

The Truth About Zebra Mussels

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Zebra mussels were first discovered in Pickerel Lake in July 2020. Since that initial discovery, the northeast South Dakota lake has experienced disturbing changes. Pickerel Lake Conservancy, the local lake association, has determined from its own experience that there are many myths out there that just aren't true. Here's what the lake association has learned over the past five years.

Myth: Zebra Mussels Are Good For The Lakes

Truth: Zebra mussels change the lake ecology with some perceived positive benefit, but also many adverse impacts. The huge numbers of invasive mollusks attach to virtually every hard surface, such as rocks, logs, docks, boat lifts, lawn irrigation intakes and even the stems of aquatic plants. One immediate impact is that the sharp edges of the shells easily cut hands, legs and feet. As a result, it's now imperative to always wear water shoes while wading and gloves when handling shoreline equipment. Zebra mussels also cause exponential aquatic vegetation growth, increased levels of toxic mercury and are completely wiping out the native clam population.

Myth: Zebra Mussels Make Lakes Cleaner

Truth: It is true that zebra mussel infested lakes often experience clearer water. Pickerel Lake was clear to an average depth of 17' during the month of June from 2023-2025, which is nearly double the average historical clarity depth. Zebra mussels consume huge quantities of plankton (algae), which improves clarity, but that doesn't mean the lake is any cleaner. Zebra mussels don't decrease nutrients and toxins that are already in the lake, such as phosphorus, nitrogen and chemicals. Hard Fact: If a lake was polluted before zebra mussels, it will remain polluted after they arrive.

Myth: Better Water Clarity Is A Good Thing!

Truth: That's what some Pickerel Lake residents and seasonal cabin owners initially thought until the past couple years. Clearer water allows more sunlight to penetrate to the lake bottom. In a nutrient rich lake, it triggers heavier aquatic vegetation growth, especially near the shoreline but also in deeper water. Aquatic vegetation that previously extended to 9-10' depths in Pickerel Lake now can be found consistently at 16-18' depths. The heavier "weed" density near the shore begins to interfere with boating and swimming. One unpleasant nuisance plant that emerged in large numbers the last three summers is filamentous algae, sometimes referred to as "green slime". It commonly shows up in zebra mussel infested lakes and floats in masses on or just below the lake surface. This adversely affects swimming, boating and fishing during heavy blooms of these slimy algae blobs.

Managing nuisance lake vegetation can be time consuming, messy and expensive, which detracts from the value of owning lake property. The lake association is working with SDGFP and professional firms to identify responsible ways to manage nuisance vegetation.

Myth: Birds Spread Zebra Mussels

Truth: Tests conducted by the Minnesota AIS Research Center determined that, while it technically is possible for wildlife to spread the microscopic zebra mussel larvae (called veligers), it is highly unlikely. In South Dakota, 32 water bodies have become infested with zebra mussels. Every single one is either a popular boating recreation lake or river or directly connected to a previously infested recreational water body. We are kidding ourselves if we don't believe careless boaters are the culprit!

Myth: Zebra Mussels Don't Affect Fishing

Truth: Zebra mussels compete for the same plankton food supply as young fish. Studies show walleyes grow 14% slower during their first year in zebra mussel infested lakes. The slower growth makes them susceptible to predators longer, increasing the mortality rate. Stocking more hatchlings can counter this, but only if the state fish hatchery has the capacity to rear a sufficient stocking supply. Also, the rapid expansion of aquatic vegetation discussed earlier causes changes in fish locations and feeding patterns. At Pickerel Lake, some of the usual fishing hot spots have now become more difficult to fish and not as productive.

A recent study revealed fish flesh had elevated levels of toxic mercury in zebra mussel infested lakes. Walleye flesh exhibited 72% higher mercury concentrations, and perch had 157% higher concentrations. As zebra mussels filter vast amounts of lake water, their feces accumulate on the lake bottom, especially close to shore where their population is the heaviest. This creates low-oxygen mats that accelerate the conversion of inorganic mercury naturally found in lakes into a toxic methylmercury form that accumulates in the fish flesh over time. High concentrations of methylmercury in consumed fish are especially dangerous for young children and childbearing age women. As a result, more caution is needed when consuming fish caught from zebra mussel infested lakes or rivers.

Myth: There's Nothing We Can Do To Stop Zebra Mussels

Truth: Unfortunately, this is partly true. There is no cost-effective way to eradicate zebra mussels and prevention measures aren't fool proof. But there is promising research underway such as genome mapping that may eventually identify ways to control zebra mussels through an understanding of their DNA. Aggressive prevention measures buy time to allow research to progress. Lake associations and SD Game Fish and Parks should collaborate in implementing more robust prevention measures before zebra mussels find their way into the rest of our lakes. And prevention is not just about zebra mussels. There are several particularly harmful aquatic invaders in some SD water bodies or nearby states that we want to keep from spreading to our SD lakes, such as starry stonewort, Eurasian water milfoil and spiny water flea. Preventing the spread of any aquatic invasive species is vitally important to the long-term health of our lakes and streams.

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