Charybdis japonica **System:** Marine_terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Malacostraca	Decapoda	Portunidae

Common name Asian crab (English), paddle crab (English), Asian paddle crab (English), swimming crab (English), blue crab (English)

Synonym

Similar species

Summary The Asian paddle crab *Charybdis japonica* is a portunid (swimming) crab native to marine environments of Central and South East Asia. It may impact native esturine communities by competing for space and resources with native crabs. As it transmits disease and preys on native shellfish it is a potential threat to fisheries and traditional shell-fishing.

view this species on IUCN Red List

Species Description
Charybdis japonica have a carapace width of up to 12cm (Gust *et al*. 2003). They have a pilose (hairy) carapace (although amount of hair varies to little or none). The carapace has ridges with six frontal teeth, triangular and sharp. The inner supraorbital lobe is broadly triangular (Smith *et al*. 2003). Wee and Ng (1995) record the colour of *C. japonica* in Japan as mottled cream and purple. In the Waitemata harbour (New Zealand) specimens varied from pale green and off-white, through olive green to a deep chestnut with purplish markings on the carapace and upper surfaces of the appendages (Smith *et al*. 2003). In addition, most Waitemata specimens have yellow-orange markings, some with only a hint of yellow-orange and some with very noticeable brown-orange on parts of the carapace and the legs, especially on the chelae where the upper colouration grades into the white to off-white ventral surfaces (Smith *et al*. 2003).

Notes
\"Charybdis\" is Greek for whirlpool.

Uses
This crab is found and exploited in Asia where it is trapped using pots and gill nets (Archdale *et al.* 2006).

Habitat Description
In Korea, juvenile *C. japonica* (<25mm carapace width W) are abundant in eelgrass (*Zostera marina*) meadows (Huh and An 1998, in Smith *et al*. 2003), but there are few other accounts of their distribution and habits in wild populations. In Auckland (New Zealand) it is found in estuarine habitats comprised of ‘firm sand-muddy fine sand flats’ or ‘muddy-shelly fine sand’ habitats (Gust and Inglis 2006).

Reproduction
Wang *et al*. (1996) report a bimodal reproductive season in China, with spawning in spring and autumn when sea temperatures are between 20°C and 28°C. Females lay an average of c. 85 000 eggs per brood (Wang *et al*. 1996, Smith *et al*. 2003) and may produce multiple broods in a single year.

Nutrition
This large crab is known to be an opportunistic predator of bivalves, fish, cephalopods and other benthic invertebrates (Jiang *et al*. 1998, in Smith *et al*. 2003).

General Impacts
Disease transmission is one of the key potential impacts of the paddle crab in introduced environments. *C. japonica* is known to be a host or carrier of the White Spot Syndrome Virus (WSSV) (Maeda *et al*. 1998, in *Potential next pests* 2003). WSSV is a serious fisheries threat as it infects a broad spectrum of crustaceans, and can cause cumulative mortalities of up to 100% within 3 to 10 days from the first sign of disease (Lightner 1996, in *Potential next pests* 2003).

Management Info
Preventative measures: A two year study was undertaken for the Department of Environment and Heritage (Australia) by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to identify and rank introduced marine species found within Australian waters and those not found within Australian waters, categorised *C. japonica* as one of ten most likely invaders using the most influential measure of environmental similarity and one of ten potentially most damaging species. *C. japonica* is catergorised as a 'Medium High Priority' species based on its invasion potential/impact. These rankings will be used by the National Introduced Marine Pest Coordinating Group in Australia to assist in the development of national control plans. See Hayes *et al.* 2005 for full details.
Physical: For eradication and exploitation purposes Archdale *et al.* (2006) examined the performance of two pots commonly used in Japan to catch the crab : a box-shaped pot with slit entrances and a dome-shaped pot with open funnel entrances. The latter was found to be 100% efficient while the box-shaped box was only 66% efficient.
Swimming crabs are known to be highly sensitive to saccharides, in response to which they show strong food searching behaviour (Kawamura *et al*. 1995). Kawamura and collegues conducted a study to examine the possibility of using sugarcane as an attractant in basket traps for *Charybdis japonica* during their reproductive season and found that a bait combination of sugarcane and fish was found more effective than fish bait alone, whereas sugarcane alone was ineffective.

Pathway
The paddle crab may have been introduced from ship ballast water (Gust *et al*. 2003). This is known to be a potential route of spread of the Asian paddle crab.

Principal source:

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Review: Dr. Nick Gust, Marine Ecologist, \ \ National Institute of Water and Atmospheric Research Ltd\ \ Christchurch, New Zealand

Pubblication date: 2007-05-14

ALIEN RANGE

[1] NEW ZEALAND

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9 references found for **Charybdis japonica**

Managment information
Archdale, M.V., Kariyazono, L., A�nasco. 2006. The effect of two pot types on entrance rate and entrance behavior of the invasive Japanese swimming crab *Charybdis japonica*, *Fisheries Research 77*: 271�274.

Summary: This study examines the behavior of the crab *Charybdis japonica* towards two pot types.

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 [Accessed 13 January 2009].
Gust, N. and Inglis, G.J. 2006. Adaptive multi-scale sampling to determine an invasive crab's habitat usage and range in New Zealand, *Biological Invasions 8*: 339–353
Summary: A study and survey examining the current distribution and the estimated future potential spread of the paddle crab.
Hayes, K., Sliwa, C., Migus, S., McEnnulty, 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]
Kawamura, G., Matsuokaa, T., Tajiri, T., Nishida, M. and Hayashib, M. 1995. Effectiveness of a sugarcane-fish combination as bait in trapping swimming crabs, *FisheriesResearch 22*: 155-160.
Summary: A study investigating various bait options for attracting swimming crabs.

General information

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Available from: http://massbay.mit.edu/publications/marinebioinvasions/mbi3_abstract_book.pdf [Accessed 28 March 2007]
ITIS (Integrated Taxonomic Information System), 2006. Online Database *Charybdis japonica*
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=660546 [Accessed 20 November 2006]
Smith P J, Webber W R, McVeagh S M, Inglis G J and Gust N., 2003. DNA and morphological identification of an invasive swimming crab *Charybdis japonica* (A. Milne-Edwards 1861) in New Zealand waters. New Zealand Journal of Marine and Freshwater Research 37: 753–762
Summary: Available from: http://www.rsnz.org/publish/nzjmfr/2003/067.pdf [Accessed 20 November 2006]
Webber, R. 2001: Space invaders, crabs that turn up in New Zealand unannounced. Seafood New Zealand November 2001: 80–84.