

## **FRESHWATER MUSSELS — In Need of Conservation**

### **What is being considered?**

The Department is considering protecting all freshwater mussels in the order Unionoida by declaring them as in need of conservation.

Declaring freshwater mussels as in need of conservation means that a person may not take, possess, transport, export, process, sell, offer for sale, deliver, carry, or ship any mussels in the order Unionoida unless allowed by the Department through regulation. In this case, the only exception the Department is considering would be for research under a Department-issued permit.

Several species of freshwater mussels are already protected by Maryland regulations, but the Department would like to expand the protection to all freshwater mussels. If we move forward with not allowing harvest of freshwater mussels in Maryland, our rules would be the same as the recreational creel limits in Pennsylvania, Virginia, and West Virginia. This would provide consistency with adjacent jurisdictions and heightened protections for a group of species that are recognized as largely being in decline and protected from take by other regulations, such as the Nongame and Endangered Species Conservation Act (Natural Resources Article, §10-2A-01 et. seq., Annotated Code of Maryland) or the federal Endangered Species Act.

### **Why is this change necessary?**

This action is necessary to prevent the further depletion of freshwater mussel species and is based on the current status of the populations, fisheries activities, biological, and management considerations. It is necessary to conserve these species in alignment with national and state criteria and recommendations. Appropriate conservation and management measures prevent overfishing while providing for species sustainability.

Freshwater mussels occur globally. Approximately 300 species are found in North America with diversity greatest in the southeast and Midwest. There are 16 native freshwater mussel species in Maryland out of approximately 300 species found in North America. They have been documented as the most imperiled animal group because of their slow growth, long lifespan, sensitivity to pollution and habitat degradation, and complex life history, with a majority being considered rare, threatened, endangered, or extinct. In Maryland, freshwater mussels have been reported in all river basins of the Chesapeake Bay; however, several species only exist in a few small, isolated populations due to invasive species, pollution, habitat degradation, or lack of host fish and often in specific habitats. Freshwater mussel species found primarily distributed in tidal waters due to their specific host fish are particularly vulnerable to population declines and possibly extirpation if mortality rates increase from harvest.

Freshwater mussels consume algae, bacteria, and particulate organic matter by filter feeding and provide resources to aquatic vegetation, macroinvertebrates, fish, and small mammals. The species complex has a wide diversity of life history traits that can be characterized with opportunistic, periodic, and equilibrium strategies that evolved with the high diversity of mussel species that address the unpredictable conditions in the aquatic environment (e.g., river flow) and high juvenile mortality. In the Chesapeake Bay watershed, adult mussels can be as small as 40

mm and as large as 150 mm, have life spans from 10 to 100 years, and reach sexual maturity in as little as one year. Little is known about the fecundity of mussel species, but it can vary by several orders of magnitude across species. There are different reproductive strategies as well. Long-term brooders typically spawn in the fall, overwinter their gametes, and either release glochidia into the water column or actively attract a host fish. Short-term brooders typically spawn in the early spring to late summer and release glochidia several weeks later in mucus or packets into the water column. Without encountering and encysting on a specific species of host-fish, these glochidia will not metamorphose into a juvenile mussel and complete the reproductive cycle. Glochidia and juvenile freshwater mussels have been regularly shown to be very sensitive to common pollutants at levels well below those set for the protection of surface waters, thus making recruitment difficult.

Because mussel species are difficult to distinguish from one another, there is potential liability if someone collects a protected species, and any amount of harvest could lead to an increase in extinction risk. There is also a potential for the species composition in Maryland to change due to environmental and climate changes, and it is necessary to list the entire order. Adding all species of freshwater mussels in the order Unionoida to the "in need of conservation" list allows the Department to conserve the species in alignment with national and state criteria and recommendations.

### **Definitions**

“Conserve” means to use all methods and procedures for the purpose of increasing the number of individuals within a species or population up to the optimum carrying capacity of their habitat and maintaining these levels.

"Species in need of conservation" means any species which:

- (a) May become threatened in the foreseeable future;
- (b) Has a limited or declining population; and
- (c) Has been determined by the Secretary to be in need of conservation measures for its continued ability to sustain itself successfully.

### **What is the specific regulatory action?**

Amend Regulation .03 under COMAR 08.02.12 Endangered and Threatened Fish Species.

### **Additional Information**

Maryland State Wildlife Action Plan [Chapter 3 Maryland's Wildlife and Species of Greatest Conservation Need](#)

Nongame and Endangered Species Conservation Act (Natural Resources Article, [§10-2A-01 et. seq.](#), Annotated Code of Maryland)

Regulations for Mussels in Nontidal Waters – harvest of mussels is prohibited at all times.

[COMAR 08.02.11.04](#)

Regulations for Mussels in All Maryland Waters – harvest is prohibited for seven species of freshwater mussels. [COMAR 08.03.08.04](#), [COMAR 08.03.08.07](#), and [COMAR 08.03.08.09](#)

Fishery Information

- Recreational harvest for freshwater mussels is largely unknown, in part because it is not allowed in most states, but likely consists of harvest for bait and to a lesser extent personal consumption.
- Although freshwater mussels were historically a commercially valuable species in the Midwest and southeastern U.S., there have never been directed fisheries for them in Maryland. Mussel species found in Maryland were likely never exploited because their size at maturity does not provide for a large enough shell to produce buttons or pearl nuclei.

**Has this change been discussed with advisory bodies?**

This idea was scoped with the Sport Fisheries Advisory Commission and the Tidal Fisheries Advisory Commission at their meetings in July 2024.