

Aquatic Invasive Species: Zebra Mussel Update

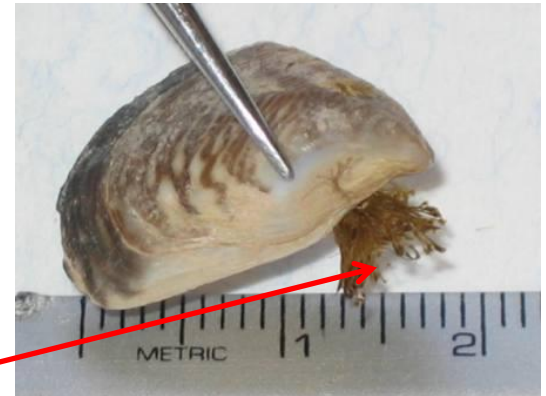
.....

**Aquatic Invasive Species Program
Fisheries Branch
Department of Conservation and Water Stewardship**



Zebra Mussels – What are they?

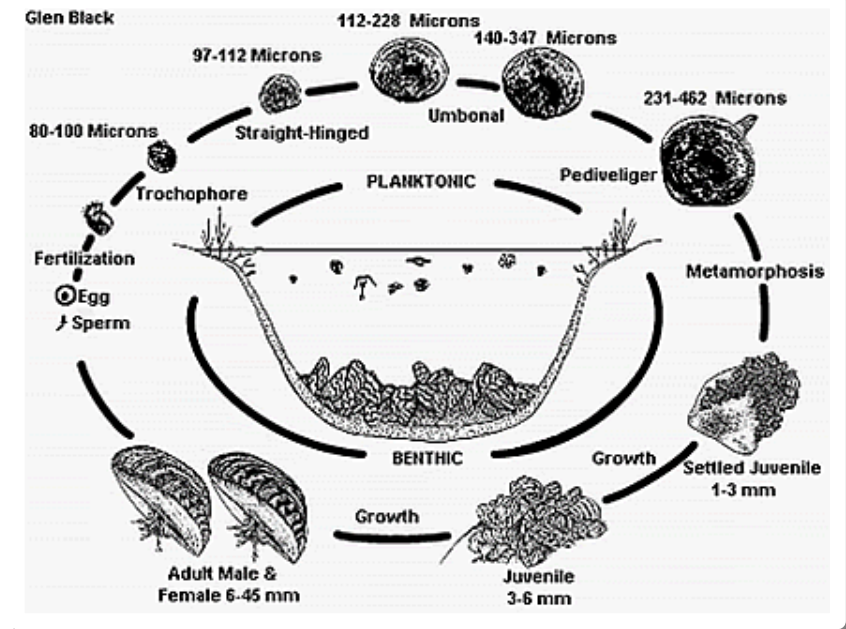
- Fingernail-sized, bivalve mollusks
- D-shaped shells
- Adults are usually 1-3 cm long (range 0.6-4.5 cm)
- Strongly attach to underwater surfaces with hair like tufts of threads called byssal threads
- Grow in clusters (like barnacles), firmly attach to submerged surfaces like rocks, wood, native mussels, docks, watercraft, etc.



Prohibited Species in Manitoba

What makes them so successful?

- Females can produce up to one million eggs per year
- Eggs and microscopic veligers are free-floating and carried by currents and by human activity.
- After two – three weeks the veligers settle out and attach to substrate
- They have few natural predators



Zebra mussel life cycle.

Glen Black, U.S. Fish and Wildlife Service, fws.gov



T. Batterson, Great Lakes Sea Grant, glerl.msu.edu

Zebra mussel veliger.

Why the concern?

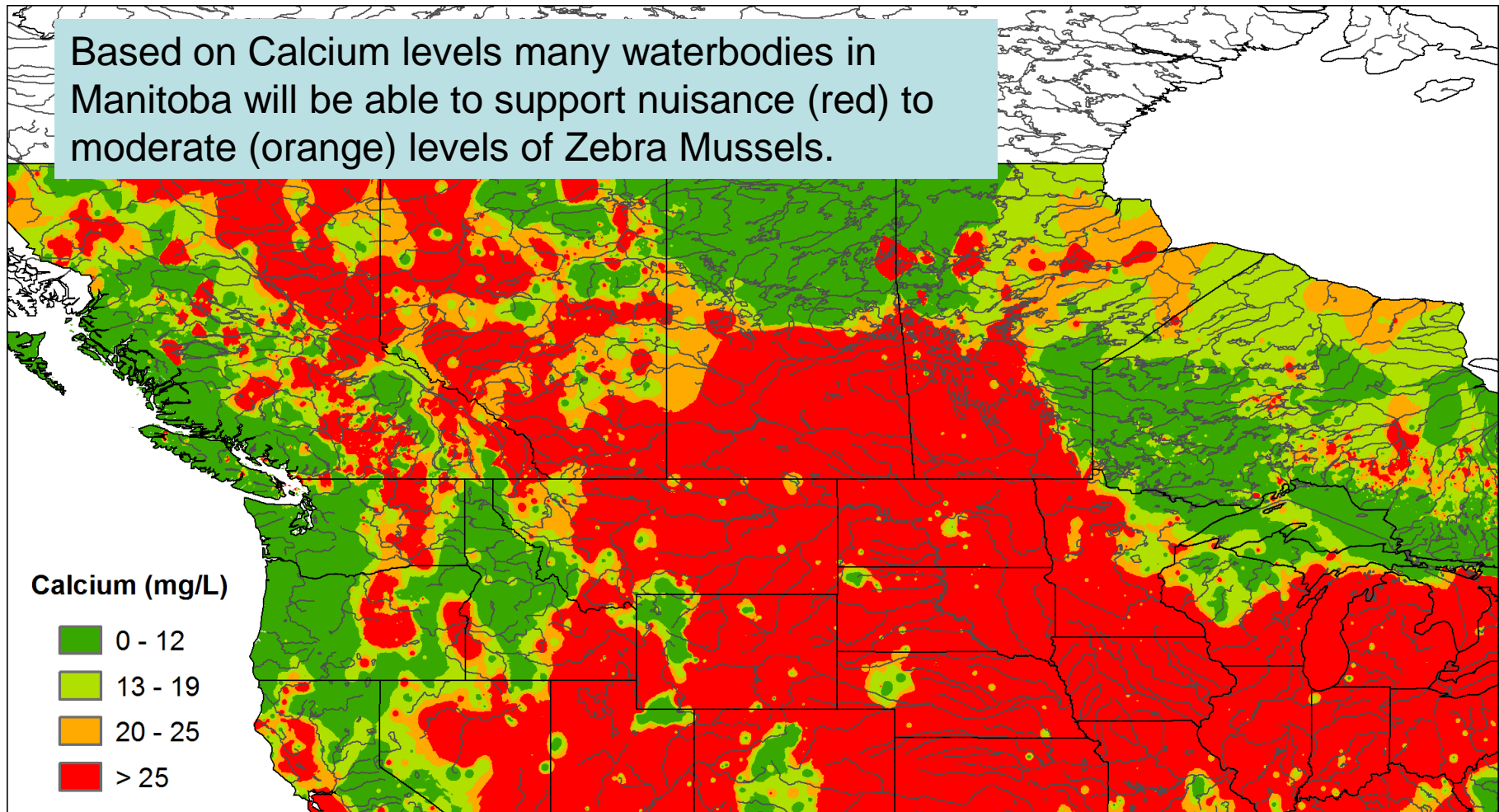
In areas where Zebra Mussels have established the following has been observed:

- Increase in water clarity (each mussel can filter 1 L of water a day)
- Increased clarity in water results in an increase in aquatic vegetation
- Increase in toxic algal blooms (likes green algae; excretes or will not consume blue green algae)
- Shift in the food web
 - Decline in Lake Whitefish and Walleye populations
- Decrease native mussel population
- Decline in lake-front property values
- Reduced recreational potential
- Clog intake structures
- Increased drag on watercraft



Will Zebra Mussels Survive and Thrive in Lake Winnipeg?

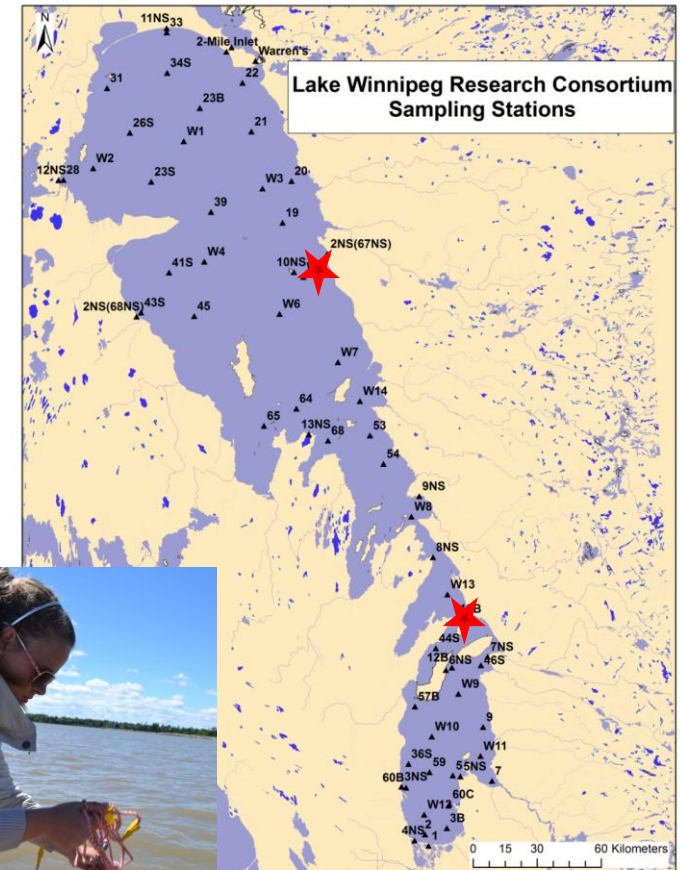
Based on Calcium levels many waterbodies in Manitoba will be able to support nuisance (red) to moderate (orange) levels of Zebra Mussels.



Status

- June 2015 - Zebra Mussel veligers found throughout the Canadian and U.S. portions of the Red River
- In Lake Winnipeg as of September 30th, 2015:

- Zebra Mussel veligers (larval free floating stage) reported throughout the south basin at more locations and in greater numbers (100 fold increase) and found at stations throughout the channel.
- So far only one veliger found in a north basin east side station sample near George Island.
- Settled Zebra Mussels found on all south basin station sets including Gull Harbour, Hecla and Little Grindstone.





Range of sizes of Zebra Mussels from south basin of Lake Winnipeg (Photo credit: R. Bajno)



Zebra Mussel attached to native mussel found at Sunset Beach.



Zebra Mussel shell found at Gimli Beach.



Handful of Zebra Mussels from Sunset Beach on Lake Winnipeg.

Monitoring – Substrate Samplers; Silver Harbour



Substrate plate
covered with
newly settled
ZMs – feels like
sandpaper to
touch.

Substrate sampler after
~3 months in Gimli
Harbour



Note how they are
filling in the holes
on this brick.



New Detection in Cedar Lake

- Samples collected in August and September from Cedar Lake, Cross Lake and Playgreen Lake were submitted to the laboratory on October 6th for analysis.
- One Zebra Mussel veliger was found in a Cedar Lake sample collected August 18, 2015.
- October 13 to 16 - NW region and head office staff out to try and assess how far they are spread and in what numbers. Looked for and took water samples at:
 - Cross Bay
 - Grand Rapids forebay and FFMC plant
 - Easterville
 - Saskatchewan River at The Pas
 - NW region staff will continue to investigate other areas of Cedar Lake, Saskatchewan River, Moose Lake and other adjacent waterbodies.



How do Zebra Mussels and other AIS Spread?

- Inter-connecting waterways,
- Un-cleaned fishing equipment and gear,
- Release of live bait,
- Live food trade,
- Internet sales,
- Float planes,
- Legal and illegal introductions,
- Release of aquarium, ornamental water garden, water, pets or plants, and/ or
- **Overland movement of recreational watercraft and water-based equipment.**



Fighting Back – Watercraft Inspection Program

Objective: *to contain the spread of Zebra Mussels to Lake Winnipeg and the Red River (and now Cedar Lake) and to prevent / slow the spread to other water bodies.*

Priority: EXITING watercraft from invaded waters

- Completed **3,764** watercraft inspections & surveys
- triaged and decontaminated only high risk watercraft
 - performed **255** decontaminations
(as of Sept 7, 2015)



Fighting Back – Enforcement



- **Roles and responsibilities:**
 - **Currently: Enforcing the Manitoba Fishery Regulations, 1987**
 - Prohibited species list
 - Zero possession limit for crayfish
 - **NEW: Federal AIS Regulations (came into force June 17, 2015)**
 - Manitoba who has assumed fisheries management responsibilities would take on the administration and enforcement of the (Federal) Regulations.
 - **COMING SOON: New Provincial AIS Legislation and Regulations**
 - Would provide the authority to set up control stations and require individuals to stop at the stations to inspect and, if need be, clean watercraft and water related equipment.
 - Require individuals to clean watercraft and water related when leaving and before entering a waterbody.
 - Minister can designate controls zones with requiring more stringent measures to prevent the spread of AIS.

Coming in 2015: **CLEAN+DRAIN+DRY. IT'S THE LAW.**

STOP

AQUATIC INVASIVE SPECIES



Zebra Mussels hide here



What Can You Do?



CLEAN and inspect watercraft, trailer, and all water-based equipment and gear.

Remove all plants, animals and mud. **Rinse** using high pressure, very hot tap water – preferably 50°C (120°F).

DRAIN all water from motor, livewell, bilge and bait buckets before moving to another waterbody.

DRY watercraft and gear in the hot sun for at least 5 days (if rinsing is not available), 18 days in the spring or fall or 3 days of freezing.

DISPOSE of unwanted live bait and worms in the trash, and dump bait bucket water on land where it will not run off into any lakes, rivers or wetlands.

- Implement AIS cleaning protocols to ensure activities minimize the risk of spreading invasive species.
- Consider how equipment is moved and change (go from un-invaded to invaded waters).
- Use dedicated watercraft and water-based gear for each water body if cleaning between infested areas is not an option.
- Apply anti-fouling paint.



In regard to Zebra mussels...

- Drain all standing water off of watercraft (bilge, livewells, engine compartment, transom, motor.)
- If searching for adhered mussels, check along seams on hull and corners, crevices, etc. on gimbal area.
- Adult mussels may be obvious, but newly colonized mussels can be too small to see; use your hands to feel.



Zebra mussels on boats
removed from Gimli Harbour
– September 2015.



To report an AIS sighting or for
more information:



Call: **1-87-STOP AIS-0**

[1 (877) 867-2470]

or

Click: **Manitoba.ca/StopAIS**

or

Email: **candace.parks@gov.mb.ca**