



ECONOMIC COST OF AQUATIC NUISANCE SPECIES

In the past decade, North Dakota has experienced an increase in the presence of Aquatic Nuisance Species (ANS). These non-native organisms pose significant risks, as their introduction into our aquatic ecosystems can lead to environmental disruptions, economic consequences, and even public health hazards. Moreover, they threaten established habitats, recreational fisheries, and communities dependent on lakes and rivers for water supply.

Notably, the zebra mussel, a bivalve species, has been a prominent ANS concern. Zebra mussel veligers (larval offspring) were initially detected in the Red River watershed in 2010, followed by the discovery of adult specimens in 2015. Subsequent infestations have arisen in previously unaffected waters. Specifically, zebra mussels were identified in Lake Ashtabula and Lake Elsie within the Red River watershed in 2019 and 2021, respectively. And in the James River watershed, a sub-watershed of the Missouri River basin, detections occurred in Lake Lamour and Twin Lake in 2020 and 2021. As of now, no invasive bivalves have been confirmed beyond the James River watershed within the Missouri River watershed of North Dakota.

With the zebra mussel incursion now established in North Dakota, the risk of further expansion reaches an unprecedented level. Water bodies with the highest recreational,

economic, and intrinsic value are particularly susceptible to fresh introductions. Many of these vital water resources may expose water infrastructure to zebra mussel transmission through surface attachment to boats and equipment moving between water bodies, including the potential transport of veligers in residual water.

The implications of this invasion are twofold. Once established, zebra mussels can accumulate densities of up to 100,000 individuals per square foot. This density obstructs intakes, screens, and pipes, while complicating mechanical control efforts. Even if chemically eradicated, the carcasses continue to impede flow, valves, and seals,



TAKE ACTION!

CLEAN
 & inspect all equipment & remove ANS



DRAIN
 all water from watercrafts & equipment



DRY
 all equipment before entering another waterbody




necessitating defouling or manual removal. Grasping the rapid proliferation and potential consequences paints a concerning picture for water managers.

The confirmation of breeding zebra mussels in new regions of the state underscores the urgency of vigilance and proactive measures to safeguard our lakes, rivers, streams, and water infrastructure. It also emphasizes the need to enhance communication regarding at-risk infrastructure and economic values, as potential infestations could have financial repercussions for future local operational budgets and state funding programs.

The Department of Water Resources (DWR) recently concluded an economic study of the potential costs associated with zebra mussel colonization in North Dakota. The study estimates annual expenses linked to zebra mussel infestations for the state and five major drainage basins (Missouri, Mouse, James, Red, and Devils Lake).

Then, within each of those regional areas, impacts are estimated for six distinct economic usage categories. They include irrigation, water treatment, thermoelectric power, mining, industrial and hydropower.

DWR's vision is to sustainably manage and develop North Dakota's water resources for the health, safety, and prosperity of its people, businesses, agriculture, energy, industry, recreation, and natural resources. In support of this vision, DWR is committed to ongoing cooperative efforts that are aimed at controlling and preventing negative impacts of ANS to North Dakota's water resources.

Stakeholder Group	NORTH DAKOTA	
	ANS Mitigation Costs - Annual	
	Lower Bound	Upper Bound
Irrigation	\$274,461	\$568,183
Public Supply	\$16,968,640	\$17,247,975
Thermoelectric Power	\$4,018,392	\$4,198,488
Mining	\$3,158,397	\$3,299,950
Industrial	\$46,473,988	\$48,556,856
Hydropower	\$1,723,750	\$6,923,750
Mitigation Cost Total	\$72,617,629	\$80,795,202

If you are interested in reviewing the full study, it is available at dwr.nd.gov. Or, if you have questions or would like additional information, please call (701) 328-4989 or email dpool@nd.gov.