South Dakota LAKES & STREAMS ASSOCIATION

# The Harmful Impact of Aquatic Invasive Species in South Dakota

The spread of aquatic invasive species (AIS) changes our South Dakota waters **forever**! It chokes our popular swimming, boating and fishing recreation lakes with excessive weeds. It makes fishing more difficult & causes harmful levels of mercury in fish flesh. Invasive zebra mussels plug pipes & intake equipment for many surface water users, including agricultural irrigators, hydroelectric power plants, thermal electric power plants, municipal & rural water systems and golf courses. Current efforts to prevent further spread aren't working in South Dakota. The spread is accelerating! Invasive curly leaf pondweed is already found in many South Dakota lakes. Other harmful aquatic invasive species, such as starry stonewort, Eurasian water milfoil and spiny waterflea are spreading in the region and threatening South Dakota waters.

## How did this happen?

In 2008, zebra mussels and other aquatic invasive species (AIS) were becoming a growing concern in South Dakota after the harmful invaders were confirmed in nearby Nebraska and Minnesota. Understanding the urgency, Gov. Mike Rounds released his 70-page report in 2008, calling for all state agencies to be involved in a comprehensive strategy that included early detection, rapid response, and public education.

Following the 2019 discovery of zebra mussels in Lake Sharp and Lake Francis Case, popular Missouri River reservoirs, the SD Game Fish and Parks Commission sent Governor Kristi Noem a letter asking the Governor to "lead a statewide Call to Action of all South Dakota stakeholders, public and private, to develop and implement a comprehensive response to the significant environmental, social and economic threat presented by zebra mussels and other aquatic invasive species". In 2020, Gov Noem signed HB1033 into law, an important piece of legislation that made it illegal to transport invasive plant or animal species within the state of South Dakota, with significant penalties for violators to prevent further spread and protect South Dakota's surface waters. Within two years, the state's philosophy and messaging abruptly shifted to "nothing can be done to stop the spread."

By the end of 2025, zebra mussels had been found in 32 South Dakota water bodies. Alarmingly, nearly two-thirds of the infestations have occurred in just the last four years. The affected water bodies are primarily popular South Dakota fishing and boating recreation lakes and reservoirs, along with major rivers.*

South Dakota's AIS prevention program is strikingly weak when compared to the efforts of some of the other states within the Western Regional Panel on Aquatic Nuisance Species (all land in the U.S. and Canada west of Manitoba, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas.) It lacks sufficient funding, attention and proactive action steps. SD Game Fish and Parks has been assigned sole statewide responsibility for addressing the complex AIS threat, while other state government branches remain largely uninvolved. The Department of Agriculture and Natural Resources' sideline position is particularly concerning, given the substantial negative economic impact that AIS have on agriculture and water ecosystems.

Frustrated by the lack of action, the South Dakota Lakes & Streams Association (SDLSA) spearheaded a $100,000 study on the economic impact study of zebra mussels. The study is a collaboration with the University of South Dakota, Dakota Institute, University of Montana and several South Dakota water development districts. The study is currently underway and is expected to be completed by April 2026. The data from this study will guide policymakers in making fiscally responsible decisions to protect the state's water resources.

The spread of aquatic invasive species, and specifically zebra mussels, are not easy issues to effectively address. However, the same was true when South Dakotans faced tough challenges like pine beetles in the Black Hills and the pheasant population crisis. We didn't downplay the problems: we got to work and got things done. We now must take that same spirit of action to protect our waters, livelihoods, and families.

## Facts You Should Know About Zebra Mussels & Surface Water

- **Native ecosystems are forever altered.** Mussels attach to hard surfaces like rocks and docks. As rapid filter feeders, they siphon large volumes of water, removing beneficial plankton and increasing water clarity. However, their food competition can harm native species that also feed on plankton, such as clams and young fish.
- **Aquatic plant growth explodes.** When lakes become crystal clear from the decrease in plankton, the added sunlight penetration often fosters exponential growth of both native and invasive plants. Weed density interferes with fishing, boating, and swimming.
- **Harmful bacteria triggered.** When consuming non-toxic plankton, mussels reject cyanobacteria, also known as blue-green algae. Large blooms of blue-green algae can become toxic to humans and pets.
- **Fishing is negatively affected.** Zebra mussels compete for the same zooplankton as young fish. Studies have determined that first year walleye growth is 14% smaller in infested lakes and 25% smaller when certain other AIS are also present (Hansen et al., 2020).
- **Harmful to fish and humans.** A recent study revealed that walleyes in zebra mussel infested water bodies show 72% higher concentrations of harmful mercury in their flesh and perch 157% higher levels than those caught in non-infested waters. The excrement from zebra mussels concentrates mercury, forming mats on the soil near shore, where young walleye and perch feed. These mats cause a chemical reaction that releases mercury from the lake bottom and changes it into a form that absorbs into the fish flesh as they feed.
- **Lakes are becoming less safe.** Razor-sharp zebra mussel shells easily cut hands, ankles, and feet. Water shoes become mandatory, gloves must be worn when handling docks and equipment, and arms and legs get cut when swimming by weeds that have zebra mussels attached to the stems.
- **Irrigation systems are clogged.** Mussels clog intake screens and restrict flow in irrigation systems, leading to increased maintenance costs and the need for costly equipment upgrades.
- **Humans are the contamination source.** Most new AIS invasions in SD are detected at public boating access points in popular recreation lakes and reservoirs. It is widely recognized that boaters are the primary, if not exclusive source of AIS spread. Invasive plants become entangled on boats and trailers and then transported to other water bodies. Residual water in livewells, motor lower units, bilge enclosures, ballast tanks and bait containers are ways that both adult and larvae zebra mussels can be kept alive and spread to other waters

| *South Dakota Confirmed Zebra Mussel Contaminated Water Bodies - www.SDLeastWanted.sd.gov | |
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| 2014 Lewis & Clark Lake | 2021 Lake Mitchell |
| 2016 Missouri River (below Gavins Point), McCook Lake | 2022 Pactola Reservoir, Lakes: Enemy Swim, Blue Dog, South Rush, Clear (Marshall County) |
| 2018 Lake Yankton | 2023 James River, Sand Lake Wildlife Refuge, Roy Lake, Big Sioux River, Big Stone Lake, Lake Oahe |
| 2019 Lake Sharpe, Lake Francis Case | 2024 North Rush Lake, Pelican Lake, Bullhead Lake (Marshall County) |
| 2020 Pickerel Lake, Lake Cochrane, Lake Kampeska, Dahme Quarry | 2025 Lake Poinsett, Campbell Slough, Mina Lake, Sheridan Lake, Horseshoe Lake, Lake Oliver, Rapid Creek (larvae) |

https://www.sdlakesandstreams.org/