

European green crab

Carcinus maenas

Synonyms: *Cancer granarius*, *Cancer maenas*, *Cancer marinus sulcatus*, *Portunus maenas*,

Other common names: European shore crab, green crab

Family: Portunidae

ITIS No. 98734

Description (Rathburn, 1930)

C. maenas is a small shore crab with adults ranging in size from 6-10 cm in carapace width. Carapace color varies and can be dark brown, to dark green, to orange-red. There are 5 antero-lateral teeth or spines on each side of the crab and three rounded lobes between the eyes. The second and third pair of walking legs are longest, with the fourth pair of legs being shorter than the first. The last pair of legs are somewhat flattened and with setae. Females usually live for three years and males can live for 5 years (Yamada & Hauck, 2001). *C. maenas* is aggressive, vigorous, and can survive out of water for at least 5 days (Darbyson, 2006).



C. maenas. Photo by Sean McDonald

Similar species: Carcinus aestuarii, Ovalioes ocellatus

Ecological impact

C. maenas is a voracious predator that can deteriorate habitats through the reduction of

native biota and other habitat resources such as eelgrass beds (Cohen et al., 1995).

Impact on community composition, structure, and interactions: As generalist feeder and fierce competitor, *C. maenas* can broadly affect marine ecosystems and their biodiversity. Nearshore community species composition, and the distribution, abundance, size, morphology, and behavior of prey populations can be dramatically altered when *C. maenas* are present (Cohen et al., 1995; Klassen & Locke, 2005).

Impact on ecosystem processes: Changes the balance between species in their ecosystems can impact biodiversity. Reduced biodiversity and limited species access to resources can limit ecosystem productivity and lessen ecosystem resilience to disturbance.

Economic Impact: Significant impacts to local commercial, personal use, and subsistence fisheries has been documented (Cohen & Carlton, 1995; Tettlebach, 1986).

Biology and invasive potential

Reproductive potential: *C. maenas* is a highly fecund species that matures quickly. Females become reproductively mature in as little as one year and can mate multiple times during a breeding season (Grosholz & Ruiz, 2002).

Potential for long-distance dispersal: The planktonic larval stage of *C. maenas* can last up to 80 days in the water column (Darbyson, 2006). Thus, transport over great distances is possible. Rapid spreading of populations can occur once established.

Potential to be spread by human activity:

Organisms may be dispersed great distances in ballast water, on the surface of vessel hulls, and via aquaculture activities (Carlton & Cohen, 2003; Cohen et al., 1995).

Habitat requirements: *C. maenas* often inhabits protected and semi-protected intertidal systems and is tolerant of salinities ranging from 4-52 PPT (Cohen & Carlton, 1995) and temperatures ranging from -2-35°C (Cohen et al, 1995; Carlton & Cohen, 1995; Hidalgo, 2005). Furthermore, *C. maenas* is tolerant of low oxygen levels (Legeay & Massabuau, 2000). Although tolerant of widely varying conditions, molting and growth occurs best at temperatures above 10°C and larvae are less tolerant than adults to abiotic conditions (Grosholz & Ruiz, 1996).

Congeneric biota: *Carcinus aestuarii*

Legal Listings

- Has not been declared invasive
- Listed invasive in Alaska
- Listed invasive by other states
- Federal invasive species
- Listed invasive in Canada or other countries

Distribution and abundance

The native distribution of *C. maenas* includes coastal Europe and North Africa, extending to Iceland and Norway (WDFW, 2001). It has since dispersed globally and occupies both coasts in north America, as well as Australia, Argentina, and Japan. *C. maenas* has also been observed, but not established, in Madagascar, Myanmar, Pakistan, Poland, and Russia (CABI, 2021).

Management

Numerous methods have been employed for eradication including trapping (Cohen & Carlton, 1995), biological control through parasitic castration (Goddard et al., 2005), chemical agents (Cohen & Carlton, 1995; Hanks, 1961; McEnulty et al., 2001), and utilization (Gomes 1991; Cohen & Carlton, 1995). However,

controlling established populations is difficult and to date has only been feasible on small scales (Grosholz & Ruiz, 2002). As a result, the current best method of reducing the impacts of *C. maenas* is to establish effective education and monitoring programs to promote early detection and rapid response before populations are established.

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