



PROJECT REPORT

Mountain pine beetle and water management workshop

Post-workshop evaluation survey summary and results



FORREX Forum for Research and
Extension in Natural Resources

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INTRODUCTION

FORREX Forum for Research and Extension in Natural Resources, with support from the Southern Interior Beetle Action Coalition (SIBAC) and the Forest Investment Account–Forest Science Program (FIA–FSP), organized a 1-day workshop entitled “Mountain Pine Beetle and Water Management” in Kelowna, BC on June 2, 2009. The primary target audience for the workshop was water purveyors who may have to respond to the downstream effects of mountain pine beetle (MPB) in terms of water supply and treatment systems. Given the large number of community water systems in the BC Interior that could incur increased treatment costs if water quality is degraded, there is a critical need for water purveyors, as well as land managers, to understand the range of potential hydrologic effects that can occur due to an MPB infestation. While there have been a number of recent publications that synthesize the research on the effects of MPB and salvage harvesting, there have not been any directed extension efforts towards the supply of safe drinking water. This workshop provided a more operationally oriented follow-up to the MPB and Watershed Hydrology workshop held in Kelowna in 2007.

The primary goals of the workshop were to:

1. increase awareness and knowledge of potential impacts of MPB and salvage harvesting on consumptive use watersheds;
2. identify concerns and actions to address the concerns regarding MPB and salvage harvesting effects on a range of water values; and
3. bring together water purveyors (including municipal, local governments, First Nations, and private utilities) and researchers to develop new collaborative opportunities to help address the increased challenges associated with MPB.

Rapid communication of relevant research results is needed to incorporate the most current and best available knowledge into BC’s water treatment operations and into the province’s forest land management response to the ongoing MPB infestation. Presentation and panel discussion topics covered the current state of knowledge on the effects of MPB and associated salvage harvesting on water quantity and quality, and case studies from the Southern Interior highlighting some of the management approaches and challenges facing water purveyors. The workshop handbook with 2-page summaries provided by each presenter can be downloaded from: http://www.forrex.org/program/water/PDFs/Workshops/MPB_Handout.pdf

This document summarizes the results of the post-workshop evaluation survey for the Mountain Pine Beetle and Water Management Workshop. A brief summary of the survey results and responses is provided, followed by the raw survey data.

SUMMARY OF POST-WORKSHOP EVALUATION SURVEY RESULTS

The post-workshop evaluation survey was completed by 44 of the 79 event participants, which is a response rate of 56%.

Overall, the responses to the evaluation were very positive. The following are brief summary points based on the survey results. For additional details please see the full results and written response sections.

- 70% of respondents indicated that their level of understanding about the potential hydrologic effects of a mountain pine beetle infestation and associated forest management activities was increased. The majority of respondents who did not indicate an increase in knowledge ranked their knowledge as high prior to the workshop.
- 73% of respondents indicated that their level of understanding about the potential impacts of a mountain pine beetle infestation for water treatment was increased. The majority of respondents who did not indicate an increase in knowledge ranked their knowledge as high prior to the workshop.
- 95% of respondents said that their expectations for the workshop were met.
- 95% of respondents rated the workshop as “good” or “excellent.”
- 45% of respondents learned of the workshop through direct FORREX email contact, 36% through the WM Listserv, and 5% learned of the workshop through the FORREX website events listing. Alternatively, 36% of individuals learned of the workshop by notification from a colleague.
- Many respondents indicated that the knowledge or information presented at the workshop will be useful in addressing potential water management implications of the MPB infestation and associated forest management activities (e.g., salvage harvesting).
- There were generally positive comments related to the length of the coffee breaks and lunch. Overall, they were viewed as excellent opportunities to catch up with colleagues and make new contacts.

FULL RESULTS

1. Within which of the following categories does your involvement with issues around Mountain Pine Beetle and water resources occur (select more than one if applicable)

Water Purveyor	7	16%
Local/Regional Government	3	7%
First Nations	2	5%
Community or Stewardship Group	1	2%
Consulting	11	25%
Federal Government	1	2%
Provincial Government	12	27%
Academic	12	27%
Forest Industry	5	11%
Other, please specify	4	9%

5. In the 3 questions below, please rate the workshop in terms of the information presented, the venue, and networking opportunities:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Excellent	Good	Average	Poor	N/A
Overall, how practical or useful would you consider the information and ideas presented at this workshop to your work?	13 30%	20 45%	4 9%	7 16%	0 0%
How suitable was the venue?	10 23%	24 56%	5 12%	4 9%	0 0%
To what extent were the coffee and lunch breaks effective in enhancing your personal network and collaborative opportunities?	19 44%	12 28%	10 23%	2 5%	0 0%

6. Were your expectations for the workshop met? If not, please briefly describe why.

Yes	40	95%
No (please provide comment)	2	5%
Total	42	100%

8. Where did you hear about the workshop?

FORREX Direct Email Contact	20	45%
FORREX Watershed Management LISTSERV	16	36%
FORREX Website Event Listing	2	5%
Professional Organization Web Listing (e.g. ABCFP, BCIA)	4	9%
Notification from colleague	16	36%
Other, please specify	2	5%

9. Overall, please rate the workshop

Excellent	21	48%
Good	21	48%
Average	2	5%
Substandard	0	0%
Not worthwhile	0	0%
Total	44	100%

WRITTEN RESPONSES

- The response number is the number of each individual respondent, and is consistent between questions.
- A numeric code was developed for each of the affiliation categories, and these are consistent between questions.
- The written results for each question have been sorted by affiliation.
- Blank responses or those giving answers of “no” or “not at this time” have been removed.
- Responses have not been edited except to save space (deletion of blank lines). Otherwise, the written work is as entered in the survey site.

Affiliation Codes (Used Below)

- 1 Water Purveyor
- 2 Local/Regional Government
- 3 First Nations
- 4 Community or Stewardship Groups
- 5 Consulting
- 6 Federal Government
- 7 Provincial Government
- 8 Academic
- 9 Forest Industry
- 10 Other

Response#	Affiliation	Question 4: Can you comment how the new knowledge or information you received will be used in addressing potential hydrological and water management impacts of the MPB infestation?
1	5	Always important to be appraised of progress on research and the state of the knowledge in this field. The FORREX workshop fills a very important niche that is extremely valuable at this time.
2	5	Phasing of salvage harvest and choice of areas with suitable understory can allow some harvest with less hydrological impact. Re: water quality and regional hydrologic impacts, it appears the research has started but needs completion. Having panel members from diverse groups made for more wide ranging discussion - points/counterpoints.
3	1	Will be included into a Regional Water & Wastewater Conservation & Management Plan we are currently developing
5	8	Improved understanding of MPB infestation (factors), mitigation strategies and lack of data (temporal and spatial) linking MPB to water resources will help guide our research related to water quality impacts and adaptation (i.e. improved understanding of impacts on local streams)
6	5	This knowledge will be incorporated into source water protection plans of various Okanagan watersheds.
8	5	Integrated into other water management planning - seeking to avoid duplication.
10	8	I'm hoping to do my Master's research on it, so the information was a great starting point!
12	1	public and political education
17	9	The seminar reinforced the importance of the forest industry and water purveyors communicating regularly. I found it extremely interesting that water utilities are focused on road impacts and appeared have a low level of concern over harvesting impacts and a very high level of concern over potential wild fires
18	7	Water Use Planning, stewardship and water licensees, watershed recovery plans
19	5	increased role of understory and standing dead timber, also important to consider all watershed activities in a stakeholder approach (working together)
20	1	Will review harvest plans for watershed with better information on potential impacts to water quality
21	7	The information will be used to help plan for our SWOT analysis in watershed assessment. If we receive referrals for improvements in the watershed we can apply the knowledge we have learned in our decision process.
22	8	Research Planning
23	1	Interesting to here the latest studies and the results which will be used in discussions with future harvesting decisions.
24	1	could experience increased flows/frequency will continue to monitor drainage but will need to increase our awareness of potential impacts sites such as NCD's & roads within sensitive zone (reservoir outflow to intake) More time on block walks, reviewing maps, requesting these sites be addressed in referrals
26	7	ongoing consulting
28	1	Applied to watershed and forest management
29	1	Be prepared for more water, more frequent changes and more sediment. This could be more unpredictable for water purveyors.
33	7	To provide more up-to-date advice
36	7	The information will be used to advise management regarding preemptive versus post beetle management actions.
37	2	we already take hydrology into account
40	7	Made me very aware of issues from the water purveyor's perspective
41	5	Information gleaned from the workshop will be considered in applying for funding to protect off-reserve water sources. The lack of ground water impacts from MPB points to a need that should be addressed.
42	8	Incorporate the thoughts of the effect as a compounding disaster effect when working in an area. It will be incorporated into research areas in at least the acknowledgement of impact.
43	5	Lobbying to MoFR and PwC to allow a greater scope of watershed assessment to be covered under the LBIP FIA program
44	5	It will be used in developing plans with clients.

Response#	Affiliation	Question 7: Based on the information recieved at the MPB-Hydrology workshop, do you have any further questions or information needs related to MPB and hydrology/water management issues that you feel need to be addressed?
1	5	At this time when the beetle is causing increasing impacts on watershed in southern BC we need a workshop like this one each year to assist all parties share knowledge and concerns until the impacts start to diminish.
2	5	Research needed to test if understory trees (remaining after MPB affected overstory is removed) can provide effective hydrologic recovery, at what rate, for what time period?
5	8	I would like to see a followup workshop linking modelling, field based data collection and application e.g. 1-2 years down the road
6	5	Not directly, although the details surrounding water treatment are still very foggy in my mind.
7	5	fisheries impacts
8	5	Flood frequency analyses - how valid is the 100 year flood estimation.
10	8	Its a huge subject areas and you certainly couldn't have addressed it all in one day!
12	1	public and political education; the problem needs funding
15	8	MPB impacts on water quality
18	7	Casr histories as they unfold
19	5	more technical info on water quality effects and involvement of water purveyors on this aspect
22	8	More research work needed. There is great uncertainty still in effects & hydrological response
29	1	New information is always coming forward so hopefully we are flexible to make changes on how we do our work.
30	7	bit more of a link from research to water management implications
40	7	I would like to know how close the predictive models are (e.g., Alila) to actual peak flows.
41	5	More information on protection of domestic water supply for First Nation Communities as they do not have Community Watersheds (as do municipalities in BC) because they are off-reserve and have to rely on contaminated ground water alternatives for drinking (i.e. bottled water) in many cases.
43	5	Yes
44	5	not at this time, they will come up on a project basis.

Response#	Affiliation	Question 10: What suggestions do you have for improving future workshops of this kind?
1	5	You did a terrific job with this one. If you can schedule an update up for next year of similar quality, that would be great!
5	8	Personally I would have like to have 1 more session of presentations (no panel) or working groups in place of the panel.
6	5	No major suggestions. It was the best organized/smoothest conference I have ever attended.
7	5	the first speaker was an entomologist..but she didn't stick around for any of the breaks so I could ask her some questions
17	9	Panel discussion was of low value - maybe have more set questions etc.
19	5	good speakers, sometimes the same speakers so some variety would improve workshop (outside BC perhaps - but \$).
22	8	Panel did not really work. Time could have been used more productively (though it was probably worth the effort).
23	1	Keep up the good work.
24	1	thanks very much enjoyed all 3 days and thought it was well worth the time away from my desk/field.
25	7	field trips are often a good idea, though better for longer meetings.
28	1	Slightly longer presentations
29	1	a bit more time to ask questions
30	7	more discussion on management implications
33	7	This workshop was excellent. Suggest a repeat in 2 years to hear about final research results and emerging water supply issues.
40	7	Keep producing the same calibre of workshops!
41	5	More discussion on ground water protection, potential impacts, identifying sources of contamination (especially heavy metals, arsenic and flouride), treatment costs.