Frequently Asked Questions about Zebra and Quagga Mussels

WHAT ARE THEY?

Zebra and Quagga mussels are freshwater species that live for up to 5 years. Females can reproduce at six weeks of age. Zebra and Quagga mussels are also referred to as invasive mussels, because they are an invasive species in North America.

Q: Can the mussels live in salt water?
A: Not long term. They can go dormant and survive for a short period of time. However, invasive mussels can survive in Brackish water, or water that has slightly higher salinity than freshwater, but slightly lower salinity than ocean water.

Q: How big do Zebra and Quagga mussels get?
A: The adult mussels average one inch in length, but two inches long is the maximum size. About the size of your fingernails!

Q: Can the mussels live outside of water?
A: Yes. They can live up to one week in hot, arid conditions by closing their shells very tight. If the weather is cool and humid, the mussels can live up to 30 days outside of water!

Q: Where do Zebra and Quagga mussels grow?
A: They are freshwater mussels that attach to hard surfaces such as rocks, boats, docks, piers, bridges, shipwrecks and pipes. The mussels especially like pipes because of the constant flow of water bringing them food. Zebra mussels are often found at depths of 2-7m, while the Quagga mussel can inhabit deeper depths.

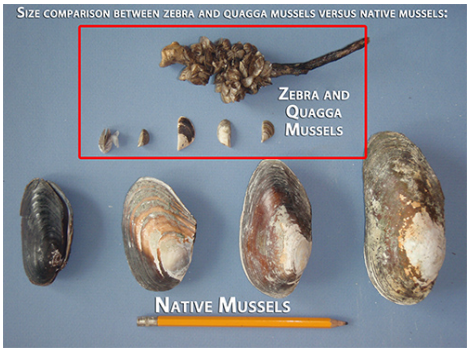
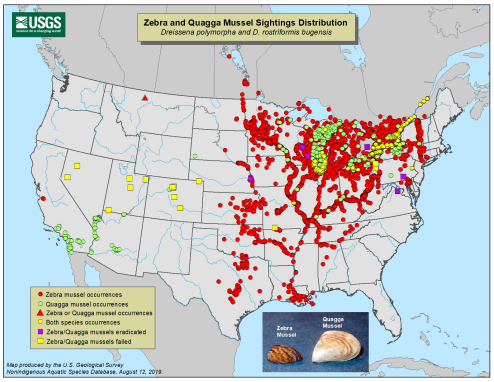


Photo from Government of BC

Fact: Female Zebra and Quagga mussels can produce up to **one million** eggs each spawning season. Only about 2% of these eggs will mature, which is a whopping 20,000 adults!

Fact: In one location of the Great Lakes, researchers found that population of Zebra mussels jumped from 1000 to 700,000 in six months!



WHERE ARE THEY FOUND?

Invasive mussels have invaded many lakes and rivers throughout Canada and the USA, but they are not yet in British Columbia. The closest locations to the Okanagan are Tiber Reservoir in Montana and Lake Winnipeg in Manitoba.

REPORT ANY SUSPECT INVASIVE MUSSELS TO THE BC COS R.A.P.P. HOTLINE
1-877-952-7277

Q: Where did Quagga and Zebra mussels come from?
A: Zebra and Quagga mussels are native to the Black Sea and Caspian Sea regions of Eurasia.

Q: How did Zebra and Quagga mussels arrive in North America?
A: Ocean vessels from Europe use ballast water to help maintain stability. When cargo is removed from the ships, they empty the ballast water to counter-balance the weight change. It is believed that ballast water from Eastern Europe was contaminated with Zebra and Quagga mussels, which was subsequently dumped into the freshwater of North America via the St. Lawrence seaway.

Q: When did Quagga and Zebra mussels come to North America?
A: 1988 was the first recorded detection of Zebra mussels, located in Lake St. Clair. In 1989, Quagga mussels were detected in Lake Erie.

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WHY SHOULD I CARE?

The effects of Zebra and Quagga mussels impact everyone, from boaters to home owners. They pose a risk of environmental, economic, and recreational devastation. Hydro-electric dams have been estimated to decrease in power output by 50% due to mussels; your power bill could increase ~20-30%!

Q: What is the economic impact?
A: The Centre for Invasive Species Research at the University of California estimate the cost in the Great Lakes to exceed $500 million. The mussels attach to and damage water treatment facilities and power plants. These facilities will need to be retrofitted to prevent the entrance of Zebra and Quagga mussels, with the cost going to consumers and tax payers. In the Okanagan it is estimated that Zebra and Quagga mussels will cost **42 million dollars a year** in lost revenue, added maintenance of water infrastructure, and ecological damage (OBWB, 2013).

Q: How will this affect me as a boat owner?
A: The mussels can enter the cooling system of your boat, causing overheating and damage. This is not a small expense for the boat owner.

Q: Are Zebra and Quagga mussels a safety concern?
A: Very much so. They can fowl beaches, alter water chemistry, and water quality. They can attach to and sink navigational buoys, as well as attach to floating bridges which cannot withstand the weight.

Q: Are Zebra and Quagga mussels edible?
A: Yes, but they are not recommended to be eaten. These mussels accumulate toxins as they filter water. These toxins can be harmful to humans, dogs, and birds.

Fact: The mussels can filter one liter of water per day. They will consume the good algae in the lakes. This will increase the clarity of the water while reducing food for native species. In addition, the light can penetrate further into the waterbody, creating algal blooms and plant overgrowth.

Photo by L. Scott

Fact: As the mussels filter feed through the water column, they produce waste known as pseudo feces. The higher the number of mussels, the greater the amount of pseudo feces. As the pseudo feces decompose, oxygen is used. As the concentration of oxygen is decreased, pH decreases and toxic byproducts are produced.

WHY SHOULD I CARE IF THEY AREN'T HERE YET?

Q: Can we get rid of them once they are here?
A: Once established they are extremely difficult to eradicate and containment is the only option. There have been a small number of successful eradications in closed systems in the USA but currently there are no approved products for use in open waters in Canada.

Q: Can't BC just close its borders to boats both entering and leaving the province? Wouldn't that guarantee that invasive mussels will never infest British Columbia?
A: Osoyoos Lake and Lake Koocanusa straddle the Canada-USA border and both are popular boating destinations for Canadians and Americans alike. Invasive mussels could still spread to BC via introduction on the American side of these lakes, regardless of closed borders.

Fact: As of 2019, the Province of BC has 12 watercraft inspection stations and an additional roving station. In 2019, the province inspected 52,000 watercrafts and stopped 22 mussel-fouled boats – 3 of which were headed to the Okanagan!

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Published by the Okanagan and Similkameen Invasive Species Society (OASISS) 2019; Updated 2020