Rangia cuneata 正體中文

System: Marine

Kingdom	Phylum	Class	Order	Family
Animalia	Mollusca	Bivalvia	Veneroida	Mactridae

Common name wedge clam (English), Atlantic rangia (English), common rangia (English)

Synonym

Similar species

Summary

Rangia cuneata clams inhabit low salinity estuarine habitats and are, as such, most commonly found in areas with salinities from 5-15 PSU. Along the Mexican Gulf coast, they form the basis for an economically important clam fishery. A combination of low salinity, high turbidity and a soft substrate of sand, mud and vegetation appears to be the most favourable habitat for Rangia cuneata. The species has recently been found in European brackish waters. After initially finding only a few small individuals in 2005, Rana cuneata was encountered frequently in the pipes of the cooling water system of an industrial plant from February 2006 onwards. Before this present record, R. cuneata was only known from the Gulf of Mexico and the Atlantic coast of North America.

view this species on IUCN Red List

Species Description

The valves of *Rangia cuneata* are thick and heavy, with a strong, rather smooth pale brown periostracum. The shells are equivalve, but inequilateral with the prominent umbo curved anteriorly. An external ligament is absent or invisible, but the dark brown internal ligament lies in a deep, triangular pit immediately below and behind the beaks. Both valves have two cardinal teeth, forming an inverted V-shaped projection. The upper surface of the long posterior lateral teeth (LaSalle and de la Cruz 1985) is serrated. The inside of the shell is glossy white, with a distinct, small pallial sinus, reaching to a point halfway below the posterior lateral. The pallial line is tenuous (Garcia-Cubas 1981).

Lifecycle Stages

In the USA, *Rangia cuneata* has two spawning periods ranging from March-May and late summer-November in Louisiana (Fairbanks 1963) and February-June and September-November in Mexico (Rogers and Garcia-Cubas 1981), although in both areas, spawning may be continuous. Cain (1975) found that gametogenesis was initiated when the water temperature rose above 15 °C and with salinities above 0 PSU or below 15 PSU (Hopkins 1970).

Habitat Description
Rangia cuneata inhabits low salinity estuarine habitats (Parker 1966) and is as such most commonly found in areas with salinities from 5-15 PSU (Swingle and Bland 1974). *R. cuneata* possess both extracellular (blood and body fluid) and intracellular mechanisms of osmoregulation, which enables them to respond to sudden salinity changes in many estuaries (Bedford and Anderson 1972). They can cross the 'horohalinicum', the 5-8 PSU salinity boundary which usually divides fresh and salt-water invertebrates, making them one of the few freshwater clams to become established in brackish water (Ladd 1951) as such thriving in a zone unfavourable for many animals. Competition and predation may explain its scarcity in high salinity environments (Cooper 1981). A combination of low salinity, high turbidity and a soft substrate of sand, mud and vegetation appears to be the most favourable habitat for *R. cuneata* (Tarver 1972). Although larvae prefer coarser sediment for settlement, adults are often found in muddy sediments (Fairbanks 1963; Cain 1975; Jordan and Sutton 1984).

Nutrition
Rangia cuneata is a non selective filter-feeder, turning large quantities of plant detritus and phytoplankton into clam biomass (Darnell 1958) but the species also appears to obtain organic matter and phosphate from the sediment by direct ingestion or by feeding on bacteria associated with these materials (Tenore *et al*. 1968).

General Impacts
Verween *et al*. (2006) describe *R. cuneata* as a biofouling species, causing problems in industrial cooling water systems

Management Info
We have not recorded any management information for this species.

Pathway
Rangia may owe its reappearance on the U.S. Atlantic coast to the transportation of *Crassostrea virginica* from the Gulf of Mexico to Chesapeake Bay (Pfitzenmeyer and Drobeck 1964)

Principal source: Verween, Annick., Francis Kerckhof., Magda Vincx and Steven Degraer., 2006 First European record of the invasive brackish water clam *Rangia cuneata* (G.B. Sowerby I, 1831) (Mollusca: Bivalvia) Aquatic Invasions (2006) Volume 1, Issue 4: 198-203;
Pfitzenmeyer H. T and Drobeck K. G 1964. The Occurrence of the Brackish Water Clam, *Rangia cuneata*, in the Potomac River, Maryland;
LaSalle MW and de la Cruz AA 1985. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Gulf of Mexico): common rangia.

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Review:

Pubblication date: 2005-04-08

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BIBLIOGRAPHY
9 references found for **Rangia cuneata**

Managment information

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].

General information
Cain T D 1972. The reproductive cycle and larval tolerances of *Rangia cuneata* in the James River, Virginia. PhD dissertation. University of Virginia, Charlottesville: 250 p.
Carlton J T 1992. Introduced marine and estuarine mollusks of North America: an end-of-the-20th-century perspective. Journal of Shellfish Research 11: 489-505.
Counts C. L 1980. *Rangia cuneata* in an industrial water system (Bivalvia: Mactridae). Nautilus 94: 1-2.
Fairbanks L D 1963. Biodemographic studies of the clam *Rangia cuneata* Gray. Tulane Studies in Zoology 10: 3-47.
ITIS (Integrated Taxonomic Information System), 2007. Online Database. *Rangia cuneata* (G. B. Sowerby I, 1831)
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=80962 [Accessed 29 March 2007]
Rogers P and Garcia-Cubas A ., 1981. Evolution gonadica a nivel histologico de *Rangia cuneata* (Gray, 1831) de la Laguna Pon, Campeche, Mexico (Mollusca: Bivalvia Universidad Nacional Aut&#65533;noma, Mexico 8: 1-20.
Ruiz H. E 1975. Estudio ecologico preliminary de las almegas comerciales del sistema lagunar de Terminos, Campeche, *Rangia cuneata* (Gray, 1831). Tesis professional Universidad Nacional Aut&#65533;noma, Mexico: 80 p.
Verween, Annick., Francis Kerckhof., Magda Vincx and Steven Degraer., 2006 First European record of the invasive brackish water clam *Rangia cuneata* (G.B. Sowerby I, 1831) (Mollusca: Bivalvia) Aquatic Invasions (2006) Volume 1, Issue 4: 198-203
Summary: A population of *Rangia cuneata* (G.B. Sowerby I, 1831), an estuarine bivalve, has been recorded in the harbour of Antwerp, Belgium. This species is new to the European brackish water fauna. After initially finding only a few small individuals in August 2005, *R. cuneata* was encountered frequently in the pipes of the cooling water system of an industrial plant from February 2006 onwards. Before this present record, R. cuneata was only known from the Gulf of Mexico and the Atlantic coast of North America.