

Pearly Mussels of the Susquehanna Basin

In the Susquehanna River Basin, native freshwater pearly mussels are an integral part of the aquatic ecosystem. Unfortunately, these mussels are among the most imperiled group of animals in North America. Historically there were at least 49 species of pearly mussels native to New York. Nine of those are likely now extirpated, and several others are listed as threatened or endangered in New York. Twelve species have been reported from the Susquehanna River Basin, with two of them, the green floater and the brook floater, currently listed as threatened.



A variety of pearly mussel shells. (Photo: K. Jirka)

What are Pearly Mussels?

Pearly mussels are a group of native freshwater aquatic bivalves (mollusks with two shells) that include many different species ranging in size, shape, color, and other shell features. Mussel life spans vary by species and can range from about 10 years to over 100 years! Many of the larger species in the Basin live over 50 years.

Pearly mussels are a “keystone fauna,” being important to the function and stability of the larger aquatic ecosystem. Other organisms in the aquatic community benefit from the presence of healthy mussel populations through associated improvements in water quality, habitat stabilization, and nutrient cycling. Pearly mussels are also an important source of food for other species.

Why are Pearly Mussels Important?

Pearly mussels are filter-feeders, consuming microscopic algae, bacteria, other plankton, and fine particulate matter. A healthy mussel community can filter a significant amount of the water column each day and improve water clarity substantially.



Siphon of the Yellow Lampmussel filtering water. (Photo: K. Jirka)

Pearly mussels live on or burrowed into the stream bottom. This burrowing behavior is vital in aerating and mixing the substrate, releasing nutrients, and stabilizing the stream bottom. These benefits in turn improve environmental conditions for a variety of other aquatic organisms, contributing to a more diverse ecosystem.

Pearly mussels serve as food for many other species including muskrat, mink, raccoon, otter, herons, snapping turtle, and even some fish. Historically, pearly mussels were an important Native American

food source. They were once sought for natural pearls and supplied material for the pearl button industry. All pearly mussels in New York are now protected by law, so harvesting for any reason is illegal.

What are Major Threats to Pearly Mussels?

Pearly mussels serve as a “canary in the coal mine,” or a sentinel fauna that is sensitive to changes in water quality. There are currently many threats to pearly mussels, including:

- Habitat loss or alteration due to dam construction or stream channelization
- Construction and maintenance of bridges and highway projects
- Erosion and/or siltation from run-off
- Dredge or fill operations
- Pollution - primarily agricultural run-off in the Basin, but also chemical or organic wastes
- Invasive species (e.g., zebra mussels, rusty crayfish)

Despite these threats, there are still parts of the Basin that support healthy mussel communities. These are usually found in areas of riffle and shallow stream habitat with bottom substrates of gravel, sand, and small cobblestones. Mussels can live in waters ranging from small streams to large rivers. Most mussel species are limited to flowing waters, but there are a handful of species in the Basin that occur in lakes.



Mussels in stream bottom. (Photo: K. Jirka)

How can Pearly Mussels be Protected?

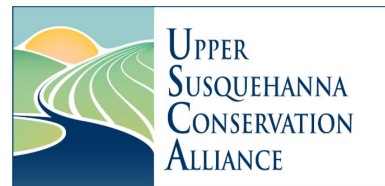
It is important to support efforts that effectively protect stream corridors, including:

- Maintaining adequate riparian (shoreline) buffer zones with native, well-rooted vegetation. Stabilization along stream edges helps protect the stream from adjacent, disruptive land uses that may lead to siltation, erosion, or stormwater pollution
- Avoiding damage to stream bottoms by driving vehicles around instead of across streams, not removing gravel from a streambed, and leaving streams in their natural state by avoiding stream channelization
- Supporting efforts relating to storm-water management including improvements in areas of existing development and reducing non-point, agricultural run-off
- Following recommended procedures for cleaning equipment to reduce the spread of invasive species

By protecting pearly mussel habitats, we can encourage their populations to thrive!

Additional information on the pearly mussel can be found at:

<http://animaldiversity.org/accounts/Unionidae/>
<https://www.fws.gov/northeast/nyfo/es/mussels.htm>
<https://molluskconservation.org/index.html>



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