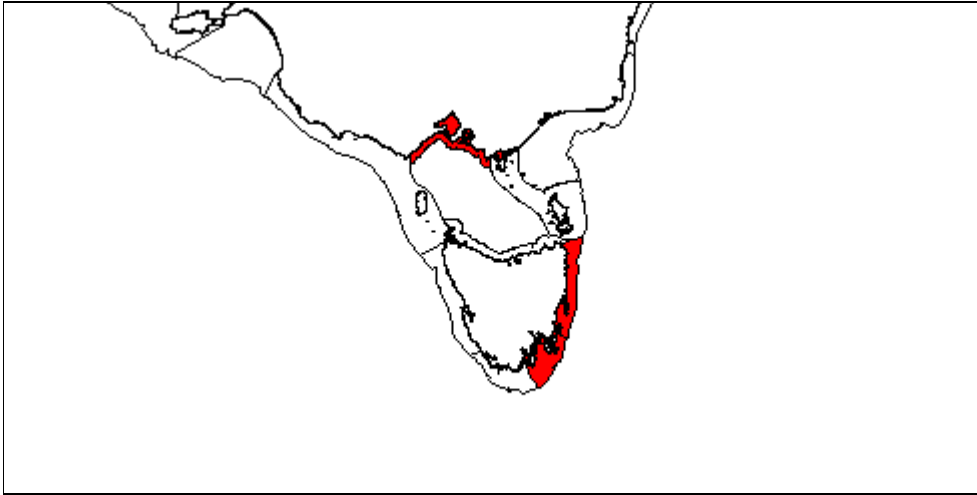


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Similar species

Uniophora granifera Lamarck, 1816
Uniophora dyscrita

Australian IMCRA BioRegion Infection Status



Control Options

For control information see the web site: <http://crimp.marine.csiro.au/nimpis>

Likely Vectors - Class/Vector

Natural Dispersal

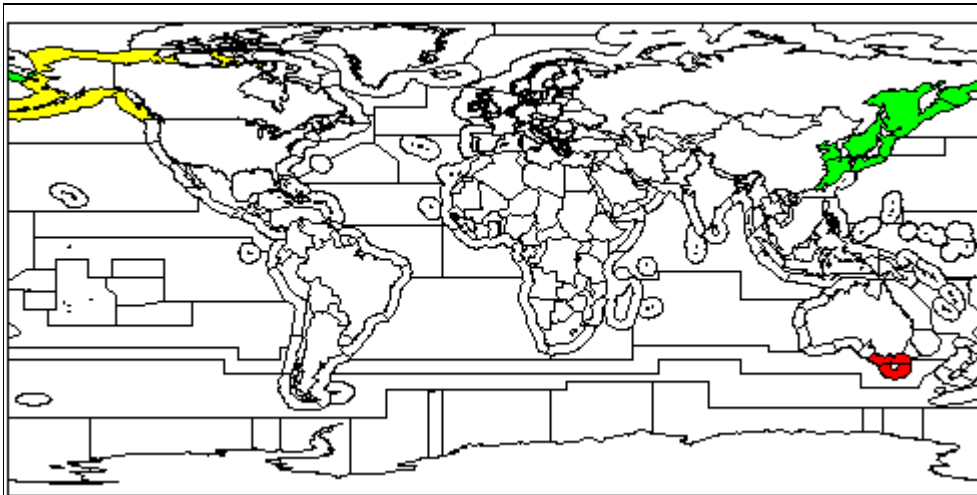
Natural Dispersal

Shipping

Ships: accidental with ballast water

Ships: accidental as attached or from

Worldwide BioRegion Infection Status



■ Introduced
■ Native
■ Cryptogenic

Key References

- Buttermore, R. E., Turner, E. & Morrice, M. G. (1994). The introduced northern Pacific seastar *Asterias amurensis* in Tasmania. *Memoirs of the Queensland Museum* 36(1):21-25.
- Davenport, S., McLoughlin, R. (1993). Preliminary assessment of the distribution and potential impact of the introduced starfish *Asterias amurensis* in Tasmanian waters. Status Report to Fisheries Research and Development Corporation, CSIRO Division of Fisheries, Hobart, Tasmania 38pp.
- Goggin, C.L. (1998). Proceedings of a meeting on the biology and management of the introduced seastar *Asterias amurensis* in Australian waters, 19 May 1998. CRIMP Technical Report No. 15, CSIRO Marine Research, Hobart, Tasmania, Australia 75pp.
- Hawkes, G., Day, R. (1993). Review of the biology and ecology of *Asterias amurensis*. Status Report to Fisheries Research and Development Corporation, CSIRO Division of Fisheries, Hobart, Tasmania 38pp.
- Kuris, A. M., Lafferty, K. D. & Grygier, M. J. (1996). Detection and preliminary evaluation of natural enemies for possible biological control of the northern Pacific seastar, *Asterias amurensis*. CRIMP Technical Report Number 3, CSIRO Marine Research, Hobart, Tasmania, Australia 17pp.
- Morrice, M.G. (1995). The distribution and ecology of the introduced northern Pacific seastar, *Asterias amurensis* (Lutken), in Tasmania. IN: The introduced northern Pacific seastar, *Asterias amurensis*, in Tasmania, Australian Nature Conservation Agency 1996, Canberra, Australia 1-70.
- Nojima, S., El Sayed Soliman, F., Kondo, Y., Kuwano, Y., Nasu, K., Kitajima, C. (1986). Some notes on the outbreak of the sea star, *Asterias amurensis* var. *versicolor* Sladen, in the Ariake Sea, western Kyushu. *Publications from the Amakusa Marine Biological Laboratory Kyushu University* 8:89-112.
- Ross, D.J., Johnson, C.R., Hewitt, C.L. (2002). Impact of introduced seastars *Asterias amurensis* on survivorship of juvenile commercial bivalves *Fulvia tenuicostata*. *Marine Ecology Progress Series* 241:99-112.
- Ross, D.J., Johnson, C.R., Hewitt, C.L. (2003). Variability in the impact of an introduced predator (*Asterias amurensis*: Asteroidea) on soft-sediment assemblages. *Journal of Experimental Marine Biology and Ecology* 288:257-278.
- Ross, D.J., Johnson, C.R., Hewitt, C.L. (2003). Assessing the ecological impacts of an introduced seastar: the importance of multiple methods. *Biological Invasions* 5:3-21.

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