

AGENDA PACKAGE FOR:

**Council Meeting
 Wednesday December 12th 2018 | 10:30 AM – 2:30 PM
 Columbia Shuswap Regional District Boardroom
 555 Harbourfront Drive NE, Salmon Arm**

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Council Meeting
September 19th 2018 | 10:15 AM – 3:00 PM
Columbia Shuswap Regional District Boardroom
555 Harbourfront Drive NE, Salmon Arm

Draft Record of Decisions and Action Items (with revisions)

Note: this record is subject to correction when adopted at the next SWC meeting

Meeting objectives

1. Receive report from Program Managers
2. Receive interim report on nutrient research from Megan Ludwig, UBC – Okanagan
3. Receive guest presentation from James Littlely, Okanagan Basin Water Board
4. Receive recommendation from Interim Review Committee

Present

Paul Demenok, Chair – Columbia Shuswap Regional District, Area C
Rick Berrigan, Vice Chair – Thompson-Nicola Regional District, Village of Chase
Rene Talbot – Columbia Shuswap Regional District, Area D
Rhona Martin – Columbia Shuswap Regional District, Area E
Bob Misseghers – Columbia Shuswap Regional District, Area F (Alternate director)
Steven Teed – Secwepemc Nation, Adams Lake Indian Band
Ken Christian – Thompson-Nicola Regional District, City of Kamloops
Nancy Cooper – City of Salmon Arm
Dennis Einarson – BC Ministry of Environment and Climate Change
Lorne Hunter – Community representative
Ray Nadeau – Community representative
Randy Wood – Community representative

Erin Vieira and Mike Simpson – Fraser Basin Council

Observers

John Irvine, Ralph Vandalfsen, Henry Bremer, Hamish Kassa

Regrets

Todd Kylo
Herman Halvorson
Tundra Baird
Dave Nordquist
Laura Code

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Call to Order

Chair Paul Demenok called the meeting to order at 10:15 AM.

Councillor Steven Teed from Adams Lake Indian Band introduced himself as the new appointed representative to the SWC from the Secwepemc Nation; a full round of introductions took place.

Adoption of meeting summary

Moved/seconded by Director Talbot/Director Martin that:
The summary of the June 13th 2018 meeting of the SWC be adopted.

CARRIED

Correspondence

Erin Vieira reviewed three pieces of correspondence since the last Council meeting in June.

Old business

Erin Vieira reported the results of the financial vote via electronic poll on July 12th regarding a grant for the Royal Canadian Marine Search & Rescue for a feasibility study. The motion for a \$2,000 grant was carried. Staff have since provided a payment to the RCM-SAR in the amount specified.

Report from Chair

Chair Demenok reported that he and Director Martin met with Minister George Heyman and Assistant Deputy Minister David Morel (both from BC Ministry of Environment and Climate Change Strategy) on September 10th at the Union of BC Municipalities Convention. It was a productive meeting. In the meeting, Chair Demenok expressed that the BC Ministry of Environment is a very important partner in the SWC and that their in-kind contribution is highly valued, but the concern is that the partnership is not formalized; Chair Demenok also relayed that the SWC may seek financial support for its Water Protection Initiative, upon conclusion of a nutrient research project. Chair Demenok also pointed out that the SWC provided input to the *Agricultural Waste Control Regulation* review, and has not heard an update on the review process by the Province since that time.

Report from Program Managers

Erin Vieira and Mike Simpson presented an update on program operations since the last SWC meeting:

- The 2017 Shuswap Water Quality Summary is complete; it has been distributed throughout the region and promoted throughout July and August. It's also available online at www.shuswapwater.ca.
- Campaigns promoting safe water-based recreation ran throughout summer. The campaigns focussed on "7 tips for having fun and staying safe."
- Campaigns raising awareness of zebra and quagga mussels ran throughout summer. The campaigns emphasize the importance of watercraft owners to "Clean Drain Dry" and stop at watercraft inspection stations.

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- A wetland restoration project on Gardom Creek is proceeding; this work is led by Gardom Lake Stewardship Society with financial support from SWC and others, and will be wrapped up later this Fall.

Expenses to the end of the first quarter (April 1st – June 30th 2018) were reported:

	Annual Budget (\$)	Expenses (\$)
Water Monitoring Initiative	66,400	11,517
Water Protection Initiative	76,300	4715
Zebra & Quagga Mussel Prevention Program	26,850	19,018
Safe Recreation Program	12,200	3929
Communications	37,850	10,468
Management and Administration	40,750	9293
Operating Reserve	126,528	0
Total expenses to June 30th 2018	386,878	58,940

Erin Vieira also presented a brief overview of the 2017 Water Quality Summary (available at www.shuswapwater.ca).

Discussion:

Council members provided comments and ideas on how the SWC could expand criteria for water quality improvement grants in the future, and make it available to more groups.

Action item: staff will consider ways to increase community partnerships and projects via water quality improvement grants, while keeping it relevant to the SWC's objectives.

Discussion:

Council members discussed the recent algae bloom in Salmon Arm Bay at the marina. Dennis Einarson clarified that cyanobacteria has occurred in Shuswap Lake before, in small occurrences, and confirmed that the recent bloom was localized and did not spread in the lake, and that toxicity results on the algae are negative (i.e., not toxic). Council members discussed the role for the SWC to communicate these events and advisory notices. It was agreed that health-related notices and advisories are solely the responsibility of Interior Health Authority and drinking water providers, but that the SWC can re-post them to help improve reach; where matters of health aren't in play, the SWC will continue to coordinate and communicate water quality information.

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Lunch break

SWC members took a lunch break from 12:00 – 12:40 PM

Rhona Martin left the meeting at 12:15 PM

Guest presentation: Megan Ludwig and Dr. Jeff Curtis

Megan Ludwig, an M.Sc. candidate from UBC – Okanagan, presented an update on the nutrient research project being carried out in the Shuswap River and Salmon River:

- The research objective is to gain an understanding of the sources of nutrients (especially phosphorus) in the two rivers, and how it is being transported into those rivers
- Ms. Ludwig briefly explained the research methodology, including how phosphorus is being quantified from three sources to the rivers: tributaries, the upper reaches of the watershed, and incremental flows (groundwater, seasonal streams, and ditches account for incremental flows). There are 20 surface-water monitoring sites on the rivers, and dozens of additional sites for monitoring incremental flows.
- Results to-date, for data collected between July 2016 – February 2018, indicate the following
 - In the Shuswap River watershed, incremental flows contribute the highest proportion of phosphorus per hectare to the river.
 - In the Salmon River watershed, incremental flows contribute the highest proportion of phosphorus per hectare to the river, however there's a complex of interplay of groundwater infiltration happening simultaneously that results in a net decrease in nutrient concentration as the river flows downstream.
- Main conclusions, to-date:
 - Incremental flows (i.e., seasonal streams, groundwater, and ditches) contribute the most phosphorus per hectare to the two rivers. This is not unexpected, as the majority of anthropogenic activities take place in areas of incremental flows.
 - The phosphorus exports and loadings from the different land uses – forest, agriculture, and urban – are within the 'normal' or otherwise observed ranges for those land uses.
 - The Shuswap watershed is a sensitive system, due to the fact that the natural forested land base and soil types do not contribute very much phosphorus to surface water (the study determined it to be 0.011 kg/ha/year). Therefore, a small input of phosphorus has the potential to cause a significant impact to surface water quality.

Dr. Jeff Curtis, a professor and researcher from UBC – Okanagan, was asked to describe additional research methodology that could be added to the scope of the research project. Dr. Curtis explained that a core sample could

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be collected from the bottom of Mara Lake, and analysed for various contents, including nutrients, to create a chronology of environmental change in Mara Lake over a span of a few hundred years. He explained that this could be done within the current work contract and budget if the third year of water quality monitoring and analysis were discontinued. He further explained that the project to-date has yielded very robust data, and the collection and analysis of a core sample would provide a complementary set of data to the project.

Discussion:

Council members discussed the idea of including core sampling in the research project, as an addition to three years of monitoring or as an alternative to the third year of monitoring. Dennis Einarson commented that MOE is monitoring the Salmon River, also, and he agreed that core samples would provide valuable complementary data. Lorne Hunter commented that core sampling would be worthwhile but would also like the three-year monitoring research project to be carried through to completion, as planned; others agreed with his sentiment. Dr. Curtis said that core sampling could be added to the research project for an additional approximate \$20,000 and could be completed within a year; he commented that SWC would likely only need to bear a portion of this expense because he may be able to find another funding partner to share the cost. Mayor Christian commented that he would prefer to see a project proposal, with cost and timeline for the core sample analysis, before making a decision.

Rhona Martin re-entered the meeting at 1:30 PM

Moved/seconded by Vice Chair Berrigan/Mayor Christian that:

The Shuswap Watershed Council receives a research proposal from Dr. Jeff Curtis for the core sample analysis, to be considered and decided upon at the December SWC meeting.

CARRIED

Action item: staff will work with the research team at UBC-O to receive a project proposal by the next SWC meeting.

**Guest
presentation:
James Littley**

The Okanagan Basin Water Board was formed in 1970 with a mission to provide leadership to protect and enhance quality of life in the Okanagan Basin through sustainable water management. To that end, the OBWB administers three core programs for improving water quality and supply:

- Sewage Facilities Assistance Grants – provides up to 16% of project costs for building tertiary wastewater treatment plants, or installing new sewerage pipes to older neighbourhoods (to replace septic)

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- Eurasian Watermilfoil Control Program – treats milfoil in five Okanagan lakes through rototilling and harvesting
- Water Management Program – several initiatives in science, monitoring, flood mapping and response, wetlands, water conservation, water quality improvement, and zebra/quagga mussel prevention.

**New business:
Interim Review
Committee
Recommendation**

Chair Demenok explained the interim review process and thanked the six committee members for their time and input. He went through the performance indicators, and summarized the qualitative assessments and comments that were provided through the review process.

The interim review committee's recommendation to the SWC is that:
The Shuswap Watershed Council continue with its programs.

Moved/seconded by Vice Chair Berrigan/Director Talbot that:
The Shuswap Watershed Council approve the recommendation from the interim review committee that the SWC continue with its programs,

AND that:
Staff be directed to renew the contribution agreement with funding partners.

Discussion:

Chair Demenok commented that the review committee generally agreed that the SWC strive to continue improving its communiqués for water quality monitoring and results, and seeking opportunities to work with the agriculture industry, the Okanagan Basin Water Board, stewardship groups, school/education groups and waterfront property owners.

CARRIED

Action item: Staff will work with the four funding partners to renew a contribution agreement for 2019-2020 (per the SWC's five-year plan).

**Roundtable
updates**

Item cancelled

Adjourn

Moved/seconded by Alternate Director Misseghers/Lorne Hunter that:
The September 19th 2018 meeting of the Shuswap Watershed Council be adjourned.

CARRIED

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Meeting adjourned at 2:40 PM

Item No.	Name	Time
2-a	Correspondence: letter from SWC Chair to Minister Jonathan Wilkinson	10:45

Hon. Jonathan Wilkinson
Minister of Fisheries, Oceans, and the Canadian Coast Guard
Justice Building, Suite 09
House of Commons
Ottawa, Ontario
K1A 0A6
Sent by e-mail to jonathan.wilkinson@parl.gc.ca

25 September 2018

Re: Funding to prevent an Invasive Mussels invasion in British Columbia

Dear Minister Wilkinson,

I am writing on behalf of the Shuswap Watershed Council to express concern about the threat of a zebra and quagga mussel invasion in the Shuswap watershed, and all of British Columbia. Our province needs more support and funding from the federal government to prevent such an invasion, and consequential devastating, costly impacts to water quality, fish habitat, infrastructure, water utilities, beaches, and property values.

The announcement on August 6th regarding funding from the federal government for zebra and quagga mussel research, education and outreach is a start but we think it falls short of what is needed to adequately protect BC from invasive mussels. We know little about the funding at this time, except that "... \$400,000 over three years will be invested for education and outreach purposes... within the Okanagan basin." We feel strongly that this needs to be a much bigger investment and should be spent in all regions of British Columbia.

The Shuswap watershed, in particular, is especially high risk due to boat traffic (this increases the likelihood that infested watercraft will arrive in our waters) and water quality (ideal calcium and temperature conditions increase the likelihood that mussels will thrive). The Shuswap is also especially high consequence because our watershed provides critical migration, spawning, and juvenile rearing habitat for four Pacific salmon species¹.

We share many of the concerns and priorities for action as other water groups in BC, including the Okanagan Basin Water Board in the watershed south of us. A federal investment in our province could go toward several invasive mussel prevention activities, such as:

- Expansion of the provincial watercraft inspection program that's run by the BC Conservation Officer service, including the establishment of additional inspection stations and longer hours and seasons of operation
- New measures to ensure aircraft (i.e., floatplanes) aren't transporting aquatic invasive species
- Expansion of early detection monitoring programs

Canada's Policy for Conservation of Wild Pacific Salmon (2005) is guided by the highest-priority principle of conserving wild salmon and their habitats, and an objective of maintaining habitat and ecosystem integrity.

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- Expansion of education and outreach, complimenting the efforts that are already underway in BC including the “Clean Drain Dry” and “Don’t Move A Mussel” campaigns.

Furthermore, the Government of Canada needs to take stronger action on containing mussel infestations and fully enact the Aquatic Invasive Species Regulation of the *Federal Fisheries Act*. Prevention efforts in the west must be met with robust measures for containment in eastern and central Canada.

We still have the opportunity to keep invasive mussels out of British Columbia; we believe that should make it more of a priority for funding support and action from the federal government. The cost of adequate prevention would be a small fraction of the projected cost of managing a zebra and quagga mussel infestation.

The Shuswap Watershed Council would be pleased to work with the Department of Fisheries and Oceans to ensure that British Columbia, and our watershed especially, is protected from zebra and quagga mussels.

Sincerely,

Paul Demenok
Chair, Shuswap Watershed Council
Director, Columbia Shuswap Regional District, Area ‘C’ South Shuswap
250 517-0810 | pdemenok@csrd.bc.ca

Item No.	Name	Time
2-b	Other correspondence: Province of BC, Invasive Mussel Defence Program Summer 2018 Status Report	10:45



Invasive Mussel Defence Program Summer 2018 Status Report



Welcome to the summer status report for the period of June 01 to August 17 2018. The Invasive Mussel Defence Program (IMDP) is a shared delivery between staff from the B.C. Conservation Office Service (COS) and the Environmental Sustainability & Strategic Policy Division (ESSPD) within the Ministry of Environment and Climate Change Strategy (ENV). The Program would like to recognize the ongoing funding provided by BC Hydro, Fortis BC, Columbia Power Corporation, and Columbia Basin Trust to support the delivery of the program. For more information about the Program please visit www.gov.bc.ca/invasivemussels

Program Operations

Watercraft Inspection Stations

Invasive mussel inspection stations opened on April 1, 2018. As of August 17th, just over 33,000 watercraft have been inspected and crews have interacted with approximately 65,000 people to promote Clean, Drain, Dry.

Of the total watercraft inspected, 1,412 were identified as high risk, 273 Decontamination Orders were issued, and 203 watercraft were issued quarantine periods to meet the required 30-day drying time. A total of 374 decontaminations have been performed to date.

Of the more than 33,000 watercraft inspected, 20 were confirmed to have adult invasive mussels. These came from Ontario (10), Arizona (4), Manitoba (2), Michigan (2), Utah (2) and Nevada (1) and were destined for the Lower Mainland (8), Okanagan (3), Thompson-Nicola (4), Vancouver Island (4), and the Kootenays (1). The Program received advanced notification on 15 of the 20 mussel fouled boats either from another jurisdiction (e.g., AB, MT, ID, WA) or by Canada Border Services Agents (CBSA).

Between May 15 and August 17, 355 watercraft were inspected at night (10 p.m. to 5 a.m.) at the Golden inspection station on Hwy 1. Of those, 19 were identified as high risk and two of the mussel fouled watercraft have been intercepted between 10 p.m. and 5 a.m.



Invasive mussels found on the trim tabs of a cabin cruiser from Michigan. The Surrey inspection crew completed a full decontamination of the watercraft.

	Aug 21 2017	Aug 17 2018
Total Watercraft Inspected	28,700	33,400
People Interacted with to promote CDD	59,000	65,000
High Risk Watercraft	1,627	1,412
Decontamination Orders Issued	184	273
Quarantine Periods Issued	156	203
Mussel fouled watercraft	17	20

Comparison of watercraft inspection totals as of mid-August for the 2017 and 2018 seasons.

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2018 SUMMER STATUS REPORT

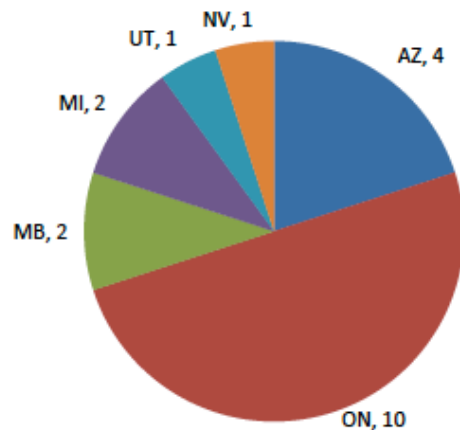


Figure 1. Source location of the 20 mussel fouled boats intercepted to date for the 2018 season.

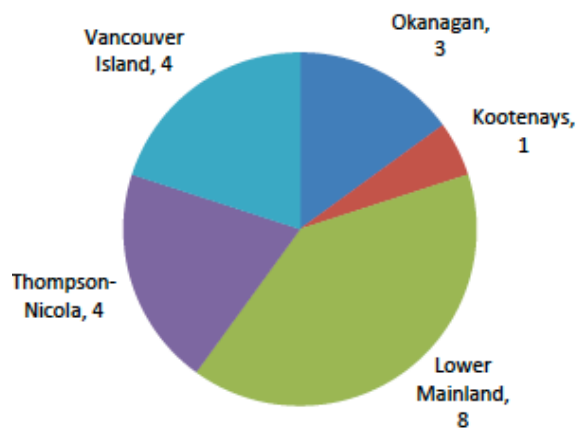


Figure 2. Destination location of the 20 mussel fouled boats intercepted to date for the 2018 season.

Lake Monitoring

Monitoring is critical for early detection of new invasive species incursions in B.C. and is an important first step in the [Provincial Early Detection Rapid Response \(EDRR\) Plan](#). The Province has been conducting early detection lake monitoring for zebra and quagga mussels since 2011. For further information about the protocols used for early detection monitoring and details of the 2017 sampling efforts please visit the program [website](#).

For the 2018 season, sampling started in early June and to date 284 samples have been collected and from over 50 different waterbodies across B.C. Samples continue to be sent to the laboratory for analysis. Full results from the 2018 sampling season will be released in the year-end report.

Program Effectiveness

To date, of the boaters whose watercraft were inspected, approximately 60% had previous knowledge of [Clean, Drain, Dry](#) and/or aquatic invasive species. A total of 160 people without boats have voluntarily stopped at the watercraft inspection stations to get more information about invasive mussels and other aquatic invasive species (AIS). The Program has also received over 50 inquiries from members of the public about bringing their boat into BC and to learn more about the watercraft inspection stations.

Average compliance at the inspection stations for the 2018 season is 81%. Of the watercraft that failed to stop at the inspection station, 78% were non-motorized watercraft such as canoes, kayaks, and paddleboards which pose a much lower risk than motorized watercraft. To date for the 2018 season, 79 tickets and 44 warnings have been issued by Conservation Officers to motorists for failing to stop at inspection stations.

Watercraft operators who fail to stop at an inspection station are being reported to the Report All Poachers and Polluters (RAPP) hotline and full time Conservation Officers are responding and following up.

The Program continues to work with the CBSA to receive notifications of high-risk watercraft at the southern border crossings. To date during the 2018 season, CBSA has sent 284 notifications to the Program from the southern border crossings.

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2018 SUMMER STATUS REPORT



Highlights

On Friday June 29th Kilo (the invasive mussel detection dog) detected invasive mussels on a watercraft that had been in Lake Winnipeg one week prior. The Provincial inspectors at the Golden inspection station were able to visually confirm adult invasive mussels around the engine area. The watercraft was issued a quarantine period and prohibited to launch before the required 30 day drying time had passed.

The Program is very pleased to welcome Inspector Aaron Canuel from the Conservation Officer Service as the new officer in charge of program operations. Inspector Canuel will be working closely with ENV staff from the Ecosystems Branch on the shared delivery of partnerships and outreach/education. Ecosystems branch will remain the lead for the policy and science aspects of the program including the early detection lake monitoring. The Program would like to thank Inspector Joe Caravetta as the outgoing acting office in charge for all his time and dedication to the Program on top of his existing commitments.



Watercraft being decontaminated (top) and inspected (bottom) at the Golden inspection station.

AIS news and announcements

The Final Report for the 2017 season of the IMDP is now available on the program [website](#) and includes detailed data and metrics from the 2017 operating season with a focus on the three main program areas: watercraft inspection stations; lake monitoring, and outreach and education.

Ecosystems staff attended the [Pacific Northwest Economic Region \(PNWER\) summit](#) in Spokane, WA for the invasive species session on July 25th. This is one of several meetings that the Province attends annually to provide opportunities for cross-border collaboration and partnerships on invasive mussel prevention as well as other AIS prevention and research efforts. The program works very closely with western jurisdictions on collective priorities for invasive mussel prevention.

On August 6th the Government of Canada [announced](#) funding for research and education to prevent Zebra and Quagga mussel invasion in the Okanagan region. ENV staff will be working closely with DFO staff to discuss this new opportunity and how it will align and complement existing research and education work being done in the Province and its partners.



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2-d	Other correspondence: Parliament news release, 1 November 2018	10:45

News Release

For Immediate Release

Federal Fisheries Committee to Study Aquatic Invasives

November 1, 2018

Ottawa, ON- Mel Arnold, Member of Parliament for North Okanagan- Shuswap, won unanimous support for a motion he introduced calling on the House of Commons fisheries committee to study the federal government's approach to preventing and managing aquatic invasive species, or AIS.

By passing this study motion, the Standing Committee on Fisheries and Oceans has committed to examine the Aquatic Invasive Species Component (AISC) of the federal Department of Fisheries and Oceans' Fisheries Protection Program (FPP). According to the motion passed on October 30, the committee's study will focus specifically on the mandate and resources of the AISC and how resources and activities for preventing or managing AIS are distributed across Canada.

"Increasing risks of AIS like zebra and quagga mussels necessitate a robust program preventing an infestation in our Okanagan or Shuswap watersheds," stated Arnold. "An invasive mussel infestation in our region would cost local economies tens of millions of dollars and inflict permanent ecological damage- prevention is the only option that makes sense."

Since being elected in 2015, MP Arnold has been a strong voice in Parliament advocating for expanded federal resources for AIS prevention in British Columbia and has worked with local organizations, municipalities and First Nations to raise the importance of this issue. Arnold's advocacy led to a commitment last year from the fisheries minister for increased federal resources for AIS prevention in BC this year.

However, the actual increase amounted to approximately \$50,000 annually- an increase that Arnold has called "insulting." Of the \$10.1 million of ongoing funding DFO has for AIS activities nationally, about 86% is given to fighting two species, invasive Asian carp and sea lamprey, in Ontario.

"Aquatic invasive species pose a major threat to ecologies and economies across Canada, especially in the North Okanagan – Shuswap, and we must ensure that federal resources and activities are well-placed and managed for optimum results," said MP Arnold. "I appreciate the unanimous support for this important study and sincerely hope the fisheries committee can produce a report that strengthens our national efforts for preventing and managing AIS across Canada, including British Columbia."

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For more information please contact:

Joel Taguchi, Legislative Assistant

Email: mel.arnold.a1@parl.gc.ca Phone: 613.222.6855

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2-d	Other correspondence: Okanagan Basin Water Board media release, 21 November 2018	10:45



Okanagan Basin
WATER BOARD

1450 KLO Road, Kelowna, BC V1W 3Z4
P 250.469.6271 F 250.762.7011
www.obwb.ca

November 21, 2018

NEWS RELEASE

OKANAGAN WATER BOARD CALLS FOR B.C. LEGISLATION TO PROTECT B.C. WATERS FROM INVASIVE MUSSELS

Kelowna, B.C. – The Okanagan Basin Water Board (OBWB) is renewing a call for legislation that would require all out-of-province watercraft to be inspected for invasive zebra and quagga mussels before launching in B.C. waters. The call was sent in a letter this week to B.C. Minister of Environment and Climate Change George Heyman.

"This legislative change was the first priority in our list of action items provided to your ministry on October 20, 2017, following our meetings at the 2017 Union of BC Municipalities conference," the letter, signed by OBWB Executive Director Anna Warwick Sears, states. "We feel that there is still sufficient time before the 2019 boating season for the province to pass this legislation, and ensure that inspections are available in centralized locations for those with watercraft who do not report to a roadside station."

Currently, if someone enters B.C. with any type of watercraft and it encounters an open inspection station on route, law requires that it must stop for inspection. However, this leaves a gap for watercraft that enter outside of inspection station hours, outside of the inspection season (April to October), or through routes which are not monitored.

"The province will never be able to completely seal the border," notes Sears. It is also an achievable, enforceable and almost immediate improvement. This change, she explained, would allow for spot-checking out-of-province watercraft for proof of an inspection at local boat launches, enhancing enforcement of the law.

"Now that we've seen the results from this year's inspection program, we want to highlight what we see as remaining gaps," Sears added, explaining the reason for the letter.

The letter acknowledges improvements to the program this year. This year, the province responded to repeated calls from the OBWB to have ongoing, stable funding for the program with the announcement of \$1 million in dedicated annual funding. A second sergeant was added to help address non-compliance. Inspection stations increased from 10 in 2017 to 12 in 2018, with 62 auxiliary conservation officers. As well, it was announced that a second mussel-sniffing dog was being trained to join the effort in 2019.

As for final inspection numbers for this year, a total of 25 watercraft were found to be carrying adult invasive mussels. The mussel-fouled boats came from Ontario (16), Arizona (3), Manitoba (2), Michigan (2), Utah (1) and Nevada (1), and were destined for the Lower Mainland (9), Vancouver Island (5), Thompson-Nicola (4), Okanagan (3), and the Kootenays (1). The program received advanced notice for 20 of the 25 mussel-infested watercraft, either from another jurisdiction (e.g., Alta., Mont., Idaho or Wash.) or by Canada Border Services Agents.

"It's too important to not do everything that we can," added Sears. "It's going to cost us millions and cause, not only hardship but, heartbreak if Okanagan lakes are spoiled by invasive mussels."

A 2013 [study](#) for the Water Board estimated invasive mussels would cost the Okanagan \$43 million a year to just manage. The Pacific NorthWest Economic Region (PNWER), made up of provincial and state government representatives, and with a mission to increase economic well-being and quality of life for all citizens in the

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Okanagan Basin
WATER BOARD

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www.obwb.ca

region, has estimated a mussel infestation at \$500 million a year to the Pacific NW.

The OBWB has been sounding the alarm about the mussels since 2012. At that time, the OBWB and its Okanagan WaterWise outreach and education program launched the [Don't Move A Mussel](#) campaign. Since then, it has spent more than \$277,000 in local tax dollars on the initiative, and with in-kind support from the Okanagan business community, delivered a program worth over \$800,000. It has also provided \$165,000 between 2013 and 2018 to the Okanagan and Similkameen Invasive Species Society to assist with direct boater outreach and to conduct mussel water monitoring.

The OBWB has also been an active participant in PNWER's Invasive Species Working Group, and actively partnered with the Province of B.C., local governments, the Invasive Species Council of B.C., the Kelowna Chamber of Commerce, and many other organizations on this file.

Please find attached the letter OBWB has sent to Min. Heyman.

Learn more about the mussels, the risks to the Okanagan, and find prevention tips and information on what to do if bringing watercraft into B.C. at www.DontMoveAMussel.ca.

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MEDIA CONTACT: Corinne Jackson, OBWB – Communications Director
Office: 250-469-6271 Mobile: 250-718-7249
E-mail: corinne.jackson@obwb.ca

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1450 KLO Road, Kelowna, BC V1W 3Z4
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www.obwb.ca

Hon. George Heyman
Minister of Environment and Climate Change
PO Box 9360 Stn Prov Govt
Victoria, BC V8W 9M2

November 20, 2018

Re: Legislative Changes to Prevent Invasive Mussels

Dear Minister Heyman,

Since 2015, the province of B.C. has taken significant and impactful action in its mussel prevention and education programs, improving each year - most recently with your announcement of annual funding for the prevention regime. On behalf of the OBWB, I thank you for taking this important step to protect our waters. On August 6, 2018, Canadian Prime Minister Justin Trudeau also announced new federal funding to help in the prevention of invasive zebra and quagga mussels into B.C. This announcement was partially informed by our ongoing calls to action for the federal government to provide assistance to western provinces in their efforts to keep invasive mussels out of the Pacific Northwest, including B.C. and the Okanagan.

While we commend the recent announcements, and recognize the improvement that will be made through stable funding for inspection stations, we are concerned that four years after the first roving inspections were conducted in B.C., there is still no legal requirement for out-of-province watercraft to be inspected prior to launching in provincial waters. The current legislation dictates that if a watercraft enters B.C. and if it encounters an open inspection station on route, it must stop for inspection. However, this leaves a gap for watercraft that enter outside of inspection station hours, outside of the inspection season, or through routes which are not monitored. We feel that the province's number one priority for mussel prevention should be addressing this legislative gap.

This legislative change was the first priority in our list of action items provided to your ministry on October 20, 2017, following our meetings at the 2017 UBCM conference. We feel that there is still sufficient time before the 2019 boating season for the province to pass this legislation, and ensure that inspections are available in centralized locations for boaters who do not report to a roadside station. Further, we recognize that this legislative change is more cost-effective than providing 24 hour inspection stations, which have been called for in the past. This change would also allow for spot-checking out-of-province watercraft for proof of an inspection at local boat launches, enhancing the enforcement of the law.

We call on the Province of B.C. to make these legislative changes immediately in preparation for the next boating season to keep our shared B.C. waters invasive mussel-free.

Item No.	Name	Time
2-d	Other correspondence: Okanagan Basin Water Board media release, 21 November 2018	10:45

Over the next few months the OBWB will continue to work with provincial staff and other partners to support public messaging of the “Clean, Drain, Dry” protocol through our Don't Move A Mussel campaign. You can also count on our continued support, through our calls to action, for increased and ongoing federal funding and other support to the western provinces’ mussel prevention efforts.

Sincerely,



Anna Warwick Sears, Executive Director
Okanagan Basin Water Board

CC:

- Okanagan MPs: Stephen Fuhr, Mel Arnold, Dan Albas, Richard Cannings;
- Federal Critic: Todd Doherty,
- MLAs: Eric Foster, Norm Letnick, Steve Thomson, Ben Stewart, Dan Ashton, Linda Larson, Jackie Tegart, Greg Kylo
- Chiefs Executive Council, Okanagan Nation Alliance;
- Regional District Chairs for North Okanagan, Central Okanagan, and Okanagan-Similkameen;
- Okanagan Municipalities;
- Matt Morrison, Chief Executive Officer, Pacific NorthWest Economic Region;
- Gail Wallin, Executive Director, Invasive Species Council of B.C.
- Kelowna Chamber of Commerce

Item No.	Name	Time
3-a	Old business: Draft summary of the Shuswap Water Quality Monitoring Group	11:00

**Shuswap Water Quality Monitoring Group
November 1st 2018 | 10:00 AM – 1:30 PM
Fraser Basin Council Office
200A – 1383 McGill Road, Kamloops**

Draft meeting summary as at 7 November 2018
Subject to correction at the next meeting of the Shuswap WQ Monitoring Group

Attendance

Roger Huston – Village of Lumby
Colan Morrow – District of Sicamous
Jessy Bhatti – Interior Health Authority
Rob Niewenhuizen – City of Salmon Arm
Connie Hewitt – Regional District of North Okanagan
Casey Neathway – First Nations Health Authority (from 11:30)

Erin Vieira – Fraser Basin Council (SWC program manager)

Summary of discussions and action items

Erin welcomed all present and acknowledged Secwepemc Territory. A round of introductions took place.

The agenda and the draft summary of the last meeting (February 28th) were approved.

Erin briefly reviewed the Shuswap WQ Monitoring Group Terms of Reference.

Action item: Erin will re-send the Terms of Reference to all group members (membership has changed and the TOR hadn't been reviewed in over a year).

1. Shuswap Watershed Council business

Erin let the group know that the SWC conducted a review of its programs over the summer. The review was positive, and the 6-member committee that did the review recommended to the SWC that it continue with its programs for water quality, safe recreation, and zebra/quagga mussel prevention. The SWC approved the recommendation at its most recent meeting in September.

Rob commented that SWC Chair Paul Demenok made a presentation at a recent Salmon Arm Council meeting, and City Council provided positive feedback.

Item No.	Name	Time
3-a	Old business: Draft summary of the Shuswap Water Quality Monitoring Group	11:00

Erin relayed some of the feedback and ideas from the review committee to the group, and suggested that some of the ideas be part of the next Water Monitoring Group meeting.

2. 2018 Water Quality Monitoring

The group reviewed the 2018 water monitoring plan (built at the February Water Monitoring Group meeting). Meeting participants noted that there were no significant deviations from the monitoring plan this year.

A brief discussion of water quality monitoring at beaches took place. Jessy confirmed that in the Shuswap, it's primarily municipalities, regional district and parks that collect samples as part of IHA's requirements, and that IHA pays for lab analysis and receives lab results. Beach monitoring data is available on the IHA website.

Colan inquired if Sicamous should re-consider the locations they collect samples; Jessy suggested they look at IHA's beach monitoring protocol.

Action item: JB and CM to discuss beach monitoring in Sicamous to determine if changing the locations is worthwhile

3. Algae blooms, cyanobacteria, and public notification

Rob provided some background context to this agenda item and explained that a suspected cyanobacteria bloom occurred in the Salmon Arm marina in early September. IHA recommended that the City post an advisory notice at the marina to ask people and pets to stay out of the water; notification templates were provided to the City and they were posted accordingly.

The Health Protection Branch has recently released a protocol for cyanobacteria, *Decision Protocols for cyanobacterial toxins in BC Drinking Water and Recreational Water* (link [here](#)). The protocol outlines procedures for screening and analyzing both drinking water and recreational water for cyanobacteria. These procedures include recommendations for who does the screening, as well as communicating with the public.

Jessy re-iterated that public notifications, once they are recommended or required, are the responsibility of the water provider (in the case of drinking water) or beach 'owner' (i.e., a municipality or park). All present at the meeting agreed to share such notifications with Erin.

4. Review 2017 Shuswap Water Quality Summary Report

Erin briefly reviewed the 2017 water quality summary report with the group, and asked for feedback and considerations for the 2018 version (not yet underway).

Rob provided positive feedback, and commented specifically that the graphs are formatted in an easy-to-understand way with an appropriate amount of detail and parameters reported.

Item No.	Name	Time
3-a	Old business: Draft summary of the Shuswap Water Quality Monitoring Group	11:00

Jessy commented that the 2018 version should include information on cyanobacteria, and testing and notification procedures for recreational water.

The group agreed that the water quality parameters being reported should remain as is; no need to include additional parameters.

5. Group brainstorm – water protection strategies for SWC outreach

Erin explained that the SWC’s Water Protection Initiative includes outreach to homeowners and residents about stewardship and good practices to maintain or improve water quality. She inquired of the group if their organizations have relevant initiatives underway, or if they have suggestions for the SWC.

Rob commented that the City does water conservation messaging occasionally. He suggested that promoting the ‘Septic Smart’ program would target a known water quality issue.

Erin specifically asked the group if ‘non-flushables’ in sewer systems are a problem in the region, and if the SWC should address this issue with an educational campaign. Group members replied they did not think this was an issue.

6. Zebra and quagga mussels update

Erin reported that she participated in a provincial zebra/quagga mussels working group meeting last month, at which the Province reported on their watercraft inspection program. 12 watercraft inspection stations are set up around BC’s perimeter, and motorists with boats of all kinds are required to stop. Approximately 80% of motorists with watercraft stop; the highest non-compliance seems to be among non-motorized watercraft owners (i.e., kayaks, paddleboards).

Erin also relayed to the group, on behalf of the Columbia Shuswap Invasive Species Society, that zebra and quagga mussel monitoring in the Shuswap to-date at 26 sites has not detected any indication of invasive mussels, neither adult nor larvae. Monitoring is on-going, and will be wrapped up for the winter months soon.

7. Who does what for water in the Shuswap?

Erin explained a new piece of collateral the SWC is producing to visually depict the variety of water quality monitoring done in the Shuswap, and who does it. She presented a draft version and sought the input of all present. The final version will be put on the SWC website and used in other communications, such as annual water quality reports or presentations.

Action item: Erin will share the working draft with the group; others may provide input or revisions as needed.

Item No.	Name	Time
3-a	Old business: Draft summary of the Shuswap Water Quality Monitoring Group	11:00

8. Roundtable updates

Roger reported that the Village of Lumby is upgrading their sewer system and considering technology to remove phosphorus and nitrates from waste.

Rob reported the Salmon Arm is upgrading their wastewater treatment plant with additional ultra-violet treatment for polishing effluent.

Casey reported that First Nations Health Authority is setting an 'in-house' cyanobacteria protocol.

9. Next meeting

The group agreed to meet again in late winter or early spring (Feb-March). Erin will send out a Doodle poll to determine what date works for most people. The agenda will focus on 2019 water quality monitoring activities.

The meeting adjourned at 1:30 pm.

Item No.	Name	Time
3-b	Old business: Review SWC Terms of Reference	11:00

Shuswap Watershed Council Terms of Reference

The governance framework for the Shuswap Watershed Council is described in the Terms of Reference (v.4, March 2018). The Terms of Reference are available on the SWC website here: https://www.fraserbasin.bc.ca/Library/TR_SWC/swc_tor_v4.pdf.

In light of recent elections and new membership on the SWC, it's recommended that the Terms of Reference be briefly reviewed.

Item No.	Name	Time
4-a	New business: Draft SWC meeting schedule for 2019	11:15

2019 Meeting Schedule - DRAFT

	Date	Draft agenda
4 th quarter (2018-19)	March 13 th	Election of Chair and Vice Chair 2018 Work plan presentation and approval Financial and program operations update Business arising
1 st quarter (2019-2020)	June 12 th	Financial and program operations update 2017-18 Annual report Business arising
2 nd quarter	September 11 th	Financial and program operations update Interim SWC program review process Business arising
3 rd quarter	December 11 th	Financial and program operations update Business arising

Meetings are held once per quarter, on the second Wednesday of the month, approximately 10:30 AM – 2:30.

Meetings are held at the Columbia Shuswap Regional District Boardroom unless otherwise noted.

Union of BC Municipalities Convention: September 23rd – September 27th 2019

Item No.	Name	Time
4-b	New business: Community representatives for renewal in 2019	11:15

Community representatives and the Shuswap Watershed Council

Background

The Shuswap Watershed Council governance structure includes three community representatives. Three community members were appointed to the SWC in May 2016, each for a three-year term that expires in March 2019. At this time, the community representative positions on the SWC would be renewed.

Renewal process for 2019

Staff propose that the three community representative positions and qualifications² be advertised in January, and interested applicants be invited to submit an Expression of Interest. Staff will screen applicants to ensure they meet qualifications, and candidates will be invited to the March 2019 meeting to meet SWC members and explain their interest in being part of it. At that time, the SWC membership will select the candidates for membership.

² The Shuswap Watershed Council Terms of Reference (v.4 March 2018) describes the desirable qualifications and expectations from Community Representatives (see Section 4.2).

Item No.	Name	Time
5	Program Managers' Report	11:30

Program Managers' Report

Financial summary to the end of the second quarter (April 1st 2018 – September 30th 2018):

INCOME

Source	Amount received (\$)
Surplus SWC funds (from March 31 st 2018)	136,978
TNRD	53,600
CSRD (C, D, E, F and District of Sicamous)	155,000
City of Salmon Arm	40,000
Adams Lake Indian Band	1,300
Total	386,878

EXPENSES

Activity (per 2018-19 work plan)	Budget (\$)	Expenses (\$) Apr 1 st – Sept 2018
Water Quality Monitoring: Water Monitoring Group	8750	1033
Water Quality Monitoring: Water Monitoring Plan	57,650	11,250
Water Quality Protection: Advisory Committee	6200	3095
Water Quality Protection: Nutrient research	47,800	45,567
Water Quality Protection: improvement projects	12,400	1295
Water Quality Protection: nutrient management education initiatives	7900	1642
Water Quality Protection: other education initiatives and pollution reduction	2000	0
Zebra and Quagga Mussel Prevention: education, outreach and advocacy	26,850	21,981
Recreation Safety: campaigns and equipment	12,200	9763
Communications: collateral	4450	2485
Communications: public engagement	14,400	3826
Communications: annual water quality report	19,000	15,270
Administration	27,050	12,015
Financial management and fund development	13,700	5707
Sub-total (Operating Expenses)	260,350	134,929
Operating Reserve	126,528	0
Total for 2018-19	386,878	134,929

Item No.	Name	Time
6	Guest presentation: Draft nutrient research project proposal	12:45

Reconstruction of Historic Phosphorus Loadings to Mara Lake: Evaluation of Changes in Trophic State

Research Objectives

From a sediment core collected from Mara Lake

- Determine sediment age by 210-Pb dating, confirm with 137-Cs*
- Determine Phosphorus Loading for time intervals in the sediment core (P, $\text{g m}^{-2} \text{y}^{-1}$)
- Determine loading of organic and inorganic matter
- Analyze diatom community to infer potential changes in nutrient loading*
- Infer changes in trophic state from combined indicators (P-loading, organic matter, inorganic matter loading, and diatom community analysis) from about 1800 (pre-development) to today.

*These analyses will be sub-contracted to commercial providers.

Desired outcomes of the research: An objective, credible inference on the expression of anthropogenic nutrient loading change on Mara Lake. Inferred changes from background (centuries ago) will be compared to contemporary indicators and to estimates of anthropogenic P loading from mass balance approaches (Ludwig, 2018).

Refer to the agricultural nutrient management report (McDougall, 2014) for context and background to the research questions and desired outcomes.

Project Description

Replicate sediment cores (~0.5m) will be collected from Mara Lake at the deepest point. Both of the cores will be sectioned into intervals ranging from 0.5 or 1.0 cm and stored in whirlpack bags. The sediment subsamples will be weighed and freeze dried to determine water and dry matter content. Dry matter from one of the cores will be subsampled for measurement of several indicators. First, organic and inorganic content will be measured by loss of mass on ignition. Second, the isotopes 210-Pb and 137-Cs will be measured by gamma spectroscopy to establish chronology of sediment accumulation and estimates of date ranges for intervals. Third, P will be measured spectroscopically after digestion. Finally, the fossil remains of algal diatoms will be analyzed to determine whether there have been changes in the community consistent with changes in transparency or nutrient loading.

This multi-indicator approach is common in paleolimnology (reconstruction of lake and watershed history). We will evaluate changes in the indicators through time to arrive at a parsimonious interpretation of change in the watershed and lake systems. Observed changes will be compared to those predicted from enhanced nutrient loading calculated by mass balance (Ludwig, 2018).

Item No.	Name	Time
6	Guest presentation: Draft nutrient research project proposal	12:45

Products: Progress for this project will be reported on completion in writing and in person to the Advisory Committee. Other products of this research may be a scientific publication. Data and anticipated results from this study will inform best management and remediation measures to manage anthropogenic phosphorus loading and eutrophication risk in Mara and Shuswap Lakes from their tributary rivers.

Timeline: The proposed study will be conducted January to September of 2019 with activities summarized in Table 1.

Activities: 2019	Jan	Feb	March	April	May	June	July	August	Sept
Core Collection									
Core Processing									
Isotope Analysis									
Physical/Chemical analysis									
Diatom Community Analysis									
Data Integration									
Reporting									

Advisory Committee: Shuswap Watershed Council and representatives from government and sector groups (dairy, cattlemen, poultry, others) will oversee this project. Communicating the objectives, methodology and rationale for the phosphorus research project will be important for advisory committee members.

Budget

Salaries:

PT Research Assistant \$5,000

Subtotal

\$5,000

Travel:

240 km total @ \$0.50/km = \$120

Analyses:

Sample Processing, 30 samples @ \$20/sample = \$600

210-Pb & 137-Cs analysis \$6,000

Chronologic Analysis \$1,000

P, 30 samples @ \$20/sample = \$600

Diatom Community Analysis, 30 samples @ \$200/sample = \$6,000

Subtotal

\$14,320

TOTAL

\$19,320