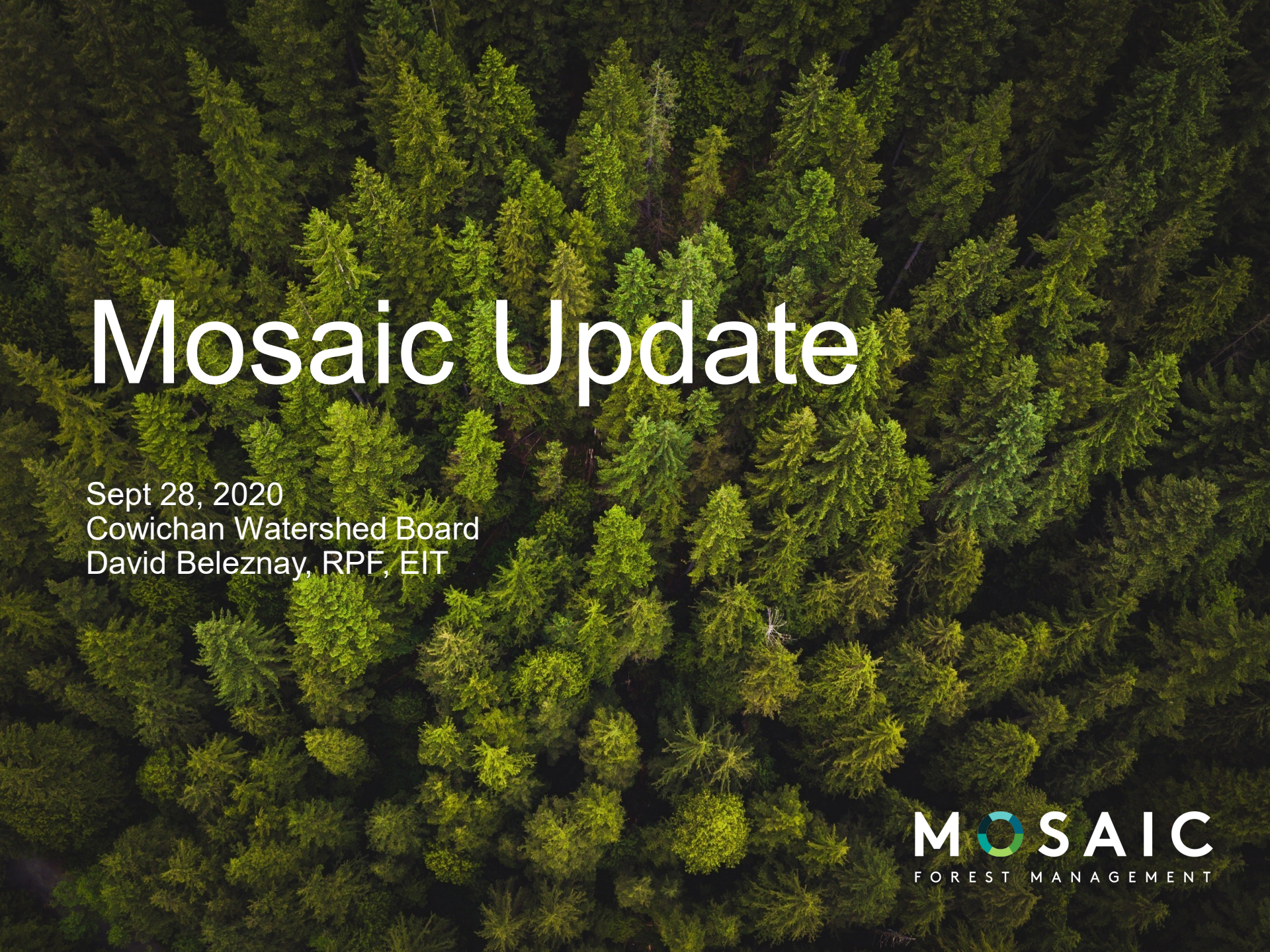


Mosaic Update

Sept 28, 2020
Cowichan Watershed Board
David Beleznay, RPF, EIT

MOSAIC
FOREST MANAGEMENT

Who is Mosaic

Two affiliated, **100% Canadian companies** sharing knowledge, timberlands management and operations

We are responsible for **forest planning, operations and product sales**

Our owners are BC, AB and federal **pension funds**

We have **private forest lands** – predominantly **second growth**

We also manage a **tree farm license** on public lands.

Responsible Stewardship

MOSAIC
FOREST MANAGEMENT

ISO 14001

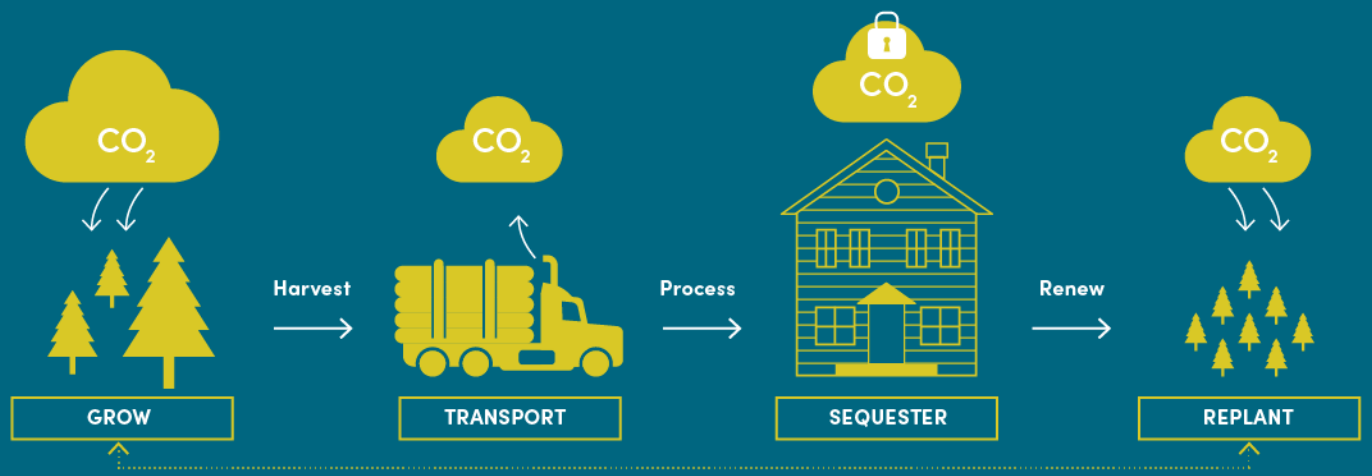
Progressive Aboriginal RELATIONS
BRONZE LEVEL

Canadian Council for Aboriginal Business

SUSTAINABLE FORESTRY INITIATIVE

PEFC

CARBON TRUST
ISO 14064-1
ORGANISATIONAL CARBON FOOTPRINT



Carbon Modelling

MOSAIC FOREST MANAGEMENT

1. Continue to track emissions on an annual basis – Full supply chain
2. Identify opportunities to minimize emissions
3. Include carbon costs in business decisions

CARBON TRUST
ISO 14064-1
ORGANISATIONAL CARBON FOOTPRINT

Key Legislation

- ***Water Act***
- ***Fisheries Act*** **(Federal)**
- ***Drinking Water Protection Act***
- ***Wildlife Act***
- ***Species At Risk Act*** **(Federal)**
- ***Private Managed Forest Land Act***
- **Professional statutes**
- **plus over 30 more**

SFI Standard and Mosaic

MOSAIC FOREST MANAGEMENT

- **15 Objectives, all with associated Performance Measures and Indicators**

SFI MATRIX

Sustainable Forestry Initiative® 2015-2019 Forest Management Standard

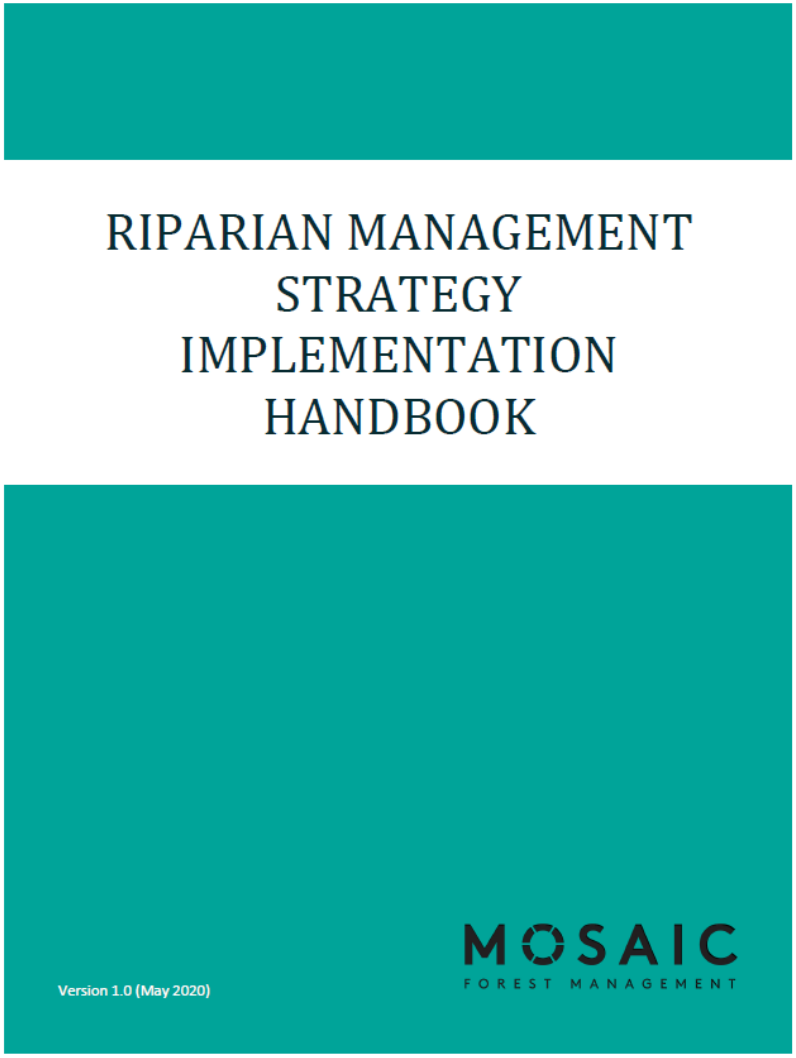
OBJECTIVE 1. FOREST MANAGEMENT PLANNING

To ensure forest management plans include long-term sustainable harvest levels and measures to avoid forest conversion.

Performance Measure 1.1. Program Participants shall ensure that forest management plans include long-term harvest levels that are sustainable and consistent with appropriate growth-and-yield models.

Indicator	Mosaic Activity or Process
1. Forest management planning at a level appropriate to the size and scale of the operation, including: a. a long-term resources analysis; b. a periodic or ongoing forest inventory; c. a land classification system; d. soils inventory and maps, where available; e. access to growth-and-yield modeling capabilities; f. up-to-date maps or a geographic information system (GIS); g. recommended sustainable harvest levels for areas available for harvest; and h. a review of non-timber issues (e.g. recreation, tourism, pilot projects and economic incentive programs to promote water protection, carbon storage, bioenergy feedstock production, or biological diversity conservation, or to address climate-induced ecosystem change).	**Responsibility: VP Forest & Logistics/ Chief Forester** Forest Stewardship Plan (Crown) Timber Supply Review (Crown) Long term Harvest Level and Analysis (Private) Watershed Management Program Resource Inventories (Standing Timber, Growth and Yield, Wildlife, Terrain, Streams, Terrestrial Ecosystem Mapping, Real Estate, Recreation sites, Archaeological sites) Digital Terrain Modeling Sensitive Soil Mapping Forest Information System (FIS) – refers to *Land Resource Manager (LRM)* software (note IT currently uses RESOURCES, but will transition to LRM) Geographic Information System (GIS) LandDat LiDAR analysis tools Forest Project Scientific Reports (development of tree-based growth model. Planning + Engineering Standard (Harvest Planning & Scheduling) Mosaic Carbon Strategy (under development)
2. Documentation current harvest trends fall within long-term sustainable harvest levels identified in the forest management plan.	**Responsibility: Manager Forest Inventory & Estate Planning** MFLNRO Harvest Billing System, Cut Control (Crown Land) *LIMS* software – tracking of harvest volumes Annual Declarations and management commitment (Private Land) Annual Operating Plans Annual Valuation Report (private) is prepared for the Advisory Board (review of five-year trends in comparison to Long Term Sustainable Management Plan
3. A forest inventory system and a method to calculate growth and yield.	**Responsibility: Manager Forest Inventory & Estate Planning** Forest Inventory Process (and GIS), FIS G&Y Curves (MFLNRO-TIPSY) G&Y modelling and assumptions reviewed annually (Private) Strategic TSA is modelled annually (using *Woodstock* software)
4. Periodic updates of forest inventory and recalculation of planned harvests to account for changes in growth due to productivity increases or decreases (including, but not limited to, improved data, long-term drought, fertilization, climate change, changes in forest land ownership and tenure, or forest health).	**Responsibility: Manager Forest Inventory & Estate Planning** Annual updates to Inventory – harvested areas Annual operating plans Timber Cruising program/ Permanent Sample Plots Participation/ Support of various Trials Member of Coast Silviculture Committee (Forestry Dep)

Riparian Strategy




1977
ECA


1993
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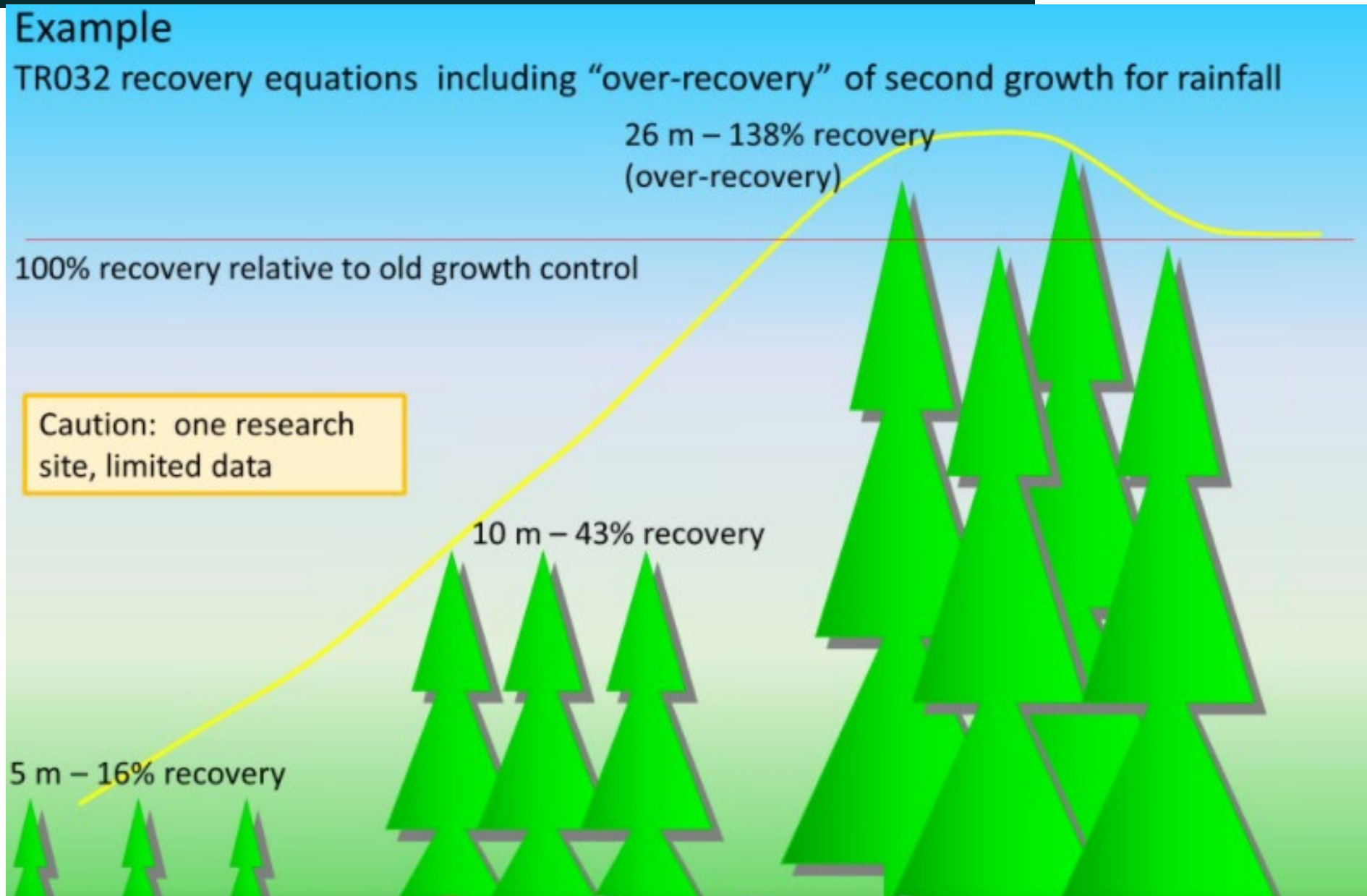
2010
ECA

ECA

MOSAIC
FOREST MANAGEMENT

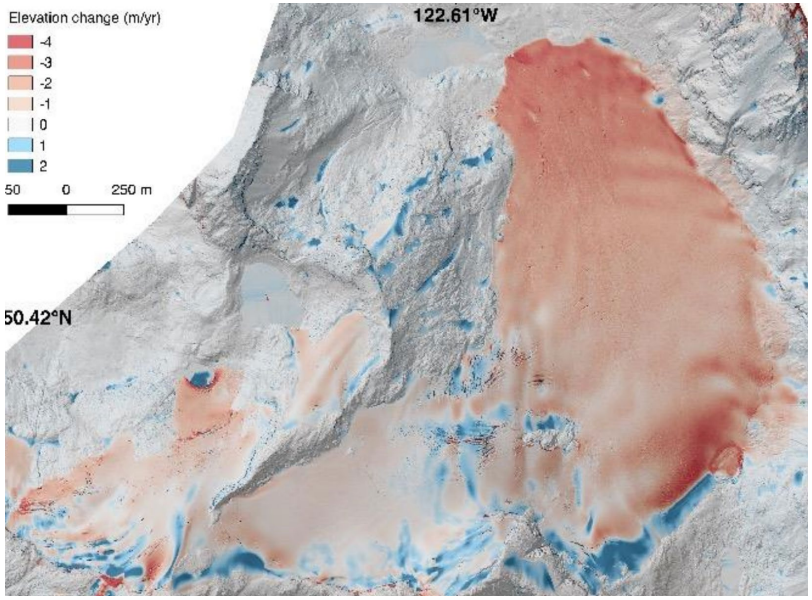


Research

MOSAIC FOREST MANAGEMENT

Effects of Forest Harvesting on Warm-Season Low Flows in the Pacific Northwest: A Review

R. Dan Moore, Stefan Gronsdahl, & Richard McCleary



Long-term hydrological response to forest harvest during seasonal low flow: Potential implications for current forest practices☆

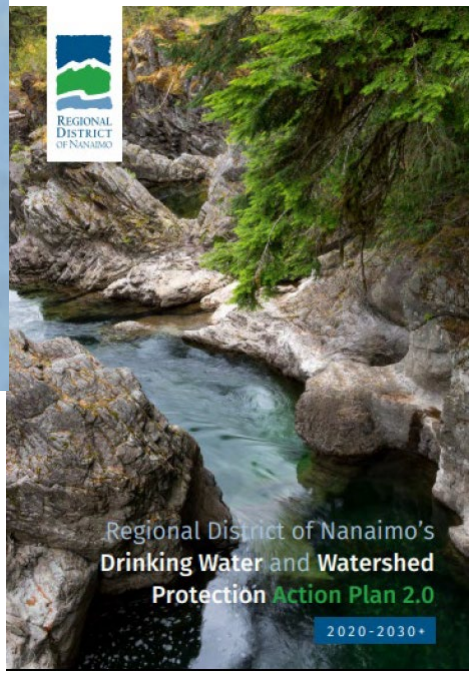
Ashley A. Coble [a,*], Holly Barnard [b], Enhao Du [c], Sherri Johnson [d], Julia Jones [e], Elizabeth Keppeler Hyojung Kwon [g], Timothy E. Link [c], Brooke E. Penaluna [d], Maryanne Reiter [h], Mark River [h], Klaus Puettmann [g], Joseph Wagenbrenner [i]

RDN Watershed Work

MOSAIC FOREST MANAGEMENT

Community Watershed Monitoring Network

- Started with shared goal to increase knowledge and understanding of surface water quality in the region.
- Monitoring program designed with provincial protocols and methodologies began in 2011.
- Partnership between Ministry of Environment & Climate Change Strategy (ENV), RDN, Streamkeepers, private forestry.
- Streams sampled during 2 seasonal periods (summer low flow & fall flush), 5 consecutive weeks each.
- Sites chosen to fill data gaps in provincial monitoring networks, based on local knowledge of Streamkeepers.
- All data entered and stored in publicly accessible, provincially managed database - Environmental Monitoring System (EMS).

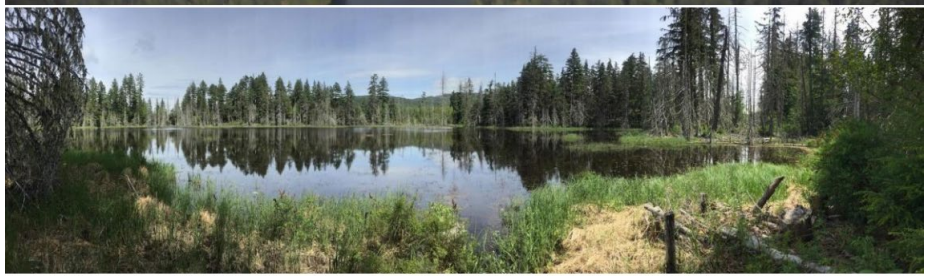


Watershed Work

MOSAIC FOREST MANAGEMENT

Ecosystem-Based Assessment of the Koksilah River Watershed

Phase 1 Report: Watershed Character and Condition



ISLAND TIMBERLANDS

CHEMAINUS WATERSHED ASSESSMENT

Hydrologic Change

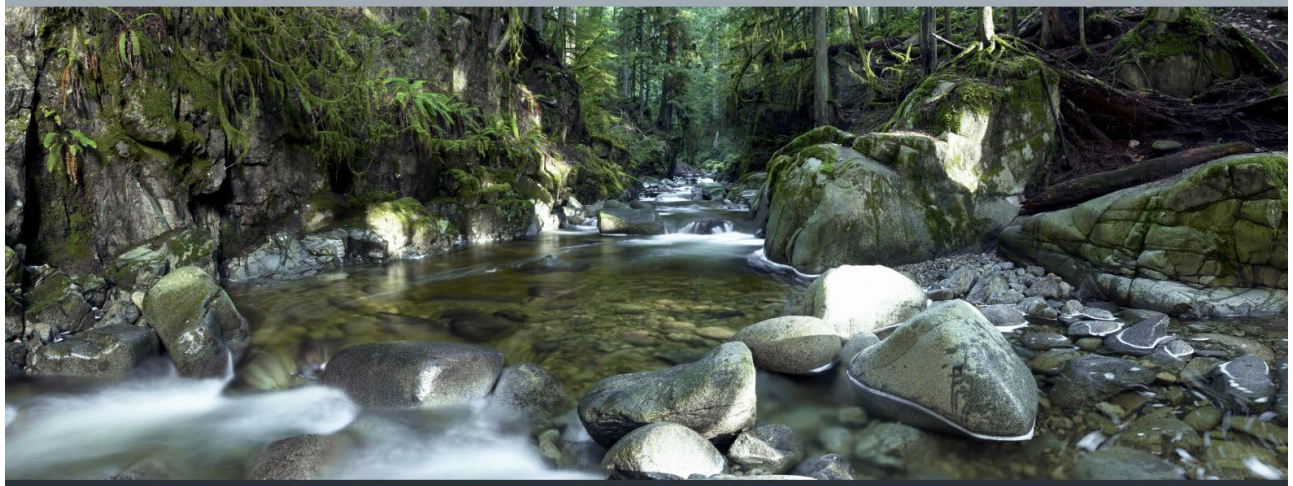
January 13, 2017

Prepared by
G.M. Horel Engineering Ltd.

Joint Practice Guidelines

MOSAIC FOREST MANAGEMENT

JOINT PROFESSIONAL PRACTICE GUIDELINES



NATURAL RESOURCES

WATERSHED ASSESSMENT AND MANAGEMENT OF HYDROLOGIC AND GEOMORPHIC RISK IN THE FOREST INDUSTRY

VERSION 1.0
PUBLISHED JANUARY 14, 2020

nager for TimberWest | ISLAND TIMBERLANDS

The Data

- Airborne laser based surveying tool
- Provides detailed terrain information, topography and forest attributes
- Captured from 8 to 16 points per m2
- Improves layout and inventory information
- Can count stems and determine timber inventory attributes (height, volume)