

Close Alberta's Borders!

(to aquatic invasive species)

By Kate Wilson, Aquatic Invasive Species Specialist (Alberta Environment & Parks)

What is the issue?

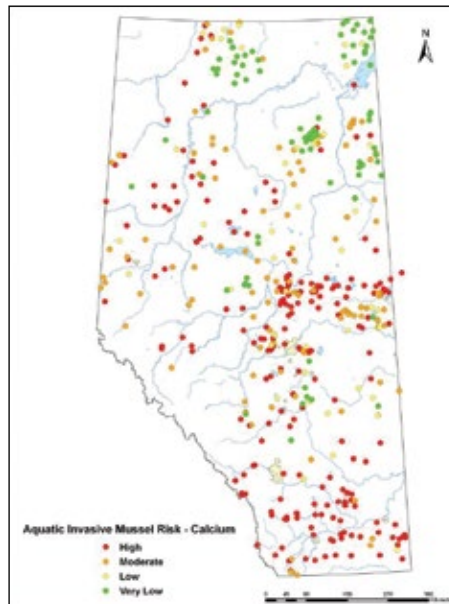
Aquatic invasive species (AIS) pose one of the greatest threats to freshwater resources and are one of the leading causes of biodiversity loss in the world. As many of us have experienced, Alberta can be a tough place to thrive in those brutal, long winter months – but, despite this, many invasive species think otherwise and could actually do very well in our climate. Let me first introduce you to a few of these critters that pose high threats to Alberta...

1. Zebra and Quagga mussels



Quagga mussels on boat propeller
PHOTO: US NATIONAL PARK SERVICE,
LAKE MEAD NATIONAL PARK

These freshwater mussels are filter feeders that can drastically change the entire food web in aquatic ecosystems, posing great threats to native species. While they remove the vital “good nutrients” we need for our native fish to thrive, they have now been linked to causing toxic blue-green algae blooms in the shallow waters as well. They pose very real threats to infrastructure, recreation, and native species



Risk Map for Alberta Waterbodies Based on Calcium Data. CREDIT: ALBERTA ENVIRONMENT & PARKS, 2013.

with their ability to attach themselves to everything from docks to dams to native mussels and crayfish.

Evidence from jurisdictions across the U.S. and Canada show the cost of managing invasive mussels to be significant. Although these mussels have not been detected in Alberta to date, \$75 million is a conservative estimate of the damage they would do to infrastructure, fishing, property values, etc. if they established themselves in Alberta's waterbodies.

Two risk studies, one conducted by the Department of Fisheries and Oceans Canada (2012) and one conducted by Alberta Environment and Parks (2013), demonstrate that, based on calcium data and habitat suitability, most waterbodies in Alberta could support zebra and quagga mussel populations.

2. Eurasian watermilfoil



Eurasian watermilfoil tangled on a boat propeller.
CREDIT: T. WOOLF, IDAHO DEPT. OF AGRICULTURE.

This aggressive rooted aquatic invasive plant is found throughout the west but has not been detected in Alberta at this time. It spreads by fragmentation, so any tiny leaflet that breaks off from the parent plant is capable of starting a whole new colony. It has been found as deep as 30 feet and is known for its rapid expansion and ability to reach the surface of the water in one growing season. It prevents recreational boating, decreases property values, and impacts fish habitat by creating a dense monoculture of plants where many native plants previously thrived. It is believed to have been introduced as a result of the aquarium trade where its robustness makes it a popular aquarium plant. Eurasian watermilfoil is a prohibited species in Alberta – illegal to import, possess, and transport.

3. Flowering Rush – Present in Alberta



Flowering rush on the shoreline.
CREDIT: T. RUSHCALL, ALBERTA ENVIRONMENT & PARKS

This invader has been introduced through the horticulture industry. It is both an emergent plant along shorelines and a submersed plant in lakes and rivers. It is an incredibly aggressive plant whose dense stands can interfere with recreational use, water access, native plants as well as fish and wildlife habitat. There are few known successful control options at this time.

Unfortunately, flowering rush has been detected in Alberta – in Lake Isle, Chestermere Lake/Western Irrigation District canals, in a creek near Innisfail, in the Sturgeon River, and in the Bow River. Flowering rush is a prohibited noxious weed in Alberta – illegal to import, possess and transport.

4. Asian Carp



Bighead carp
CREDIT: A. BENSON, US GEOLOGICAL SURVEY

Four species of Asian carp are considered to be highly invasive across North America – the silver, black, bighead, and grass carp. They are filter feeding fish that consume plant and animal plankton, which impacts the available food for native spe-

cies. They are a long-lived, fast-growing species that can reach 100 lbs, making it hard for any predator fish to eat them.

They are voracious eaters, consuming 5 to 20 percent of their body weight each day! Their threat to Alberta's waters is growing as the (jumping) silver carp have made their way up the Mississippi and Illinois Rivers and threaten to infest the Great Lakes. Silver carp can jump up to 10 feet in the air, scared by the sound of boat motors. Small wonder they are nicknamed "the flying fish." Some of these fish weigh more than twenty pounds. They land in boats, damage property, and injure people. Silver, black and bighead carp are a prohibited species in Alberta – illegal to import, possess and transport.

5. Bullheads



Three classes of Black Bullheads.
CREDIT: R. BALDWIN, ALBERTA ENVIRONMENT & PARKS.

Bullheads are closely related to catfish; they eat a variety of aquatic invertebrates such as crayfish, freshwater mussels, snails, and insects. They will also eat other fish, fish eggs, and plants. They will eat almost anything that can fit into their mouths. They are able to tolerate turbid or murky/muddy water that many fish cannot. Bullheads are able to survive in water with low oxygen content and often occur in large numbers in lakes where winter kill eliminates other fish. In short, bullheads can live in just about any aquatic habitat.

Bullheads have a single large, sharp spine at the leading edge of their dorsal and pectoral fins. When bothered, they lock these spines in a straight-out position making the fish very hard to swallow. They also produce a mild poison that runs down the spines and into the wound of a victim punctured by one of these spines. Black, brown, and yellow bullheads are a prohibited species in Alberta – illegal to import, possess and transport.

What are we doing about aquatic invasive species in Alberta?

The Alberta Aquatic Invasive Species Program is a provincial program focused on the prevention and management of aquatic invasive species (AIS). In 2012-2013, a prototype was launched that focused on the "Crown of the Continent Ecosystem" in the southwest portion of the province in order to address the risks of zebra/quagga mussels and Eurasian watermilfoil. It became increasingly evident there was a need to expand the program due to the large ecological and economic risks facing the entire province. The program now addresses all of Alberta. It includes:

- 1) Policy and legislation,
- 2) Monitoring,
- 3) Education and outreach,
- 4) Response, and
- 5) Watercraft inspections

The AIS Program is much more than a government program. An AIS Committee comprised of cross-ministry partners has worked very closely with national and international agencies, regional groups, local stakeholders, and the public to create a cohesive program able to capitalize on the experience of others while making efficient use of available resources. With the passing of robust legislation, the operation of 12 mandatory inspection stations this season, the monitoring of over 60 lakes and reservoirs annually, two high profile education campaigns, and prolific public and stakeholder support, Alberta has recently become a leader in the prevention of AIS in Canada.

Since the AIS Program was developed, there has been great progress, including:

- The monitoring of over 60 Alberta lakes and reservoirs for invasive mussels annually.
- Recent amendments to the *Fisheries (Alberta) Act* that provide for all watercraft inspections to be mandatory (which has improved compliance by

more than 20 percent already); the creation of a prohibited list of 52 aquatic invasive plants, invertebrates and fish; and enhanced authority to mitigate the risk of AIS and respond rapidly if these invasive species are detected in a waterbody.

- Implementation of province-wide mandatory watercraft inspections, the most likely source of introducing invasive mussels (among other species), targeting 12 of the highest risk locations (major entry points and highly trafficked recreational lakes) with seasonal watercraft inspections and now mussel sniffing dogs as well.
- Development of an Early Detection/ Rapid Response plan for invasive mussels (in the event they are found in an Alberta waterbody) that is close to completion.
- The launch of two high-profile education campaigns targeting personal actions and behaviour responsible for the introduction of AIS: “Clean, Drain, Dry Your Boat” which targets boaters and anglers and “Don’t Let it Loose”

which targets all non-watercraft sources of introductions (aquarium dumping, intentional release, ceremonial release, etc.).

While it is often difficult for government to take a preventive approach, the momentum and support provided to this effort promises that progress should continue.

From the development of the prototype in 2013 until today the AIS Program has achieved great success that will only continue due to the commitment of the AIS Committee and the many supportive partners. This season, over 22,000 boats were inspected, resulting in 16 interceptions of mussel-fouled boats, and countless citizens were educated on the risks of AIS and the need to “Clean, Drain, Dry your boat.” We have also seen a rise in the number of public reports of AIS in waterbodies, including Prussian carp, flowering rush, goldfish (in urban stormwater ponds) and just recently, black bullhead, a species of catfish that is prohibited in Alberta. These reports demonstrate that the public is be-

coming more knowledgeable about the issue and the harmful threats posed by AIS.

In 2012, if you had asked a Summer Village or Irrigation District what a zebra mussel was, most would have had likely shrugged their shoulders and brushed off the issue without much thought. Today, these same organizations are standing side-by-side with the Alberta government in a fight to prevent harmful AIS from becoming established. In 2014, several non-government stakeholder organizations even passed formal resolutions urging the government to continue efforts to prevent AIS. Together, we can protect Alberta’s freshwater resources from aquatic invaders!

What can you do?

Tell your friends. This is one of the greatest threats facing our native species. For more information or to report AIS, see our website (<http://esrd.alberta.ca/recreation-public-use/invasive-species>) or call our AIS Hotline (1-855-336-BOAT [2628]). ▲

