

USACE Natural Resource Management Freshwater Mussels



Oyster Mussel and Snuffbox Mussel

Oyster Mussel (*Epioblasma capsaeformis*): The outer shell of this mussel is yellowish to green in color and dull. The outer shell has many narrow, dark green rays. The inner shell is a white or bluish white color. Females are expanded along the posterior ventral margin and their shell is thin and fragile in this area. This pronounced development distinguishes *Epioblasma* from similarly shaped species.

Status: Endangered, listed 1997

Nature Serve: Critically Imperiled

Snuffbox Mussel (*Epioblasma triquetra*): This mussel is considered to be small to medium-sized. Males can reach up to 2.8 inches in length while females may grow as large as 1.8 inches. Males are oblong or ovate shaped while females are triangularly shaped. The anterior end of the shell is rounded while the posterior end is truncated. This truncation is especially prominent in females.

Status: Endangered, listed 2012

Nature Serve: Vulnerable

G1
Critically
Imperiled

G3
Vulnerable

Genus: *Epioblasma* is a genus of freshwater mussels in the family Unionidae. The entire genus is imperiled and 15 species or subspecies are thought to be extinct. Many of the species and subspecies within the genus are federally listed. (Missouri State University)

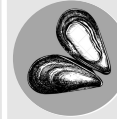
Photos L to R:
oyster mussel shell (USFWS), a female oyster mussel attracting a host (USFWS), snuffbox mussel shell (USFWS)

Management and Protection: Like many freshwater mussel species, conservation challenges stem from industrial and agricultural developments which result in environmental changes.

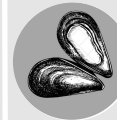
- Construction of dams can isolate populations, block host fish migration routes, and cause changes in water temperature which alter mussels' natural biological timers.
- The 2019 Five Year Review of the oyster mussel by USFWS indicates that agriculture, mining, and other threats still threaten the species across its range.
- In 2019, propagation techniques for the oyster mussel were being refined by the states of Alabama, Kentucky, Tennessee, and Virginia along with help from Virginia Tech. (USFWS)
- Despite many snuffbox populations showing evidence of recent recruitment, most populations are still declining. Only 6% of the known populations in 2019 were considered to be large and stable or improving. (USFWS)
 - The 2019 Five Year Review by USFWS notes that the West Virginia DNR and U.S. Environmental Protection Agency are working to develop eDNA markers for the snuffbox for use in assessing stream presence.



USACE ROLE: According to the Engineering Research and Development Center's Threatened and Endangered Species Team Cost Estimates, the USACE has expended over \$375,000 on efforts related to oyster and snuffbox mussels. These funds have been expended by multiple business lines including Environmental Stewardship, Flood Risk Management, Hydropower, Navigation, Planning and Program Management, Regulatory, and Water Supply.



Oyster Mussel= \$58,355



Snuffbox Mussel= \$317,528

In 2012 the St. Paul District of Mississippi Valley Division worked with partners to bolster mussel populations. Biologists from the district, U.S. Fish and Wildlife Service, National Park Service and the Illinois, Iowa, Minnesota and Wisconsin Departments of Natural Resources teamed up to place the mussels downstream of Lock and Dam 1 in Minneapolis. Species for the project included snuffbox, Higgins eye, and winged mapleleaf mussels. The district mussel biologist noted that mussels are critical to the ecosystem because they cleanse the water, stabilize the river bottom, and are an indicator of good water quality.



Photo: Dan Kelner, left, district mussel biologist speaks with partners.

This fact sheet has been prepared as an unofficial publication of the U.S. Army Corps of Engineers (USACE). This online publication is produced to provide its readers information about best management practices related to special status species. Editorial views and opinions expressed are not necessarily those of the Department of the Army. Mention of specific vendors does not constitute endorsement by the Department of the Army or any element thereof.

