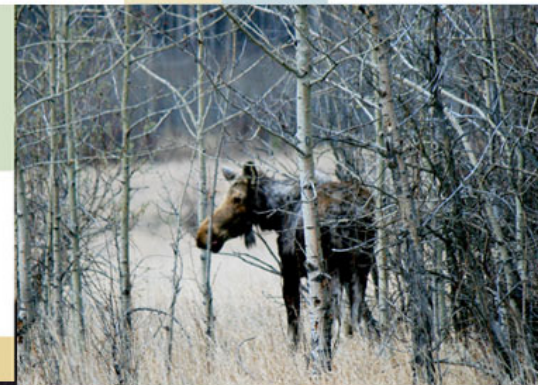


Incorporating Watershed and Fish values into Timber Supply Review

Eric Valdal –Thompson-Okanagan Region, FLNR
and
Doug Lewis – Thompson-Okanagan Region, FLNR

SISCO Winter Conference
February 1, 2017



Outline

1. Cumulative Effects Framework – Brief Overview
2. Watershed and Fish Habitat Assessments
3. Application to Timber Supply Review
4. Concluding Thoughts and Discussion

CEF Overview and Background

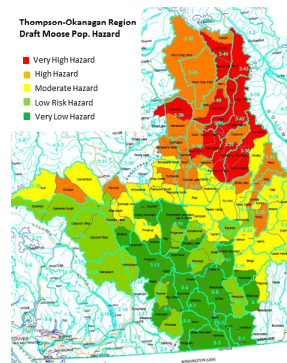
CEF Overview



Policy, procedures & decision support tools to support cumulative effects assessment & management



Strategic ~ 90 million ha.



Values centred assessment and management

Proactive



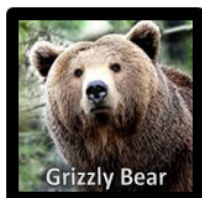
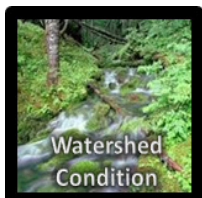
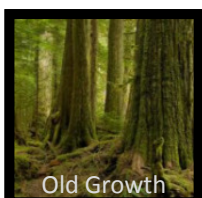
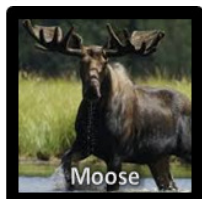
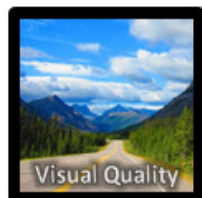
Dovetail CEF into existing resource management work

CEF Drivers

- Impacts to values resulting from high levels of NRS activity and natural events
- Supreme court decisions:
 - on *William* (2007)
 - West Moberly (2011)
- Auditor General – Audit on how government addresses cumulative effects



Initial Value Assessments (Thompson-Okanagan)

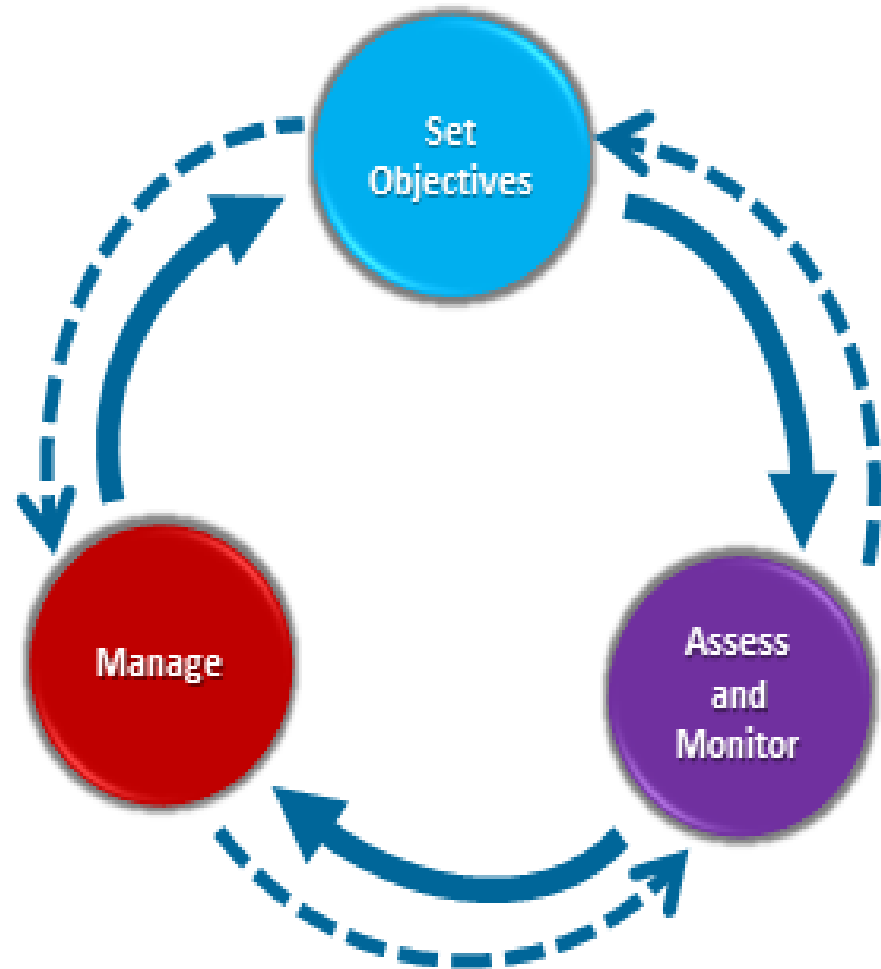


- Assessments of Broad and Specific Objectives
- Assessed against expectations found in regulation or policy
- Their condition has cultural, social, economic and environmental implications

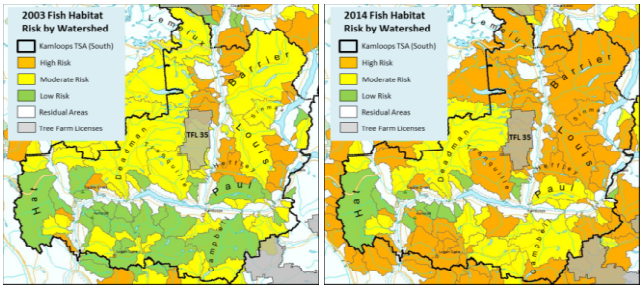


Embed Strategic CE Value Assessments into FLNR Adaptive Management Processes

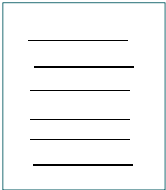
...compliments a value based adaptive management cycle in FLNR Ops.



Embed Strategic CE Value Assessments into FLNR Adaptive Management Processes



Support AAC Decisions
e.g. Kamloops, Merritt, Quesnel



District
Letters of Expectation
FSP review & support

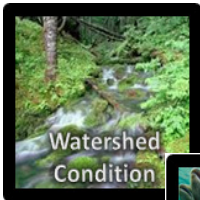


Validation of CE Information
T-O Integrated Monitoring Team



A traditional fish weir in Nlaka'pamux Territory
Photo: Watershed Watch Salmon Society

Support Shared Decision Making
e.g. NNTC



Example
Resource Values

Validation of
CE Information
Training and
Co-Monitoring with FN



Secwepemc Training – Riparian Protocol

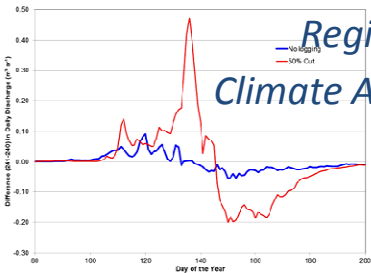
G2G Objective
Setting - Support for...



Lands Act
Support
for Project
Proposals

Connections to
Regional
Climate Action Plan

Support G2G Thompson
Steelhead Recovery
Planning



Embed Strategic CE Value Assessments into FLNR Adaptive Management Processes



Results in robust information to support statutory decisions (rather than ad hoc or one off assessments), and

FN engagement, consultation or G2G objective setting and planning processes

Information to support professionals and help position FRPA for success



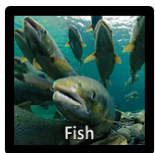
Watershed and Fish Habitat Assessment

Watersheds, Fish Habitat (Aquatic Ecosystems)



Watersheds

... accumulate and concentrate the effects over space (i.e. downstream) and through time...

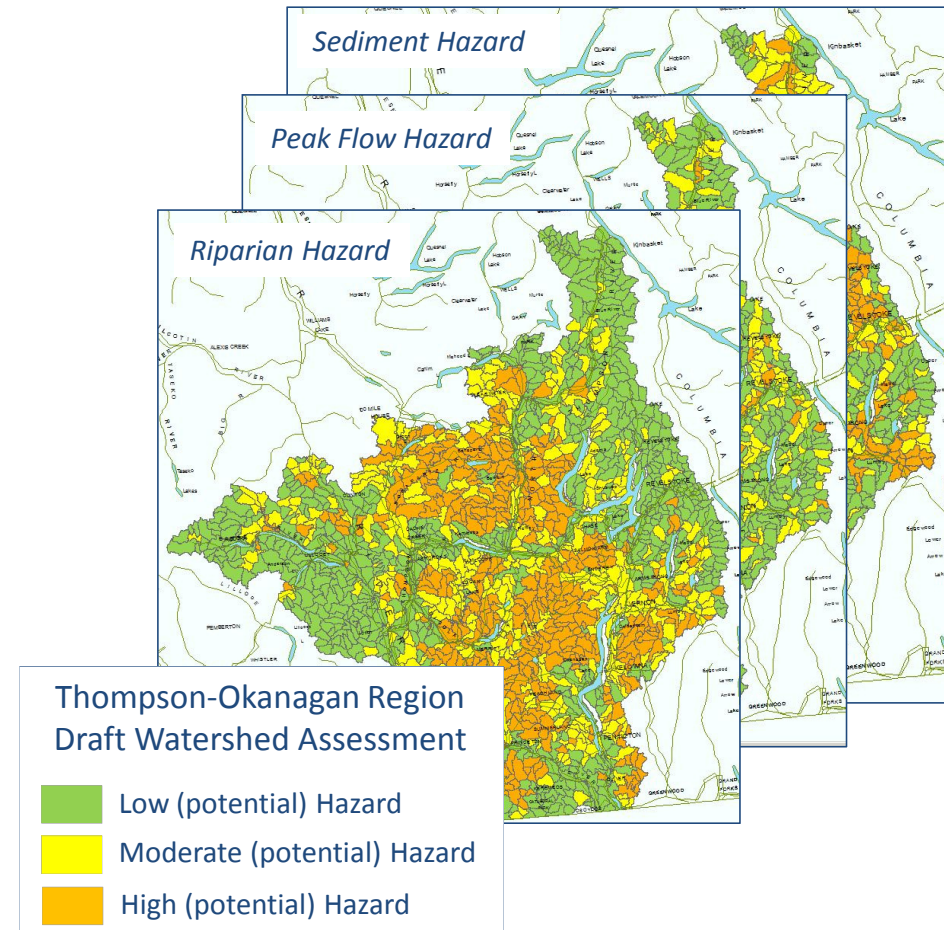


Values like fish and fish habitat are affected by the conditions of watersheds

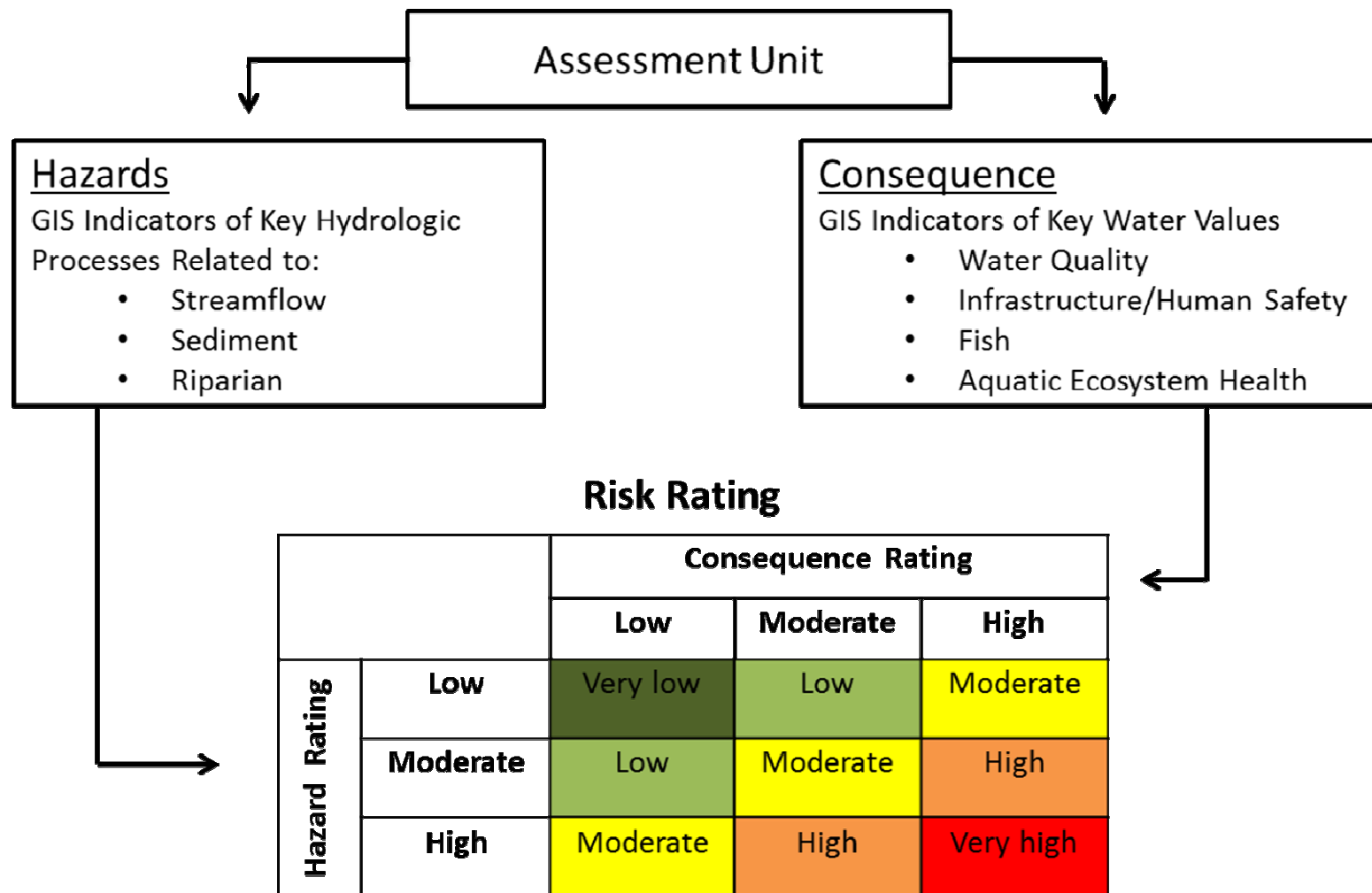
- Watershed indicators and hazards are statistically associated with fish habitat and abundance
- Development of regulatory and policy tools underway

Watershed Assessment – Fish Habitat Risk

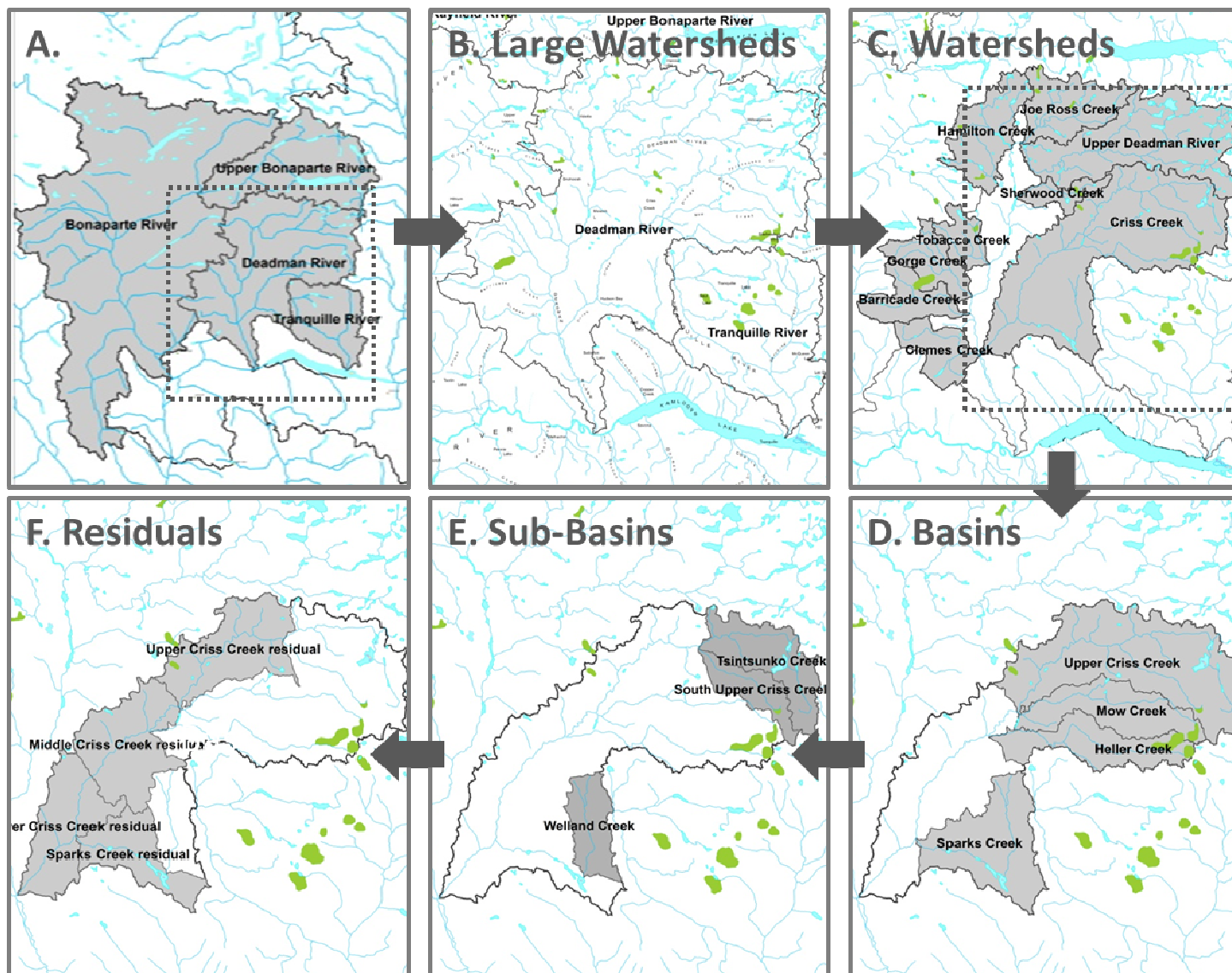
- Consistent with guidance to
 - Prevent/minimize sediment input to streams
 - Avoid cumulative hydrologic impacts – minimize peak flows
 - Maintain riparian function
- Fish Habitat Risk interpreted from watershed hazards by Fish Team
- Procedure by Doug Lewis, Mike Milne and Bill Granger (2013)



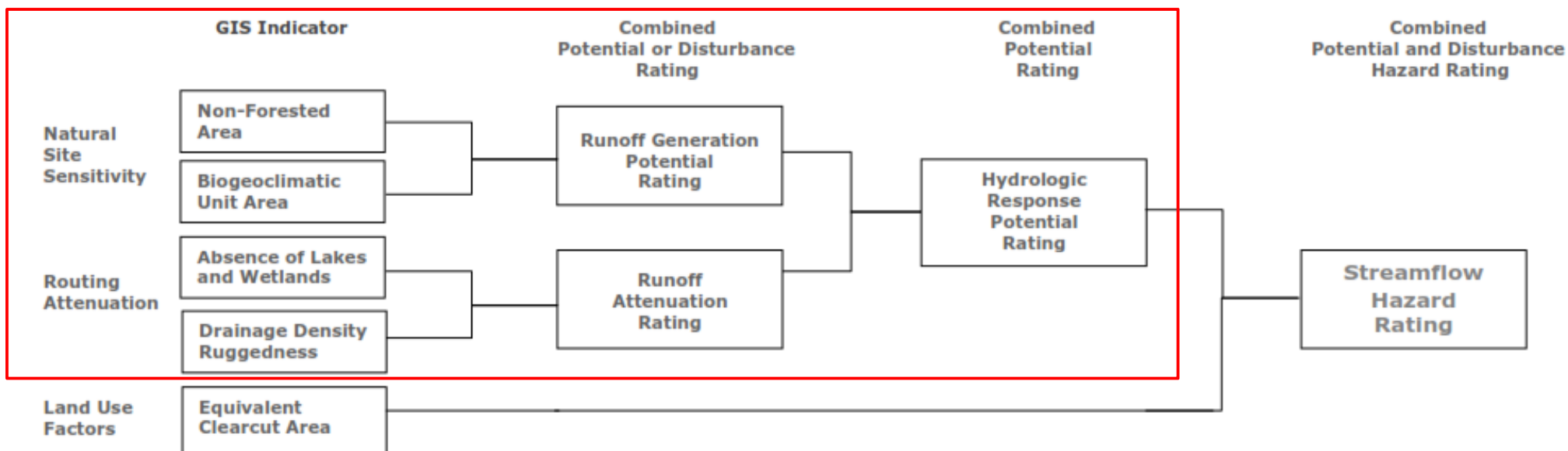
Risk-Based Approach



Multi-Scale Assessment Units

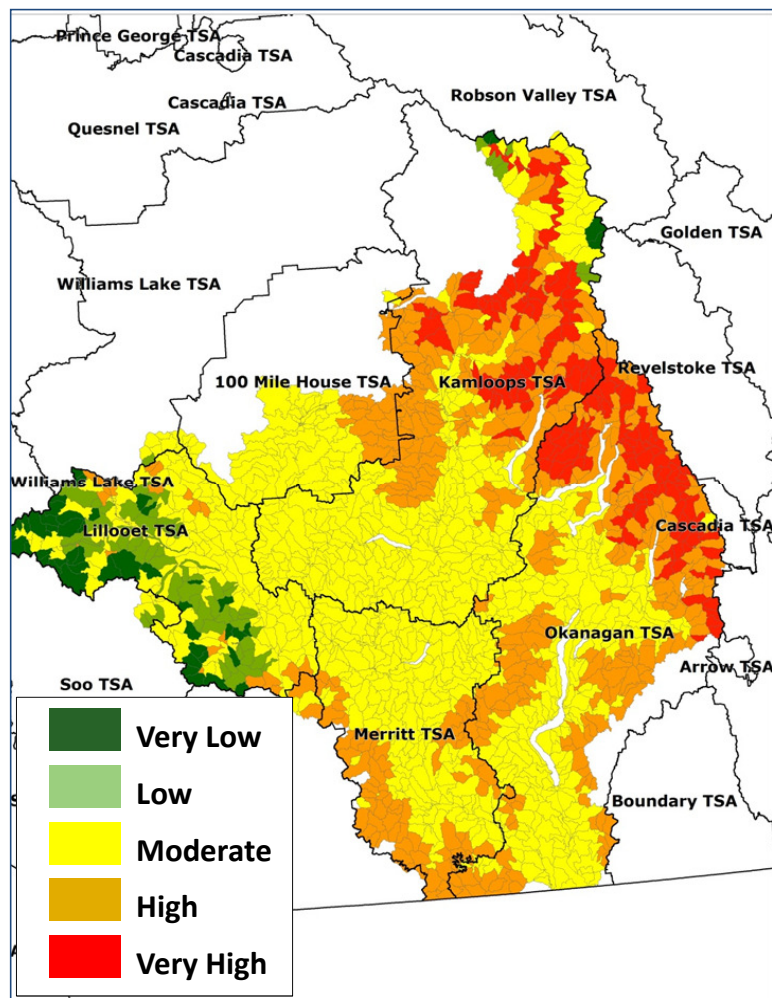


GIS-Based Indicators to Characterise Watershed Response to Land Use

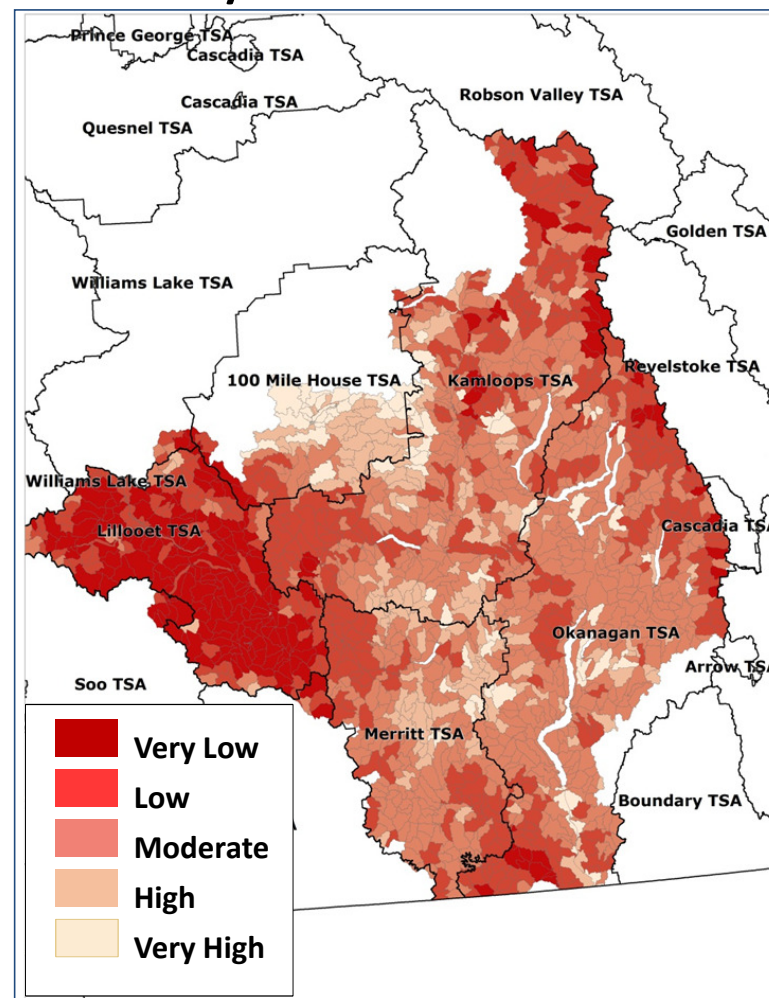


Indicators -> Ratings

Runoff Generation Potential

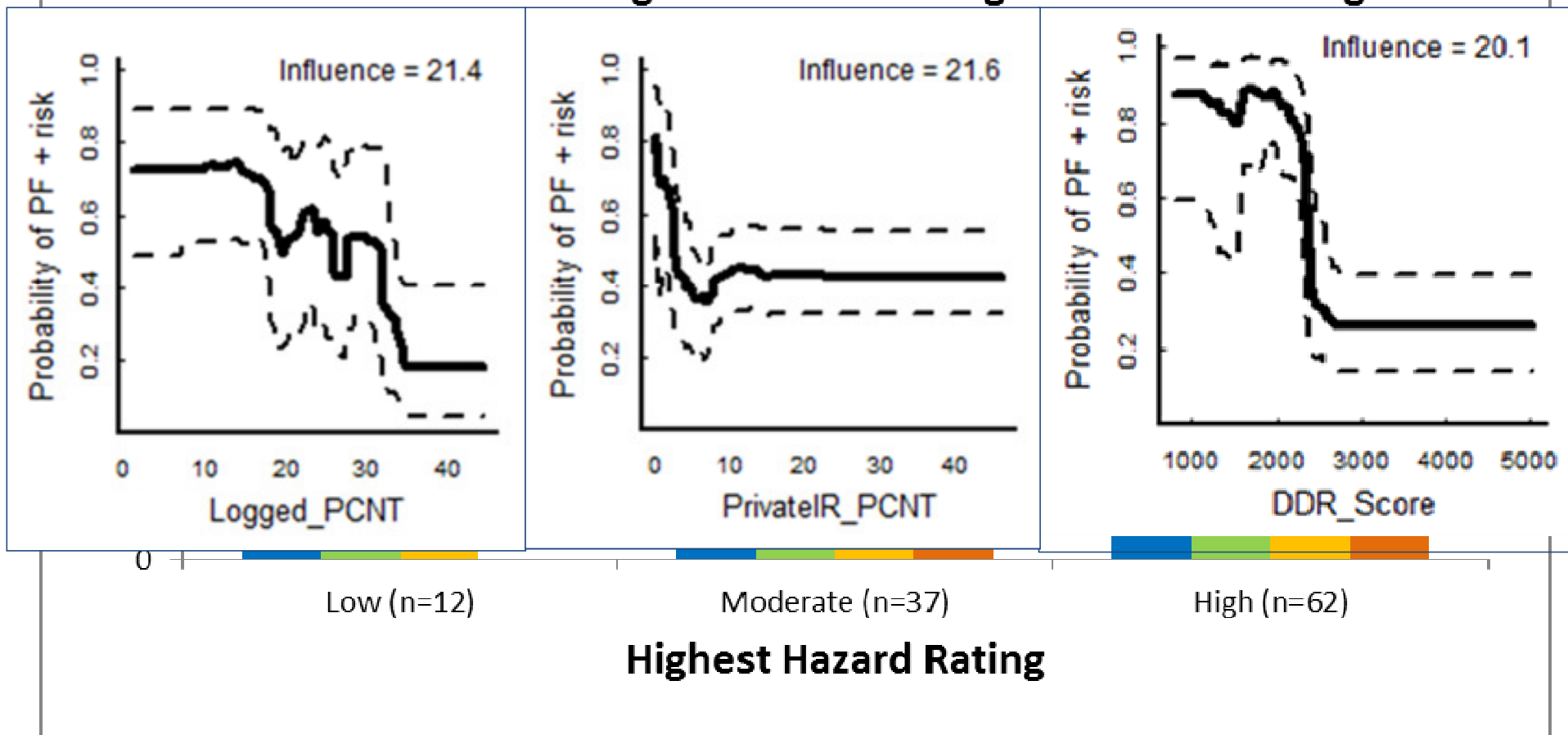


Runoff /Sediment Attenuation



Field Validation - Monitoring

Stream Functioning Condition and Highest Hazard Rating



Application to Timber Supply Review

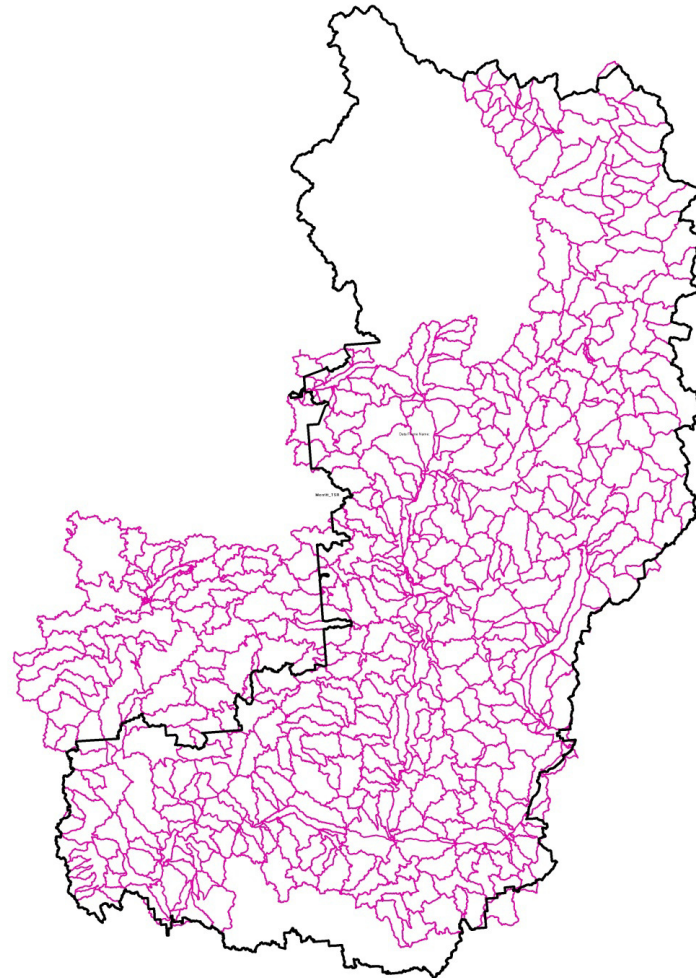
Timber Supply Review – AAC Determinations

- **Driver: Supreme Court requirement to understand the condition of values associated with FN Rights**
- **Many factors affect decision**
- **Objectives and Current Management directly affect levels of timber volume available**
- **Other decision support indirectly affects available volume (e.g. Socio-Economic section)**
- **CE/Wildlife Assessments can be either of the previous two bullets**

Assessment Approach and Policy Context

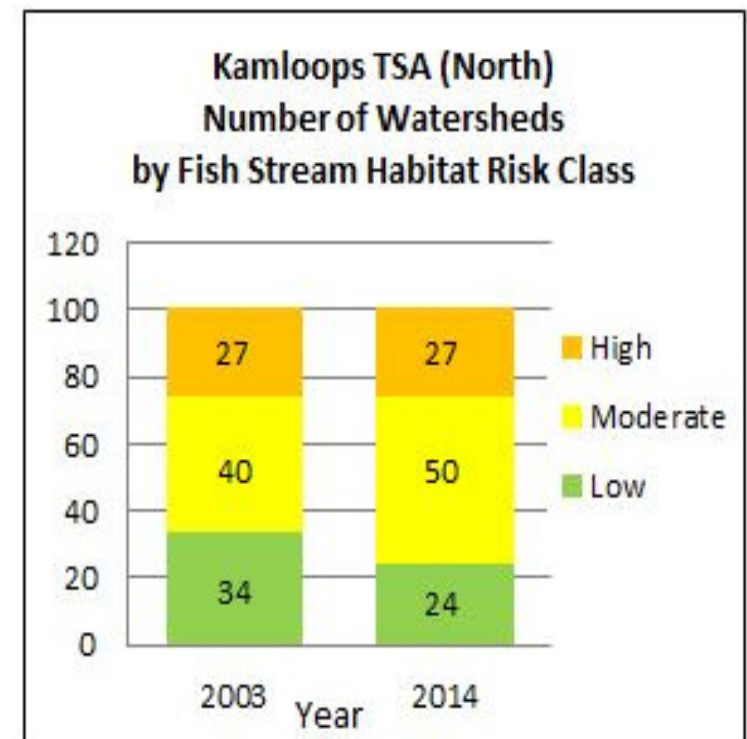
- **Watershed scale assessments**
- **10 year trend and current condition**
- **Policy and Guidance**
 - Kamloops LRMP
 - FRPA –FPPR 8
 - Identified Wildlife Management Strategy
 - Tsilhqot'in 2007
 - IWAP
 - Current research

Watershed Assessment Units- Kamloops TSA



Assessment Results: North Portion of Kamloops TSA

- 27 of 101 watersheds are in high risk condition
- 77 of 101 are in moderate or high risk
- Eight watersheds have improved over the last decade
- Offset by 8 others transitioning to a high risk state

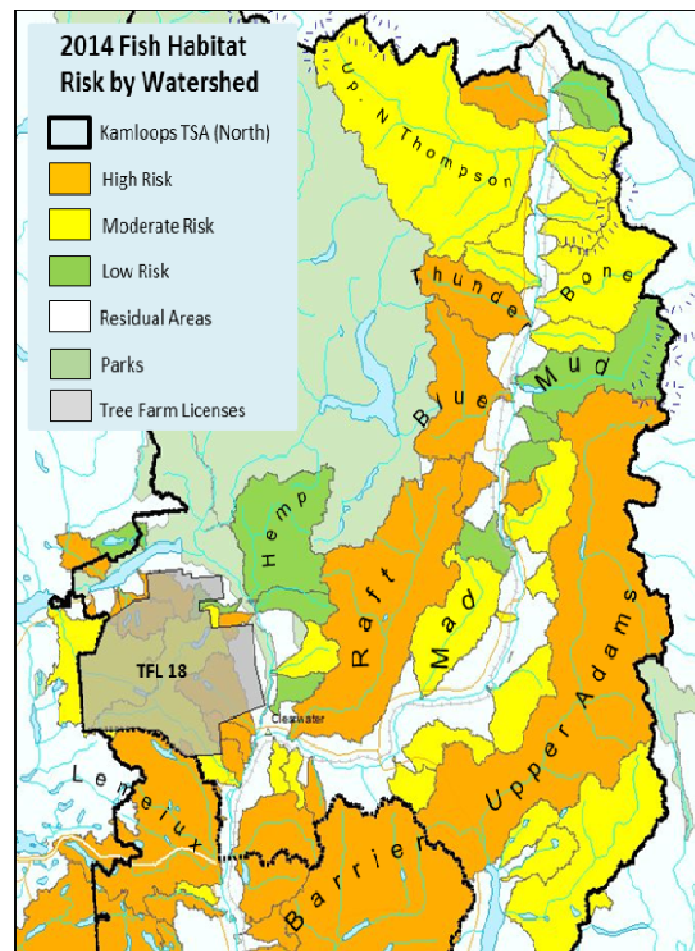
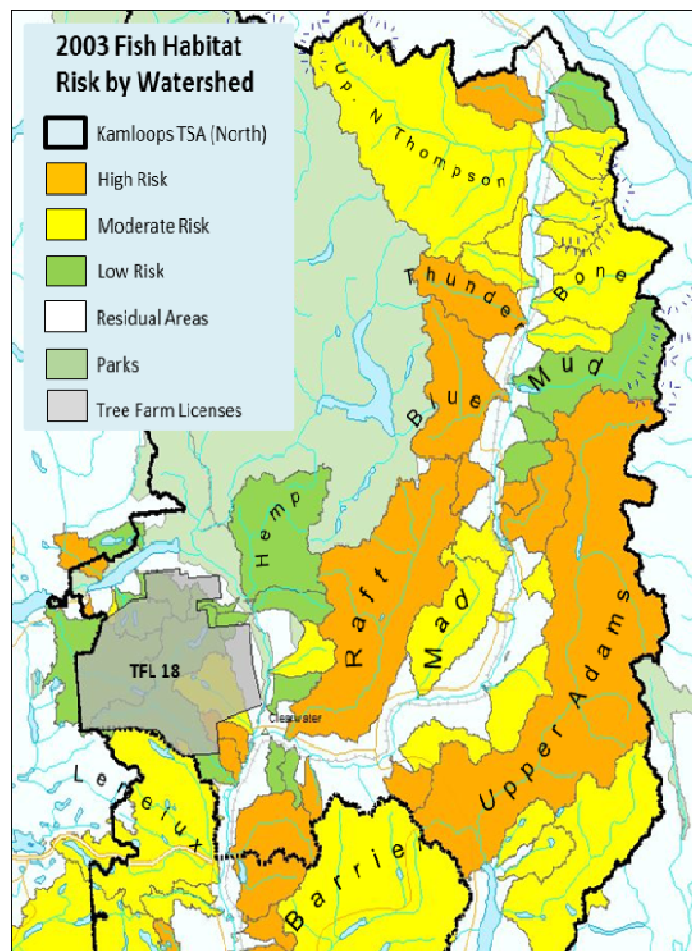


Assessment Results: North Portion of Kamloops TSA

Key Drivers:
Sedimentation
Hazard

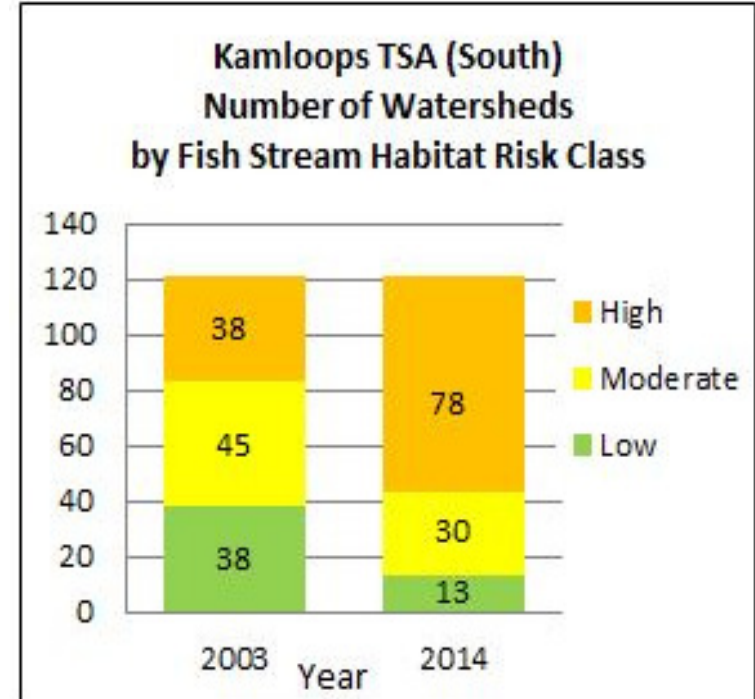
Riparian hazards
are also
significant

Peak flow
hazards
diminishing



Assessment Results: South Portion of Kamloops TSA

- 78 of 121 watersheds are in high risk condition
- Driven largely by increases in riparian hazard
- MPB salvage added to significant historic effects of private land clearing
- Increase in forest clearing proximal to streams interacts with Range use



Assessment Results: South Portion of Kamloops TSA

Effects:

MPB salvage

+

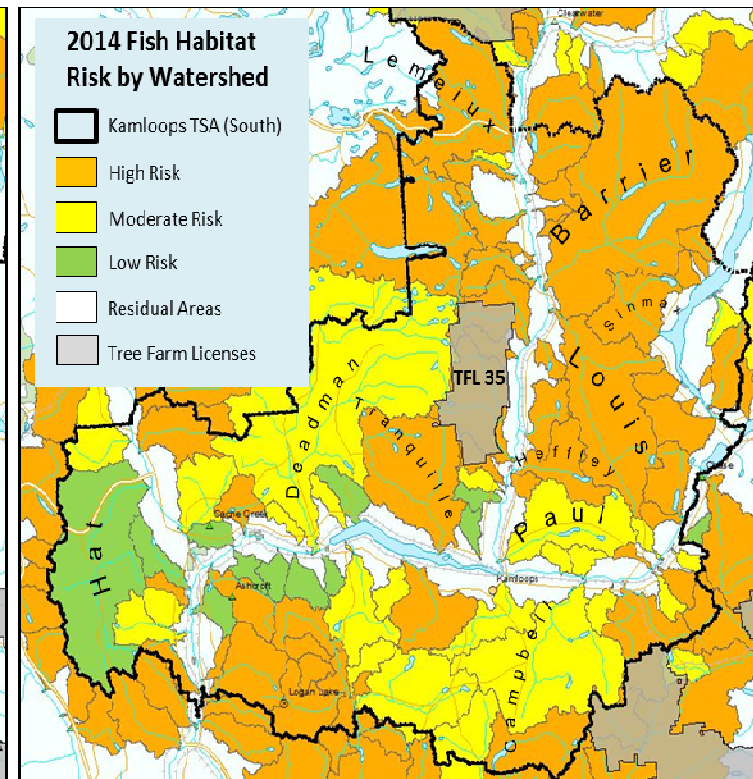
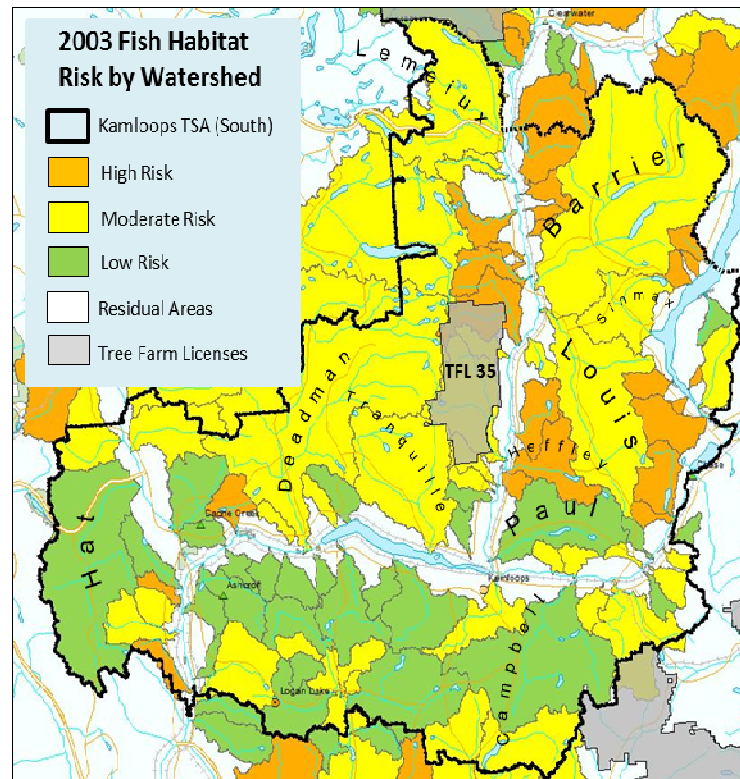
NRS Activity

+

Significant
historic effects
(private land)

+

Location of
forest clearing
that interacts
with Range use



Modelling Approach

- To manage for fish stream habitat and other values that would benefit from the prevention of cumulative hydrological effects, a hydrologist would consider:
 - Hydrologic recovery (as reflected through rate of harvest),
 - the spatial location of harvest and,
 - roads\crossings development\management.
- Item (a) has direct relevance to timber supply review whereas items (b) and (c) are best addressed during implementation (post AAC decision).

Modelling Scenarios

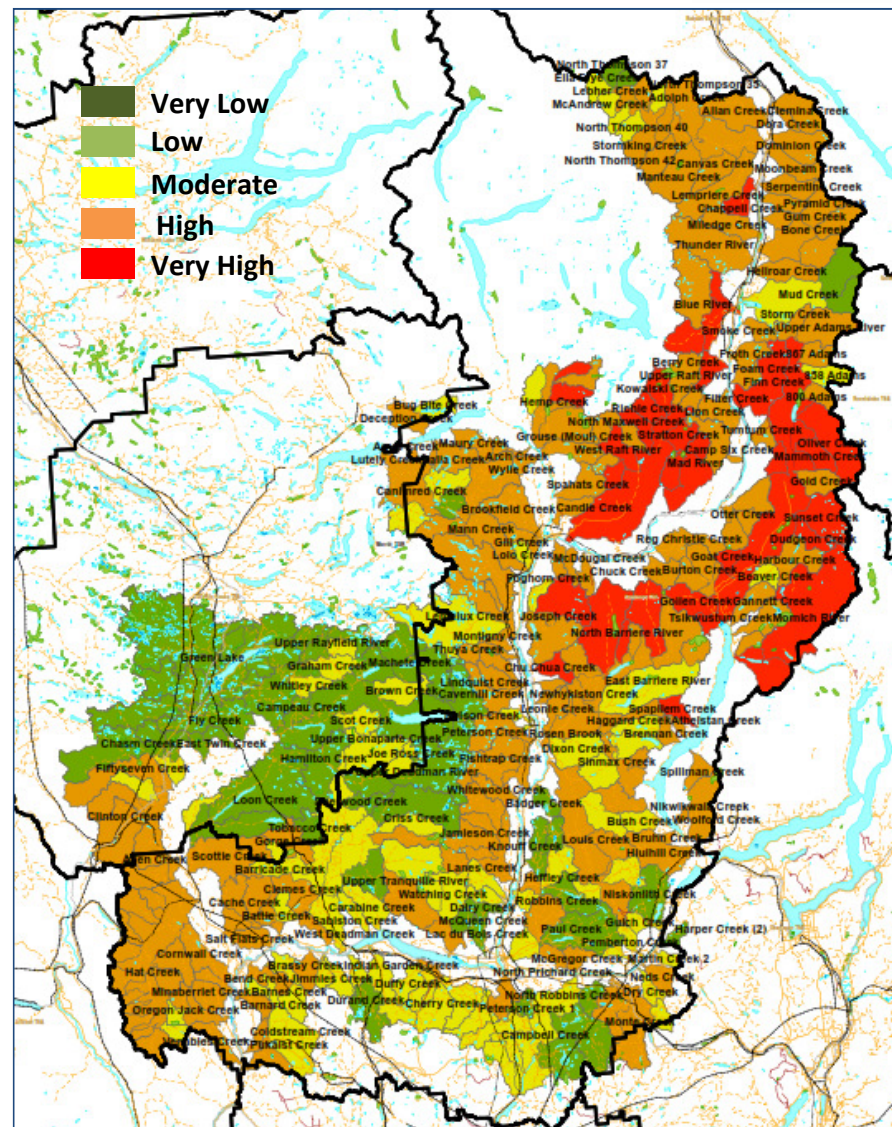
Hydrologic Response Potential



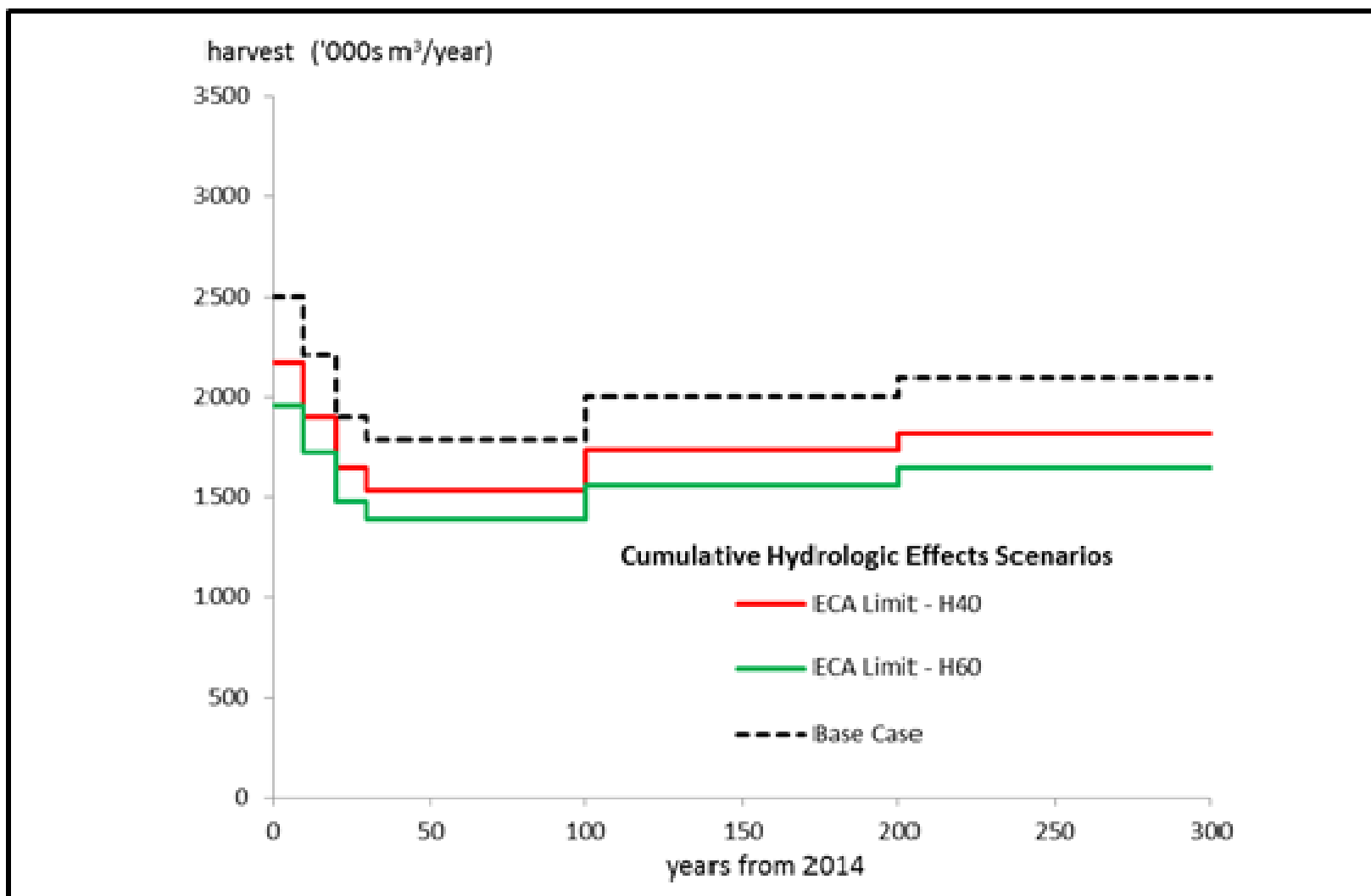
Two scenarios were assessed and compared to the TSR5 Base case.

These included:

- Modeling a 25% ECA limit in the upper 40% of sensitive watersheds and 35% ECA limit in the upper 40% of less sensitive watersheds
- Modeling a 25% ECA limit in the Upper 60% of sensitive watersheds and 35% ECA limit in the Upper 60% of less sensitive watersheds.



Assessment Results



Chief Forester Comments

- **AAC set 9% below base-case in first 5 year period and 14% below base-case in years 6-10**
- **With respect to fish habitat values, I note that the increase harvesting to salvage MPB timber and relaxation of green-up constraints may have contributed to the disruption in hydrological recovery for many watersheds in the TSA**
- **Although it is not within my authority in determining AACs to change forest management requirements, I am aware that a reduction in the AAC could help support hydrological recovery.**

* Other factors that overestimated the available timber supply by up to 10%

Concluding thoughts and discussion

- **Watershed and Fish Habitat Assessment supported development of Letter of Expectations from District Manager and will support FSP review**
- **Supports ongoing objective setting processes, planning**
- **Ongoing monitoring to determine condition of watersheds**
- **Watershed and Fish Habitat assessment information currently utilized in the review of other natural resource sector project applications**
- **Questions?**

CEF: For More Information



www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/cumulative-effects-framework

Cumulative Effects Framework

In British Columbia, we are committed to developing natural resources in an environmentally sustainable way, and this includes considering the cumulative effects of natural resource development.

Cumulative effects are changes to social, economic and environment conditions caused by the combined impact of past, present and potential human activities or natural events.

The province is implementing a cumulative effects framework, a management approach that close attention to a number of environmental, social and economic factors, including biodiversity, riparian conditions, water and air quality, fish and wildlife impacts, cultural and heritage concerns, community needs and economic development opportunities.

Benefits

The cumulative effects framework gives resource managers the procedures and tools to make decisions that support sustainable management and the needs of many different users.

Natural resource clients and decision-makers can use maps and reports to make sure resource development proposals are aligned with government's objectives. With clear expectations for project assessment and mitigation, individual resource development project reviews will cost less and can be completed faster.

First Nations values and interests are also considered in the assessments. We'll have better information to support assessment of impacts to Aboriginal and treaty rights, making the consultation processes more effective.

Auditor General's Report

The Auditor General released her [report](#) on B.C.'s cumulative effects framework on May 26, 2015. Government is already acting on all nine recommendations. News release: [Cumulative effects framework being implemented throughout B.C.](#)

Cumulative Effects Newsletters

Get the latest news on cumulative effects tools, procedures and projects.

■ [Newsletter #1 February 2014](#)

Email:
CumulativeEffects@gov.bc.ca

