

NOBANIS - Marine invasive species in Nordic waters - Fact Sheet

Caprella mutica

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Species description

Species name

Caprella mutica, Schurin, 1935 – Japanese skeleton shrimp.

Synonyms

Caprella macho Platvoet, deBruyne & Gmelig Meyling, 1995.

Common names

Harig spookkreeftje (NL), Japanese skeleton shrimp (UK).

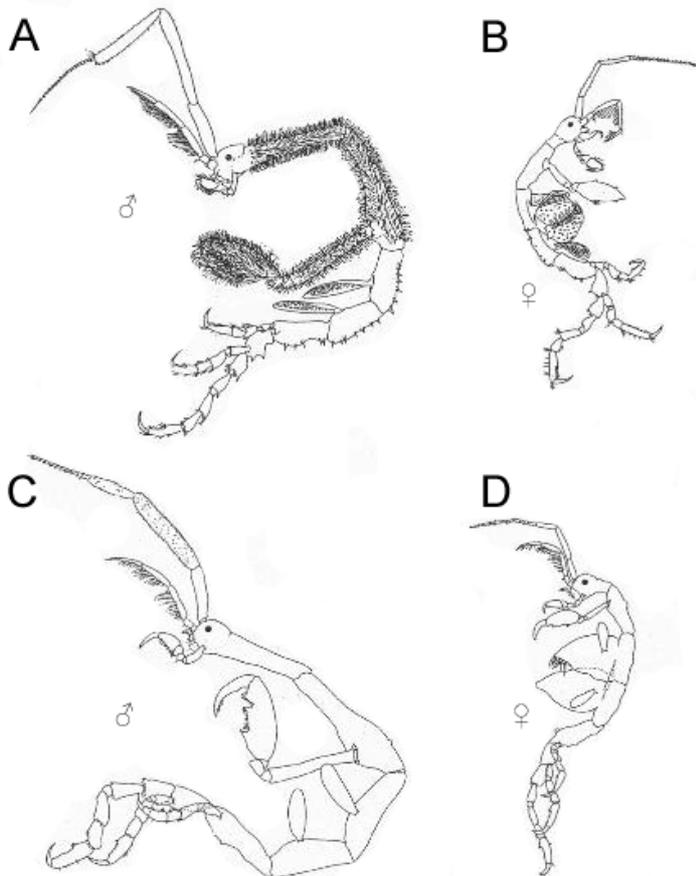
Identification

Caprellid amphipods or skeleton shrimps are highly modified amphipods with almost cylindrical bodies, pereopods 3-4 reduced and pereopods 5-7 hook-shaped, an adaption for holding on to seaweeds, hydroids or similar substrates. Most species have a pronounced sexual dimorphism, males being much larger than females. Due to their small size they are difficult to identify to species level.

This species is orange to red in coloration. The brood pouch of the female has red spots. The male of *C. mutica* can get up to 35 mm long. It has a long, "hairy" pereonites 1-2 and gnathopods 2. The female is much smaller (15 mm) and does not have the elongated hairy anterior segments and gnathopods. It is most similar to *C. linearis* Linnaeus, 1767, but *C. linearis* is not "hairy". Another common caprellid in Nordic waters is *C. septentrionalis* Krøyer, 1838, but this species is rather easily distinguished from *C. mutica*. It is not hairy, the two sexes are almost the same size, and the anterior pereonites are not elongate.



Caprella mutica, female with brood pouch, but no visible embryos. Photo by Jens Christensen/ Maks Klastrup Orbicon og DONG Vattenfall (copyright).



A and B: Drawing of *Caprella mutica* (from Platvoet et al 1995)
C and D: Drawing of *Caprella linearis*, native (from Guerro-Garcia 2002)

Caprella linearis see: http://species-identification.org/species.php?species_group=crustacea&id=242

Caprella septentrionalis see: http://species-identification.org/species.php?species_group=crustacea&id=244

Caprella macho (= *C. mutica*) see: http://species-identification.org/species.php?species_group=crustacea&id=243&m

Character	<i>C. mutica</i>	<i>C. linearis</i>
♂ body length	24 mm (35 mm)	10 mm (15 mm)
♀ body length	11 mm	5 mm
♂ pereonite 1-2	hairy	smooth
♂ gnathopod 2	hairy	spines & setae on "palm"
♂ pereionites 3-5	w. dorsal spines	smooth (5 w. tubercles)
♀ pereionites 3-7	w. dorsal spines	w. tubercles

Table for comparing *Caprella mutica* and the native *C. linearis*. Data from Platvoet et al., 1995 and Guerro-Garcia, 2002

Distribution

Native area

Sea of Japan, both on the Japanese and Russian side (Cook et al., 2007a).

Introduced area

Caprella mutica was first introduced to the Pacific coast of the USA in the 1970s and shortly thereafter also to the Atlantic coast (Ashton et al. 2007b). More recently it has also been discovered in Alaska (Ashton et al., 2008a). The earliest appearance in European waters is from the Netherlands where specimens collected in 1993 and following years were described as a new species, *C. macho* (Platvoet et al., 1995; Wolff, 2005). Next it was found in Belgium in 1998 and Norway in 1999 (Ashton et al., 2007b). A mass occurrence was detected in the German Wadden Sea in 2004 (Buschbaum & Gutow, 2005), and the first occurrence was traced back to 2000. It was first recorded in Scotland in 2000 (Willis et al., 2004) and then from southern England and Wales in 2003 (Ashton et al., 2007b), in Ireland also in 2003 and 2004 in France. The first Danish record is from 2005 when a few specimens were collected from offshore wind turbines of Horns Rev Windfarm (DONG, 2006). Molecular studies indicate separate introductions to the Pacific and Atlantic coasts of North America, though the source population has not yet been identified (Ashton et al., 2008b). Furthermore it has been introduced to New Zealand (Ashton et al., 2007b).

Vector

Unknown, but the first occurrences indicate that they have been transferred with oysters (Willis et al., 2004), though ballast water or hull fouling have also been suggested (Cook et al., 2007).

Ecology

Caprella mutica is sometimes said to be omnivorous (Sano et al., 2003) sometimes a filter feeder (Michel et al., 2007; Nauwelaerts et al., 2007). In laboratory experiments *C. mutica* has been observed to scrape the surface of macroalgae, filter-feed and scavenge on larger particles of commercial fish feed (Cook et al., 2007b). It has a wide tolerance of temperature and salinity; upper temperature tolerance is about 28-30° C and lower below 2° C. Animals died at salinities below 15 ppt and were lethargic below 18 ppt (Ashton et al., 2007a).

Habitat

Usually associated with man-made structures, e.g. mariculture facilities, off-shore oil-rigs or windfarms, etc. (Willis et al., 2004; Buschbaum & Gutow, 2005; Ashton et al., 2007b; Cook et al., 2007b).

Reproduction

Sexual maturity is reached at a body length of 11 mm for males and 7 mm for females (Willis et al., 2004). Brood size varies with body size of female; the maximum recorded is 82 hatchlings in one brood with an average of 25 (Cook et al., 2007b) to 33 (Nakajima & Takeuchi, 2008). Lifespan in the laboratory was about 2.5 months and most females produced 2 broods about 20 days apart.

Impacts

Competition with native species of *Caprella* (Shucksmith et al., in press). It outcompetes *C. linearis* even at low densities, apparently by being bigger and more aggressive.

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