

Periwinkle

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Littorina littorea

Class: Gastropoda
Order: Neotaenioglossa
Family: Littorinidae
Genus: Littorina

Distribution

The *Littorinidae* family is a group of over 200 known species of sea snails, commonly referred to as periwinkles. They have a global distribution. Within this family of periwinkles there are several genera, one of which is *Littorina*.

Habitat

In the Atlantic it is found on both open coast and estuary habitats from the upper intertidal zone to about 40 metres deep, and can tolerate salinities down to around 13 ppt.

Food

L. littorea is a mostly herbivorous, grazing intertidal gastropod. It feeds on a wide variety of algae.

Reproduction

Breeding may take place throughout the year; it tends to vary depending on temperature. The sexes are separate (individuals are either male or female), and fertilization occurs internally after copulation.



Easily seen year round along the shore line of Burntcoat Head.

In the genus *Littorina* is the species *L. littorea* commonly known as the edible periwinkle. It is native to the north-eastern coasts of the Atlantic Ocean, including northern Spain, France, England, Scotland, Ireland, Scandinavia and Russia and has been introduced to the Atlantic coast of North America. It is now a predominant mollusc from New Jersey to Newfoundland. In Canada, their range includes New Brunswick, Nova Scotia, Quebec, Newfoundland and Labrador. They are plentiful at Burntcoat Head.

Though most abundant on rocky substrates and common in tide pools, it is a habitat generalist that also occurs on muddy or sandy bottoms. They are found along the entire coast, on breakwaters, dikes, piers, etc. In favourable habitats, it reaches densities of up to 200-800 individuals per square metre. Since its arrival in North America it has become the most abundant shallow-water herbivorous snail from Nova Scotia to Long Island Sound.

Although primarily an algae grazer, it also feeds on small invertebrates such as barnacle larvae. They use their radulae to scrape algae from rocks. In salt marshes they pick up algae from cord grass, or from biofilm covering the surface of mud in estuaries or bays.

L. littorea is oviparous, reproducing annually with egg laying timed to coincide with the spring tide; the eggs are released in 1 mm wide, gelatinous, floating egg capsules, each containing usually two to three eggs, but sometimes up to nine. The egg capsules float in the sea and free-swimming veliger larvae hatch in a few days. Upon leaving the capsules they spend two to six weeks in plankton. After this approximate six week period spent in the ocean, the larvae settle on the shore. This is referred to as planktotrophic larval development. Adult females may lay 10,000 to 100,000 eggs.



Development

Young periwinkles attain sexual maturity at two or three years of age and may live for five years or more.

Characteristics

A single spiral shell that grows with their bodies protects these small snails. The body includes a fleshy foot, a short tail, and two antennae on the head. The cream-colored foot is divided into a right and a left half, which the snail moves alternately as the muscle ripples forward.

Adaptations

They can live for many days without food or water by retaining moisture in their gills. They close themselves into their shells and excrete a sticky mucous that hardens and firmly attaches them to rocks or blades of seagrass. They are able to adapt to a variety of environmental conditions, including extreme heat and wind, low tide, severe wave action, and submergence at high tide.

Status/Threats

Predators include a variety of shore birds, fish, crabs and lobsters. They are commercially harvested in Europe and in North America in New Brunswick and Nova Scotia, primarily in the Bay of Fundy.

Sightings in Nova Scotia

Prevalent on coastal areas.

The columella or central axis of the shell is typically white and the animal is recognizable in its juvenile stages by the transverse black barring of the tentacles which are rather flat and broad. The spiral ridges which are marked in young animals tend to become obscured in older individuals.

The shell is sharply conical with a pointed apex and surface sculpturing. It grows to a maximum height of 52 mm. The shell colour ranges from grey-black-brown-red but is generally black or dark grey-brown, often lighter towards the apex, and is usually patterned with spiral darker lines. Tentacles are rather flat and broad, with many transverse black stripes. These stalked tentacles are sensory organs that are used to see and taste.



Periwinkles use their foot to hold securely onto rocks when waves crash over them or onto marsh grasses when the tide rises. When using their file-like tongues to feed on diatoms and algae they break down food with mucous on the radula before bringing it into their mouths.



The pelagic larvae is distributed over a large area. This can result in the young periwinkles growing up in an environment that is different to that which their parents grew up in. They are able to survive these varying conditions. Their generalized characteristics allow them to function in varied circumstances.



The common periwinkle was introduced into North America at Halifax, Nova Scotia, in about 1857 and has spread north to Labrador and as far south as Virginia. It is now the most common marine snail along the North Atlantic coast. Although considered to be an invasive species it has become an important part in the ecology of rocky intertidal shores.

They are very prolific.