

Mussels around the world and in our watershed

Worldwide there are nearly 1,000 species of freshwater mussels. North America supports approximately 300 species, of these, 72% are considered to be endangered, threatened, or of special concern. At present, approximately 40 species of freshwater mussels are found in New York State. The New York, or western, side of the Lake Champlain basin supports approximately 14 species of native mussels.

Information about the native mussels population in the Lake Champlain watershed has become increasingly important due to the introduction of non-native zebra mussels to the lake. Zebra mussels were first discovered in Lake Champlain in 1993 and are quickly colonizing all areas of the lake. Research in other locations has concluded that zebra mussels have had a severe negative impact on the native mussels.

From the little historic data that is available we know that the Au Sable River has never supported an abundance of species of native mussels. Records show that historically our watershed has supported only the same three species that we found during our survey. This information suggests that the Au Sable has not seen a decline in the number of species present in the watershed. However, we do not have any past data on quantities of individuals, so, we can not draw any conclusions about how the few species we do have are fairing.

Historically, freshwater mussel's thick lustrous shells have been used as a source of mother-of-pearl for pearl buttons, and ornaments. Although demand for these purposes has declined. These mussels were also an important food source for many Native Americans.

So, if you are out swimming, paddling, or walking in or near our lakes or at the mouth of the Au Sable River, look to see if you can identify a few of our native mussels. However, please do not disturb them, and remember that **it is illegal to collect living mussels in New York State and Vermont without a permit.**

For more detailed information

The Pearly Mussels of New York State by David Strayer and Kurt Jirka
The Freshwater Mussels of Vermont by Christopher Fichel & Douglas Smith
For more information on zebra mussels in Lake Champlain:
www.lcbp.org/zmmonitoring.htm

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Where the Mussels Lie **Native Mussels in the Au Sable River Watershed**



 NYSDEC, Division of Water, Ray Brook

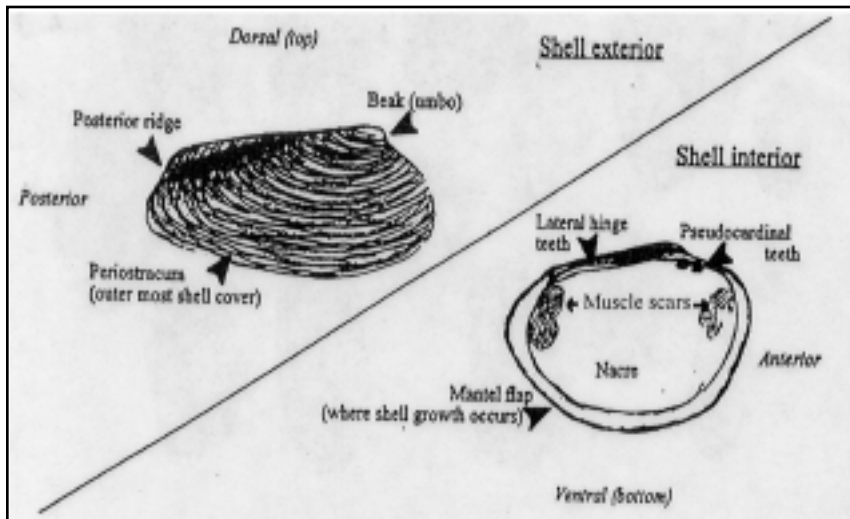
The Au Sable River begins as an East Branch and a West Branch in the High Peaks of the Adirondacks. More than 70 small streams, including the Chubb River and Black Brook, feed the river. It drains 516 square miles. The Au Sable is one of the steepest rivers in New York State.

The Life of a Native Mussel

Scientists are still learning about the life history of Unionidae, also known as pearly mussels, or better known to us as our native mussels. What is known is that the fertilized eggs develop into larvae called glochidia. The glochidia are brooded in the female's gills for several weeks to several months and are then released into the water, usually 10^5 to 10^7 glochidia are produced per female. The glochidia cannot swim or crawl and they can live freely for only a short time, so they must quickly find and attach to a fish host. Each species of mussel requires specific fish as a host. If they attach to the wrong kind of host, they are destroyed by the fish's immune system. The glochidium attaches to the fish's fins or gills, and spends several days to several months on the host. Although they derive nutrition from the host, most species do not grow while attached to the fish. It seems that this phase is for metamorphosis from larva to juvenile and dispersal to appropriate habitat.

Juveniles usually live buried out of site under the stream bed. The juvenile period lasts 1-10 years depending on the species. Life spans differ widely across species from fewer than ten years to more than a century. Adult mussels are filter feeders, able to ingest a broad range of particle sizes. Algae and detritus are probably important food sources. Mussels in turn are eaten by muskrats, raccoons, fish, and birds.

Characteristics of Native Mussels



So...Which mussels can be found in our watershed?

Common name: Eastern Elliptio

Scientific name: *Elliptio Complanata*

Shape: trapezoidal, compact

Outer color: dark brown or black

Inner color: pinkish-purple

Size: medium to large, up to 4.8 inches

Host fish: yellow perch

Similar species: giant floater,
similar size & external appearance

Where: At the mouth and in the lakes



Common name: Eastern Lampmussel

Scientific name: *Lampsilis radiata*

Shape: elliptical

Outer color: yellowish, greenish brown,
brown, rayed

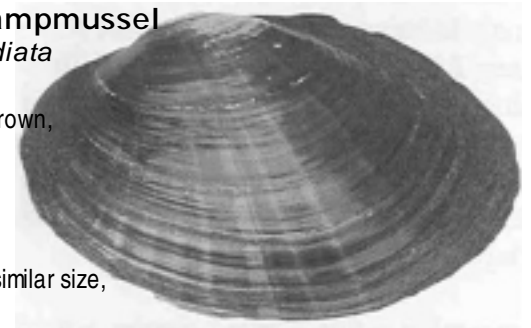
Inner color: off-white or pinkish

Size: medium, up to 4 inches

Host fish: yellow perch

Similar species: eastern floater, similar size,
ray formation & color

Where: At the mouth



Common name: Eastern Floater

Scientific name: *Pyganodon cataracta*

Shape: elliptical

Outer color: brown to green, bright gold

Inner color: white, light blue

Size: medium, up to 3.6 inches

Host fish: white sucker, pumpkinseed,
and carp

Similar species: eastern lampmussel,
similar size, ray formation & color

Where: In the lakes

