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

The rapid spread of invasive zebra and quagga mussels through fresh waters east of Saskatchewan has had devastating impacts on hydroelectric power, marine shipping, fishing and tourism industries. These species have recently spread through waterways in the southwest United States, and now pose an imminent threat to fresh waters in Canada's western provinces. The federal government must take decisive action now to avoid irreversible damage to our marine and tourism industries.

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 western Canada. Native to Eastern Europe and Western Asia, quagga and zebra mussels have 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
- 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.

Fortunately, the advance of these species has not reached the lakes and waterways of Saskatchewan, Alberta and British Columbia. But the danger to these waters and the economies they support could not be clearer. On March 12, 2014, Canada Border Services Agency (CBSA) staff in Osoyoos, British Columbia observed invasive mussel shells on a boat being transported from Lake Pleasant, Arizona. Though federal legislation does not allow mussel-contaminated boats to be stopped at the border, the hauler voluntarily allowed the boat to be detained and decontaminated. This incident represents just one of many potential catastrophes averted.[1]

Canada lags far behind the United States in addressing this issue. To give one example, the Canadian Border Services Agency lacks the legal authority to detain watercraft entering Canada so they can be searched for zebra and quagga mussel contamination. In contrast, the United States has empowered its border agents to detain watercraft pending inspection for invasive mollusks since the *Lacey Act* (16 U.S.C. §§ 3371–3378) was amended in 1969, and since 1990 has had legislation directed specifically to the threat of invasive aquatic species being transported in ballast water (Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990). In addition, several US federal agencies (including the US Fish and Wildlife Service, the U.S. Bureau of Reclamation, and the Environmental Protection Agency) are already taking action to stop the spread of these mussels in that country.

[1] In 2011 and 2012, authorities in Idaho stopped more than six boats per year bound for western Canada that were infested with mussels.

If swift action is not taken to neutralize the threat of incoming 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.[2] 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 immediately to stop zebra and quagga mussels from causing severe damage to the Canadian economy.

Recommendations

That the federal government:

1. Enact legislation that empowers the Canada Border Services Agency to detain, inspect and refuse admission to Canada to any vehicle contaminated with zebra or quagga mussels.
2. Facilitate cooperation among the states and provinces whose waters are not already contaminated by zebra and quagga mussels and continue to provide support to affected provinces.
3. Support the establishment of a non-contamination perimeter about the Pacific Northwest Economic Region (PNWER).
4. Provide appropriate support to provinces engaged in combating zebra and quagga mussels in their waters.

[2] 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); damage to BC generally has been estimated more conservatively at $21 million annually (Robinson, D. et al. 2014. Preliminary Damage Estimates 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)