

Soft Shell Soft Shell Clam

Mya arenaria

Class: Bivalvia
Order: Myoida
Family: Myidae
Genus: *Mya*



Empty shells
wash up on
the shoreline
year round.

Distribution

Mya arenaria is native to the North American east coast from Labrador, Canada to Georgia in the United States of America. It has been introduced to many areas around the world.

Habitat

It is typically found in the upper intertidal zone to the subtidal zone, and even in deep waters, up to 190m beneath the surface of the ocean. It also occurs in brackish waters and estuaries.

Food

This is a filter feeder, feeding on microscopic plankton (flagellates, diatoms and bacteria) and organic detritus.

Reproduction

In soft shell clams the sexes are separate. They go through seasonal stages of development leading to the production and release of eggs and sperm.

These clams now populate many parts of Europe from northern Norway south to Portugal including all around the British Isles and Ireland. They occupy the Baltic, Black and Mediterranean Seas. They have been introduced along the Pacific coast from Alaska to California. Ships ballast water may contain eggs and larval stages of soft shell clams. So also packing material used in transporting other sea food items such as lobsters and crabs.

M. arenaria burrows into the sediment and can be found 20-30cm below the surface of the soil. It prefers sandy soils with a preference for a sandy-mud mixture with some gravel. Locations with clean, fast-flowing water sustain the highest populations. It can survive between -2 and 28 ° Celsius, with optimal temperatures between 6-14 ° Celsius. It can also tolerate low salinity levels. Larvae are pelagic, living on or near the surface of the open sea.

It extends its paired siphons up to the surface and uses the incurrent one to draw in seawater that is then filtered for minute food items. The filtered water and unwanted particles is then expelled. A large adult clam can filter over 50 litres of water a day. Larvae are planktotrophic, they feed on plankton.

Fertilization is external occurring in the environment. If conditions are favourable there can be two spawnings in a year, in early spring and late summer. Temperature is the crucial factor in reproduction with optimal temperatures between 10-15 ° C. Fecundity (fertility) increases with size and age. Female soft shell clams can release from 1-5 million eggs depending on size.



Development

Fertilized eggs develop into free swimming larvae (veligers) within several hours. This larval period continues for a period of 2 to 5 weeks being influenced by water temperature and food availability. They become pediveligers when the velum (swimming and feeding aid) is reduced and is followed by the growth of a foot and byssal gland. At a length of 1 mm or more they are ready for metamorphosis into juvenile clams.

Characteristics

The soft shell clam has a grey or chalky-white shell. It is thin and brittle. Its shape is oval, rounded and slightly elongate in outline and gaps at both ends. Adult length is 75-100 mm but may reach 150mm. It has a distinguishing leathery tube that encases the well developed and retractable siphons.

Adaptations

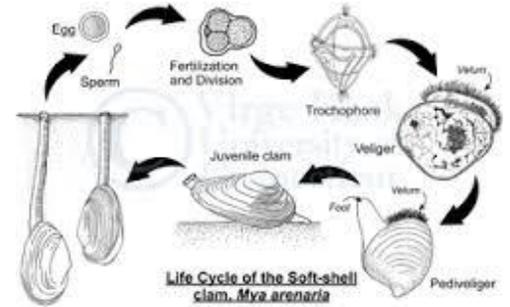
Young soft-shell clams can reburrow if disturbed. They are able re-emerge and search for other suitable substrates. They produce byssal threads to facilitate temporary attachment when resettling.

Status/Threats

They have many natural predators at all stages of development - crabs, waterfowl, fish, jellyfish etc.

Sightings in Nova Scotia

Pediveligers have reduced swimming abilities. They descend to the sea floor. There they metamorphose into juvenile clams and begin to explore the bottom for suitable settlement. The extensible foot is now in use. They spend another few weeks moving about occasionally attaching themselves to temporary objects. They use byssal threads secreted by the foot to attach to various hard surfaces such as shells, worm tubes, coarse sand, etc. They may also create temporary burrows. Once a more or less permanent site has been selected it burrows into the sediment and remains there. It reaches maturity in 1-4 years, depending on the length of each growing season.

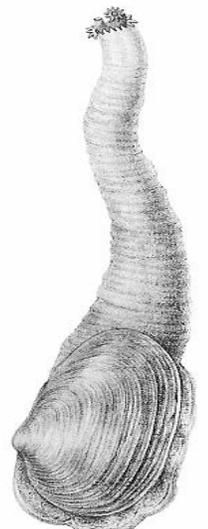


The elliptical shell has a spoon shaped depression inside the left valve at the hinge, while the other valve has a projecting tooth that fits into the depression. When closed, the shell gapes open at both ends. A foot and two long, leathery siphons protrude from either end. The siphons are fused into a rigid siphonal process that is too large to be completely withdrawn into the shell. This is capable of great elongation, extending from its burrow up to the surface. A typical lifespan is 10-12 years. A Bay of Fundy record is 28 years.



Extended siphon

The fecundity of soft shell clams is very high, offsetting high egg and larval mortalities. The number of eggs per female varies from 120,000 to 5 million depending on the physical environment and her size. It lives buried as much as 20 cm deep in mud and sand, extending only its long siphon up to the water. It rapidly retracts its siphon below the surface, if disturbed, and ejects a stream of water.



Clam siphon holes

Regional populations come under threat from storms, dredging, pollution - any major environmental alteration. Clamming is an important commercial, recreational and traditional resource in the Maritimes. In Nova Scotia various government agencies work in tandem with the private sector monitoring soft shell clams.

