

Leafy Leafy Bryozoan Bryozoan

Flustra foliacea

Class: Gymnolaemata
Order: Cheilostomata
Family: Flustridae
Genus: Flustra

Distribution

Flustra foliacea has a wide distribution in the North Atlantic Ocean, on both the European and American sides.

Habitat

This is a cold water species. It prefers high salinity waters, but can also be found in areas with lower salinity. It occupies sublittoral (below low tide) areas.

Food

This species is an active suspension feeder. They consume phytoplankton, detritus, and dissolved organic matter.

Reproduction

They are hermaphrodites. They can produce both sperm and eggs. Sperm is spawned, whereas eggs are usually harboured inside the body wall. The eggs are internally fertilized by sperm coming back in on lophophore feeding currents. Fertile eggs develop into larvae which are released into the water.



These wash up on the shoreline looking like clumps of seaweed.

It is common to the coastal areas of northern Europe especially in the North Sea. Countries include Britain, Ireland, Belgium, Netherlands, and France. It does not continue any further south than northern Spain. In Canada it is in Nova Scotian waters, including the Bay of Fundy and the Minas Basin.

It most frequently occurs between 10-20 m water depths. It is typically found on the upper faces of moderately wave-exposed bedrock or boulders subjected to moderately strong tidal streams. These rocky patches may be interspersed with gravelly sand patches, causing a scouring effect. Most Bryozoans live in salt water, and of the 20 or so freshwater species found in North America, most are found in warm-water regions attached to plants, logs, rocks and other firm substrates.

This is a colonial animal composed of various types of zooids. A zooid is a single animal that is part of the colony. The basic zooids are the feeding ones, called the autozooid. Each of these has a mouth and a feeding structure, the lophophore, which is covered in ciliated tentacles. It is protruded into the sea water, and beating of its cilia creates a feeding current which draws plankton towards the mouth.

The larvae of *F. foliacea* are large non-feeding (coronate) larvae, which lack a shell and have a densely ciliated belt (the corona) for locomotion. They have a very short dispersal distance. After release, the larvae settle within minutes or hours in the vicinity of release. They metamorphose and develop into being the first zooid of the new colony, the 'ancestrula'.

Asexual reproduction also occurs by budding off new zooids as the colony grows, and is the main way by which a colony expands in size. Also, if a piece of a bryozoan colony breaks off, the piece can continue to grow and will form a new colony the following summer.



Development

The first 'ancestrula' zooid buds out, creating many additional zooids which form encrusting mats, spreading out over the bedrock substrate.

Characteristics

The name 'bryozoan' comes from the Greek bryo meaning 'moss' and zoan meaning 'animal'. They are highly complex colonial animals constructed of individual 'zooids', all connected by living tissue.

Adaptations

As many as 10,000 (cyphonautes) larvae can be released from a single *Flustra* colony. The zooids are polymorphic, having different functions to perform. The majority of zooids are specialised for feeding (autozooids).

Status/Threats

Bryozoans are eaten by a variety of grazing animals, such as sea urchins and various molluscs.

Sightings in Nova Scotia

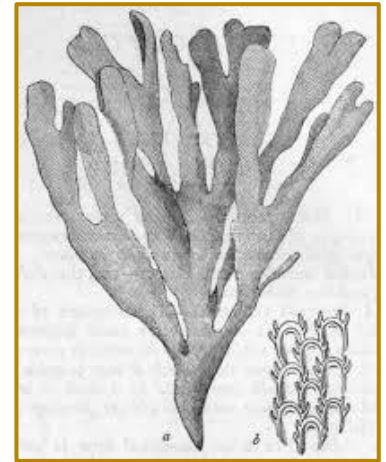
It is frequently found washed up on beaches after storms. They are quite common around Nova Scotia.

Flustra foliacea colonies grow in spring and summer. For the first year, colonies grow only along the surface (encrusting), with loose fronds only being formed in subsequent years. These are produced when two encrusting colonies meet, and the two edges that make contact begin to grow upwards, back to back. The fronds now begin to develop. Annual growth rings are visible. The rate of growth is 1-6 cm per year. The total lifespan of a colony may reach 12 years.

Colonies can be between 6 and 20 cm in height. They are formed into bushy clumps. The fronds are light grey to brown in colour. They are broadly lobed, and strap-like. They have a distinct smell of lemons and are often mistaken for seaweed. The zooids themselves are on both sides of the fronds. They are tongue shaped, 0.2-0.28 mm wide and 0.4 mm long and they have 4 to 5 club-like spines at the broad end of each zooid.



There is a division of labour within a colony, specific functions (other than feeding) are assigned to different individuals; brooding zooids (gonozooids), defence zooids, anchoring the colony etc. The zooids are protected within a cup - or box-shaped exoskeleton of calcified chitinous tissue. Further protection is provided by their spines. They have the ability to withdraw their (feeding) tentacles and lophophores very quickly when alarmed.



Dredging has a drastic effect on colonies.

Although considered a nuisance species in some areas the Leafy bryozoans and other bryozoan species in general play an important role in marine ecosystems. They filter a lot of seawater. They provide food for other marine animals. They also give shelter within their fronds to many other small organisms in creating living habitats.

