



# Understanding AIS & AIS Prevention

## 1) AIS can be stopped; waterfowl do not spread zebra or quagga mussels.

The spread of AIS follows the highways not the flyways. A study completed a number of years ago dispelled the myth that waterfowl transport AIS.<sup>1</sup> The MN AIS Advisory Committee also dispelled this myth in their 2013 Annual report. There is no evidence or reliable research to support the idea that water in the bill of a pelican or cormorant spreads AIS. There are no known infestations discovered that are attributed to this vector.

## 2) Inspections Lower the Risk of AIS Transfer.

Everyone is responsible to “do what it takes” to protect our water resources. Inconvenience does not trump being a responsible boater and state AIS laws prohibit reckless use of the State’s lakes.

## 3) Minnows do not need to be thrown away between launches.

State law does not require minnows to be thrown away, but it is illegal to transport lake or river waters. Anglers can bring non-lake water for minnows and change out the water in their bait bucket before leaving the water access.

## 4) Introducing a new invasive to a water way only compounds issues.

There are many other aquatic invasive species that are on their way to Minnesota that can be more devastating than zebra mussels. *Quagga mussels*, for instance, can out-compete zebra mussels for food and live at much deeper depths. *Hydrilla* is like milfoil on steroids. In addition, the impact of individual AIS becomes more complex with each invasive in a water body. Once a water body has one invasive and has become compromised, it becomes more important to keep other AIS out.

## 5) Inspectors are looking for AIS, not other violations.

Inspectors are usually not law enforcement officers and they are looking for AIS only. If conservation officers or other law enforcement officers perform the inspections they will be required to deal with any violations of state law that they come across even though their primary focus will be AIS.

## 6) Inspections are necessary between launches, even in non-infested waters.

Because it is impossible to know which lakes may already be infested, we must assume all water bodies may be infested. It may take 2-3 years after an infestation to discover a colony of mussels. Adult and juvenile mussels can live up to 30 days out of water in MN depending on temperatures and humidity, that’s why it is important to have a boat professionally decontaminated.

## 7) Veligers can survive when transported by boats from lake to lake and adults can detach and move about.

Research highlights that veligers are fairly durable. Researchers found viable zebra mussel veligers even after significant over-land transport in watercraft engines and ballast tanks. Mussels also survive in commercial water intake pipes with a very high PSI. Adult and juvenile mussels can detach from a surface and re-attach to boats and trailers.<sup>2</sup> Weeds with adult and juvenile mussels attached can also be caught on the trailer or boat.

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<sup>1</sup> Johnson & Carlton 1996.

<sup>2</sup> Korschelt 1892; Martel 1993; Ackerman *et al.* 1994; Mackie *et al.* 1991; Mackie & Schloesser 1996.

#### 8) Decontaminating is worth the time.

On average, ballast tank decontamination with a trained decontaminator will take about 30 minutes. The outdrive (lower unit) of an engine will take about 10 minutes. Decontaminating an average boat without any tanks or live wells could take less than 30 minutes. More complicated boats can average around an hour.

#### 9) Mussels can damage marine engines and tanks creating costly repairs.

Marinas across Minnesota and elsewhere have reported zebra mussels growing inside engine compartments and causing damage. Engines require a lot of lake water in order for the components to cool. This water may contain microscopic veligers ½ the diameter of a human hair. As the veligers grow they have the potential to burn out an engine and tank by blocking the cool water intake. Research determined veligers can live up to 27 days in a tiny amount of water.<sup>3</sup> The best way to protect your engine and reduce risk of AIS transport are to lower the outdrive and drain it and then have a trained decontaminator flush the engine compartments.

#### 10) Decontamination is complex and should only be performed by a trained decontaminator.

Self-certification has not proven to be effective. Decontamination should only be performed by trained decontaminators who use the correct equipment and attachments, use the correct water temperatures necessary for a 100% kill, know where mussels can hide, and use correct techniques to decontaminate all types of watercraft and engine/cooling systems. Boat owners who perform decontamination on their own may inadvertently miss the targeted AIS or damage their equipment.

#### 11) Car washes do not have adequate equipment, power or temperatures to decontaminate.

Car washes do not reach the temperatures needed for a 100% effective kill. Car wash equipment is not sophisticated enough and does not provide the proper attachments or temperature to decontaminate for AIS. If mussels enter the car wash drain systems complications can develop and cause expensive repairs for both the car wash and municipalities. Soap will not kill quagga or zebra mussels.

#### 12) All Minnesotans should be concerned about AIS, not just those who swim, boat or fish.

Aquatic invasive species cost people money even if they do not use a lake for recreation. A recent study estimated that invasive species already cost the average U.S. family over \$1,000 a year in increased public expenses.<sup>4</sup> Every Minnesotan has an obligation to protect our “Land of 10,000 Lakes.”

#### 13) Invasive mussels are harmful despite making the water appear "clearer."

A single mussel can filter about a liter of water a day. They remove all the good nutrients and leave the toxins like blue green algae that can be toxic to humans and animals. When the water becomes clearer it allows more sunlight to greater depths, which produces more weed growth, significantly altering eco-system balance.

#### 14) Stopping the AIS spread in Minnesota can be done; we do not have too many lakes.

Minnesota has a very valuable asset to protect – our lakes – and protecting this resource will impact anyone using lakes and rivers as well as all taxpayers. Depending on geography, demographics and local needs it may be necessary to have inspections at every access or at regional inspection areas which also have been found to be successful.

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<sup>3</sup> Wong; 2012.

<sup>4</sup> Rosaen, Grover, Spencer, 2012