



MarLIN

Marine Information Network

Information on the species and habitats around the coasts and sea of the British Isles

Lagoon cockle (*Cerastoderma glaucum*)

MarLIN – Marine Life Information Network
Biology and Sensitivity Key Information Review

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A report from:

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Please note. This MarESA report is a dated version of the online review. Please refer to the website for the most up-to-date version [<https://www.marlin.ac.uk/species/detail/1315>]. All terms and the MarESA methodology are outlined on the website (<https://www.marlin.ac.uk>)

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Three *Cerastoderma glaucum* with siphons extended.
 Photographer: Dennis R. Seaward
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See online review for
 distribution map

Distribution data supplied by the Ocean
 Biogeographic Information System (OBIS). To
 interrogate UK data visit the NBN Atlas.

Researched by	Nicola White	Refereed by	Dr Richard S.K. Barnes
Authority	(Bruguière, 1789)		
Other common names	-	Synonyms	<i>Cardium lamarckii</i> (Bruguière, 1789)

Summary

🔍 Description

The cockle, *Cerastoderma glaucum* is a filter feeding bivalve which burrows shallowly in soft sediments. The species exists in two forms, a typical thin-shelled variety found in brackish lagoon habitats and a thicker shelled variety occurring in estuaries. It is widely distributed in north-west Europe.

📍 Recorded distribution in Britain and Ireland

Orkney, Firth of Forth, East Anglia, Deben & Orwell estuaries, south coast of England, south Wales, the west coast of Scotland, and south and west coasts of Ireland.

📍 Global distribution

Occurs from Norway and the Baltic to the Mediterranean and Black Seas.

🏠 Habitat

The species is found submerged in saline lagoons or more rarely on the low shore of estuaries. Adults usually burrow shallowly in soft sediments. The failure of the species to colonize the higher shore is believed to be due to an inability to tolerate aerial exposure and it's consequent conditions. The species' distribution is believed to be restricted by the damaging effect of wave

action on the newly settled spat.

↓ Depth range

Shallow

🔍 Identifying features

- Rounded globular shell with 22-28 conspicuous radiating ribs.
- Anterior margin of shell crenulate, posterior margin smooth.
- Hinge line with cardinal and lateral teeth.
- Adductor muscle scars roughly the same size.
- Pallial sinus absent.

🏛️ Additional information

No text entered

✓ Listed by



🔗 Further information sources

Search on:



Biology review

Taxonomy

Phylum	Mollusca	Snails, slugs, mussels, cockles, clams & squid
Order	Cardiida	
Family	Cardiidae	
Genus	Cerastoderma	
Authority	(Bruguière, 1789)	
Recent Synonyms	Cardium lamarckii (Bruguière, 1789)	

Biology

Typical abundance	Low density
Male size range	Up to 5cm
Male size at maturity	
Female size range	Small-medium(3-10cm)
Female size at maturity	
Growth form	Bivalved
Growth rate	9.6mm/year
Body flexibility	
Mobility	
Characteristic feeding method	Active suspension feeder, No information
Diet/food source	
Typically feeds on	
Sociability	
Environmental position	Infaunal
Dependency	No information found.
Supports	No information
Is the species harmful?	No

Biology information

The species exists in two forms, a typical thin-shelled variety found in brackish lagoon habitats and a thicker shelled variety occurring in estuaries. Growth rate during the first year takes place at a mean of 9.6 mm per year in Essex. Thereafter growth rate decreases to 4.9 mm in the second year and 2.5 mm in the third year (Boyden, 1972).

Habitat preferences

Physiographic preferences	Estuary, Isolated saline water (Lagoon)
Biological zone preferences	Lower eulittoral, Sublittoral fringe
Substratum / habitat preferences	Coarse clean sand, Fine clean sand, Mud, Muddy sand, Sandy mud
Tidal strength preferences	Weak < 1 knot (<0.5 m/sec.)

Wave exposure preferences	Sheltered, Very sheltered
Salinity preferences	Low (<18 psu), Variable (18-40 psu)
Depth range	Shallow
Other preferences	No text entered
Migration Pattern	Non-migratory / resident

Habitat Information

The adult and juvenile populations are distributed differently. Juveniles (0.5-10 mm) attach to filamentous algae by means of byssus threads. When they reach a certain age, they migrate to the adult free-living sediment population (Labourg & Lasserre, 1980).

Life history

Adult characteristics

Reproductive type	Gonochoristic (dioecious)
Reproductive frequency	Annual episodic
Fecundity (number of eggs)	No information
Generation time	Insufficient information
Age at maturity	Insufficient information
Season	May - July
Life span	2-5 years

Larval characteristics

Larval/propagule type	-
Larval/juvenile development	Planktotrophic
Duration of larval stage	11-30 days
Larval dispersal potential	No information
Larval settlement period	Insufficient information

Life history information

Veliger larvae have a pelagic life of from 11 to 30 days. Newly settled young attach temporarily by byssus threads to filamentous algae before becoming buried in the top few centimetres of sediment. Gametogenesis occurs in early spring and spawning takes place from May to July. Individuals live for about five years.

Sensitivity review

This MarLIN sensitivity assessment has been superseded by the MarESA approach to sensitivity assessment. MarLIN assessments used an approach that has now been modified to reflect the most recent conservation imperatives and terminology and are due to be updated by 2016/17.

A Physical Pressures

	Intolerance	Recoverability	Sensitivity	Confidence
Substratum Loss	High	Low	High	Low
<i>Cerastoderma glaucum</i> lives embedded within the substratum and would be removed upon substratum loss. The species has slow recovery due to its restricted distribution.				
Smothering	High	Low	High	Low
Bivalves have rather limited ability to burrow upwards so the species would be buried upon smothering. <i>Cerastoderma glaucum</i> has slow recovery due to its restricted distribution.				
Increase in suspended sediment	Tolerant	Not relevant	Not sensitive	Low
The species is probably tolerant of siltation because it lives in estuaries and lagoons where siltation frequently occurs.				
Decrease in suspended sediment				
Desiccation	High	Low	High	Moderate
The low shore position of <i>Cerastoderma glaucum</i> suggests that it has a low tolerance of desiccation. Boyden (1972) observed that the species can tolerate 33 percent water loss and that death occurs between 33 and 38 percent water loss. Recovery would be low due to the restricted distribution of this species.				
Increase in emergence regime	High	Low	High	Low
The low shore position of <i>Cerastoderma glaucum</i> suggests that it has an inability to tolerate exposure to air and its consequent conditions. Unlike <i>Cerastoderma edule</i> the shells of <i>Cerastoderma glaucum</i> remain closed upon exposure to air. The species may suffer desiccation, increased metabolic cost and exposure to predation by birds. Recovery would be low due to the restricted distribution of this species.				
Decrease in emergence regime				
Increase in water flow rate	Intermediate	Low	High	Very low
The species and its preferred habitat could be washed away by increased water flow rate. Recovery would be slow due to the restricted distribution of the species.				
Decrease in water flow rate				
Increase in temperature	Low	High	Low	Moderate
<i>Cerastoderma glaucum</i> can tolerate a wide range of temperatures. Populations have been observed to survive in lagoons in conditions from almost freezing to more than 30 degree C. However, a high mortality of cockles was observed in South East England after the exceptionally cold winter of 1962/3. Boyden (1972) observed that <i>Cerastoderma glaucum</i> has a LD50 of 62.3 hours at 20 degrees C in air.				

Decrease in temperature**Increase in turbidity**

Low

High

Low

Low

The species is a suspension feeder so may benefit from increased turbidity by a greater food supply. However, if turbidity is caused by silt particles additional feeding costs would be imposed.

Decrease in turbidity**Increase in wave exposure**

High

Low

High

Low

It has been suggested that the juveniles of *Cerastoderma glaucum* are very intolerant of wave exposure which controls the species' distribution. The species is restricted to sheltered sites which suggests it is intolerant of increased wave exposure. Increased wave exposure may also remove the species preferred habitat. Recovery would be low due to the species' limited distribution.

Decrease in wave exposure**Noise**

Not relevant

Not relevant

Insufficient information

Visual Presence

Not relevant

Not relevant

Insufficient information

Abrasion & physical disturbance

Intermediate

Moderate

Moderate

Very low

The shells of *Cerastoderma glaucum* are rather thin and brittle, so it is probably quite intolerant of abrasion.

Displacement

Tolerant

Very high

Not sensitive

Moderate

The species is not sensitive to displacement. A population of *Cerastoderma glaucum* established itself in Emsworth Harbour by displacement of animals from adjacent lagoon habitats (Barnes, 1973).

🧪 Chemical Pressures

Intolerance

Recoverability

Sensitivity

Confidence

Synthetic compound contamination

Not relevant

Insufficient information

Heavy metal contamination

Not relevant

Insufficient information

Hydrocarbon contamination

Not relevant

Insufficient information

Radionuclide contamination

Not relevant

Not relevant

Insufficient information

Changes in nutrient levels

Intermediate

Low

High

Low

An increase in nutrients may lead to eutrophication and reduced oxygen levels. Juveniles of the species are very intolerant of reduced oxygen concentration. Recovery would be low due to the restricted distribution of this species.

Increase in salinity

Low

High

Low

Moderate

The species can survive in lagoons where salinity varies from 7 psu to 84 psu, so it has a high tolerance of different salinities.

Decrease in salinity**Changes in oxygenation**

High

Low

High

Moderate

Juveniles of *Cerastoderma glaucum* are very intolerant of low oxygen concentrations. However adults can survive for 84 hours in oxygen free water (Boyden, 1972).

**Biological Pressures**

Intolerance

Recoverability

Sensitivity

Confidence

Introduction of microbial pathogens/parasites

Not relevant

Not relevant

Insufficient information

Introduction of non-native species

Not relevant

Not relevant

Insufficient information

Extraction of this species

Not relevant

Not relevant

Insufficient information

Extraction of other species

Not relevant

Not relevant

Insufficient information

Additional information

None

Importance review

Policy/legislation

Northern Ireland Priority Species

Status

National (GB)
importance

Not rare/scarce

Global red list
(IUCN) category

-

Non-native

Native

-

Origin

-

Date Arrived

-

Importance information

The species is harvested in Yugoslavia for human consumption, and may be harvested elsewhere.

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