

**MINISTRY OF ENVIRONMENT
MEETING INFORMATION NOTE**

July 15, 2014
File: 280-20
32910-30
CLIFF/tracking #: 207703

PREPARED FOR: Honourable Mary Polak, Minister of Environment

DATE AND TIME OF MEETING: July 24, 2014 at 9:00am

ATTENDEES: Minister Polak, Deputy Minister Wes Shoemaker, Assistant Deputy Minister Jim Standen, Executive Director Jim Hofweber, Environmental Emergencies Director Graham Knox, Project Lead Angie Poss and Senior Policy Analyst Ben Vander Steen. CEPA: Vice President Philippe Reicher and support staff.

ISSUE(S): The Canadian Energy Pipeline Association (CEPA) will brief Minister Polak and project team on their response to the Ministry's intentions paper on land based spill preparedness and response.

BACKGROUND:

CEPA is one of many stakeholder associations planning to submit comments to the Ministry's public consultation process on a proposed new spill preparedness and response regime for the land base. The consultation period closes July 25. Many associations, particularly those representing industry, plan to submit their comments at the end of the consultation period to maximize their time to consult with their members.

In March, CEPA presented the Ministry with a formal report (attached) outlining a voluntary alternative to the new regime being developed by the Ministry. This paper was a partnership with the Railway Association of Canada in consultation with Western Canada Marine Spill Response Services and Western Canada Spill Services.

DISCUSSION:

Over the past 18 months, CEPA has expressed concern about the necessity and elements of a world class spill response system in B.C. It should be noted that several individual member companies of CEPA have different positions than that of the organization as a whole. Several companies, including those already operating in B.C. and those with resource projects pending, have *informally* expressed support for stronger regulations and feel any potential cost increases related to the new regime could be either mitigated or absorbed without negatively impacting their business case. CEPA is expected to raise the following points in their response to the intentions paper:

ISSUE: Voluntary measures vs. regulatory oversight

CEPA has consistently expressed a preference for voluntary spill response measures including an industry steering committee, in-house training and exercising of response plans and industry discretion in determining response actions, restoration activities and

end points once a spill has occurred. Several industry organizations and companies have expressed that voluntarily exceeding (existing) regulations contributes to their corporate branding and social license.

RESPONSE: s.13

s.13

ISSUE: Funding and cost implications

1) CEPA and the Canadian Association of Petroleum Producers (CAPP) have both asserted that any costs associated with an improved provincial spill preparedness and response regime should be covered by the Province using revenue from industry taxes and royalties. CEPA and CAPP further assert that costs incurred by communities in preparing for and responding to spills should be borne using revenue from industry property taxes. 2) Incremental cost increases associated with an improved regime are also a concern for several industry sectors consulted in developing the intentions paper proposals. 3) Concerns about other jurisdictions following B.C.'s lead in strengthening their requirements, leading to cost increases for operations across North America.

RESPONSE:

s.13

ISSUE: Perceived duplication

CEPA members are subject to regulation by the National Energy Board, BC Oil and Gas Commission, and potentially other federal regulators depending on the scope and scale of their operations. Recent proposed or pending legislative changes by the National Energy Board and Transport Canada have heightened sensitivity that B.C.'s world leading regime will duplicate existing regulations.

RESPONSE:

s.13,s.16

ISSUE: Perceived lack of gaps within current system

Both CEPA and CAPP have requested MoE perform a gap analysis.

RESPONSE:

s.13

Attachments: 1A: World Leading Land Based Spill Preparedness and Response in British Columbia: The Perspective of Large Liquid Hydrocarbon Transporters.

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DM	-	-
DMO	VJ	July 21/14
ADM	JS	July 21/14
Exec.Dir.	JH	July 15/14
Author	AP	July 15/14

**MINISTRY OF ENVIRONMENT
MEETING INFORMATION NOTE**

July 14, 2014

File:

CLIFF/tracking #: 208298

PREPARED FOR: Honourable Mary Polak, Minister of Environment

DATE AND TIME OF MEETING: July 18th 3pm in Vancouver (exact location TBC)

ATTENDEES: Representative(s) of the Canadian Geothermal Association

ISSUE(S): To discuss the benefits of Geothermal Energy for British Columbia --
May 8, 2014 correspondence to Minister Polak.

BACKGROUND:

Geothermal energy is thermal energy generated and stored in the Earth, and has demonstrated value as a renewable source of heat and power for residential and commercial buildings. British Columbia (BC) is situated on the Pacific Ocean "Ring of Fire" volcanic network and has several volcanic regions with potential geothermal resources.

Although the up-front capital and exploratory costs are high, geothermal energy has low operational costs, leaves a relatively small ecological footprint, and can potentially provide firm energy (i.e., constant baseload) for an indefinite period of time.

The National Geothermal Energy Program (between 1976 and 1986) identified many potential geothermal sites in BC. At Mcager Creek, several wells were drilled in the 1980s under this Program. Today, there are a total of five geothermal permits in the Province and one geothermal lease active in BC:

- Borealis GeoPower is involved as a permit holder in two geothermal prospects in BC:
 - In October 2013, Borealis renewed only one of three permits at Canoe Reach, south of Valemount; and
 - In January 2014, with Kitselas First Nation and Enbridge partners, Borealis was awarded a geothermal permit at Lakelse Lake, south of Terrace.
- There are three permits near Mount Meager, and a geothermal lease held by Ram Power at Mount Meager, as a result of the federal program in the 1980s (above).
- All of the above are still in the exploration stage.

The Ministry of Energy and Mines and the Oil and Gas Commission are currently working to streamline the regulatory framework for geothermal energy in BC.

The Minister is scheduled to meet with representative(s) of the Canadian Geothermal Association (CanGEA). CanGEA was founded in 2007. Its main activity is political advocacy. Alison Thompson, who corresponded with Minister Polak on May 8th, is the Chair of the Canadian Geothermal Association. Most recently, Borealis GeoPower, an

active corporate member of the Canadian Geothermal Energy Association out of Calgary, met with Honourable Shirley Bond in May 2014.

DISCUSSION:

It is anticipated that CanGEA will speak to the key points they have made (geothermal opportunities and benefits in BC) in the correspondence sent to the Minister's Office on May 8, 2014:

1. Using geothermal to power prospective LNG terminals;
2. Supporting the BC Jobs Plan over and above traditional means of electricity generation;
3. Addressing existing deficiencies in the province's geothermal regulatory processes;
4. Supporting mineral sharing agreement negotiations with First Nations;
5. Helping to stabilize power rates; and
6. Providing firm but flexible power to existing transmission infrastructure.

CanGEA's position is that BC has significant geothermal potential that is not being realized, particularly considering the level of activity in other parts of the world, including the western states in the U.S. and Mexico.

CanGEA has recommended that geothermal companies be subject to corporate income taxes and that no royalties should be levied on geothermal energy (A royalty scheme for geothermal is not in place). CanGEA is completing a favourability study of geothermal energy in BC, with funding from GeoScienceBC. GeoScienceBC has received the report and is currently assessing the data.

Barriers to the exploration and development of geothermal energy in BC include the high up-front cost and risk of exploration, and the length of exploration and development timelines. However, geothermal plants, once a resource has been identified, can continuously deliver firm power with very low operating costs.

SUGGESTED RESPONSE:

s.13

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Reviewed by	Initials	Date
DM	-	-
DMO	VJ	July 16/14
A/Head, CAS	TL	July 14/14
Exec Dir	LL	July 14/14
A/Mgr.	EK	14.07.14
Author	TS	14.07.14

**MINISTRY OF ENVIRONMENT
MEETING INFORMATION NOTE**

Date: July 4, 2014
File: 50400-25/BEV- BDL
280-20
CLIFF/tracking #: 208234

PREPARED FOR: Honourable Mary Polak, Minister of Environment

ISSUE(S): Concerns with Brewers Distributed Limited (BDL) PPP stewardship plan

BACKGROUND:

Brewers Distributor Ltd. (BDL) is a private joint-venture company owned by Labatt Breweries of Canada and Molson Breweries (aka Canada's National Brewers) for the wholesale distribution of beer and the collection of all brands of domestic beer, cider and cooler bottles and imported and domestic beer cans within BC.

BDL runs one of the two deposit-refund beverage container based EPR programs under BC's Recycling Regulation. Encorp Pacific Canada (Encorp) operates the other program.

On May 19, 2011 the Recycling Regulation was amended to include the Packaging and Printed Paper (PPP) Product Category requiring that a stewardship program be implemented on May 19, 2014 for products as listed in Schedule 5 of the Regulation.

BDL's draft stewardship plan for PPP for secondary packaging (ie: beer cases, plastic can rings, caps) was submitted by November 19, 2012. Since then, there have been ongoing negotiations with BDL with respect to their PPP plan, however staff remain unable to recommend approval of BDL's plan as it fails to meet most criteria for approval under the Recycling Regulation.

DISCUSSION:

BDL's proposed PPP stewardship program is based on the same collection infrastructure as their deposit-refund beverage container return program. Currently BDL's collection system includes: 646 private retail liquor stores, 195 government liquor stores, 231 rural agency stores, and 69 private bottle depots.

BDL asserts that beer secondary packaging is already returned through these same channels, primarily return-to-retailer, claiming the consumer tends to bring back bottles/cans in their original packaging (boxboard for flats, cardboard cases for bottles, etc.).

However, experience with the flow of deposit-refund beverage containers does not support this claim that return to retail is the primary bottle return channel: In 2012 it was estimated that more than 85% of all of BC's deposit-refund beverage containers flow through the bottle depot system; more than 2/3rds of BDL's products in particular.

Additionally, Multi-Material BC (MMBC), after their first month of operation, estimates that they are receiving roughly five times the expected volume of secondary beer packaging at their contracted depots. This corroborates the above data and suggests not only bottles, but beer secondary packaging flows through depots, not retailers, as the primary collection channel.

Further concerns with BDL's reliance on the return to retail collection channel are highlighted by the Liquor Distribution Branch (LDB), who have expressed concern with their identified role as one of BDL's major collection channels in BDL's PPP plan. LDB has clearly stated it does not want to participate in BDL's PPP plan or encourage the public to bring in more volume or additional types of packaging. (Refer to Attachment # 1)

BDL's return to retailer collection system has also created the climate for "discounting" among the bottle depot network in BC (refer to Attachment 2: Briefing Note on Discounting). The impact is estimated to be \$3 million annually in denied refunds to frustrated and confused consumers.

Ministry staff have been working directly with BDL since February 2013 to resolve the issue of discounting BDL products. Although some enhancements to their return collection network have been made by the addition of BDL-certified depots, BDL still only contracts with less than half of the depot network in BC.

Additional challenges exist with the contract and compensation between BDL and the LDB, that acts as one of the three beverage container collection channels for BDL. LDB estimates that if adequately compensated, they would receive an additional \$3.4 million/year in handling fees, which they are currently absorbing, and by extension so is the taxpayer.

As a result LDB and BDL have a strained relationship which has only recently improved, with the two parties meeting to discuss container handling fees compensation July 9, 2014. LDB's refusal to play a role in BDL's PPP stewardship plan will not be a topic as LDB has indicated its position with respect to its role in BDL's plan has not changed from that stated in their letter.

Return of BDL products and associated packaging are closely linked. BDL currently has little motivation to change an established system for beverage containers that has a high recovery rate and low costs, and not simply try to replicate it for PPP. However, the Ministry cannot approve BDL's PPP plan, which is based on the same collection system, unless major changes are made to BDL's system and plan as they do not meet the requirements of the Recycling Regulation.

NEXT STEPS:

To resolve this requires a coordinated and sustained government approach involving MOE and LDB.

Attachment 1: Liquor Distribution Branch letter to BDL – February 12, 2014

Attachment 2: Information Note on Discounting CLIFF # 195744 – June 2, 2013

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Author	MA	03/07/14

**MINISTRY OF ENVIRONMENT
MEETING INFORMATION NOTE**

July 15, 2014
File: 280-30
CLIFF/tracking #: 208315

PREPARED FOR: Honourable Mary Polak, Minister of Environment

DATE AND TIME OF MEETING: July 24th at 10:45 am via Telepresence at PVO/Superior

ATTENDEES: Honourable Mary Polak, Minister of Environment
Mining Association of BC staff:

- Karina Brino, President & CEO
- Angela Waterman, VP, Environment & Technical Affairs
- Bryan Cox, VP, Corporate Affairs

ISSUE: Meeting with the Mining Association of BC on their interests related to the Minister's 2014 Mandate Letter.

BACKGROUND:

The Mining Association of BC (MABC) focuses on actively representing the BC mining industry on several key issues of public policy including aboriginal and community relations, environment, competitiveness and the Towards Sustainable Mining initiative. In 2013, B.C.'s mining sector contributed \$8.5 billion to the provincial economy and as one of the highest paying trade industries, directly employed more than 10,000 British Columbians.

DISCUSSION:

MABC has indicated that they are interested in working with the Minister on the initiatives that were outlined in the Minister's 2014 mandate letter from the premier. Specific issues mentioned include: the implementation of the *Water Sustainability Act*; developing a provincially designated protected area in the Klappan; the provincial roundtable on improving environmental protection and economic development in British Columbia, and B.C.'s Caribou protection and recovery strategies.

Karina Brino, President and CEO of the Association requested the meeting with the Minister to discuss their interests in these initiatives (Attachment 1: Letter from MABC).

SUGGESTED RESPONSE:

s.13

Attachments: Attachment 1: Letter from MABC

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DM	-	-
DMO	VJ	July 17/14
ADM	MZ	July 16/14
Executive Dir.	AD	July 16/14
Director	LP	July 16, 2014
Author	LJF	July 16, 2014

**MINISTRY OF ENVIRONMENT
INFORMATION NOTE**

Date: July 15, 2014
File: 280-20
CLIFF/tracking #: 208240

PREPARED FOR: The Honourable Mary Polak, Minister of Environment

ISSUE: Pacific Northwest Economic Region Invasive Species Session

BACKGROUND:

The Pacific Northwest Economic Region (PNWER) has recognized invasive species as a significant threat across its member jurisdictions and has included invasive species sessions since 2009. This session will begin with a focus on invasive zebra and quagga mussels followed by the legislative panel with confirmed representatives, Sen Jim Honeyford WA, Rep Bill Kenenmer OR, Rep Mike Cuffe MT, Rep Paul Seaton AK, MLA Alana DeLong AB, MLA Herb Cox SK, attending. The afternoon will focus on initiatives to prevent, control and eradicate invasive species including, plants, ants, rats and others. See agenda in Attachment 1.

Invasive species are a significant threat to biodiversity in BC and impose substantial economic and social impacts. The province delivers an invasive plant program on Crown Land but no equivalent program exists for terrestrial or aquatic animal species. Recent near-misses (e.g. Quagga Mussels, Snakehead Fish) and high profile invasions (e.g. European Fire Ant) have raised public awareness of invasive species impacts and prompted partners and stakeholders to call for effective action in response to this growing issue.

The BC Inter-Ministry Invasive Species Working Group is working towards a comprehensive provincial invasive species program, including terrestrial and aquatic animals and plants. Its goals are to prevent future establishment of new invasive species, reduce the socio-economic and environment impacts of already introduced invasive species, and guide their ongoing management.

MoE has developed a 'Managing Invasive Animal Species: A Provincial Action Plan' (Attachment 2) to outline a path forward to a more comprehensive provincial program to address invasive animal threats.

PNWER representatives have recently focused on the threat of an invasive mussel incursion into the Pacific Northwest. The confirmation last fall of the westward expansion of zebra mussels to Lake Winnipeg, Manitoba, along with the arrival of a mussel encrusted boat at the Osoyoos border crossing in May has further elevated the risk in the region and within BC.

Risk assessments for BC support these concerns, as zebra and quagga mussels will not only impact BC freshwater environment and associated recreational and commercial fishing opportunities, but also impact municipal water supplies, agricultural irrigation and

recreational boating with a minimum of \$28.2 million per year (see attached factsheet, Attachment 3)

At least 13 letters to the BC's Premier, Ministers, and MLAs have been received in the past four months from municipalities, regional districts and water boards, asking for immediate action to protect BC's freshwater from the introduction of zebra and quagga mussels.

PNWER also wrote a letter to the federal and all provincial governments in western Canada, including BC, requesting immediate action to prevent the introduction of zebra and quagga mussels to the region (Attachment 4), through boater education and inspection, containment of the Lake Winnipeg infestation, and a federal prohibition of the transport of zebra and quagga mussels. For BC's response see Attachment 5.

In 2009, the province signed onto the Columbia River Basin Invasive Species Rapid Response Plan, which is a collaborative agreement with US federal and state agencies focused on preventing zebra and quagga mussels from becoming established in the Columbia basin. Through participation in this international, cross-jurisdictional plan, BC has been alerted to a number of mussel-infested boats heading to the province every year.

BC's eastern border is unprotected from the movement of any potentially infested watercraft being transported from Eastern Canada or the USA. Alberta initiated a voluntary watercraft inspection station approach in 2013, with expanded plans for 2014 to focus on their eastern and southern borders in light of the zebra mussel expansion to Manitoba. The estimated costs for a boat inspection and mussel prevention program in BC range from \$0.9 to \$2.9 million annually, depending on the comprehensiveness of the coverage. s.16

s.16

On May 7th a delegation of PNWER met with various Ministers and Executive members in Victoria to discuss, among other issues, invasive species with a particular focus on establishing a strong defense network to prevent the introduction of zebra and quagga mussels to the region.

At the PNWER visit to Ottawa in June the Minister Jerry Ritz, federal Minister of Agriculture, suggested that PNWER work with the three western provinces to develop a joint 'Growing Forward 2' (GF2) proposal to address the issue in a collaborative way with SK, AB, and BC.

DISCUSSION:

Matthias Herborg, BC's Aquatic Invasive Species Specialist, MoE, will be presenting the current actions BC, AB, and SK are taking to prevent the introduction of zebra and quagga mussels at the PNWER invasive species session. He will highlight the opportunities for these provinces to collaboratively and effectively prevent the introduction of these species into our region.

Government has an urgent, small window of opportunity to prevent future substantive mussel related impacts to the environment and to all forms of industry that rely on raw water sources.

Long established zebra and quagga mussel prevention programs in the Columbia River Basin have proven effective, and can serve as a model for establishing a similar program in western Canada. The key components, prevention, monitoring, early detection and rapid response and education and outreach, have all been tried and tested by other jurisdictions and can be readily adapted in BC.

The western provinces are in a unique position as all are in the early stages of developing a prevention program, therefore now is the time to ensure there is effective coordination across the region.

The opportunity to be raised at the PNWER meeting, and likely a central issue at the legislative discussion, will be the development of an effective regional defense program. Through the New West Partnership BC, AB, and SK could submit a Growing Forward 2 (GF2 – see below) proposal that would strengthen each provinces individual programs. The components would be outreach, monitoring, prevention and rapid response. The proposal should also incorporate the concept of a perimeter defense, where dedicated resources will be focused on stopping infested boats coming into the region through increased surveillance at the eastern border of SK. This assumes the international boundary will be protected through federal regulation and implemented by Canadian Border Services (see below).

The western provinces are also collaborating closely with the US member states of PNWER, and our US partners are pursuing similar funding opportunities to strengthen their perimeter defense. Through PNWER we can ensure this multi-jurisdictional collaboration is supported by legislators.

Regional collaboration and coordination on training, outreach, boat inspection programs and rapid response approaches are already under way, but could be greatly increased through additional GF2 funding. In particular, BC does not currently have a boat inspection program. Additionally, the three provinces would coordinate with Manitoba as well as our southern neighbors. The US states in the PNW are currently developing a similar approach, enforcing existing programs along the perimeter of the southern invasion front.

Growing Forward 2 is a Federal/Provincial grant program that is administered under the Federal Ministry of Agriculture, and given the impacts of zebra and quagga mussel to irrigation, this proposal would fit under the biossecurity objective. GF2 will fund up to 60% of program costs.

BC is well positioned to increase its zebra and quagga mussel prevention effort. Under the Controlled Alien Species Regulation (*Wildlife Act*) the possession, transport and release of live or dead zebra and quagga mussels is banned in BC. The province has also funded the Invasive Species Council of BC to deliver 'Clean Drain and Dry' which is a social marketing program aimed at recreational boaters. The province has delivered

training to internal and external enforcement agencies on the new regulations and is also finalizing an Early Detection and Rapid Response Plan for these species.

s.13,s.16

The provincial government has a pivotal role in preventing the introduction of new invasive species into BC, especially those that will create substantive, irreversible ecosystem and economic impacts such as zebra and quagga mussels. Preventative actions provide the biggest return on expenditure, eliminating future costs to control and resultant impacts to our resources and economy. Invasive mussels pose the greatest invasive animal threat to BC.

Attachments:

- 1 – Invasive Species Session Agenda
- 2 – Invasive Animal Action Plan
- 3 – Factsheet – Invasive quagga and zebra mussels
- 4 – PNWER – Invasive species letter
- 5 – Response – PNWER Invasive species letter

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DM	-	-
DMO	VJ	July 16/14
ADM	MZ	July 16/14
Dir./Mgr.	TD/EL	July 15/14
Author	MII	July 14/14

Pacific North West Economic Region

Invasive Species 1

Speaking Points – The Honourable Mary Polak, Minister of
Environment

Tuesday, January 22, 2014

Opening remarks

It is a pleasure to be here today to discuss such an important topic to our environment, our economy and the people of the region. Invasive species are a threat across British Columbia, the PNWER area represented here today and North America.

Collective action and cooperation is the only way to tackle this issue, and I am pleased it has taken on a high profile role at the PNWER Summit.

I want to thank Matthias Herborg, Aquatic Invasive Species Specialist at the B.C. Ministry of Environment, who we heard from earlier. He has a big job at the ministry, and unfortunately it is growing. It is only through networks such as this and coordination at the municipal, state, provincial and federal levels that we will have the resources to deal with the serious issue of invasives.

This morning, most of the focus is on zebra and quagga mussels, but I know there is an opportunity for formal and informal work on other invasives that threaten our environment and economy.

We know in BC that the threat of invasive mussels is real. Our own study has shown a zebra and quagga mussel invasion would cost BC an estimated \$28 million each year – and that's a conservative estimate.

As well, if these invasive mussels establish themselves in BC, they could have a direct and adverse impact on the viability of our culturally and economically crucial commercial, recreational and Aboriginal fisheries within the province.

So let's roll up our sleeves, build on the work we have done and look for more ways to coordinate and cooperate and bring our federal governments to the table.

Potential points to register

Prevention is the most effective action against invasive species, and given the predicted annual costs of invasive mussels in BC and other jurisdictions, BC is in support of a joint zebra and quagga mussel prevention program across the western provinces, in close collaboration with our US partners.

Such a regional proposal would include support for provincial actions on invasive mussels and also support a focused effort on the eastern edge for the region, Saskatchewan.

BC is working through the National Aquatic Invasive Species Council with the federal government on the ban of zebra and quagga mussels, but given the urgency of the threat, the province encourages the federal government to implement the legislation as soon as possible.

While the prevention plan will address the invasive mussels threat, the associated actions and education programs do address a wide range of aquatic invasive species, as they will educate the public on the risk of overland transport of water craft to introduce aquatic invasive species.

As we know zebra and quagga mussels have been identified in Manitoba, we strongly encourage and support the government of Manitoba in implementing measures to prevent the spreads of invasive mussels.

The Province's Controlled Alien Species Regulation promotes responsible boating behaviour by levying fines and detaining boats found to be transporting live or dead zebra and quagga mussels in BC. We have trained our enforcement staff to identify and respond to mussel infested boats, and conducted some boat inspections. The first test of these procedures this past March was by a Canadian Border Service Agent who responded to a commercially hauled boat that was travelling from Arizona and bound for moorage in Okanagan Lake. The agent's quick response led to an effective, coordinated and timely response to the threat. The boat was seized, decontaminated and inspected prior to release. While the Canadian Border Services Agency had no legislative authority to prohibit the entry of the contaminated vessel, pending federal regulation under the Fisheries Act would provide legislative powers to stop and inspect watercrafts, as well as prohibit the entry of contaminated vessels into Canada. BC supports the federal government of Canada and the US in implementing mandatory boat inspections at our international borders to intercept contaminated vessels.

The Province has been working with the Invasive Species Council of BC since 2012 on the 'Clean, Drain, Dry' program. This program ensures vessel owners and users are aware, trained and committed to protecting BC's lakes by cleaning, draining, and drying their boats and equipment.

The Province, along with the Invasive Species Council of BC continues to raise awareness and promote responsible boating and angling behaviours to prevent the introduction and spread of aquatic invasive species.

We continue to encourage and support the Canadian government to prohibit the import of invasive mussels at international borders under the federal Fisheries Act. The Province of BC has emphasized the threat of aquatic invasive species, in particular zebra and quagga mussels, in communications with the federal government. Recently on March 31st, I met and discussed aquatic invasive species with the Minister of Fisheries and Oceans Canada.



Reference: 204526

MAY 05 2014

Honourable Kevin Ranker
President, Pacific Northwest Economic Region
Senator, Washington State Legislature
Suite 460, 2200 Alaskan Way
Seattle WA 98121

Dear Senator Ranker:

Thank you for your January 16, 2014 letter to Premier Christy Clark calling for immediate action to address the threat of invasive zebra and quagga mussels. BC appreciates that the Pacific North West Economic Region (PNWER) is taking the threat of invasive quagga and zebra mussels seriously. The province of BC recognizes the importance of preventative measures for avoiding significant economic and ecological impacts from invasive mussels. A BC specific economic impact assessment of zebra and quagga mussel invasion determined these species would cost BC \$28 million per annum as a conservative estimate. Further, the establishment of these invasive mussels would also adversely impact the viability of important commercial, recreational and Aboriginal fisheries within the province.

The Province of BC supports PNWER's recommendations as outlined below.

1. We encourage and support the government of Manitoba in implementing measures to prevent the spread of invasive mussels.
2. The Province's Controlled Alien Species Regulation promotes responsible boating behaviour by levying fines and detaining boats found to be transporting live or dead zebra and quagga mussels in BC. We have trained our enforcement staff to identify and respond to mussel infested boats, and conducted some boat inspections. The first test of these procedures this past March was by a Canadian Border Service Agent who responded to a commercially hauled boat that was travelling from Arizona and bound for moorage in Okanagan Lake. The agent's quick response led to an effective, coordinated and timely response to the threat. The boat was seized, decontaminated and inspected prior to release. While the Canadian Border Services Agency had no legislative authority to prohibit the entry of the contaminated vessel, pending federal regulation under the *Fisheries Act* would provide legislative powers to stop and inspect watercraft, as well as prohibit the entry of contaminated vessels into Canada. BC supports the federal governments of Canada and the US in implementing mandatory boat inspections at our international borders to intercept contaminated vessels.

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3. The Province has been working with the Invasive Species Council of BC since 2012 on the 'Clean, Drain, Dry' program. This program ensures vessel owners and users are aware, trained and committed to protecting BC's lakes by cleaning, draining, and drying their boats and equipment.
4. The Province, along with the Invasive Species Council of BC continues to raise awareness and promote responsible boating and angling behaviours to prevent the introduction and spread of aquatic invasive species.
5. We continue to encourage and support the Canadian government to prohibit the import of invasive mussels at international borders under the federal *Fisheries Act*. The Province of BC has emphasized the threat of aquatic invasive species, in particular zebra and quagga mussels, in communications with the federal government. Recently on March 31st, I met and discussed aquatic invasive species with the Minister of Fisheries and Oceans Canada.

The Province of BC will continue to work with PNWER to ensure the threat of invasive mussels is addressed. Thank you for your continued efforts and diligence on this initiative.

Sincerely,



Mary Polak
Minister

cc: Steve Thompson, Minister of Forest, Lands and Natural Resource Operations
Norm Letnick, Minister of Agriculture

FACTSHEET

July 3, 2014

Ministry of Forests, Lands and Natural Resource Operations

Invasive quagga mussels and zebra mussels

1. General information about quagga and zebra mussels:

- Quagga mussels and zebra mussels are not native to North America. They were introduced from Europe into Canada (the Great Lakes region) and the United States in the 1980s.
- Since their introduction, these mussels have spread in Ontario and Quebec and they are now found in at least 24 American states as far west as California. In October 2013, zebra mussels were discovered in Lake Winnipeg, Manitoba.
- To date, there has been no reported introduction of live quagga or zebra mussels into B.C. lakes or waterways. Zebra and quagga mussels are not established in British Columbia, Alberta, Saskatchewan, Oregon, Idaho, Washington or Montana.
- These small, freshwater mussels can easily attach themselves to boat hulls, trailers, motors, equipment, vegetation and other organisms. They multiply rapidly and are difficult to eradicate once they become established in an area.
- Quagga and zebra mussels pose a serious threat to B.C.'s aquatic ecosystems, salmon populations, hydro power stations and other infrastructure facilities. They can clog pipes (increasing maintenance costs for hydroelectric, industrial, agricultural and recreational facilities), cause ecological and economic damage, displace native aquatic plants and wildlife, degrade the environment and affect drinking water quality.
- Zebra and quagga mussels can survive for several weeks without being immersed in water if they're left in a cool and moist environment, so mussels attached to boats or equipment can be transferred from one body of water to another.
- Mussel larvae are extremely small and can float undetected in live-wells, pumps, bilges, bait buckets and other fishing gear, where they can survive for several weeks. A 2013 study estimated that the cost of an invasive mussel infestation in B.C. could be \$28.2 million per year (<http://www.for.gov.bc.ca/hra/invasive-species/index.htm>).

2. What the B.C. government is doing about invasive mussels:

- Prevention and education are our top priorities and B.C.'s new *Dreissenid Mussels Early Detection and Rapid Response Plan* is currently being drafted.
- In 2009, B.C. became a partner in the Columbia Basin Rapid Response Plan, along with federal, tribal and state agencies from Washington, Oregon, Idaho and Montana. This system provides for early detection, rapid response and ongoing communications amongst participating partners.
- As a partner in the Columbia Basin Rapid Response Plan, B.C. has access to the latest scientific and operational expertise to deal effectively with aquatic invasive species. The B.C. government is immediately notified whenever zebra mussels or quagga mussels are detected in the Columbia River basin.
- Since 2012, the Province has provided the Invasive Species Council of B.C. with \$2.1 million for actions to raise awareness of the threats represented by aquatic invasive

species and to train recreationists on how to prevent the spread of unwanted species, including freshwater mussels, between different lakes through the “Clean, Drain and Dry” program.

- In 2013, the Ministry of Forests, Lands and Natural Resource Operations, the Ministry of Environment and the Invasive Species Council of B.C. produced an educational handout, which is distributed at boat launches, recreation sites and related tourist facilities.
- In December 2012, the provincial government amended the Controlled Alien Species Regulation to further restrict non-native species. No invasive zebra or quagga mussel, alive or dead, is allowed to remain on boats or related equipment. Failure to clean mussels off boats or equipment could result in a fine of up to \$100,000.
- Conservation Officers, Natural Resource Officers, Fisheries Officers and BC Parks Rangers have been trained to enforce the amended Controlled Alien Species Regulation. Training for Canadian Border Service Agency staff is under development.

3. “Clean, Drain, Dry” program:

- The “Clean, Drain, Dry” program is operated by the Invasive Species Council of B.C. in partnership with the Freshwater Fisheries Society of B.C., the B.C. Wildlife Federation, lakeside stewardship groups and regional invasive species committees.
- If a boat (or other water-based recreational equipment) has come from a known or suspected mussel-infested area, it must be thoroughly cleaned with hot water (hotter than 60 C), totally drained (including components such as bilges, pumps, intakes, etc.) and dried. It must not be launched into any body of water for at least 30 days.
- Anyone who transports a boat into B.C. needs to completely remove aquatic animals, plants and mud that are present on their boat, trailer and other equipment.
- During the summer, trained staff with the “Clean, Drain, Dry” program are stationed in high-risk areas and at selected boat launches to provide advice and answer questions.
- Three high-pressure washing stations (operated by the Invasive Species Council of B.C.) are deployed strategically throughout southern B.C. every year to rapidly respond to any invasive mussel threat.

4. Inspections:

- Washington, Montana, Oregon, Idaho and Alberta all run inspection programs and those jurisdictions immediately notify the B.C. government if they intercept a suspect boat.
- Reports of mussel-affected boats or equipment can be submitted to the provincial Report All Poachers and Polluters (RAPP) hotline at 1 877 952-7277 (toll-free).

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MANAGING INVASIVE ANIMAL SPECIES: A PROVINCIAL ACTION PLAN

BACKGROUND / ISSUE

Invasive species are a significant threat to biodiversity in BC and impose substantial economic¹ and social impacts. The province delivers an invasive plant program on Crown Land but no equivalent program or funding exists for terrestrial and aquatic animals. Recent near-misses (e.g. Quagga Mussels, Snakehead Fish) and high profile invasions (e.g. European Fire Ant) have raised public awareness of invasive species impacts and prompted partners and stakeholders to call for effective action in response to this growing issue.

OPPORTUNITY

An opportunity exists to develop and implement a provincial invasive animal species action plan that compliments the current plant program. Key elements of the plan are described below and examples of near- and mid-term priorities are provided.

Regulatory framework: Recent amendments to the Controlled Alien Species (CAS) Regulation (*Wildlife Act*) enables the province to partially address the threat posed by several aquatic invasive species; additional terrestrial and aquatic species could be added to expand the scope of the regulation. In the longer term, new invasive species legislation would address existing gaps and allow delivery of a more proactive and preventative management program for all invasive species.

- The Inter-Ministry Invasive Species Working Group is seeking approval to develop a new regulatory framework for invasive species.
- In the short-term, the province is urging the federal government to implement changes to the *Fisheries Act* Aquatic Invasive Species Regulation that would ban the import of high-risk species such as Zebra and Quagga Mussels into B.C.

Prevention and Early Detection, Rapid Response: Prevention and rapid response to new incursions are the most cost-effective tools to reduce invasive species impacts. Collaboration with other jurisdictions and partners is important for preventing species from becoming established. Establishing protocols, strengthening interagency communication and defining roles and responsibilities for prevention, detection, reporting, and response will help prevent the establishment of invasive animal species in B.C.

- Monitoring programs and networks need to be established to allow detection of and rapid response to new invasive animal species incursions; the Columbia River Basin Rapid Response Plan for Zebra and Quagga Mussels is one example of an effective partnership.
- Mandatory boat inspections and enforcement of the CAS regulation are needed to prevent high-risk aquatic invasive species from becoming established in BC. Without active monitoring, rapid response and enforcement, B.C. may be seen as the weakest link in the collaborative effort to prevent mussels from becoming established in the region.

¹ A recent study commissioned by the Ecosystems Branch found that Zebra and Quagga Mussels could impose annual damages of \$21.7M in B.C., while the European Fire Ant could impose annual damages of \$100M.

Eradication and Control Prioritizing invasive animal species for eradication, containment and control would help target limited resources to where they are most effective. Control and/or eradication projects are needed for a number of invasive species and there is an opportunity to provide leadership and support external partners in the delivery of these management actions.

- Species that require control or eradication include European Fire Ants, Grey Squirrels in the Okanagan, and Perch and Bass in the Thompson-Okanagan and Cariboo regions.

Partnership Networks and Engagement: Existing partnerships could be strengthened to build on the recent increase in public awareness of invasive species issues. Investments into outreach and engagement programs could target key pathways of introduction, improve reporting of priority species, and promote public and stakeholder understanding of new legislation and policy.

- The “Clean, Drain, Dry your Boat” initiative is a collaboration with the Invasive Species Council (ISC) that raises awareness and reduces the risk of transporting mussels into BC. Implementation of the CAS Regulation will require additional outreach and education initiatives.
- The ISC is a leader in the development of behavior-change programs, which could be expanded to address other key pathways of introduction such as the pet, aquarium and live food trades.

Program Delivery: The invasive plant program is currently delivered by Forests, Lands and Natural Resource Operations (FLNR) with lead roles for BC Parks and Transport and Infrastructure for lands under their jurisdiction. Ministry of Environment has a lead role in science and policy development for invasive animals but lacks the line authority and resources for operational delivery. Developing a delivery model within FLNR, including dedicated staff and resources, would improve the management of invasive animals, facilitate the development of effective partnerships, and create opportunities to leverage additional funding.

BENEFITS

An action plan for invasive animals would be a significant step towards a comprehensive program for all invasive species. A program-level response to the growing threat of all invasive species would:

- Put the province in a leadership position on this issue, and would be a significant response to concerns being raised by our partners and the public;
- Provide long-term environmental and economic benefits by investing in preventative management efforts which cost less, are more likely to succeed, and ultimately reduce economic and environmental impacts;
- Allow the province to shift from reacting to the latest threat on a case-by-case basis to more proactive management of invasive animal issues;
- Result in more effective use of limited government resources by prioritizing actions for prevention, early detection and response, eradication and control;
- Build on existing partnerships, delivery mechanisms, and lessons learned through the invasive plant program; and
- Be an opportunity to engage other levels of government, provincial organizations, industry, and stakeholders in the implementation (and resourcing) of a proactive prevention and management program for mussels and other invasive animal species.

PNWER 4th Annual Invasive Species Conference

9:15-5:00 (7h45min)

9:15 (25min)

Introductions – include state/province report out

9:40 (70min)

Zebra and Quagga Mussel Prevention: Building a perimeter of protection

- Update on Regional Threats
 - Lake Powell
 - Jordan Nielson, *Aquatic Invasive Species Coordinator, Utah Division of Wildlife Resources*, via teleconference (10-12min)
 - Lake Winnipeg
 - Laureen Janusz, *Fisheries Biologist, Manitoba Conservation and Water Stewardship* and Kate Wilson, *Aquatic Invasive Species Coordinator, Alberta Environment & Sustainable Resource Development*, via teleconference (10-12min)
- Emerging issues, Early Detection and Rapid Response
 - BC Update (20min)
 - Matthias Herborg, *Aquatic Invasive Species Coordinator, BC Ministry of Environment*
 - US update (20min)
 - Stephen Phillips, *Senior Program Manager, Pacific States Marine Fisheries Commission*

10:50 (50min)

Legislative Discussion to voice concerns and recommend solutions

This panel will explore recent legislation in the region, and other triumphs in invasive species legislation, and discuss the opportunities for regional collaboration, to create a perimeter of protection for the region.

- Washington State Senator Jim Honeyford
- Oregon – Representative Bill Kennemer
- Montana – Representative Mike Cuffe
- Idaho
- Alaska – Representative Paul Seaton
- British Columbia – Mary Polak, Minister of Environment
- Alberta – MLA Alana DeLong
- Saskatchewan – Prospective: Herb Cox
- Yukon
- Northwest Territories

11:40 (20min) Break

12:00 (45min)

Industry Initiatives to Prevent the Spread of Invasive Species

- Ballast water/Shipping industry
- Oil and Gas:
- Horticulture
 - Heike Stippler, *Director of Horticulture at Invasive Species Council of BC, Advisor at Sea to Sky Invasive Species Council, and President at Heike Designs Inc.*

12:45 (30min) (Lunch is 1h15m)

Luncheon Keynote: Community Based Social Marketing

- Ken Donnelly, *President, Beyond Attitude Consulting*

2:00 (40min)

Invasive Controls: Success, Partnerships, Planning and Eradication

(15-20min)

- Rat free Alberta:
 - Phil Merrill, *Provincial Rat and Pest Specialist, Alberta Agriculture and Rural Development*
- Biological Control of Invasive Plants – the BC Experience
 - Val Miller, *Provincial Invasive Plant Officer, BC Ministry of Forests, Lands and Natural Resource Operations*

2:40 (20min) Break

3:00 (45min)

Invasive Controls: Success, Partnerships, Planning and Eradication (Continued)

- Pathways Based Risk Assessment: Marine Vectors
 - Errin Ramanujam, *Associate Scientist, California Ocean Science Trust*
- European Fire Ant Prevention and Eradication
 - Dr. Robert J. Higgins, *Department of Biological Sciences, Thompson Rivers University*
- Invasive Species Council of British Columbia
- Jodi Romyn, *Senior Manager, Invasive Species Council of British Columbia*

3:45 (75min)

Next Steps and Action Items
5:00 **Adjourn**

Page 30 to/à Page 31

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**MINISTRY OF ENVIRONMENT
INFORMATION NOTE**

July 22, 2014
File: 280-30/MO
CLIFF/tracking # 208300

PREPARED FOR: Honourable Mary Polak, Minister of Environment

ISSUE: Completion of the Organic Matter Recycling Regulation (OMRR) Amendments

BACKGROUND:

The OMRR (enacted in 2002) governs the production, quality and land application of certain types of processed organic matter. It provides clear guidance for local governments and compost and biosolid producers on how to recycle organic material and Ministry's expectations regarding protecting soil quality and drinking water sources.

In 2006, the Ministry identified a series of amendments for the OMRR. Consequently, stakeholders were consulted twice regarding the amendments in 2006 and 2011.

It has been over two years since the Ministry updated stakeholders regarding the proposed amendments. During this time, the Ministry was involved with other priorities including creating the Ministry's internal Organics Strategy. At this point, the project team plans to finalize the OMRR amendments and proposes a small scale consultation via webinar with targeted stakeholders to update them on the proposed changes.

DISCUSSION:

s.13

NEXT STEPS:

s.13

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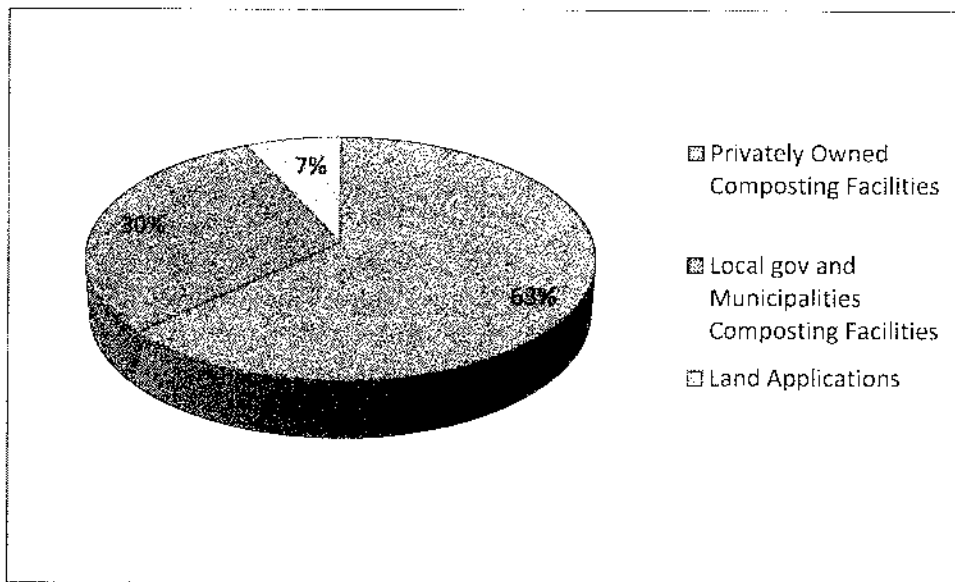
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Reviewed by	Initials	Date
DM	MZ	01/08/14
DMO	VJ	30/07/14
ADM	JS	28/07/14
Exec. Dir.	DR	14/07/14
Mgr.	CJ	14/07/14
Author	MM	14/07/14

Appendix I

Activities under the OMRR (registration of composting facilities and land applications of compost and biosolids)



MINISTRY OF ENVIRONMENT INFORMATION NOTE

July 28, 2014
File: 280-30
CLIFF/tracking #: 208416

PREPARED FOR: Wes Shoemaker, Deputy Minister of Environment

ISSUE: Update on the implementation of the Air Quality Management System (AQMS) and the Multi-Sector Air Pollutant Regulation (MSAPR)

BACKGROUND:

Since BC endorsed the AQMS, in October 2012, Ministry of Environment (MOE) and Ministry of Natural Gas Development (MNGD) staff have been working on its implementation. The AQMS consists of Canadian Ambient Air Quality Standards (CAAQS), local air zones and regional airsheds, a process to address mobile source emissions and Base-Level industrial Emission Requirements (BLIERs).

The federal government recently published the first batch of the BLIERs for public consultation in Canada Gazette I, under the MSAPR (June 7th, 2014). The federal government is taking a three-tier phased approach for the implementation of BLIERs over approximately one and a half years. s.13,s.16
s.13,s.16

The decision note for Minister Lake drafted in 2012 outlined that BC supported the overall AQMS, but had concerns regarding BLIERs: associated costs, roles and responsibilities and the actual application of the backstop regulation. Some of these concerns have been partly mitigated in the text of the proposed MSAPR (see discussion). The recommendation at that time was endorsing the overall AQMS and continuing to work collaboratively with the federal government and other jurisdictions to address our areas of concern.

DISCUSSION:

This past June, MSAPR was published in Gazette I and includes BLIERs for reciprocating engines, boilers and heaters and cement; all of them applying to industry operating in BC. The aluminium BLIER included in the first batch for implementation will be implemented through a code of practice.

The MSAPR has addressed some of BC's concerns around BLIERs: the contentious 1.3 g/kWh limit for existing reciprocating engines has been dropped, refineries have been excluded from the boilers and heaters regulatory text and testing has been reduced as compared to previous working documents. Some exemptions under boilers and heaters

will exclude a significant portion of pulp and paper facilities (see attachment 2 for details).

However, the MSAPR still poses concerns regarding the registration of reciprocating engines, annual reporting requirements, and the regulation's application beyond a strict regulatory backstop.

The applicability of the MSAPR beyond a strict backstop involves provisions for engine registration and reporting requirements. Industry will be regulated immediately by the federal government regarding the registration of engines and annual reporting for all BLHERs. This "immediate application" does not align with the "regulatory backstop" concept. The registration of engines will be burdensome for industry, since engines are frequently relocated and the MSAPR obliges the facilities to communicate these changes.

MOE and MNDG have analysed the option of becoming the recipient of the reports in first instance and the possibility of creating a provincial registry. It was concluded that this would be a new administrative burden without any environmental benefits for the Province or industry. Since reporting requirements have been streamlined, BC will focus efforts on obtaining the information reported to the federal government, to ensure facilities are in compliance.

Another alternative for jurisdictions to remain front line regulators would be entering an equivalency agreement. BC may be lobbied by industry associations and other jurisdictions (e.g. Alberta) to enter such an agreement. However, it is not possible to enter a CEPA equivalency agreement due to inconsistencies between the CEPA and the BC *Environmental Management Act* (EMA).^{s.13}

s.13

The MOE and MNGD continue to align with the direction and the recommendations presented on the AQMS decision note for Minister Lake in 2012. BC supports the overall AQMS. The MOE and MNGD do not have formal comments about the MSAPR at this time, and will be focusing their efforts on obtaining the information annually reported by facilities to verify compliance.

NEXT STEPS:

s.13

Attachments:

Attachment 1: *Sequence of BLIERs Implementation Table*

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ADM	MZ	July 30/14
ED		
Dir./Mgr.	LP	July 28/14
Author	MGS	Jul 18/14

Attachment 1
Sequence of BLIERs Implementation Table

Sectors	Pollutant	Coverage	Proposed Instrument	Impacts for BC Industry
MSAPR, Published on Gazette I on June 7th, 2014				
Cement	NO _x , SO _x	- New and existing	Regulation	<ul style="list-style-type: none"> • 3 facilities in BC • All of them will be captured <u>Positive:</u> <ul style="list-style-type: none"> • We anticipate all facilities will be in compliance <u>Negative:</u> <ul style="list-style-type: none"> • BC Permit metrics (concentration-based) do not align with BLIERs (intensity-based)
Natural gas-fired reciprocating engines	NO _x , CO	<ul style="list-style-type: none"> - New - All AQMS sectors - Existing - Upstream oil and gas only and NG pipelines 	Regulation	<ul style="list-style-type: none"> • Multiple facilities in BC • All will be captured <u>Positive:</u> <ul style="list-style-type: none"> • Contentious 1.3 g/kWh limit has been dropped • Testing brought to a minimum compared to previous working documents (only one variable – oxygen- considered) <u>Negative:</u> <ul style="list-style-type: none"> • Registration will require regular updates by industry because engines are relocated frequently.

Sectors	Pollutant	Coverage	Proposed Instrument	Impacts for BC Industry
Non-Utility Boilers and Heaters	NO _x	<ul style="list-style-type: none"> - New and existing - All AQMS sectors 	Regulation	<ul style="list-style-type: none"> • Previous concerns about refineries and pulp mills re: 2 BLEERS: their sectoral BLEERS and this one. • 2 refineries and 17 pulp mills in BC <p><u>Positive:</u></p> <ul style="list-style-type: none"> • Refineries are not captured in the MSAPR • A number of pulp and paper facilities will not be captured by the MSAPR in practice because: <ol style="list-style-type: none"> 1) Recovery boilers are exempt 2) Only boilers that combust 50% gaseous fuel or more are regulated by the MSAPR (most of BC facilities burn a combination of by-product fuel and natural gas; thus, some may not be captured by MSAPR) • Original boilers and heaters emitting at intensity lower than 70 g/GJ (which according to Environment Canada comprises the majority of the pulp and paper sector) have an extended period of time to upgrade their equipment (2036)

**MINISTRY OF ENVIRONMENT
INFORMATION NOTE**

August 5, 2014
File: 11678
CLIFF/tracking #: 208625

PREPARED FOR: Premier's Office

ISSUE: Tailings Pond Breach at Mt. Polley Mine on August 4, 2014 and subsequent discharge of tailings supernatant into waterways

BACKGROUND:

Mt Polley is a copper-gold mine-mill complex located near Likely, British Columbia. They have had an effluent permit (#11678) with the Ministry of Environment since 1997. The mine temporarily closed in 2001 and reopened in 2005.

Mount Polley mill tailings and site runoff water are collected in the Tailings Storage Facility. The supernatant from the Tailings Storage Facility is re-cycled through the mill process (no discharge). Mount Polley mine operates with an annual water surplus, and currently had 6.5 Mm³ (million cubic metres) of water stored in the Tailings Storage Facility.

The last significant amendment in 2009 authorized Mt Polley to discharge up to 1,400,000 m³/y of dam seepage effluent from the tailings storage facility to nearby Hazelton Creek (dam seepage is different than supernatant -- it's supernatant that seeps through the dam, see Appendix A for map), limited to 35% of that creek's daily flowrate, with contaminant limits, and requiring an annual discharge plan. The Permit also requires a Communication Plan for sharing environmental data with the Soda Creek Indian Band (Xats'ull) and the Williams Lake Indian Band (T'exelec).

Mt Polley submitted a permit amendment request in July 2014, to request authorization to discharge up to 3,000,000 m³/y of treated effluent (ditch water) to Polley Lake, which overflows to Hazelton Creek. The treatment technology will be finalized based on the results of the reverse osmosis pilot treatment plant that operated for a short period in December 2013.

Since 2012, Mt Polley has had five non-compliance incidents of mostly a minor nature. In response the Ministry issued three advisory letters and one warning letter. Only one of these incidents involved the tailings storage facility. This incident, on May 24, 2014, found the freeboard level in the tailings storage facility below permitted levels due to heavy rainfall.

Recent tailings impoundment supernatant data show that selenium levels exceed drinking water guideline, particularly in samples taken before May 2014. Sulphate did not exceed the drinking water guideline in May 2014, but there have been slight exceedences over the last few years.

Molybdenum levels are well below drinking water levels in the last two years, but concentrations had been approaching the guideline in earlier years; recent molybdenum concentrations in the supernatant exceeded livestock watering and irrigation guidelines.

Organic carbon concentrations exceed the 4mg/L. guidelines for chlorination (water treated with chlorine that contains >4mg/L. of organic carbon can result in toxic chlorination by-products).

Furthermore, the data for the tailings impoundment supernatant show that it was not extremely toxic.

DISCUSSION:

Ministry staff continue to work with partner agencies and the company to develop a safe and effective monitoring program in the short and long term and to determine the extent/degree of environmental impact.

NEXT STEPS:

Ministry of Environment staff were on Quesnel Lake and Quesnel River on Monday August 4 and Tuesday August 5 conducting monitoring. Staff will be providing information relative to water and health use restrictions to the Interior Health Authority as sampling results become available.

Attachments: Appendix A

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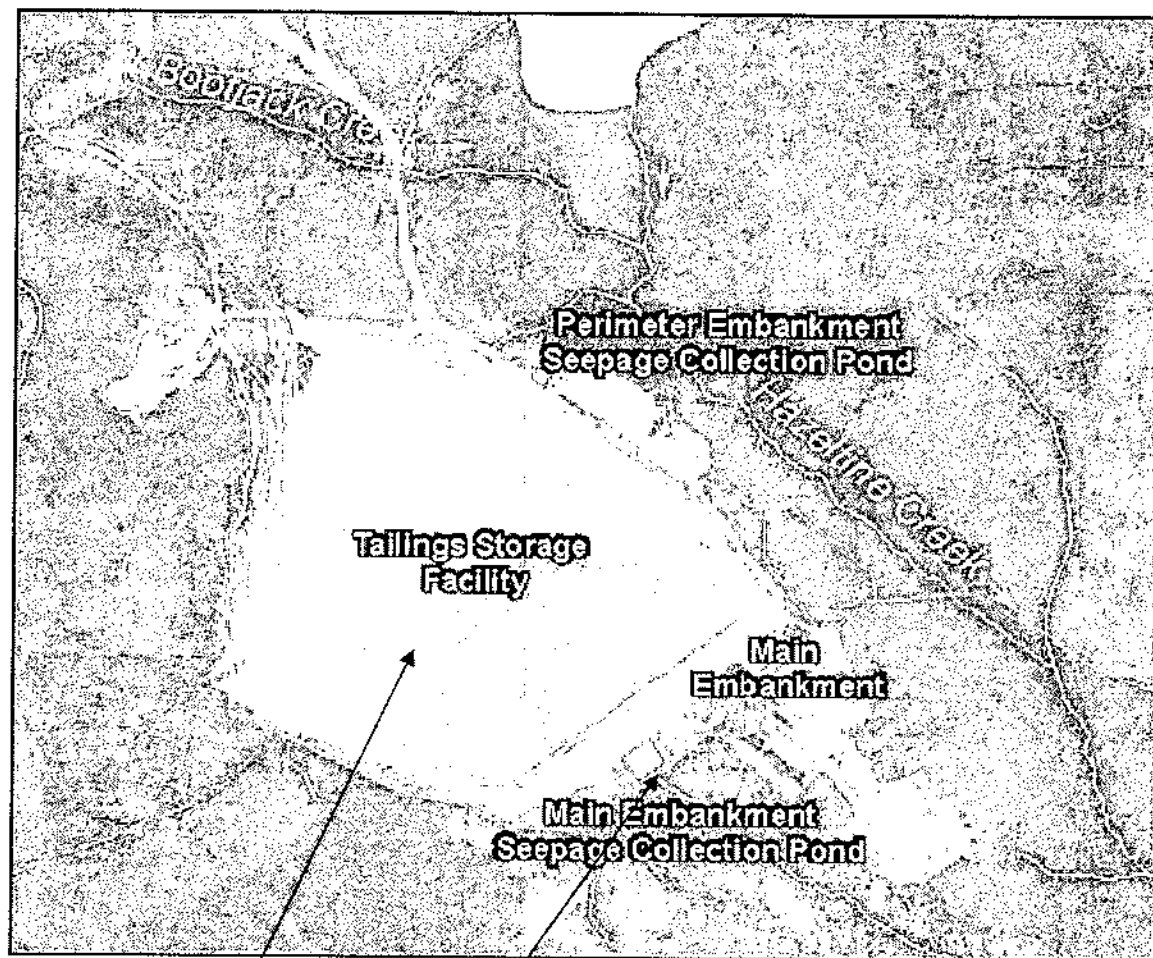
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[Insert additional rows if needed]

Reviewed by	Initials	Date
DM	LH for WS	Aug 14/14
DMO	VJ	Aug 14/14
ADM		
Dir./Mgr.	JMcGuire	Aug 5/14
Author		

Appendix A – Map of Mt Polley Tailings Storage Facility



Supernatant

Dam seepage (approx)

MINISTRY OF ENVIRONMENT

INFORMATION NOTE

August 14, 2014

File:

CLIFF/tracking #: 208469

PREPARED FOR: Honourable Mary Polak, Minister of Environment

ISSUE: A new report “Evaluation of BC Flood policy for Coastal Areas in a Changing Climate” will be made available to the public on the Ministry’s website. The report may generate media inquiries about provincial flood protection initiatives.

BACKGROUND:

Through funding support provided by the British Columbia (BC) Ministry of Environment’s Climate Action Secretariat (CAS) and Natural Resources Canada’s (NRCan) Climate Impacts and Adaptation Program, a report was commissioned from the Arlington Group, *Evaluation of B.C. flood policy for coastal areas in a changing climate* (Arlington report). The report examines whether existing flood policies and programs support or hinder adaptation to sea level rise and related climate impacts in coastal areas, and recommends measures that would facilitate adaptive actions.

CAS staff provided the terms of reference and management for this project. The BC Provincial Flood Hazard and Climate Change Working Group (WG) operated as the project’s advisory committee during the development of this report. The WG consists of staff from the Ministry of Community Sport and Cultural Development, Environment, Forests, Lands and Natural Resource Operations, Justice (EMBC), and Transportation and Infrastructure.

DISCUSSION:

Climate change impacts such as sea level rise, changing storm patterns and increasingly intense rainfall will change flood risks in the province in the coming century. BC’s flood policies and funding programs need to adapt to manage future flood risks.

Responsibility for flood hazard management is shared between the provincial and local governments. In general, implementation of flood-related policy rests, to a large extent, with local governments (i.e. land use and development control) and the BC Government provides the enabling legislation (i.e. dikes, emergency response). Sea level rise has amplified the importance of intergovernmental collaboration to address current and future coastal hazards, as well as the need for clear provincial direction on provincial flooding hazard issues.

This report complements previous research and outreach on sea level rise, and provides useful information to help inform future work on flood risks. The Arlington report indicates that the BC flood policy regime generally supports adaptation to sea level rise and associated impacts. However, in some cases, the implementation consequences may have significant financial and land development implications. The impacts of flooding

can be very costly. At the regional level, the costs to adapt flood protection in the lower mainland to meet sea level rise predictions of one metre were estimated around \$9.5 billion.¹ Floodplain maps are an essential tool for identifying areas that may be impacted by flooding and planning flood response. Public Safety Canada has estimated that it would cost \$48.2 million to update BC's floodplain maps.

The provincial Executive Summary in the Arlington report (Appendix 1) points to priority recommendations including: updated floodplain maps; clarification of minimum flood protection standards; revisions to the Compensation and Disaster Financial Assistance Regulation; ongoing public education; disclosure of flood risk during real estate transactions and notice on title; coordinated regional planning; the need for funding programs; Building Code amendments; and investigate options for overland flood insurance. Appendix 2 outlines report's priority recommendations and responses prepared by the internal government WG.

NEXT STEPS:

- The findings and release of the Arlington report provide useful information to help build an adaptive coastal policy regime in BC.
- The report will be posted online on the [Climate Action Secretariat's website](#) on August 28, 2014. As per the Contribution Agreement with NRCan, NRCan will be posting the report on their Impacts and Adaptation website, as well as on the [Adaptation Library](#).
- The WG will continue to meet and follow-up on the recommendations of the report.
- MoE and FLNRO will continue to work together to amend the 2004 Flood Hazard Area Land Use Management Guidelines to include sea level rise considerations.
- EMBC will continue to engage with the federal government on floodplain mapping, and the new federal National Disaster Mitigation Strategy to explore opportunities for mapping and structural upgrades.

Attachments:

Appendix 1: *Arlington report recommendations and responses*

Appendix 2: Foreword and Executive Summary, *Evaluation of B.C. flood policy for Coastal Areas in a Changing Climate* (PDF)

Appendix 3: Full Report, *Evaluation of B.C. flood policy for Coastal Areas in a Changing Climate* (PDF)

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DM	WS	25Aug2014
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ADM	TL	18Aug2014
Dir./Mgr.	TW	14Aug2014

¹ FLRNO. Delcan. *Cost of Adaptation – Sea Dikes and Alternative Strategies*. October 2012.

Appendix 1

Table 1 *Arlington report recommendations and responses*

Policy	Arlington Report Recommendations	Agency Leads and Responses
S. 15 and 30, Disaster Financial Assistance Regulation	Eliminate conflict and clarify conditions for DFA eligibility.	<p>EMBC</p> <p>As per these sections (s.15 refers to private sector; s.30 refers to local government bodies), no assistance can be provided for structures in a flood plain area unless the structures have been “properly flood protected”. The Regulation does not define what properly flood protected means, but EMBC has established policy which states: “The phrase ‘properly flood protected’ as used in sections 15 and 30 of the Compensation and Disaster Financial Regulation means that the structure meets the Ministry of Forests Lands and Natural Resource Operations’ <u>Flood Hazard Area Land Use Management Guidelines</u> that were in effect when the structure was built. Where there are restrictive covenants registered against the property at Land Titles (s.18) which set out minimum construction standards for flood protection, and the structure was in compliance with these restrictions, the structure will be considered to have been properly flood protected.”</p> <p>These sections, taken in conjunction with s.16 and s.31 which allow DFA to be reduced or denied if the applicant did not take appropriate action before, during or after the disaster provide incentives for property owners to take all reasonable steps to flood proof their structures.</p>
S. 14 and 29, Disaster Financial Assistance Regulation	Revise Regulation to limit DFA funding for building	<p>EMBC</p> <p>Limiting the number of times DFA can be paid unless a structure has</p>

Policy	Adaptation Report Recommendations	Agency Leads and Responses
	repairs to one time (not twice) unless flood proofing to current standards is provided and require money be spent on mitigation or relocation.	been properly flood protected would be a strong incentive to encourage property owners to take action to protect their property. Further exploration and stakeholder consultation of this option would be required.
2004 Provincial Guidelines	Update 2004 Provincial Guidelines to provide clarity concerning SLR and associated climate change hazards.	<p><i>MOE and FLNRO</i></p> <p>MOE and FLNRO are proposing amendments to the guidelines and are currently in consultation with local governments through UBCM. Amending the 2004 Flood Hazard Area Land Use Management <u>Guidelines</u> to include recommendations from the 2011 <i>Climate Change Adaptation Guidelines for Sea Level Rise and Coastal Flood Hazard Land Use</i> report would provide clarity for local governments seeking to begin the process of planning for sea level rise.</p>
Review and clarify minimum flood protection standard	Can be addressed in updated Provincial Guidelines; Province should determine minimum level of protection.	<p><i>MOE and FLNRO</i></p> <p>Minimum flood protection standards will be addressed in proposed amendments to the guidelines.</p>
Expanded disclosure statement under Real Estate Development Marketing Act	Can be implemented by Superintendent of Real Estate; will inform all purchasers of new subdivision in flood hazard areas; reliability will depend on updated flood plain mapping.	Expanding the disclosure statement to potentially indicate whether /if a development is in a floodplain and what hazard mitigation measure have taken place may provide further incentives to developers to address risk mitigation, and would inform purchasers. Further exploration and consultation of this option would be required.

Policy	Arlington Report Recommendation	Agency Leads and Responses
Expanded use of Notice on Title	Requires legislative change; will better align private interests with B.C. flood policy.	<i>MOE and CSCD</i> Expanding the use of Notice on Title could be a useful tool to inform the public of risks and actions taken on that property to mitigate risks. Further exploration and consultation of this option would be required.
Expanded education measures	Continue to support and expand education measures with local government, NGOs, academia, and general public to address sea level rise adaptation measures.	<i>MOE and CSCD</i> The B.C. Government will continue its ongoing work and collaborations on research, outreach and action on sea level rise and flooding in British Columbia.
Regional planning co-ordination	Can proceed at present as legislative change is not required for inclusion in Regional Strategy.	<i>MOE, CSCD, FLRNO, EMBC</i> B.C. Government will continue its collaborations with local government. The B.C. Government is involved in the Lower Mainland Regional Flood Management Strategy – a multi-year initiative led by the Fraser Basin Council with the participation of all orders of government and other public and private sector organizations. Through this initiative, these organizations are developing a regional flood management strategy for the Fraser River and coastal communities in the Lower Mainland.
Program to update flood plain mapping	Most existing mapping is over 25 or more years old; updated mapping will address SLR, improve accuracy, enable more informed decision making and be more user friendly.	<i>FLNRO</i> Many local governments do not have the funding resources or the technical expertise to prepare updated floodplain maps. Currently, Public Safety Canada is assessing the state of floodplain mapping in Canada and developing cost estimates to update floodplain maps on a national basis. It would be beneficial for the province to consider a new federal-provincial agreement similar to the joint Canada-BC Floodplain

Policy	Adaptation Report Recommendations	Agency Interest and Responses
	Investigate opportunity for regional scale mapping and coordination. Should not be undertaken without cost sharing by local and Federal governments. Should be ongoing program.	Mapping Program that expired in 1998.
Program funding for structural upgrading measures	Should fund planning studies. Should follow updated flood plain mapping, consideration of living shorelines, and benefit-cost analysis (for larger projects).	<i>FLNRO and EMBC</i> The current Flood Protection Program funds construction of structural systems, but does not provide money for floodplain planning. The new federal National Disaster Mitigation Strategy may provide an opportunity to support planning to identify a full range of options, in addition to structural protection.
Inclusion of land acquisition in provincial program funding, where applicable	Has limited application but can provide a cost-effective policy tool; will facilitate Managed Retreat where applicable.	Land acquisition (by province) may be an option that could be applied in very limited circumstances where there is a direct threat to health and safety. This would need to be carefully considered so as not be seen as an incentive or benefit for owning lands in high risk areas.
Amend B.C. Building Code to address building development in flood plains	Requires lengthy development process and consultation; has potential to significantly mitigate flood damages.	<i>MEM</i> The B.C. Building Code applies the core concepts of the National Building Code, combined with elements specific to B.C.'s unique needs. Updates to the National and B.C. building codes could be a useful tool to mitigate flood damage to individual buildings.
Overland flood insurance	Has potential to mitigate	A well designed insurance program could be an important component

Policy	Anlington Report Recommendations	Agency Leads and Responses
	risk and align private interests with B.C. flood policy but requires detailed investigation and consultation.	of an effective floodplain management program.

Foreword

The Government of British Columbia has begun preparing for the impacts of a changing climate and in 2010, released *Preparing for Climate Change: British Columbia's Adaptation Strategy*. The Strategy commits to advancing adaptation by taking action within government and supporting adaptation in specific climate sensitive sectors.

In 2013, a series of policy analyses were commissioned to examine whether current policies and programs support or hinder adaptive decision making, and to suggest appropriate measures that would facilitate adaptive action. This report, *Evaluation of B.C. Flood Policy for Coastal Areas in a Changing Climate*, written by The Arlington Group Planning + Architecture Inc., is one of those assessments. This assessment takes an initial look at B.C. Government's coastal flooding-related policies, provides some conclusions and proposes some initial recommendations.

Flood hazard management is complex and must be considered in the context of the historical development of B.C. Historical land development and associated structural protection measures will constrain the approaches available for managing flood hazards. Sea level rise and associated hazards related to climate change are also relatively new considerations for provincial flood management, and current policies and programs were not designed with climate change in mind. Climate change impacts such as sea level rise, changing storm patterns and increasingly intense rainfall events, however, will change flood risk in coastal regions in the coming century. Given that the current flood regulatory regime was developed under the assumption of a static climate, it will be necessary to evolve the current suite of policies to respond to changing coastal flood hazards to ensure the policies continue to achieve the stated goals.

Currently in B.C., responsibility for flood hazard management is shared between the provincial government and local land use authorities (e.g. federal government on Indian Reserves, the provincial government on Crown lands and local governments). The Federal government has a role in sharing infrastructure and flood response/recovery costs. The B.C. Government provides enabling legislation and programming (e.g. funding programs). Local implementation of flood-related policy (e.g., land use planning and zoning, building flood protection structures) rests, to a large extent, with local governments. The challenges posed by sea level rise further increase the importance of intergovernmental collaboration to address current and future coastal hazards.

This report complements previous research and outreach on sea level rise. Previous work has included a series of technical studies to assist practitioners in incorporating sea level rise into coastal flood plain mapping, sea dike design and land use planning¹. These reports are helping inform planning and management decisions in coastal areas. *Cost of Adaptation – Sea Dike and Alternative Strategies*²

¹ Technical studies can be downloaded at: http://www.env.gov.bc.ca/wsd/public_safety/flood/fhm-2012/draw_report.html and include: *Coastal Floodplain Mapping Guidelines and Specifications* (2011); *Climate Change Adaptation Guidelines for Sea Dike & Coastal Flood Hazard Land Use* (2011)..

² *Cost of Adaptation – Sea Dike and Alternative Strategies – Final Report* (2012) can be downloaded at: http://www.env.gov.bc.ca/wsd/public_safety/flood/fhm-2012/draw_report.html.

provides a high-level cost estimate for upgrading the Lower Mainland's flood protection infrastructure for sea levels projected in the year 2100. This study is a first step in quantifying the scale of investment needed in flood infrastructure over the coming decades. The Sea Level Rise Adaptation Primer³ is a resource for local governments and land managers that provides information on a range of tools that can be used as part of a sea level rise adaptation strategy. The Primer was developed in response to requests from local governments for more information on adaptation approaches.

The B.C. Government, through its Climate Change Adaptation Strategy will continue its efforts to disseminate relevant regional science, provide a clear and enabling policy framework, coordinate across ministries, and collaborate with local and federal governments to complement and support local adaptation action in B.C. The findings from this assessment provide useful information to help inform future mainstreaming initiatives and represent an initial step to help build an adaptive coastal policy regime in B.C.

³ *Sea Level Rise Adaptation Primer. A Toolkit to Build Adaptive Capacity on Canada's South Coasts* (2013) can be downloaded at: <http://www.env.gov.bc.ca/cas/adaptation/pdf/SLR-Primer.pdf>.

Executive Summary

The B.C. Ministry of Environment, Climate Action Secretariat commissioned The Arlington Group Planning + Architecture Inc., with Kerr Wood Leidal, Sustainability Solutions Group and Greenomics, to analyze B.C. provincial policies related to flood hazard management from a climate change adaptation perspective. The purpose of the analysis was to examine whether existing policies and programs support or hinder adaptation to sea level rise and related climate change impacts in coastal areas, and to recommend appropriate measures to facilitate adaptive action.

The policies analysed in this report, referred to here as “B.C. flood policy”, represent the legislative enactments, regulations, plans and programs available in B.C. to reduce the risks of flood hazards and respond to and recover from flood events. Although these policies were not designed with sea level rise in mind, given the current risks associated with climate change it is important to examine whether these policies support adaptive actions. The analysis focused on the provincial government’s roles and responsibilities with respect to flood management, which include administering funding programs, regulating dikes, managing flood emergencies and issuing land use planning and flood mitigation guidance.

Methodology

A process was developed by the consultants to assess the current flood policy regime in B.C. for its ability to support adaptation to sea level rise and related climate change impacts. The analysis did not assess the overall policy effectiveness or performance. A list of relevant B.C. flood policies were identified and reviewed in terms of their adaptability to sea level rise and related coastal hazards. The evaluation of policies provided an analysis of any conflicts between components of B.C.’s flood policy, and a preliminary identification of any aspects that enable or hinder adaptation to sea level rise and associated impacts. A literature review was also conducted to highlight examples of how flood policy has been designed and applied in other jurisdictions in Canada and internationally. These examples helped inform the recommendations for this report.

Policy Analysis Engagement

The assessment included engagement with provincial government staff with direct responsibilities relating to coastal flood risk, and local government staff with direct involvement and/or responsibility for flood management.

Five workshops with local government staff were held in Metro Vancouver, the Capital Regional District, and central Vancouver Island. The workshops were structured around four sea level rise adaptation scenarios (protect, accommodate, retreat and avoid). The engagement process with local government staff indicated a high awareness and interest in adapting to sea level rise and associated impacts. They stated that adaptation to sea level rise is a challenge that they are eager to address, but emphasized the importance of strong partnerships between local governments and the B.C. Government. Some of the main challenges expressed by local government participants are summarized below.

- As the risk profile changes due to climate change, some local government participants have expressed a concern about their ability to mitigate risk and a lack of clarity around responsibilities.
- Although the provincial government is moving forward in developing technical studies, such as through the proposed amendments to provincial flood management land use guidelines, there is a gap between the development of those studies and local government's ability to implement them in their communities.
- Existing funding may not support coastal protection measures. Local government participants felt a risk-based approach to distributing funding would improve resiliency. A concern was also expressed that funding criteria may require projects to be "shovel ready" and therefore could not be applied to planning and risk assessment activities required for adaptation decision making.
- A concern that today's decisions could lead to future liability, as well as concerns over compensation post-disaster for already existing communities that may not be able to meet flood protection standards.

Some of the priority recommendations highlighted by the engagement process included clarification on target setting (e.g. What is the appropriate increase in sea level rise to use for a new development?), updating critically important information (e.g. flood plain mapping, 2004 *Provincial Flood Hazard Land Use Guidelines* to reflect adaptation to sea level rise), and continued education and information sharing.

Policy Evaluation

With few exceptions, the assessment found that much of the B.C. flood policy regime is highly adaptable to sea level rise and associated impacts. Most of the existing legislation was found to be capable of being used in a wide range of circumstances, including for situations that were not anticipated when the legislation was enacted. Regulations pursuant to existing legislation have somewhat lower adaptability where the wording is less generic and the references are more specific to circumstances which may change over time. The assessment, however, found that there were few instances where regulations posed conflicts to adaptive actions.

Although it was found that the B.C. flood policy regime generally supports adaptation, in some cases the implementation consequences may be significant. For instance the *Dike Maintenance Act* enables changing standards to address climate change hazards; however, the financial implications of this change may be significant for local and provincial governments and available resources managed under different programs would have to be adjusted accordingly.

Some of the key findings from the policy evaluation include:

- B.C. flood policy is generally enabling of structural flood management, land use policy and planning options, and flood proofing. Building dikes, establishing flood construction levels, and the use of planning and zoning tools are useful options to manage sea level rise.

- Structural protection measures are the most explicitly addressed and supported by the current B.C. flood policy regime, and understanding and familiarity with soft armouring approaches is developing. Implementation barriers include the cost of structural upgrading (e.g. dike elevation and widening), soft armouring and land acquisition where applicable.
- Although structural flood management options (e.g. dikes) have historically been the focus of coastal protection measures, a combination of protect, accommodate, retreat and avoid strategies will likely be necessary to adequately manage the risk of coastal flooding in a changing climate.
- Funding for flood hazard mitigation has been almost exclusively for structural protection (e.g. dikes). Costs have been shared between federal, provincial and local governments. Currently, accommodate strategies have been the responsibility of property developers and with local governments through planning, zoning and development requirements.
- While structural protection measures are well established in the policy regime, this strategy alone may lead to higher vulnerability by potentially creating a false sense of security for people and property behind flood protection structures.
- The avoid strategy is well enabled within the current policy regime through the use of Official Community Plans, development permit areas, conservation trusts and covenants; however this strategy is not applicable in currently developed areas and it has limited applicability in other areas unless established as a strategic priority.
- Managed retreat, and to a lesser extent, avoid options have yet to be fully addressed in flood policy. Challenges to managed retreat include: the amount of existing development in the flood plain, high value of coastal properties, potential or perceived impacts to local government tax base, emotional and political significance of land ownership, determining future costs and benefits, and the complexity of implementation.

Overall, the analysis found that a more consistent, integrated approach to risk management will be required in a changing climate. This would include coordination among neighbouring regions and the provincial government for diking and other aspects of flood management.

Recommendations

The report outlines specific policy conflicts and gaps and proposes solutions and policy alternatives. Priority recommendations identified by the consultant included:

- Updating critically important information such as 2004 *Provincial Flood Hazard Land Use Guidelines* and provincial flood plain maps.
- Clear target getting through clarification of minimum flood protection standards which can be addressed through updated 2004 *Provincial Flood Hazard Land Use Guidelines*.
- Revise the Disaster Financial Assistance Regulation to reduce vulnerability and enhance compliance with BC flood policy.
- Continued education and information sharing to help enable decision makers and the public advance and support adaptive actions.

- Expand the disclosure statement under the *Real Estate Development Marketing Act* and use of Notice on Title to identify developments in flood hazard areas.
- Continued and strengthened regional planning co-ordination on flood hazard management.
- Funding programs to further support planning studies, alternatives to structural protection measures and possibly land acquisition.
- Explore amending the B.C. Building Code to address building in the flood plain.
- Detailed investigation and consultation of the use of insurance to cover overland flooding.

