Zebra & Quagga Mussels

(*Dreissena spp.)*

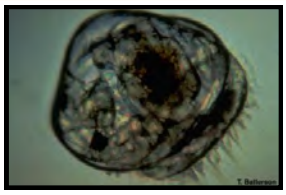
IMPORTANT: These mussels are not yet known to be in BC waters. Report ALL possible sightings.

Zebra Mussels, and the closely related Quagga Mussels are small, freshwater bivalves. Native to the Caspian, Black and Azov seas of Eastern Europe, Zebra Mussels were first discovered in North America in 1986 in the Great Lakes region. Quagga Mussels arrived about 3 years after the Zebra mussels but were not recognized as a unique species until 1991.

It's believed that both species came to North America in contaminated water on ocean-going ships and were later introduced into our lakes. Since introduction, these mussels are now confirmed in 640 lakes in the United States as well as the 5 Great Lakes in Canada.

Adult Zebra Mussels:

- Brown, with cream and yellow striped shell
- Triangular shape with one edge flattened
- Typically less than 2.5 cm across
- Strong silky threads help them attach to surfaces
- Left and right shell valves symmetrical with straight midline



Mussel larvae are microscopic. A single adult female mussel can produce up to 1 million young per year.

Adult Quagga Mussels:

- Variable coloring, from pure white to pale with colored bands
- Typically less than 2.5 cm across (may grow slightly larger than Zebra Mussels)
- Rounded, fan-shaped shell
- Strong silky threads help them attach to surfaces
- Left and right valves asymmetrical with curved midline

HABITAT

- Live in freshwater lakes
- Larvae swim in the water until three weeks of age
- Mature Zebra Mussels always attach to a solid surface
- Adult Quagga Mussels can attach to a solid surface or settle on the lake bottom
- Zebra Mussels occur at lake depths of 1-30 m, but are rarely found below 15 m
- Quagga Mussels occur at lake depths of 1-130 m, but are commonly found down to 30 m

THE PROBLEM

- Adults grow in big clusters and clog water intake pipes, pumps and boat motors
- Filter large amounts of water, competing for food with native species and deplete food sources for fish
- Actively feed on green-algae and may cause an increase in foul smelling blue-green algae
- Produce toxins that kill fish and birds and contaminate drinking water

Established in B.C.

NEW ZEALAND MUD SNAIL

(Potomopyrgus antipodarum)

- First spotted in B.C. waters in 2007
- 4-6 mm in length
- Color ranging from grey & dark-brown to light brown
- Out-compete native snails for food
- Densities of up to 300,000 snails/m^2 have been recorded
- Each snail can produce 230 young per year
- Reproduce asexually, so a single introduced snail can establish a new colony
- Contain little nutritional value and often pass through a predators digestive system alive
- Can readily attach themselves to boots and waders

Not yet known in B.C.

ASIAN CLAM

(Corbicula fluminea)

- Introduced to North America from Eurasia in 1930's
- Currently in 38 states, including Washington, but has not yet breached the Canadian border
- Less than 5 cm long
- Yellowish-brown to black shell
- Can live up to 7 years
- Can reach densities of up to 50,000 clams/m^2
- Can alter nutrient cycle in lake
- Causes increased aquatic plant growth
- Competes with native molluscs for food and habitat
- Can clog irrigation channels, water intake pipes and pumps
- Spread through the aquarium trade and in bait buckets and water holding areas of boats

Once these species colonize within a water body, eradication is not an option.
Methods to control established colonies are costly.
The best way to control these species is to prevent their arrival in the first place.

PREVENTION

The most effective way to ensure our lakes do not become infested with aquatic invertebrates is prevention. Follow these tips:

- **CLEAN** off any visible mussels, plants, mud or other debris from all equipment that enters the water (e.g. boats, trailers, waders, scuba gear)
- **DRAIN** all water from your bilge, ballast, live well and bait buckets onto dry land
- **DRY** all equipment for 5 days in the sun before entering another water body. If this is not an option, then pressure wash all equipment with hot water and towel dry
- **NEVER** transport live fish between water ways (it's illegal) and **NEVER** empty aquarium fish or plants into the wild
- **REPORT** any sightings of these species to sosips@shaw.ca or at www.sosips.ca

"Species introductions are the leading cause of biodiversity loss in lake ecosystems and are a growing menace to aquaculture in Canadian coastal ecosystems. Invasive non-indigenous species are recognized as one of the most serious environmental problems in the world."
-Canadian Aquatic Invasive Species Network

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