

Asian shore crab *Hemigrapsus sanguineus*

Species Summary

Scientific name: *Hemigrapsus sanguineus*

Native to: Western Pacific Ocean from Russia, along the Korean and Chinese coasts, to Hong Kong, and the Japanese archipelago

Habitat: Inhabits shallow hard-bottom intertidal or sometimes subtidal habitat. They tend to aggregate at high densities under rocks where they overlap habitats with native crab species. The Asian crab can tolerate a wide range of salinity and temperature as well as damp conditions in the upper intertidal regions.



European green shore crab

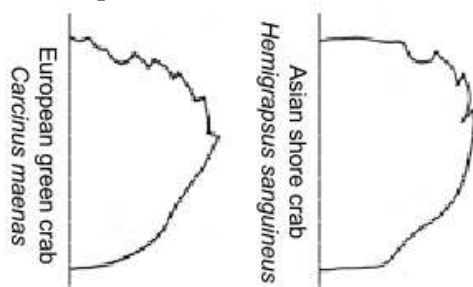
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Key ID Features

- 3 lateral spines on each side of a square-shaped carapace.
- Light and dark bands on legs with red spots on the claws.
- Colour variable: commonly orange-brown, also green and maroon.
- Larger males have fleshy bulb at base of pincers.
- Small with adults ranging from 35 mm (1.5 inches) to 42 mm (1.65 inches) in carapace width.
- Maximum size reported for the carapace width is 43.9 mm.
- Males have a fleshy swelling (vesicle) at the base of the moveable finger on the claws.

Species Characteristics

An opportunistic omnivore, tolerates a wide salinity range, feeds on macroalgae, saltmarsh grass, larval and juvenile fish and small invertebrates such as amphipods and gastropods. In New Jersey, they are found in the mid and upper shore. Highly reproductive with a breeding season from May to September. Females are capable of producing 50,000 eggs per clutch with 3-4 clutches per season. Larvae are suspended in the water for up to one month before developing into juvenile crabs (Benson 2005). Because of this, the larvae have the ability to be transported over great distances, a possible means of new introductions. Thought to move into the subtidal zone during winter, accumulating barnacles and bryozoans on the carapace in the process. The carapace of the Asian shore crab can be confused with that of the European green / shore crab:



Distribution

Worldwide distribution

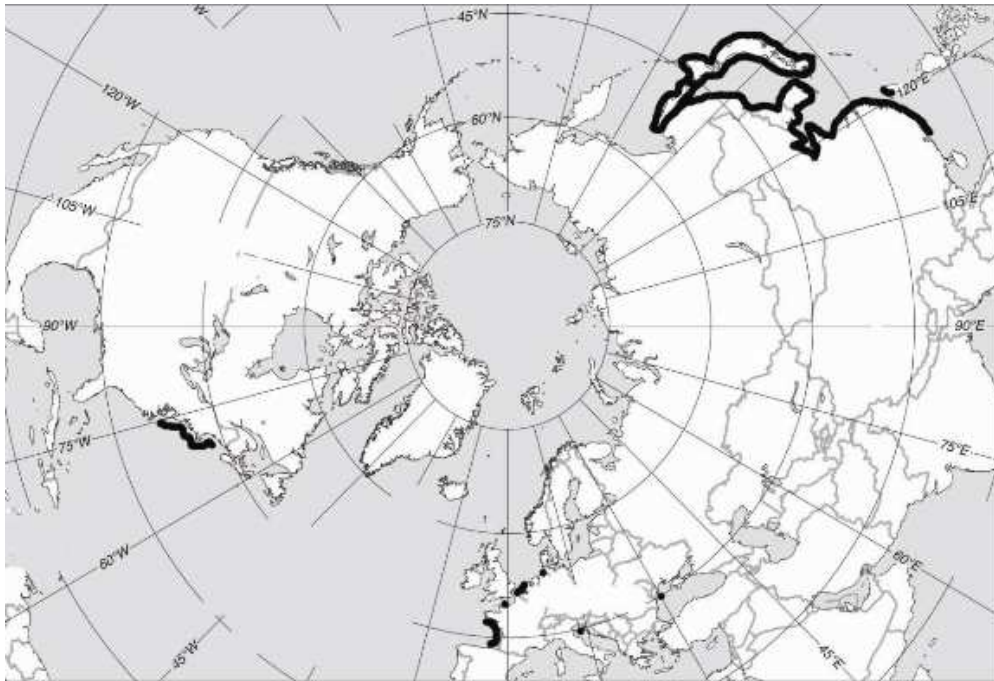


Figure taken from Klassen G (2012). Worldwide distribution of *Hemigrapsus sanguineus* before the record in Wales was found.

The Asian shore crab is native to the western Pacific Ocean from Russia, along the Korean and Chinese coasts to Hong Kong and the Japanese archipelago. Latitudinal native range in north-west Pacific is approx. 22° N to 50° N. Reproducing populations have been established on the Atlantic Ocean fringe in North America (New Jersey 1988) and Europe (France 2002). Inoculations (but no evidence of establishment) have also been reported for the Black Sea and the northern Adriatic Sea. Previous introductions are suspected to be from transfer in ballast water.



Distribution in Wales – First UK record

The first recorded sighting on mainland UK was on the shore at Aberthaw, Vale of Glamorgan on 2nd May 2014.



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Impacts

Hemigrapsus sanguineus can potentially cause changes in the food web of inshore marine and estuarine habitats. It has a very broad diet, so has the potential to affect populations of native species. The intertidal distribution overlaps with juveniles of the native common shore crab *Carcinus maenas* and edible crab *Cancer pagurus*. In studies in America, the density of *H. sanguineus* can be very high, but no clear negative impacts are recorded as a result. Laboratory studies (in America) have shown that *H. sanguineus* readily consumes three species of commercial bivalves including blue mussel *Mytilus edulis*, soft-shell clam *Mya arenaria* and oysters *Crassostrea virginica*. In Europe, the non-native is likely to compete aggressively with *C. maenas* and, at high abundance, affect mid and upper shore ecology.

In North America, the Asian shore crab is becoming the dominant species in many intertidal ecosystems, due to the suitability of the habitat and competitiveness with other crabs (Richerson 2006). Significant reductions in common shore crab abundance and mussel density have been reported where the Asian shore crab has achieved high densities in mainland Europe, and similar effects across the broader community may be expected. *C. maenas* is also reported to have been displaced by the Asian shore crab in rocky shore habitats in several places in North America (NNSS 2011). It is considered invasive because it is able to achieve extremely high densities, with apparent negative impacts on small recruits and juveniles of several native species (barnacles, littorinid snails, brachyuran crabs, rocky shore bivalves).

Recording

As this species has only been recently found in the UK a high level of vigilance is important. Therefore for identification assistance and for reporting a sighting go to:

Marine Biological Association: <http://www.mba.ac.uk/recording/>

If possible, take photos of this species and forward them with the observation.

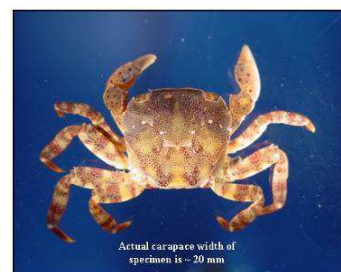


Image taken from USGS Science Center for Coastal and Marine Geology

Potential management

Preventative measures: Ballast water management is being researched to reduce or eradicate new introductions from occurring. Scientists are monitoring changes in native species, tracking the Asian shore crab's spread along the US Atlantic coastline, and conducting experiments to increase their knowledge of basic biology and ecology of this species (Benson, 2005).

No successful eradications of this species have been completed but future management measures such as the ballast water management above are being implemented.

References and further reading

Very informative slideshow at: Colbath R. 2013 Invasion of the Asian shore crab: Its effect on the local ecosystem: <http://prezi.com/7y0hzh8s4cw/invasion-of-the-asian-shore-crab-its-effect-on-the-local-ecosystem/>

NNSS 2011. Factsheet - Asian shore crab, GB Non-native species secretariat. <http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=3818>

Benson, A. 2005. Non indigenous Species Information Bulletin: Asian shore crab, Japanese shore crab, Pacific crab, *Hemigrapsus sanguineus* (De Haan) (Arthropoda: Grapsidae). USGS-FISC: Center for Aquatic Resource Studies.

Invasive Species Compendium: <http://www.cabi.org/isc/datasheet/107738>

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Richerson, M.M. 2006. *Hemigrapsus sanguineus*. USGS Non-indigenous Aquatic Species Database, Gainesville, FL.

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Westgate, K. 2011. The Invasive Asian Shore Crab, a Dominant Species on South eastern Massachusetts Beaches: A Cause for Concern. Undergraduate Review, 7, 131-137. Available at: http://vc.bridgew.edu/undergrad_rev/vol7/iss1/25