

# Fluvarium Fact Sheets

## Eastern river pearl mussel

*Margaritifera margaritifera*



*The Eastern river pearl mussel was historically exploited for their high quality pearls. It is a species of special concern in Canada and is endangered in other parts of the world.*

### Description

Eastern river pearl mussels are medium sized mussels with two thick, elongated, yellowish-brown shells that darken as it gets older. The shells are hinged at one end and can be closed to protect the animal. The outer shell may appear corroded which is an identifying feature of this species.

The inside of the shell is pearly white and may be tinged with iridescent colours.

They have a muscular **foot** that can extend from the shell and help the mussel move or bury itself.

### Size

Freshwater pearl mussels grow to around 14 cm in length.

### Lifespan

These freshwater mussels generally live for about 80-100 years, however 200 year old individuals have been found in the northern areas.

### Habitat

This species is most common in soft (low calcium), cold, fast flowing, freshwater streams and rivers. They live partially buried in gravel or sand or next to rocks at depths of 0.5-2 m.

Clean gravel or sand is essential for the mussels' survival as collected silt can prevent them from getting oxygen.

These mussels also live near healthy populations of salmon or trout, which they need for part of their life cycle.

### Range

It is found throughout temperate regions in North America and Eurasia.

### Box 1: Definitions

**Bivalve** - an invertebrate characterized by having two shells usually connected by a hinge. This includes clams, scallops, oysters and mussels.

**Foot** - a large muscular organ in bivalves that they used to move or bury themselves.

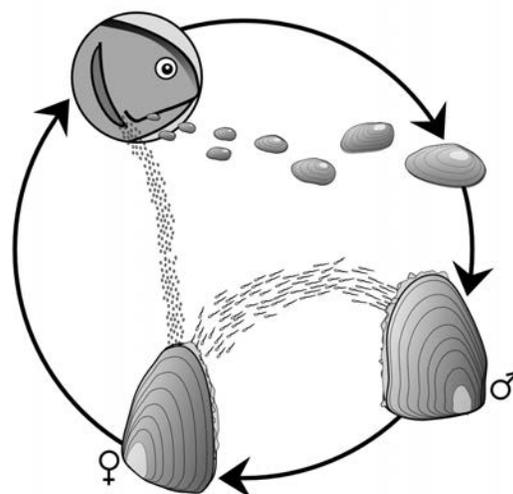
**Glochidium** (pl. glochidia) - the microscopic larval stage of freshwater mussels. The larvae have hooks to attach to gills of salmonid species.

**Parasitism** - a symbiotic relationship between two living things where one benefits and the other is harmed.

### Diet

Eastern river pearl mussels feed on suspended organic particles they filter from the water including algae, bacteria and single-celled organisms. These mussels can filter up to 2 L of water per hour.

### Reproduction and development



Lifecycle of freshwater pearl mussels (Author: Kim Lindgren)

Around early June to July male freshwater mussels release clouds of sperm into the water while females take it in and fertilize their eggs. These eggs develop over the next several weeks and are released when the female receives a temperature or other environmental cue.

The **parasitic** larvae or **glochidia** are released in a mass of one to four million larvae. They resemble tiny mussels with open shells.

After the glochidia are inhaled by a salmon or trout, the larvae clamp their shells shut on the host fish's gills. The larvae will stay and develop in the oxygen rich environment until the following May or June when they drop off.

The juvenile mussels will then bury themselves in the sandy or gravelly bottom and will not reappear till they are 1 cm in size. They reach sexual maturity after 10-20 years. Adults only bury 2/3 of their body in the sand.

#### **Predation**

Ducks, muskrat and otters will consume freshwater mussels.

#### **Relation to humans**

- The "mother of pearl" or inside of the shell was used to make buttons and glasses.
- Freshwater mussels were historically harvested for their pearls.
- Freshwater mussels were used by Native Americans for food, and as material for tools and ornamental objects.
- The freshwater pearl mussel is extremely sensitive to its environmental conditions and has declined in many areas due to declining water quality.
- Exotic species compete with the mussels and their host fish causing declines in their wild population.

#### **Interesting facts**

- The freshwater pearl mussels are a species of special concern in Canada and are endangered in Europe.
- There are three species of freshwater mussels in Newfoundland.
- To make pearls, foreign particles (sand) are coated with aragonite crystals.
- It takes about 20-25 years for a freshwater mussel to form a 4 mm pearl.

- Freshwater pearl mussel shells were harvested and crushed to be the foreign particle to make pearls in other species.

#### **At The Suncor Energy Fluvarium**

- See eastern river pearl mussels up close in our series of natural water aquariums that showcase fish species found around Newfoundland and Labrador.

#### **Additional resources**

ARKive: Images of life on earth. 2010.

[Online] Freshwater pearl mussel (*Margaritifera margaritifera*). Available from: <http://www.arkive.org/freshwater-pearl-mussel/margaritifera-margaritifera/>

Stayer, D.L., Downing, J.A., Haag, W.A., King, T.L., Layzer J.B., Newton, T.J., Nichos, T.J. 2004. Changing perspectives on pearly mussels, North America's most imperiled animals. *Bioscience*. 54(5). pp. 429-439.

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