Manitoba Perspectives on Zebra Mussels

Jeff Long
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Balsam Bay Harbour / Beach – July 20, 2019
Grand Beach, 2019
Winnipeg Beach marina - 2019
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The “How”
Highlights of Canadian Federal AIS Regulation

• Manitoba is delegated fisheries management authority as well as administration and enforcement of the AIS Regulation.

• Ability to use a registered deleterious substance to eradicate an AIS.

• Prohibited Species List in the *Manitoba Fishery Regulations, 1987* was grandfathered in.

• Prohibition against importation, possession, transportation and release of zebra mussels, quagga mussels and invasive carp anywhere in Canada.

• Prohibition against importation is to be enforced by CBSA
Highlights of Provincial AIS Legislation:

- Additions to the **Prohibited Species List** (includes both live and dead organisms).
- Clean, Drain Dry is the law (i.e. general provisions).
- Stopping at watercraft inspection stations is a legal requirement.
- Ability for officers to stop conveyances to conduct AIS inspections.
- Laws for more than just watercraft.
  - e.g. water-related equipment, aircraft, and ORVs.
- Stricter measures in place when leaving invaded areas or where AIS will natural move (i.e. control zones).
Objective:
To prevent and slow the spread of AIS from invaded water bodies within MB to non-invaded water bodies.

Achieved by:
- Educating the public
- Demonstrating how to CLEAN, DRAIN, and DRY watercraft and equipment properly
- Assessing the risk of AIS transfer and ensuring compliance with the law through triage and inspection
- Performing decontaminations and issuing decontamination orders for those who present a risk
Prevention Watercraft Inspection

2017-2019 Watercraft Inspection Locations

• Strategic highway “pinch-points” to intercept traffic coming from invaded water bodies and high-volume boat launches
## 2018 WaterCraft Inspection Data

<table>
<thead>
<tr>
<th>Headingley</th>
<th>Inspections</th>
<th>Decons.</th>
<th>Decon. Orders</th>
<th>% Decons. (Decon/Inspect)</th>
<th>Mussel-Fouled Boats</th>
<th>Drive-By</th>
<th>Non-Compliance</th>
<th>Public Interactions</th>
<th>Officer Visits</th>
<th>Total Time On Site (hrs)</th>
<th>Drive-By PULLED OVER</th>
<th>Written Warnings</th>
<th>Tickets (Long Form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selkirk Park Boat Launch</td>
<td>1775</td>
<td>166</td>
<td>3</td>
<td>9.5%</td>
<td>3</td>
<td>749</td>
<td>30%</td>
<td>93</td>
<td>17</td>
<td>16.33</td>
<td>19</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Eriksdale</td>
<td>4494</td>
<td>510</td>
<td>1</td>
<td>11%</td>
<td>0</td>
<td>170</td>
<td>3.6%</td>
<td>305</td>
<td>14</td>
<td>11.42</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Grand Rapids Boat Launch</td>
<td>2173</td>
<td>211</td>
<td>19</td>
<td>9.7%</td>
<td>1</td>
<td>439</td>
<td>17%</td>
<td>69</td>
<td>23</td>
<td>54.16</td>
<td>38</td>
<td>46</td>
<td>0</td>
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<tr>
<td>Swan River</td>
<td>1484</td>
<td>479</td>
<td>1</td>
<td>32%</td>
<td>0</td>
<td>1208</td>
<td>45%</td>
<td>0</td>
<td>9</td>
<td>22.5</td>
<td>27</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>The Pas</td>
<td>886</td>
<td>26</td>
<td>1</td>
<td>3%</td>
<td>0</td>
<td>172</td>
<td>16%</td>
<td>42</td>
<td>40</td>
<td>159.3</td>
<td>55</td>
<td>39</td>
<td>1</td>
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<tr>
<td>Total</td>
<td>12,865</td>
<td>1509</td>
<td>25</td>
<td>12%</td>
<td>4</td>
<td>2991</td>
<td>19%</td>
<td>556</td>
<td>121</td>
<td>278</td>
<td>149</td>
<td>113</td>
<td>2</td>
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</tbody>
</table>
OUTREACH MATERIAL:
- Checklists
- Fact sheets
- Specimens

PRESENTATIONS:
- Industries (e.g. Manitoba Float Plane Council)
- Educators

TRAINING:
- Park patrol officers
- MB Conservation Officers
- Canadian Border Services Agency
LOCAL PARTNERSHIPS:
• Cottage Associations
• Indigenous Communities
• Biosphere Reserve

NATIONAL & REGIONAL PARTNERSHIPS
• Began development of program to train and certify for-profit service providers to deliver decontamination services to the public

• Planning to be in place by 2020 open water season
1. Non-invaded water bodies
   • Early detection & rapid response
   • Inform about new invasions

2. Newly invaded water bodies
   • Confirm presence and reproduction
   • Follow magnitude and extent of invasion

3. Established invaded water bodies
   • Monitor rate and extent of population
   • Inform public adaptation strategies
2017 Monitoring Summary

ESTABLISHED INVADED WATER BODIES:

- **Lake Winnipeg** – No further monitoring in south basin. Monitoring continues in narrows and north basin. Veligers found at all stations in the narrows and in greater numbers than 2016. Veligers found in 3 stations at the south end of the north basin and adults were found on substrate samplers set at Princess Harbour and McBeth Harbour.

- **Red River** – ZM are considered to be well established throughout the Red River and were also found in the lower reach of Netley Creek at Chelsey Resort and Netley Campground. There were also reports of ZMs in the lower reaches of the Manigotagan River.
## Monitoring Summary - 2018

<table>
<thead>
<tr>
<th>GENCY</th>
<th>WATER BODIES SAMPLED</th>
<th>WATER SAMPLES (for veligers)</th>
<th>SUBSTRATE SAMPLERS (for settled mussels)</th>
<th>WATER SAMPLES (for eDNA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Development (SD) DFO Prairies Area AIS</td>
<td>32</td>
<td>174</td>
<td>19</td>
<td>67</td>
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<tr>
<td>DFO Winnipeg Environmental DNA Program</td>
<td>11</td>
<td></td>
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<td>48</td>
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<tr>
<td>Lake Winnipeg Research Consortium</td>
<td>1</td>
<td>62</td>
<td>10</td>
<td></td>
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<tr>
<td>Manitoba Hydro</td>
<td>4</td>
<td>60</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Riding Mountain National Park</td>
<td>33</td>
<td>157</td>
<td>36</td>
<td>121</td>
</tr>
<tr>
<td>Swan Valley Sport Fish Enhancement</td>
<td>11</td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Saskatchewan Environment</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anishinaabe Agowidiwinan Treaty No. 2</td>
<td>4</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>97</strong></td>
<td><strong>456</strong></td>
<td><strong>90</strong></td>
<td><strong>236</strong></td>
</tr>
</tbody>
</table>
Singush Lake

- Suspect adult zebra mussel found on substrate sampler set in 2016 and detected in lab winter 2016-17.
- Provincial staff worked with the Singush Lake Cottage Owner’s association to determine the best method for containing the potential invasion.
- Day use boating activity was restricted.

- Control order issued to cottage owners allowing them to access the lake in 2017.
- Program and regional staff worked with the association to implement the same containment plan in 2018 and 2019.
• Parks Canada has jurisdictional authority.
• Parks Canada informed the AIS program that ZM eDNA was detected. Public announcement made Dec 12, 2017.
• Headwater lake which flows into Lake Manitoba

• eDNA indicates DNA is present but does NOT mean there is a viable population.
• RMNP carried out extensive monitoring but did not detect any veligers or adults.
• RMNP closed Whirlpool Lake to camping and boating activity as a precaution and monitored to confirm or refute ZM presence.
• Whirlpool Lake was re-opened for use in 2019
Shoal Lake – 2019 Detection

City of Winnipeg's single source for Drinking Water
AIS works with several jurisdictions to determine management & control options

- Interprovincial-Territorial Agreement on Coordinated Defence
  - Health Canada PMRA
  - DFO
- MB Hydro
- Office of Drinking Water
- Indigenous Services Canada