

September 29, 2017

NEWS RELEASE

OKANAGAN WATER BOARD BRINGS MUSSEL-PREVENTION PROPOSAL TO B.C. ENVIRONMENT MINISTER

Kelowna, B.C. – Okanagan Basin Water Board (OBWB) directors, who were in Vancouver for the annual Union of BC Municipalities convention along with officials from the new B.C. government, took the opportunity to talk invasive zebra and quagga mussels. Several board members met with B.C. Environment Minister George Heyman yesterday and presented recommendations to help prevent a devastating infestation in Okanagan and B.C. waters.

In fact, it was at least Heyman's fourth meeting on the mussels this week. He had a brief 15-minute meeting with the Southern Interior Local Government Association (SILGA) on Tuesday, in which OBWB Executive Director Anna Warwick Sears was invited to attend. This was followed by another 15-minute meeting on Wednesday with Regional District of North Okanagan, which also included Sears, and a separate 15-minute meeting with representatives from Sicamous, Columbia-Shuswap Regional District and the Splatshin Indian Band. By the time the OBWB meeting occurred, Heyman was well-versed on the risks posed by the mussels and was interested in talking solutions.

"The meeting went exceptionally well," reports OBWB Chair Tracy Gray, adding that 45 minutes were set aside to allow for a deeper conversation. "The minister was well-informed on the issue and said let's talk about the recommendations."

The issue with the mussels, which originate from Eastern Europe, is that they are making their way across the U.S. and parts of Canada, primarily hitchhiking their way on watercraft. They are known to stimulate toxic algae blooms, litter beaches with sharp shells, clog boat motors, foul water intakes and outfalls, put fish and the ecology of lakes at risk, and more. At this time, there is no proven method to eradicate the mussels once they arrive that doesn't also cause significant environmental impacts. The Okanagan is considered at high risk because of its warm, calcium-rich waters. A 2013 [study](#) for the Water Board estimated the mussels would cost the Okanagan \$43 million a year to just manage. The Pacific NorthWest's B.C., Alberta, Saskatchewan, Washington, Idaho and Oregon are one of the few remaining regions in North America believed to be mussel-free. Montana declared a Natural Resource Emergency in October 2016 when they discovered mussel larvae in two of their reservoirs, which has sparked great concern since it's only a few hours' drive from B.C.

Gray was joined at yesterday's meeting by Sears, Vice-Chair Juliette Cunningham, Dir. and Past-Chair Doug Findlater, Dir. Sue McKortoff, as well as Regional District of Okanagan Similkameen Chair Karla Kozakevich and SILGA Exec. Dir. Alison Slater. Provincial officials included Heyman, Deputy Minister Mark Zacharias and Assistant Deputy Minister Jennifer McGuire.

This was a critical meeting given the change in government, explained Gray. "It was important to make sure they were aware of the issue, what the previous government had done, and what is still required. The previous government said they were going to follow through on additional OBWB recommendations and we want to ensure these are still carried out," she explained.

Specifically, the OBWB took five recommendations:

1. Make legislative changes requiring all watercraft entering B.C. to report to an inspection station prior to launching in any provincial waters.

2. Expand watercraft inspection and decontamination options for all boaters, and increase signage at boat launches to raise awareness of aquatic invasive species.
3. Expand the use of trained mussel detection dogs as part of the Conservation Officer Service K9 program.
4. List invasive infestations as a specified hazard under B.C.'s Emergency Program Management Regulation (EPMR) and recognize the province's Early Detection Rapid Response plan as a multi-agency hazard plan under Emergency Management B.C.
5. Expand the number of full-status COs with authority to intercept those who fail to stop at mandatory inspection stations.

"The minister acknowledged the gaps and that prevention is very important and less costly than dealing with the mussels if they arrive," said Gray, adding "the minister and deputy minister were very engaged and interested in discussing additional ways to collaborate with other provinces, states and others to protect our waters."

As for next steps, Sears said the meeting allowed a discussion beyond the initial five recommendations. "They're reviewing their own Invasive Mussel Defence program this year and ways to improve it, and they're working on next year's budget. They've asked us to send them an expanded list of ranked recommendations. They are looking for input from us. They explicitly asked for this."

Given this year's stats, indicating at least 17 mussel-fouled boats were intercepted through B.C.'s inspection stations, and one in five motorists hauling watercraft fail to stop at the mandatory stations, more work is needed, added Sears. "A lot has been done, but there's a lot more we can do."

"They left the door open to a lot more communication on this," added Gray.

The OBWB held a similar meeting during last June's Federation of Canadian Municipalities conference in Ottawa, taking the opportunity to meet with federal officials and present [recommendations for stronger federal support](#).

In addition to the Water Board's calls for stronger senior government response, its Okanagan WaterWise program has spent just over \$226,000 on its *Don't Move A Mussel* (DMM) campaign, between 2013 and 2017. With in-kind support from several business partners, the DMM program has been valued at more than \$717,000. The OBWB has also provided \$140,000 since 2013 to the Okanagan and Similkameen Invasive Species Society to assist with direct boater outreach, extending the DMM message, and for mussel monitoring in our waters.

For more information on zebra and quagga mussels, the risk to the Okanagan and how to protect our waters, visit www.DontMoveAMussel.ca.

Attached, please find the Briefing Note and a Backgrounder that were presented at the meeting in Vancouver.

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BRIEFING NOTE FOR MINISTERIAL MEETINGS AT UBCM

PREVENTION OF INVASIVE MUSSEL INTRODUCTIONS TO BRITISH COLUMBIA

Decision Sought

SUMMARY

- The purpose of this meeting is to discuss the need for increased provincial action to prevent the spread of invasive zebra and quagga mussels into B.C. (Please refer to Annex B for a recent map of invasive mussel distribution).
- The OBWB recommends that the Minister make changes to the provincial watercraft inspection program to enhance mussel prevention efforts, and provide more tools for inspection, decontamination and public outreach.

BACKGROUND

Invasive zebra and quagga mussels, first introduced to the Great Lakes in the 1980's substantially alter aquatic food webs, put drinking water at risk, damage infrastructure and harm human recreational values. Invasive mussels have recently been detected in water bodies in Montana (October 2016), and in Manitoba (including Lake Winnipeg in 2013 and Cedar Lake in 2016) (see Annex B for current distribution). Montana has now introduced mandatory inspections for all watercraft entering the state, and any watercraft crossing the continental divide within the state.

Current federal regulations (*Aquatic Invasive Species Regulation*, 2015) prohibit the importation, possession, transportation and release of these mussels in British Columbia, Alberta, Saskatchewan and Manitoba. In 2017, the Province of B.C. made significant enhancements to its Aquatic Invasive Species prevention program, increasing the number of inspectors and hours of operation for provincial inspection stations. Between April 1 and August 21, B.C. inspected over 28,750 watercraft. Some 1,627 of these were considered high-risk, and 17 were confirmed to have adult invasive mussels.

CONSIDERATIONS

Mussel infestations negatively affect municipal water, hydropower, and agricultural irrigation systems by clogging water intake and distribution pipes; foul aquatic infrastructure such as bridges; negatively impact tourism and recreation by attaching to boats and littering beaches with sharp shells; increase the volume of aquatic weeds along lake shorelines and create toxic algae blooms. As noted above, mussel infestations put drinking water at risk and substantially alter the aquatic ecosystem and aquatic food webs. These mussels have also been identified as a threat to B.C.'s endangered Rocky Mountain Ridged Mussel by the Committee on the Status of Endangered Wildlife in Canada (2010).

The economic impact of invasive mussels in lost revenue and added maintenance to aquatic infrastructure has been estimated to exceed \$43 million per year in the Okanagan alone, and \$500 million annually in the Pacific Northwest. The annual cost on the Great Lakes to control zebra mussels in water intakes alone is \$250 million.

In 2016 and again in 2017, 17 mussel-fouled boats were intercepted through the provincial inspection program. Every mussel-fouled boat that is intercepted through provincial inspections potentially saves millions of dollars annually, just to manage affected infrastructure. Despite this progress, 1 in 5 watercraft still fail to stop at mandatory inspection stations. Currently, Auxiliary Conservation Officers (COs) assigned to B.C.'s Invasive Mussel Defence program do not have the authority to chase down those who fail to stop. More full-status COs are needed to enable better enforcement.

Under current legislation, watercraft which enter the province while inspection stations are closed are not mandated to report for inspection before launching in provincial waters. Also the B.C. CO Service's K9 program has a higher success rate of detecting invasive mussels, including on vessels previously cleared by human inspectors.

RECOMMENDATIONS

1. Make legislative changes requiring all watercraft entering B.C. to report to an inspection station prior to launching in any provincial waters.
2. Expand watercraft inspection and decontamination options for all boaters, and increase signage at boat launches to raise awareness of AIS.
3. Expand the use of trained mussel detection dogs as part of the Conservation Officer Service K9 program.
4. List invasive infestations as a specified hazard under B.C.'s Emergency Program Management Regulation (EPMR) and recognize the province's Early Detection Rapid Response plan as a multi-agency hazard plan under Emergency Management B.C.
5. Expand the number of full-status COs with authority to intercept those who fail to stop at mandatory inspection stations.

Annex A

OKANAGAN BASIN WATER BOARD

The Okanagan Basin Water Board (OBWB) is a unique local government agency in the central interior of B.C., located on the trans-boundary waters of the Okanagan River, which feeds into the Columbia River. The Okanagan watershed is almost 200 km in length, covering 8,000 km² in area and over 40,000 ha of lake surface area. The OBWB serves three regional districts, 11 municipalities, and five of the member bands of the Okanagan Nation. The Okanagan valley is home to more than 340,000 residents and the fastest growing metropolitan area in B.C.

The OBWB's mission is to provide leadership to protect and enhance quality of life in the Okanagan Basin through sustainable water management. Part of our mandate is to define water problems and priorities, the economic feasibility of solutions, responsibility, necessary legislation and required action.

Since 2012, the OBWB has been a vocal advocate of enhancing invasive mussel prevention, as the Okanagan is at very high risk for invasion based on water chemistry, temperature and other conditions. The Okanagan River is the most productive Sockeye salmon spawning habitat in the Columbia system, accounting for 80% of the total population. The Okanagan River is the focus of major restoration and fisheries improvement work by the Okanagan Nation Alliance, to which the species is of critical importance for cultural, food and spiritual purposes.

In December 2016, the OBWB called for action from several federal government ministries to: increase training and funding for Canada Border Services Agency; increase funding for containment to provinces that are already mussel-infested (Quebec, Ontario and Manitoba); increase funding to mussel-free provinces for prevention, and; commit to research and education for prevention, containment, control and eradication methods. We also asked that senior public servants in several ministries be assigned to participate in forums such as the Pacific NorthWest Economic Region's Invasive Species Working Group to demonstrate that the federal government takes this issue seriously.

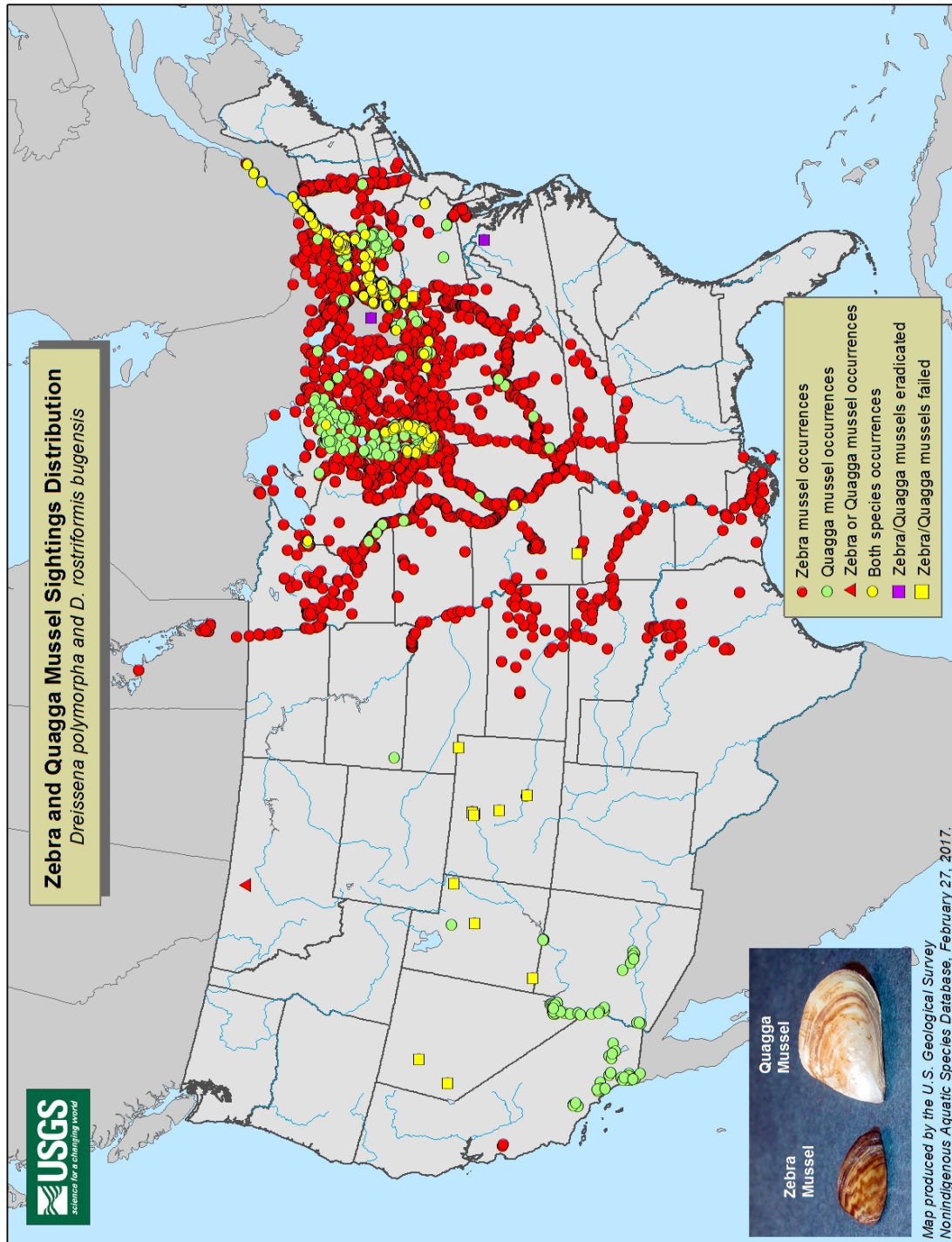
In addition to our calls to the provincial and federal governments for more support on this issue, the OBWB has raised awareness of the threat of invasive mussels through its [Don't Move A Mussel](#) (DMM) campaign, spending about \$226,000 in the past five years. With in-kind support from several business partners, the DMM program has been valued at more than \$717,000 since 2013. The OBWB has also provided \$140,000 since 2013 to the Okanagan and Similkameen Invasive Species Society for direct boater outreach, extending the DMM message.

The OBWB also has a 40 year history of controlling invasive milfoil in the valley, at a direct cost to residents of over \$650,000 annually. The cost of managing our infrastructure, losses in the tourism and agriculture industries, and ecological losses from an infestation of mussels would be disastrous.



Annex B

CURRENT INVASIVE MUSSEL DISTRIBUTION IN NORTH AMERICA





INVASIVE ZEBRA & QUAGGA MUSSEL Backgrounder

The purpose of this backgrounder is to provide a summary of the invasive mussel threat to the Okanagan, including a brief background on the mussel life-cycle and effects. Information on the history, ecology and effects was primarily gathered from the U.S.G.S. Zebra Mussel Fact Sheet, but can be found in many other sources. For more see: <https://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/>

History

Zebra and quagga mussels are native to the Black Sea region around Ukraine. By the late 18th and early 19th centuries, zebra mussels had spread to most major drainages of Europe because of widespread construction of canal systems. Zebra mussels were first discovered in North America in 1988 in the Great Lakes. The first account of an established population in Canadian waters came from Lake St. Clair, a water body connecting Lake Huron and Lake Erie. By 1994, the mussels had spread through the Mississippi Basin to water bodies in 20 states. Today, zebra or quagga mussels infest at least 24 states, and three provinces (Ontario, Quebec and Manitoba).

Ecology

Each female can produce 1 million eggs per spawning season, or more in waters that are warm throughout the year. After fertilization, larvae emerge within 3-5 days and are free-swimming for up to a month. Larvae disperse by being carried by the currents, then settle to the bottom where they use a foot to crawl about, searching for a suitable hard surface. They attach themselves to the surface with strong threads. Although the juveniles prefer a hard substrate, they have been known to attach to vegetation. As adults, they have a difficult time staying attached when water velocities exceed two meters per second. Mussels can detach and move if conditions change.

Zebra and quagga mussels are filter feeders and can filter one litre of water per day, mainly eating floating algae. Once attached to a hard surface, their life span can range from 3–9 years. Maximum growth rates can reach 0.5 mm/day and 1.5–2.0 cm/year. Adults are sexually mature at 8–9 mm in shell length (i.e. within one year). Zebra mussels attach to any stable substrate: rock, aquatic plants, artificial surfaces (cement, steel, rope, etc.), crayfish, clams, and each other, forming dense colonies.

Effects

Zebra and quagga mussels are notorious for their fouling capabilities by colonizing water supply pipes of hydroelectric and nuclear power plants, public water supply plants, and industrial facilities. They colonize pipes constricting flow, and reducing the intake in heat exchangers, condensers, fire-fighting equipment, and air conditioning and cooling systems. Zebra mussels grew to a density of 700,000/m² at one power plant in Michigan and the diameters of pipes have been reduced by two-thirds at water treatment facilities.



Although there is little information on mussels affecting irrigation, farms and golf course water systems could be susceptible to infestations. Boating can be affected by increased drag from attached mussels. Mussels can get into engines, causing overheating and damage. Navigational buoys have been sunk under the weight of attached mussels. Fishing gear can be fouled if left in the water for long periods. Dock pilings deteriorate faster when they are encrusted with mussels. Continued attachment of zebra or quagga mussels can cause corrosion of steel and concrete, affecting its structural integrity.

Zebra and quagga mussels can have profound effects on the ecosystems they invade. Invasive mussels eat plankton which is a food source for native fish. They also outcompete native clams and mussels, causing those populations to collapse. In the Okanagan, this could be an issue for our endangered Rocky Mountain Ridged Mussel. The invasive mussels are selective feeders, and will reject non-food material, and toxic blue-green algae. Inland lakes with lower nutrient levels have been observed to be more frequently dominated by toxic algae when invaded by zebra mussels. This promotion of blue-green algae in the water can cause toxins to accumulate up the food chain, harming birds and other large animals. This would also affect our drinking water. Zebra mussels removed metals from the water column of Lake Erie and deposited it to the bottom at high rates. Increased water clarity allows light to penetrate further, potentially promoting aquatic plant populations like invasive milfoil. Increased light penetration may also cause water temperatures to rise. Invasive mussels can alter the balance of a lake to go from one with food sources suitable for salmonid and other native species, to one which is dominated by aquatic plants and junk fish.

Okanagan Risks

The federal government has noted invasive mussels have a very high probability of surviving and thriving in Okanagan lakes, and throughout most of B.C. due to water chemistry (high calcium content) and temperature conditions. There would be very negative effects on the Okanagan ecosystem, should an invasion occur. An infestation could have dramatic impacts on in-lake infrastructure, recreational equipment, property values, tourism, and drinking water quality. Invasive milfoil is expected to increase if invasive mussels are introduced. The ecosystem of the lakes is likely to shift in favour of bass, carp and other junk fish species, while becoming less viable for native fish like salmon, and trout.

What we're calling for:

From the Federal government:

- 1) Increased training and funding for CBSA.
 - In 2017, provincial COs visited each land port of entry along the Canada-U.S. border in B.C. CBSA has become an active partner in watercraft inspections, but would benefit from formal inspection training, and increased resources to conduct inspections.
- 2) Increased funding for containment to provinces already mussel-infested (Quebec, Ontario and Manitoba).



- Currently, there is no federal action to contain mussels in source waters.
- 3) Increased funding to mussel-free provinces for prevention.
 - Currently, there is no federal action to support provinces in prevention efforts.
- 4) Commitment to research and education for prevention, containment, control and eradication.
 - Currently, the Aquatic Invasive Species section under the Fisheries Protection Program receives less than \$8 million per year to address all AIS, both marine and freshwater across Canada.
- 5) Continued federal participation in forums to address the mussel issue, such as the intergovernmental Pacific NorthWest Economic Region (PNWER)'s Invasive Species Working Group.
 - July 2017 was the first formal attendance of a federal rep to PNWER, which was welcome. The federal government must continue to be at the table, and provide leadership in a coordinated multi-jurisdictional effort to prevent AIS.

From the Province:

Changes since June 2017 have filled many gaps in B.C.'s inspection regime, as shown by the number of watercraft inspected and the number of high-risk boats stopped. However, several gaps remain. As of September 2017, OBWB is calling for:

- 1) The B.C. government to revise legislation to require all watercraft entering B.C. to report to an inspection centre before launching in provincial waters.
 - This can be achieved by providing more options for boaters who enter the province when roadside inspection stations are closed (see next item).
- 2) Expanded watercraft inspection and decontamination options for all boaters, and increased signage at boat launches to raise awareness of AIS.
 - B.C. should establish year-round inspection and decontamination options at several centralized locations where watercraft can be brought for inspection if they were not stopped at a roadside inspection station, or during hours or seasons when roadside inspection stations are closed. Signage at boat launches should indicate that out-of-province boaters require an inspection prior to launch, and provide information on the nearest inspection station.
- 3) Expanded use of trained mussel detection dogs as part of the Conservation Officer Service K9 program.
 - Sniffer dogs are capable of detecting invasive mussels with far more efficiency than human inspectors. Dogs also enhance the public outreach and education of



invasive mussels. Multi-purpose dogs also enhance enforcement of other provincial conservation laws.

- 4) Invasive infestations to be added as a specified hazard under B.C.'s Emergency Program Management Regulation (EPMR) and that the province's Early Detection Rapid Response plan be recognized as a multi-agency hazard plan under Emergency Management B.C.
 - Currently the EPMR lists some infestations by agricultural pests as a specified hazard; the same could be done for invasive mussels, freeing up resources for a rapid response in the event of an invasive mussel detection.
- 5) Expanded numbers of full-status COs with authority to intercept those who fail to stop at mandatory inspection stations.
 - Currently, 1 in 5 watercraft are failing to stop at mandatory roadside inspection stations. Auxiliary inspectors do not have the resources or authority to intercept those who fail to stop. More full-status COs would enable better enforcement of mandatory inspections.

FAST FACTS:

- A study conducted for the OBWB pegged a mussel infestation in the Okanagan at more than \$43 million a year to just manage. This includes:
 - Added maintenance of in-lake infrastructure (e.g. the Bennett Bridge, water intakes and sewer outfalls, docks, etc.);
 - Risks to drinking water, with the potential for toxic algae blooms;
 - Impacts to tourism with beaches littered with sharp, smelly shells;
 - Lost revenue and property values;
 - Irreparable ecological damage (for example to salmon restoration efforts by the Okanagan Nation, and the federally-protected native Rocky Mountain Ridged Mussel);
 - PNWER (Pacific NorthWest Economic Region) estimates costs of [\\$500 million](#)/year to the Pacific Northwest.
- The mussels, which originate from Europe, spread quickly with a single female able to produce a million eggs per year. (In some regions, the warm water temperatures have allowed for even faster reproduction!)
- At their youngest stage, the mussels are the size of a grain of sand, and at their largest the size of a thumbnail (1.5 to 2 cm).
- The mussels stimulate toxic algae blooms, litter beaches with sharp shells, clog boat motors, foul water intakes and outfalls, put fish and the ecology of lakes at risk, and more.



- There is no proven method to eradicate the mussels once they arrive that doesn't also cause significant environmental impacts.
 - In some instances, agencies have drained a reservoir to help get rid of the mussels. This is not possible with Okanagan Lake.
 - Potash was used in Manitoba, without success. There has been talk about using it elsewhere, however, the Okanagan Basin Water Board has stated that the impacts to the environment and our drinking water makes this option inappropriate for our valley.
- The Water Board is doing all it can within its mandate to prevent the spread of these species into the Okanagan. For example:
 - Launch of the Don't Move a Mussel campaign (www.DontMoveAMussel.ca).
 - Helping local communities and utilities prepare for a possible infestation.
 - Encouraging those with greater authority to do more - ultimately, it is up to senior levels of government to bring in the appropriate laws and enforce them.
- It is illegal to transport zebra & quagga mussels in B.C. – dead or alive – and could cost a \$100,000 fine. The legislation is there, now we need the enforcement.
- In March 2017, the province announced approx. \$4.45 mill in funding for this year's program (\$1.25 mill from BC Hydro, \$250,000 each from Fortis BC, Columbia Power, and Columbia Basin Trust and \$2.45 mill. from the province). The additional funds increased the number of inspection stations to 10 (up from 8). The stations were to operate April 1 to Oct. 31.
Nine of the stations expanded their hours from 8-10 hours a day to "generally dusk to dawn," with the Golden station – the busiest – going to 24 hours a day. The season began with 33 auxiliary conservation officers, same as in 2016, with the province hiring an additional 35 who started in June, bringing the total to 68. The announcement also included \$450,000 over three years to the Habitat Conservation Trust Foundation (HCTF) to increase mussel monitoring in B.C. lakes, additional equipment for the enhanced program, and a multi-purpose dog that can also do mussel detection.

While the OBWB welcomed the funding, it has also voiced concern about the long-term viability of this type of arrangement and has called for permanent funding from the province.
- As of August 21, B.C. had inspected over 28,750 watercraft, identifying 1,627 as high risk, and finding 17 mussel-fouled boats. Inspectors issued 184 decontamination orders, and 156 quarantine orders. **1 in 5 watercraft (20%) fail to stop at mandatory inspection stations.**



- As of June 2015, the OBWB had been conducting invasive milfoil control in the Okanagan for 45 years. At that time, the program had cost Okanagan taxpayers over \$10 million, while the province had contributed less than \$8 million, and none in the last 15 years.

For our part:

- Between 2013 and 2017, the OBWB's Okanagan WaterWise program has spent just over \$226,000 for its Don't Move A Mussel (DMM) initiative, and thanks to in-kind support from several business partners has delivered a program valued at nearly \$717,000.
- The OBWB has also provided \$140,000 between 2013 and 2017 to the Okanagan and Similkameen Invasive Species Society to assist with direct boater outreach, extending the reach of the DMM message.
- For more information on zebra and quagga mussels, the risk to the Okanagan and how to protect our waters, visit www.DontMoveAMussel.ca.