

MINISTRY OF ENVIRONMENT INFORMATION NOTE

July 10, 2013
File: 280-20
CLIFF/tracking #: 196805

PREPARED FOR: Honourable Mary Polak, Minister of Environment

ISSUE: Invasive species management in BC: current program and future opportunities. Parliamentary Secretary Norm Letnick will be attending the Pacific NorthWest Economic Region Annual Summit (July 17, 2013, Anchorage, AK), and invasive species are a specific issue that will be discussed.

BACKGROUND:

Invasive species are the second greatest threat to species and ecosystems in BC, after habitat loss and degradation. Invasive species also impose substantial economic and social impacts, including loss of productivity to agriculture, aquaculture, fisheries, and forestry, impacts on infrastructure, hazards to human health and safety, and degradation of recreational areas such as parks.

The Inter-Ministry Invasive Species Working Group (IMISWG) is the coordinating body for invasive species management in the province, and includes members from over 10 ministries (see Appendix 1 for a complete list). The IMISWG has provided policy direction, coordination, and collaborative delivery of provincial invasive plant programs for the province since 2004, and in recent years has expanded its mandate to include invasive animal species in response to this growing issue.

Invasive species are a cross-border issue and regional management can only be effective through coordination across jurisdictions. The Pacific NorthWest Economic Region has identified invasive species as one issue where regional efforts can be coordinated. Particularly, the prevention of invasive freshwater mussels (zebra and quagga mussels) from becoming established in the Pacific Northwest and BC has become a regional priority due to the significant economic and ecological impacts that they would cause. The purpose of this information note is to provide a background on the current invasive species management program in BC, using zebra and quagga mussels as a case study to highlight current challenges and opportunities that could be addressed through stronger collaboration with our regional partners.

DISCUSSION:

The Ministry of Forests, Lands and Natural Resource Operations (FLNR) delivers an invasive terrestrial plant management program on Crown land. Expertise and lead roles reside with FLNR, Ministry of Transport and Infrastructure (MOTI) and Ministry of Environment - BC Parks for lands under their jurisdiction. The government spent over \$2.2M last fiscal on operational allocations for invasive plant management, and an additional \$1.7M was allocated in regional committee and local government invasive plant partnership grants. There is no equivalent program or funding for invasive terrestrial animals or aquatic animals and plants,

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Early Detection and Rapid Response (EDRR): Early detection and rapid response is the most cost-effective approach to reduce the impact of invasive species. Cross-jurisdictional cooperation is a key tool in preventing the spread of invasive species into new areas. Once established, the cost to contain and control invasive species can be orders of magnitude higher than preventing their introduction, while the chance of successful eradication decreases significantly. The IMISWG has developed an EDRR plan for invasive plant species (2011), and FLNR has dedicated staff to test and refine the processes and develop partnership networks for identifying, detecting, reporting, and responding to new invasive plants in BC.

Opportunities: The EDRR plan was recently expanded to include all species (2013 draft) which will provide the framework for responding to incursions of invasive animal species as well as plants.

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Eradication and Control: The Invasive Plant Program sets and delivers priorities for invasive plant eradication and control on Crown land via government operations and partnerships with external groups. The MOTI delivers its invasive plant program through inter-ministry and external partnerships. The province also partners with external groups to deliver a number of stand-alone initiatives for invasive animals, such as the eradication of bullfrogs in the Okanagan, yellow perch in the Thompson-Nicola and Northern pike in the Kootenays.

¹ This was a key recommendation of the Invasive Species Strategy for BC, released in June 2012.

Education and outreach: Provincial partnerships with the Invasive Species Council of BC (ISCBC), regional committees, and stakeholder groups often create additional resource leveraging opportunities to deliver specific education and outreach activities. The ISCBC social behavioural change initiative ‘Clean, Drain, Dry’ has raised awareness about the unintentional movement of invasive species, such as zebra and quagga mussels, on boats and fishing equipment.

Case study: Zebra and quagga mussels

One of the biggest invasive species risks to the province are zebra and quagga mussels, two freshwater species that re-engineer entire ecosystems. This case study provides an excellent example of the challenges, opportunities and critical program elements needed to address all invasive animals in BC. Where introduced these mussels attach to any hard surface, clog water pipes in hydrodams, municipal water supplies and irrigation systems, causing significant economic damage. The risk of accidental introduction is high as mussels readily attach to boats and can survive overland transport on trailered boats over long distances. A recent review of economic impacts of zebra mussels in the eastern US estimated \$268M in zebra mussel-related impacts just to drinking water and power plant facilities from 1989 to 2004. A recent economic risk assessment commissioned by the province estimates potential annual damages of \$21.7M to hydro and water facilities as well as recreational boaters in BC.

A recent DFO-led ecological risk assessment identified large areas of BC at high risk from zebra and quagga mussel introduction. They will significantly impact lake rearing species such as sockeye salmon that depend on planktonic food sources in their earlier life. The establishment of these mussels in BC could affect the viability of a large number of important commercial, recreational and First Nation fisheries. It also identified major impacts on BC’s native mussel species, including COSEWIC listed Rocky Mountain Ridged Mussel.

BC has signed onto the Columbia River Basin Invasive Species Rapid Response Plan, which is a collaborative agreement with US agencies focussed on preventing zebra and quagga mussels from becoming established in the Columbia basin. The province has been alerted to a number of mussel-infested boats heading to BC every year, through

participation in this cross-jurisdictional plan. In response to the realised risk of invasion by species such as zebra and quagga mussels and snakehead fish, the province recently amended the Controlled Alien Species regulation under the *Wildlife Act* to prohibit the possession and transportation of these and other high risk aquatic species within the province, which allows Conservation Officers to enforce decontamination of boats or equipment that might harbour mussels. However, the province does not have the regulatory authority to ban the importation of mussels from other jurisdictions, which is a federal responsibility under the *Fisheries Act*.

As awareness of the risk of zebra and quagga mussels to BC's economy and fisheries is increasing amongst stakeholders, particularly after a boat, imported from Nevada, with quagga mussel shells attached was launched in Shuswap Lake last summer. While investigation of that incident showed that the mussels were dead, there is an increasing expectation that we will respond to this threat with an effective prevention and outreach program paired with a clear rapid response strategy. The province has received several letters from stakeholders like the Okanagan Basin Waterboard requesting us to take effective action against invaders that present a significant threat to aquatic resources.

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Reviewed by	Initials	Date
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DM		
DMO		
ADM	MZ	July 12/13
Exec Dir.	TD, A/Exec Dir	July 10/13
Mgr.	TD	July 10/13
Author	DPS/LMH	July 10/13

Appendix 1: Inter-Ministry Invasive Species Working Group membership.

Regular Members: *Representatives from ministries/commissions that regularly participate in the ongoing business of the IMISWG.*

- Ministry of Agriculture (AGRI) – Plant and Animal Health Branch.
- Ministry of Community, Sport and Cultural Development (CSCD) – Intergovernmental Relations and Planning Branch.
- Ministry of Energy and Mines (MEM) – Mine Health, Safety and Permitting Branch.
- Ministry of Environment (MOE) – BC Parks; Ecosystems Branch.
- Ministry of Forests, Lands and Natural Resource Operations (FLNR) – Range Branch; Resort Development Branch.
- Ministry of Transportation and Infrastructure (MOTI) – Engineering Branch.
- Royal British Columbia Museum (RBCM) – Collections Care & Conservation.

Associate Members: *Representatives from other ministries/commissions that will be asked to participate as needed from time to time.*

- Ministry of Aboriginal Relations & Reconciliation (MARR) - Lands and Resources Branch.
- Ministry of Education (EDUC) – Learning Division.
- Ministry of Environment (MOE) – Environmental Management Branch.
- Ministry Forests, Lands and Natural Resource Operations (FLNR) – Resource Practices Branch.
- Agricultural Land Commission (ALC).
- Oil & Gas Commission (OGC).

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#	OBJECTIVE	RISK EVENT	RISK CAUSE	IMPACT/ CONSEQUENCE	EXISTING MITIGATIONS	L (1-5)	C (1-5)	SUM	RISK RATING	ADEQUACY OF EXISTING MITIGATIONS	ACTION
Environmental Sustainability and Strategic Policy Division (ESSPD)		Increased risks from invasive species	Reduced and insufficient staff and financial resources available for species management, which is both complex and resource-intensive Increased mobility of the public and increased international trade threaten to spread more invasive species more broadly and frequently Inherent difficulty in verifying and enforcing compliance with existing invasive species controls, legislative gaps persist as there is no comprehensive provincial legislation to address this risk s.13, s.16	Damage to native species and ecosystems Damage to infrastructure requiring ongoing, substantially increased maintenance costs (e.g. zebra mussels clogging water intakes at water treatment, irrigation and hydro facilities) Requires resources to be diverted from other program areas Loss of public confidence (e.g. the establishment and spread of fire ants will have an impact on property values for property owners in affected areas) Economic impacts to industries (forestry, agriculture, commercial and recreational fisheries, hydroelectric generation) vary from minor to major (e.g. if zebra or quagga mussels become established in BC they could decimate sockeye salmon and kokanee fisheries as a result of the irreversible ecological changes they could induce) <i>Note that risk rating is based on examples where impact significance would be high.</i>	An Inter-Ministry Invasive Species Working Group has been established that has developed Invasive Species Strategies, a vision for comprehensive over-arching legislation and tools such as an Early Detection and Rapid Response Plan for invasive plants and animals The Premiere signed BC onto the Columbia River Basin Interagency Response Plan for invasive mussels (includes all US jurisdictions and relevant federal agencies in the Columbia Basin) which creates an important communication network for early detection and rapid response as well as sharing of science and policy approaches The Controlled Alien Species Regulation has been amended to ban the possession, transportation and sale of a number of high-risk aquatic invasive species including snakeheads, Asian carps and invasive mussels Economic impact studies are being conducted to further evaluate the risks and to identify the most significant pathways of invasion that need to be addressed Partnerships have been established with industry and stewardship groups (the BC Invasive Species Council) to support monitoring and public outreach programs s.13, s.16	5	3	15	HIGH	The overall framework is developed, the risks are understood but the resources to implement prevention and management programs for species other than weeds and plant pests are grossly inadequate. Requires more comprehensive legislation and a high level of coordination across all levels of government (federal / provincial / municipal) with a high level of engagement with First nations and stewardship communities.	Focus on prevention of new invasive species through a combination of clear legislation, public outreach (social marketing) and coordinated approach to 'early detection and rapid response' programs.

Not Responsive

Pages 9 through 10 redacted for the following reasons:

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Reference: 188815

APR 02 2013

Stu Wells
Chair
Okanagan Basin Water Board
1450 KLO Road
Kelowna BC V1W 3Z4

Dear Mr. Wells:

Thank you for your well-informed letter of February 5, 2013, regarding the risks to British Columbia (BC) posed by invasive zebra and quagga mussels. I am pleased to respond on behalf of my colleague, the Honourable Steve Thomson, Minister of Forests, Lands and Natural Resource Operations, and am copying this response to the federal ministers who also received your letter.

The Province of BC recognizes the risk these freshwater mussels pose to BC's environment and economy and we have taken a number of actions to both raise awareness of the issue and to develop important collaborations to prevent invasive mussels from establishing a foothold in BC:

- BC, in collaboration with other western provinces, requested an ecological risk assessment of zebra and quagga mussels for western Canada from Fisheries and Oceans Canada (DFO), which took place in early 2012 and highlighted the potential ecological impacts.
- The Province is working with the Invasive Species Council of BC who are delivering the 'Clean Drain and Dry' program to educate boaters on the risks posed by aquatic hitchhikers and how to prevent their spread.
- The Province is conducting zebra and quagga mussel monitoring and early detection sampling across BC in collaboration with DFO and hydropower companies.
- BC is signatory to the Columbia River Basin Zebra and Quagga Mussel Rapid Response Plan with United States federal, state and aboriginal agencies. This collaboration includes shared rapid response exercises as well as notifications of infested boats en route to BC, resulting in contaminated boats being intercepted every year before they are able to enter BC waters.

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Ministry of
Environment

Office of the
Minister

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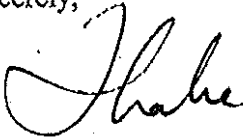
- We have encouraged DFO to include a ban on the importation of zebra and quagga mussels into Canada (that could be enforced by Canadian Border Services) as part of the proposed federal Aquatic Invasive Species regulation.

Most recently, we have made important changes to the Controlled Alien Species Regulation under the BC *Wildlife Act* to increase our ability to respond to mussel infested boats (<http://www.env.gov.bc.ca/fw/wildlifeactreview/cas/>). It is now illegal to have or transport boats, trailers or other equipment with attached mussels in BC. Under the amended regulation, Conservation Officers have the power to inspect and order decontamination of suspect boats.

Provincial staff biologists are working with the Conservation Officer Service and other partners to develop an implementation plan for these regulation changes, which will include consideration of road checks within BC. We will continue to engage with our federal partners with the aim of having a collaborative and coordinated approach to preventing invasive mussels from becoming established in BC.

Thank you again for writing and your support for a proactive program to protect BC's environment and vital infrastructure.

Sincerely,



Terry Lake
Minister of Environment

cc: The Honourable Keith Ashfield, PC, MP, Minister of Fisheries and Oceans
The Honourable Peter Kent, PC, MP, Minister of the Environment
Honourable Steve Thomson, Minister of Forests, Lands and Natural Resource
Operations



Reference: 190247

APR 02 2013

Robert Hobson, Chair
and Directors
Regional District of Central Okanagan
1450 KLO Road
Kelowna BC V1W 3Z4

Dear Chair Hobson and Directors:

Thank you for your letter of March 18, 2013, regarding the risks to British Columbia (BC) posed by invasive zebra and quagga mussels. I am pleased to respond on behalf of my colleague, the Honourable Steve Thomson, Minister of Forests, Lands and Natural Resource Operations, and am copying this response to the federal ministers who also received your letter.

The Province of BC recognizes the risk these freshwater mussels pose to BC's environment and economy and we have taken a number of actions to both raise awareness of the issue and to develop important collaborations to prevent invasive mussels from establishing a foothold in BC:

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Sincerely,



Terry Lake
Minister of Environment

cc: The Honourable Keith Ashfield, PC, MP, Minister of Fisheries and Oceans
The Honourable Peter Kent, PC, MP, Minister of the Environment
Honourable Steve Thomson, Minister of Forests, Lands and Natural Resource
Operations



Reference: 194402

MAY 10 2013

His Worship Mayor Walter Gray
and Councillors
City of Kelowna
1435 Water Street
Kelowna BC V1Y 1J4

Dear Mayor Gray and Council:

On behalf of the Honourable Terry Lake, Minister of Environment, thank you for your letter of April 19, 2013, regarding the risks to British Columbia (BC) posed by invasive zebra and quagga mussels. I am pleased to respond on behalf of the Ministry of Environment and the Ministry of Forests, Lands and Natural Resource Operations, and am copying this response to the federal ministers who also received your letter.

The Province of BC recognizes the risk these freshwater mussels pose to BC's environment and economy and we have taken a number of actions to both raise awareness of the issue and to develop important collaborations to prevent invasive mussels from establishing a foothold in BC:

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Thank you again for writing and your support for a proactive program to protect BC's environment and vital infrastructure.

Sincerely,



W.H. (Wes) SHOEMAKER
Deputy Minister

cc: The Honourable Keith Ashfield, PC, MP, Minister of Fisheries and Oceans
The Honourable Peter Kent, PC, MP, Minister of the Environment
Dave Peterson, Acting Deputy Minister, Ministry of Forests, Lands and Natural
Resource Operations



Reference: 195308

His Worship Mayor Doug Findlater
and Councillors
District of West Kelowna
2760 Cameron Road
West Kelowna BC V1Z 2T6

Dear Mayor Findlater and Council:

On behalf of the Honourable Terry Lake, Minister of Environment, thank you for your letter of May 1, 2013, regarding the risks to British Columbia (BC) posed by invasive zebra and quagga mussels. I am pleased to respond on behalf of the Ministry of Environment and the Ministry of Forests, Lands and Natural Resource Operations, and am copying this response to the federal ministers who also received your letter.

The Province of BC recognizes the risk these freshwater mussels pose to BC's environment and economy and we have taken a number of actions to both raise awareness of the issue and to develop important collaborations to prevent invasive mussels from establishing a foothold in BC:

- BC, in collaboration with other western provinces, requested an ecological risk assessment of zebra and quagga mussels for western Canada from Fisheries and Oceans Canada (DFO), which took place in early 2012 and highlighted the potential ecological impacts.
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Thank you again for writing and your support for a proactive program to protect BC's environment and vital infrastructure.

Sincerely,



W.H. (Wes) SHOEMAKER
Deputy Minister

cc: The Honourable Keith Ashfield, PC, MP, Minister of Fisheries and Oceans
The Honourable Peter Kent, PC, MP, Minister of the Environment
Dave Peterson, Acting Deputy Minister, Ministry of Forests, Lands and Natural
Resource Operations



Reference: 196936

SEP 25 2013

Stu Wells, Chair
and Board Members
Okanagan Basin Water Board
1450 KLO Road
Kelowna BC V1W 3Z4

Dear Mr. Wells and Board Members:

Thank you for your letter of July 17, 2013, which was also addressed to the Honourable Christy Clark, Premier, and my colleague, the Honourable Steve Thomson, Minister of Forests, Lands and Natural Resource Operations, regarding the prevention of the spread of zebra and quagga mussels into British Columbia (BC). As Minister of Environment, I am pleased to respond on behalf of Premier Clark and Minister Thompson and I apologize for the delay in doing so.

I appreciate your concern regarding the potential environmental and economic impacts of zebra and quagga mussels to BC waters, and want to assure you that I share your concerns. The Province of BC is working on several actions to prevent the introduction of invasive mussels, which, I understand, were addressed in detail in a letter dated April 2, 2013, from the Honourable Terry Lake, former Minister of Environment.

As you note, a rigorous inspection system at the Canada/US border will form a significant component in BC's prevention efforts.

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As part of our ongoing actions, training is being provided to a range of enforcement staff, with the focus on the identification and response to potential boats with zebra or quagga mussels attached. This training has been delivered to BC Park Rangers and Conservation Officers, with further training for the Canadian Border Service Agency staff, Natural Resource Officers and Fisheries Officers being planned.

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A training manual has been provided to the Invasive Species Council of BC as well as some of the regional invasive species and weed councils explaining the new regulation and providing information on how to effectively respond to contaminated boats. As part of the response the provincial Conservation Officer Service Report All Poachers and Polluters (RAPP) Hotline has been set up to deal with calls regarding mussel infested boats.

The new procedures for boat inspection have also been field tested during a two-day boat inspection blitz on July 4 and 5, 2013, in the Okanagan.

I appreciate your positive response to the recent letter regarding some revisions of the Okanagan Basin Water Board (OBWB) funded report "Limiting the Spread of Aquatic Invasive Species into the Okanagan" and am looking forward to sending a more consistent message to the public.

I commend you on the great work the OBWB is doing to prevent the introduction of zebra and quagga mussels into the Okanagan basin, a common goal of the Province and the OBWB.

Thank you for taking the time to write.

Sincerely,



Mary Polak
Minister

cc: Honourable Christy Clark, Premier
Honourable Steve Thomson, Minister of Forests, Lands and Natural Resource
Operations