

Zebra Mussels found in Moss (Marimo) Balls

- Invasive Zebra mussels have been discovered in ‘moss’ balls sold at various retailers, including pet and plant stores, throughout North America, including here in Alberta.
- ‘Moss’ (marimo) balls are a unique spherical growth form of a green algal species named *Aegagropila linnei*, but may be sold under its former name, *Cladophora aegagropila*. They are primarily sold for decorative purposes in aquariums and in water displays and can be found in Northern Europe, Iceland and Japan.
- Zebra mussels are up to 3cm in size, and have a flattened ventral surface given them a characteristic D-shape, and are found attached to surfaces, such as moss balls. Female mussels can produce up to 1 millions microscopic eggs, which when fertilized, turn into microscopic larvae called veligers that circulate in the water.
- Zebra mussels are listed as an aquatic invasive species under the *Fisheries (Alberta) Act*. If introduced, they would have severe impacts to Alberta’s economy and environment.
- If a mussel infestation occurred in Alberta, the province is estimating a total cost of \$75,000,000 annually to protect and replace water operated infrastructure (such as drinking water systems, power generation and irrigation structures and pipe), and in lost revenue from recreational fishing. This estimate includes decreasing property values and increased boat maintenance costs for the individual Albertan.
- Under the *Fisheries (Alberta) Act*, it is illegal to import, sell or possess a prohibited aquatic invasive species.
 - Overland transfer of watercraft have been a prioritized pathway of introduction for invasive mussels. Moss balls are a new pathway of introduction.
- The Aquatic Invasive Species team is working with our jurisdictional partners to trace shipments of moss balls that have been received in Canada from the contaminated source.
- The Aquatic Invasive Species Team have been working with local distributors and stores (pet and plant) that are selling moss balls to remove from them the shelves and stop selling them, and voluntarily surrender them to a Fishery’s Guardian for further inspection.

- Officers may seize contaminated moss balls under the *Fisheries (Alberta) Act*.
- Anyone who sees moss balls being sold should call our 24/7 hotline at 1-855-336-2628.
- Zebra mussels found by our AIS team have been small, and may not be easy to see by the untrained eye. Our Conservation K9 team was also utilized to confirm the presence of invasive mussels on the moss balls.
- Our Science and Monitoring team analyzing the moss balls have confirmed many contain zebra mussels (*Dreissena polymorpha*); water samples are also being tested to see if the microscopic larval form (called veligers) of mussels are present.
- Albertans who have purchased a moss ball after January 1, 2021 needs to dispose of it following our guidelines to protect Alberta's aquatic ecosystems.
 - DO NOT flush moss balls and/or any aquarium/water garden contents (water, plants, rocks, etc) down the toilet, put down the drain or dispose of them in the compost.
 - Step 1: Treat the moss balls by:
 - Placing it in sealed bag in the freezer for longer than 24 hours. OR
 - Place in boiling water for at least 1 minute and then let cool.
 - Step 2: Dispose of the moss ball by putting it in a sealed bad and disposing of it in the trash
 - Step 3: Treat aquarium or container contents and water.
 - Remove fish or other living organisms from the aquarium and place them in separate container, acquire water from a separate, uncontaminated water source.
 - Sterilize the remaining contaminated water from the aquarium or container by adding 25ml of bleach per liter of water. Let the water sit for at least 15 minutes and then dispose of the sterilized water down a household drain.
 - Clean the aquarium and accessories using one of the following methods, ensuring that the method you choose is in accordance with manufacturers' recommendations:

- Boiling Method: Use water that is at least 60 degrees C/140 degrees F to flush and coat the tank and all accessory surfaces and allow to sit for a minimum of 1 minute, OR
- Disinfection Method: Make a disinfection solution using 25 ml of bleach per litre of water. Soak the aquarium, substrate, rocks, décor, and filter media in the bleach water solution for 15 minutes. Rinse off all items prior to setting up the aquarium. Dispose of the previously used filter media and replace with new media. Use a dechlorinating product to neutralize any residual chlorine prior to reintroducing aquatic life.
 - It is recommended that you do another water change within a week and continue to monitor the tank for any unusual or unexpected aquatic life (i.e. attached mussels).
- To stay up to date on this quickly evolving situation, follow us on Facebook at: <https://www.facebook.com/MyWildAlberta>
- To learn more about aquatic invasive species, visit: <https://www.alberta.ca/Aquatic-invasive-species.aspx>