Sustainable Forest Management Plan (SFM Plan)

La-kwa sa muqw Forestry Limited Partnership

Mid Island Forest Operation

Table of Contents

List of Figures

List of Tables

List of Appendices

Introduction

Sustainable Forest Management (SFM) strives to maintain and enhance the long term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of present and future generations.[1]

On March 28th, 2024 Western Forest Products (WFP) and the We Wai Kai, Wei Wai Kum, K'ómoks, and Tlowitsis First Nations entered into a newly formed limited partnership whereby the above listed First Nations acquired a 34% interest in the Mid Island Forest Operation (MIFO). The assets and liabilities of TFL 39-2 were transferred over to the newly created TFL 64, and the legal name was changed to 'La-kwa sa muqw Forestry Limited Partnership' (LP). A board of directors has been appointed consisting of 2 WFP representatives and 1 from the Nanwakolas council. The LP will continue to maintain the operation's sustainable forest management certification and have received an updated certificate reflecting the change in TFL number and legal entity name.

The Sustainable Forest Management (SFM) Plan has been prepared to support TFL 64 Limited Partnership's commitment to sustainable forest management, consistent with the Canadian Standards Association (CSA) Z809-16 standard. The SFM Plan is designed to complement the following existing management systems and procedures:

- Environmental Management System including the Timberlands Sustainable Forest Management Statement and SFM Management Procedure;
- Safety Program (and related SAFE Company certification);
- Existing management plans (e.g., Forest Stewardship Plan);
- Legal requirements (refer to Figure 2).

British Columbia has rigorous legislation and policies for protection, conservation, and sustainable management of forests. This legislative framework is being continuously improved, as is forest management and policy. In addition to applying regulatory tools, La-kwa sa muqw benefits from using voluntary tools, such as CSA Certification, to aid in the achievement of sustainable forest management (SFM).

Sustainable Forest Management

Canadian Standards Association (CSA)

The Canadian Standards Association (CSA) is a non-profit, membership-based association which has developed over 2000 standards for various industries. CSA develops both nationally and internationally accepted standards for values such as health and safety, quality of life and the environment[2].

CSA Z809 Standard

The CSA Z809-16 forest management standard is based on the Canadian Council of Forest Ministers (CCFM) SFM criteria and elements. The CCFM SFM criteria and elements are fully consistent with those of the UNCED Montréal and Helsinki processes, which are both recognized by governments around the world.

[1] Source: Canadian Standards Association Sustainable Forest Management Z809-08 Standard.

[2] Source: http://www.csa.ca

The CSA SFM Z809 2016 Standard requires:

- A systematic approach to management, based on **continual improvement**; and compliance with legislation, regulations and government policies, taking into account environmental, social and economic factors;
- **Public participation** in order to give local communities input into how forests are managed;
- Demonstration of **sustainable forest management performance;** and
- **Third party audits** to confirm adherence to the standard.

La-kwa sa muqw Foresty Limited Partnership (LP) is required to work closely with the public to identify local values, objectives, indicators, and targets that reflect the national criteria and to incorporate them into forest management planning and practices. Decisions are made together with the public during this process. CSA Z809 is more than a system standard; it is also a performance standard, and it sets specific requirements for the public participation process. This approach to performance not only respects government-recognized criteria for SFM but also allows the public to participate in the interpretation for the local forest.

The most recent update to the standard is to include compliance with the Constitution Act, specifically Section 35 which provides for the protection of Aboriginal and treaty rights of Aboriginal Peoples in Canada.

“Aboriginal Rights” (including title) are not defined in the Constitution Act, but in recent court cases (Tsilhqot’in case) there is increasing clarity around Aboriginal and treaty rights and title. In addition to government rights to protect Aboriginal and treaty rights, Aboriginal-owned and operated businesses have recently been growing in Canada’s forest sector. The interest by Aboriginal communities to participate in the forest-sector economy is clear evidence that forest-sector business opportunities are compatible with the emerging national framework of Aboriginal and treaty rights and demonstrate the increasingly strengthened relationships between Aboriginal and non-Aboriginal Peoples.

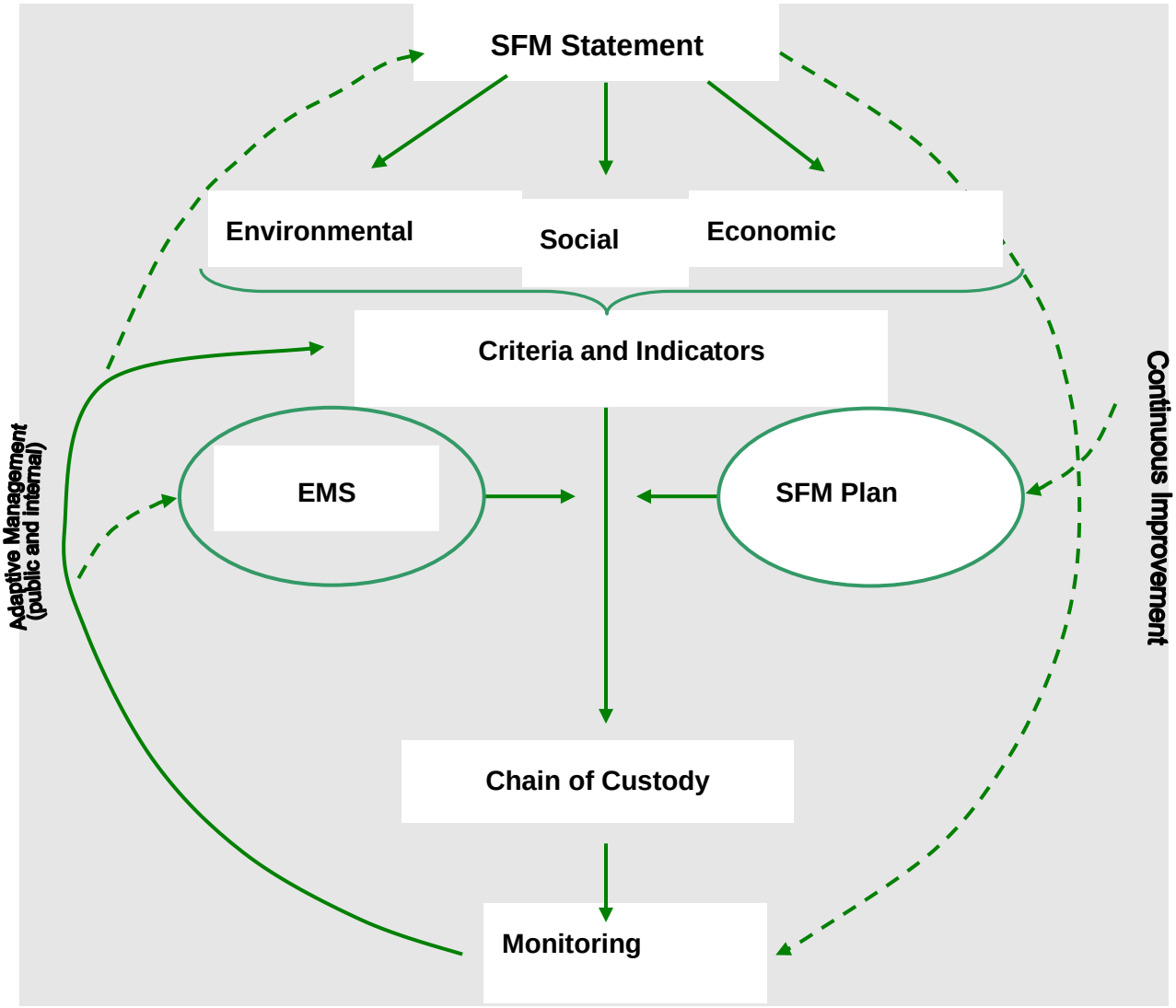
Adopting and implementing the Standard, with its new criterion on Aboriginal Relations, is consistent with both levels or engagement with Aboriginal Peoples in Canada.

Since 2022 the Programme for the Endorsement of Forest Certification Canada (PEFC Canada) has been in the process of transferring over the CSA-Z809-16 forest certification standard to their organization and developing a new Sustainable Forest Management Standard (SFM Standard). In 2023, PEFC Canada applied to PEFC International for endorsement of the SFM Standard. The process of endorsement is still underway, during this process all current certifications remain valid and endorsed. All certification will transition to the PEFC Canada Standard by July, 2026.

SFM System

The LP maintains an SFM System under the Environmental Management System. The SFM System includes an SFM Statement for Timberlands documenting the corporate commitments to sustainable forest management. This is followed up with an SFM Plan that contains the specific CSA Z809-16 Standard requirements.

Figure 1: Overview of the SFM System



Environmental Management System (EMS)

The EMS is an adaptive management system allows for a systematic approach to continual improvement. It is based on the dynamic, cyclical process of: planning; implementation & operation; checking; and management review.

The core elements of the EMS are described within the EMS Manual and the corresponding supporting documents which include, but are not limited to: Policies, Standard Operating Procedures (SOP), Standards and Emergency Preparedness & Response Plans (EPRP). These documents provide standards to guide daily activities out in the woods (i.e., "on the ground") in order to ensure environmental protection and compliance with legal requirements.

SFM Plan

The SFM Plan documents current and long-term SFM performance objectives and management strategies in the Mid Island Forest Operation operating area, referred to as the Defined Forest Area (DFA).

The SFM Plan is an adaptation of existing planning processes including strategic and operational plans, analyses, standards, monitoring and public review and internal biannual Management Review (under the EMS). Management of forest land in the area has continued to evolve over time in response to changes in society's values. Revised Management Plans, submitted at approximately five-year intervals, include objectives, management strategies and analyses of management impacts. Standards and operating plans have been updated as changes occur. Monitoring has included corporate annual reports and both internal and external audits and inspections to evaluate conformance with management system requirements as well as compliance with legal requirements.

The values, objectives, indicators, targets, and management practices described in this document (developed by the LP and the Mid Island Forest Lands Advisory Group (MIFLAG)) are currently understood and followed by the Mid Island Forest Operation (MIFO) for working towards sustainable forest management on the DFA. This is an evolving document that is reviewed and revised on an ongoing basis with the community advisory group to reflect changes in the forest and local community.

Ongoing review and input is provided by the advisory group, TFL management, and others through performance assessments, operational plan reviews, and processes related to specific land use issues such as landscape unit planning and community water supply. The SFM Plan Appendix 1 (Indicator Details & Results) is also reviewed on an annual basis by MIFLAG and the LP, including through the internal biannual Management Review process under the EMS, following compilation of annual reporting information. The Plan is revised as required to address feedback from all reviews.

Mid Island Forest Lands Advisory Group (MIFLAG)

The Mid Island Forest Lands Advisory Group (MIFLAG) was formed in 1998 and has helped to develop the SFM performance framework for the DFA. A web site has been developed to facilitate communication with MIFLAG members as well as the general public: https://www.westernforest.com/public-advisory-groups/

A broad range of interested parties from various sectors of society participate in each of the public advisory group meetings, e.g., local communities, tourism, wildlife, labour, business, recreation, fisheries, government, and First Nations.

MIFLAG operates under a Terms of Reference that outlines: goals, roles and responsibilities; membership; measures to deal with conflicts of interest; meeting content; timelines; communication, decision making and dispute resolution protocols; as well as methods to modify the Terms of Reference.

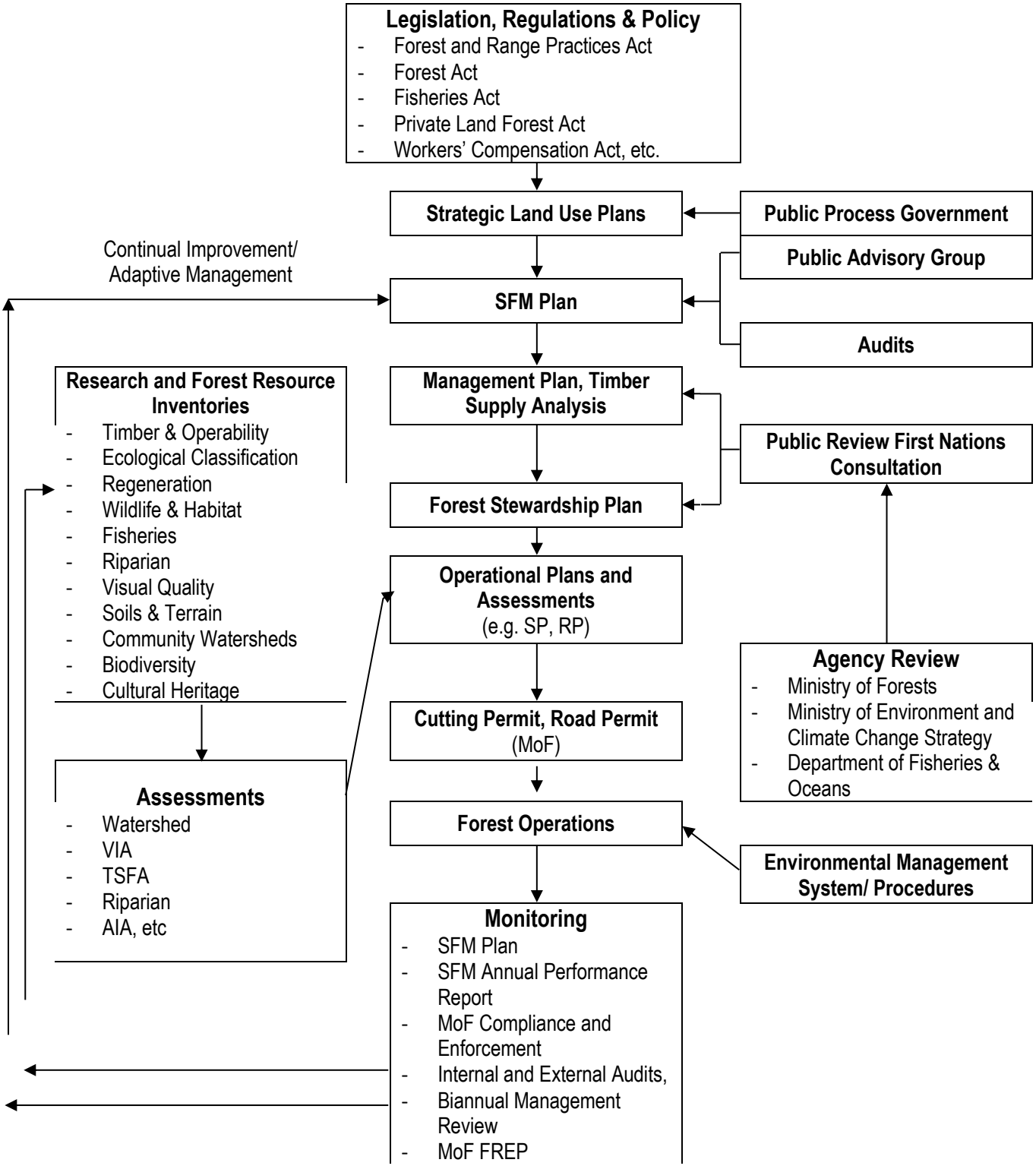
Links to Management Plans and operational plans

The SFM Plan is an umbrella plan that links legal requirements, higher level plans, Management Plans, and operational plans (e.g., Forest Stewardship Plans (FSP)). The performance commitments included in the SFM Plan meet or exceed the commitments previously approved under the TFL's Management Plan and the Forest Stewardship Plan. The SFM Plan reflects the objectives, management strategies, and reporting structure of management plans and the FSP. The SFM Plan is also influenced by higher level plans such as the Vancouver Island Land Use Plan).

Management Plans, Operational Plans and the Sustainable Forest Management Plan are reviewed and discussed during the biannual EMS Management Review process (as applicable). Conclusions drawn during the biannual EMS Management Review process are documented within the meeting minutes. Where action items are generated to address feedback from the Management Review process, they are documented and tracked for completion. The SFM Plan Appendix 1 'Detailed Indicators & Results' also provides a summary of any changes made to the SFMP as a result of any Management Reviews.

Figure 2 shows the flow of input and direction to Forest Stewardship Plans and site plans. It does not show the feedback loops of monitoring and adaptive management that occur from operations to the management plans and other higher level plans.

Figure 2: Links between Plans (TFL – with FRPA)



Third-Party Independent Audits

To become and remain certified to this Standard, the LP must undergo a third-party, independent annual audit to the SFM requirements in this Standard. A registrar (certifier), accredited by the Standards Council of Canada, conducts the audit. The individual auditors employed or contracted by the registrar have the requisite forestry expertise and are certified as environmental auditors. Audits to this Standard are done by accredited certifiers and certified auditors who are independent of the standards-writing body (CSA).

Audits include both a document review and field visits of the forest operation to ensure progress is being made towards the achievement of targets and that the SFM requirements are being upheld.

Defined Forest Area (DFA)

The DFA includes the LP's TFL 64, Mid Island Forest Operation (refer to Figure 3 for a map of the DFA), located within the Campbell River Forest District. The DFA is situated on the east coast of Vancouver Island, roughly 38 km northwest of Campbell River along Highway 19. It extends from west of Robert's Lake to just east of the Eve River and from the Victoria Peak area in the south to Kelsey Bay on Johnstone Strait in the north, surrounding the community of Sayward. The DFA includes the drainages of Kunnum Ck., Montague Ck., Adam River and White River as well as portions of the Salmon River and Amor de Cosmos Ck.

The Operations consist of road construction and maintenance, harvesting, hauling logs, maintenance shops, dryland sorting and booming, landfills, reforestation activities and administrative offices.

Logs harvested within the DFA are hauled to the log sort located at Kelsey Bay, roughly 75km from Campbell River. Logs are sorted and then transported (boomed and towed) to WFP sawmills on southern Vancouver Island. The management offices and shop for MIFO are also located at Menzies Bay.

The DFA excludes third party tenancies that have been granted by the Ministry of Forests and other government ministries and agencies. These include the Bill 28 take back areas at Eve River and near Brewster Lake, woodlots, as well as other private land ownership along the Sayward valley.

Short term, volume based licenses that are issued to the BC Timber Sales program or First Nations by the Ministry of Forests and are within TFL 64 are excluded from the DFA for the duration that they are under the management responsibility of an entity other than the LP. Typically these areas revert back into the TFL once they are harvested and reforested and will form part of the DFA once they revert back to the management responsibility of the LP. Parks and protected areas are also excluded from the DFA.

Other Interested Parties in the DFA

The LP respects the legal rights and responsibilities of the other parties within or adjacent to the DFA (e.g., trappers, water license holders, mining claims, First Nations, etc.). Access to the legal tenure rights obtained from the Crown Registry and Geographic Base Branch. Information is also provided in the TFL Management Plan and Forest Stewardship Plan regarding information sharing/ referral information related to specific legal rights and responsibilities of other tenure holders, as they apply to the DFA.

There are other licensees and tenure holders that may conduct harvesting or other activities within the DFA under authority issued by the BC government. Examples of these activities include the harvesting of undercut volumes allocated to third parties and administered by the BC Timber Sales program, mineral tenures, registered traplines and guide/outfitters.

Generally, other forest licensees in the DFA are responsible for their own road access works including road and bridge construction and maintenance as well as cutblock harvesting and road deactivation and they sign Road Use Agreements with the LP. Their performance is monitored by the Compliance and Enforcement section of the Ministry of Forests and they are expected to fully comply with all the relevant laws and regulations while operating within the DFA. Silviculture activities on these lands are generally managed by BCTS. Upon declaration of free growing, the area involved normally reverts to the DFA and management by the LP.

Other interested parties include the Village of Sayward with their community watershed in Newcastle Creek and residents in the Sayward valley having domestic water points of diversion. Most of these wells or surface water collection points are located outside of the DFA but source waters generally originate from within the DFA. Water intakes are registered or unregistered and not all locations are known. The LP has conducted interviews with residents regarding water intakes during the planning process.

The Forest Land and Annual Allowable Cut (AAC)

The area of the DFA is 156,149 hectares. Eighty-five percent of the landbase is considered productive that supports the Allowable Annual Cut and the available AAC is 905,800 m^3.

The TFL 39 AAC was re-determined by the provincial Chief Forester in August 2016. At this time Management Plan #9 was approved.

Transfer of the AAC to TFL 64 occurred following the creation of the limited partnership.

Map of the DFA

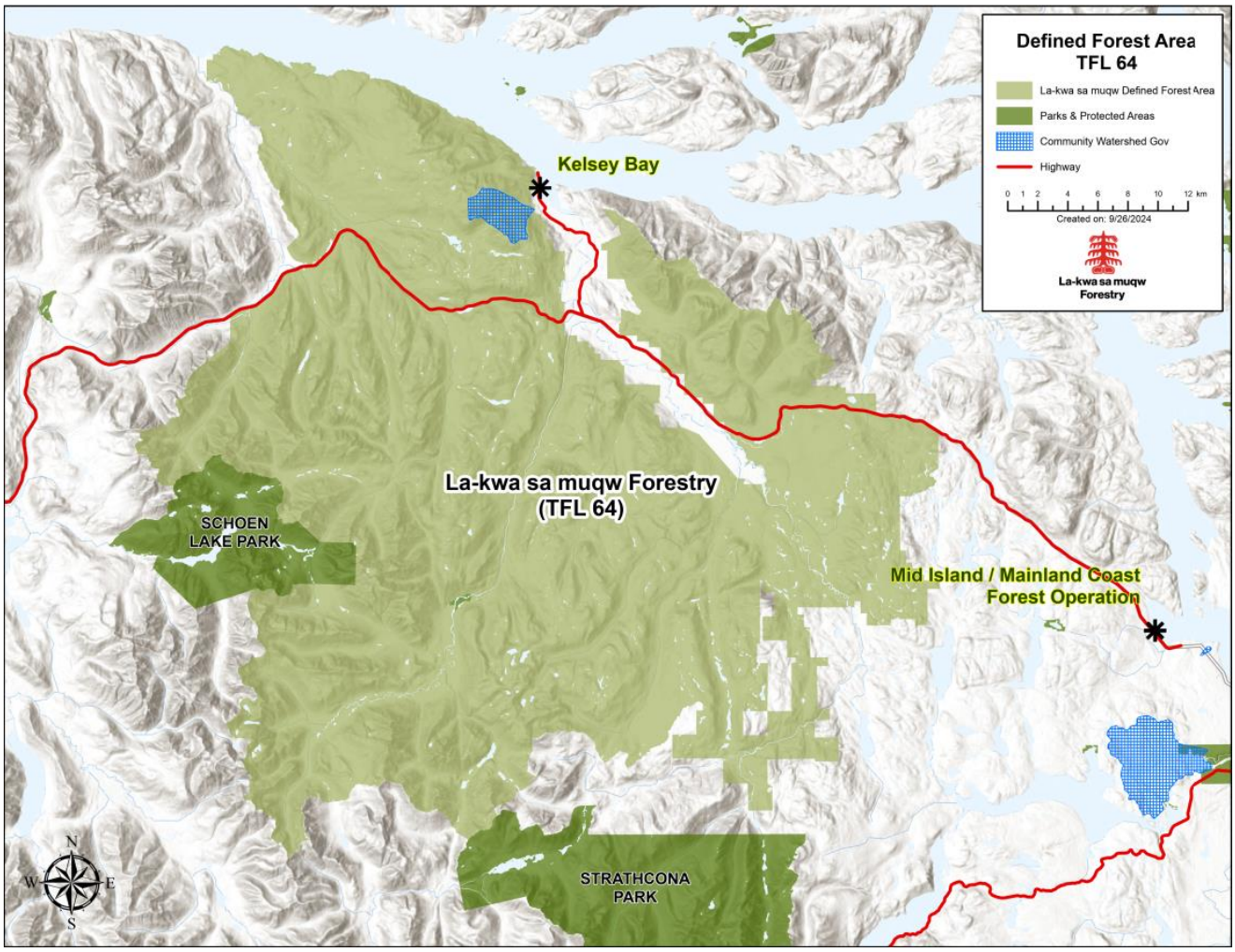


Figure 3: Map of the Defined Forest Area

Management Responsibilities in the DFA

TFL 64 is a renewable tenure on Provincial Crown land and administered by the Ministry of Forests under the Forest Act. These tenures are managed by the LP in conjunction with the Ministry of Forests, Ministry of Environment and Climate Change Strategy, Ministry of Agriculture and other agencies. The primary roles and responsibilities are defined under a variety of legislation including, but not limited to, the Ministry of Forests and Range Act, Forest Act, and Forest and Range Practices Act.

First Nations

First Nation participation in MIFLAG will not prejudice aboriginal or treaty rights. MIFLAG meetings do not, in any way, intend to define, interpret, or prejudice ongoing or future discussions and negotiations regarding these legal rights and do not stipulate how to deal with treaty rights.

The Defined Forest Area falls within the traditional territories of the following First Nations:

- We Wai Kum
- We Wai Kai
- K'omoks
- Tlowitsis
- Kwakiutl

Products and Markets

Logs produced at the forest operation are sorted according to size, grade and species and distributed by WFP Fibre Supply to company sawmills located on southern Vancouver Island. Logs not suitable for WFP manufacturing facilities are sold on the open Vancouver Log Market. Pulp logs are committed under long-term fiber supply agreements.

Table 1: DFA Products and Markets

By Species (%)		By Grade (%)	
Ba	26.31	Sawlog	76.59
Cy	1.12	Peelers	4.51
Hw	48.86	Pulp logs	0.17
Cw	1.58	Unsorted	17.48
Fd	21.86	Boomsticks	0.98
Maple, Alder, Pine	0.27	Maple, Alder, Pine	0.27

Management Strategies

The following general management strategies are presented as a high-level overview of the strategies being implemented on the DFA. Appendix 1 (Indicator Details & Results) also describes specific management strategies related to each indicator.

Landscape Level Planning

Concern for sustainability of ecosystems has led to increasing demand for landscape level planning to ensure that ecosystem functioning as well as plant and animal habitats are conserved.

Substantial areas consisting largely of old growth forests have been reserved on inoperable or sensitive soil sites, and as riparian, wildlife and recreation reserves. These areas are described in Timber Supply Analysis reports.

The Forest and Range Practices Act (FRPA) requirements for landscape and stand level biodiversity have been applied within TFL 64. Direction from the MoF and the MoE has emphasized old seral stage representation at the landscape level and on variation in stand structure, primarily through Old Growth Management Areas (OGMAs) and Wildlife Tree Patches (WTPs).

The Vancouver Island Land Use Plan (VILUP) is a higher-level plan established under a Higher-Level Plan Order for Regional plans and came into effect on December 1, 2000. The Sayward Landscape Unit Plan (SLUP) was effective July 2003. The SLUP falls within Resource Management Zone #31 of the VILUP. Under VILUP, this area is described as a General Management Zone for which there would be no specific Higher Level Plan direction and that general forest planning and practices provisions would apply to this area.

Western Forest Products is continuing to develop a capability for landscape reporting and spatial forecasting. This includes reporting by BEC (Biogeoclimatic Ecosystem Classification) variant on reserved areas, seral (age) classes, and interior old growth and patch sizes. These reports will be useful for describing the current situation and as a basis for developing strategies to achieve landscape objectives when they are available. The spatial forecasting tool has been used to project at a strategic level the implementation of variable retention over the DFA for the next 60 years. This is being linked to a spatial habitat supply model to allow the assessment of landscape planning options on the provision of future habitat.

Biodiversity Conservation

In June 1998, predecessor company MacMillan Bloedel announced a new forest management strategy, formerly called the Forest Project, which has evolved into the Western Forest Strategy, and includes conservation of biodiversity as a primary objective. A key component includes the application of variable retention over a majority of the land base.

Strategies include:

- Landscape zonation based upon VILIP Resource Management Zones (RMZs) and Eco-section zonation as a framework to apply guidelines for the type and amount of stand level retention across the landscape.
- Variable retention will ensure that a diversity of forest structure – including snags, wood debris and live trees of various sizes and in various patterns – is well distributed across the forest landscape.

- Variable retention and OGMAs will provide additional means and flexibility for achieving and often exceeding government landscape objectives for old seral representation and Wildlife Tree Patches.
- Ecosystem mapping for most of TFL 64 is complete. This mapping has been funded by FIA (formerly known as FRBC) and is to the site series level at a scale of 1:20,000. The site series information will provide assistance in landscape unit planning and operational planning.

Forest Strategy (Variable Retention)

The term **variable retention** (VR) is used to describe an overall approach to harvesting and silvicultural systems that retains trees and associated habitat for purposes other than timber management and traditional silviculture goals. Variable retention can be implemented with a wide range of harvesting systems, and can utilize traditional silvicultural systems, such as shelterwood or selection, to meet forest regeneration objectives. As the name implies, various levels of retention can be used with different types, amounts and spatial patterns of structure. Retention can be dispersed throughout a cutblock (as individual trees or small clumps) or aggregated in larger groups and patches, depending upon the objectives. There is such a wide range of possibilities within the VR concept that it is not a "one size fits all" approach.

The term **retention system** refers to a specific silvicultural system designed to meet the goals of variable retention. It was originally defined in the BC Operational Planning Regulations (March 1999) and has 3 requirements: 1) retention of trees distributed across the cutblock; 2) trees are left for the long term (at least one rotation); 3) distribution of leave trees achieves >50% "forest influence". The specific definition of the retention system is: *"a silvicultural system that is designed to:*

- Retain individual trees or groups of trees to maintain structural diversity over the area of the cutblock for at least one rotation, and
- Leave more than half the total area of the cutblock within one tree height from the base of a tree or group of trees, whether or not the tree or group of trees is inside the cutblock."

The distribution of long-term retention over the area of the cutblock is open to interpretation, but the spatial requirement for "forest influence" provides the minimum standard for distribution. The retention system is no longer officially defined in BC legislation; however, the BC Forest Planning and Practices Regulation (Div.5, 64(4)) exempts harvesting that maintains >50% forest influence and meets other spatial requirements from maximum cutblock size restrictions. The retention system is considered a "partial cutting" approach and is categorized as an "even-aged" system despite the resulting uneven-aged forest because the cut areas are regenerated and managed much like other even-aged systems.

The retention system normally uses a one-pass harvesting approach but may also be prescribed with several harvesting entries. The three main variants of the retention system are: group, dispersed, and mixed. For safety, economic and ecological reasons, group retention is often preferred; however, all three variants have advantages for specific objectives.

Wildlife

Wildlife issues are twofold in scope: (1) habitat protection for large mammals and threatened or endangered species; and (2) biodiversity concerns related to conservation of animals and plants and the maintenance of ecosystem processes. Current knowledge is often limited and limiting, and new knowledge requires a process of adaptive management. The main current issues are:

- Identification and protection of specialized habitats for large mammals, primarily deer and elk
- Identification and preservation of the best marbled murrelet nesting areas and release of previously protected areas that appears not to be used
- Actions needed to maintain habitat for rare and endangered plants, animals, and ecosystem processes

The wildlife protection strategy is to:

- Comply with the Forest and Range Practices Act and the FSP
- Comply with government stated measures to manage WHAs, UWRs
- Provide operations and agency personnel feedback on guidelines as part of an ongoing process of improving conservation
- Liaise with MoE wildlife and habitat protection staff on wildlife issues, especially to identify and protect critical habitat
- Continue assessments of ranges, habitat diversity, wildlife trees, etc., and protect significant values
- Continue surveys to identify and preserve key marbled murrelet nesting sites and obtain release of protected sites that are of little to no value
- Manage riparian zones as directed by the stream indicators and objectives; as feasible, enhance protection on smaller streams particularly through the use of VR design.
- Support other monitoring and research activities to increase knowledge of habitat resource requirements and the impacts of management activities on those

Fish Protection

The fishery resource value is generally high and protection of fish habitat and water quality ranks as a significant priority. Biological issues dominate in the sense of conserving fish stocks and habitat. At the same time, managers are also concerned with meeting the letter of the law. The issues are:

- To update classification of waters within the DFA. This includes: detailed site-specific information for operational planning and a broader, but accurate portrayal of the impacts of riparian management for strategic analysis.
- Mitigation, enhancement, and habitat restoration.
- Cooperation with First Nations and other stakeholder groups.
- To determine measures for protecting endangered populations.
- Management of riparian areas.

The strategy for responding to these issues is to:

- Continue to undertake detailed stream inventories for operational plans.
- Continue to identify and implement enhancement, mitigation, and rehabilitation opportunities.
- Achieve full compliance in meeting the requirements of the FRPA and the FSP.

Forest Health

The LP's goals are to protect the forest and to maintain a healthy forest condition.

- Regenerate all harvested land promptly with appropriate species considering both silviculture characteristics and economic values.
- Limit the losses from fire through a rigorous program of fire prevention and suppression.
- Minimize losses from insects and disease through monitoring and appropriate control measures.

Fire Prevention & Suppression

The fire protection strategy is addressed in the Management Plan for the TFL. The EMS Emergency Preparedness and Response Plan also details the specific fire equipment requirements and response actions.

Prevention and control are governed by operating policies and procedures and a series of plans. Mid Island Forest Operation maintains and deploys its own fire suppression equipment.

Fire protection activities include hazard induced logging closures, aerial and ground patrols during periods of high risk and quick initial action using fixed wing aircraft, helicopters and ground crews.

The LP's primary objective is to prevent fires through good housekeeping, diligent equipment maintenance and strict control of operations as fire danger rises. Our goal is to contain all fires within 24 hours of detection.

Damage to established stands in all blocks of TFL 64 has averaged less than 39 ha per year (less than 21 ha per year in mature stands) during the last 25 years.

Forest Insect & Disease Control

An insects and disease pest management strategy is included in the TFL Management Plan.

The objective is to minimize losses due to insects and disease through a vigilant program of detection and appropriate control measures.

Forestlands will be assessed on an ongoing basis to identify potential pest problems. Any suspect areas will be examined and monitored by helicopter or ground surveys. Federal or provincial experts will be consulted on appropriate actions if beyond the expertise of our own registered professionals.

Losses due to insect or disease epidemics will be minimized by:

- Expedient salvage of trees and stands already dead, dying or threatened by pest infestations, subject to environmental and economic considerations.
- Maintaining tight inventory control to keep the volume of logs susceptible to ambrosia beetle attack as low as practical.
- Trapping insects such as ambrosia beetles, where appropriate.
- Carrying out harvesting and sanitation activities in areas identified as disease centers.

The Management Plan for the TFL has guidelines addressing the following issues:

- To reduce the risk of future losses to Abies species from the Balsam Wooly Adelgid (Adelges piceae). The adelgid is present in the eastern portion of the TFL and to a lesser extent in the west.
- For restricting planting of Sitka spruce in medium and high hazard zones for the Sitka spruce weevil (Pissodes strobi) and/ or the use of weevil resistant seedlings, where available.

A conifer sawfly infestation (*Neodiprion* spp.) occurred in the DFA during the mid 1990's. By 1999, sawfly populations had collapsed in high-risk areas.

Wind Damage

Activities are in place to minimize losses from wind damage. These include assessment of susceptibility to windthrow, cutblock design and management practices (treatment of edges where appropriate), monitoring of damage and recovery of downed trees where practical.

Small cutblock sizes and reserves within cutblocks (e.g., wildlife tree patches and riparian management areas) expose more timber edge to potential damage from strong wind events.

Although variable retention may create more exposed edges, the retention pattern could modify wind forces against edges and reduce windthrow relative to clearcuts.

The strategy to minimize losses from windthrow involves further development of practices already in place:

- Assessment of windthrow hazard and risk at the cutblock level.
- Cutblock and retention patch design based on knowledge of historic wind patterns and assessments.
- Management practices such as tree pruning and/or topping (applied according to the assessment results).
- Monitoring. The company completed a windthrow monitoring program as a component to the development of the Forest Strategy (to measure the amount of windthrow in variable retention areas and provide a baseline against which to measure future windthrow management).
- Recovery of downed trees where practical. Large rotting logs play an important role in forest ecosystems. Hence a variety of size classes of woody debris and damaged or rotten logs will be left behind to maintain natural cycles and habitats.

Refer to the WFP Forest Strategy for more details on prescription options for wind damage.

Reforestation

The reforestation strategy for the DFA is to reforest those blocks relying on artificial regeneration within a period of three years following harvest. Areas prescribed for natural regeneration may take up to 6 years to meeting stocking requirements. A measure of success has been to manage the amount of Not Satisfactorily Restocked (NSR) area to be below three years of logging. These results are reported annually to the Ministry of Forests.

Species selection is based on the silvicultural characteristics of the individual species and their adaptability to the particular site, including forest health considerations. The second criterion for selection is species value ranking. This is based on the company view of the wood qualities and desirability at harvest. Currently, cypress and cedar rank highest. Species selection will be consistent with the stocking standards approved within the FSP.

Regeneration surveys are completed at periodic intervals sufficient to ensure that legal obligations are met for regeneration and free growing status.

Soil Conservation

Forest management activities can increase rates of soil erosion and affect the flow of sediment into streams and the peak flow levels in streams.

Management practices are designed to minimize these impacts. They are based on regulatory guidelines and standard operating procedures. Operational staff receive training for these standards and procedures, and post harvest assessments of operations are conducted annually.

Strategies for protection of soil and water resources are described in the Management Plan.

Forest areas are mapped by either five-class terrain stability mapping or sensitive site mapping. This information is used to identify sensitive areas for operational planning. It is also used to estimate appropriate allowances in strategic analyses. Helicopter yarding is one management option for harvesting in sensitive areas.

The overall objective is to sustain the productivity of the landbase.

Strategies include:

- Standard Operating Procedures have been developed and are maintained for road construction, maintenance and deactivation.
- Terrain stability assessments (TSAs) are conducted on steep and sensitive sites.
- Forest practices reflect the sensitivity of the soil.
- Internal and external audits on road building and harvesting practices.
- Minimize the amount of permanent site degradation due to roads.

Concern has been expressed that variable retention might increase road requirements. There will be situations with increased road requirements and others with reduced requirements. It is expected that in sum they will tend to offset one another. Significant increases in roads are not expected on flatter terrain because of gains in reduced adjacency constraints.

Water Conservation

Particular attention is focused on managing riparian areas. In the TFL, riparian reserve and management areas are implemented according to FRPA requirements or better. Higher order streams (smaller streams with limited regulatory protection) are used as priority anchor points for the location of retention patches within settings. The objective is to sustain water quality and quantity.

Strategies include:

- Work closely with regional and community water boards regarding practices and standards in community watersheds. The Newcastle Creek watershed is a water supply area for the community of Sayward.
- A Watershed Assessment project has been completed for TFL 64 to develop management objectives and strategies for watersheds in the DFA. The assessment ranks the sensitivity of each watershed in relation to several factors, such as harvest levels, slope stability, road access, etc. This updated assessment replaces the past Watershed Assessment Procedures done under the direction of MoF and MoE.
- Ensure that road construction and road maintenance are completed to required standards.
- Aerial yarding systems (helicopter) are considered for operations in sensitive areas to minimize road density.
- Develop and implement road deactivation plans, and further reduce erosion through grass seeding and planting. Develop a water sampling program to collect baseline data associated with herbicide use in sensitive areas.

Riparian Management

Riparian areas are used by many species of wildlife. These areas are reserved by way of no-harvest areas along streams. Generally, larger streams have greater levels of retention. Retention of trees may also be required where a stream is dependent on large woody debris for channel stability and/or stream bank stability.

The Riparian Management Area (RMA) consists of a Riparian Management Zone (RMZ), and where required, a Riparian Reserve Zone (RRZ). The widths of the RMAs are determined by the attributes of the adjacent riparian feature. Attributes such as gradient, fish presence, width of stream, and size of wetland may impact the size of the RMA and the requirement for a RRZ.

Riparian management strategies include:

- Wherever possible, locate road to avoid RMAs.
- Propose road locations through RMAs where no other option exists, or locating the road outside the RMA would create a higher risk of sediment delivery to streams.
- Vary retention specifications for RMZs according to site conditions.
- Undertake professional assessments as necessary.
- Incorporate recommendations of assessments into Harvest Instructions.

Strategies to protect fish habitat and non-fish streams may include:

- Basal area retention in RMZs based on riparian class and site-specific conditions.
- Partial cutting silviculture systems or no harvest buffers.
- Selecting trees to retain to reduce the risk of windthrow and to protect wildlife values.
- Where there are significant concerns about windthrow in the RMZ: extend the boundaries of the RMZ to a windfirm boundary; eliminate sharp corners or indentation from the outer boundary of the RMZ; and/or use edge stabilization treatments including feathering, pruning, or topping.
- Additional practices such as: retention of all non-merchantable conifer trees, understory deciduous trees, shrubs, and herbaceous vegetation within 5m of the channel to the fullest extent possible; retention of wildlife trees; falling and yarding away; removal of introduced tops and small woody debris; felling of shallow rooted, windthrow-prone leaners across the stream so that the butt clears the channel or the stem spans both streambanks. Stems will be removed from the stream if it can be done without damage to the channel or bank and in compliance with the Federal Fisheries Act.

Contributions to Global Ecological Cycles

The uptake and storage of carbon by actively growing forests reduce global carbon dioxide levels.

Mid Island Forest Operation's forest management activities are focused on prompt reforestation of harvested areas with well stocked stands and on restricting the area that is removed from production by roads and landings.

Surface water area is a significant contributor to hydrological cycles. The current management strategy has had minimal adverse impact on the surface water area in the DFA.

Forest Recreation

Mid Island Forest Operation recognizes and supports the responsible use of forests for recreation activities. The DFA provides varied recreational opportunities for both local residents and visitors to the area. Several recreation sites exist in the DFA, including, but not limited to: Admiral Broeren (big Yc tree); Santa Maria Lake, rustic sites at Tlowlis Lake and Stewart Lake as well as Candlestick Cave reserve.

Recreation strategies are included in the TFL management plan. Several recreation sites are maintained by the LP through annual danger tree and accessibility assessments. Harvesting activities are restricted in some cases because of recreation and visual landscape values.

Public access is available throughout the DFA. Some restrictions are applied, especially in active logging areas, for safety reasons and protection of equipment. Access is limited during periods of high fire hazard.

Mid Island Forest Operation's strategy is to:

- Continue to work with the MoF and local residents to develop appropriate strategies for public access to specific areas. Issues include road deactivation (environmental risk), road maintenance and safety.
- Cooperate with commercial tour operators where access is required.
- Develop and maintain recreation sites in concert with the MoF and subject to funding.

- With the MoF, develop strategies for recreation sites and trails and define objectives for management of these features.
- Continue to provide recreation maps showing recreation areas, roads and rules of access in future.
- Continue to cooperate with MoF and local caving groups in managing and protecting sensitive caves and karst resources. This includes undertaking surface inventories in karst areas prior to development. Mid Island Forest Operation in cooperation with the Campbell River District (MoF) and local caving groups have developed Standard Operating Procedures for karst management.

Visual Landscape Management

Mid Island Forest Operation's objective is to reconcile where possible the harvesting of trees with the visual landscape.

The strategy is to:

- Maintain visual landscape inventories.
- Recognize visual landscape objectives in plans and operations.
- Work with MoF specialists to manage for visual landscape objectives more efficiently. This includes improved visual landscape design (assisted by variable retention) and management practices to reduce the time for achieving visually effective green-up.

First Nations

The objective is to develop enduring business relationships with First Nations and to improve communications and understanding by all involved and hence identify and solve concerns well in advance of planned operations.

Strategies include:

- Encourage First Nations partnership activities that build towards employment in the forest sector.
- The LP encourages review of FSP and other operational plans.
- Encourage First Nations representatives to participate in MIFLAG and in other public review and input initiatives.

Archaeological & Cultural Heritage Sites

Mid Island Forest Operation will respect known sites of historic and cultural significance and account for such sites in strategic analysis.

Strategies include:

- Review operational plans with local people to identify areas in which cultural resources of potential interest may be affected by forest development.
- Conduct assessments and implement management to protect cultural resources in accordance with the Forest and Range Practices Act and the Heritage Conservation Act. This includes working with First Nations, the MoF and the Archaeology Branch (Ministry of Tourism, Sports and Arts) to identify the appropriate assessment procedures.

Local Economic Benefits

Employment in the DFA is important to the economic health of the local communities, particularly Sayward and Campbell River. The financial health of the Mid Island Forest Operation relates directly to the economic health of the local community.

Economic benefits include employment, wages, contract services, purchases and payments to government, including stumpage fees and other taxes.

Community economic and employment strategies include:

- Mid Island Forest Operation managers are responsible for developing relationships with local communities, including First Nations.
- Mid Island Forest Operation will support initiatives that promote indigenous employment in the forest sector.
- Mid Island Forest Operation will continue the practice of managing TFL 64 on a Block basis in response to local economic concerns including economic opportunities. Block contributions are defined in MP AAC.
- Mid Island Forest Operation is committed to tracking total forest sector jobs on the DFA. This will be reported and discussed annually with the public advisory group (through the annual indicator performance reporting).
- A comprehensive review of management strategies and operations led the company to reaffirm its commitment to the solid wood products industry in British Columbia. The LP's goal is to attain high standards in safety, environmental responsibility and business success.

Strategies to achieve these goals include:

- A dedicated effort to improve safety in the work place.
- Restructuring of operations to reduce produced log costs.

The capacity for timber production is indicated by the AAC allocation to TFL 64. Substantial variation can occur on an annual basis largely due to changes in market situations or adverse climatic conditions.

Public Information and Involvement

Public participation processes are central to achievement of SFM goals. The objective is to provide ready access for public input and stakeholder involvement in ensuring responsible management of forest resources.

The Mid Island Forest Lands Advisory Group (MIFLAG) currently includes numerous community representatives who provide input on an ongoing basis.

MIFLAG plays a central role in the development of this plan by:

a. Identifying local values, objectives, indicators and targets based on SFM elements any other issues or relevance to the DFA;
b. Developing, assessing and selecting one or more possible strategies for achieving targets
c. Reviewing the SFM Plan
d. Evaluating the results of monitoring programs, and discussing improvements and
e. Discussing any issues relevant to SFM in the DFA.

Regular meetings provide both input for local management issues and opportunities for all to learn about forest management and how these activities relate to the communities.

There is a long history of public involvement in the DFA. The process for developing management plans includes public review at different stages in preparation of the plan. Operational plans such as the Forest Stewardship Plan, Pest Management Plans, and the Sustainable Forest Management Plan are available for public review and comment and are discussed with key stakeholders and interested parties through information sharing processes. Dialogue also occurs with special interest groups such as cavers and other recreational users.

Representatives of local First Nations are participating in MIFLAG. The TFL Management Plan process includes sending invitations to First Nation groups to discuss management issues, and Forest Stewardship Plan harvesting developments are referred annually to local groups for input. Mid Island Forest Operation supports a number of partnership activities with local First Nations for carrying out silvicultural work, training, and supplying forest products for cultural uses.

Operational planning to identify Cultural Heritage Resource sites and to develop appropriate management prescriptions occurs according to FRPA Regulations and the Heritage Conservation Act. The strategy is summarized in the Statement of Management Options, Objectives and Procedures.

Forest Research

The overall company objective in forest research is to obtain the knowledge to improve forest management and the conservation and protection of other forest resources and values. The strategy is to:

- Identify and recommend basic and applied research needs to the organizations that have the specific mandate to undertake the work.
- Prepare and submit research proposals for available funding programs for projects of particular or strategic concern to the LP.
- Cooperate with research organizations in conducting basic and applied research.
- Test and develop practicable applications and uses of published research that are relevant to Western Forest Products management goals and responsibilities.

Significant areas of research include:

- Forest Ecology – The objectives of the forest ecology research program are to determine the effects of management activities on forest ecosystems, to improve our ability to predict ecosystem response, and to develop biologically sound silviculture prescriptions.
- Silviculture – The silviculture research program focuses on examining silvicultural practices for regeneration through a combination of planting and natural regeneration. Various trials—some with over 20 years of monitoring—examine species, stock types, prescribed burning, mechanical site preparation, vegetation control and fertilization.
- Forest Growth and Yield – The aim of this program is to quantify forest growth and yield across the range of site conditions on the company's tenure. A recent focus of plot establishment has been to examine the impact of variable retention harvesting and edge effects on early establishment and growth.

More details information regarding research can be found within 'Indicator 6.1.C: Research'.

Glossary

Acronyms

AAC	Annual Allowable Cut
AIP	Agreement In Principle
IMA	Interim Measures Agreement
BCTS	BC Timber Sales
BEC	Biogeoclimatic Ecosystem Classification
BEO	Biodiversity Emphasis Option
CCFM	Canadian Council of Forest Ministers
CFS	Canadian Forest Service
CHR	Cultural Heritage Resources
CMT	Culturally Modified Tree
CSA	Canadian Standards Association
CWAP	Coastal Watershed Assessment Procedure
CWD	Course Woody Debris
CWS	Community Watersheds
DFA	Defined Forest Area
DWR	Deer Winter Range
EMS	Environmental Management System
ESA	Environmentally Sensitive Areas
EVC	Existing Visual Condition
FC	Falling Corner
FEN	Forest Ecosystem Network
FIA	Forest Investment Account
FPC	Forest Practices Code
FPPR	Forest Practice Planning Regulation
FRPA	Forest and Range Practices Act
FN	First Nation
FSP	Forest Stewardship Plan
GIS	Geographic Information System
GPS	Global Positioning System
HCV	High Conservation Value
ILMB	Integrated Land Management Bureau
ISO	International Organization for Standardization
LCC	Large Cultural Cedar
LRSY	Long Run Sustained Yield
LP	La-kwa sa muqw Foresty Limited Partnership
LTHL	Long Term Harvest Level
LU	Landscape Unit
MoE	BC Ministry of Environment and Climate Change Strategy
MoF	BC Ministry of Forests
MIFO	Mid Island Forest Operation
MIFLAG	Mid Island Forest Lands Advisory Group
MP	Management Plan
MR	Medical Incident Rate
NTU	Nephelometric Turbidity Unit
NSR	Not Satisfactorily Restocked
NTFP	Non-Timber Forest Product
OGMA	Old Growth Management Area
PSP	Permanent Sample Plot
RIR	Recordable Incident Rate
RMA	Riparian Management Area
RMZ	Riparian Management Zone
RRZ	Riparian Reserve Zone
SEI	Sensitive Ecosystem Inventory
SFM	Sustainable Forest Management
SFMP	Sustainable Forest Management Plan
SMZ	Special Management Zone
SOP	Standard Operating Procedure
SP	Silviculture Prescription (pre Dec 17-02) Site Plan (post Dec 17-02)
SU	Standards Units
SUP	Special Use Permits
TEK	Traditional Ecological Knowledge
TFL	Tree Farm License
TSFA	Terrain Stability Field Assessment
TSR	Timber Supply Review
TUS	Traditional Use Study or Traditional Use Site
UWR	Ungulate Winter Range
VQO	Visual Quality Objective
VR	Variable Retention
WAP	Watershed Assessment Procedure
WHA	Wildlife Habitat Area
WLAP	BC Ministry of Water, Land and Air Protection (now the Ministry of Environment)
WTP	Wildlife Tree Patch

Definition of terms

Aboriginal: First Nations, Inuit and Métis peoples of Canada.

Aboriginal Right: "in order to be an Aboriginal right an activity must be an element of a practice, custom, or tradition (or an element thereof) integral to the distinctive culture of an Aboriginal group claiming that right". [*R. v. Van der Peet*, 1996].

Aboriginal Title: "is a right to the land itself, is a collective right to the land held by all members of an aboriginal organization. …encompasses the right to use the land pursuant to that title for a variety of purposes, which need not be aspects of those aboriginal practices, cultures and traditions which are integral to the distinctive aboriginal cultures". [*Delgamuukw v. British Columbia, 1997].*

Aboriginal treaty rights: "are those contained in official agreements between the Crown and the native peoples". [*R. v. Badger* 1996].

Adaptive Management: A learning approach to management that recognizes substantial uncertainties in managing forests, develops explicit statements of system response to management actions, and formally incorporates into decisions the knowledge gained from monitoring the implementation and consequences of previous actions.

Agreement In Principle (AIP): Stage 4 in the BC Treaty Commission policies and procedures for treaty negotiations with First Nations in BC (6 stages in total). The AIP stage is where substantive treaty negotiations begin. The parties examine in detail the elements outlined in their framework agreement. The goal is to reach agreement on each of the topics that will form the basis of the treaty (BC Treaty Commission).

Allowable Annual Cut (AAC): The allowable rate of timber harvest from a specified area of land. The Chief Forester of British Columbia sets AACs for timber supply areas (TSAs) and tree farm licenses (TFLs) in accordance with Section 8 of the Forest Act.

At-risk species: See Species at-risk.

Biodiversity Emphasis Option (BEO): The provincial government assigns low, intermediate, or high BEOs to Landscape Units depending on a range of management priorities (i.e. timber production, wildlife habitat and biodiversity conservation). The main result is a designation of the area of old growth forest that should be maintained in the Landscape Unit.

Biogeoclimatic Ecosystem Classification (BEC): Developed in BC in 1965, the BEC System classifies areas of similar regional climate, expected climax plant communities and site factors such as soil moisture and soil nutrients. The subzone is the basic unit of this classification system. Within subzones, variants further identify more local climatic factors.

Biogeoclimatic zone: A geographic area having similar patterns of energy flow, vegetation and soils as a result of a broadly homogenous macroclimate.

Biogeoclimatic variant: A unit of ecosystem classification reflecting differences in regional climate resulting in differences in vegetation, soil and ecosystem productivity. (See Biogeoclimatic Ecosystem Classification).

Biodiversity (Biological diversity): The variability among living organisms from all sources, including inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and ecosystems (Canadian Biodiversity Strategy, 1995)

Biomass: In ecology the total mass of organisms in a given area. In forest management, tree biomass includes the living portions of trees as well as deadwood in living trees, standing dead trees and unrotted deadwood on the forest floor.

Note: *In the context of sustainable forest management, biomass usually refers to plant matter*.

Blue-listed: Refers to plants, animals, and plant communities assessed by the BC Conservation Data Centre or COSEWIC to be vulnerable.

Carbon budget: Account of carbon concentrations in cycles and sinks.

Chief Forester: The assistant deputy minister of the deputy minister of the Ministry of Forests who is responsible for determining allowable annual cuts (AACs).

Clearcut: An area of forest land from which all merchantable trees have recently been harvested.

Coarse Woody Debris: All large deadwood in various stages of decomposition. Note: Coarse woody debris includes standing dead trees, fallen wood, stumps, and roots.

Coastal Watershed Assessment Procedure (CWAP): Assesses the impacts of forest practices on the hydrologic regime of a watershed. In particular, the potential for changes to peak stream flows, accelerated landslide activity, accelerated surface erosion, channel bank erosion and changes to channel morphology as a result of logging the riparian vegetation, and changes to the stream channel interaction from all these processes are assessed.

Compliance: Conformity with legal obligations and other adopted obligations.

Conformance: Meeting non-legal requirements such as policies, work instructions or standards (including the CSA standard).

Connectivity: A qualitative term describing the degree to which late successional ecosystems are linked to one another to form an interconnected network.

Criterion: Under the CSA standard for sustainable forest management, one of seven distinguishable SFM characteristics (as defined by the Canadian Council of Forest Ministers: Defining Sustainable Forest Management: A Canadian Approach to Criteria and Indicators, Ottawa, 1995); also, a value that must be considered in setting objectives and in assessing performance.

Critical Element: Under the CSA standard for sustainable forest management, a subsidiary component of a criterion. (See criterion.).

CSA Standard: Refers to CSA Z809, a National Standard for Canada for a SFM System. It describes the components and performance objectives of a SFM system that when applied to a DFA will ensure that forest management objectives are set for the critical elements of the CCFM SFM criteria.

Cultural heritage resource (CHR): An object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to the province, a community or an aboriginal people. Cultural heritage resources include archaeological sites, structural features, heritage landscape features and traditional use sites.

Culturally Modified Tree (CMT): Tree that has been altered by native people as part of their traditional use of the forest.

Cutblock: Defined in the Forest Practices Code of British Columbia Act as a specific area of land identified on a forest development plan, or in a license to cut, road permit, or Christmas tree permit, within which timber is to be or has been harvested. (Also see opening.)

Defined Forest Area (DFA): A specific area of forest, including land and water (regardless of ownership or tenure) to which the requirements of the CSA standard apply. The DFA may or may not consist of one or more contiguous blocks or parcels.

DFA-related Worker: Any individual employed by the organization to work for wages or a salary who does not have a significant or substantial share of the ownership in the employer's organization and does not function as a manager of the organization.

Ecological cycles: Refers to the major nutrient cycles (i.e., carbon and nitrogen) and the hydrological cycle.

Ecosystem: Plants, animals, and micro-organisms and their non-living environment, interacting as a functioning unit

Note: Ecosystem "can describe small-scale units, such as a drop of water, as well as large scale units, such as the biosphere". (Canadian Biodiversity Strategy, 1995)

Element: The subcategory used to define the scope of each SFM criterion. Note: Each SFM criterion contains several elements. The SFM elements were derived from the national-scale elements developed by the CCFM for more specific local applications.

Environmentally Sensitive Area (ESA): Area requiring special management attention to protect important scenic values, fish and wildlife resources, historical and cultural values, or other natural systems or processes. ESAs include unstable soils that may deteriorate unacceptably after harvesting, and areas of high value to non-timber resources such as fisheries, wildlife, water and recreation.

Environmental Management System (EMS): A structured system for identifying and ranking the environmental risk associated with management activities; creating and implementing control methods to manage that risk; monitoring and assessing performance; and taking corrective action to address deficiencies under a continual improvement program.

Focal species: Species that warrant special conservation attention and are thus used to guide the management of ecosystems to conserve biodiversity. Note: Criteria for the selection of focal species can include ecological, socio-cultural, scientific, and economic considerations.

Forecast: An explicit statement of the expected future condition of an indicator.

Forest influence area: The area within an opening that is within one tree height of a timber edge.

Forest Investment Account (FIA): Successor program to Forest Renewal BC.

Forest and Range Practices Act (FRPA): The Forest and Range Practices Act and its regulations govern the activities of forest and range licensees in B.C. The statute sets the requirements for planning, road building, logging, reforestation, and grazing. FRPA and its regulations took effect on Jan. 31, 2004.

Forest Stewardships Plan (FSP): Under the Forest and Range Practices Act and its regulations, all major tenure holders – companies, groups or individuals with logging rights on Crown land – must prepare a forest stewardship plan. The FSP is the cornerstone of the results-based approach governing forest practices under the Act. In their plans, tenure holders must state explicitly how they will address government objectives for key forest values, such as soils and wildlife. These proposals are the "results" of the results-based framework. A FSP must address objectives set by government to preserve the integrity of the environment and to enable sustainable commercial forest and rangeland practices. Tenure holders address these objectives by crafting results or strategies, which are required to be measurable and enforceable, contributing to effective compliance and enforcement by government.

Fragmentation: The process of transforming large continuous forest patches into one or more smaller patches surrounded by disturbed areas. This occurs naturally through such agents as fire, landslides, windthrow and insect attack. In managed forests timber harvesting and related activities have contributed to fragmentation. (Also see Connectivity).

Free Growing: A stand of healthy trees of commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees. Silviculture regulations further define the exact parameters that a stand of trees must meet (such as species, density and size) to be considered free growing.

Genetically modified organism (GMO): An organism that, through human intervention in a laboratory, has had its genome or genetic code deliberately altered through the mechanical insertion of a specific identified sequence of genetic coding material (generally DNA) that has been either manufactured or physically excised from the genome of another organism. Note: Genetic modification can be used to alter a wide range of traits, including insect and disease resistance, herbicide tolerance, tissue composition, and growth rate (adapted from Alberta Forest Genetic Resources Council statement).

Green-up: A reforested cutblock with a stand of trees that has attained the height specified in a higher level plan for the area or that, in the absence of a higher level plan, has attained a height of at least 3 meters is said to have achieved green-up.

Guidebook: Guidebooks consist of guidelines and recommendations on how to best achieve the requirements of the Forest Practices Code. They are not legally enforceable. However, specifications and procedures recommended by the guidebooks may be incorporated into plans, prescriptions and contracts in which case those specifications and procedures may become legally enforceable.

High Conservation Value (HCV) area: An area in which the conservation of any of numerous social or ecological values is deemed to have an especially high priority. Harvesting in HCV areas is typically very restricted and depending on the nature of the identified value(s) may be precluded entirely. Identification of HCV areas may result from information supplied by First Nations, government agencies, company personnel or other stakeholders. (See Environmentally Sensitive Area).

Indicator: A variable that measures or describes the state or condition of a value.

Inoperable lands: Lands that are unsuited for timber production by virtue of their: elevation; topography; inaccessible location; low value of timber; small size of timber stands; steep or unstable soils that cannot be harvested without serious and irreversible damage to soil or water resources; or designation as parks, wilderness areas, or other uses incompatible with timber production.

Interim Measures Agreement (IMA): Treaty negotiations in British Columbia are likely to take some time. Therefore, the parties must balance their conflicting interests until these negotiations are concluded. One method is the use of interim measures agreements. Interim measures agreements may affect the management and use of lands, sea, and resources and the creation of new interests. They may facilitate the access to and development of resources, often a useful means of dealing in a preliminary or experimental way with a contentious issue, or provide transition to implementation of the treaty (BC Ministry of Aboriginal Relations and Reconciliation).

Invasive alien species: Plants, animals, or micro-organisms that have been introduced by human action outside their natural past or present distribution, and whose introduction or spread threatens the environment, the economy, or society, including human health. [CFIA, 2006]

ISO standard: Refers to ISO 14001, a generic international standard approved by the International Organization for Standardization to provide any organization with the elements of an effective Environmental Management System to support environmental protection and prevention of pollution.

Landing: An area modified as a place to accumulate logs before they are transported.

Landscape level: A watershed, or series of interacting watersheds or other natural ecological units. This term is used for conservation planning and is not associated with visual landscape management.

Landscape unit: For the purpose of the forest practices code, landscape units are planning areas delineated on the basis of topographic or geographic features. Typically they cover a watershed or series of watersheds, and range in size from 5000 to 100 000 ha.

Large Cultural Cedar: LCC are defined as Cedar logs greater than 100cm dbh with no rot, twist or defect that will be suitable for either house logs, totem logs or canoe logs

Localized populations: Typically exhibit a gene pool that is distinct from less isolated populations.

Long Run Sustained Yield (LRSY): Maximum harvest level that can be sustained in perpetuity, based on harvesting at the age of culmination of mean annual increment and considering management assumptions.

Mature forest: Stands of timber where the age of the leading species is greater than the specified cutting age. Cutting ages are established to meet forest management objectives.

Medical Incident Rate (MIR also known as RIR): Number of incidents per 100 workers that require a doctor's medical attention or result in lost work time. 20,0000 X # Medical Incidents/ Exposure Hours.

Migratory bird: The sperm, eggs, embryos, tissue cultures, and other parts of a migratory bird as defined in the Migratory Birds Convention Act, 1994.

Monumental Cedar: Cedar or Cypress tree, roughly greater than 2m diameter above the butt flare, approximately 12m long with a top diameter of greater than 1.7m and relatively free of limbs in at least 2-3 quadrants (fine knots are acceptable). Definition source: WFP Cultural Heritage Resources SOP.

Native species: A species that occurs naturally in an area; a species that is not introduced.

Nephelometric turbidity unit (NTU): Unit of measure for the turbidity of water. Essentially, a measure of the cloudiness of water as measured by a nephelometer. Turbidity is based on the amount of light that is reflected off particles in the water.

Non-timber forest products (NTFPs): All forest products except timber, including other materials obtained from trees such as resins and leaves, as well as any other plant and animal products.

Not Satisfactorily Restocked (NSR): Productive forest land that has been denuded and has failed, partially or completely to regenerate either naturally or by planting or seeding to the specified or desired free growing standards for the site.

Old growth forest: A forest dominated by old trees.

Note: *The age and structure of old growth forests vary significantly by forest type and from one eco-region to another.*

Opening: Usually used synonymously with cutblock (see above) to include all of an area that has been harvested or is designated for harvesting, including the trees retained singly or in groups within the area. Less often, used to describe the actual cleared area(s) within a cutblock.

Permanent access structure: A structure, including a road, bridge, landing, gravel pit or other similar structure, that provides access for timber harvesting. It is shown expressly or by necessary implication on a forest development plan, access management plan, logging plan, and road permit or silviculture prescription as remaining operational after timber harvesting activities on the area are complete.

Productive forest: Forest land that is capable of producing a merchantable stand of timber within a defined period of time.

Protected area: An area of land and/or sea specifically dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources, and managed through legal or other effective means. [IUCN, 1994]

Provenance: The geographical area and environment to which the parent trees and other vegetation are native, and within which their genetic constitution has been developed through natural selection.

Recordable Incident Rate (RIR): Comparable to MIR definition on previous page.

Reforestation: Re-establishment of trees on forest land following natural (e.g.,fire) or human (e.g.,timber harvest) disturbance.

Registrar: Refers to the independent, third party, certifying body that conducts audits on the Defined Forest Area regarding conformance with the CSA Standard requirements. Following successful audits, a certificate is issued to the organization (certification to the CSA Z809 Standard).

Red-listed: Refers to plants, animals and plant communities assessed by the BC Conservation Data Centre to be extirpated, endangered or threatened.

Reserve zones: Zones where harvesting is not permitted.

Riparian: An area of land adjacent to a stream, river, lake or wetland that contains vegetation that, due to the presence of water, is distinctly different from the vegetation of adjacent upland areas.

S1-6 stream: Stream classification system for riparian management. S1 to S4 streams are fish streams or streams in a community watershed. S5 and S6 streams are not fish streams and are not in a community watershed. Each class also denotes a range of stream width: S1 is >20m, S2 is >5-20m, S3 is = 1.5-5m and S4 is <1.5m; for streams that are non-fish bearing or not within a community watershed, S5 is >3m and S6 is <3m.

Second growth: Typically younger (i.e., less than 120 years on the BC Coast) forests that have been established by planting and/or natural regeneration after removal of a previous stand by fire, harvesting, insect attack or other cause. (See mature and old growth.)

Sensitive soils: Forest land areas that have a moderate to very high hazard for soil compaction, erosion, displacement, landslides or forest floor displacement.

Seral stage: An identifiable stage of vegetative community development.

Silvics: Study of the life history and general characteristics of forest trees and stands with particular reference to site factors and population genetics. It is also the study of how trees establish, grow and behave in relation to sites, each other and other organisms.

Silviculture: The art and science of controlling the establishment, growth, composition, health and quality of forests and woodlands. Silviculture entails the manipulation of forest and woodland vegetation in stands and on landscapes to meet the diverse needs and values of landowners and society on a sustainable basis.

Site Plan (SP): A site-specific integrated operational plan to carry out one or a series of silviculture treatments.

Silviculture system: A planned program of treatments throughout the life of the stand to achieve defined objectives. A silviculture system includes harvesting, regeneration and stand-tending. It covers all activities for the entire length of a rotation or cutting cycle. In BC this includes seven major categories: clearcut, patch-cut, coppice, seed tree, shelterwood, retention and selection.

Site series: A unit of ecosystem site classification that represents climatically uniform groups of ecosystems regardless of the actual vegetation residing.

Snag: A large standing dead tree.

Species at-risk: Species defined as at risk by national and provincial legislation applicable to a given DFA.

Soil cover: Layer(s) of organic matter under various degrees of decomposition, which covers the mineral soil.

Species of special interest: Species deemed not at-risk whose habitat needs nevertheless require particular attention. Identification of these species is normally facilitated by regulatory agencies in consultation with stakeholders.

Stand level: Level of forest management at which a relatively homogenous land unit can be managed under a single prescription, or a set of treatments, to meet well-defined objectives.

Stewardship zones: Under the BC Coastal Group's Forest Strategy, all public and private forest lands have been (or will be) designated as a Timber, Habitat or Old Growth zone. Each zone has a distinct set of management priorities, targets for forest retention and allowable silviculture systems. Management practices in each zone meet or exceed legal requirements.

Structural diversity: Variety of canopy layers (vertical structure) and spatial patchiness (horizontal structure).

Sustainable Forest Management (SFM): Management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations

Sustainable harvest level: The harvest level of forest products that, with consideration for ecological, economic, social, and cultural factors, leads to no significant reduction of the forest ecosystem's capacity to support the same harvest level in perpetuity.

Target: A specific statement describing a desired future state or condition of an indicator.

Note: *Targets should be clearly defined, time-limited, and quantified, if possible.*

Timber Supply Analysis: An assessment of future timber supplies over long planning horizons (more than 200 years) by using timber supply models for different scenarios identified in the planning process.

Timber Supply Review: Initiated in 1992 to update the understanding of timber supply in each of the province's 37 timber supply areas. It is based on a review of a management unit, through which the chief forester of BC determines the allowable annual cut. The Chief Forester must determine the AAC for each TSA and TFL every 10 year (MoF, Timber Supply Review Backgrounder, Jan, 2017)

Traditional ecological knowledge (TEK): Knowledge that aboriginal people have accumulated over countless generations of intimate contact with all aspects of local ecosystems, including plants, animals and other natural phenomena.

Value: A DFA characteristic, component, or quality considered by an interested party to be important in relation to an SFM element or other locally identified element.

Variable Retention (VR): A relatively new approach to harvesting and silviculture systems that follows nature's model by always retaining part of the forest after harvesting. Standing trees are left in dispersed and/or grouped patterns to meet objectives such as retaining old growth structure, habitat protection and visual quality. Variable retention retains structural features (snags, large woody debris, live trees of varying sizes and canopy levels) as habitat for a host of forest organisms and maintains forest and residual tree influences. There are two main types of variable retention: dispersed retention, which retains individual trees scattered throughout a cutblock, and aggregate (or group) retention, which retains trees in patches of intact forest.

Visual Quality Objective (VQO): An approved resource management objective that reflects a desired level of visual quality based on the physical and sociological characteristics of the area; refers to the degree of acceptable human alteration to the characteristic landscape.

Watershed: An area that drains all precipitation received as a runoff or base flow (groundwater sources) into a particular river or set of rivers

Watershed Assessment Procedure (WAP): Assesses the impacts of forest practices on the hydrologic regime of a watershed. In particular, the potential for changes to peak stream flows, accelerated landslide activity, accelerated surface erosion, channel bank erosion and changes to channel morphology as a result of logging the riparian vegetation, and changes to the stream channel interaction from all these processes are assessed.

Wetland: an area that drains all precipitation received as a runoff or base flow (groundwater sources) into a particular river or set of rivers.

Wildlife tree: A standing live or dead tree with special characteristics that provide valuable habitat for the conservation or enhancement of wildlife.

Windthrow: Trees uprooted as a result of wind events.

Yarding: In logging, the hauling of felled timber to the landing or temporary storage site from where trucks (usually) transport it to the mill site. Yarding methods include cable yarding, ground skidding, and aerial methods such as helicopter yarding.

References used in compiling this glossary:

BC Ministry of Forests and BC Environment.
1995. Biodiversity Guidebook, Forest Practices Code of British Columbia.

BC Ministry of Forests and BC Environment.
1995. Riparian Management Area Guidebook, Forest Practices Code of British Columbia.

BC Ministry of Forests and Range.
2006 Glossary of Forestry Terms Website:
http://www.for.gov.bc.ca/hfd/library/documents/glossary/

Canadian Maritime Regional Initiative of the Canadian FSC Working Group.
1999. Draft certification standards for best forestry practices in the Maritime forest region.

Canadian Standards Association.
2016. CAN/CSA-Z809-16: Sustainable Forest Management Standard.

Forest Stewardship Council, A.C.
1999. Glossary section of Principles and Criteria for Forest Stewardship. Document 1.2.

Land Use Coordination Office.
1995. Resource analysis guidelines for land and resource management planning in BC. Ver.2. Interim Guidelines Draft. Province of British Columbia.

Pojar, J., K. Klinka, and D.V. Meidinger.
1987. Biogeoclimatic Ecosystem Classification in British Columbia. Forest Ecology and Management. 22: 119-154.

Slope Stability Table Group.
1996. Terrain stability mapping in BC: A review and suggested methods for landslide hazard and risk mapping. BC Resources Inventory Committee

Stryd, Arnoud.
1997. Culturally modified trees of BC: a handbook for the identification and recording of culturally modified trees. BC Ministry of Forests Forestry Division Services Branch

BC Treaty Commission Website: https://bctreaty.ca/

BC Ministry of Aboriginal Relations & Reconciliation website: http://www.gov.bc.ca/arr/