



Multiple Resource Value Assessment (MRVA)

Okanagan Shuswap Natural Resource District

December 2013

FOREWORD

Forest management in British Columbia is governed by a hierarchy of legislation, plans and resource management objectives. For example, federal and provincial acts and regulations, Land Use and Forest Stewardship plans, and protected areas and reserves collectively contribute to achieving balanced environmental, social and economic objectives. Sustainable forest management is key to achieving this balance and a central component of forest management certification programs. The purpose of the Multiple Resource Value Assessment (MRVA) report is to provide resource professionals and decision makers with information about the environmental component of this 'balance' so that they can assess the consistency of actual outcomes with their expectations.

The Forest and Range Practices Act (FRPA) lists 11 resource values essential to sustainable forest management in the province; biodiversity, cultural heritage, fish/riparian and watershed, forage and associated plant communities, recreation, resource features, soils, timber, visual quality, water, and wildlife. The MRVA report is a summary of the available field-based assessments of the conditions of these values. Field assessments are generally conducted on or near recently harvested cut blocks and therefore are only evaluating the impact of industrial activity and not the condition of the value overall (e.g. they don't take into account protected areas and reserves). Most of the information is focused on the ecological state of the values and provides useful information to resource managers and professionals on the outcomes of their plans and practices. This information is also valuable for communicating resource management outcomes to stakeholders, First Nations and the public, and as a foundation for refining government's expectations for sustainable resource management in specific areas of the province.

I encourage readers to review the full report and direct any questions or comments to the appropriate district office.

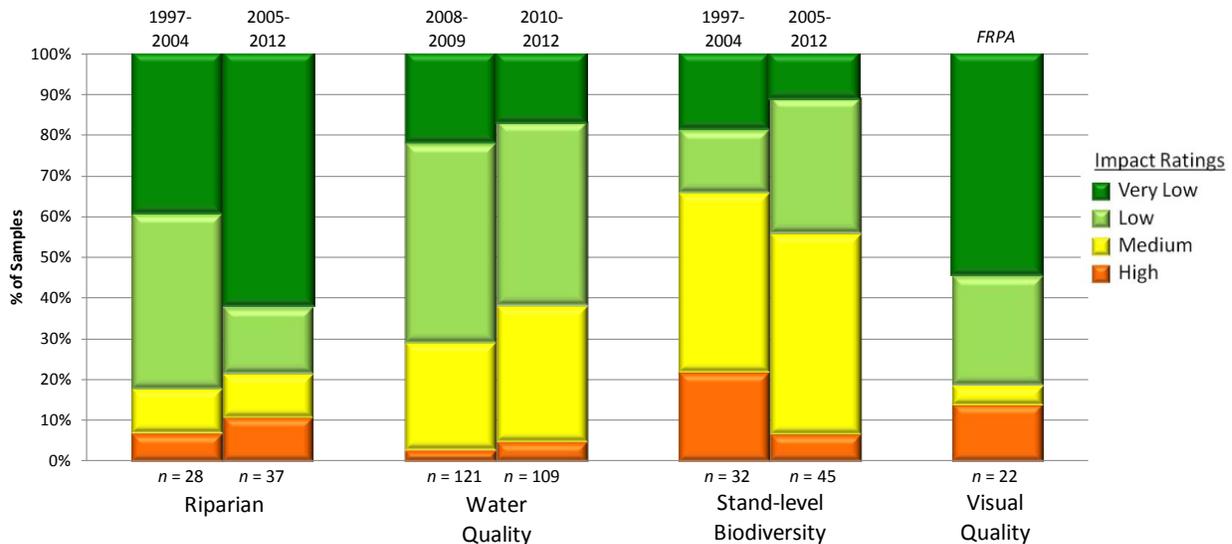
A handwritten signature in black ink, appearing to read "Tom Ethier".

Tom Ethier
Assistant Deputy Minister
Resource Stewardship Division
Ministry of Forest, Lands and Natural Resource Operations

MULTIPLE RESOURCE VALUE ASSESSMENTS—IN BRIEF

Multiple resource value assessments show the results of stand and landscape-level monitoring carried out under the Forest and Range Evaluation Program (FREP). This report summarizes results for riparian, water quality (sediment), biodiversity and visual quality monitoring conducted in the Okanagan Shuswap Natural Resource District and includes a district manager commentary of key strengths and weaknesses. Through MRVA reports, decision makers communicate expectations for sustainable resource management of public resources and identify opportunities for continued improvement.

Figure 1: Okanagan Shuswap Natural Resource District site-level resource development impact ratings by resource value with trend (Riparian, stand-level biodiversity and visual quality trend by harvest year/era. Water quality trends by evaluation year).



Important Context for Understanding this Assessment

The extraction and development of natural resources, along with natural factors (e.g., insects, wind, floods), influence and impact ecological condition. The goal of effectiveness evaluations is to assess these impacts on the state of public natural resource values (status, trends, and causal factors); such evaluations *do not assess compliance with legal requirements*. These evaluations help resource managers:

- assess whether the impacts of resource development result in sustainable resource management
- provide transparency and accountability for the management of public resources
- support the decision-making balance between environmental, social, and economic factors
- inform the ongoing improvement of resource management practices, policies, and legislation.

The resource development impact ratings contained in this report are based on assessments conducted within the areas where resource extraction takes place and do not reflect the ecological contributions of parks, protected areas, or other conservancy areas.

Although this report focuses on forestry-related activities, FREP monitoring protocols have also been applied to other resource sector activities, including mining (roads) and linear developments (hydro and pipelines). Procedures are being adapted to expand monitoring into these resource sectors over time.

INTRODUCTION

The development of the *Forest and Range Practices Act (FRPA)* had several key objectives, including:

- simplifying the forest management legal framework
- reducing operational costs to both industry and government
- allowing “freedom to manage”
- maintaining the high environmental standards of the *Forest Practices Code of British Columbia Act (FPC)*.

As part of the results-based *FRPA* framework, the provincial government committed to conducting effectiveness evaluations and publically reporting the monitoring results. The science-based information provided by these evaluations will be used to determine whether *FRPA* is achieving the government’s objectives of maintaining high environmental standards and ensuring sustainable management of public resources. If those objectives are not being met the monitoring results will be used to help inform the necessary adjustments to practices, policies, and legislation. Government is delivering its effectiveness evaluation commitment through the Forest and Range Evaluation Program (FREP; for details, see <http://www.for.gov.bc.ca/hfp/frep/>). The 11 *FRPA* resource values monitored under FREP include: biodiversity, cultural heritage, fish/ riparian & watershed, forage and associated plant communities, recreation, resource features, soils, timber, visual quality, water and wildlife.

Multiple Resource Value Assessments (MRVAs) reflect the results of stand- and landscape-level monitoring carried out under FREP. The program’s stand-level monitoring is generally conducted on forestry cutblocks, resource roads, or other areas of industrial activity. As such, these evaluations provide a stewardship assessment of resource development practices. Landscape-level monitoring of biodiversity, visual quality, and wildlife resource values is more broadly an assessment of the overall landscape. Reports on MRVAs are designed to inform decision making related to on-the-ground management practices, statutory decision-maker approvals, and data for the assessment of cumulative effects.

This report summarizes FREP monitoring results for the Okanagan Shuswap Natural Resource District. MRVA reports clarify resource stewardship expectations, and promote the open and transparent discussion needed to achieve short- and long-term sustainable resource management in British Columbia.

MRVA reports are intended for those interested in the status and trends of resource values at the timber supply area (TSA) or natural resource district scale, such as natural resource managers and professionals, government decision makers, and First Nations. These reports are also useful in communicating resource management outcomes to the public.

Government managers and decision makers are encouraged to consider this information when:

- discussing district or TSA-level resource stewardship with staff, licenced stakeholders, tenure holders and First Nations
- clarifying expectations for sustainable resource management of public land
- integrating social and economic considerations into balanced decision making
- reviewing and approving forest stewardship plans
- developing silviculture strategies for TSAs
- assessing Timber Supply Reviews and their supporting rationale
- informing decision making at multiple scales.

Natural resource professionals are encouraged to consider this information, along with other FREP information such as reports, extension notes, protocols, and monitoring data to:

- maintain current knowledge of the resources they manage
- inform professional recommendations and decisions, particularly when balancing environmental, social, and economic values
- enhance resource management, consultation, and treaty rights discussions between First Nations, government, and licensees.

Published FREP reports and extension notes contain detailed findings for each resource value. These documents are available on the FREP website at:

<http://www.for.gov.bc.ca/hfp/frep/publications/reports.htm>. Licensees can request data collected on their operating areas. FREP staff will assist licensees with the analysis of their data and the preparation of licensee-specific MRVA reports.

Although this MRVA report documents monitoring results at the district or TSA level, the MRVA concept is scalable. Reports for individual licensees, treaty settlement areas, or landscape units can be produced when sufficient monitoring data is available. Reports can also be prepared at the regional or provincial levels. This report provides site-level resource value assessments and trends through comparisons of cutblocks harvested before 2005 with those harvested in 2005 or later (where data is sufficient). FREP's site assessment monitoring results on each resource value are categorized by impact (very low, low, medium, or high). This classification reflects how well site-level practices achieve government's overall goal of sustainable resource management. Site-level practices that result in "very low" or "low" impact are consistent with sustainable management objectives. Practices resulting in "high" impact are seen as inconsistent with government's sustainability objectives. For a description of the MRVA methodology see Appendix 1.

OKANAGAN SHUSWAP NATURAL RESOURCE DISTRICT – ENVIRONMENTAL AND STEWARDSHIP CONTEXT

This report covers the Okanagan Shuswap Natural Resource District, which include the Okanagan TSA and Tree Farm Licences (TFL's) 33, 49 and 59 (figure 2). The TSA and TFL's cover approximately 2.25 million hectares that stretches from Seymour River and Shuswap Lake in the north to the Canada–United States of America border in the south, and from the Monashee Mountains in the east to the Okanagan Mountains in the west.

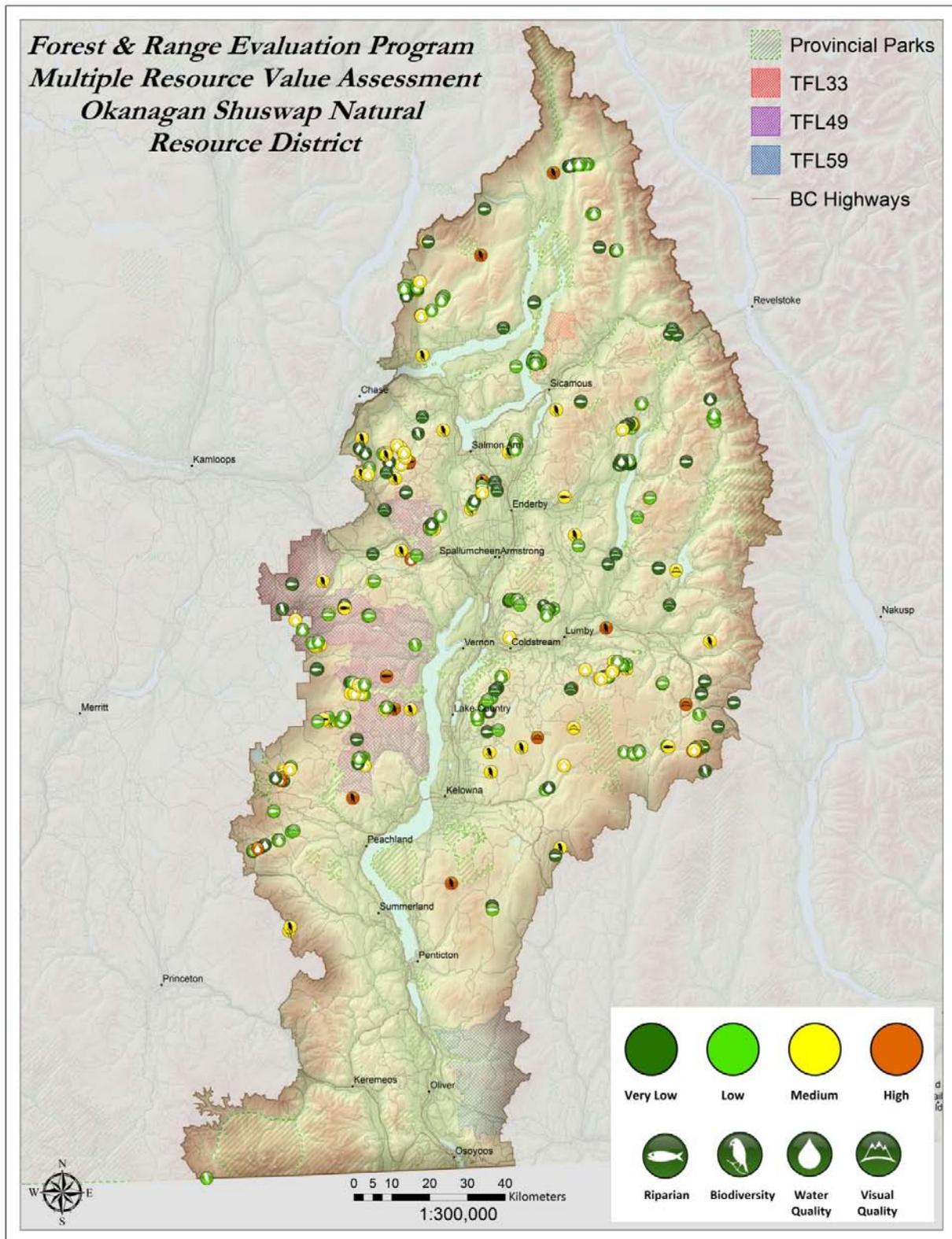
The broad variety of habitat types in the TSA support many species, including approximately 30 red- and blue-listed vertebrates that are associated with forested ecosystems. Water is a primary and fundamental resource in the TSA. There are currently 59 community watersheds that cover about 20 percent of the Timber Harvesting Landbase (THLB). Given the diverse range of ecosystems, the growing population and agricultural demands for water, water stewardship is an important component of forest and range management in the TSA. The economy of the area is well-diversified and includes forestry, agriculture/viniculture, ranching, tourism, retail trade, manufacturing, and construction.

The traditional territories of 20 First Nations communities cover all or part of the Okanagan TSA, including: Adams Lake Indian Band, Ashcroft Indian Band, Coldwater Indian Band, Cooks Ferry Indian Band, Little Shuswap Indian Band, Lower Nicola Indian Band, Lower Similkameen Indian Band, Lytton First Nation, Neskonlith Indian Band, Nooaitch Indian Band, Okanagan Indian Band, Oregon Jack Creek Band, Osoyoos Indian Band, Penticton Indian Band, Simpcw First Nation, Siska First Nation, Splitsin First Nation, Upper Nicola Indian Band, Upper Similkameen Indian Band and Westbank First Nation.

Within the TSA approximately 29 percent of the timber available for harvest is pine dominated. The current Mountain Pine Beetle (MPB) epidemic began in 2002 and areas of infestation increased. In 2006, MPB was projected to kill 75% of the mature pine in the THLB by the year 2026. The 2011 projection indicates that the current MPB epidemic is projected to kill about 37% of the mature PI in the Okanagan TSA by 2020. The 2011 projections have downgraded the amount of total mortality estimated for the Okanagan TSA THLB from 42 million m³ (2008 projection) to 21 million m³ (2011 projection).

Forest licensees have focused harvesting activities on salvaging MPB affected stands, with 72% of the harvest coming from pine leading stands during the 2006 to 2010 period. As the MPB population returns to endemic levels, licensees are returning to harvesting more of the healthy stands. Although the impact of the epidemic is significant, the diversity within the TSA will provide for many land management options into the future.

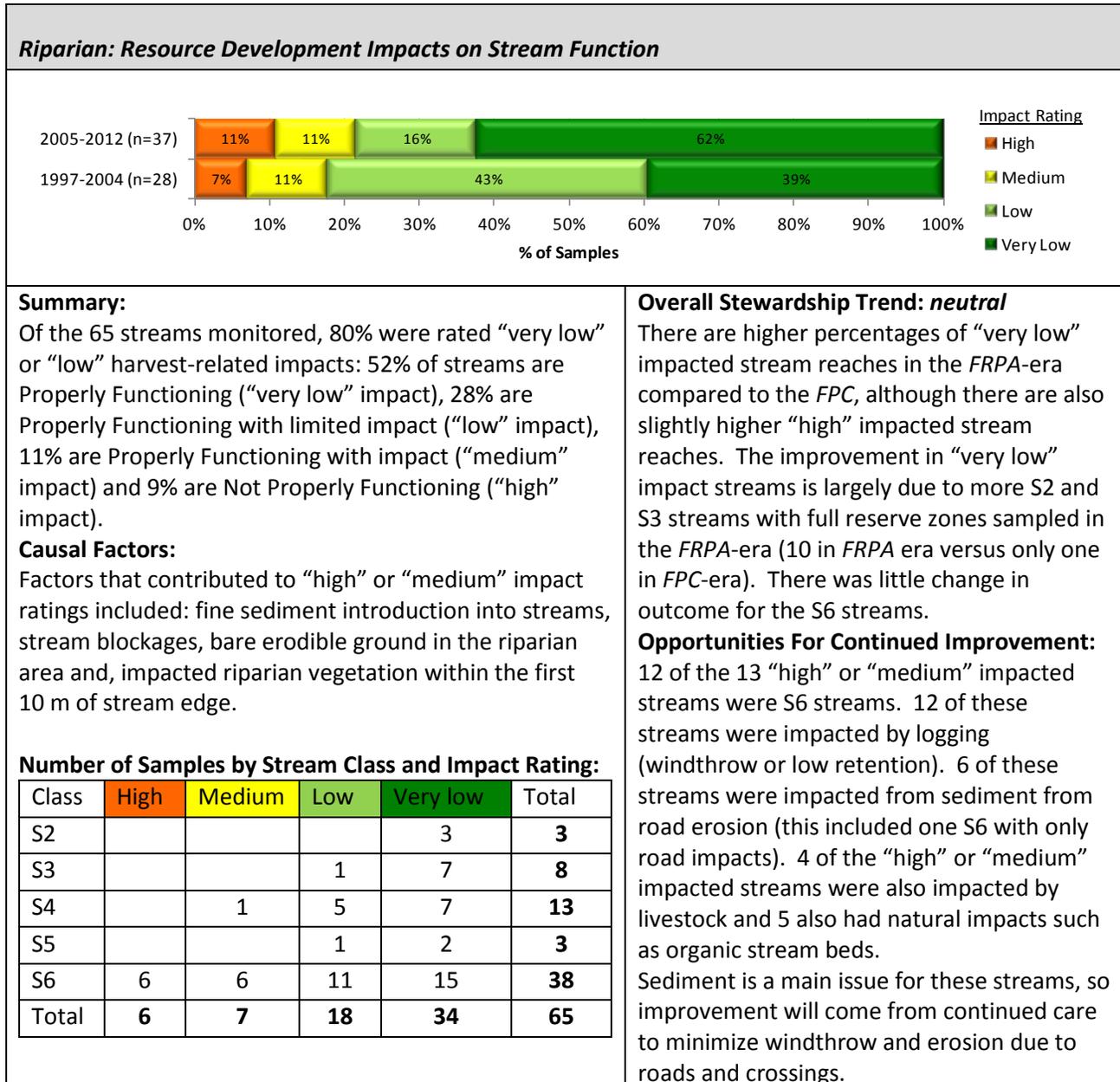
Figure 2: Okanagan Shuswap Natural Resource District, showing FREP sample locations and results (see <http://www.for.gov.bc.ca/hfp/frep/publications/mrva.htm> for a high-resolution version of this map).



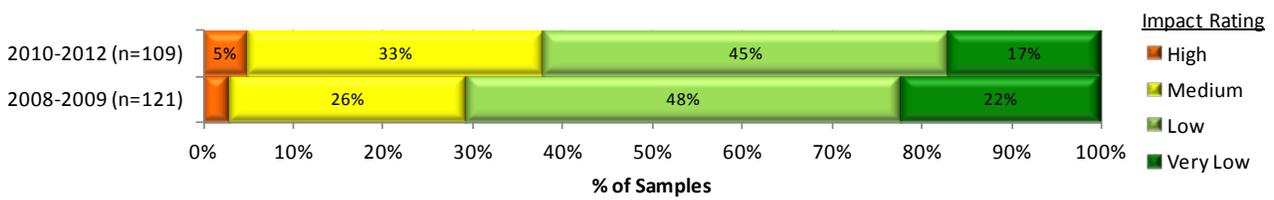
KEY RESULTS BY RESOURCE VALUE AND OPPORTUNITIES FOR CONTINUED IMPROVEMENT

Table 1 shows the resource values assessed for the Okanagan Shuswap Natural Resource District, and includes a summary of key findings, causal factors, trends, and opportunities for continued improvement. Data are presented for *FPC*-era samples at sites harvested before 2005 and *FRPA*-era samples at sites harvested in 2005 or later. This approximates the *Forest and Range Practices Act* (*FRPA*) era, and allows for a comparison between earlier and later stewardship practices. The impact rating indicates the effect of resource development on the resource value, from “very low” to “high” impact.

Table 1: Resource development impact rating, key findings, and opportunities for improvement by resource value for the Okanagan Shuswap Natural Resource District.



Water Quality (fine sediment): Resource Development Impacts on Water Quality



Summary:

Of the 230 road segments assessed, 67% were rated as “very low” or “low” road-related impact. Site assessments show the range for potential sediment generation as 20% “very low” (“very low” impact), 47% “low” (“low” impact), 30% “moderate” (“medium” impact), 3% “high” and 0% “very high” (“high” impact).

Causal Factors:

See opportunities for improvement for “high” or “medium” impacted road segments. Some opportunities will apply to ongoing maintenance issues, while others mainly apply to new road construction.

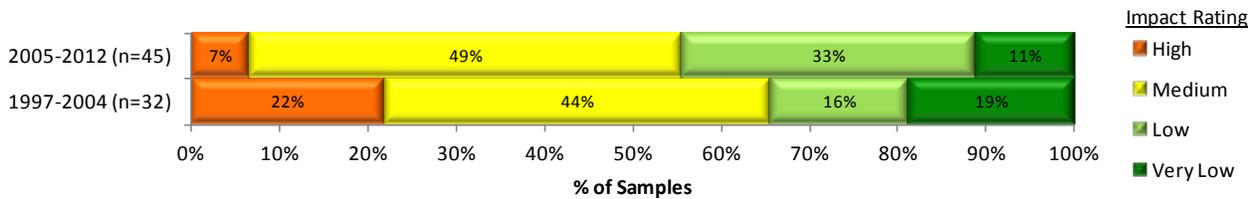
Overall Stewardship Trend: Neutral

Trending for water quality is based on survey years, to capture impact of road traffic and maintenance.

Opportunities For Improvement:

More strategically placed culverts; more cross ditches or kickouts, avoid long road gradients leading into streams, armour, seed and protect bare soil where sediment can impact stream, avoid or protect wet areas.

Stand-level Biodiversity: Resource Development Impacts on Stand-Level Biodiversity



Summary:

Of 77 cutblocks, 40% of sites were rated as “very low” or “low” harvest-related impact. Considering total retention, retention quality, and coarse woody debris quantity and quality, 14% sites are rated as “very low” impact on biodiversity, 26% as “low”, 47% as “medium”, and 13% as “high”.

Causal Factors:

84% of all the blocks had more than 3.5% retention. Retention decreased from 15.6% in the *FPC*-era to 13.1% in the *FRPA*-era, however a driver to this decrease is fewer blocks with very large amounts of retention (>30%) in the *FRPA*-era. The quality of the retention increased in the *FRPA*-era. Average gross block size was 20 hectares in the *FPC*-era and increasing to 39 hectares in *FRPA*-era.

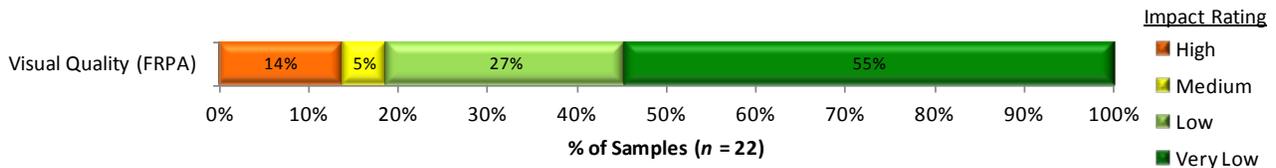
Overall Stewardship Trend: Neutral

A small increase in retention quality in the *FRPA*-era compared to *FPC*-era samples comes from a number of factors; fewer blocks with very low amounts (<3.5%) of retention, better retention in terms of big snag and large tree density and, more use of patch retention.

Opportunities For Continued Improvement:

Keep up the trend to have retention on every block. Maintain as many different tree species as possible on blocks (in particular for *ESSF* and *ICH* biogeoclimatic zones) and leave higher densities of big coarse woody debris pieces (≥20 cm and ≥10 m).

Visual Quality: Resource Development Impacts on Achievement of Visual Quality Objectives (VQO)



Summary:

Of the 22 landforms assessed (all FRPA cutblocks), 82% were rated with “very low” or “low” harvest-related impacts on achieving the Visual Quality Objectives. VQOs were “well met” (“very low” impact) on 55% of landforms, “met” (“low” impact) on 27%, “borderline” (“medium” impact) on 5%, “not met” or “clearly not met” (“high” impact) on 14%. As well, there were 4 openings harvested using Forest Development Plans under the FPC (2 “very low”, 1 “low” and 1 “medium”).

Causal Factors:

None of the openings contained visually effective levels of tree retention (>22% by volume or stem count) and 5% of landforms sampled had good visual quality design (cutblock shaping).

Number of Samples by VQO and Impact Rating:

VQO ¹	High	Medium	Low	Very Low	Total
M		1	2	5	8
PR	2		4	6	12
R	1			1	2
Total	3	1	6	12	22

¹ M = modification, PR = partial retention, R = retention

Overall Stewardship Trend: *Insufficient data*

No data for FPC cutblocks to allow for trending. Future trend analysis will use year of harvest.

Opportunities For Improvement:

Use existing visual design techniques to create more natural looking openings and better achieve VQOs. Use partial cutting to retain higher levels of volume/stems. Reduce opening size in retention and partial retention VQO areas.

Soils: Resource Development Impacts on Soil Productivity and Hydrologic Function

There are currently only four soils samples in the Okanagan Shuswap Natural Resource District. Analysis will be completed in subsequent years when more samples are available.

Landscape-level Biodiversity: Is the forested matrix at the landscape-level providing the range of habitat understood as necessary for maintaining ecosystem function and old and mature forest dependant species?

This protocol is in development. The three primary landscape-level biodiversity indicators are: (1) site index by leading species (ecosystem representativeness); (2) percent of TSA by age class (young, mid-, mature, and old forest); and (3) percent interior habitat of old forest. Each indicator is categorized by percent in non-commercial land base, timber harvesting land base, and protected areas. Data for these indicators is derived from Hectares BC and other spatial databases.

RESOURCE VALUE STEWARDSHIP RESULTS COMPARISON

Table 2 provides ratings of stewardship effectiveness at varying scales. Effectiveness is determined by the percentage of samples with a “very low” or “low” resource development impact rating. Appendix 2 shows stewardship effectiveness results by resource value for the North, South and Coast Areas and the province as a whole.

Table 2: Stewardship effectiveness within the Thompson Okanagan Region as determined by resource development impact rating (ID = Insufficient Data; sample sizes in brackets).

Resource Value	Effectiveness of Practices in Achieving Resource Stewardship Objectives: % Very low + low resource development impact rating (sample size in brackets)				
	Thompson Okanagan Region Comparison				Thompson Okanagan Region ^a
	Okanagan Shuswap District	Merritt TSA	Lillooet TSA	Thompson Rivers District	
Riparian – all data	80% (65)	64% (47)	55% (11)	59% (124)	65% (247)
FRPA-era data	78% (37)	55% (22)	ID (7)	63% (56)	66% (122)
FPC-era data	82% (28)	72% (25)	ID (4)	56% (68)	65% (125)
Water quality – all data	67% (230)	41% (84)	39% (18)	65% (346)	62% (678)
2010–2012 samples	62% (109)	42% (77)	39% (18)	70% (225)	62% (429)
2008–2009 samples	70% (121)	ID (7)	ID (0)	57% (121)	63% (249)
Stand-level biodiversity –all data	40% (77)	55% (60)	ID (8)	52% (129)	49% (274)
FRPA-era data	44%(45)	71% (31)	ID (4)	58% (57)	57% (137)
FPC-era data	34% (32)	38% (29)	ID (4)	47% (72)	42% (137)
Visual Quality					
FRPA	82% (22)	39% (23)	ID (0)	47% (19)	56% (64)
FPC	ID (4)	ID (0)	ID (0)	ID (0)	ID (4)

^aIncludes the Thompson Rivers, Cascades and Okanagan Shuswap Natural Resource Districts

DISTRICT MANAGER COMMENTARY¹

This report contains the results of FREP monitoring for four resource values and indicates a range of stewardship ratings. The outcome of management practices are rated as to whether they are consistent with the government's sustainable resource management objectives. We have been conducting FREP assessments in the Okanagan Shuswap since 2006 and I am pleased to see generally positive results, with comments on the individual values found below. I encourage forest professionals to review this report and continue to utilize the monitoring results in their planning and implementing practices, and to improve future results.

Riparian

I am encouraged to see an increasing trend in Riparian assessments with a higher amount of "very low" impact ratings. Part of this increase appears to come from sampling of more S2 and S3 streams in the *FRPA*-era and the protection provided through the legislated reserve zone ensuring good outcomes for these streams. The outcomes of the S6 streams were similar between the *FRPA* and Forest Practices Code (FPC) eras. Opportunities for improving practices around S6 streams, especially those flowing into fish bearing streams include increasing levels of windfirm retention, minimizing sediment input at road crossings and reducing cattle impacts around stream crossings.

Water Quality

Water quality results show a neutral trend with a small increase in impacts from roads sampled in 2008 and 2009 to more recently sampled roads. In periods of increased traffic, strategic road maintenance grows in importance. Sediment in streams was found to be a concern in the riparian sampling and it was a concern for 38% of the road segments assessed in the years 2010-2012. Water is a key resource in the Okanagan Shuswap district and as such, we need to ensure protection of the streams. New roads require designs that avoid long road gradients leading up to streams, and the number of strategically located culverts needs to be increased. Ongoing good road maintenance practices will reduce sediment delivery through use of more cross ditches and kickouts as well as armouring of ditches, cutslopes and seeding to protect bare soil.

Stand-Level Biodiversity

Stand-level biodiversity shows a neutral trend from the *FPC* to *FRPA* era, although there are some improvements including fewer blocks with very low retention levels and, generally better retention of large trees for the site. Forest professionals should continue practices that support the trend to retention of a minimum of 3.5% on most blocks, while targeting overall retention levels indicated in the FPC Biodiversity Guidebook. In this naturally very diverse part of the province, an ongoing effort will ensure maintenance of the full diversity of tree species, particularly in the Interior Cedar Hemlock (ICH) and Engelmann Spruce - Subalpine Fir (ESSF) biogeoclimatic zones.

Visual Quality

I am also encouraged to see that 82% of the visual quality landforms assessed received a "very low" or "low" impact rating meaning they "met" or have "well met" the established Visual Quality Objective (VQO) for these areas. Opportunities for improvement exist in using visual design techniques, incorporating more tree retention and reducing the size of openings in areas with VQOs of retention and partial retention.

In conclusion, I am pleased to see an improvement in the results for riparian activities and look forward to an improvement in water quality results. We will continue to conduct FREP sampling, including stand development monitoring assessments, and I trust those results will be utilized to guide planning and operations on our managed stands. Licensee practices are continuously evolving and I appreciate the ongoing efforts to implement innovative and improved practices to further enhance outcomes, here in the Okanagan Shuswap Natural Resource District.

¹ Commentary supplied by Okanagan Shuswap Natural Resource District, Acting District Manager, Pam Shumka.

APPENDIX 1: SUMMARY DESCRIPTION OF RESOURCE DEVELOPMENT IMPACT RATING CRITERIA

Table A1.1 shows the criteria used to determine the resource development impact ratings for each resource value. Detailed rating criteria, methodology, and definition of terms used are described in the companion document *FREP Technical Note #6: Methodologies for Converting FREP Monitoring Results to Multiple Resource Value Assessment (MRVA) Resource Development Impact Ratings* (http://www.for.gov.bc.ca/ftp/HFP/external/!publish/frep/technical/FREP_Technical_Note_06.pdf). The ratings of “very low”, “low”, “medium” and “high” are “technical ratings” based on best available science.

Table A1.1: Criteria for determining resource development impact rating outcomes for each resource value.

Resource Value	FREP Evaluation Question	Indicators	Resource Development Impact Rating Criteria	Very low	Low	Medium	High
Riparian	Are riparian forestry and range practices effective in maintaining the proper functioning of riparian areas?	Fifteen key questions (e.g., intact channel banks, fine sediments, riparian vegetation)	Number of “no” answers on assessment questions of channel and riparian conditions	0–2	3–4	5–6	> 6
Stand-level Biodiversity	Is stand-level retention providing the range of habitat and attributes understood as necessary for maintaining species dependant on wildlife trees and coarse woody debris?	Percent retention, retention quality from nine key attributes (e.g., big patches, density of large diameter trees), coarse woody debris volume, coarse woody debris quality from two key attributes (e.g., density of pieces \geq 10 m and 20 cm, and volume of large diameter pieces)	Cumulative score. A 60/40 weighting is used for tree retention versus coarse woody debris, recognizing the longer-term ecological value of standing retention.	> 70%	55–70%	40–55%	< 40%
Water Quality (sediment)	Are forest practices effective in protecting water quality?	Fine sediment potential	Fine sediment (m^3) due to expected surface erosion or past mass wasting	< 0.1	< 1	1–5	> 5
Soils	Are forest practices preventing site disturbance that is detrimental to soil productivity and hydrologic function?	Amount of access, restoration of natural drainage patterns, road side work area soil disturbance, amount of mature forest and coarse woody debris and restoration of natural drainage patterns	Overall assessment of practices on cutblock to maintain soil productivity and hydrologic function	Well	Moderately		Poor
Cultural Heritage	Are cultural heritage resources being conserved and where necessary protected for First Nations cultural and traditional activities?	Evidence and extent of damage to features, operational limitations, management strategies and type and extent of features	Combined overall cutblock assessment results with consideration of individual feature assessment results	See methodology report			
Timber: Stand Development Monitoring	What is the overall health and productivity of managed 20-40 year stands?	Impacts of forest health factors on stand stocking (ratio of total and well spaced)	Forest health damaging agent (% level of incidence) and level of stocking (well spaced stems per hectare)	\geq 1.7	0.8–1.69	0.3–0.79	0–0.29
Landscape-level Biodiversity	Is the forested matrix at the landscape-level providing the range of habitat understood as necessary for maintaining ecosystem function and old and mature forest dependant species?	Ecosystem representativeness, age class and interior old	Overall ranking: within protected and non-protected areas	Ranking under development			
Visual Quality	How are we managing views in scenic areas and achieving visual quality objectives?	Visual evaluation of block, design of block, percent of landform altered, impact of roads, tree retention and view point importance	Basic visual quality class (determined using the VQC definitions) is compared with the Adjusted VQC (derived using percent alteration measurements and adjustment factors) to determine if VQO is achieved.	VQO achieved, and % alteration low or mid-range	VQO achieved, but % alteration for one or both close to alteration limit	Only one method indicates VQO achieved	Both methods indicate VQO not achieved

APPENDIX 2: COMPARATIVE FREP RESULTS BY RESOURCE VALUE FOR OTHER AREAS

Table 2 describes overall ratings for the Okanagan Shuswap Natural Resource District as compared to adjacent TSAs. The table below describes the same results but by the North, South and Coast areas and the province as a whole. The three operational areas represent combined natural resource regions.

Table A2.1: FREP monitoring results by resource value for the North, South and Coast Areas and the province as a whole compared to the Okanagan Shuswap Natural Resource District.

Resource Value	Effectiveness of Practices in Achieving Resource Stewardship Objectives: % Very low + low resource development impact rating (sample size in brackets)				
	Okanagan Shuswap District	Forests, Lands and Natural Resource Operations Areas			Province
		North	South	Coast	
Riparian – all data	80% (65)	71% (654)	69% (678)	58% (451)	67% (1783)
FRPA-era data	78% (37)	71% (257)	68% (277)	62% (198)	67% (732)
FPC-era data	82% (28)	71% (394)	70% (401)	55% (253)	67% (1048)
Water quality – all data	67% (230)	66% (992)	70% (1515)	76% (1526)	71% (4033)
2010–2012 samples	62% (109)	67% (505)	70% (823)	79% (1021)	73%(2349)
2008–2009 samples	70% (121)	64% (487)	70% (692)	70% (505)	68% (1684)
Stand-level biodiversity - all data	40% (77)	42% (655)	54% (780)	77% (455)	56% (1890)
FRPA-era data	44%(45)	49% (270)	61% (347)	84% (201)	63% (818)
FPC-era data	34% (32)	38% (385)	49% (433)	72% (254)	50% (1072)
Visual Quality					
FRPA	82% (22)	73% (122)	54% (136)	78% (153)	69% (411)
FPC	ID (4)	56% (96)	65% (85)	62% (68)	61% (249)