

## WORKSHOP SUMMARY

# Sustaining Agricultural Water Storage in the Cariboo - collaborating on solutions to address dam management issues

November 25, 2015 | 08.30 - 15.30

Pioneer Logging Complex, 351 Hodgson Road, Williams Lake, BC

## Workshop Overview

The Cariboo Cattlemen's Association and BC Agriculture and Food Climate Action Initiative hosted a workshop in Williams Lake to bring together agricultural dam owners, agency representatives, potential partners and invited experts in order to:

1. Foster dialogue between dam owners, agency representatives and potential partners on dam management and water storage issues and solutions.
2. Explain and confirm the main findings of the discussion document: *Maintaining and Enhancing Agricultural Dams in the Cariboo Region*.
3. Prioritize issues and potential solutions to address them.
4. Develop partnerships and early action items for preferred solutions.

Participants were provided with an executive summary of the discussion document, and a link to the document itself, ahead of the workshop. These and other workshop materials (agenda, presentations, list of dam safety educational resources) remain available for download from:

<http://www.bcagclimateaction.ca/regional-project/cariboo-workshop-on-maintaining-and-enhancing-agricultural-dams/>

The workshop was well attended (40 participants) and included producers/dam owners; Board members from the Cariboo Cattlemen's Association and BC Cattlemen's Association; representatives from Ministry of Forests, Lands and Natural Resource Operations (including dam safety regulators), Ministry of Agriculture and the Cariboo Regional District; and qualified professional engineers with experience and knowledge related to agricultural dams. A list of attendees is provided as an appendix.

Invited speakers included Dr. Dwayne Tannant, a professor at the UBC Okanagan School of Engineering who provided an overview of dam safety management in BC; Katharine VanSpall of Ducks Unlimited Canada who described how they manage collaborative projects with agricultural dam owners; and Allen Dobb and Emily MacNair of BC Agriculture & Food Climate Action Initiative, along with Jeremy Cooke of Northwest Hydraulic Consultants, who together presented the major findings of the discussion document. All presentations are available for download from the project URL provided above.



Climate Action Initiative  
BC AGRICULTURE & FOOD



General discussion of the major issues and collaborative solutions followed each presentation. The workshop concluded with a breakout session focused on developing near-term actions items for the four solutions most preferred by the group.

## Workshop Outcomes

### **Confirmation of Findings - *Maintaining and Enhancing Agricultural Dams in the Cariboo Region* (Discussion Document)**

Participants generally agreed with the overall conclusions of the discussion document, and did not identify any missing categories of issues or potential collaborative solutions. Dam owners reinforced that affording the costs associated with dam safety regulatory requirements – including inspections and reviews, maintenance, repair and/or upgrades – is a significant burden.

Dr. Tannant provided an overview of dam safety regulations and management for small earthen dams. This included outlining the benefits of a dam safety management system (DSMS) for public safety and dam owner maintenance and operations. The key components of a DSMS were presented, along with recommended resources for learning more about implementing a DSMS.

Following this presentation, David Weir, Water Section Head, FLNRO Williams Lake Office, provided several suggestions and/or clarifications during group discussion. Note that they are not official statements on behalf of FLNRO, nor based on research or scientific fact; rather, based on David Weir's personal experience or commitment. Furthermore, they are not meant to be definitive legal advice concerning estate planning and issues of liability. Such advice should be attained through a lawyer who has experience in the practice of law relating to those areas. David's comments included:

- FLNRO is not in the practice of charging dam owners for site visits triggered by public reports about a dam, e.g. by calling the number on a posted dam sign.
- "Beavers, brush and spillway" are likely the top three dam maintenance issues in the Cariboo region. Conducting regular inspections and maintenance for these issues will help to keep earthen dams in good repair.
- There is likely no due diligence standard that can outright absolve a dam owner from their legal liability in a court of law in the case of a dam failure. That said, as far as David is aware there has not been a single recorded dam failure in the Cariboo region where the regulations were being met.
- Dams should be designed to handle any extra inflow caused by the upstream failure of a beaver dam. There is a permitting process for removing beavers (or other species) if they are interfering with dam maintenance and operation. Dam owners can apply for the permit; if not successful, they can contact David Weir for assistance.
- Dam owners should be aware of the terms of their water license. This is particularly important when considering joint operation or managing the dam for multiple uses to ensure that the terms are not violated. If special arrangements are made for management, there has to be proof that these arrangements and systems will be passed down to future land owners.

- Dam owners should consider dam ownership obligations during their estate planning.
- The efficiency of Dam Safety Review approvals should improve over time. The best way to expedite approvals is for applicants to address everything in the Dam Safety Review checklist (used by Dam Safety Officers) and the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) guidelines.
- David is open to conducting more local dam safety training, provided it is done in a group setting for efficiency reasons. Amongst other topics, FLNRO is interested in training on estate planning and the Water Sustainability Act. In addition, Dam Safety Officers normally take the opportunity to do some on-site training with the dam owner during a dam audit, although this is generally contingent on being able to reach the dam owner quickly using the contact information found in water licenses. Such contact information should therefore be kept up to date.

Binod Acharya, the new Dam Safety Officer at the FLNRO Williams Lake office, compiled a list of useful online educational information for dam owners. This list is available for download from the project URL provided above.

It was questioned whether the seismic standard for Dam Safety Reviews may be unnecessarily strict for the Cariboo region, as the seismic risk in the Cariboo is lower than compared to what is used in the national building code standard. Applying an appropriate seismic risk for the region could help to reduce dam design and upgrade costs, especially in the case of dams with High, Very High and Extreme consequence ratings.

Jeremy Cooke briefly described a pilot initiative in the Cariboo to reduce dam safety review costs through dam owner collaboration. The strategy involves jointly hiring a qualified professional engineer who conducts similar activities across multiple dams at the same time to reduce overall effort and travel time. Early findings suggest significant cost savings can be achieved through such collaboration. In response, it was suggested that the Cariboo Cattlemen's Association contact all High (and above) consequence dam owners to get them involved in Dam Safety Review cost-sharing initiatives, as greater participation could improve economies of scale for everyone.

Katherine VanSpall presented a case study of how Ducks Unlimited Canada partners with dam owners to sustain or improve wildlife habitat. She also outlined how to document wildlife values for the purpose of funding applications, and listed many of the available granting organizations. The following points were raised in subsequent group discussion:

- It is unlikely that decommissioning a dam would be prevented by concerns with endangered species – to date no examples are known by Ducks Unlimited Canada. If/where there were concerns, discussion would be more about timing and how the dam is de-commissioned. Drawing the wetland down gradually over a few years should allow animals to transition and move.
- Dam owners should be aware that the costs of decommissioning can be equal to or higher than the cost of rebuilding.

- Letters of support and/or partnerships with conservation organizations would improve dam owner grant applications for wildlife funding.

Using the McLeese Lake dam as an example, Allen Dobb provided a brief overview of the kinds of co-benefits associated with agricultural dams and various mechanisms to share costs across beneficiaries. In response, the group expressed strong support for seeking funding from co-beneficiaries of agricultural dams, including the Province, although they recognized that it will be a formidable challenge. This includes communicating the public benefits of agricultural dams and lobbying for government funds and cost-sharing mechanisms.

### Group Evaluation of Solutions

Following the presentation and discussion of the priority solutions raised in the discussion document, each participant was asked to evaluate them using the following criteria. Each criterion is based on a scale from 1 to 5.

**Commonality:** In your opinion, would this help only a few dam owners (1), or almost all dam owners (5)?

**Usefulness:** Would success in this area be of little help (1), or extremely helpful (5)?

**Feasibility:** In your opinion, would this be very difficult to implement (1), or fairly straightforward to implement (5)?

Table 1 summarizes the resulting qualitative performance assessment of the various solutions. The total score for each criterion is a simple sum of individual scores (e.g. 1+4+3+... = 110), while the combined total score is the sum of the scores for the three criteria (e.g. 110+95+101=306). No weighting of the individual criterion was applied. The top three scores for each criterion and the combined score are highlighted in blue.

**Table 1: Evaluation by solution performance**

Potential Solution	Commonality score	Usefulness score	Feasibility score	Combined score
Knowledge transfer and informational resources	110	95	101	306
Improved communication with regulator	111	109	89	309
Finding qualified professionals	97	101	98	296
Collaboration between multiple dam owners	99	104	81	284
Multi-user model: Wildlife, habitat and fisheries partnerships	94	99	76	269
Multi-user model: Recreation, tourism and/or residential partnerships	78	90	61	229
Multi-user model: Tax mechanisms	80	88	56	224
Granting and cost-sharing programs	111	114	81	306
Redevelop decommissioned dams	65	79	54	198
Manage agricultural water demand	104	97	82	283
Watershed planning and natural water storage enhancement	105	103	68	276

The top five solutions, based on total score, include:

- Improved communication with regulator
- Granting and cost-sharing programs
- Knowledge transfer and informational resources
- Finding qualified professionals
- Collaboration between multiple dam owners

The results are largely consistent with solutions that could be easier and faster to achieve, and that apply to a majority of dam owners. In the case of granting and cost-sharing programs, even though it will be more challenging to implement, its perceived high degree of commonality and usefulness resulted in its high ranking.

A second aspect of the evaluation asked participants to rank the top three solutions that they felt were (A) worth pursuing in the next year; (B) worth developing over the long term; and (C) would like to focus on in the breakout session. The results are shown in Table 2. In this case, the total scores are summed with each first preference receiving a score of 3, each second preference a score of 2, and each third preference a score of 1. The top three solutions for each timeframe (next year, long-term, and breakout session) are highlighted in turquoise.

**Table 2: Evaluation by solution preference**

Potential Solution	Next Year score	Long-Term score	Breakout score
Knowledge transfer and informational resources	36	5	16
Improved communication with regulator	20	7	7
Finding qualified professionals	7	2	0
Collaboration between multiple dam owners	27	5	21
Multi-user model: Wildlife, habitat and fisheries partnerships	6	20	5
Multi-user model: Recreation, tourism and/or residential partnerships	0	10	0
Multi-user model: Tax mechanisms	1	18	8
Granting and cost-sharing programs	29	30	34
Redevelop decommissioned dams	5	11	8
Manage agricultural water demand	5	13	9
Watershed planning and natural water storage enhancement	3	12	10

The results are fairly consistent with the performance evaluation, although by asking people explicitly about their preferred solutions to pursue over the long-term, there is a greater ability to distinguish which “harder, but useful” solutions are also of interest.

For the next year, the group favoured the following areas of focus:

- Knowledge transfer and informational resources
- Granting and cost-sharing programs
- Collaboration between multiple dam owners

- Improved communication with regulator

Other than Granting and cost-sharing programs, these solutions would seem to fall in a “low-hanging fruit” category, in that they can be started quickly, involve less effort, and/or can be done by dam owners working relatively independently or with relatively low-cost support from willing partners (e.g. collaboration between multiple dam owners, knowledge transfer).

In the longer-term – considering worthy initiatives that will take more time, effort, and collaboration – the group favoured pursuing:

- Granting and cost-sharing programs
- Multi-user model: Wildlife, habitat and fisheries partnerships
- Multi-user model: Tax mechanisms

Granting and cost-sharing programs is thus something that the group would like to see initiated right away, but also to continue over the longer-term – likely in recognition of the greater effort involved, and the ongoing funding requirements.

Finally, in terms of what the group preferred to work on during the breakout session itself, the group selected:

- Granting and cost-sharing programs
- Collaboration between multiple dam owners
- Knowledge transfer and informational resources
- Watershed planning and natural water storage enhancement

The higher ranking of Watershed planning and natural water storage enhancement (versus other preferred longer-term initiatives) may reflect greater familiarity with this topic in comparison with others that were introduced through the discussion document and workshop (e.g. tax mechanisms).

## **Solution Action Items**

Breakout groups were established for each of the top four preferred solutions. Participants in each group were asked to discuss and recommend near-term action items, including identifying potential partners and milestone dates where possible.

### Affordability - Granting and cost-sharing programs

Out of the identified collaborative solutions, granting and cost-sharing programs to assist dam owners – with assessing, maintaining and upgrading their dams – was ranked as the highest priority by workshop participants. Depending on the interpretation of this action, it could be seen as one that requires external agencies to develop granting or funding programs. However, the small group discussion focused not just on others taking action, but also on dam owners working together and independently to access or generate funding opportunities.

**Action: Hold a workshop about granting opportunities and processes.** More details and guidance are needed about existing funding opportunities for dam owners. An initial suggestion was to develop a comprehensive list of potential funding sources including details about criteria, available amounts, timelines etc. However, with further discussion, the group agreed that an interactive session with information about applying for funding would be more valuable.

The proposed workshop would build on information in the discussion document and provided by Katharine VanSpall (from Ducks Unlimited Canada) at the workshop. Katharine spoke about about the wildlife and habitat values associated with agricultural dams (and associated funding opportunities). Participants felt that a more detailed and “hands-on” session would assist dam owners with accessing grants – particularly through the wildlife and habitat focused funding agencies. Further exploration is required to answer questions about what opportunities exist, who qualifies and how best to access funding. For example, questions were raised about whether dam owners would be better off applying individually or in groups for funding, as well as whether individuals or groups would have the necessary legal status to receive funding from the identified granting agencies. A follow-up workshop could bring more specific and detailed information to dam owners about the funding opportunities and necessary steps for successful applications.

Key partners would include the Cariboo Cattlemen’s Association and Ducks Unlimited Canada. It was also suggested that some of the groups with (habitat and wildlife-related) granting opportunities be invited to attend. Organizations with experience and knowledge about various types of funding programs (e.g. Investment Agriculture Foundation, Fraser Basin Council, Farm Credit Canada) might be also valuable participants.

This action was proposed as a near-term action (by spring of 2016).

**Action: Communicate the value of agricultural dams to the public – within the Cariboo region and at the provincial scale.** It was suggested that workshops (and potentially other types of communication) be undertaken within the Cariboo Regional District to share information with the broader community about the importance and shared benefits of agricultural dams. This action was seen as the first step in building public support for assisting with maintaining dams into the future. The public’s lack of understanding of the values – water supply, wildlife habitat, recreation – supported by agricultural dams needs to be addressed for long term and broader community-based cost-sharing opportunities solutions to evolve.

This action was seen to be the shared responsibility of agricultural groups and government partners. Key partners for this action within the CRD include the Cariboo cattle organizations and the Cariboo Regional District. At a provincial level a similar set of actions could be implemented by the BC Cattlemen’s Association and the provincial government.

This action was proposed as a near-term action (by spring of 2016).

**Action: Reach out to all high consequence dam owners to further explore opportunities.** While a number of high consequence dam owners were in attendance at the workshop, others were not

present. It was suggested that the dam owners would be stronger in their action if they worked collectively. Therefore, all of the high consequence dam owners should come together to seek opportunities and take action together. A proposed first step (to bring owners together) was a letter to be sent out through the Cariboo Cattlemen's Association and/or the BC Cattlemen's Association to communicate the importance of moving ahead with addressing the regulations and the potential benefits of working together.

This action was proposed as a very near term action (early 2016).

**Action: Communicate with government partners about the potential for emerging programs to assist with dam-related costs.** The group discussed the potential for opportunities for cost-sharing programs to evolve through federal or joint federal and provincial government programming. It was suggested that the cattle sector needed to request cost-sharing assistance and that the importance of this issue needs to be clearly communicated both by the sector and internally by knowledgeable staff.

This action was proposed as a very near-term action (early 2016).

**Action: Seek out funding to create a centralized approach to delivering supports to dam owners (e.g. workshops identified above, knowledge transfer, accessing expertise, etc.).** While funding for individual dam owners (for assessment, maintenance, upgrades) was the primary focus of discussion, there may also be potential for sector groups to access funding to provide broad support to dam owners. A grant could be sought (at a regional or provincial level) for coordinating assistance to dam owners with a range of challenges from addressing their dam safety issues to accessing their own grants. A broad-based project to assist dam owners would help to coordinate the overall effort and ensure that dam owners have a central point of contact and on-going assistance over the next few years. A provincial scale funding application to an organization like IAF could assist the sector with delivery of support and information to individual dam owners.

This action could be led at a regional level (Cariboo Cattlemen) or at the provincial level (BC Cattlemen's Association).

This action was proposed as a near-term action (by spring of 2016).

#### Affordability - Collaboration between multiple dam owners

The main focus of discussion for this group was the current collaborative dam project that has been initiated by the Cariboo Cattlemen's Association with Northwest Hydraulic Consultants. There was a lot of interest from the group in seeing this effort progress past its initial phase, and increasing the number of participants. Currently the project has five participants and the view is that if this number is increased it will produce even greater cost savings. The project is being delivered in three phases:

Phase 1 – involves a visit to the dam, and a background review of all the documentation on the dam. This phase has been completed for the current participants – new participants would also go through this stage with same individual deposit amount that has been paid by the current group.



Phase 2 – would involve completing the Dam Safety Reviews for all participants in the program.

Phase 3 – would deal with necessary upgrades that result from the Dam Safety Reviews.

Suggested near-term actions to further develop this ongoing project include:

**Action: Create and distribute an informational fact sheet to high consequence dam owners.** The fact sheet would be sent to high-consequence dam owners in the region who have not yet joined the project. It would tell the story of the voluntary project, including the expected cost saving information, and describe how to join it. Partners would include the Cariboo Cattlemen’s Association, Northwest Hydraulic Consultants, and high consequence dam owners. It is assumed the Ducks Unlimited have their own internal approaches to dam safety, and would not be engaged for this project. The fact sheet should be completed by the end of December 2015, with new participants expected by February 2016.

**Action: Create and distribute standard Dam Safety Management System documents to dam owners.** Once Phase 2 is completed there will be a series of documents produced as part dam safety management systems for the participant dams. The templates for these documents will be shared with other dam owners in the region. Partners would include Cariboo Cattlemen’s Association and Northwest Hydraulic Consultants, completing the documents by mid-2016.

The group envisioned a second collaborative project to encourage cost sharing amongst water storage licensees on individual dams, with the following near-term action:

**Action: Develop a joint use agreement information document.** This should explain how joint use agreements work, and how they could be used to share costs of dam maintenance. A standard joint use agreement template is already available and the two documents would be distributed to dam owners in the region. Partners would include the Cariboo Cattlemen’s Association and possibly the BC Food and Agriculture Climate Action Initiative. This could be completed in 2016.

#### Dam Safety - Knowledge transfer and informational resources

The development and provision of informational resources and training to all dam owners was deemed an important and feasible near-term action. The group emphasized that even low consequence dam owners need to know the implications of a dam failure, and how to adequately monitor and maintain their dams to avoid one. Some knowledge will be easier to transfer than others, and the degree of interest and uptake will also vary across dam owners. Nonetheless, every owner should have the option to receive a variety of training.

Training and documentation should clearly communicate that dam owners are the primary inspector of their own dam and must take ownership of this role, and that a Dam Safety Officer is in an auditor role only.

David Weir of FLNRO confirmed that he is open to providing local training and possibly field visits, provided that it can be done within current resources and fits within regional priorities. Basic training should be possible using local resources, however if new training modules or external expertise is

desired it would require additional funding and potentially in-kind resources from FLNRO Water Management Branch in Victoria.

The following topics are already training priorities for FLNRO in 2016:

- Water Sustainability Act (linkages to Dam Safety Review).
- Annual and joint works agreements.
- Estate planning.
- Annual inspections.

Additional priority topics for dam owners include:

- Developing a Dam Safety Management System (DSMS) for agricultural earthen dams.
- Adapting and applying generic DSMS forms and templates for the Cariboo region.
- Determining dam consequence ratings, and how to know if/when downstream consequences change.

Participants encouraged FLNRO to take a proactive approach in terms of engaging dam owners in training programs. Suggestions for effective and engaging training include:

- Combine a workshop with field visit(s).
- Invite dam owners to bring pictures of their dams so that they can discuss the specific problems that they are facing and learn from one another.
- Offer training in stages, repeating each stage a few times in multiple locations to increase accessibility.
- Provide clear documentation of training topics as part of workshops.
- Use the FLNRO list of dam owners to ensure all dam owners receive an invitation.
- Develop training and resources in conjunction with the Cariboo Cattlemen's Association, BC Cattlemen's Association and the Ministry of Agriculture.

Outreach to the Ministry of Transportation and Infrastructure and First Nations could also broaden participation and offer funding opportunities.

The group also noted the need to educate the public – in particular, downstream residents – about the benefits and management issues related to dam ownership. Ideas raised were consistent with the similar action described in the Granting and cost-sharing breakout section.

The following near-term actions, to be led by the Cariboo Cattlemen's Association, BC Cattlemen's Association and FLNRO (contingent upon adequate time, resource and approval) were suggested for 2016:

**Action: Research specific knowledge gaps that exist among dam owners and how best to fill them.**

Assess the current level of knowledge of dam owners regarding dam safety management to best scope training needs and design. This first step could occur in early 2016.

**Action: Adapt existing FLNRO training sessions to dam owners.** There are several existing internal FLNRO training courses or workshops that could potentially be adapted so that dam owners could benefit from participation. They include:

- Natural Resource Officer training course, offered in Prince George.
- Training Aids for Dam Safety videos. FLNRO uses these for training their staff.
- Annual Dam Safety Officer training workshop. While much of this training may be too technical for dam owners, some adjusted content could be applicable.
- One-day Dam Safety Officer dam audit training. This training has occurred in the past, and contains information that could be very useful for dam owners. It included a field component.

**Action: Develop and deliver a customized training workshop for dam owners.** Develop and provide a training workshop that meets priority needs and engagement strategies (discussed above). At least 20-25 participants would be required in order for the cost to be justifiable by FLNRO. Training of high consequence dam owners would likely take priority. Recording the workshop using video would allow content to be more easily shared and reused afterwards.

Basic training could likely be provided by local FLNRO staff, subject to regional approval. Additional funding may be possible through local Cattlemen's associations, Ministry of Agriculture, and other potential partners. In-kind funding from FLNRO Water Management Branch in Victoria may also be possible.

It would be valuable to visit both low and high consequence dams. There is a cluster of dams around 100 Mile that could be suitable; another possibility could be the dam up Likely Road past the buffalo pasture.

#### Future Storage – Watershed Planning

Watershed planning was considered important by the group to resolve competing land uses within watersheds that are negatively impacting water supply and storage. In particular, many group participants felt that forestry – by removing significant amounts of forest cover – is altering natural flow regimes to the point that costly water storage is needed to mitigate reduced water supply. Developments downstream of agricultural dams can also result in increased dam safety management costs.

The group felt that integrating agricultural water supply and storage requirements into watershed planning initiatives could offer several benefits:

- Increase information sharing between land owners, users, and managers on potential developments within the watershed.
- Reduce or mitigate impacts of other land uses on agricultural water supply and storage.
- Identify and increase co-benefits associated with agricultural water storage, e.g. wildlife habitat or wildfire suppression.
- Allow for compensation to dam owners when other land uses result in increased water storage costs.

The San Jose Watershed Round Table was suggested as a possible model for exploring collaborative watershed planning and governance. It was established with a small amount of annual core funding (~\$10,000/yr) for facilitation and administration. It has sustained positive energy amongst participants and improved information sharing between parties.

Suggested 2016 actions to advance watershed planning include:

**Action: Spearhead a watershed planning pilot initiative**, including securing funds for early activities (e.g. \$10,000). Suggested lead partners include the BC Cattlemen's Association, Cariboo Cattlemen's Association, and Ministry of Agriculture.

**Action: Research potential planning pilot area(s) and opportunities.** Potential pilot areas include the existing San Jose Watershed Roundtable and Chilcotin (e.g. Horsefly Watershed Roundtable) areas. Planning opportunities may also be associated with Forest Management Plan, Wildfire Management Plan, and community forest planning processes. Including a range of ranch size and dam consequences within the pilot area would help to explore a wider range of ranching community concerns.

**Action: Reach out to potential planning partners and funders**, including:

- Ministry of Agriculture
- Wildfire Management Planning – FLNRO. Wildfire managers are interested in maintaining water sources for firefighting, and improving their inventory of known water sources.
- Range Management Branch – FLNRO
- Environmental Farm Plan
- First Nations
- Fish, wildlife and habitat agencies (FLNRO, DFO) and NGOs
- Forestry companies
- Mining companies
- University (e.g. UNBC) planning and natural resource management departments. A planning pilot could be supported by faculty, Masters and PhD students, and research programs and funds.

## APPENDIX – List of Attendees

Name	Affiliation	Dam Owner?
Karry MacDonald	Thomson Land and Cattle	Yes
Daryl Bucholtz	Thomson Land and Cattle	Yes
Bob Russell	Anvil Mtn. Ranch Ltd.	No
James Stafford	Chimney Creek	Yes
Grant Huffman	Riske Creek	Yes
Adam Runnels	Chimney Creek	Yes
Shelley Fletcher	J+S Fletcher	Yes
Rob Wilson	Evergreen Geotechnical	No
Cuyler Huffman	CCA President	Yes
Jenny Huffman	CCA Coordinator	No
Dwayne McIntyre	7-7 Ranch (Charles Frances)	Yes
Cynthia Mailhot	The Meadows Ranch	Yes
Keith Mailhot	The Meadows Ranch	Yes
Reg Steward	Ag Safe BC	No
Larry Fossum	BC Cattlemen's Association	
Keith Jones	FLNRO	No
Donna Barnett	MLA Cariboo-Chilcotin	
Greg Tegart	AGRI	No
Ken Ilnicki	River Ranch	Yes
Karen Moores	CRD	
Aaron Herrick	Pablo Mountain	Yes
Jon Herrick	Pablo Mountain	Yes
Cliff Hinsche	141 Mile Ranch	Yes
Ben Hische	141 Mile Ranch	Yes
Joan Sorley	Cariboo Regional District	
Binod Acharya	FLNRO	
Rusty Patenaude	153 Mile Ranch	Yes
Ron Kaufman	Dunlevy Ranch	Yes
David Weir	FLNRO	
Clint Thompson	San Joes Cattle Company	Yes
Lucy Jones	CCA / FLNRO	
Jeremy (Lucy Partner)	Rancher	
Dave Taylor	Rancher	Yes

## WORKSHOP AGENDA

### Sustaining Agricultural Water Storage in the Cariboo - collaborating on solutions to address dam management issues

November 25, 2015 | 08.30 - 15.30

Pioneer Logging Complex, 351 Hodgson Road, Williams Lake, BC

---

#### Workshop Objectives

1 To foster dialogue between dam owners, agency representatives and potential partners on dam management and water storage issues and solutions.

2 To explain and confirm the main findings of the *Cariboo Region Cooperative Maintenance and Enhancement of Agricultural Dams* discussion document.

3 To prioritize issues and potential solutions to address them.

4 To develop partnerships and early action items for preferred solutions.

Your input will help validate and expand upon the report findings, and guide the development of action items to improve overall dam management, operation and maintenance in the future.

#### Presenters Include

Dr. Dwayne Tannant, P.Eng., FCIM. Professor, UBC School of Engineering

Jeremy Cooke, P.Eng, NHC Consulting

Katharine VanSpall, Ducks Unlimited Canada

Allen Dobb, P.Ag, BC Agriculture & Food Climate Action Initiative

Emily MacNair, BC Agriculture & Food Climate Action Initiative

#### Agenda

Please arrive to register between 8.00 am and 8.30 am. Coffee and refreshments will be available during the meeting. Lunch will also be provided.

Note that each agenda item includes time for questions and general discussion.

Item	Time
Arrival and refreshments	8.00 am
Welcome and Introductions	8.30 am
Report motivation and synopsis	9.00 am
<b>Dam safety management context:</b> <ul style="list-style-type: none"><li>Regulatory framework</li><li>Applying a Dam Safety Management System to small earthen dams</li><li>Educational resources</li></ul>	9.30 am
BREAK (refreshments available)	10.30 am

Item	Time
<b>Overview of issues</b> related to: <ul style="list-style-type: none"> <li>• Dam Safety</li> <li>• Affordability</li> <li>• Future Storage</li> </ul>	10.45 am
<b>Overview of potential solutions</b>  Dam Safety: <ul style="list-style-type: none"> <li>• Knowledge transfer and informational resources</li> <li>• Improved communication with regulator</li> <li>• Finding qualified professionals</li> </ul> Affordability: <ul style="list-style-type: none"> <li>• Collaboration between multiple dam owners</li> <li>• Granting and cost-sharing programs</li> </ul>	11.15 am
LUNCH (provided)	12.00 pm
<b>Overview of potential solutions (continued)</b>  Affordability: <ul style="list-style-type: none"> <li>• Multi-user partnerships and financing</li> </ul> Future storage: <ul style="list-style-type: none"> <li>• Redevelop decommissioned dams</li> <li>• Managing agricultural water demand</li> <li>• Watershed planning and natural water storage enhancement</li> </ul>	12.30 pm
<b>Group evaluation of preferred solutions</b>  <i>Which solutions are the most useful and feasible?</i> <i>Which solutions would help the most number of dam owners?</i> <i>Which solutions are worth pursuing in the next year?</i> <i>Which solutions are worth developing over the long term?</i>	1.15 pm
BREAK (refreshments available)	1.45 pm
<b>Breakout groups to develop solution action items</b>  <i>What actions are involved in taking the solutions forward?</i> <i>What are the first steps?</i> <i>Who can play a role?</i> <i>What are the first milestones?</i>	2.00 pm
Summary and next steps	3.15 pm
Meeting Adjourned	3.30 pm