

## Protecting Canada's Fresh Waters from Zebra and Quagga Mussels

Quagga and zebra mussels pose a serious and costly threat to aquatic ecosystems, salmon populations, tourist destinations, hydro power stations and other infrastructure facilities throughout Canada. Native to Eastern Europe and Western Asia, quagga and zebra mussels have already caused millions of dollars in damage to the Laurentian Great Lakes area and have cost the North American economy billions of dollars to control. The damage these species cause is diverse; among other things, quagga and zebra mussels:

- Disrupt native ecosystems by altering food webs, concentrating pollutants in their wastes, and inducing bird and fish kills;
- Attack infrastructure by clogging water intakes and distribution systems, and by damaging pumps and hydroelectric power generating facilities;
- Injure tourism (and tourists) by fouling beaches with razor sharp shells and decay odour; and
- Hurt marine industry by impairing the structural integrity of steel and concrete (such as are found in marinas and port facilities), and causing damage to watercraft.

Zebra and quagga mussels typically migrate from one body of water to another on or in watercraft, but can also be transported on boat trailers, fishing gear, recreational equipment and float planes. In addition to adults that attach themselves to hard surfaces, larvae, which are invisible to the naked eye, are easily transported to new waters in ballast tanks and bilges. Once introduced to a body of water, there is no known way of eradicating zebra and quagga mussels. Their unwelcome presence is permanent, and the damage they cause perpetual.

The advance of these species reached the lakes and waterways of Western Canada in 2013, specifically in Manitoba, and invasive mussel species continue to hitchhike westward through the United States reaching Montana just last year. Provinces in central Canada, including Manitoba, Ontario and Quebec, are constantly battling to contain and remediate the damage caused by invasive mussel species in their waters.

The federal government has already taken commendable action since the Canadian Chamber of Commerce first adopted a policy position on this issue in 2014. By enacting the Aquatic Invasive Species Regulation, the government has provided a full suite of regulatory tools to prevent the introduction of aquatic invasive species into Canadian waters and to control and manage their establishment and spread, once introduced.

The federal government has begun to train some Canada Border Services Agency agents to recognize and inspect potential carriers of zebra and quagga mussels. However, anecdotal reports suggest that border inspections and enforcement remains inconsistent, and therefore inadequate.

There is more that can be done. As was the case with legislation, Canada should follow the lead of the United States, and provide matching federal funds for provincial inspection stations.<sup>1</sup> Our federal government should also do more to ensure that invasive mussels do not cross our national and inter-provincial borders, and should take on a larger role in inter-governmental efforts to stop the spread of invasive mussels.

If the federal government does not act to neutralize the threat of invasive mussels, the cost of zebra and quagga mussels infesting western Canadian waters is likely to be in the hundreds of millions of dollars over the next decade.<sup>2</sup>

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<sup>1</sup> The U.S. Senate approved the Water Resources Development Act (WRDA) in September 2016 authorizing up to \$20 million to be administered by the U.S. Army Corps of Engineers to match state spending for watercraft inspection stations protecting the Columbia River Basin, including those in Washington, Oregon, Idaho and Montana, from aquatic invasive species. See

[http://www.pnwer.org/uploads/2/3/2/9/23295822/wrda\\_passes\\_federal\\_funding\\_for\\_mussel\\_defense\\_slow\\_to\\_reach\\_states.pdf](http://www.pnwer.org/uploads/2/3/2/9/23295822/wrda_passes_federal_funding_for_mussel_defense_slow_to_reach_states.pdf)

<sup>2</sup> Damages from an infestation of Lake Okanagan has been estimated at \$42 million per year (Self, J., Larratt, H. 2013. Limiting the Spread of Aquatic Invasive Species into the Okanagan. Prepared for the Okanagan Basin Water Board and the Glenmore-Ellison Improvement District., available online [http://www.obwb.ca/fileadmin/docs/2013\\_obwb\\_ais\\_report.pdf](http://www.obwb.ca/fileadmin/docs/2013_obwb_ais_report.pdf)); damage to BC generally has been estimated more conservatively at \$21 million annually (Robinson, D. et al. 2014. Preliminary Damage Estimates

Virtually every industry that interfaces with freshwater will be affected, including the Pacific salmon fishery, hydroelectric power generation, tourism, and marine shipping. The federal government must act forcefully to stop zebra and quagga mussels from causing severe damage to the Canadian economy.

## **Recommendations**

That the federal government:

1. Fully engage in the Pacific Northwest Economic Region's Invasive Species Working Group to help implement the recommendations in the framework for Advancing a Regional Defense Against Zebra and Quagga Mussels in the Pacific Northwest.
2. Institute mandatory inspections of all watercraft entering Canada from the United States.
3. Establish full-time seasonal inspections at major provincial crossings in Banff and Jasper National Parks.
4. Support provinces that are already mussel-infested (Quebec, Ontario and Manitoba) to develop and implement a containment-at-source strategy for invasive mussels.
5. Match provincial spending on invasive mussel inspection stations dollar for dollar.
6. Prioritize research and education in relation to invasive-mussel prevention, containment, control and eradication methods.

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for Selected Invasive Fauna in B.C. Prepared for Ecosystems Branch, B.C. Ministry of Environment.); damage to Alberta has been estimated at more than \$75 million annually (Neupane, A. An Estimate of Annual Economic Cost of Invasive Dreissenid Mussels to Alberta. ESRD. November 2013)