

Ensis americanus



Taxon	Family / Order / Class / Phylum
<i>Ensis americanus</i> (Gould 1870)	Solenidae / Veneroida / Pelecypoda / Mollusca

COMMON NAMES (English only)

American Jack knife clam
American razor-shell

SYNONYMS

Ensis directus (Conrad, 1843)
Solen directus (Conrad, 1843)
Solen ensis americana (Gould & Binney, 1870)

SHORT DESCRIPTION

The red-brown bivalves (up to 16-17 cm in length) occur in muddy or fine sand, marine and brackish waters. It prefers the lower zone of the intertidal areas, where they burrow into the sediment and filter-feed on algae.



Adult individuals of *Ensis americanus*

Photo: Sergej Olenin

BIOLOGY/ECOLOGY

Dispersal mechanisms

The free-swimming larvae are distributed by currents in spring. Secondary dispersal of post-larval stages occurs in summer. *E. americanus* is also able to swim or drift by use of byssus threads. Nocturnal swimming of adult mussels may also facilitate dispersal.

Reproduction

The annual postlarval settlement starts in the North Sea (Wadden Sea area) in summer (May or June). The juveniles settle on clean sands in the lower zone of the intertidal areas, where they burrow in the sediment. The survival of recruits is limited to areas below the level of mean low tides. Migrating juveniles are mostly 1-3 mm long, occasionally up to 5 mm. *E. americanus* shows a retarded growth in the 1st year (size: 30-50 mm) and faster growth the 2nd year. They reach about 6 cm in length after the first winter. The life-span is up to 5 years. The maximum sizes are 16-17 cm. Mass developments occurred in the Wadden Sea.

Known predators/herbivores

Birds seems to be the only predator (in Europe: Oystercatchers *Haematopus ostralegus*, in America: *Larus delawarensis*)

Resistant stages (seeds, spores etc.)

Inapplicable.

HABITAT

Native (EUNIS code)

A2: Littoral sediment, A5: Sublittoral sediment, brackish littoral soft sediment, brackish sublittoral soft sediment - adult forms; A7: Marine pelagic water column and brackish pelagic water column - pelagic larvae.

Habitat occupied in invaded range (EUNIS code)

A2: Littoral sediment, A5: Sublittoral sediment, brackish littoral soft sediment, brackish sublittoral soft sediment - adult forms; A7: Marine pelagic water column and brackish pelagic water column - pelagic larvae. Inhabits littoral and sublittoral soft sediment bottoms in fully marine and brackish environments.

Habitat requirements

It is found in marine and estuarine areas and tolerates relatively low salinities. However low winter temperatures seem to limit the development. It prefers unstable clean fine sand with small amounts of silt and burrows to 3-18

cm depth. The survival of recruits is limited to areas below the level of mean low tides. The habitats colonized show oxidized layers from 3 cm to more than 30 cm.

DISTRIBUTION

Native range

The native range of *E. americanus* is the Atlantic coast of North-America - from southern Labrador to South Carolina.

Known Introduced Range

First record of *E. americanus* along the European mainland coast was in the German Bight in 1978. It has spread rapidly in the southern North Sea countries: around the North Sea coast of Denmark and The Netherlands by 1982, to Belgium by 1984 and France by 1986. It reached the English Channel by the end of the 1980s. It is also observed in Sweden in 1982 and Norway in 1989.

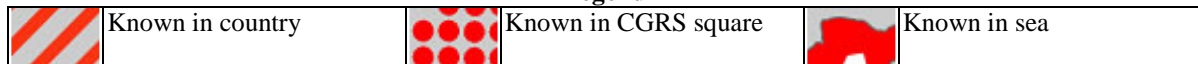
Trend

Increasing.

MAP (European distribution)



Legend



INTRODUCTION PATHWAY

The spread is mostly associated with dispersal of the long-lasting pelagic larvae, which can be transported in ballast waters of ships and by water currents. *E. americanus* is also able to swim or use byssus threads for drifting. They show a diurnal rhythm, being more abundant in the water column at night. The free swimming larvae spread with the currents along the coast, occupying the free niche of clean sand in lower intertidal flats. Furthermore, post larval stages may re-enter the water column for secondary dispersal in summer for a period of up to 6 - 8 weeks. The survival of recruits is limited to areas below the level of mean low tides. By larval and post larval drifting the species rapidly extended its distribution in Europe.

IMPACT

Ecosystem Impact

Although dense populations may change the community structure of the benthic fauna or compete for space and food, there were no significant interactions with resident species along the Island of Sylt (North Sea). Dense populations may have an impact on the sediment structure by their burying activities. In dense beds of razor clams, fine sediment particles accumulated which may have altered abundances of polychaetes. In spite of high

annual variability, *E. americanus* has become a prominent component of the macrobenthos in shallow subtidal sands of the North Sea.

Health and Social Impact

The sharp shells of jack knife clams can cause deep cuts on bathers feet. Such injuries can also occur when stepping on native species, but *E. americanus* lives at much shallower depths than native species and consequently injuries are more likely. Apart from the actual cut, wounds can become infected with bacteria.

Economic Impact

The species can damage trawls and other fishing nets on the seabed, causing economic losses to fisheries. It is also fished in some parts of continental Europe. In some places, e.g. Southend on Sea, Essex, in 1995 it was reported to be one of the most common living bivalves on the shore.

MANAGEMENT

Prevention

None used.

Mechanical

Mid ocean exchange or filtration and /or preventive disinfection of ballast water should be used to reduce transfer of planktonic larvae.

Chemical

Chemical treatment in ship ballast tanks.

Biological

Since birds seem to be the only predators (in Europe: Oystercatchers *Haematopus ostralegus*, in America: *Larus delawarensis*), they could be used as biological control of this species.

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