

CLEAN, DRAIN, DRY

PROTECTING WYOMING'S WATERS FROM INVASIVE MUSSELS



Zebra mussels invading Wyoming? While we aren't in danger of that, zebra *mussels* pose a real threat to our state. These mussels, and the closely related quagga mussels, are aquatic invasive species (AIS) that the Wyoming Game and Fish Department is working hard to prevent from entering our waters.

Zebra and quagga mussels, or dreissenid mussels, are part of the Dreissenidae family. Dreissenid mussels are native to the freshwater and brackish waters

of eastern Europe. These animals were most likely transported from the Black and Caspian Seas to the Great Lakes in the ballast water of cargo ships in the 1980s. Since then, these mussels have spread throughout many of the freshwater systems in the United States.

Prolific invaders

Dreissenid mussels have three basic life stages: veliger, settler, and adult. In the veliger stage, the mussels float through the water column as shell-less, microscopic plankton. After a few weeks, the settler stage begins and the veligers fall out of the water column, attach to hard surfaces, and begin to grow a shell. Entering the adult stage, they continue to grow and begin to reproduce.

These animals reproduce by spawning, meaning they release larvae into the water column. If conditions are favorable, they can do so year-round. Each female mussel can live for 4 to 6 years and release up to 1 million eggs per year. If only 1 percent survived, a given waterway could have 10 quintillion mussels in it after 5 years—all from just one female!

Dreissenid mussels can become prolific and even dominate an ecosystem in a short amount of time. As filter feeders, mussels filter water through their bodies and collect plankton. This process removes floating material in the water, resulting in a much clearer water body. Especially if the water is murky, this may seem like a benefit, but it can cause a variety of issues.

When water is clear, sunlight penetrates farther down and provides light to submerged plants that



Wyoming Game and Fish Department

Byssal threads excreted by the mussels allow them to attach to hard surfaces, including boat propellers and each other.

can soon overtake an area. The removal of plankton decimates the base of the food web—fish and other animals that consume plankton lose their main food source, ultimately causing a trophic cascade. Soon the entire ecosystem is damaged.

Difficult to remove

Unlike Wyoming’s native mussel species, dreissenid mussels grow byssal threads. These secreted filaments allow dreissenid mussels to adhere to hard surfaces within a water body. Byssal threads are extremely strong and typically require manual removal, even after the mussels are dead.

This characteristic is one of the most concerning aspects of dreissenids. Their ability to “glue” themselves to surfaces means that water intake pipes for dams, drinking water, irrigation, and fish hatcheries can become clogged with mussels, preventing water flow and causing millions of dollars in damage and maintenance annually. Dreissenid mussels also attach to buoys, docks, and boats, which can weigh them down and eventually ruin them.

Invisible stowaways

While not the only vector of spread, watercraft are the primary way mussels move between water bodies, with or without water. Veligers can live in standing water for up to 27 days, and many types of watercraft contain standing water in areas not visible or accessible to a boater.

Since mussel veligers are microscopic, you could be transporting them without knowing it, even if the water looks clean. Fully draining a watercraft is a necessary first step to prevent the spread of mussels, and any other aquatic invasive species; however, it is not the only thing boaters need to look out for.

Using their byssal threads, adult mussels attach to many parts of watercraft and can live out of water for up to a month by closing and sealing off their shells. While they can grow up to two inches in length, many are smaller than a fingernail and can hide in hard-to-see areas. Once they are re-submerged, the mussels can open back up and begin reproducing immediately if conditions are favorable.



Dreissenid mussels can encrust boat hulls and motors in a matter of months, especially when watercraft are moored in infested waterbodies.



Adult dreissenid mussels can range from a few millimeters up to two inches long. Individual size depends on age and environmental conditions.

Prevention efforts in Wyoming

The Wyoming Game and Fish Department has a program dedicated to the prevention and management of AIS, including dreissenid mussels. This program includes watercraft inspections at stations on major highways and high-use waters, regular monitoring of water bodies throughout the state, and public education.

Currently, Wyoming is one of only six states in the continental U.S. without any dreissenid mussels. In 2022, new populations were discovered in Highline Lake, Colorado, and Pactola Reservoir, South Dakota. Pactola Reservoir is only 27 miles from the Wyoming border and the proximity of this population poses a major risk to Wyoming’s waters.

In response to this threat, Wyoming Game and Fish has ramped up prevention efforts, particularly on the eastern border. Along with increased monitoring of northeastern Wyoming waters, two additional check stations will be opened in 2023 at major entry points on the eastern Wyoming border.

How you can help

The extended viability of mussels out of water or in standing water means anyone traveling between waters needs to be aware of where they are and where they go. The best way to make sure you are not transporting

invasive species is to adhere to the saying “Clean, Drain, Dry.”

This means anything you move between waters should be free of mud and plants, especially equipment like anchors, ropes, and trailers. Drain everything you have used in the water as much as possible, including water toys and fishing equipment. Make sure you lower motors, pull all plugs, flip your kayaks and canoes upside down, and wipe down your dog (yes, even pets can carry AIS

between waters!).

The final step is to dry everything before using it in another body of water. If you ensure enough dry time between waters, you can be sure that you won’t move living organisms and start new populations. For in-state travel, Wyoming Game and Fish recommends waiting 5 days in the summer before using your (clean, drained) vessel in another water body, 18 days in the spring and fall, and 3 days in freezing temperatures.

“Clean, Drain, Dry” applies to all waters, both in state and out of state. Wyoming is currently one of the few states without dreissenid mussels, but we do have other aquatic invasive species that should not be spread. Visit the Wyoming Game and Fish website for more details about the AIS currently in Wyoming and about the AIS program (wgfd.wyo.gov/AIS).

You can also help by keeping an eye out for AIS as you enjoy Wyoming’s resources. Observations can be reported by calling the WGFD AIS hotline (1-877-WGFD-AIS) or emailing wgf-ais@wyo.gov (photos are appreciated).

AIS prevention requires participation to be successful, so thank you for doing your part!

.....
Stephanie Estell is an aquatic invasive species specialist for the Wyoming Game and Fish Department. She hopes to keep zebra mussels—and zebras—out of Wyoming. Estell can be contacted at stephanie.estell@wyo.gov or (307) 777-4600.