Forest Management Plan 2023-2027

Five Year Operating Plan
Forest Management District 23

Final Draft Submitted by Department of Fisheries, Forestry and Agriculture and Nunatsiavut Government

NUNATSIAVUT
kavamanga Government

Newfoundland Labrador

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Executive Summary

Most recent forest management planning sessions held within District 23 were held in 2008. The result of this process combined with information gathered during a previous public consultation process conducted by AMEC Earth and Environmental Ltd, resulted in a five year operating plan covering the time period from 2008-2012. Since there was no significant forest activity in the district in the past ten years and the goals identified during the planning sessions were more longer term in nature, it was agreed with the Nunatsiavut Government that the same plan would be resubmitted for the next five year planning cycle of 2023-2027.

This plan outlines the various management activities scheduled to take place in the district during the outlined planning period. Further refinements are made to operational activities in the annual work schedule, which is subject to further review.

District 23 is approximately 2.2 million hectares of boreal forest situated in Northern Labrador. The district is comprised mainly of low volume stands and non-forested and non-productive area. Only approximately 2% of the district has a commercial productive forest, dominated by a black spruce and balsam fir mixed forest. This is the majority of commercial timber resources that exist on the North coast of Labrador. The district is generally bound by the Labrador Coast on the East, Groswater Bay and Lake Melville on the south, the Mulligan and Red Wine Rivers in the West and the Kanainktok Bay River and Bay in the north.

The majority of the residents in the district are of Inuit decent and since the signing of the Labrador Inuit Land Claims Agreement in 2005, the District contains three land classes, Labrador Inuit Lands (LIL), Labrador Inuit Settlement Area (LISA) and Crown Lands.

Commercial activity has been relatively sporadic in the past, with several attempts since the 1940's to start commercial operations that have failed. The most recent was the operation of Postmill Lumber in Postville. Domestic activities remain fairly stable over time, since fuel wood is the main source of heat in the three communities and dimensional lumber is hard to get.

Previous public consultations were conducted and their ideas and values incorporated into this plan. Specifically, the following key district values were identified and addressed in the plan.

1. Species at risk
2. Cultural heritage values
3. Hunting and trapping
4. Non-timber values
5. Socio-economic values
6. Timber values
7. Potential developments
8. Value-added processing
9. Water resources

The calculated annual allowable cut for the district has been determined to be **15,700 m^3** for a total five year harvest of **78,500 m^3**. This will account for commercial and domestic harvests in

the area. Access to a majority of the commercial timber will require the construction of up to 20 km of primary access road, which is anticipated to cost well in excess of one million dollars. Due to the lack of disturbed area (fire or harvesting), potential silviculture efforts will focus on small local potential planting projects (75ha/year) and conducting regeneration surveys on previous harvest blocks to determine stocking and future opportunities.

Five harvest areas have been identified for harvesting over the next five years. These blocks contain a mix of black spruce and balsam fir species with a total net volume of approximately 113,120 m^3. This is approximately 45% more volume than is required to support the proposed commercial operations, with a proposed annual commercial harvest of 12,000 m^3/year (60,000 m^3 total). All commercial operations are scheduled to take place on Labrador Inuit Lands and will be governed by the environmental protection guidelines and other policies or guidelines developed by the Nunatsiavut Government. Where this does not exist, Laws of General Application will apply. Domestic harvests, which are expected to be less than 3,700 m^3/year will take place near the communities and under the existing agreement.

Research and monitoring will play an important role in this and future plans. They can be used to provide local data for future management decisions. Several surveys planned include pre-harvest surveys, regeneration surveys, utilization surveys and site disturbance surveys which may be conducted during this plan. In addition, a new updated forest inventory area will be developed by the Department of Fisheries, Forestry and Agriculture during this planning period which will provide updated information to base future management decisions.

Approximately 90% of the district area was not used in the annual allowable cut calculation mainly due to the fact that there was no information on the area. This extensive area is providing preservation of ecological and local values as well as providing habitat for native animal species.

There is an increased risk of insect and/or disease outbreaks in the district due to the mature and over mature age classes of the forests in combination with the recent and forecasted changes in climate, especially in northern ecosystems. There has been evidence of insect outbreaks in southern and central Labrador with the most northern recorded and confirmed near the Mulligan area. To reduce the risk of major forest fires, and insect and disease outbreaks, harvesting the oldest stands first will be promoted.

INTRODUCTION

Forest management planning began in the Province around 1995, this five-year forest management plan (FMP) was developed for forest management district 23 (FMD23)(Postville area) and covers the 2023-2027 period. Consultation and input from the various stakeholders are the basis of the planning process and guide forest management activities in the area. Their input will continue during and after the implementation of the management activities.

With the effective date of the Labrador Inuit Land Claims Agreement (LILCA) on December 1, 2005, Labrador Inuit celebrated the beginning of the Nunatsiavut Government. As a regional Indigenous government in Newfoundland and Labrador, the Nunatsiavut Government has many of the responsibilities and rights of other governments, such as planning for sustainable economic development, protecting and preserving Inuit culture, implementing social programs on behalf of beneficiaries and the sustainable management of natural resources on Labrador Inuit Lands (LIL's) and the co-management with the Province within the Labrador Inuit Settlement Area (LISA) outside of LIL. Since the inception of this new government, Nunatsiavut government employees have been working on building structures to operate as a responsible, democratic government.

Labrador Inuit claim indigenous rights and title to northern Labrador and northeastern Québec. The LILCA sets out details of land ownership, resource sharing, and self-government. It also provides for the establishment of the Labrador Inuit Settlement Area (LISA) totaling about 72,500 square kilometers (28,000 square miles) in northern Labrador and 48,690 square kilometers (18,800 square miles) of sea. Within the Settlement Area, Labrador Inuit will own 15,800 square kilometers (6,100 square miles) designated as Labrador Inuit Lands (LIL). Within the remainder of LISA, outside of Labrador Inuit land, Labrador Inuit have special rights related to traditional land use and resources. The LILCA also provides for the establishment of the Torngat Mountains National Park Reserve, consisting of about 9,600 square kilometers (3,700 square miles) of land within LISA (DIAND 2004). There are 5 communities (Nain, Hopedale, Postville, Makkovik & Rigolet) within the settlement area and over 5,500 beneficiaries.

Following the signing of the LILCA, various Departments were formed within the Nunatsiavut Government. They follow similar structures of the Federal and Provincial Governments. To ensure the proper and sustainable management of the lands and resources within the settlement area, a Department of Lands and Natural Resources (DLNR) was formed. The Department has a Minister and Deputy Minister along with four directors; lands, non-renewable resources, environment and renewable resources.

In response to the proposal by Post Mill Lumber (PML) (a subsidiary company of the Labrador Inuit Development Corporation (LIDC)) to start a commercial harvesting operation in the Postville area, the former Labrador Inuit Association (LIA) contracted AMEC Earth and Environmental Services (AMEC) to prepare the first five year plan from 2003-2007 for FMD 23. Working with the many stakeholders including the Provincial Department of Natural Resources (Forestry now falls under Department Fisheries, Forestry and Agriculture (DFFA), Post Mill Lumber and with residents of the Town of Postville as well as carrying out an intensive data

gathering exercise, the plan was completed by AMEC, registered by DFFA and approved by the Department of Environment and Conservation in 2003.

As a result of co-operation between the Nunatsiavut Government, Department of Lands and Natural Resources and the Provincial Department of Fisheries, Forestry and Agriculture, along with the input of various stakeholders this *five-year forest management plan for FMD 23* was developed covering the period of January 1, 2027 – December 31, 2022. Furthermore, an *annual work schedule* and *past annual report* will also be prepared as part of the planning and reporting process.

This five year plan deals only with a portion of FMD23 specifically a block of contiguous timber near Postville and the Kaipokok River. It outlines in detail the proposed forest management activities that will take place and discusses their relationships on the landscape. These activities, which include; harvesting, silviculture, road construction, resource protection, education, monitoring & research are designed to ensure that the resources are utilized in a responsible and sustainable manner.

Under the Environmental Assessment Act, forest management plans are submitted to the Minister of the Provincial Department of Environment and Climate Change and registered for environmental assessment and further public review.

The forest management activities in this plan are carefully planned with the vision:

"*to create a plan that aims to minimize the impact on important cultural and ecosystem values and follow the principles of sustainability and environmental protection while maximizing economic benefits and opportunities for the sustainable development of forest based industries*".

DISTRICT DESCRIPTION – DISTRICT 23

Geographic Setting and Location

The Province of Newfoundland & Labrador is divided geographically into 24 Forest Management Districts (FMD's). Specifically, the Province has established six FMD's in Labrador, for the purpose of forest management planning (Figure 2.1).

Forest Management District 23 is approximately 2.2 million hectares in size. Generally, the district is situated on the mid-Labrador coast and is generally bounded by the Labrador Coast on the East, Groswater Bay and Lake Melville on the south, the Mulligan and Red Wine Rivers in the West and the Kanainktok Bay River and Bay in the north (Map 2.1). The legal description is provided in Appendix I.

Forest Management District 23 contains the majority of commercial timber along the north coast, furthermore, the Postville area and specifically the area along Kaipokok Bay contains the majority of commercial timber (Map 2.2). Since the signing of the LILCA there are three land classes identified within the Provincial FMD 23 (Map 2.3).

Culture, Character & Condition

As previously indicated in the document, district 23 has a diverse blend of cultures, however is mostly populated by Labrador Inuit. Labrador Inuit have historically interacted with the land in district 23 through traditional activities such as, hunting, fishing, and trapping. They have strong cultural ties to their cultural heritage and to traditional Labrador ways of life. There is a small proportion of the population in the district that are of non-indigenous decent.

The district is divided into three land classes (Map 2.3). As per the LILCA, the following (Table 2.1) is a breakdown and description of the land classes within FMD 23:

Table 2.1: Breakdown of land classes in FMD 23

Land Class	Area (km^2)
Crown Land	6,632
Labrador Inuit Settlement Area	18,195 (including 5,804 km^2 of LIL's)
Total area	24,827

Crown Land- Crown lands can be classed as lands that are under the administration, control and management the Provincial Government of Newfoundland & Labrador.

Labrador Inuit Settlement Area - LISA lands are administered, controlled and managed by the Provincial Government, however according to the Agreement, Inuit have special rights on this land and the Province has a special obligation to the Nunatsiavut Government to consult with them on land use and resource management issues including the establishment of two co-

management boards. The Torngat Joint Fisheries Board and the Torngat Plants & Wildlife board were established to provide advice on managing the landbase including recommendations of harvest levels and restrictions.

Labrador Inuit Lands - LIL lands are lands identified within the LISA, that are under the administration, control and management of the Nunatsiavut Government.

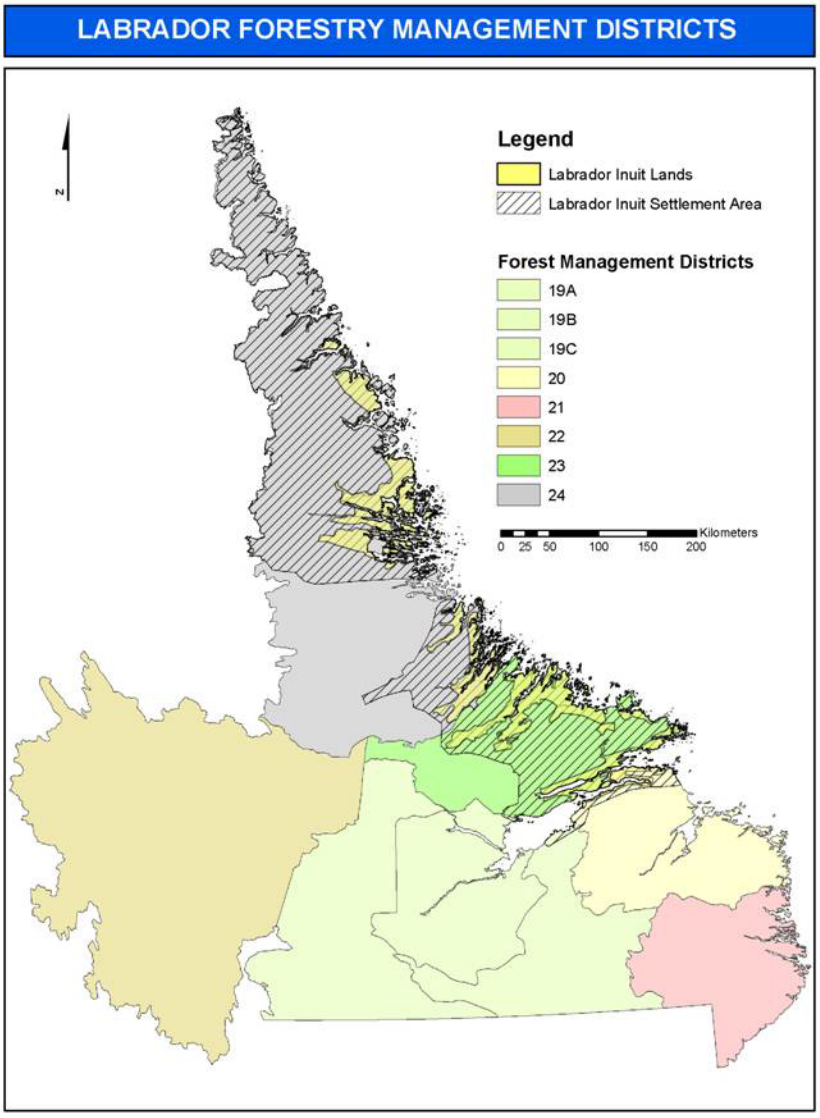

Figure 2.1: Forest Management Districts in Labrador.

Culturally Identified Areas

Cultural heritage is very important in Labrador and specifically within Nunatsiavut. In recognition of this, culturally significant areas, such as traditional tenure cabins and aullasimavet, traditional registered and un-registered traplines, identified archeological sites, camp sites and traditional hunting and gathering areas, were identified by gathering information from public meetings, meetings with operators, the traditional tenure process, previous data collected by AMEC, and discussions with elders within the communities.

This information was mapped as a shape file and a random point generator was used to represent use. The shape was then considered cultural area. This information was used during the layout of the commercial harvest blocks and proposed roads to ensure that impacts were minimized.

Classification Systems and Available Inventories

Based on similar characteristics (i.e. vegetation type, climate, etc.) areas are classified into different land classifications. These classifications facilitate more effective decision making for managers on potential land use activities. Unfortunately, different land classifications or relative inventories are not available for most of Northern Labrador.

The Canadian Ecological Land Classification System is made up of seven levels of organization (scales) which are based on ecological principles. Eco-regions, which are characterized by distinctive ecological responses to climate as expressed by vegetation, soil, water and fauna and are described at a scale of 1:300,000 to 1:1,000,000, are available for Newfoundland and Labrador, particularly FMD23 (Map 2.4).

Ecological Landscape – Forest Ecosystem

An ecosystem may be defined as a group of organisms interacting with themselves and their environment. The forests in Labrador are part of the boreal forest ecosystem. Eight forest regions are identified in Canada: the boreal, subalpine, montane, coast, columbia, deciduous, great lakes, St. Lawrence and Acadian. Each region is conceived as a major geographic belt or zone, characterized by the vegetation's physiographic and composition properties (Rowe 1972). The boreal forest covers the majority of forestland across Canada, forming a continuous belt from Newfoundland and Labrador to the Rocky Mountains and north to Alaska (Rowe 1972). In general, the boreal forest has been described as an interconnected web of life. Conifers form the matrix of the forest cover with the most prevalent species being black spruce, a pioneer invader in post fire situations. White spruce, balsam fir, larch and white birch also are present in this forest region, but are not as abundant as black spruce.

Ecoregions can be defined as areas with characteristic combinations of similar vegetation and soils that are found on similar sites. There has been very little research done on the delineation of ecoregions within Labrador, however, Meades (1990) and Rowe (1972) have classified the

boreal region into smaller ecoregions. District 23 overlaps with five of the described ecoregions (Map 2.4). These are described below.

High Sub-Arctic Tundra (Kingurutik – Fraser)

This ecoregion experiences summers that are considered short and cool, with a growing seasons of 80 to 120 days. Winters are long, severe and very cold. Closed black spruce forests, with some larch, occur on lower valley slopes. River terraces support open spruce forests with lichen dominated under stories. Shallow fens with frozen peat occupy small depressions in plateau surfaces.

Coastal Barrens (Okak – Battle Harbour)

This ecoregion extends from Napaktok Bay to the Strait of Belle Isle. Much of the coast is characterized by long, sheltered inlets. The summers are cool to warm and the growing season is 100 – 120 days. The winters are cold. Empetrum barren is the dominant vegetation type, with forest occurring in sheltered valleys. Most mid and lower slopes support a continuous spruce forest with a moss understory. Repeated fires have changed many forested areas to dwarf shrub barrens. Plateau bogs with frozen peat (palsas) and salt marshes on marine terraces are characteristic of the valleys in this ecoregion.

Mid Sub-Arctic Forest (Michikamau)

Eskers and drumlin ridges are characteristic throughout. This ecoregion has a very continental, sub-arctic climate with cool, short summers and long, severe, cold winters. The growing season is approximately 100 to 120 days. Black spruce is the dominant tree species, and trembling aspen reaches its northern limit here. Open lichen woodlands are characteristic and extensive ribbed fen string-bog complexes bordered by black spruce sphagnum forest stands, dominate areas with little relief.

High Boreal Forest (Lake Melville)

This ecoregion encompasses the Churchill River Valley and the coastal plain surrounding Lake Melville. River terraces are composed of coarse-textured, alluvial soils, and uplands have shallow, well-drained soils. This region has the most favorable climate in Labrador. Summers are cool and winters cold. The growing season is 120 -140 days. The forests are closed-canopies and highly productive. Richer slopes are dominated by balsam fir, white birch, and trembling aspen. Black spruce is present in most stands, but only dominates in upland areas and lichen woodlands, which occupy river terraces. Ribbed fens occur in upland depressions; plateau bogs occur on coastal plains.

Low Sub-Arctic Forest (Mecatina River)

The main portion of this ecoregion is located in southern Labrador, with two separate areas north of Lake Melville and the Red Wine Mountains. Broad river valleys and rolling hills covered by

shallow till, drumlins and eskers are characteristic of the region. Summers are cool and winters are long. The growing season is 120- 140 days. Somewhat open black spruce forests are the dominant vegetation, with crown densities greater that 75% on better sites. String bog-ribbed fen complexes cover extensive areas throughout the region.

The Labrador multi-resource inventory compiled by Drieman Curtis Inc., highlights vegetation cover types for the District based on satellite imagery. The primary source of data for this database was from the 1:1,000,000 scale Landsat Thematic Mapper color composite transparencies. A total of 20 images were used to map the forested region of Labrador (north to 56^{o}). The vegetation cover was delineated into several forest, disturbance and wetland types. The information was further digitized and is available for use in the GIS. Table 2.2 and map 2.2 summarize the results of the inventory.

Table 2.2: Vegetation cover types of District 23.

Vegetation Cover Type	Percentage or Total District Area (%)
Burn	8
Hardwood Scrub	1
Heavily Stocked Spruce/Fir Commercial Forest	1
Lichen Woodland	22
Moderately Stocked Spruce/Fir Commercial Forest	5
Non-Commercial Spruce Forest	39
Peatland	1
Tundra and Rock Barren	16
Water	7
Total	100

The Province has its own forest cover type inventory for the island portion of the Province and some of Labrador. The inventory initially was a timber inventory but has evolved to a broader ecosystem inventory. Unfortunately, this cover type inventory does not currently exist for FMD 23 in particular around the Postville area. Previous plans have utilized global inventories with updated information of re-sampled plots within the study area. Since this, the Province has initiated an inventory program in the area in which a portion of the district has been flown for color aerial photography (Map 2.5). An interpreter will then delineate stand, wetland and other boundaries which are then converted into digital format. At this time, the data has been collected but the interpretation process has not been complete, so the data from the previous plan will be used for this planning period.

Land Use

The lands in Nunatsiavut have been used by the settled and transient Inuit for many years. Activities vary from the subsistence harvest of plants and animals for survival to small scale commercial harvesting providing supplementary income. The intensity and location of the activities were noted to change with the seasons (Brice-Bennett 1977).

Forest Management District 23 has three communities, they are Postville (population: 188), Makkovik (population: 365) & Rigolet (population 322). Marine resources provide the principle economic base in most of the Nunatsiavut communities; however the Inuit community of Postville is also developing a history in the forest resource industry. In the early 1900's a portable sawmill operation was established at Salmon Brook, which later closed. Another attempt was made in the 1930's and again in 1946 however both failed within one year. In 1949 an operation moved to Shanty Brook on the south side of the bay and operated mostly during winter months. This operation provided employment to many men from Postville and other parts of the coast for ten years, after the Provincial Government had taken over it ceased once again. Residents once again turned to depend on the local resources for survival (Brice-Bennett 1977). Some of the more recent highlights of the forest industry are the re-establishment of a commercial operation in Postville; the export of pulpwood offshore to Newfoundland paper producers; the harvesting and processing of dimensional lumber; and value-added processing of core boxes for local mineral exploration activities. Unfortunately, this operation has been inactive since 2008.

There was no history of commercial harvesting operations in the communities of Makkovik or Rigolet (Brice-Bennett 1977). This is likely because of the lack of commercially viable timber available near the communities. These communities relied more on the fisheries and winter trapping to provide food and for trading for goods that were not available in the community. All three communities support domestic harvests for personal use and this activity is supported under the LILCA up to the level each beneficiary requires. Domestic harvest use is limited due to the number of households in the District. Although an exact domestic amount harvested each year is not known, it is estimated from available records, that in total, less than approximately 3500 m^3 is harvested domestically each year.

Inuit believe in using all resources for survival. They have identified many uses of the forest such as wood products (firewood and building materials), wildlife (big and small game and furs), non-timber forest products (mushrooms and berries) as well as identified opportunities for cultural, ceremonial and spiritual renewal. Although, this is hard to quantify, this is of significant importance to Inuit. These benefits are particularly important in areas where few employment opportunities exist (Brice-Bennett 1977).

In each community, infrastructure services (health care & education) provide significant employment opportunities. Furthermore, the Nunatsiavut Government provides many employment opportunities as well, by employing full-time, part-time and seasonal staff.

Ecological Character & Condition

As with most other FMD's, District 23 has its own unique ecological character. FMD 23 contains the only commercial areas of forestland of the two northern districts. It contains semi-suitable forest growing conditions although it is situated within the sub-arctic zone. Spruce is the predominant tree within the district, forming about 70% of the total volume, while balsam fir forms the balance (Thomas 1994).

The Postville area has been relatively untouched aside from minimal commercial harvesting operations and local personal use. Large-scale forest insect infestations and disease have not been reported in the area, and no large-scale forest operation has ever been implemented. As fire is the main disturbance regime, black spruce regenerates very well in this region, accounting for two-thirds of the forest in Labrador. Wilton (1964) described the Postville area as an area of good forest. He characterized this area as slow growing balsam fir and black spruce forests of pulpwood size, occurring in a mixture on the less disturbed sites, while stands of black spruce sometimes with larch typified the poorer sites. The majority of the area is composed of slow growing spruce/fir stands with a crown closure ranging anywhere between 40 and 100%.

Forest floor conditions vary within the district. Near the coast, forested areas are few and far between with empetrum barren the dominant vegetation type. Where there are forests, an understory of moss is common. Furthermore, in areas of repeated fires most areas have been turned into dwarf shrub barrens. Palsas and salt marshes are common on marine terraces and in low lying valleys near the coast (Roberts and Robertson 1986). These areas are unique, complex and sensitive ecosystems within themselves. Salt marshes are also identified as extremely important waterfowl staging and migration areas (Roberts and Robertson 1986). Further inland there is a mosaic of lichen dominated understories mixed with shallow peat fens, ribbed fen string-bog complexes and sphagnum bogs. According to the plot data collected by AMEC for the previous plan and as described in Brice-Bennett 1977, the most common ground vegetation found in the district (in no particular order) was Labrador tea, crowberry, ferns, speckled alder, blueberry, partridgeberry, bake apple, horsetails, bunchberry, twisted stalk and caribou moss.

The land base of FMD 23 has been classified by Thomas (1994) into the categories shown in Table 2.3. Within the proposed boundaries of the Postville harvesting area approximately 137,567m^3 of commercially viable timber is present based on the updated forest inventory conducted as part of this Plan. Unfortunately, permanent sampling plots are not available in the Postville area to give an accurate measure of growth or mean annual increment. Non Productive Forest (scrub) was not included in the calculation of the annual allowable cut (AAC) although there are pockets of merchantable wood which may be marketable and utilized as part of this Plan.

Table 2.3: Land Classification in FMD 23 (taken from Thomas 1994).

Class	Area (nearest 1000 ha)
Productive Forest (>35m^3/ha)	
Commercial	37,000
Low Volume	113,000
Non-Productive Forest (<35m^3/ha)	
Scrub	1,440,000
Non-Forested	
Bog	180,000
Solid and Rock Barren	388,000
Water	69,000
Total	2,227,000

Meades 1990 describes in detail the dominant ecological features, forest floor conditions and typical associated wildlife within the ecoregions associated with the district.

A short cool growing season (limited to ~100 growing days) has also resulted in a slowing of biological processes, reduced water uptake and very slow tree growth. With the exception of some commercial harvesting, past large scale disturbances on the landscape have been limited to some smaller fires. Smaller disturbances such as the death of individual trees or groups of trees are more common. There have been insect infestations in district 19 (central) and district 21(south coast) in Labrador recently (Map 8.2). The southern limit of the district (near Mulligan) also shows signs of small patches of tree mortality due to insect infestation which developed during the same timeframe of the central Labrador outbreaks of Spruce Bud Worm and Hemlock Looper (2005-2010).

"*Because of the generally poorer growing conditions in Labrador, the forests are more suited to pulpwood harvesting. However, in some river valleys where growing conditions are more favorable, stands of large dimension saw log timber can be found"* (Newfoundland Forest Service 1975). This is evident in and around the Postville Harvest Area, as deep wet valleys, at times, contained large diameter trees, sometimes reaching a diameter-at-breast height of 60cm.

The forest of Labrador has also been noted as the greatest concentration of high quality virgin timber remaining in eastern North America (Department of Forest Resources and Lands 1984). This resource has been relatively untouched by human influences, especially outside FMD 19. In FMD 23, for example, a few small mills began operation starting in the early 1900's, but were not viable due to reasons other than the valuable forest resource. Because the resource has been basically untouched, the forest condition has not been significantly altered from the natural condition of mature/over-mature forest with regenerating burned areas.

Fire is the main major disturbance type and is the predominant reason for alteration and regeneration of the forest condition. Large unchecked fires result in regions of Labrador having only two or three forest age-classes (Wilton 1964). i.e. recently burned, regenerating, and mature/over-mature. This is evident in the Postville harvest area of Kaipokok Bay. Other disturbance types, such as large scale harvesting, and insect infestation, has not occurred in the study area. Wind throw is evident, yet not as prevalent as fire, and normally only occurs in small patches.

FMD 23 is generally contiguous spruce/fir with the exception of some large burns in the Kaipokok area. One road is located to the west of the community of Postville. Past forest harvesting operations were conducted by manual felling and snowmobile hauling, which had minimal impact on the forest condition. More recent harvesting operations, (since the early 2000's), has seen the introduction of harvesting with a mechanical harvester and skidder. This may have caused additional disturbance to the forest floor (Figure 2.2).

Figure 2.2: Mechanical harvesting operation near Postville, Nunatsiavut (2008).

Ecological Protected Areas

Protected areas are important for the protection of ecological values and to ensure the sustainability of subsistence activities. Often, landscape, watershed and stand level scales are used as successive scales to filter and identify protected ecosystem functions within each level (Table 2.4).

Table 2.4: Ecological protected area levels

Level	Map Scale	Plan Terms	Sources	Examples of Protection
Landscape (course-filter)	1:500,000 to 1:250,000	District and Sub-district	Satellite information	Large areas not scheduled for harvest
Watershed (regular-filter)	1:50,000	Area of interest	Aerial photography	Entire watersheds, riparian buffers, major slopes
Stand (fine-filter)	1:20,000 to 1:5,000	Harvest block	Ground surveys	Wildlife dwellings, small streams.

Landscape protected areas are designed to protect large representative areas of major ecosystem and habitat types. In this plan, a large portion of the district is protected from commercial activities (Map 2.6). Given that the three communities are located along the coast with no road infrastructure extending into the interior of the district, no commercial harvesting, forest access road construction or silviculture will be scheduled beyond the five small harvest blocks located near Postville.

At the next level, watershed features such as riparian buffers, core habitats are identified. In this plan, several portions and entire watersheds and water supplies are protected from commercial activities (Map 2.6).

The final filter occurs at the stand level and is normally identified following pre-operational field surveys at very small scales. Identifiable stand level protected features will include riparian buffers, waterfowl staging areas, wildlife dwellings, raptor nest buffers and isolated stands and slopes. Additional reduction in the net commercial forest area is applied during the annual allowable cut calculations for such features.

Biodiversity

Biodiversity is defined by the Canadian Biodiversity Strategy as: **"***the variety of species, the genetic composition of species and communities, ecosystems and ecological structures, functions and processes at all levels*". The Canadian Biodiversity Strategy is a combination of federal, provincial, and territorial ministers of Parks, Wildlife, Environment and Forestry that have united as a follow-up to the 1992 United Nations Convention on Biological Diversity.

The fundamental objectives of this plan aim to:

1. Conserve biodiversity on a national, global and specifically local scale by;
    a. Protecting a representative portion of each eco-region that exists in the District, in an effort to contribute to the overall Provincial goal 12% of the Provinces entire landbase.
    b. Establish special management provisions, where needed, to protect biologically distinct unique features, with a goal for no loss of any rare flora or fauna species.
    c. Maintain and conserve critical habitat for wildlife.
    d. Limit the permanent net loss of forest area in the District through the implementation of a silvicutlure program and minimizing the amount of road constructed.
2. Promote the sustainable use of biological resources for local benefits by;
    a. Maintaining water quality and flow rates within acceptable ranges.
    b. Optimize the use of the landbase and maximize utilization to support commercial timber production.
    c. Maximizing local employment benefits derived from the utilization of local resources.

   d. Maintain or increase the amount and diversity of sustainable recreation activities.
   e. Provide for sustainable domestic wood harvesting and traditional hunting and gathering activities.
3. Improve resource management capabilities within the District by;
   a. Encouraging public involvement in forest management and planning.
   b. Increase awareness and understanding of sustainable forest management among individuals.
   c. Incorporate public opinion and traditional knowledge into forest management decisions and planning.
4. Develop local policies and legislation to support the conservation of biodiversity by;
   a. Incorporating traditional knowledge into local policies and plans concerning the maintenance of ecosystems.

On a global scale there are over 50 million species of plants, vertebrates and invertebrates inhabiting the earth (Probst and Crow 1991). Amazingly, very few of these have been described and catalogued. One of the most highlighted threats facing humanity is the decline in biodiversity; however human activities are believed to accelerate the decline.

More locally, the preservation of the diverse ecosystem is of utmost importance to Inuit. As described throughout this document and in Brice-Bennett 1977, Inuit depend upon the diverse resources for survival.

The Canadian Council of Forest Ministers (CCFM) has produced several National Forest Strategies in response to the changing environment. One such document, "A Vision for Canada's Forests: 2008 and Beyond" outlines national goals to sustainable forest management as well as identifies partnerships including those with Indigenous groups and communities. Furthermore, the CCFM have identified criteria and indicators for sustainable forest management in Canada, of which the first one identified is the maintenance of biodiversity.

Species Diversity

It is impossible to plan for the conservation of biodiversity on a species by species basis. There are simply too many species and information regarding all may be limited (Woodley and Forbes 1997). Because of this, four species were chosen as indicators of ecological integrity within the ecosystems surrounding the Postville area. They are marten, lynx, snowshoe hare, and caribou.

Marten (*Martes Americana*)

Pine Marten has been chosen as an indicator species due to its local importance as a furbearer. Many Postville residents trap marten during the winter season as a supplement to income and as a recreational/cultural activity.

Marten have often been used as an indicator species in other regions of Canada. Traditionally, Marten habitat has been classified as over-mature forest (i.e. >80 years old). Recent studies have concluded that marten respond to the structure available within a forest rather than actual stand age (Drew 1995). Vertical stem structure and coarse woody debris (CWD) appear to provide

adequate security for marten. CWD also offers interstitial spaces beneath the snow during winter months for prey species such as voles, mice, and shrews. Therefore, new habitat guidelines have been developed by the provincial Wildlife Division of the Department of Environment and Climate Change based on forest structure requirements instead of primarily forest age. These guidelines include recommendations such as minimum "leave" patch sizes of 20 hectares, retained basal tree areas of at least 18 m^2/hectare, and reservations of coarse woody debris.

Lynx (*Lynx Canadensis*)

Lynx has also been chosen due to its local importance as a furbearing animal which is trapped through the winter months.

Lynx prefer older regenerating stands (i.e. approximately 20 years old), and rarely select mature stands (Ruggiero et al. 2000). Thompson (1988) suggested that logging practices that leave numerous small stands of mature forest actually increase hare and lynx populations. He also suggested that planted and tended boreal sites are used less by hares and lynx than naturally regenerating sites. Other studies have shown that lynx benefit from the edge effect of harvesting (due to ease of hunting) and regularly crossed several hundred meter wide openings (Kesterson 1988 and Staples 1995 in Ruggiero et al. 2000) The key to managing a forest for lynx is to provide a temporal and spatial mosaic of forest age-class structure (Koehler and Brittel 1990). For example, both hare and lynx favour regenerating stands as they provide understory protection and food. Lynx also require CWD or fallen trees as denning sites (Ruggiero et al. 2000; Koehler and Brittel 1990).

Snowshoe Hare (*Lepus americanus*)

Snowshoe hare was chosen as an indicator species as it is a prey item for many of the furbearer species and an animal that is snared by many residents of Postville. A significant negative change in the population of these animals may negatively affect the furbearers in the area and the hunting activities of Postville residents. Arctic hare (*Lepus arcticus*) occur primarily on barren upland regions (Pruitt 1967) were therefore not chosen as an indicator due to its relatively low interaction potential with forest harvesting.

Snowshoe hare inhabit conifer forests in various stages of successional growth but prefer areas of early successional growth. The snowshoe hare is known to thrive in cutovers and other areas that have vegetation in the early stages of development (Dodds 1960 as *taken from* Northland Associates 1986).

Upland game provides crucial prey for such predators as fox, lynx, marten, and raptors. Natural or cyclic fluctuations in small game animals are quite normal and are believed to be influenced by many factors such as habitat, predation and weather conditions (DFRA 2001). During these periods of cyclic abundance, populations of upland game can build to very high numbers. The early succession stages of vegetation resulting from clear-cutting or road right-of-way clearing are favored feeding areas for hares, ptarmigan and ruffed grouse.

Caribou (*Rangifer tarandus*)

There has been little research conducted on specific habitat utilization of caribou within the Postville area. Northcott (1985) stated that caribou prefer both barren, open areas and areas of coniferous forests, where lichen are found providing an important food source. According to the Ecosystem Science Section of Gros Morne National Park (2001), caribou require a natural combination of open bogs and mature forest to provide alternate habitats and food sources. For example, during severe winters caribou will move into forested areas and undergo a switch in diet to forage primarily on arboreal lichens. Mature coniferous forest habitat plays an essential role in providing arboreal lichen as a food source and can provide shelter during severe winter weather events.

Caribou that are located within the Postville area typically migrate through during winter and are much further north during the remainder of the year. Depending on seasonal conditions, their migration route may vary considerably. For example, in 2001/2002, caribou migrated to the west (i.e. Churchill Falls and Metchin River area) and stayed further north of Postville (i.e. the Nain area).

A study conducted in east central Newfoundland concluded that of 35 caribou monitored before and after forest harvesting, 12 stayed within similar distances of a clearcut, 15 moved further away, and 2 actually moved close to the clearcut. Initial avoidance of clearcuts appeared to be mainly a response to ongoing operations, and not to habitat suitability (Chubbs *et al.* 1993). Therefore timing of harvesting operations may need to be considered with respect to calving season or calving area.

Summary of Wildlife Criteria

An indicator can be defined as a measurable variable used to report on the status or trend of a value (Beaudette 1999). Wildlife species, particularly vertebrates, are often selected to serve as indictors of sustainable forest management.

As stated earlier, lynx and snowshoe hare (in fact most upland game) prefer a combination of mature and early successional stages of forest regeneration and benefit from forest openings and edge/regenerating habitat. Caribou generally do not calf in the Postville area, however, often use the area as a winter migration route with the exact route varying from year to year.

In reviewing the habitat criteria of the above noted wildlife, Marten are most likely to be negatively affected by forest harvesting activities in the Postville area; therefore their criteria will be applied to any harvesting activities. In addition, if the effects of forest harvesting can be mitigated for Marten, it should also be reduced for other species identified as requiring mature/over-mature forested habitat. The Marten guidelines presented below are based on draft guidelines produced by the provincial Wildlife Division of the Department of Environment and Climate Change:

- The basic unit of evaluation will be 40 km²;
- 70% or greater of that unit must be suitable Pine Marten habitat (eg. 28 km²);

- 40% or greater of the unit should have trees greater than 10m in height (eg. 16 km²);
- the remaining portion of the 70% (30% or less) unit should have trees between 6 and 10m in height;
- 50% of the unit should be contiguous;
- minimum habitat patch sizes of 20ha;
- basal area requirement is 18m^2/ha);
- hardwood stands (insect, blow down, fire) will be considered suitable habitat where crown closure is greater than 30%; and
- there will also have to be "proximity rules" and also consideration to shape.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect species diversity in the District and to help build support for habitat protection.

Actions:

1. *Protect wildlife habitat at all spatial scales within the District.*
2. *Monitor and minimize impacts of forest activities on the four identified key indicator species.*
3. *Coordination between different agencies and the Nunatsiavut Government to assess local wildlife conditions and concerns.*
4. *On LISA, coordinate with beneficiaries to incorporate Traditional Knowledge into management activities.*

Ecosystem Diversity

There has not been specific information recorded throughout the harvest area regarding special species of flora or fauna, however, during the field surveys to revise the forest inventory by AMEC 2003, no unique species were discovered. The standard forest types within the Postville harvest area include softwood stands (the majority) with smaller areas represented by softwood-hardwood and hardwood-softwood stands. Although the entire Postville study/harvest area is over 200,000ha in size (Map 2.1), only 46,000ha are considered commercially productive softwood or hardwood stands. Of this productive land base, over 8,000ha (approximately 20%) has been protected as expanded buffer zones, trapping areas, areas of special concern, and areas identified as being valuable to the residents of Postville. The province of Newfoundland's Natural Areas Systems Plan recommends that a minimum of 12% of the provinces entire land base be protected (DFFA 2000). Considering only productive areas will be affected by forest harvesting, the amount of area protected in Postville currently exceeds the province's recommendation.

Hardwood stands account for very little of the Postville Harvest Area and many Postville residents felt these stands should be protected. Hardwood stands were identified in the community stakeholder consultations and have been zoned as "no commercial harvest" (Map 2.6).

Genetic Diversity

Care must be taken to ensure that genetic features which exist within a district remain as they are, or changed for the better (Moores 1995). When possible, natural regeneration will be used as the primary stocking agent after fire and harvesting. If regeneration surveys indicate that areas will need to be planted, then the nearest tree nursery growing black spruce seedlings will be used. Areas will be planted to maintain similar stocking across the landscape.

DISTRICT VALUES

Species at Risk

There are various pieces of existing Federal and Provincial legislation and programs such as the Federal Habitat Stewardship Program, that promote the special protection of species at risk. Their main purpose is to prevent species from going extinct and if necessary outline necessary actions for their recovery. It is very critical to identify local species at risk within the district and to ensure that their habitats are protected from disturbances. In Labrador, there are eleven species that have been identified as at risk by the Provincial Department of Environment and Conservation, Wildlife Division (Table 3.1).

Table 3.1: Labrador species at Risk

Species	Status (date)	Habitat & Traditional Knowledge
Barrows Golden-eye	***Vulnerable***	*Nests in Quebec and only a small portion of the population are thought to actually molt in Labrador.*
Eskimo Curlew	***Endangered***	*A small upland shore bird that utilizes coastal habitats. It was traditionally hunted on the coast for meat.*
Fernald's Milk Vetch	***Vulnerable***	*Known to occur only in southern Labrador, the species grows more strictly in calcium-rich soils where vegetation is sparse or has been removed by natural disturbance and a calcareous substrate in available.*
Harlequin Duck	***Vulnerable***	*Spend most of the year in coastal marine environments, but they move inland each spring to breed along fast-moving rivers. During the winter they occur along headlands where the surf breaks against rocks and ice build-up is minimal. They feed close to rock shorelines. They were a traditional food source for coastal people.*
Ivory Gull	***Endangered***	*Nests in the arctic and winters off the Atlantic coast. Does not seem to be any concern in this region.*

Polar Bear	***Vulnerable***	*Habitat consists of land fast ice and coastal pack ice. Appropriate denning and spring feeding areas are crucial components of habitat. Their movements are influenced by climate and ice conditions and by the presence of prey, especially Ringed seals.*
Short-Eared Owl	***Vulnerable***	*Nests mostly along coastal areas, but have been sighted inland. It nests in high grass or on the edge of a forest or bog area.*
Tundra Peregrine Falcon	***Vulnerable***	*Found throughout the Northern Tundra and in Labrador its thought that they nest as far south as the tree line.*
Wolverine	***Endangered***	*Frequently inhabit the tundra, especially where there are large herds of ungulates such as caribou.*
Woodland Caribou	***Threatened***	*Prefer mature forests which contain large quantities of lichen and are associated with marshes, bogs, lakes and rivers.*

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect species at risk in the district and to help build support for habitat protection.

Actions:

1. *Communicate and participate with Federal and Provincial Endangered Species Programs, including the Habitat Stewardship Program;*
2. *Identify sensitive habitats of species at risk and implement appropriate measures;*
3. *Communicate and work closely with any recovery team deemed necessary for the recovery of a species;*
4. *Monitor; review and support research activities where ever possible on species at risk.*
5. *On LISA, coordinate with beneficiaries to incorporate Traditional Knowledge into management activities and recovery programs.*

Cultural Heritage Values

The community of Postville depends heavily on the local natural resources. Interviews which were conducted in the town of Postville as well as public meetings were used to gather information on local land use, cultural areas of significance, and concerns regarding the proposed harvesting plan. The results of those interviews were consolidated with information gathered as part of the LINKAP Project (A collection of geographical data which were used as a digital atlas and included biological, mineral, cultural and political data)(AMEC 1999) and resource use described in "Our Footprints are everywhere" Brice-Bennett 1977, so that local resource values could be integrated into the Plan. This information has been used within the plan to:

1. Identify potential harvest blocks;
2. Explore potential harvest techniques;
3. Calculate the annual allowable cut;
4. Delineate appropriate buffers; and
5. Delineate access road locations.

Maintaining the traditional use of the forest, such as the trees, plants, fish and wildlife species and water quality, was a key message from the consultation process. It was also identified that the forest has historically provided an economic supplement through the commercial harvesting of timber and the production products from the forest for sale such as traditional snowshoes or paddles.

The main values that were identified and mapped during the consultations were:

1. Archeological and historical sites,
2. Homesteads and gravesites,
3. Traditional trapping areas
4. Cabin locations.

As part of the LILCA the Nunatsiavut Government is in the process of implementing a traditional tenure process in which traditionally used areas are identified and registered for cabins and trap lines. This process is ongoing, however information gathered to date was used in the current plan. Future plans will have more detailed information to incorporate.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect cultural heritage values in the district.

Actions:

1. *Protect cultural values by incorporation of traditional ecological knowledge into this and future plans.*
2. *All activities will be subject to Environmental Protection Guidelines and any other Guidelines implemented by the Nunatsiavut Government and the Provincial Government.*
3. *Continue to collect cultural knowledge from the District for incorporation into future plans.*

Hunting & Trapping

Wildlife in the district is very important to the local communities and must be protected for cultural, recreational, and spiritual values. Numerous species were identified through the public consultation process as being important. They are listed as follows;

1. Marten
2. Caribou
3. Upland Game (rabbit, grouse, partridge)
4. Black Bear
5. Furbearers (lynx, mink, otter)
6. Waterfowl (ducks and geese)
7. Fish and Fish Habitat (Atlantic salmon, brook trout, arctic char)

While the groups identified above are all deemed important to the community, several have been identified as being more susceptible to potential interaction with harvesting operations and hence have been used in determining the appropriate harvesting techniques. For example, groups such as waterfowl and fish/fish habitat have very little interaction with forest harvesting because their habitat requirements are protected by buffers on waterbodies, proper stream crossings, and proper harvesting methods (i.e. fuel storage, spill response). Research done in central Labrador on the effects of clear cutting on moose populations was conducted by Newbury et al. 2007. It was found that conversions of mature forests into early and mid-successional stages (ie. Clear-cut areas) is partially responsible for moose population increases and that the mosaic of food and cover produced by harvesting can benefit moose. Moose population densities were found to be very low by the 2020 Torngat Wildlife, Plants and Fisheries Secretariat survey of the Kaipokok (South) Moose Management Zone. The survey was conducted by flying transects of areas expected to contain good moose habitat and found no calves and only 8 adults.

Traditionally, hunting and trapping has been an integral part of Inuit lifestyle for food, social and ceremonial purposes. The harvest is used for many aspect of daily life including food and clothing for families. Many parts of the harvest are also used for various crafts. Trapping for commercial fur provides a supplementary income to some families.

During the life of this plan, it is anticipated that hunting and trapping activities can continue as normal. Traditional trapping and hunting grounds that were identified during the consultation process were taken into consideration when planning for harvest block locations to ensure minimum disturbance.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect hunting or trapping activities in the district.

Actions:

1. *Implementation of Environmental Protection Guidelines as identified by the Nunatsiavut Government and the Provincial Government.*
2. *Conduct annual meetings with commercial operators to discuss annual management activities. Wherever necessary, annual work schedules will be requested.*

3. *Continue to collect traditional hunting and trapping information within the District for incorporation into future plans.*

Non-Timber Forest Products

In addition to forest activities such as hunting and trapping, the forests also provide other non-timber forest products. Non-timber forest products are such products as medicines, extracts, foods, crafts and art that are derived from the forest such as barks, berries, roots, etc. Many of these products have cultural significance to Inuit. Not only do they provide products for food, social and ceremonial purposes, but in some cases they provide economic opportunities.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect the harvest of non-timber forest products in the district.

Actions:

1. *Continue to collect non-timber forest product information within the district for incorporation into future plans.*
2. *Harvesting of non-timber forest products will continue throughout the life of this plan by the careful planning of forest harvest blocks.*

Socio-economic Values

There are three permanent communities within FMD 23, they are Postville, Makkovik and Rigolet. In the past the Postville area has seen an increase in mining exploration and thus has seen an influx of people on a temporary basis to the area. In the past year, mining exploration has slowed and consequently so has the opportunity for employment in the area. One of the main employers in Postville was a forest based operation operated by the development arm of Nunatsiavut Government, Postmill Lumber. They have conducted a variety of activities such as exporting pulpwood, sawing lumber for local markets and producing core boxes for near-by mineral exploration.

Over several planning phases, numerous interviews and meetings were completed to address all socio-economic values identified by the community of Postville. Community associated benefits to a sawmill operation include an economically sustainable use of surrounding natural resources, employment of up to 20 individuals, and construction of a better-equipped mill incorporating associated equipment (Atlantic Consulting Economists 2000). The plan also recognizes the importance of personal, recreational, spiritual, and wildlife values as identified by the community. The potential interaction between harvesting and these values were raised and discussed and all information received was incorporated into the Plan. This plan has attempted to minimize disturbance to socio-economic valuable areas by incorporating local concerns, designating areas as “no commercial harvest zones”, implementing harvesting techniques that cause minimal impact, and increasing buffers to water bodies (Map 2.6).

While the harvesting activities described for this operation are small compared to other provincial forest harvesting operations, the residents of Postville realize that harvesting of trees can affect local forest/wildlife dynamics in a harvesting area to some degree and that harvesting may occur in areas currently used by some for personal purposes.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect socio-economic values in the district.

Actions:

1. *Identify opportunities to increase the number of local jobs related to the forest industry in the Postville area.*
2. *Consider and incorporate traditional knowledge into socio-economic issues.*

Timber Values

Domestic harvesting of wood for subsistence purposes is very important to Inuit. They traditionally have harvested wood to heat their homes, construct boats, komatiks and snowshoes along with many other wooden items used on a daily basis. Subject to the LILCA, domestic harvesting activities will continue.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect the domestic harvest of timber in the district.

Actions:

1. *Conservation Officers based in communities will monitor the amount of domestic harvesting*
2. *The Nunatsiavut Director of Renewable Resources will explore the option of creating forest based legislation for forest activity.*

Potential Developments

Mineral deposits of various types have been identified in Northern Labrador. The most notable, being the presence of Uranium within the District. Many companies have spent much time and effort exploring the barren Labrador wilderness for signs of exportable Uranium deposits. To date this activity has provided short term employment to residents. From 2008 to 2011, the Nunatsiavut Assembly implemented a ban on Uranium mining and milling for 3 years. This ban was lifted in March 2012 upon the ratification of the Nunatsiavut Environmental Protection Act.

Agricultural opportunities remain underdeveloped in the district, with very little domestic and no commercial agriculture being practiced. This is mainly due to the climate and soil conditions not being conductive to such activities. The main agricultural activity noted is the harvesting of wild berries.

All communities in Nunatsiavut are isolated by road but do have regular air services by gravel airstrips. There is also regular marine transportation for passenger and freight in all communities

during the shipping season (Late-June – Mid- November), depending upon ice conditions. As noted above there is no current road to connect the Nunatsiavut communities with central Labrador. Although it is not anticipated that one will be built within the life of this plan, we may see planning stages for a road. If a road was to be constructed it may open up new areas of commercial timber. Furthermore, during the winter months groomed snowmobile trails are commonly used for transportation however it is not common for large volumes of commercial goods and service to be moved this way. Groomed trails provide access to domestic harvest areas and also provide opportunities for adventure tourists.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect any potential developments in the district.

Actions:

1. *Monitor and participate in any consultations on potential new developments.*

Value-added Processing

The opportunity exists for further value-added processing in the District, thus creating local employment. The isolation of the communities in Nunatsiavut makes obtaining reasonably priced dimensional lumber and wood products hard. While markets need to be secured, there is adequate wood supply to run a small value-added operation.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect the value-added processing of forest products in the district.

Actions:

1. *Identify opportunities for local operator to expand operations to incorporate other value-added processing in the area.*

Water Resources

Water resources and a supply of clean water for residents are very important. Furthermore, healthy water resources contribute to a healthy ecosystem. Traditionally, water resources have provided food for Inuit as well as support for various commercial fisheries and have provided tourism and recreational opportunities. There are many rivers that support populations of salmon, trout and char species. There are three water supplies identified in the district for the communities of Postville, Makkovik and Rigolet. Water quality will be maintained by the application of buffers on forest activities, as well as the protection of any protected water supplies from forest activities.

Throughout the life of this plan the following actions will attempt to ensure that the planned activities do not affect water resources or quality in the district.

Actions:

1. *Ensure forest resource activities are conducted in a manner to maintain clean drinking water supplies for the communities.*
2. *Ensure forest resource activities are conducted in a manner to protect the water quality of water bodies in the district.*

PAST ACTIVITIES

The previous plan as well as this plan only refers to a small portion of FMD 23, specifically a contiguous block of commercial timber near the Town of Postville. Although the area discussed represents less than 10% of the district, it does encompass the majority of merchantable forest in the district.

Timber harvesting has been relatively unstable over the past years (Table 4.1). It is estimated that domestic harvesting, which is a significant traditional activity in the area, is relatively consistent and very low, although records are not available. Road construction and silviculture activity have been relatively unstable as well. An annual goal of planting 75 ha/year was proposed in the previous plan. Unfortunately, no planting activities were conducted during the plan (Map 4.1).

Table 4.1: Summary of timber harvested in FMD 23 from 1997-2022

		Commercial Harvest			Domestic
Year	Total Commercial AAC (m^3)	Pulpwood (m^3)	Sawlogs (fbm)	Firewood (m^3)	Firewood (m^3)
1997		28	23600	0	Unknown
1998		0	56000	0	Unknown
1999		36	80000	0	Unknown
2000		23	2000	0	Unknown
2001		7.5	3500	0	Unknown
2002		12.5	5000	0	Unknown
2003	12000	3692	10300	0	Unknown
2004	12000	6100	5000	0	Unknown
2005	12000	9500	13000	0	Unknown
2006	12000	4767	5100	400	Unknown
2007 - 2022	12000	Did Not Harvest			< 3,700

PUBLIC CONSULTATION PROCESS

The importance of stakeholder and public involvement in the planning process was acknowledged by both the Nunatsiavut Government and the Department of Fisheries, Forestry

and Agriculture. An important role exists for groups in identifying issues and contributing traditional ecological knowledge.

The previous work and forest management plan prepared by AMEC (2003-2007) entailed a comprehensive consultation process, which included workshops and public meetings to determine the long term personal, community, cultural and spiritual values in the area. Since a lot of the values identified extended past the life of the plan and it became apparent after speaking with people in the area that they were still important, and they were carried over to this plan.

However, in addition to the information and values gathered by AMEC in the previous plan further information was gathered. Three more general public meetings were held within the community of Postville in 2008. These sessions were open to the public and advertised within the community. Although overall participation was low by community members, the members who participated did contribute meaningful data to the planning process. Further to the public meetings, a one page forest management summary which included the area break-downs, outline of proposed activities, past and present annual allowable cut figures as well as future plans was distributed within the community by the Nunatsiavut Conservation Officer. In addition, proposed activity maps were posted in the Nunatsiavut Conservation Officers office in Postville and notices were posted for welcoming concerned citizens to provide input into the maps. The Conservation Officer also took the maps and visited some of the elders in town to get their input into the proposed activities. All comments were considered during the preparation of this plan.

During this planning phase, digital copies of proposed activities, including commercial harvest blocks and forest access roads, were sent to the Nunatsiavut Government, Department of Lands and Natural Resources for review and comment. During communication with the mayor of Postville the option of public meetings in the community was discussed. At the time it was felt that due to the ongoing COVID-19 pandemic, community members would rather not risk spread of the virus as there has been no change in proposed activities from previous plans.

WOOD SUPPLY ANALYSIS

Normally a sustainable annual allowable cut (AAC) would be calculated based on the available forest inventory data for the district. As previously described, the resource inventory available for this plan is limited to a thirty year-old global inventory conducted for the Postville area as well as an updated inventory through an intensive field-sampling program (conducted by AMEC for the previous plan). A combination of the available inventories was used as the base for the current AAC calculation.

Methodology

The maximum amount of wood that can be harvested annually while maintaining a sustainable timber supply and a landscape which supports traditional and cultural values for future generations is referred to as the annual allowable cut (AAC).

Since the necessary growth and yield data required to run linear models was not readily available, nor were the available models calibrated to the district, the AAC was calculated for FMD23 using an area and volume based formula (below).

$$\text{AAC } (m^3/\text{year}) = \frac{\textit{Net Commercial Forest Area (ha)}}{\textit{Rotation Age}} \times \frac{\textit{Net Merchantable Volume } (m^3)}{\textit{Hectare}}$$

Where:

1. **Net Commercial Forest Area** is the net landbase of commercial forest.
2. **Rotation Age** is the time period (years) required to establish and grow trees to a condition of maturity following disturbance.
3. **Net Merchantable Volume** is the expected merchantable volume on a specified landbase taking into account losses for fire, waste and retention.

Net Commercial Forest Area:
Forest Management District 23 is approximately 2.2 million hectares, of this area a very small portion around Kaipokok Bay is inventoried, and of the inventoried area approximately **45,952 ha** is considered commercial forest stands. The commercial forest stand area is further reduced by 40% to a **Net Commercial Forest Area** of **27,571 ha** to account for riparian and other buffers, steep slopes, etc. This is thought to be a conservative net commercial forest area.

Rotation Age:
The rotation age is the age at which the mean annual increment of merchantable volume has reached its peak and yields the most volume per unit per year. The **rotation age** for FMD 23 was estimated at **140 years**. This was based on rotation age estimated for other parts of Labrador (~110 to120 years) and the natural stand yield curves developed for different ecoregions (DFLR 2008, DFLR 2007). Furthermore, USDA 1990 reports the average for black spruce stands on poor site classes in the boreal forest of Canada to be 132 years. Using this information and applying a cautionary approach, the rotation age was estimated.

Net Merchantable Volume:
Due to the absence of available data, the information used in the ground truthing plots conducted by AMEC in the last plan along with the global data was utilized (AMEC 2002). Merchantable volumes from plots were averaged to get an average of **108m^3/ha**. This volume is further reduced by an estimated **26%** (Fire – 1%, Losses – 5%, Residual Stands – 6%, Cull – 14%) to account for retention, waste, cull and natural disturbances. This resulted in an estimated net merchantable volume of **80m^3/ha**.

AAC Calculation

Using the above estimates the AAC was calculated to be:

$$\frac{27{,}571 \text{ ha}}{140 \text{ years}} \times \frac{80 m^3}{\text{ha}} = 15{,}755 \ m^3/\text{year}$$

Evaluation

The current calculated AAC of 15,700 m^3/year is considered comparative to the AAC of 12,000 m^3/year recommended by AMEC in the previous plan. Considering the previous AAC's was calculated using a linear model and the current a simple formula, the 20% difference is negligible. Furthermore, the previous AAC did not account for domestic harvest that is taking place in the district. The current AAC can account for management of both domestic and commercial harvest levels.

PROPOSED ACTIVITIES

Overview

A summary of the proposed activities scheduled for this operating period (2023 – 2027) is detailed in appended Map 7.1

In general, commercial and domestic harvesting activities will take place during the planning period at the level of 15,700 m^3/year. Commercial activities will be scheduled to occur in five identified operating blocks. The majority of the domestic harvesting will take place near the communities.

A small level of planting is scheduled for each year during the planning period and monitoring and research will focus on collecting base line data in various areas. An adequate road network is planned to assist the harvesting of the commercial portion of the AAC, however roads will assist other activities such as fire suppression, silviculture and monitoring activities as well.

Allocation of Wood Supply

Considering the AAC for FMD23 was calculated in section 7.0 to be 15,700 m^3/year, 78,500m^3 of volume is estimated to be available over the next five year period (Table 7.1). An anticipated level of 60,000 m^3 has been estimated for commercial use and 18500 m^3 has been estimated for domestic use.

Table 7.1: Summary of anticipated harvesting activity in each year of the planning period.

Year	Commercial (m^3)	Domestic (m^3)	Total (m^3)
2023	12,000	3,700	15,700
2024	12,000	3,700	15,700
2025	12,000	3,700	15,700
2026	12,000	3,700	15,700
2027	12,000	3,700	15,700
Total	**60,000**	**18,500**	**78,500**

Timber Operations

All timber harvesting operations will be subject to the Environmental Protection Guidelines (DFFA 2021, Appendix II) as well as any other guidelines, conditions or policies put in place by the Nunatsiavut Government.

Commercial Operations

Commercial permits to harvest commercial timber on LIL's will be issued by the Nunatsiavut Government. These permits will be subject to policies and conditions implemented by the NG. All commercial operations will be scheduled to occur in one of 5 scheduled operating blocks (Map 7.2). A summary of the block volumes can be seen below in table 7.2.

Table 7.2: Summary of commercial harvest block volumes.

Block Number	Gross bF/bS Vol. (m^3) (@108m^3/ha)	Net bF/bS Vol. (@80m^3/ha)	Area (ha)
CC23001	15,660	11,600	145
CC23002	12,204	9,040	113
CC23003	29,484	21,840	273
CC23004	30,672	22,720	284
CC23005	64,692	47,920	599
Total	**152,712**	**113,120**	**1414**

In total, a net commercial volume of 113,120 m^3 has been identified in the proposed harvest blocks. This is approximately 45% more than is scheduled to be harvested in the planning period. While the AAC will not be exceeded in any given year, this additional volume can provide operational options for harvesters given the fragmented commercial forest stands in the area.

Utilization of the resource is very important. Although utilization surveys have not been done for operations in FMD 23, on average other operations in the Labrador Region have seen 26m^3 of merchantable timber left on cutovers due to poor utilization practices. This is extremely high and can be substantially reduced with little effort by operators. Operations will be monitored

following the standard procedure developed by the Newfoundland Forest Service and changes implemented as necessary to ensure maximum utilization.

Domestic Harvesting

Domestic harvesting of timber for fuel wood and sawlogs by Inuit for subsistence purposes will continue as outlined in the LILCA. During this planning period the NG will work on forestry legislation including permitting policies for non-beneficiaries of the area. As described in table 7.1, 18,500 m^3 is available to for harvest by residents. It is anticipated that this volume is more than sufficient to cover any domestic harvesting. Domestic harvesting will take place near the communities.

Silviculture

Forest stands in FMD 23 have not been subject to large scale disturbances (fire, insect or harvesting) in the past. Silviculture refers to the theory and practice of controlling the establishment, composition, growth and quality of forest stands to achieve the objectives of management (Smith, Larson, Kelty and Ashton, 1997). Furthermore, it is a general premise to:

1. Enhance forest stand values and improve benefits that can be derived from them;
2. Provide an effective means for managing a stand to provide desired benefits and sustainability of them;
3. Keeps the management appropriate to the biologic and physical limitations of a site, and;
4. Maintains or enhances productivity.

The main purpose for planting in District 23 would be to implement sustainable forestry practices in the area. Pre-commercial thinning of high density stands is not planned for this period due to the lack of suitable dense stands in the area. It may be utilized as a management tool in future plans.

Areas harvested before the signing of the LILCA need to be surveyed for regeneration and assessed for planting opportunities. This work may be done by the Provinces Department of Fisheries, Forestry and Agriculture and furthermore any planting would fall under the Provincial program. Other areas harvested on LIL after the signing of the LILCA would be surveyed by the Nunatsiavut Government. An effort will be made to monitor the regeneration of domestic cutting areas as well to determine if any silviculture opportunities exist.

Past burn areas could potentially be considered available for planting. Previous planting efforts include a 20ha area at Guloo Point near Postville. As more harvesting takes place and it is determined through regeneration surveys that planting is required more area will be available.

Table 7.3 and Map 7.3 outline the proposed silviculture activities for the next five years. This is set as an attainable goal that can be reached. It is anticipated that a local planting program can be implemented creating local employment.

Table 7.3: Proposed silviculture area

Activity	Description	Proposed Area
Tree Planting	Planting container stock spruce seedlings, targeting good and medium sites.	~375 ha (~75 ha/year)

Primary Access Road Construction

Access roads are essential to access commercial timber resources and can affect the success of forest activities such as harvesting, fire suppression and silviculture, in the District. While some roads do currently exist, the road system is still considered underdeveloped to support a commercial forestry operation.

It is anticipated that approximately 25 km of primary forest access road is required to access mature and over mature stands within the commercial harvest blocks map 7.4.

Considering construction costs on the north coast of Labrador, it is estimated that well in excess of one million dollars would be required. Secondary roads are not identified in this plan and operators would be responsible for constructing these to access scheduled operating blocks. Winter roads will be utilized to access sensitive areas (wet areas) and areas where it would not be feasible to invest in permanent roads due to the amount of timber present.

Decommissioning, or the removal and rehabilitation of the access road beds is not considered in this plan due to the lack of available road. It may need to be considered for future planning periods. All road construction will follow environmental standards and guidelines put in place by the Nunatsiavut Government.

Research and Monitoring

The availability of base line data in the district is relatively low. This base line data is key to making sound management decisions and in adaptive management. Since there is not a lot of available data, it is paramount that during this planning period an effort be made to improve management policies and practices through the incorporation of traditional knowledge and by learning from the outcomes from previous activities.

Although, there are no specific projects planned for this period, research topics could include pre-harvest surveys, utilization surveys, Permanent Sample Plot (PSP) and Temporary Sample Plot (TSP) measurements, ground disturbance surveys and post-cutover surveys. An effort will be made to get the new inventory data ready for use in future plans.

Public and Operator Education

A continued effort will be made to educate the public and operators on ecosystem management along with the incorporation of traditional ecological knowledge from the area. Continued interaction with the public will result in better understanding of key management issues,

decisions and the goals and objectives of management. During the planning period it is expected that the Nunatsiavut Government and Provincial staff will maintain good working relationships with the town councils, resource groups and development associations. An effort will be made by both groups to hold operator and public workshops on various management issues such as utilization, ground disturbance, and road construction as required.

ENVIRONMENTAL PROTECTION

Habitat Protection

Taylor *et al*. (1993) defined landscape connectivity as the degree to which the landscape facilitates or impedes movement among resource patches. Connectivity will have to be sustained to allow the movement of organisms throughout the Postville area. As an example, the Fundy Model Forest of New Brunswick is working towards the implementation and maintenance of forested connections between harvested areas of a minimum width of 300 m and a maximum length of 3km to meet requirements of connectivity (Woodley and Forbes 1997).

Landscape ecology has yielded many models describing changing landscape patterns (Franklin and Forman 1987, Gardner et al. 1987, Gardner and O'Neill 1991, Gustovson and Parker 1992). Andren (1994) reviewed the effects of habitat fragmentation on birds and mammals in landscapes with different proportions of suitable habitat. He describes habitat fragmentation as having three components:

1. Loss of original habitat (i.e. going from suitable to unsuitable habitat);
2. Reduction in patch size of original habitat; and
3. Increasing isolation of patches.

Several strategies can be implemented to help preserve the integrity and viability of various resource values. Areas designated as "no commercial harvest zones" are identified and buffer zones on water bodies (rivers, streams and ponds) are increased from those recommended in the Environmental Protection Guidelines (Appendix II). These buffers not only increase protection for aquatic habitat but also provided additional protection to identified areas of concern such as cabin locations and trapping areas. Some areas were deemed important water bodies in the Postville harvest area as they are fished by the community for arctic char.

The protection and conservation of habitat is paramount in the district due to the significant traditional and cultural value of wildlife in the area. The over mature forests found in the area are great contributors to biodiversity due to their complex arrangement of structural and functional features. In recognition of this, an effort will be made to:

1. Discourage whole tree logging systems so that limbs and stems (coarse woody debris) will be left on the forest floor. This will ensure that the nutrients provided by decomposing coarse woody debris will remain on site, this is especially important on sites of poor quality (Titus et al. 1998)

2. Favor cut block patterns with green tree retention,
3. Retain snags on cutovers,
4. Follow patters of natural disturbances such as irregular and feathered edges,
5. Maintain connectivity on the landscape through implementation of riparian areas, retention areas and wildlife corridors,
6. Identify any wildlife and nesting areas and apply buffers as necessary.

Furthermore, adapted from the Provincial Environmental Protection Guidelines (Appendix II) the following buffers will be applied for the protection of critical habitat, aquatic ecosystems and water quality:

1. Minimum requirement of 30m forest buffer around all water bodies identified on latest 1:50,000 topographic maps and on all water bodies that are 1.0m in width or greater.
2. Minimum requirement of 50m forested buffer around Salmon pond, Bear Pond, Little Rapid Pond, and Lewis' Pond.
3. Minimum requirement of 150m forested buffer around Kaipokok Bay
4. Additional buffers can be applied where it can be determined that critical fish or wildlife habitat may be affected.
5. Where slope is >30%, no harvest forest buffer of 1.5 x slope % will be applied.
6. Minimum requirement of 50m no harvest forest buffer will be maintained around all identified black bear denning sites.
7. Minimum requirement of 800m buffer around bald eagle or osprey nests during nesting season (Mid-March – End July) and 200m during the remainder of the year.

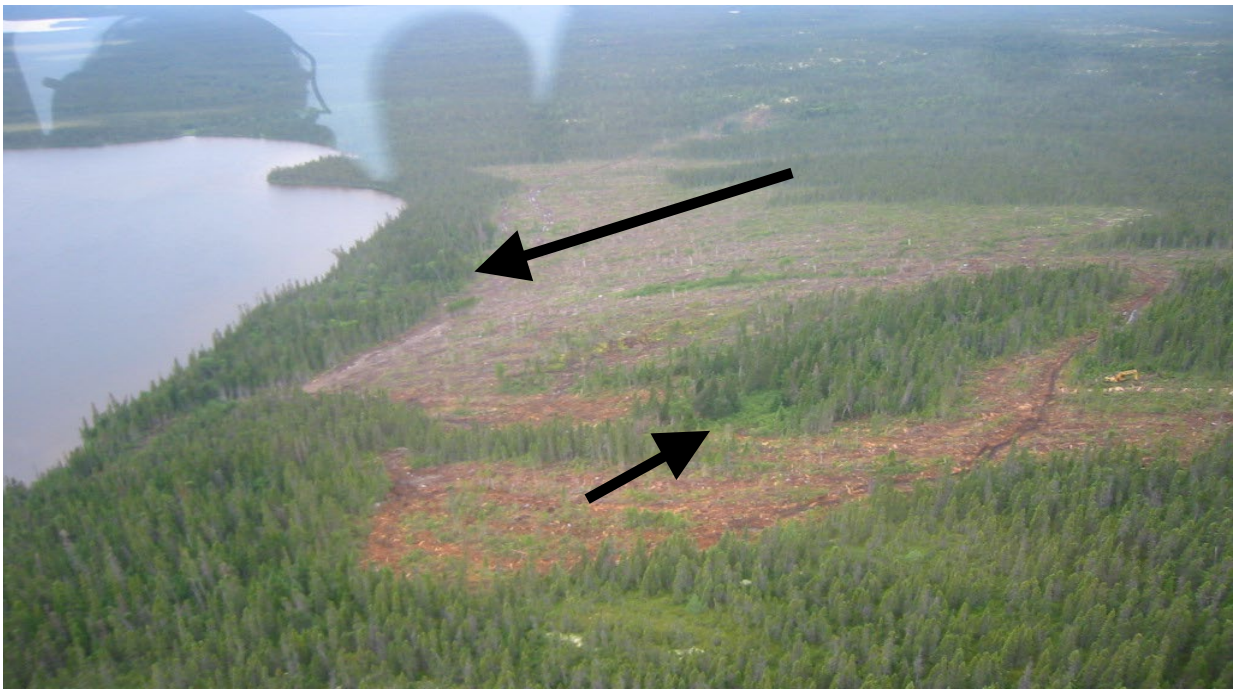

Figure 8.1: Example of previous Postville operation showing areas left for protection (Postville 2008)

Forest Fire Protection

Although forest fire activity in the district has been limited, there have been several forest fires (Map 8.1). In the past, fires were the most predominant disturbance in Labrador. A summary of total area burnt and average fire size from 1960-2020 is described in table 8.1

Table 8.1: FMD 23 summary of fire size by decade.

Decade	Total Area (ha)	Average Size (ha)
1960-1969	156,722	9,798
1970-1979	94,260	2,299
1980-1989	10,190	637
1990-1999	100,215	4,555
2000-2009	36,663	873
2010-2020	16,532	413

In order to ensure that there are minimal losses of resources, an effective fire suppression program is necessary. Although, it is preferred to let fires burn naturally, fires that pose threat to human life, property and resources will be suppressed. Through an understanding between the Province and the Nunatsiavut Government, it is understood that fires that threaten communities will be suppressed by the Province, furthermore fires that occur on LIL will only be suppressed with the approval of the Nunatsiavut Government unless it is deemed an emergency.

The threat of fire will also be managed by harvesting and removing some of the fuel (older aged spruce and fir stands) near the community of Postville by both the commercial and domestic harvests. Although it is beyond the mandate of this document, each community is encouraged to have a fire management plan in place. The Province can support communities in this effort by applying the principles of the FireSmart program.

Insect and Disease Control

Forests are susceptible to attacks from insects and disease. Although insects and diseases are common in the rest of the Province, they were very un-common in Labrador. Insect outbreaks of substantial size have been recorded in southern and central Labrador, including the implementation in 2008 of the first insect spray program in the area. Although there haven't been any substantial outbreaks in the Northern part or Labrador, it is likely that some may occur in the future due to the older age class and weaker forests and the recent and forecasted changes in climate, especially in Northern ecosystems. There have already been some small areas of tree mortality due to insects recorded in the Mulligan area (map 8.2).

It is not anticipated that any large scale spray program using chemical or insect control agents will be required during this planning period. Should a spray program be required, it will be registered as a separate undertaking (as per EA regulations) with the EA Division of the Department of Environment and Climate Change. The decision to treat an area for insect infestation will be made in conjunction with the public, communities and NG. While not all products are required to go through the environmental assessment process, any use of pesticides will require licensing and

approval from the Pesticide Control section, under the Pesticides Control Regulations of the Environmental Protection Act. District staff will work with insect and disease control staff to ensure that proper approvals are obtained.

Enforcement and Compliance

All forest activities within LIL will be monitored by NG Conservation Officers. Furthermore, activities on LISA outside of LIL will be co-monitored by the Provincial and Nunatsiavut Conservation Officers. The Province will monitor all other Crown lands in FMD 23. They will ensure that activities are being carried out in accordance with applicable legislation, guidelines, objectives and goals. This would include monitoring such activities as; compliance with allocation, observance of no cutting buffer zones, proper road construction, and resource utilization to name a few.

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Appendix I - Forest Management District 23 legal description

Kaipokak Bay

All that piece or parcel of land situate and being in Eastern Labrador in the Electoral Districts of Torngat Mountains and Lake Melville abutted and bounded as follows:

At a point 2 kilometres southeast of Shipiskan Lake, latitude 54° 36' 35" longitude 62° 12', where the Shipiskan River meets the Kanairiktok River;

Then proceeding generally east and northeast along the south shore of Kanairiktok River and Snegamook Lake to the eastern shore of Kanairiktok Bay on the Labrador Sea Coast;

Then following the Labrador Sea Coast in a generally southeast direction including all offshore islands, until it meets the northern boundary of Management District 20 at Grosswater Bay;

Then along the northern boundary of Management District 20 in a southwesterly direction along the south shore of Lake Melville to a point where Big River flows into Lake Melville and being a common boundary with Management District 19A, latitude 53° 31' longitude 59° 40';

Then following the Management District 19A boundary north and west until it meets a point where the Naskaupi River and the Red Wine River meet, latitude 53° 55' 30" longitude 60° 59' 30";

Then sharing a common boundary with Management District 19B following that boundary northwest along the Naskaupi River to Caribou Lake, latitude 54° 22' 25" longitude 62° 14' 17"; Then north along a common boundary with Management District 22 to the place of commencement.

Appendix II

Government of Newfoundland and Labrador
Department of Fisheries, Forestry and Agriculture

Environmental Protection Guidelines

for Forestry Operations in Newfoundland and Labrador

Date effective: January 01, 2021

Forestry and Wildlife
Branch Forest Ecosystem
Management Division

DOC/

Copies of this publication may be obtained free of charge from:

Department of Fisheries Forestry and Agriculture
Forestry and Wildlife Branch
Forest Ecosystem Management Division
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Corner Brook NL
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CONTENTS

FORWARD

The 2021 Environmental Protection Guidelines for Forestry Operations in Newfoundland and Labrador is an updated version of original guidelines developed in 1998. It has been developed through a consultative process with Forest Managers, Planners, Industry and other stakeholders throughout the province. These guidelines are intended to be stand level, on-the-ground procedures to be used by Forest Managers and operators to ensure sustainable use of the forest resource without degrading the environment. More specifically, the guidelines are designed to prevent and control degradation of soil, water, and vegetation in an effort to maintain healthy forest ecosystems.

The guidelines set out sound and practical measures and based the best available scientific information. To ensure the incorporation of new research findings and technologies, the guidelines will be reviewed periodically and adjusted to reflect new policies and procedures.

To facilitate use, the guidelines are structured by forestry activity and include sections on:

- harvesting;
- road construction;
- silviculture;
- forest protection;
- operations within protected water supply areas; and
- operations to reduce incidental take of migratory birds

Compliance with these guidelines will be monitored by Departmental

staff.

The Environmental Protection Guidelines will complement the *Newfoundland and Labrador Forest Service Planning Guidelines.* Broader, landscape level issues are addressed in the Provincial Sustainable Forest Management Strategy.

The Department of Fisheries, Forestry and Agriculture (FFA) will continue to use science as a basis for refining and implementing sustainable forest policies and practices in the province. In particular, the development of the Environmental Protection Guidelines will continue to be an evolving process within which FFA will incorporate the best available information about forest ecosystems and sustainable forest management concepts in a timely fashionthrough adaptive management and other innovative, scientific based approaches.

1. HARVESTING GUIDELINES

1.1. PLANNING OPERATIONS

1.1.1. PERMITS REQUIRED

1. When temporary water crossings are required to facilitate travel of harvesting equipment, the location and type of all water crossings must be submitted to the Department of Environment, Climate Change and Municipalities (ECCM). A permit is required from Water Resources Management Division of ECCM, for any water identified on the latest 1:50,000 topographic maps. A Letter of Advice is required from DFO for any alterations. Appropriate protection (i.e. the permit and Letter of Advice) is still required for streams greater than 2.0 metre in width, at its narrowest point from the high water mark, not found on the 1:50,000 topographic maps. The intent of these measures is to safeguard water quality and fish habitat.

2. All waste disposal sites require a valid permit under the *Environmental Protection Act*. Application for approval can be made by contacting the nearest Government Services Centre.

3. Timber harvesting is considered a development under the *Urban and Rural Planning Act,* and when this activity is proposed within a planning area boundary or within 400 meters of a protected road, a development permit is required from Service NL.

1.1.2. CONSULTATION REQUIRED

1. The Natural Areas Program of the Department of Environment, Climate Change and Municipalities will be consulted during the preparation of each District five-year operating plan. Where harvesting is proposed within one kilometer of an ecological reserve, wilderness reserve, provincial park or proposed reserve, Natural Areas will be expected to identify/discuss any concerns during the planning consultation process. New access roads will not be located within 500 metres of the boundary of an ecological reserve, wilderness reserve, provincial park or proposed reserve, without first consulting Natural Areas.

2. The Wildlife Division of FFA will be consulted on timber harvesting within woodland caribou habitat during the preparation of each District five-year operating plan.

3. Rare and listed flora will be protected through mitigation measures, in consultation with the Wildlife Division.

4. When specific forest cover is a requirement for the management of moose or other

wildlife species, such areas will be identified by the Wildlife Division.

5. The impacts of forest operations on Newfoundland Marten, *Martes americana atrata* (marten) have been an ongoing issue. Proposed forestry activities within known marten recovery areas require consultation with the Wildlife Division.

6. During the preparation of five-year operating plans, areas identified as "Sensitive Wildlife Areas" require consultation with the Wildlife Division.

7. The Provincial Archaeology Office (PAO) of the Department of Tourism, Culture, Arts and Recreation will be contacted during the preparation of the five-year operating plans to determine the location of historic resources and appropriate mitigation measures.

1.1.3. PLANNING

Planning forest operations for both Industry and Crown may include, but is not limited to:

- boundaries of protected public water supplies (if applicable);
- existing and proposed access roads;
- general location of extraction trails and landing locations;
- areas sensitive to erosion;
- buffer zones around water bodies;
- location of approved stream crossings;
- location of fuel storage;
- sensitive wildlife areas as shown in the five-year operating plan; and
- sensitive fish habitat (e.g. salmonid spawning and rearing areas) identified in consultation with Department of Fisheries and Oceans (DFO).

1.1.4. NUTRIENT POOR SITES

If it is deemed necessary to harvest nutrient poor sites such as those typed as poor or scrub within the Provincial Forest Inventory, all effort will be made to ensure such sites are regenerated.

1.2. CONDUCT OF OPERATIONS

1.2.1. MINIMIZING EROSION AND DISTURBANCE

1. When extraction trails and winter roads are to be constructed, soil disturbance and impacts on water bodies are to be minimized. The operator will use culverts and/or temporary bridges, depending on site conditions, in order to minimize erosion and sedimentation, avoid restricting stream flow, and ensure fish passage in fish-bearing streams. Erosion control measures, such as the laying down brush mats and the construction of diversion ditches for water run-off, are to be maintained while an extraction trail is in use. The trail is to be left in an environmentally acceptable condition thereafter. All temporary crossings are to be removed at the end of the operating season. As well, when an extraction trail is located on steep ground and is no longer in use, cut- off ditches and push-lanes must be created.

2. No more than 6 per cent of the forested floor within the harvested land base of an operating area can be disturbed by equipment. In situations where specific operating areas require more than 6 per cent disturbance to capture available timber, the operator is required to obtain approval and then rehabilitate the area (i.e., leave the area in a condition suitable for successful forest regeneration and growth) to reduce the total net disturbance to the 6 per cent maximum. **Disturbance is defined as per the Ground Disturbance Survey Guidelines developed by the Forestry & Wildlife Branch**.

3. Heavy equipment and machinery are not permitted in any waterbody, on a wetland or a bog, unless frozen, without a permit from Water Resources Management Division of the Department of Environment, Climate Change and Municipalities and without contacting the DFO Area Habitat Biologist.

4. In areas prone to erosion and silting:
    I. conduct winter logging (i.e. harvest during winter), or
    II. place slash on extraction trails if conventional equipment is operating in an area.

5. Any forestry operation that directly or indirectly results in chronic sedimentation under normal conditions entering a waterbody must be dealt with immediately by notifying either the DFO Area Habitat Biologist or the District Manager within 24 hours.

6. Woody material of any kind (i.e. trees, slash, sawdust, slabs, etc.) is not permitted to enter a waterbody. Depositing woody material on ice within the high water floodplain of any waterbody is also prohibited.

7. To minimize potential for erosion and sedimentation, temporary waterbody

crossings shall:

I. have stable approaches;
II. be at right angles, wherever possible, to the waterbody;
III. be located where channels are well defined, unobstructed, and straight;
IV. be at a narrow point along the waterbody; and
V. allow room for direct gentle approaches wherever possible

8. Extraction trails and landings shall not be established within 30 metres of a waterbody.

1.2.2. Archaeological Find

When an archaeological site or artifact is found, the *Historical Resources Act* requires that all development temporarily cease in the area and the discovery be reported to the Provincial Archaeology Office at (709) 729-2462. The Provincial Archaeology Office will respond immediately and will have assessment requirements and mitigation measures in place within seven days as agreed to by the Provincial Archaeology Office and the operator. Forestry activity can then continue.

1.2.3. Timing of Operations

1. Harvesting is not permitted within woodland caribou calving and post-calving areas from May 15 to July 31. Calving areas will be identified by the Wildlife Division and communicated to Forestry Branch during the five year plan development.

2. Harvest scheduling may be modified during the migration of wildlife (e.g., caribou, waterfowl, etc.) and during temporary wildlife concentrations. Areas of concern and mitigation measures will be identify as part of the five year planning process.

1.2.4. Leaving Buffers and Wildlife Trees

1. A 30 metre, no harvesting activity buffer zone shall be established around all water bodies that are identified on the latest 1:50,000 national topographic system (NTS) maps.

   Streams greater than two metres in width that do not appear on the NTS maps require a 30 meter buffer and can be identified using the below criteria:

   - The stream must have defined bottom;
   - banks that exceed 30 centimeters in depth:
   - meets or exceeds an average 2 meters in width measured at 40 meter intervals over a 200 meter distance along the stream.

2. Where the slope is greater than 30 per cent there shall be a no harvest buffer of 30 metres plus 1.5 times per cent slope. All equipment or machinery is prohibited from entering waterbodies; thus, structures must be created to cross over such waterbodies for the protection of aquatic habitat. Every reasonable effort will be made to identify intermittent streams, and they will be subject to this buffer

requirement.

The District Manager must adjust the specified buffer requirements in the following circumstances:

I. The no harvesting activity buffer can exceed the 30 meters for sensitive fish habitat (e.g., salmonid spawning habitat).

II. A 50 metre, no harvesting activity buffer will be maintained around known black bear winter denning sites or those encountered during harvesting. These den sites must be reported to the Wildlife Division.

III. No forestry activity is to occur within 800 metres of an active bald eagle nest or osprey nest during the nesting season (March 15 to July 31) and 200 metres during the remainder of the year. For other raptor species like hawks, falcons, and owls, no forestry activity is to occur within 160 metres of a known nest at any time of the year. The location of any raptor nest site must be reported to the Wildlife Division. Travel on established access roads **outside** a 200m of an active nest is a permitted activity, including forwarding of harvested timber, with the requirement that if roads/ trails are in use for two weeks or longer between March and July, the nest must be monitored and a summary of breeding success and travelling activities with appropriate mapping be emailed to WD at the end of trail usage or end of July, whatever comes first.

IV. All hardwoods within 30 metres of an active beaver lodge are to be left standing.

V. A minimum 50 metre, no-cut buffer will be maintained from the high water mark in Sensitive Wildlife Areas for waterfowl including breeding, moulting and staging areas. These sites will be identified by the Canadian Wildlife Service (CWS) or the Wildlife Division.

3. A minimum average of 10 snags (i.e., standing dead trees) or other suitable living trees per hectare shall be left individually or as small clumps on sites identified as habitat for wildlife (i.e., nesting and perching sites for birds, den sites for particular wildlife species, etc.). Preference should be given to the largest trees (i.e., standing dead trees or live hardwoods). Research has shown that larger diameter snags are more valuable (last longer and contribute more to the biomass pool) than smaller diameter snags. Consequently, the trees retained should be ones which are from the dominant or co- dominate portion of the stand and be left in a fairly evenly distributed manner.

1.2.5. Petroleum Products

1. In the event of a spill and/or leak of petroleum products, the owner or operator must make every effort to first; contain and second; clean up the spill. Spills in excess of 70 liters and **all leaks**, must be reported by calling the following spill report line:

Environmental Emergencies Spill Report Line
Canadian Coast Guard
(709) 772-2083 collect or 1 (800) 563-9089

In this province, spills and leaks must be remediated in accordance with the Guidance Document for the Management of Impacted Sites prepared by Pollution Prevention Division of ECCM. (Appendix I)

2. No heavy equipment or machinery is to be refueled, serviced, or washed within 30 metres of a waterbody. Gasoline or lubricant depots must be placed at least 100 metres from the nearest waterbody. All fuel-storage tanks must be registered with Service NL and installed in accordance with the *Storage and Handling of Gasoline and Associated Products Regulations*, 2003 as amended, under the *Environmental Protection Act*.

3. Used oil storage, handling and disposal is to comply with the *Used Oil Control Regulations*, NLR, 82/02 under the *Environmental Protection Act*.

4. Above ground fuel storage tanks shall be registered with Service NL and have appropriate approvals for tank design. Construction and installation standards are clearly listed in section 27 of the Storage and *Handling of Gasoline and Associated Products Regulations*, 2003 as amended, under the *Environmental Protection Act*.

5. Contaminated soil or snow must be disposed of at an approved treatment facility.

1.2.6. Clean up of Site

Waste material is to be disposed of at an approved waste disposal site with the prior permission of the owner or operator. Prior to disposal it must be contained in a manner not to attract wildlife. All equipment and waste materials are to be removed from the operating area when operations are completed.

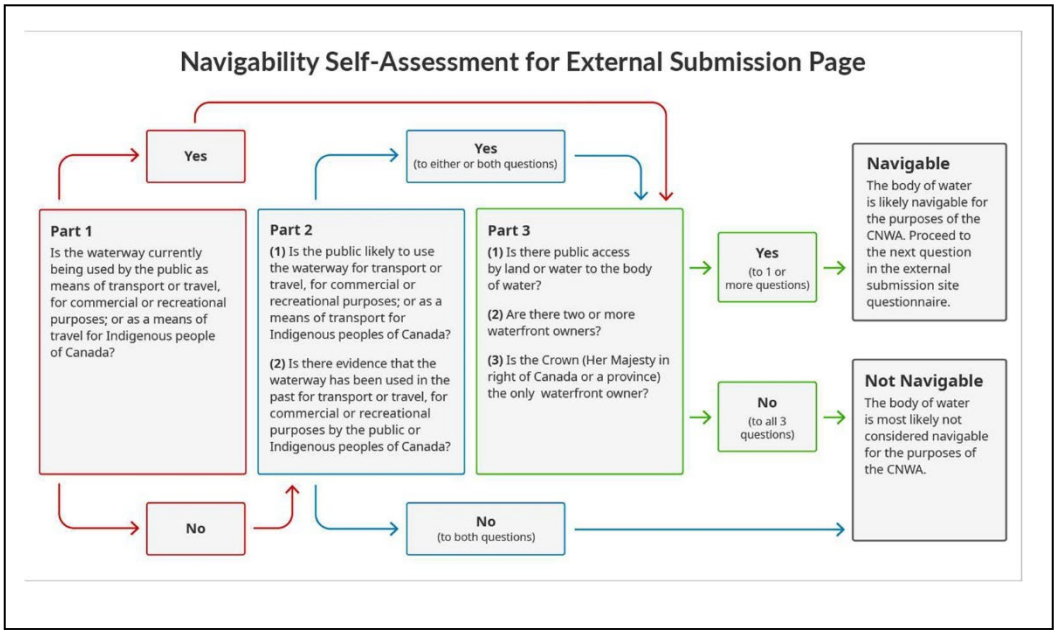
2. FOREST ACCESS ROAD GUIDELINES

2.1. PLANNING OF ROADS

2.1.1. PERMITS REQUIRED

1. Any alteration within 15 metres of a natural waterbody (i.e. any water identified on the latest 1:50,000 NTS map) or development within a protected public water supply area, will require prior approval by the Water Resources Management Division of the ECCM. For alteration of a waterbody, a permit is required under Section 48 of the *Water Resources Act*, SNL 2002 cW-4.01. For any development in a protected public water supply area a permit is required under Section 39(6) of the *Water Resources Act*, SNL 2002 cW-4.01. Alteration of a waterbody may include culvert installations, temporary or permanent stream crossings, outfalls, infilling; and bridge, dam, and wharf construction. A Letter of Advice is also required from DFO for any alterations. Appropriate protection (i.e. the permit and Letter of Advice) is still required for streams greater than two metre in width not found on the 1:50,000 topographic map (using stream criteria as indicated in 1.2.4.1).

2. In addition to approvals from Water Resources Management Division and DFO, approvals from Transport Canada are required for culverts, bridges and abutments on navigable waters (i.e. any waterbody capable of being navigated by floating vessels of any description for the purpose of transportation, commerce or recreation. This includes both inland and coastal waters). Transport Canada's Navigability Self- Assessment Tree must be utilized for each project to determine if a stream is Navigable or Not Navigable.



3. Resource road construction or any forestry activity is considered a development under the *Urban and Rural Planning Act*. Where this activity occurs within a planning area boundary or within 400 metres of a protected road, a development permit is required from Service NL before any activity takes place.

2.1.2. Areas to Avoid

Forest access roads, borrow pits, and quarries, whenever possible shall avoid:

I. deltas, floodplains or fluvial wetlands;
II. terrain with high potential for erosion;
III. known sensitive wildlife areas such as:
    a. caribou areas (i.e. calving, post calving, migrations routes, rutting areas, and winter areas);
    b. waterfowl areas (i.e. nesting and staging areas);
    c. raptor nest sites; and
    d. species at risk habitat, rare flora or fauna habitat, and other unique habitats as determined by qualified authorities.
IV. known sensitive fish habitat areas such as spawning and rearing grounds;
V. historically significant areas such as archaeological sites;
VI. existing reserves such as parks (municipal, provincial, national), wilderness areas, ecological reserves and wildlife reserves; and
VII. riparian buffer areas.

2.1.3. Waterbody Crossings

Waterbody crossings shall:

I. have stable approaches;
II. be at right angles, wherever possible, to the waterbody;
III. be located where channels are well defined, unobstructed, and straight;
IV. be at a narrow point along the waterbody; and
V. allow room for direct gentle approaches wherever possible.

2.1.4. Burrow Pits and Quarries

With respect to borrow pits and quarries, the operator shall wherever possible, avoid:

I. minimize the number of new borrow areas opened for construction and/or maintenance;
II. use existing borrow pits whenever practical;
III. be in possession of a valid quarry permit from the Mineral Lands Division of Department of Natural Resources and FFA, for borrow pits outside resources roads right of way, prior to aggregate extraction activities as per the *Quarry Materials Act*, and

IV. not locate borrow pits and quarries in sensitive areas as identified by planning processes.

2.1.5. Wildlife Values

1. Wherever possible, forest access roads shall not obstruct wildlife movement. The following guidelines should be followed:
    a. roads should be of low profile (i.e. less than one metre above the surrounding terrain);
    b. slash and other debris shall be removed or buried; and
    c. the slope of ditches and road banks shall be minimized.

2. Where road construction is to occur around identified waterfowl breeding, moulting and staging areas, mitigating measures will be identified during the 5 year planning process.

2.1.6. Road Access

1. Areas proposed for harvest using winter roads shall not be harvested without a reforestation plan approved in the Certificate of Managed Lands.

2. A regeneration survey is required for all forest areas that will be affected by access due to road decommissioning and bridge or stream crossing removals. Prior to decommissioning, an approved reforestation plan by the Silviculture and Research Section of the Forest Ecosystem Management Division is required for all areas that fail to meet the provincial silviculture stocking standards.

2.1.7. Decommissioning Roads

On a site specific basis, roads may be decommissioned. Levels of decommissioning include:

I. barring access;
II. removal of watercourse crossings; and
III. restoration of roadway including planting of trees.

Decommissioning is identified through the five year plan development or under compelling circumstances, as decided by FFA (e.g. emergency closures).

2.2. Construction and Decommissioning of Roads

2.2.1. Road Construction

1. There shall be no bulldozing or burying of merchantable timber or poor utilization of merchantable softwoods and hardwoods during the cutting of road right-of-way's. All merchantable timber shall be utilized and processed.

2. Where brush mat or corduroy is required, sub-merchantable or non-merchantable stems should be used first. In the event these are not available or sufficient, permission must be obtained from a Forestry Official prior to merchantable stems being utilized. Stems are to be placed in a "butt to top" alternating fashion for the entire length of the area to be brush matted.

3. Earth shall be excavated as required to complete earth cuts, ditching, and sub-excavation, and shall include hauling, handling and disposal as directed. Only with the approval of the Engineer or Inspector may excavation occur outside the limits of the roadway for the purpose of obtaining suitable or sufficient material to complete embankments. All holes and pits are to be rehabilitated.

4. Fill materials for road building must not be obtained from any waterbody, from within the floodplain of any waterbody, or within the 30 metres of a no-grub zone.

2.2.2. Pits and Quarry Activity

1. Where borrow pit or quarry activity is likely to cause sediment, laden runoff to contaminate a waterbody, sediment control measures such as filter fabric berms or sedimentation ponds are to be installed. Contact is to be made with a Forestry Official prior to construction where such conditions exist.

2. Overburden or grubbed material pushed off any gravel pit site must be retained in a manner that allows it to be pushed back into the pit after construction and spread in a neat and tidy fashion.

3. Existing pits are to be used, where possible, to minimize the opening of new pits.

4. Borrow pits are to be located at least 50 metres from the nearest waterbody.

2.2.3. Working near Waterbodies and Instream Work

1. A "no-grub zone" of 30 metres of undisturbed ground vegetation must be maintained around any waterbody crossing to minimize the damage to the lower vegetation and organic cover, thus reducing erosion potential.

2. Trees are to be felled away from all waterbodies. Slash and debris should be piled above the high water mark so that it cannot enter waterbodies during periods of peak flow.

3. Right-of-way widths at waterbody crossings should be kept to a minimum, preferably to the width of the driving surface plus water control features.

4. Unnecessary side casting or backfilling in the vicinity of waterbodies is not

permitted. Where topographical constraints dictate that the roadbed must be constructed adjacent

to a waterbody, road slope stabilization is to be undertaken at the toe of the fill (an area where active erosion is likely). The placement of large riprap, armour stone or slope stabilization material is recommended in such areas.

5. Take-off ditching should be used on both sides of the road or in conjunction with culverts to divert the ditch flow off into the woods or stable vegetation areas before reaching the waterbody. The ditch itself shall not lead directly into the waterbody.

6. Grades in excess of 10 per cent shall have culverts with baffle or ditch blocks on one end and cut-off ditches every 150 meters along the road. Baffle or ditch block can be constructed from gabion baskets, wooden structures, rock walls or other approved materials. Unless otherwise specified, the height of the baffle shall be a minimum of one-half the diameter of the culvert requiring the baffle.

7. When working near waterbodies, road building operations causing erosion or siltation are to be suspended during periods of intense rainfall or when soils are saturated.

8. Any forestry operation that directly or indirectly results in sediment or turbid water entering a waterbody must be dealt with immediately. (See Guideline 1.2.2.5 for further information.)

9. Fording of equipment for stream crossing installation is to be kept to a minimum. Equipment activity in water crossing areas is to be kept to a minimum. All work is to be carried out from dry stable areas. Permission for exceptions must be obtained from DFO.

10. Heavy equipment and machinery is not permitted in any waterbody, on a wetland or a bog, unless it is frozen, without a permit from ECCM and without contacting the DFO Area Habitat Biologist.

11. Exposed mineral soil shall be stabilized during bridge construction and culvert installation.

12. All instream work is to be performed as per the DFO March 1998 “Guidelines for Protection of Freshwater Fish Habitat in NL.” Marine Environment and Habitat Management Division Science Branch.

13. Coffer dams are to be used to separate work areas from the stream when installing bridges or similar structures requiring abutments, or footings.

14. Water pumped from work areas and coffer dams is to be directed into a settling

pond or stable vegetation areas.

15. Not more than one third of the stream width is to be blocked at any one time.

16. The stream banks are to be rehabilitated upon completion and removal of a coffer dam.

17. All culverts, in fish bearing streams, are to be installed as per the DFO March 1998 "Guidelines for Protection of Freshwater Fish Habitat in NL." Marine Environment and Habitat Management Division Science Branch.

18. In fish bearing streams;
    a. culverts having a diameter equal to or exceeding 2000 millimetres should be countersunk a minimum of 15 per cent of the diameter below the streambed elevation;
    b. a minimum water depth of 200 millimetres should be provided throughout the culvert length. To maintain this water depth at low flow periods an entrance or downstream pool should be constructed; and
    c. downstream outlet pools are of particular importance for long culverts or culverts to be installed on steep slopes.

19. Work to be competed in the stream bed, should be scheduled to avoid potential adverse impacts on spawning activities, egg incubation, spawning habitat and fish migration. It should also be done in consultation with the DFO Area Habitat Biologist.

2.2.4. Archaeological Find

When an archaeological site or artifact is found, the condition in Guideline 1.2.2 will apply.

2.2.5. Petroleum Products

In the event of a spill or leak of petroleum products, see Guideline 1.2.5.1 for further details. Guidelines 1.2.5.2 to 1.2.5.5 relating to petroleum products also apply in road construction and decommissioning operations.

2.2.6. Winter Roads

As with all season roads, soil disturbance and impacts on waterbodies are to be minimized with winter roads. Culverts or temporary bridges are to be used. Erosion control measures are to be maintained while the winter road is in use. After use, it is to be left in an environmentally acceptable condition. All temporary crossings are to be removed at the end of the operating season and an inspection is to be conducted by a Forestry Official, engineer or other qualified person. This inspection is to ensure any required remediation has been completed.

2.2.7. Decommissioning Roads

1. When roads are decommissioned or barred by gating or ditching or placement of obstacles, appropriate signage warning of any hazardous condition shall be placed in open view.

2. When decommissioning is through removal of watercourse crossings, areas adjacent to former culverts or bridge locations shall be stabilized to reduce potential for erosion. Appropriate signage shall also be placed.

3. When decommissioning roads by replacing soil, overburden and other natural obstacles on former roadway, so as to deny vehicular access and to enable planting in order to restore productive forest on the site, standard precautions such as silt fencing shall be used to prevent entry of silt in waterways.

4. Decommissioning shall not be undertaken until all necessary reforestation activities beyond the decommissioning point has taken place.

3. SILVICULTRUAL GUIDELINES

3.1. Silviculture Planning

3.1.1. Permits Required

Silviculture is considered a development under the *Urban and Rural Planning Act*. Where this activity occurs within a planning area boundary or within 400 metres of a protected road, a development permit is required before any activity can occur.

3.2. Conduct of Silviculture Operations

3.2.1. Preventing Erosion

To prevent erosion on sites proposed for row scarification, every effort should be made to follow the contours where slopes exceed 15 per cent. If in such instances scarification has to occur parallel to the slope, the scarified trenches are to be intermittent (i.e. for every 20 metres of trench, an un-scarified section two metres m in length should be left).

3.2.2. Protection of Waterbodies

1. Unless frozen, heavy equipment and machinery is not permitted in any waterbody, on wetland or a bog without a permit from ECCM and without contacting the DFO Area Habitat Biologist.

2. Any forestry operation that directly or indirectly results in sediment and/or turbid water entering a waterbody must be dealt with immediately. See Guideline 1.2.1.5 for further information.

3. Trees thinned during pre-commercial thinning, diameter limit thinning, commercial thinning or any other silviculture treatment shall not be felled into waterbodies.

3.2.3. Placement of Windrows

When slash is piled into windrows, it should be located where the slash cannot be washed into streams at peak flooding conditions.

3.2.4. Tress Left for Wildlife and Other Values

1. There is to be no cutting of Eastern White Pine, *Pinus strobus* or Red Pine *Pinus resinosa*.

2. Hardwood species, such as birch, are to be left when encountered in a stand scheduled for thinning where these do not compete with the conifer crop trees. Portions of thinning areas which are pure hardwood may be left unthinned when encountered. In mixed regeneration, various hardwood or softwood species may be favoured in future stand development in accordance with management objectives stated in the approved operating plan for the area.

3.2.5. Timing of Silviculture

Where possible, silviculture operations are to be reduced or avoided in areas identified by the Wildlife Division during the periods of birth and hatching.

3.2.6. Archaeological Find

When an archaeological site or artifact is found, the condition in Guideline 1.2.3 will apply.

3.2.7. Fuels and Petroleum Products

1. In the event of a spill or leak of petroleum products, see Guideline 1.2.5.1 for further details.

2. Guidelines 1.2.5.2 to 1.2.5.5 relating to petroleum products also apply in silviculture operations.

3.2.8. Scarification Method

Where mechanical site preparation is required, the method selected shall be best suited for preparing the area for planting and for minimizing ground disturbance.

3.2.9. Choice of Species to Plant

In planting situations, the use of native species is preferred. However, in certain situations, use of non-invasive, exotic species, such as those which have been established in the province for decades, or those which may come under future review, may be planted.

4. FOREST PROTECTION GUIDELINES

4.1. PLANNING FOR THE APPLICATION OF PESTICIDES (INSECTICIDES AND HERBICIDES)

4.1.1. REGULATION OF PESTICIDES

The use of pesticides is regulated federally by Health Canada and provincially by MAE. The federal *Pest Control Products Act* states which products are registered for use in Canada, and the provincial *Environmental Protection Act, Pesticide Control Regulations* outlines licensing requirements and the conditions under which they can be purchased, sold or handed.

4.1.2. LICENCES REQUIRED

1. To apply pesticides in the province, two licences are required from the Pollution Prevention Division of ECCM. The first is a Pesticides Operators Licence which is issued for a specific program and valid for five years. To obtain this licence, the applicant must submit project details including a map of the area to be treated, product to be used, and time of the year to be used. Following the completion of the project, a report must be submitted to MAE. The second licence required is a Pesticide Applicators Licence. To obtain this licence, the applicator must complete an exam. Only people in possession of this licence may use the pesticide. It is valid for a period of five years.

2. To apply herbicides, the same conditions apply as above. An Operator's Licence must be obtained for the project and is valid for five years. In addition, each member of the crew involved with application of the herbicide must complete an exam and obtain a Pesticide Applicators Licence.

3. A third program which requires an Operator's Licence and a Pesticide Applicators Licence is the tree nursery program which may use pesticides to grow seedlings. Again the same conditions apply.

4.2. CONDUCT OF OPERATIONS

4.2.1. PESTICIDE USE

Only bio-degradable pesticides will be used and only as part of an integrated pest management strategy.

5. GUIDELINES FOR FORESTRY OPERATIONS WITHIN PROTECTED PUBLIC WATER SUPPLY AREAS

The primary function of a Protected Public Water Supply Area (PPWSA) is to provide the public with an adequate quantity of safe and good quality water on a permanent basis and to meet its present and future demands. By definition, a Protected Public Water Supply Area is the area of land and water designated as a Protected Public Water Supply Area, for a municipal authority operating a waterworks or using or intending to use a water sources, under Section 39 of the *Water Resources Act.* Any other activity within a Protected Public Water Supply Area is considered secondary, and if permitted, must be strictly regulated and monitored to ensure that the water supply integrity is not threatened and the quality of the water is not impaired.

In Newfoundland and Labrador forestry operations are permitted in most Protected Public Water Supply Areas on a limited and controlled basis provided the proposed operations have no or minimal, water quality impairment potential. More specifically, commercial forest harvesting of more than 10 per cent of the total land area of the Protected Public Water Supply Area, or 10 per cent of the total merchantable timber; whichever is less, in any 12 month period will not be permitted.

The following permits and approvals are required prior to the beginning of any forestry operations, whether commercial or domestic operations, and includes road construction, silviculture activities, and harvesting within a Protected Public Water Supply Area:

I. Approval of the Five-year operating plan by the Environmental Assessment Division of MAE,
II. Issuance of a permit under section 39(6) of the *Water Resources Act* which will include consultation with the community involved. Applications for development inside Protected Public Water Supply Area can be obtained from the Water Resources Management Division website (Appendix I).

5.1. CONDUCT OF OPERATIONS

All permits and contracts should include any conditions outlined under section 39(6) of the *Water Resources Act*. In addition to environmental guidelines specified in sections above, the following will apply in Protected Public Water Supply Areas.

5.1.1. MAP OF OPERATING AREA

The appropriate Forestry or Company official will provide the operator with a map indicating the harvesting area and the location of no-cut buffer zones, and will ensure the operator is familiar with the boundaries and conditions of the approved detailed plan of operations.

5.1.2. PREVENTION OF EROSION

In areas sensitive to erosion, depending on the nature and location of the proposed forestry operation, the Water Resources Management Division may not permit the activity to take place. However, where permitted, the following mitigation measures should be put in place:

1. Sensitive areas prone to erosion and areas which have high potential for erosion can be harvested if proper harvesting and site restoration techniques are a part of a detailed plan.
2. Wherever possible, extraction trails should run along contours and avoid wetlands.
3. Use of landings will be minimized. Any approved landing area shall be less than 0.25 ha and located at least 150 metres from Protected Public Water Supply intake ponds.

5.1.3. Buffer Zones

No ground disturbance riparian buffer zone requirements in Protected Public Water Supply Areas are as follows:

Water Body	Width of Buffer
Intake Pond, Lake or Reservoir	Minimum 150 metres
River Intake (for a distance of 1000 metres upstream and 100 meters downstream)	Minimum 150 metres
Main River Channel	Minimum of 75 metres
Major Tributaries, Lakes or Ponds	Minimum of 50 metres
Other Waterbodies	Minimum of 30 metres

Any deviation will require approval from Water Resources Management Division.

5.1.4. Petroleum Products

Fuel storage and the operation of fuel storage equipment are regulated by the *Storage and Handling of Gasoline and Associated Products Regulations*, 2003 as amended and the *Heating Oil Storage Tank System Regulations*, 2003 as amended.

In addition to the above regulatory requirements and Sections 1.2.5.1 to 1.2.5.5 the following are to be adhered to;

I. If fuel must be stored in the Public Protected Water Supply Area, it must be in the least sensitive area and be approved by the Water Resources Management Division.
II. Refueling must not take place within 150 metres of an intake pond.
III. All tanks must be located at a minimum distance of 500 metres from any major waterbody.
IV. A fuel or oil spill clean-up kit must be kept on site to facilitate any clean-up in the event of a spill. This kit must include absorbent pads, loose absorbent materials such as dried peat, speedy-dry or sawdust, a container such as an empty drum for recovering the fuel or oil, and a containment boom.

5.1.5. Structures Prohibited in Water Supply Area

1. Dormitory camps, garages or any other structures are prohibited within a Protected Public Water Supply Area.

2. The establishment of new sawmills is not permitted in Protected Public Water Supply Areas.

5.1.6. Reporting Water Quality Problems

Any water quality impairment problem should be reported immediately to the Water Resources Management Division.

6. GUIDELINES FOR FORESTRY OPERATIONS TO REDUCE INCIDENTAL TAKE OF Migratory Birds

In Canada migratory birds, nests and eggs are protected under the Migratory Bird Convention Act (MBCA). Currently, the inadvertent harming, killing, disturbance or destruction of migratory birds, nests, and eggs often referred to as "incidental take", may be considered a violation under the MBCA and its regulations.

Bird nests occur in virtually every stand logged during the nesting season, which can run from mid-April through mid-August each year in Newfoundland and Labrador. This places forest operations in direct conflict with the MBCA during nesting season, with no opportunity to obtain a permit for authorization. Shutting down forest operations for this period would have huge economic and social implications.

Beneficial Management Practices (BMP) are designed to reduce risk of incidental take by making forest operators aware of their responsibility in the following areas:

I. Knowledge of Legal Obligations
II. Risk Assessment and Planning
III. Preventative and Mitigation Measures

BMPs in this document apply to commercial forest operations during the migratory bird breeding season in Newfoundland and Labrador. Operations include the construction and maintenance of forest access roads, timber removal and transportation activities, silviculture related activities and forest harvesting.

6.1. Knowledge of Legal Obligations

During planning, and immediately before implementation of operations, forest operators must familiarize themselves with the current legislation for the protection of migratory birds, their nests and their eggs. Section 6 subject to subsection 5(9) of the *Migratory Bird Regulations* and Section 75 of the *Wild Life Regulations* outline the responsibilities of operators concerning this.

Forest operators are also responsible for the protection or avoidance of species listed under the *Species at Risk Act* (SARA) or the *Endangered Species Act* (ESA).

6.2. RISK ASSESSMENT AND PLANNING

Planning ahead can help you comply with the law and minimize the risk of detrimental effects to migratory birds. Assessing the risks of effects is the first step for developing appropriate prevention and mitigation measures that help maintain sustainable populations of migratory birds.

In order to help ensure that you are complying with legal obligations, you should first determine the likelihood of the presence of migratory birds and their nests or eggs when planning activities to be carried out. It is recommend to use scientifically sound approach that considers the available bird habitats, the migratory bird species likely to be encountered in such habitats, and the time period of encounters. You should plan to avoid engaging in potentially destructive or disruptive activities at key locations or during key periods, such as the breeding season.

6.3. PREVENTATIVE AND MITIGATION MEASURES

Planning To prevent incidental take of migratory birds during forestry operations it is recommended to schedule activities to reduce disturbance during the migratory bird breeding season. The breeding season for most migratory birds within the province occurs between April 15th and August 15th, though some species do nest outside of this time period.

Shutting down logging operations for this period would have huge economic and social implications including:

I. Mills may not be able to hold inventory for 4 months.
II. Keeping the workforce in forestry.
III. Cannot avoid planting or thinning during the nesting season as it is our legal obligation for reforestation.
IV. Summertime harvest is sometimes recommended to maintain other values.
V. Some areas can only be accessed and logged during the summer months.

In cases where forestry activities have to take place during the breeding season of migratory birds it is recommended that practices are conducted in a manner that:

I. Minimizes fragmentation and maintains interior forest habitat.
II. Maintains forest structure in seral stages including understory vegetation, standing residual materials, and downed coarse woody debris.

III. Uses methods that promote natural regeneration in order to maintain forest structure, including understory vegetation.
IV. Ensures no net loss of wetland function in forests.
V. Ensures that large snags are left standing in cutblocks, as a source of nesting cavities.
VI. Maintains hardwood stands within the cutblock.
VII. Maintains contiguous areas of uncut forests as control areas and reserves.

APPENDIX I

RESOURCE MATERIAL

Development Applications in Protected Public Water Supply Areas

http://www.env.gov.nl.ca/env/waterres/regulations/appforms/index.html

Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Labrador

http://www.dfo-mpo.gc.ca/Library/240270.pdf

Guidance Document for the Management of Impacted Sites

http://www.env.gov.nl.ca/env/env_protection/ics/Guidance_Document_For_the_Management_of_Impacted_Sites_V2.0_Feb_6_2014.pdf

FEDERAL LEGISLATION

Canada Fisheries Act

http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html

Canada Navigable Waters Protection Act

http://laws.justice.gc.ca/eng/acts/N-22/

Canada Species at Risk Act

http://laws-lois.justice.gc.ca/eng/acts/s-15.3/

PROVINCIAL LEGISLATION

Newfoundland and Labrador Endangered Species Act

http://www.assembly.nl.ca/Legislation/sr/statutes/e10-1.htm

Newfoundland and Labrador Environmental Protection Act

http://www.assembly.nl.ca/legislation/sr/statutes/e14-2.htm

Newfoundland and Labrador Forestry Act

http://www.assembly.nl.ca/legislation/sr/statutes/f23.htm

Newfoundland and Labrador Historical Resources Act

http://www.assembly.nl.ca/legislation/sr/statutes/h04.htm

Newfoundland and Labrador Quarry Material Act, 1998

http://www.assembly.nl.ca/legislation/sr/statutes/q01-1.htm

Newfoundland and Labrador Urban and Rural Planning Act, 2000

http://assembly.nl.ca/Legislation/sr/statutes/u08.htm

Newfoundland and Labrador Wildlife Act

http://www.assembly.nl.ca/Legislation/sr/statutes/w08.htm