

WATER RESOURCE EFFECTIVENESS EVALUATION WORKSHOP

**December 2, 3003
Dunsmuir Lodge, Victoria, BC.**

WORKSHOP REPORT

by

**Garth Webber Atkins, MSc. RPF
Watershed Policy Specialist
Forest Practices Branch
Ministry of Forests**

and

**Les Swain, PEng
Water Quality Monitoring Specialist
Water, Air and Climate Change Branch
Ministry of Water, Land and Air Protection**

January 2004



**Ministry of
Water, Land &
Air Protection**

WATER RESOURCE EFFECTIVENESS EVALUATION

Workshop Results

The Ministry of Forests and the Ministry of Water, Land and Air Protection held a workshop on Dec 2, 2003, to develop the priority evaluation questions that would guide effectiveness evaluations, and help assess how well the Forest and Range Practices Act was meeting government objectives for water.

The workshop was attended by technical professionals with expertise related to forestry or water management, from government, academia, water users and First Nations.

This report provides the results of that workshop.

A. PRIORITY QUESTIONS

1. Are range practices adequate to maintain “proper functioning condition” in riparian areas?
2. Have forest practices caused sedimentation or turbidity to
 - interfere with treatment
 - increase treatment costs
 - damage the intake
3. Have forest practices increased the magnitude or frequency of:
 - bank erosion or instability
 - channel aggradation
 - channel widening
 - flooding
4. Are forest and range practices increasing the risk of drinking water health hazards?
5. Has the cumulative hydrologic effect of forest activities resulted in changes in channel morphology and stability?
6. Are road practices increasing the frequency of exceedances of drinking water quality guidelines compared to watersheds without roads.
7. Are riparian management strategies under the FRPA effectively maintaining channel bank integrity in community watersheds?

B. OTHER EVALUATION QUESTIONS

Following are other questions posed during and following the workshop that were not captured by the priority questions.

Quality

- Does the 100m setback protect against contamination from forest and range activities?
- Do soil conservation practices minimize the transport of additional nutrients into the watercourse?
- Do forest practices under FRPA maintain water quality parameters such as turbidity and temperature (within the range of natural variability)?

Temperature

- Do riparian zones allow for water temperature recovery in temperature sensitive streams?
- What is the cumulative effect of riparian harvest in a watershed on water temperatures at the water intake in a community watershed?

Riparian

- Do stream crossings and structures maintain effective riparian function?
- Are forest practices under FRPA effectively protecting headwater and small streams?
- Are range activities diverted from riparian areas?
- What % of riparian area is in proper functioning condition.?

Channel Change

- Did forest practices protect against aggradation, bank erosion, widening; and flooding?
- Have changes in high flows increased channel erosion?
- Are current practices maintaining or improving stream bank integrity?

Flow

- Are flows adequate for water purveyors in Community Watersheds to be able to withdraw their licensed volumes of water every month of the year?
- What change in the magnitude of peak flow results in unacceptable changes in water quality from channel/bank scour?
- Is timing and quantity affecting the need for new or improved water supply infrastructure?
- Do forest practices alter flows to the extent that limits human use or alters aquatic populations?
- Under what circumstances do forest practices result in reductions in late-summer stream discharge?
- Do stream crossing structures (bridges and culverts) under the FRPA adequately convey flows and debris to the 1:100 yr level?

Cumulative Hydrologic Effects

- Are turbidity levels in community watersheds getting larger, smaller, or staying the same?

- What is the cumulative effect of riparian harvest in the headwaters (S4 and S5 streams) of a watershed on water temperatures in the fish-bearing reaches?

Hydrologic function

- Have forest practices changed surface or subsurface hydrologic flowpaths?
- Do forest practices reduce the porosity, permeability, or moisture retention capability of soils?
- Are current practices contributing to landslides and debris flows and the introduction of sediment into a watercourse?

Miscellaneous

- What are the potential effects of forest practices under the FRPA on water quality, quantity and timing of flow?
- Is water quality the same after forestry as before?
- Are water resources, (e.g., timing and flow) the same during range use?

C. RESEARCH AND TECHNICAL QUESTIONS

Some of the questions posed appeared to be more appropriately answered through research or more focused technical inquiry.

Technical

- Can easily measured and reported water quality objectives be established
- What are the priority water quality indicators that need to be measured.
- Can actual resource values (i.e. economic values) be more realistically used in establishing use and protection of water?
- How can the results of water quality monitoring be effectively used and reported.
- What are the functions in riparian areas that will be protected?
- How do we measure appropriate riparian setbacks?
- Do BMPs cost too much relative to the benefit?

Research

- How do we measure cumulative impacts in watersheds?
- Does reduction in large streamside woody debris affect proper functioning condition?
- Does the reduction of road crossings significantly reduce sediment load to receiving waters.
- How is “proper functioning” defined with respect to woody debris recruitment?
- Which water quality parameters have the most impact on health
- How much data is needed to separate water quality natural variability from forestry impacts?
- Can we identify relative contribution of impact from particular activities?
- What is the incremental effect of harvesting in burned catchments?
- Do cumulative hydrologic effects alter the watershed’s natural hydrologic regime?