A Component of British Columbia's Land Use Strategy

Kalum Land and Resource Management Plan

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EXECUTIVE SUMMARY

The Kalum Land and Resource Management Plan (LRMP) encompasses 2.2 million hectares in Northwestern British Columbia. The plan represents the consensus reached by the participants of the Kalum LRMP planning table and the Provincial government decision regarding three areas where participants were unable to reach agreement. The plan is the result of a two phase process which started in 1992. The table was comprised of public stakeholders, First Nations and provincial and local government representatives. The Kalum LRMP is consistent with provincial government policy for land use planning, as described in the Provincial Land Use Charter (1992) and the policy document Land and Resource Management Planning, A Statement of Principles and Process (1993). There are three main sections to the plan: Description of the Plan Area, Management Direction, and Implementation and Monitoring.

1. Description of the Plan Area and Process

This section details the physical, social, and economic profile of the plan area and its communities. There is also a description of the 'process', including participation, the integration of Phase 1 of the LRMP, and the Thunderbird Integrated Resource Management Plan.

2. Management Direction

The plan creates three categories of management direction for the LRMP area: General Resource Management (GRM), Resource Management Zone (RMZ), Protected Areas.

The GRM direction represents a baseline for resource activities on all Crown land outside Protected Areas. RMZ direction applies to geographically specific areas with distinct biophysical characteristics and resource issues. The GRM direction applies to all RMZs. RMZ direction provides additional management emphasis to those areas.

A. General Resource Management Direction

GRM direction applies to all values and resources on provincial Crown land and is a baseline for management. Objectives and strategies in GRM apply throughout the LRMP area, outside of Protected Areas. The following resources and resource values are addressed in GRM direction;

Access Management	Fish and Fish Habitat
Agriculture	Fresh Water
Aquaculture and Marine Plant Harvesting	Outdoor Recreation
Biodiversity	Timber Harvesting and Silviculture
Botanical Forest Products	Tourism
Coastal Resources	Trapping

Cultural Heritage	Ungulate Winter Range
Geological and Energy Resources	Visual Resources
Grizzly Bear	Wildlife and Wildlife Habitats

B. Resource Management Zone Direction

The planning table has identified eleven RMZs which are distinct in terms of their biophysical characteristics and resource issues;

Non-Motorized Backcountry Recreation	Upper Kitsumkalum
Marine Backcountry Recreation	Kowesas
Community Watersheds	Ascaphus Creek
Grizzly Bear Benchmark and Linkages	Upper Copper River
Lakelse River	Settlement Zone
Miligit Valley	

GRM direction applies in these zones. However, additional objectives and strategies were developed for certain resources or activities to reflect the specific values in each zone.

C. Protected Areas

These are areas that have been identified for their natural, cultural heritage and/or recreational values, in accordance with the Provincial Protected Areas Strategy.

Logging, mining and hydroelectric development are prohibited in all Protected Areas. A set of general objectives and strategies, including acceptable uses separate from the GRM direction, has been developed to guide management within new Protected Areas.

In total, the following twenty new Protected Areas have been approved, in addition to previously existing Provincial Parks, Recreation Areas and Ecological Reserves:

Brim River	Kitsumkalum Lake North
Coste Rocks	Lakelse Lake wetlands (south end)
Dala/Kildala River Estuaries	Lower Skeena River sites (islands at mouth of Exstew and Kasiks Rivers)

Eagle Bay	Lundmark Bog
Exchamsiks River Park Expansion	Nabeelah Creek wetlands
Foch/Giltoyees Watersheds	Owyacumish River
Hai Lake – Mount Herman	Sleeping Beauty Mountain Area of Interest
Weewanie Hotsprings	Sue Channel/ Hawkesbury Island
Jesse Falls	Swan Creek
Kitimat River Ecological Reserve	Sue Channel/Loretta Island

Together these areas comprise approximately 67,397 hectares (3.2%) of the LRMP area. In addition the Gitnadoix Recreation Area (57,760 hectares or2.67% of the plan area) has been approved as Protected Area.

Together, existing and new Protected Areas comprise approximately 462,956 hectares or 21.46% of the LRMP area.

Two newly proposed Protected Areas (Exchamsiks and Brim River, totaling 2553 ha) include provisions for access through the protected area to support mineral exploration and development, where no practicable alternative for access exists.

3. Implementation and Monitoring

Implementation of the Kalum LRMP is the responsibility of provincial government agencies. An LRMP Monitoring Committee, including public stakeholders, First Nations, local and provincial government representatives, will be involved in reviewing plan implementation to ensure that the intent of the plan is being met. The Prince Rupert Interagency Management Committee will regularly produce a monitoring report summarizing implementation progress and effectiveness.

AKNOWLEDGEMENTS

The Kalum Land and Resource Management Plan has been the achievement of a number of significant players that should be acknowledged. First and foremost the project team is

particularly thankful for the tremendous work and commitment undertaken by the Kalum LRMP Table and First Nations liaisons for their many years supporting this initiative. These individuals, representing the many facets of the local communities, have put in many volunteer hours that have resulted in the approved Kalum LRMP.

This project was initiated by the Government of British Columbia as part of the province's strategic land use planning policy. In this respect, the project team wishes to acknowledge the project advice provided by Elizabeth Zweck, Program Manager for the Prince Rupert Interagency Management Committee (IAMC).

The Kalum LRMP Interagency Planning Team (IPT) consisted of a number of key individuals from designated ministries: Dave Bewick and John Perras from the Ministry of Forests, Karen MacDowell and Peter Levy of BC Parks, Kathy Stuart and Len Vanderstar from BC Environment, Joe Truscott of Ministry of Fisheries, and Mary Lou Malott from the Ministry of Energy and Mines. The IPT played a key role in providing technical expertise, agency policy perspectives and problem solving to the Kalum LRMP.

Finally, to the Process Team who ensured that the process continued to move forward. The coordinators, assistants, facilitators, administrative support, Geographic Information Systems technicians and other associated contractors all played instrumental roles in ensuring that this plan would be realized.

1. INTRODUCTION

The Kalum Land and Resource Management Plan (LRMP) is a sub-regional land use plan covering approximately 2.2 million hectares of land in northwestern British Columbia. The plan directs the management of public lands and resources for the Kalum Timber Supply Area (TSA), and Tree Farm Licenses (TFL) 1 (Skeena Cellulose) and 41 (West Fraser).

The plan represents the consensus, including resource management direction and zoning, reached by the participants of the Kalum LRMP planning table, and the Provincial governments decision regarding three areas where participants were unable to reach agreement. The planning table's recommendations were submitted to and approved by the Provincial Cabinet. The approved plan is now a component of British Columbia's Land Use Strategy and will direct the management of all Crown land in the plan area.

The plan is the result of a two phase process which started in 1992. The table was comprised of public stakeholders, First Nations and government representatives. The negotiating process considered all interests and values identified for provincial Crown land, as presented by stakeholders, interests groups, local government, First Nations and members of the public, as well as technical information provided by government agencies. The final plan, and the process used in its development, is consistent with provincial government policy for land use planning, as described in the *Provincial Land Use Charter* (1992) and the policy document *Land and Resource Management Planning: A Statement of Principles and Process* (1993).

Parts or all of the plan may be legally established and provide legally binding direction to resource development plans.

This plan will be subject to monitoring, and review and amendment, including a comprehensive public involvement process, as it is implemented.

This report contains:

- A description of the plan area, including social, economic and environmental characteristics;
- An overview of the planning process;
- Management direction for land use zoning and associated resource management objectives and strategies;
- Recommendations for plan implementation, monitoring and amendment.

1.1. The Plan Area

1.1.1. Physical Description

The Kalum LRMP area (**Map 1**), covering approximately 2.2 million hectares of land, is divided administratively in the following manner: approximately 0.6 million hectares in the Kalum Timber Supply Area (TSA) and approximately 1.5 million hectares in TFL 1 (Skeena Cellulose Inc.) and 41 (West Fraser Ltd.). For the most part, the Planning Area boundaries coincide with the boundaries of the southern portion of Kalum Forest District, one of six forest districts that comprise the Prince Rupert Forest Region. The Plan Area lies between the Cascade Mountains in the west and the Hazelton Ranges in the east and extends from Nisga'a Lands in the north, down to and including the Huchsduwachsdu Nuyem Jees / Kitlope Heritage Conservancy in the south. Major rivers include the Skeena, Kitimat, Nass, Lakelse, Kitlope, Copper, and Kalum

rivers. The marine areas of Douglas Channel and Gardner Canal also lie within the planning boundary.

The topography of the Kalum Plan Area is varied, from mountainous and rugged terrain in the south to the picturesque mountain valleys in the north. The landscape is dominated by the rugged Coastal Mountains, shining fjords, and salmon-bearing rivers. There are six major freshwater lakes: Lava Lake in the Nass drainage; Kitsumkalum, Allistair Lake and Lakelse Lakes in the Skeena drainage; Jesse Lake draining into Douglas Channel and Kitlope Lake in the Kitlope River system at the head of Gardner Canal. These large lakes and a number of small lakes within the area support significant fish populations.

A coastal climate dominates throughout the southern portions of the Kalum area with abundant rainfall and mild temperatures. An interior climate dominates the northern portions with drier summers and colder, longer winters. Forests of the area are dominated by western and mountain hemlock, amabilis and subalpine fir, sitka and Engelmann spruce, red and yellow cedar, and lodgepole pine. Deciduous species include cottonwood, trembling aspen, paper birch, and red alder.

The forests in the region are predominantly mature hemlock and balsam stands, but with significant areas of immature forest. The immature forests tend to be less than 30 years old, while many of the mature forests are over 300 years old and generally situated on medium to poor growing sites.

Extensive aggregate resources are found throughout the entire Kalum Plan Area. Large volumes of sand and gravel were deposited in the Kitsumkalum-Lakelse-Kitimat corridor during deglaciation at the end of the last ice age. The present day floodplains of the Kitimat, Skeena, Zymoetz and Kitsumkalum Rivers also contain large volumes of gravel and some sand.

The overall area comprises six eco-sections (see Table 1) and five biogeoclimatic zones (see Table 2).

TABLE 1: *Ecosections in the Kalum LRMP Plan Area*

Ecoprovince	Ecoregion	Ecosection	Amount of land (hectares)	Percentage of LRMP Area
Coast and Mountains	Coastal Gap	Kitimat Ranges	1,452,664	66.9%
	Nass Ranges	Nass Ranges	696,492	32.0%
	Nass Basin	Nass Basin	16,781	2.0%
	Northern Coastal Mountains	Alaskan Panhandle Mountains	2,875	0.7%
Central Interior	Bulkley Ranges	Bulkley Ranges	2,561	0.1%
Totals			***2,171,373***	***100%***

TABLE 2: *Proportion of Biogeoclimatic Units in the Kalum LRMP Plan Area*

Biogeoclimatic Unit	Total hectares in Plan Area	Percentage of Plan Area
Coastal Western Hemlock (CWH)	841,321 ha	38.9%
Mountain Hemlock (MH)	775,124 ha	35.6%
Alpine Tundra (AT)	467,981 ha	20.9%
Interior Cedar-Hemlock (ICH)	35,304 ha	1.6%
Englemann Spruce-Subalpine Fir (ESSF)	3,873 ha	.17%
Ocean	47,770 ha	2.1%
Totals	**2,171,373 ha**	**100%**

1.1.2. Social and Economic Description

Historic Land and Resource Use

Aboriginal peoples have used the planning area for thousands of years. Aboriginal village sites are located on major waterways, land benches and riparian areas, and along major trade routes between the coast and interior. Five First Nations people claim this area as their ancestral home: Tsimshian (Lax Kw'alaams, Metlakatla, Kitselas & Kitsumkalum), Nisga'a, Haisla, Gitxsan, and Gitanyow nations. The Tsimshian were the first known residents of the Skeena Valley area and visible remnants of those beginnings still colour the area. Terrace's roots, however, stem from a settlement established east of where the Kalum River joins the Skeena River. The Tsimshian call that area Kitsumkalum.

The predecessors of the Kitamaat people (the Owikenos) settled many years ago at the mouth of a river at the head of the Douglas Channel, having travelled from Vancouver Island originally. They made friends with a band living on the Skeena River, the Gitekshan, and invited them to join them at the river mouth. There the two groups lived together, and, according to legend, became the Kitamaats. The Kitamaats would visit their relatives on the Skeena from time to time, and so a well-worn trail extended up the Kitimat Valley and over the low divide to Kitselas.

In 1905, when George Little arrived, the Tsimshian natives were conducting a bustling fur pelt business. Considered the founding father of Terrace, Little built a sawmill in 1911, and the area was surveyed as a townsite. Terrace then boomed, since it was a principal point of call for the steamboats on the river and a hive of industry for the railroad construction crews. When the railway pushed through in 1914, Terrace connected to the rest of Canada and the days of the riverboat were over. Beginning with the manufacturing of cedar poles and railway ties, logging and lumber operations grew from enterprising men who utilized the abundant natural resources. Today the forest continues to provide the economic mainstay of the area.

The mountains of the Skeena Valley are highly mineralized, yet the veins discovered have been small, although occasionally rich. For this reason, mining activity has been sporadic, production depending on the height of the world market for that particular metal. The earliest activity in this sphere was placer mining and gold was discovered on several creeks – Lorne, Chimdemash, Fiddler, Kleanza and Douglas Creeks. Until the present, mineral deposits of gold, silver and copper have been found mainly in two areas. The first discoveries were in the region of the Kitselas Canyon with the first claim was filed in 1893. This was followed by a rush of claims

and development work on some of the properties, opening up the country toward Kitimat with trails.

Industry created the District of Kitimat more than forty years ago, when Alcan chose to locate its aluminium smelter there. The community was pre-planned with defined residential areas and a centralized core. The Douglas Channel, an arm of the Pacific Ocean, reaches 140 km inland to meet the community, which makes Kitimat both a coastal and inland settlement. The name Kitimat, or "people of the snow", derives its name from the nearby Haisla settlement, Kitamaat Village.

Communities

The Kalum LRMP Plan Area has a population of approximately 36,000.[1] Over 92% of the population of the Plan Area live within the communities of Terrace and Kitimat. Three First Nations communities also lie within the Plan Area: the Tsimshian communities of Kitselas and Kitsumkalum, and the Haisla community of Kitamaat Village. Approximately 1335 individuals (both native and non-native) live within these communities.

The greater Terrace area, with a population of 22,828, is the largest community and the supply and distribution centre for the area. The industrial community of Kitimat boasts a population of 11,725 people. Other communities which lie within the Plan Area include: Copper City, Copper Flats, Copperside, Gossen Creek, Jackpine Flats, Kleanza, Lakelse, Rosswood, Thornhill, and Usk.

With a regional trading area of more than 65,000 inhabitants, Terrace is the natural northern link for communication, transportation and resource product trade. Terrace is the service centre for the surrounding communities, with Highway 37 running south to Kitimat and the Yellowhead Highway 16 connecting Prince Rupert (west) to Prince George (east). The economy of Terrace has expanded and diversified from its original forest industries and is also becoming a tourist centre for northwest B.C..

Kitimat is located at tide water on Douglas Channel, 64 kilometres south of Terrace. The Haisla community of Kitamaat Village is located nearby. Kitimat's economy is powered by three major industries: Alcan's aluminium smelter, Eurocan's pulp and paper mills and Methanex's methanol and ammonia plants. The town was established in 1953 to accommodate Alcan's aluminium smelter. Kitimat possesses one of the largest pieces of flat, developable land on the west coast of North America. It's manufacturers represent 11% of the provincial manufacturers gross domestic product. Over 1 billion dollars worth of Canadian commodities has been produced and/or exported through Kitimat each year in the last decade. The Port of Kitimat is closer in nautical miles to Yokohama than Los Angeles or Vancouver. In fact, the port is closer to Asia than most ports along the U.S. coast[2], and therefore places it in a strategic position for future industrial expansion.

Economic Profile

General Characteristics

[1] BC Stats, Estimate 1998.

[2] B.C. Hydro, Economic Development Association of British Columbia and Community Futures Development Association, 1998.

The many communities in the Kalum plan area provide diverse environments, community networks and economic opportunities for the people who live here. Quality of life within the Kalum plan area is defined by its great natural beauty, forests, numerous lakes and streams, fish and wildlife, and the people themselves. The planning area encompasses a wide variety of economic opportunities and lifestyle choices. Diversity of economic opportunity is extremely important to small and rural communities as it acts to stabilize the population and enables residents of these communities to achieve a high quality of life in rural and remote settings. Maintaining accessibility to and sustainability of a diverse range of resources, at a local scale, is critical to sustaining this quality of life.

The largest overall contributor to the resident labour force is forestry, accounting for about 25% of the labour force. The other main employers are smelter (15%) and tourism (13%). An assessment of the economic and environmental effect of the LRMP has been produced and is available upon request.

First Nations Economic Activity

The estimated First Nations population comprises about 7% of total population in the Plan Area. This does not include populations of communities within Nisga'a Lands as defined in the Nisga'a Final Agreement, since it is excluded from the Plan Area. Most of this population reside in the three local First Nations' communities mentioned previously.

Aboriginal people have traditionally harvested numerous varieties of plants, fish and wildlife – including all types of salmon. Harvesting of natural resources occurred predominantly in the summer and fall seasons, with significant amounts being preserved for later consumption. These activities continue in modern times, through both traditional and non-traditional institutions.

To the First Nations with interests in the Kalum LRMP area, all forestry resources are an integral part of their culture and tradition. This perspective results in specific concerns that relate to environmental protection, trapping, food and medicinal plant gathering and cultural and archaeological sites.

Aside from the Nisga'a, the other four First Nations are currently involved in the Treaty process and have signed their respective Framework Agreements.

Tsimshian

Tsimshian territory is in the northwest portion of the planning area. Their traditional communities include Kitselas and Kitsumkalum. Tsimshian First Nations' people also live in either Terrace or Kitimat, with others living in other communities outside the Plan Area. Employment in Kitsumkalum is primarily in the service sector (60%), followed by logging and silviculture (40%).

Nisga'a

The Nisga'a Nation, Canada and British Columbia entered into the *Nisga'a Final Agreement* on May 11, 2000. The *Nisga'a Final Agreement* is a treaty and land claims agreement within the meaning of sections 25 and 35 of the *Constitution Act, 1982*. Specific rights and obligations of the Nisga'a Nation, British Columbia and Canada are identified within the *Agreement.*

The Nisga'a Nation has certain interests within the northern part of the Kalum LRMP area, mandated by the *Nisga'a Final Agreement,* including:

- Specific properties owned in fee simple
- Commercial recreation tenure area
- Guide outfitter area
- Specific angling guide license streams

These listed areas of Nisga'a Nation ownership and /or interest are identified on map *Nisga'a Nation Areas of Ownership and Interest.*

In addition, under the *Nisga'a Final Agreement,* the Nisga'a Nation and Nisga'a citizens have certain rights over the northern part of the Kalum LRMP area, including:

- Rights to harvest wildlife and migratory birds
- Rights to harvest fish and aquatic plants
- Rights of access

The *Nisga'a Final Agreement* also establishes a number of joint Nisga'a / provincial / federal committees to facilitate the planning of certain activities in areas that include the northern part of the KLRMP area, such as:

- Joint Fisheries Management Committee, mandated to facilitate cooperative planning and conduct of Nisga'a fisheries and enhancement initiatives in the Nass Area.
- Wildlife Committee, mandated to facilitate wildlife management within the Nass Wildlife Area.

(see map Appendix A)

Gitxsan

The Gitxsan are Tsimshian-speaking people of northwest B.C. Within the Kalum LRMP Plan Area, traditional Gitxsan territory is claimed northeast of Terrace, north to the Kiteen River.

Gitanyow

The Gitanyow claim areas include part of the Kalum planning area, east of Terrace and overlapping areas of the Nisga'a traditional territory. Their traditional territory lies west of the Kiteen River and east of the Kitwanga and Cranberry drainages. The Gitanyow live at Kitwancool and Hagwilget near New Hazelton.

Haisla

The Kitlope and Kowesas watersheds are the ancestral homeland of the Henaaksiala band of the aboriginal Haisla people, most of whom now reside at Kitamaat Village.

The population of the Haisla people living in Kitamaat Village is 551[3], with additional Haisla members living in either Terrace or Kitimat, and the remaining living in communities outside the Plan Area.

A resource of significant importance to the Haisla are the oolichan and salmon of the surrounding rivers. Band members fish in Kitimat Arm, Douglas Channel, Verney Pass and Gardner Canal. Fishing efforts for chinook and chum are concentrated in Kitimat Arm in the vicinity of the village. Fishing for sockeye takes place in the Kitlope River as well as Fishtrap and Danube Bay. Coho are harvested in the Kitimat and Kildala Arms as well as the mouth of the Paril River. Monitoring of the food fishery is undertaken by the Haisla Guardian / Technicians.

In Kitamaat Village, commercial fishing is the largest employer in the community. There is also local employment associated with manufacturing activities in Kitimat. Seasonal employment in fire suppression and forestry contracting contribute to the community's forest employment. The band also provides fishing boat rentals and guiding, manages a carving shop and salmon enhancement contracts.

Forestry

Within the plan area the Kalum Forest District office in Terrace administers the Kalum TSA and TFLs 1 ans 41. Approximately 42% (611,000m3) of the Plan Area AAC is allocated to TFL 1, while another 26% (400,000m3) is allocated to TFL 41. The balance of 30% (436,884m3) is allocated to the Kalum TSA.

TFL #1 (Skeena Cellulose Inc.) reaches from the south side of Nisga'a Lands to the Copper River and Whitebottom Creek, and it includes the communities of Rosswood and Terrace-Thornhill. TFL #41 (West Fraser Mills) includes the side valleys of the Kitimat Valley along Douglas Channel to Hawkesbury Island and along the Gardner Canal to the vicinity of Kemano. The Kalum TSA includes the communities of Terrace and Kitimat.

There are two major sawmills (Terrace) and a pulp mill (Kitimat) in the Plan Area which account for most of the fibre consumption, employment and earnings of the processing sector. SCI operates a sawmill in Terrace, which is a major recipient of Kalum wood, but volumes are also directed to the company's Carnaby sawmill and its Prince Rupert pulp mill. West Fraser operates Skeena Sawmills Division in Terrace and the Eurocan Pulp and Paper Division in Kitimat. There are also several smaller facilities in Terrace.

A significant portion of the Plan Area land base is not available for timber harvesting either because of the lack of forest cover or unsuitability for timber harvesting (e.g. environmental sensitivity, rough terrain, difficult access or unmerchantable timber). The rugged and remote mountainous terrain limits the size of the Timber Harvesting Land Base. There is a high proportion of poor quality wood in the Plan Area with approximately 30 percent of the merchantable timber being suitable only for pulp, 68 percent sawlog and two percent other. The operability of the timber stands are 10-15 percent ground-based logging, 80-85 percent cable logging and the balance helicopter logging.

Freshwater Fishing

[3] 1999 Labour Market Census, Skeena Native Development Society

Freshwater angling is the best known tourism activity in the Kalum Plan Area and is of international significance. The streams and rivers attract anglers for a variety of species throughout the year. Chinook, Coho, Steelhead and Cuttthroat trout are the traditional target species. Sockeye are targeted in the Skeena and are very popular, especially during the summer months. Other target species include Rainbow Trout, Dolly Varden, Oolichan, Bull Trout, Kokanee, Whitefish, and Burbot (Ling). The activity occurs from the shoreline of rivers, with the aid of floatation devices, or in boats (drift, jet and troll fishing). Jet boats are an important means of access for many of the larger rivers. There are 3 commercial jet boat operators in the plan area. Additionally, there are 51 freshwater fishing charter operators in the Kalum Plan.[4]

Most rivers within a one-hour drive of Terrace and Kitimat see high levels of use (Zymoetz / Copper, Kitimat, Gitnadoix, Skeena, Lakelse, Exchamsiks, Kitsumkalum and Exstew). Farther north the Nass, Bear, Kiteen, Ishkheenichh, Tseax, Cranberry Rivers are important. Lakelse Lake is also a popular fishing destination The Brim, Giltoyees, Kemano, Dala, Kildala and Kitlope Rivers in the south are highly productive but only have water and air access.

Tourism

Tourism in the plan area centres around the area's abundant and spectacular natural resources. From two-wheel drive auto touring to high energy adventure tourism the area attracts a diversity of users. The majority of tourists visit the area to take advantage of the internationally known fresh and salt water fishing opportunities. Usage is dispersed throughout the area's river corridors and coastal areas. Existing tourism operators in the Plan Area consist of licensed guide-outfitters, licensed fishing guides, destination lodges, front country hotels, motels and restaurants, adventure/ecotourism/heritage & culture guiding operators, and the supporting retail and service sectors. It has been estimated that about 140 tourism operators[5] utilize the Plan Area land base in undertaking the delivery of tourism products and/or services. While most of these operators are home-based in the Plan Area, a small number of tourism suppliers are based outside of the forest district, but utilize the natural resources of the area as outdoor activity trip destinations.

Douglas and Devastation Channels see much local use, especially enroute to sport fishing locales and hotsprings within and outside the District.

Outdoor Recreation

Hiking is an important component of recreation and tourism in the Kalum Plan Area. Trails to the alpine zone within the vicinity of Terrace and Kitimat are highly utilized. Tourism use is focused on day hiking near communities or tourism facilities. The key advantages the area has are accessible alpine ridges and remote wilderness. Other regional assets (heritage, pine mushrooms) can be used as focal points in promoting the activity. Areas identified as having high suitability for increased usage include the lower Nass Valley/Nisga'a lava beds, Bornite Range, Maroon to Kitselas Mountain, Sleeping Beauty, Mount Thornhill, Telkwa Pass, upper

[4] Kalum LRMP Forest Recreation and Tourism Opportunities Study (FRTOS), 1999

[5] Kalum LRMP FRTOS.

Williams Creek, Weedeene, Mount Charlie and Mount Clague alpine, Mount Elizabeth and Robinson Ridge[6]. The Grease and Telegraph heritage trails are underutilized resources which could be developed to enhance further opportunities. Local rivers also offer abundant kayaking, riverboating and whitewater canoeing opportunities.

The Skeena River is enjoyed by fishing, hunting, hiking and camping enthusiasts. The Copper, Kitimat and Lakelse rivers are also popular draws for local fishing enthusiasts. Kleanza Creek and Lakelse Provincial Parks are popular stopping-off points for travellers, featuring picnic and campground facilities. Mount Layton Hot Springs boasts a commercial hotspring resort for families, with a hotel, restaurant, pool and slides. A popular winter tourism activity is downhill skiing at Shames Mountain Ski Resort, in addition to alpine touring opportunities. Canoeing, kayaking and rafting also add to the list of recreation options.

Recreational Sites and Trails

Currently, the Ministry of Forests maintains 15 recreational sites and approx. 110 kilometres of recreational trail on 18 trails in the Kalum LRMP plan area.[7] This is an increase from 1993 when the Ministry of Forests maintained 6 recreation sites and 11 recreation trails in the study area.

At Onion Lake, the Kitimat Cross Country Ski club maintains a network of groomed trails. Several clubs and groups outline the diversity of recreational use in the plan area and besides cross country skiing, the local clubs include: Skeena Valley Naturalists, Ducks Unlimited, B.C. Wildlife Federation, Kermode Four-Wheel Drive Club, The Mount Remo Backcountry Society, Kitimat and Terrace Rod and Gun Clubs, B.C. Steelhead Society, Terrace and District Anglers, two equestrian clubs and two snowmobile clubs. One of the snowmobile clubs, the Skeena Valley Snowmobile Club (Terrace), is the third largest snowmobiling club in B.C.

Protected Areas

There are 9 existing protected areas in or adjacent to the Kalum Plan Area, covering 337,035 hectares, or 14.7% of the land base. Existing protected areas include:

- Exchamsiks River Provincial Park (18 hectares)
- Gingietl Creek Ecological Reserve (2,855 hectares)
- Huchsduwachsdu Nuyem Jees / Kitlope Heritage Conservancy (315,234 hectares)
- Kitsumkalum River Provincial Park (45 hectares)
- Kleanza Creek Provincial Park (216 hectares)
- Lakelse Lake Provincial Park(339 hectares)
- Anhluut'ukwsim Laxmihl Angwinga'asanskwhl Nisga'a, Nisga'a Memorial Lava Bed (17,530 hectares)
- Skeena River Ecological Reserve (105 hectares)
- Williams Creek Ecological Reserve (692 hectares)
- The Gitnadoix Recreation Area accounts for an additional 57,760 hectares and 2.7% of the land base.

[6] FRTOS

[7] Kalum Forest District, Land Inventory Management and Planning

An estimated 75% of the attendance in the study area's provincial parks is generated by local residents. Although park use in individual years can be influenced by a variety of factors (i.e. weather), overall, provincial park use has been increasing. Based on campground attendance in four local provincial parks, over night stays have risen almost 6% per annum between 1988 and 1995. Day use attendance is also up with a growth of over 4% per annum between 1988 and 1995. Lakelse Lake enjoys the highest number of both campground (9,780 visits in 1995) and day use (59,826 visits in 1995) in the Plan Area.[8]

Guide Outfitting

Many hunters come from across the province to hunt in the Kalum LRMP area. Although province-wide participation rates are declining, the Kalum LRMP Plan Area has a large number of local hunters. As well, many hunters come from other areas to hunt in the region. Guide outfitting is primarily dependent on non-Canadian tourists, as these individuals must hire a licensed guide in order to hunt legally in the province. There are three guide-outfitters licensed by the Ministry of Water Land and Air Protection (MWLAP) in the Kalum Plan Area.[9]

Trapping

Trapping, by both aboriginal and non-aboriginal trappers, has long been a part of the economic and cultural fabric of the Kalum Plan Area. The various furbearers harvested in the Plan Area include marten, lynx and beaver. Trapping is not considered to be a full-time occupation for anyone in the area, however, it is known that some of these individuals are dependent on trapping for part of their annual income, while others are involved primarily for recreational purposes. For First Nations trappers, trapping is also an important part of their cultural identity. Marten and beaver collectively account for almost 90% of the trapping revenue and the majority of the harvesting effort. Overall, the Kalum LRMP area accounts for 22% of the marten harvested, and almost 30% of the beaver harvest in the Skeena Region.

Agriculture

Agriculture is not a major economic sector in the Plan Area, but there is some relatively good soil and growing conditions in river valleys. The river valleys in the area have many natural assets for agriculture, including fertile soils, flat land, a mild climate and a long growing season which averages 152 frost-free days each year. Expansion of agriculture is limited by the availability of soils, and the isolation from larger markets. Most of the good agricultural land in the Terrace-Kitimat corridor is already committed to agricultural or other uses. There are additional lands with agricultural potential in the Nass Valley.

Currently, about 47,028 hectares or 8.5% of the Kalum Timber Supply Area is within the Agriculture Land Reserve (ALR). There are three provincial agricultural leases covering 135 hectares. These leases are being offered for purchase as they come due. Most will be transferred to private ownership over the next several years. As these leases are converted, the land is

[8] BC Parks

[9] MWLAP

included in the ALR. Since the new Crown Lands lease policy was introduced in 1992, no new leases have been approved in the Kalum Plan Area.

Agriculture is the primary activity for approximately 200 individuals, representing 2% of basic total employment. In 1997, only three farms in the study area reported sales of over $100,000. Approximately 70 farms covering 2,500 acres grow primarily hay and secondarily, potatoes. There is also some greenhouse production. Cattle, hens, and chickens account for most of the remaining farm activity. The Kalum Plan Area is a mixed use agricultural area with crop production directed to local markets.

Energy and Geological Resources

There are no operating metal or industrial mineral mines in the Plan Area. The 1996 Census showed a mining labour force (quarrying and exploration) of about 100, unchanged from 1991. Historically, mineral exploration has been restricted by the area's inaccessibility and remoteness. There are 10 Developed Prospects (deposits with defined resources) in the Plan Area, but none are in an advanced stage. The Geological Survey Branch has rated the eastern third of the area as high metallic mineral potential. The remaining land base has either moderate or low potential.[10] Most mineral sector employment and income in the Kalum Plan Area is accounted for by mineral processing activity of Alcan Aluminum in Kitimat. This accounts for approximately 1600 jobs. Alcan's operations do not depend on raw materials from the region so activity is not land-base dependent, except for the availability of hydro-electric power as the key location factor for the smelter. Mineral processing development opportunities, such as another aluminum or copper smelter, which are being actively studied by the BC government, hold potential for the area.

Currently, there is no coal, oil or gas production or related exploration activity in the Plan Area. The geology of the Plan Area is considered to have low to moderate geothermal energy potential, with some hot springs in the region. The Kemano hydro-electric station is the only electricity generation station within the Plan Area, but the reservoir is outside.

Commercial Fishing

The commercial fishery is a small contributor to the region's economic base, accounting for one percent of the total basic sector employment. There was, however, an increase in employment between 1991 and 1996, and although the causes are unknown, the latest Census data suggests a growing role for the fishery in the local economy. As far as traditional commercial fishery employment is concerned, it is less than in the past however, there has been an increase of employment in the commercial sports fishery component which is significant and has been referred to in the Freshwater Fishing section above.

The Skeena River and its tributaries are part of the second largest salmon-producing system in B.C. All six species of Pacific salmon migrate up the Skeena River to spawn in creeks and streams within the watershed. The Nass and Kitimat river systems are also important to salmon stocks. Collectively, the Kalum LRMP area provides important habitat for spawning and rearing grounds.

[10] Kalum LRMP Economic Opportunities and Barriers Study, 1999.

Chinook and Coho runs in the area have stabilized or are on an upswing due to large scale management decisions to deal with commercial salmon fleet on the coast.

Botanical Forest Products

There are currently 211 recognized botanical forest products harvested in British Columbia.[11] These products can be grouped into eight categories: wild edible mushrooms, floral and greenery products, medicinal and pharmaceutical products, wild berries and fruit, herb and vegetable products, landscaping products, craft products, and miscellaneous botanical forest products. Currently, several species of wild edible mushrooms (i.e. Pines, Chanterelles and Morels) have generated the greatest commercial interest.

The economic contribution of botanical forest products is primarily driven by the harvest of pine mushrooms in the plan area. The harvest of pine mushrooms varies from year to year. The harvest is determined by season, with the mushrooms ready for picking following the first cold rains and terminating with the first heavy frosts. Commercial harvesting of pine mushrooms is a major economic activity in the Plan Area. Pine mushrooms are collected in mature western hemlock and lodgepole pine forests in the Skeena, Bulkley, Cranberry and Kispiox River valleys in the Hazelton area (DeGeus 1995). While the number can vary from year to year, 1995 estimates indicate that 7-9 million dollars in direct revenue was generated from 330,000 pounds of mushrooms harvested from the Region. The relative abundance of mushrooms in the Kalum LRMP area provides significant benefits to the local economy. Approximately $3.9 million of this income accrued to local residents.

The local First Nations are particularly knowledgeable about the various botanical forest products in the area and utilize many plant products for a variety of medicinal, food and cultural purposes. Of particular importance to the Tsimshian and Nisga'a Nations is yellow and red cedar, which has important cultural values and is used for making traditional bedding, clothing, carvings, totem poles and canoes.[12]

The use of botanical forest products is currently unregulated. However, Ministry of Forests is currently researching the regulatory and management needs of these products. Utilization of botanical forest products, particularly mushroom harvesting, appears to be growing, but there is very little data upon which to base estimates of potential sustainable harvests.

Wildlife

Important bird wintering or migration staging sites exist in the plan area (Kitsumkalum marshes, Gitnadoix, Ishkseenickh, Bear River estuary, Lakelse, Dala/Kildala River estuary). Trumpeter Swans are found on Lakelse Lake and along rivers. Bird concentrations (including eagles) are associated with oolichan runs (heritage value as well). Bears are noted in the area (especially around salmon bearing streams) with an opportunity for viewing the rare Kermode bear in the Kalum Valley. Marine mammal viewing opportunities are available in Douglas Channel.

[11] Ministry of Forests (1995), *Botanical Forest Products in British Columbia: An Overview.*

[12] G.E. Bridges & Associates Inc. (1994), *Kalum South Socio-Economic Analysis*, prepared for the BC Forest Service.

1.2. The Process

1.2.1. Process Overview

The Kalum LRMP is one of many Land and Resource Management Planning processes either completed or underway in British Columbia. The LRMP process is part of British Columbia's Provincial Land Use Strategy. The intent of an LRMP is to evaluate the full range of natural resource interests and values, identify important issues to the members of the communities and ultimately make strategic land use recommendations to the provincial Cabinet. The LRMP recommendations encompass all resource management sectors and agencies, and include both management direction (i.e. objectives and strategies) and resource management zoning. The approved zones for the Kalum plan area are identified in **(Map 2)**.

The approved Kalum LRMP is the result of a variety of planning initiatives. The Kalum LRMP was preceded by a strategic resource management planning process for the TSA called the Kalum South Land and Resource Plan (Phase 1). Phase 1 was incorporated into the Kalum LRMP. The Thunderbird Integrated Resource Management Plan (TIRMP), a landscape level integrated forest management plan was also incorporated into the Kalum LRMP. The incorporation of the Phase 1 and TIRMP are described in detail below. When the Kalum LRMP Table was initiated in the fall of 1996 it was often referred to as Phase 2. The term "Phase 2" will be used to distinguish it from Phase 1 of the process. However it should be understood that Phase 2 and Kalum LRMP are synonymous and can be used interchangeably. The Phase 2 or Kalum LRMP Table membership is listed in Appendix B. Phase 2 gives strategic land use direction to the TSA, TFL 1 and TFL 41.

Public participation and consensus decision making by local citizens are the cornerstones of the LRMP process. This means that all members seek a general agreement on all matters, before a decision is reached.

The following nine stage planning process outlines the steps used to develop the approved Kalum LRMP.

TABLE 3: *Steps of the Plan (Phase 2)*

Stage	Planning Products
Stage 1: Preliminary Organization	***Agreement to do the plan***
Set regional priorities Identify agency commitments Appoint and train interagency planning team Contact public stakeholders Identify preliminary issues	
Stage 2: Plan Initiation	***Terms of Reference***
Select public participation approach (perspective/value-based/sector-based) Confirm issues and planning area	

Develop Terms of Reference, Ground Rules and a workplan Define budget and schedule Confirm principles, process and expected products	
Stage 3: Information Assembly	***Resource Inventories Assembled***
Describe issues and links to other processes Assemble resource inventories	
Stage 4: Scenario Development	***Scenario Maps, Impact Assessments***
Confirm resource values Develop descriptions of resource values and issues Determine management intent Develop management objectives and strategies Identify management scenarios Analyze and assess impacts of scenarios	
Stage 5: Building an Agreement Assess implications of impact analysis Refine scope of issues for resolution Undertake spot analysis on several key issues Problem solve towards a single land use recommendation Undertake broader public review process Ratify recommendations	***Consensus Report***
Stage 6: Approval	***Final Plan***
Provide recommendations for unresolved issues Submit consensus report and unresolved issues for approval Prepare final plan based on approval	
Stage 7: Implementation and Monitoring	***Monitoring Reports***

Public Participation

One of the cornerstones of the LRMP process is public participation. All Table meetings were open to the public. Meetings were usually held using a two-day format on Wednesdays (during the day) and Thursdays (during the afternoon and evening). Meetings went to a three-day format during the negotiation phase.

As previously described the Kalum LRMP was preceded by Phase 1. The public participation model used in that process is also described below.

Participants at the planning table represented resource stakeholders, public interest groups, industry, government agencies, and concerned members of the public.

Local Governments

Local governments are empowered under the *Municipal Act* to plan and regulate the use and development of private land. The Kitimat/Stikine Regional District, and the cities of Terrace and Kitimat participated in the planning process with consistent representation from the city of Terrace and the Regional District.

1.2.2. Phase 1: Kalum South Land and Resource Plan

Phase 1 started in 1991 with the establishment of a non-governmental planning body named the Community Resource Board (CRB) (refer to Appendix C). The process consisted of the 16 member CRB, the Interagency Planning Team (IPT) and the Combined Committee. The Phase 1 process produced a consensus document in March 1996 that made land and resource management recommendations for the TSA portion of the planning area. It was recognized that the Phase 1 process and recommendations did not meet the policy requirements of the *Land and Resource Management Planning: A Statement of Principles and Process* (1993).

The CRB contributed to the development of the Phase 1 recommendations by providing a reflection of community values and perspectives within consensus recommendations on suggested resource management direction pertaining to the TSA of the plan area. The CRB also provided detailed zoning recommendations **(Map 3)**. A range of interests including industry, conservation, heritage and culture, environmental, forestry, labour, and recreation were represented on the CRB on behalf of the residents and businesses of the plan area and future generations (see note regarding Mining and Energy sector concerns in section 1.2.4).

The CRB received technical, policy and process support from the provincial government through the IPT but was considered independent of the government. The Combined Committee is comprised of a representative from the Federal, Provincial and Local governments, First Nations, and the CRB. The Combined Committee periodically reviewed consensus recommendations from the CRB to ensure that government and First Nations interests were included. During Phase 1, weekly seminars were held at the community college to provide the public with technical background on some of the more complex issues. Documentation on the process was also provided at the public library for full public access during Phase 1.

1.2.3. Kalum LRMP (or Phase 2)

The Kalum LRMP planning table had 20 community stakeholders representing a broad spectrum of interests and 11 government representatives at the Provincial and Local levels, working together toward a consensus land use recommendation for resource management direction within the Kalum plan area including the TSA, TFL1 and TFL 41.

The CRB (from Phase 1) were available in an advisory capacity to the planning table when required. Several members of the CRB were also members of the Kalum LRMP planning table and therefore provided valuable continuity. The IPT continued to provide technical and policy support but were also members of the planning table.

The Interagency Management Committee (IAMC), composed of senior regional managers from various provincial ministries and agencies, oversaw the entire process and provided strategic

guidance to the planning table, as required. Now that the plan is approved by the Provincial Cabinet, the IAMC will play a key role in overseeing implementation and monitoring.

From September of 1998, the majority of the First Nations' groups claiming traditional territory within the Plan Area actively participated with the Kalum LRMP Table in a "parallel and linked process", reflecting their government to government relationship. The Tsimshian withdrew from the process in February of 2000.

The Kalum LRMP is unique in its integration of the Phase 1 process. This integration is described below.

1.2.4. Phase I Integration into Phase 2

The integration of Phase 1 with Phase 2 proved to be a significant challenge due to the differences in approach between the two planning processes. Phase 1 began as an integrated forest management plan for the Kalum TSA, prior to the establishment of LRMP Policy and enactment of the Forest Practices Code (FPC). Upon the development of *Land and Resource Management Planning: A Statement of Principles and Process* (1993) the planning team elected to split the process, completing planning for the TSA (Phase 1, and then called the Kalum South Land and Resource Plan) before embarking on planning for the TFLs and TSA areas (Phase 2).

The Phase 1 document is different from the conventional LRMP process in the following ways:

- lack of Phase 1 contextual information (table of contents, planning area and process profile, RMZ descriptions, impact assessment, appendices, etc..)
- lack of representation from the Mining and Energy sector
- lack of consistency between Phase 1 and 2 resource management zoning frameworks
- gaps in Phase 1 expected products: primarily, resource management objectives and strategies are not reflective of broad range of values, issues and provincial policy concerns
- need for refinement of Phase 1 zoning such that it is more reflective of stated values and strategic management issues
- need for clarification of Phase 1 objectives and strategies such that resource management intent could be implemented

The integration of Phase 1 into the Phase 2 took place towards the end of the Phase 2 process and was a significant stage in completing the Kalum LRMP. In attempting to minimize the workload on Phase 2 table members, IPT, in consultation with the CRB, evaluated what elements of Phase1 intent was already captured in Phase 2 language. Several members who participated in both Phase 1 and Phase 2 provided the benefit of continuity between the two processes. They then identified the remaining elements of Phase 1 to be recommended for integration into the Phase 2 process. This involved enhancing resource management direction (i.e. clarification and addition) and refining resource management zoning (based on identified values). The IPT technical review and proposals for integration were thoroughly reviewed by the Community Resources Board and Phase 2 table members. Upon review of the integration proposals the Phase 2 planning table endorsed the integration.

Unlike Phase 2, the discussions and negotiations of Phase 1 of the Kalum LRMP, did not include representation from the Mining and Energy sector except for representation from the Ministry of

Energy and Mines. This situation has been an issue of concern for the Mining and Energy interests of the planning table. Nevertheless, in the spirit of collaboration, the Mining and Energy interests agreed to support the LRMP process while having their concerns recognised. Therefore the Mining and Energy sector abstained from opposing the incorporation of Phase 1 into the Kalum LRMP in the interest of reaching consensus.

The management direction and zoning in this document therefore represents the combination of both Phase 1 and Phase 2 processes to form a single, integrated land use plan that is from here on in referred to as the approved Kalum LRMP.

1.2.5. Thunderbird Integrated Resource Management Plan

The Thunderbird Integrated Resource Management Plan (TIRMP) is a landscape level forest management plan developed through a consensus-based, multi-interest, public planning body that was approved in 1992. The Thunderbird Resource Advisory Committee (TRAC) is an active advisory committee that monitors implementation of the TIRMP.

The Kalum LRMP planning table, through management direction from the Phase 1 process, was tasked with incorporating the TIRMP plan. It was recognised that the incorporation process would involve updating and refining TIRMP management direction and zoning **(Map 4)**, to reflect changes to resource management practices, policy and legislation (e.g. Forest Practices Code), including the proposed Kalum LRMP recommendations. The IPT undertook much of the initial review process to assist the Kalum LRMP planning table in reducing their workload.

The incorporation process involved 'filtering' the TIRMP recommendations through the proposed Kalum LRMP recommendations to determine if management direction was already addressed in the LRMP. Management direction from the TIRMP that was not captured by the Kalum LRMP was reviewed for consistency with current policy and legislation, refined where necessary and recommended for incorporation. The recommendations for incorporation resulted in two 'incorporation documents'. One document provides management direction for a Special Resource Management (SRM) zone that straddles both sides of the Lakelse river. The other document provides General Resource Management (GRM) direction that applies to the whole plan area including the Thunderbird area.

A guiding principle to incorporating the TIRMP was to integrate its intent without change. It was not within the mandate of the Kalum LRMP planning table or the IPT to re-interpret or change the intent of the TIRMP. TRAC was instrumental in the incorporation process and provided much valued context and perspectives on TRAC management direction. The process to incorporate the TIRMP included the following steps:

- IPT filtering of TIRMP through existing Kalum LRMP recommendations;
- IPT development of incorporation documents;
- TRAC review and revision of incorporation documents;
- TRAC approval to present incorporation documents to the Kalum LRMP planning table;
- Kalum LRMP planning table review of incorporation documents, including a detailed review by the Mining and Energy sector to determine if the incorporation documents affected their

interests. This added focus on the Mining and Energy sector was due to a lack of representation of their sector during original TIRMP development (see note below);

- Kalum LRMP planning table endorsement to merge the TIRMP incorporation documents into the Kalum LRMP recommendations.

Unlike Phase 2, the discussions and negotiations of the TIRMP did not include representation from the Mining and Energy sector. This situation was an issue of concern for the Mining and Energy interests of the planning table. Nevertheless, in the spirit of collaboration, the Mining and Energy interests agreed to support the LRMP process while having their concerns recognised. Therefore the Mining and Energy sector abstained from opposing the incorporation of TIRMP into the Kalum LRMP in the interest of reaching consensus.

The management direction and zoning in this document therefore represents the incorporation of the TIRMP process into the Kalum LRMP to form a single, integrated land use plan that is from here on in referred to as the Kalum LRMP.

1.2.6. First Nations Participation

The province of British Columbia has an obligation to avoid infringement of First Nations rights in respect to their relationship to the use of land and resources. The approved LRMP is without prejudice to the rights of First Nations. Aboriginal rights which exist in this area are protected under section 35(1) of the constitution.

The Kalum LRMP invited all First Nations with traditional territories within the plan area, on several occasions, to identify their values, interests, concerns, and to participate, without prejudice to land claim negotiations, in the development of the Kalum LRMP.

The Tsimshian and the Nisga'a participated on a very limited basis during Phase 1 of the Kalum LRMP process. Both of these groups, along with other First Nations in the Kalum Plan Area, felt that they were unable to participate in a more meaningful way because of a lack of funds and resources, ongoing land claim issues and concern over infringement of treaty rights.

Although First Nations participation was minimal in the Phase 1 process, they were kept informed of the proceedings of the process. Newsletters, minutes of Table workshops and other relevant information were forwarded to representatives of the First Nations groups in the Kalum Plan Area on a regular basis. The Community Resources Board made presentations to the Haisla Nation, the Kitsumkalum and Kitselas Bands in an effort to invite them into the process. The CRB did their best to give consideration to their interests throughout the process

Phase 2 initially did not have direct First Nations participation at the Table. *Contribution Agreements* were developed to enable the Haisla, Tsimshian, Gitanyow and Gitxsan to become involved in the process. Their involvement was based on a parallel and linked model that reflects a government to government relationship with the Province. The Nisga'a chose not to participate in the LRMP process as they were immersed in the final stages of their treaty process. Each First Nation sent a liaison to monitor and participate by assisting in the development of land and resource recommendations and other strategic planning products that were part of the LRMP process. Through their participation they were able to provide the planning table with an awareness of their interests and to provide the First Nations community they represented with an understanding of LRMP progress. The Tsimshian withdrew from the process in February of

2000. The Tsimshian First Nations of Kitselas, Kitsumkalum, Allied Tsimshian Tribes, and Metlakatla have initiated their own land and resource planning processes for their areas of traditional use and occupancy. In February of 2001, B.C. and the First Nations entered into an agreement to review the Kalum LRMP recommendations in relation to emerging First Nation planning options. The Tsimshian First Nation expressed a concern regarding potential timber harvesting in the Hells Gate Slough area. In response to this concern the Ministry of Forests continued a harvesting deferral of the Hells Gate Slough area until the issue can be addressed through the treaty process. This Kalum LRMP report does not reflect any products or outcomes from this project. As part of this project, opportunities for additional recommendations to the LRMP document ended upon approval of the Kalum LRMP on April 10, 2001.

It is recognized that the Kalum LRMP process is a provincial government process and should not be interpreted now, or in the future, as constituting First Nations' plans for their traditional territory.

1.2.7. Communications

A variety of methods were used throughout the length of the planning process to keep residents of the planning area updated on the progress of the LRMP. Table members attended information sessions, spoke at community meetings, and staffed booths at open houses and trade shows. A newsletter, published periodically between 1997 and 2000, updated both Table members and the public on progress and issues. The community newsletter was distributed free to libraries, government offices, colleges, First Nations' organizations, media outlets, and other businesses and organizations in the Plan Area.

A website was created to improve broader public access. A two page information package was developed to encourage increased public knowledge. Personal communication from Table members to their constituents was an essential component of effective community outreach. Minutes and related materials from monthly meetings were mailed to members of the Table, and to a mailing list of approximately 70 interested community members, B.C. residents and government staff. Planning process updates, related information and notices of meetings were included with the minutes, in an attempt to make sure that anyone interested in the LRMP had the same information as members of the Table. Several presentations were made to the Northwest Community College, Kitimat Council and other groups. Presentations at numerous community events such as the Northwest Forestry Forum helped keep the general public informed about the process.

The Table regularly invited members of the public and resource agency representatives to contribute their expertise, knowledge and experience to the resource management zone working groups. Presentations to the planning table ranged from the Province's Grizzly Bear Conservation Strategy to the ecological requirements of the tailed frog. Several fieldtrips in the more remote regions of the planning area also added to the planning table's knowledge of the issues.

Local news media also provided some coverage of various planning table proceedings including newspaper articles and interviews for local television.

1.2.8. Decision-Making and Consensus

- The Kalum Land and Resource Management Planning Process has been guided by the following principles of consensus decision making:
- Table participants agree to engage in a process of negotiating agreements by consensus. Consensus is defined as a general agreement on a package of provisions to the extent that, although parties to the agreement may not agree to every aspect of the package, they do not disagree enough to warrant their opposition to the overall package.
- Should only one or very few participants be in a position to prevent an agreement from being reached, they shall have the responsibility to either show why they are opposed and would be differentially impacted or why the matter is one of such principle that they must continue to prevent a consensus. If they are unable to demonstrate one of these conditions, they will be expected to abstain from opposing, or lend support to the consensus. A consensus can include abstentions.
- Initial agreements on specific issues or sets of issues are tentative and may be modified as negotiations proceed. Consensus or general agreement is reached when all the issues are addressed and the total package of provisions is acceptable to all participants.
- Technical Working Groups may be established to address particular issues or perform specific tasks. Members will strive for consensus within the Group and will present all findings or recommendations to the Table for final consensus.
- A land use recommendation is developed on the basis of what can and cannot be agreed upon. Land use recommendations may include points of agreement and points of disagreement, without attribution to individuals or interest groups.

1.2.9. Scope of Plan

The Kalum LRMP document contains maps which document Resource Management Zones **(Map 2)** and management direction through land use objectives and strategies for Crown lands in an area corresponding closely with the Kalum Forest District. It will provide strategic direction to all land and resource management activities within the planning area over the next 10 years.

The approved LRMP guides landscape unit planning and operational plans under the *Forest Practices Code of BC Act* (FPC). It will also provide guidance for more detailed planning for non-forest uses.

The Kalum LRMP will be implemented and monitored in accordance with the Implementation Strategy.

Land and resource management activities and programs within the Kalum planning area occur within a legislative framework of over 40 provincial and federal statutes and associated regulations that are administered by government agencies. The main Provincial statutes include, but are not limited to, the *Land Act, the Wildlife Act, the Parks Act, the Environment and Land Use Act, the Forest Practices Code of B.C. Act, the Mineral Tenure Act and Regulations, the Agricultural Land Commission Act, the Heritage Conservation Act and the Water Act. The Fisheries Act* is a relevant federal statute. Resource management activities of the provincial

government should avoid unjustifiable infringement on aboriginal rights that are protected under the *Constitution Act (1982)*. Local governments are empowered under the *Municipal Act* to plan and regulate the use and development of private land. The Kalum LRMP does not affect legislative and policy mandates, but rather, provides guidance in their application.

Land and resource management activities within the Kalum planning area are also guided by a number of government resource management policies and strategies including:

- the **Protected Areas Strategy** was released in May 1993 and commits the provincial government to achieving 12% protected area by the year 2000. The intent of the strategy is to protect viable representative examples of natural diversity and special natural, cultural heritage and recreational features.
- **Forest Practices Code guidebooks** provide guidance for implementation of the *Forest Practices Code of B.C. Act* and regulations. Over 47 guidebooks describe procedures, processes and expected results for a wide variety of forest practices.
- the **Identified Wildlife Management Strategy (IWMS)** was released in February 1999 to minimize the effects of forest practices on vulnerable, rare or endangered species, and maintain their habitats throughout their current ranges, and, where appropriate, their historic ranges. At this point, government has identified three species in the IWMS whose habitat requirements cannot be managed solely through Wildlife Habitat Areas (WHAs), and are likely to exceed the one percent timber supply impact applied to the IWMS provincially. These species are called 'higher level plan species' in the IWMS, and include bull trout, fisher, and grizzly bear. Strategic land use planning tables may recommend management objectives for any wildlife species, whether recognized as Identified Wildlife or not, and these recommendations may imply a timber supply impact greater than the IWMS provincial limit of one percent.
- The provincial government released the **Landscape Unit Planning Guide** in 1999 which provides important direction for implementing biodiversity objectives under the *Forest Practices Code*. Government's priority is to focus on **old growth management areas (OGMAs)** and **wildlife tree patches** as key components of landscape-level biodiversity and to legally establish objectives for these two components for the entire province within three years. For the Kalum LRMP, government staff and the planning table evaluated the environmental, social and economic impacts associated with regimes that differed from normal LUPG delivery and presented this information to the full planning table. Where appropriate, key staff will draft RMZ objectives (consistent with the approved land use plan) as a Higher Level Plan for approval by the ministers.
- the **Timber Supply Review** process was initiated in 1992 to review the timber supply in TSAs and TFLs. The intent of the review is to provide the chief forester with up-to-date information to confirm or adjust the allowable annual cuts (AACs) to ensure the sustainability of forestry resources.
- the **British Columbia Grizzly Bear Conservation Strategy** was released in June 1995 with the intent of ensuring the continued existence of grizzly bears and their habitat.
- The **B.C. Mineral Strategy** is intended to revitalize mineral exploration, improve competitiveness and maximize value-added from additional processing of extracted minerals.

One of the goals of the strategy is to ensure that mineral resources are accounted for in land use planning.

- The **Mineral Exploration Code** is an administrative tool for regulating mineral exploration activity.

Policy Recommendations

The Table made a number of policy recommendations on a variety of resource values and issues. These recommendations are included in Appendix D.

2. GENERAL RESOURCE MANAGEMENT DIRECTION

2.1. Introduction

The management direction of the General Resource Management Zone (GRM) balances environmental, economic and social values across the plan area. GRM direction applies to all Crown land within the plan area and underlies all Resource Management Zone (RMZ) direction with the exception of Protected Areas. GRM direction accommodates a mix of resource development (including recreation, tourism, botanical forest products, trapping, guiding, agriculture and grazing, and timber and mineral extraction), and resource conservation (including biodiversity, wildlife habitat, rare or endangered species, visual quality and community watersheds) uses and values.

GRM direction is grounded in the policies, programs and practices of the various land and resource management agencies of the province of British Columbia. Other resource management zones provide additional direction or management emphasis, over and above GRM direction, concerning specific resources identified for their strategic significance to the province and/or planning area.

Management direction for this zone provides extensive opportunities for most land use activities, including site specific uses associated with settlement, industry, and commerce. As it would be difficult to address all resource values and issues through broadly applied GRM direction, resource management emphasis may vary throughout this designation, according to the distribution, availability and sensitivity of resource values.

This integrated resource management approach of the GRM direction seeks to address a diversity of resource values and contributes to the Plan's various economic, social, and environmental objectives.

2.2. General Resource Management Direction

2.2.1. Access Management

Resource Values and Issues

Access development, while necessary for purposes of resource development, creates a number of management issues with respect to resource conservation. The creation of access for tenured resource users opens previously inaccessible areas to non-tenured users as well. The most significant consequence of increased access is increased pressures on fish and wildlife populations - most notably, those species with commercial and recreational value and/or sensitivity to interactions with humans.

Timber harvesting and silvicultural activities are the primary catalyst for access development. While timespans for harvesting in an area may be relatively short, access may be maintained where successive silvicultural treatments are planned. Road deactivation was formalized with the introduction of the *Forest Practices Code* for the purpose of managing hydrological influence on roads. While the intent of road deactivation following resource extraction is to reduce maintenance costs by perpetuating the road in a self-maintaining state it can also reduce recreational and tourism opportunities. The longer a road remains open, the greater the reliance

of non-forestry resource users (both tenured and non-tenured) becomes, and the more negative is the response to proposed road closures or deactivations. In this way, the Forest Service Road network becomes a public resource.

The terrain of the Kalum LRMP is relatively difficult in terms of accessibility for resource development, however an extensive access network throughout the planning area has been established. This raises concerns over direct loss of productive forest lands as well as loss and/or fragmentation of wildlife habitat. Sedimentation of fish habitat due to road development and/or inadequate road maintenance is also a major concern.

The primary objective in the planning and management of access is to strike a balance between the legitimate needs of resource users and the conservation of significant fish, wildlife, and other resource values. Public awareness and understanding of management strategies underlying access planning and management will be critical in striking this balance.

Management Intent

The Kalum LRMP adopts the general management direction of maintaining opportunities for access for the full range of resource development and user needs while minimizing conflicts between the development and use of access and the conservation of sensitive environmental, recreational, and cultural heritage values. Access management planning will co-ordinate access development amongst the various users, and ensure that future development utilizes existing and/or shared access wherever possible. Access management will incorporate the maintenance or upkeep of new and existing roads to prevent sedimentation of fisheries habitat. In the interests of sustaining long term forest productivity as well as fish and wildlife habitats and populations, deactivation of roads will be an access management option.

Significant fish, wildlife and other resource values will be identified and protected through site specific strategies such as identification of the best location for roads, limiting the use or frequency of use during certain periods and, if necessary, restricting access through road closures or deactivations. Access may be prohibited in specific areas where fish or wildlife values are critical to species maintenance.

Road access for purposes of resource development is an acceptable use of the land, and will proceed subject to LRMP direction and existing Provincial legislation and regulations including the Forest Practices Code (FPC). Access development and management will be consistent with management objectives for each resource management zone within this Plan.

Access Management	
Objectives	**Strategies**
1. Plan and manage access to Crown land and resources for the full range of commercial, industrial, and public user needs through development of	**1.1** In consultation with stakeholders, user groups, regional and municipal governments, and First Nations, the Ministry of Forests will complete integrated access management plans including: • identification and mapping of access demands and

Access Management	
Objectives	**Strategies**
integrated access management plans.	concerns, • specified vehicle use, • concerns for motorized and non-motorized recreational use, • road density and impact on wildlife, • responsibility for maintenance, • identification of public safety concerns, • responsibility for deactivation, • review and consider previous access management planning, • identification of standards for access development (e.g. tourism roads), and • a public awareness strategy. The following *Grizzly Bear Identified Watersheds* **(Map 11)** are priorities for access management planning: • McKay-Davies • Lakelse-Cecil • Cedar • Alice- Star-Deep • Little Oliver-Skeena River East • Nelson • Wedeene • Erlandsen • Maroon-Weseach The list of watersheds above was developed primarily to address grizzly bear access management issues. **1.2** In the absence of access management plans, the types and degree of acceptable access will be determined through existing interagency review processes. **1.3** Coordinate access development amongst users so that future development utilizes existing or shared access wherever possible.
2. Minimize impacts of access on environmental, recreational and cultural heritage values.	**2.1** Identify wildlife and fish values and areas that are important with respect to potential access development. **2.2** Evaluate current and plan future road location, construction and deactivation activities to minimize negative impacts on sensitive species and terrain. **2.3** Evaluate current and plan future road location, construction

Access Management	
Objectives	**Strategies**
	and deactivation activities such that development of linear barriers to wildlife movement is minimized. **2.4** Restrict detrimental modes of access, with the exception of designated trails or permitted industrial activities, to species, habitats, and terrain that are sensitive to disturbance such as alpine/sub alpine areas, wetlands, and rare, threatened or endangered plant communities. **2.5** Minimize construction of roads in riparian areas, wildlife habitat areas and forest ecosystem networks. **2.6** **S**tandards for road location, construction and maintenance will reflect concerns for sensitive down slope fish habitat values. **2.7** Access development is sensitive to cultural heritage, natural heritage and recreation features. **2.8** Manage public access to minimize impact to sensitive cultural heritage, natural heritage, and recreation features through access management planning. **2.9** In areas distant from roads encourage air access for early stages of exploration. **2.10** Apply the provincial and federal standards with regard to transportation and potential spillage of geological and energy resources.
3. Provide effective access for long-term resource management and development needs.	**3.1** Locate roads to provide effective access to timber, minerals and other resource values. **3.2** Maintain access for ongoing resource management requirements (e.g. silvicultural activities) and other long-term resource development needs. **3.3** As an alternative to permanent deactivation, consider the use of temporary access restrictions, where appropriate. **3.4** Coordinate access development amongst users so that future development utilizes existing or shared access wherever possible.

2.2.2. Agriculture

Resource Values and Issues

The Kalum LRMP planning area is generally characterized by steep, glaciated and rocky terrain with low capability agricultural lands. However there are some highly productive localized areas

adjacent to the Skeena and Nass rivers, including areas in and around the city of Terrace. There are some small commercial market garden producers and numerous vendors that sell locally produced goods at the community farmers markets.

The Agricultural Land Reserve (ALR), which covers the majority of medium to high capability agricultural lands, represents a small percentage of the plan area. Though this area of agricultural activity is concentrated, it is intensively used and represents an important resource to the community that provides fresh agricultural products and economic diversity. These concentrated areas important to agriculture also contain highly valuable wildlife habitat and travel corridors. Intensive agricultural activity can lead to negative impacts on wildlife through loss of habitat, habitat fragmentation and wildlife-livestock conflicts.

Management Intent
The majority of high capability ALR lands will be included in the settlement zone and managed primarily for settlement/agriculture purposes. Where ALR and agricultural lease lands lie outside of the settlement zone the intent is to maintain access for agricultural purposes within the context of general resource management direction. This approach to management continues to recognize the need for maintaining and potentially expanding agricultural activity while placing a high value on integrated management for agriculture, wildlife, and forestry activities.

Agriculture	
Objectives	**Strategies**
1. Maintain and enhance access to and use of Crown land, water and vegetation resources for agricultural purposes.	**1.1** Support the purpose and intent of the Agriculture land Reserve (ALR) through the *Agriculture Land Commission Act*. **1.2** Support the purpose and intent of the *Soil Conservation Act*, which is, to preserve and maintain the quality of soil within the ALR. **1.3** Allow suitable Crown lands to be alienated for agricultural uses via the current Crown Agriculture Lease policy (1990), or other applicable legislation or policy. **1.4** Allow and encourage the development of non-traditional agricultural uses of Crown resources (e.g. agro-forestry uses such as mushroom harvesting). **1.5** Control noxious weeds by implementing Noxious Weed Control Plans prepared by the Northwest Weed Committee, and by enforcement of the *Weed Control Act*.
2. Minimize conflicts between wildlife and/or recreation enhancement uses and private agricultural operations.	**2.1** Improve local public participation role in wildlife enhancement and recreational plans in livestock and agricultural areas. **2.2** In order to reduce the level of agriculture/wildlife/forestry land use conflicts, undertake site assessments with respect to

Agriculture	
Objectives	**Strategies**
	agricultural and grazing related applications which attempt to identify: key habitats and biodiversity values, suitable arable soils, and existing forestry investment and potential woodlot opportunities. **2.3** Outline in **a**gricultural lease development plans and range use plans habitat protection or conservation measures including, where necessary, the location of restricted activities to minimize conflicts. Rather than alienating crown land it may be deemed necessary to have land remain as Crown land for government to retain management flexibility to reduce potential land use conflicts, protect ecologically sensitive areas, or to manage land subject to periodic flooding.
3. Promote agricultural land and water stewardship programs to manage for other resource values.	**3.1** Apply the code of Agricultural practices for waste management (*Waste Management Act*).

2.2.3. Aquaculture and Marine Plant Harvesting

Resource Values and Issues
Aquaculture consists of finfish, shellfish and marine plant farming. In British Columbia, of the 207 million dollars generated by the aquaculture industry approximately 12 million dollars was generated by shellfish growers, with the remaining being generated by salmon farmers. There is currently no aquaculture activity in the Kalum Plan area, but potential exists for future development.

In a study commissioned by Coopers and Lybrand, it was found that shellfish farming has the potential to become a $100 million dollar industry that would create more than 1000 person years of employment in BC coastal communities over the next 10 years. Biophysical capability studies for shellfish culture are currently under way in the Kalum plan area. It is likely that these studies will find a number of areas of good and medium shellfish culture capability. In the fall of 1998, the province announced the Shellfish Aquaculture Development Initiative designed to allow shellfish farmers opportunities to expand existing farms and provide local communities with opportunities for the development of new farms. This program includes a substantial local community advisory process.

Salmon aquaculture or farming can be defined as an integration of fishing and farming. The industry was developed in Norway and Scotland and grew out of techniques developed for salmonid enhancement in wild stocks. In fish farming salmon are retained for their whole life cycle whereas in wild stock enhancement programs where they are released to mature in the ocean environment.

Salmon farming has been recognized as an industry for approximately 20 years in British Columbia. In that time the province has become the fourth largest producer of farmed salmon in the world and holds a prominent position in the provincial seafood sector. In 1995 the sales of BC farmed salmon exceeded the sales of the commercial fishery. Farmed salmon provides approximately half of the total world consumption of 550,000 tonnes, however BC's share of the global market has declined from 10% to 4% largely due to the exponential growth of the industry in Norway, Scotland and Chile. BC salmon farmers have increased production and created over 2100 full time jobs in coastal communities and have contributed 165 million dollars to the economy. In recent years salmon farming has undergone considerable consolidation with only 16 companies operating today compared to over 100 companies in 1988. The same Coopers and Lybrand study estimated that the marine fish farming industry has the potential to contribute $1 billion annually to the provincial economy and realize the potential for 20,000 full-time equivalent jobs by the year 2010.

In the Kalum LRMP planning area 6.65% of the total marine area is rated as Medium (i.e. acceptable) capability for finfish culture. No areas are rated as Good capability. In response to growing questions from the public about the potential impact of the industry on the marine environment (specifically the impact of interactions between wild and escaped farm salmon, disease in wild and farmed fish, environmental impacts of waste discharged from farms, and siting of salmon farms) the BC government suspended issuance of new farm licences and directed the Environmental Assessment Office (EAO) to review the adequacy of current provincial government methods and processes for regulating and managing salmon aquaculture. As a result of its review, the EAO concluded that salmon aquaculture as currently practiced presents a low overall risk to the environment tempered with the reservation that there are still localized seabed impacts and gaps in scientific information. It recommended continuation of salmon farming in open net cages in addition to providing 49 detailed recommendations on measures to prevent unacceptable impacts and reduce uncertainty. In the fall of 1999 the province announced a Salmon Aquaculture Policy Framework that essentially accepted the 49 recommendations of the EAO, capped the number of existing farm sites at 121 for two years and initiated 5 main processes to increase the sustainability of the industry. These included escape prevention, performance-based environmental regulation of salmon farm wastes, industry and community stability and improved salmon farm siting, improved fish health and alternative technology pilot projects.

Marine plant harvesting refers to the commercial harvest of both marine plants and algae. Marine Plants include algae (i.e. seaweeds such as kelp and phytoplankton) and vascular plants (e.g. eel grass and salicornia). The marine plant of greatest economic importance is the giant kelp, Macrocystis, harvested for Herring Spawn on Kelp, important to First Nations. The farming or culture of marine plants, currently being piloted in the south coast area, has considerable potential in the province and possibly in the Kalum plan area. The province is currently reviewing its policy regarding marine plant farming.

Management Intent

- Consultation among all coastal and other affected groups and stakeholders will occur with respect to aquaculture development.

- Create certainty for investors and existing aquaculture operations where appropriate.
- Improve aquaculture capability and suitability inventory information.
- Promote enhanced social stability of coastal and inland communities through provision of permanent employment options.
- Stabilize the fishing industry skill base in coastal and inland communities through provision of employment options to fisheries workers (processing) during low periods in wild fishing industry.
- Stabilize economies of coastal and inland communities through creation of alternatives to seasonal employment in forest/fishing/tourism industries.
- Promote environmentally sustainable aquaculture as an integral and essential component of BC Fisheries
- Help to sustain natural fisheries and healthy populations of indigenous stocks and their habitats by taking steps to ensure no direct or indirect long-term negative impact on the viability of indigenous wild fish stocks.

Aquaculture	
Objectives	**Strategies**

Aquaculture	
Objectives	**Strategies**
1. Provide and maintain opportunities for suitable and capable marine and terrestrial Crown Land for the growth & development of sustainable commercial aquaculture (finfish, shellfish and marine plant).	**1.1** Encourage local government plans and bylaws to provide opportunity for environmentally sustainable aquaculture. This includes allowance for amendment of aquaculture tenure boundaries and consideration to not rezone areas for shellfish aquaculture to non-aquaculture purposes. **1.2** Determine and map capability and suitability for aquaculture. Clearly define suitability and take technological advances into account. **1.3** Encourage research and development of aquaculture technology to provide for both economic and environmental sustainability. This includes measures to prevent the establishment of spawning populations of escaped farmed fish in the wild, such as reducing escapes towards a zero escape target, and developing economically feasible non-reproductive strains of fish. **1.4** Encourage sharing of skills, technology and existing infrastructure. **1.5** Strive to meet and maintain industry infrastructure requirements including transportation.
2. Where the development of aquaculture enterprises occurs, address environmental sustainability through careful siting, management, monitoring and fine tuning of practices and technology.	**2.1** Identify potentially suitable aquaculture sites by Coastal Planning Unit or sub-unit. **2.2** Any siting or exclusion of salmon aquaculture will employ the critria defined by the Salmon Aquaculture Policy Framework and meet the objectives of the Marine Protected Areas Strategy (once established), local planning processes, navigational compliance, federal Fisheries Act requirements and Crown land tenure policy. **2.3** If any fish farms are proposed for the Kalum plan area, the province will consult with local communities, and First Nations governments to ensure their support prior to development decisions. **2.4** Require proponents of new facilities to plan, construct and maintain tenured improvements such that erosion hazard is minimized (i.e. littoral drift, etc.). **2.5** Encourage prevention of negative impacts due to aquacultural development by creating and implementing industry codes of practice and management measures with a view to maintaining environmental integrity.

Aquaculture	
Objectives	**Strategies**
	2.7 Subject to provincial policy requirements, and as part of the tenure application process, require proponents to provide development plans that include escape prevention and management plans to avoid potential negative impacts on indigenous fish stocks and their habitats. **2.8** Implement a community consultation process to ensure siting and development of new shellfish aquaculture facilities meet local community and First Nation needs.
3. Upland and marine activities will not adversely impact existing aquaculture activities and strive to mitigate adverse impacts in areas of moderate to high aquaculture capability.	**3.1** Encourage the creation of no discharge zones for sewage from marine vessels and upland sources near areas of aquaculture activity or suitability. **3.2** Make local governments aware of the *Farm Practices Protection (Right to Farm) Act* as it relates to aquaculture. **3.3** Rehabilitate and/or remediate the environment of contaminated shellfish culture areas (improve environmental quality). **3.4** Apply adequate setbacks of marine structures and upland developments from shellfish leases according to appropriate Provincial and Local Government Guidelines.

Marine Plant Harvesting	
Objectives	**Strategies**
1. Provide or enhance opportunities (underutilized and/or value added) for the harvest of marine plant/algae species to a level that ensures sustainability of stocks and the associated ecosystems.	**1.1** Identify or confirm existing and potential harvest areas and reserves for First Nations traditional use, as well as general commercial and recreational use. **1.2** Encourage the provision of new commercial harvesting permits to residents of communities within the plan area. **1.3** Encourage environmentally sustainable harvesting rates and methods of harvest to minimize the negative impacts to fish habitat and biodiversity. **1.4** Promote partnerships between industry and government for research and development of value-added products and marketing from marine plants and algae. **1.5** Optimize opportunities for the processing of harvested marine plants and algae in existing communities.

2.2.4. Biodiversity

Resource Values and Issues

The climate, geology, ecology and land uses are major influences on the biological diversity (biodiversity) of the Kalum LRMP. The climate is dominated by moist pacific southwest winds and by north cold, dry Arctic air. This produces rainy and warm conditions in summer on the windward side of the Coast Mountains and cool moist winters with snow accumulations and periods of strong Arctic outflow conditions. The round-topped granitic mountains of the Kitimat Ranges in the Coast Mountains are dissected by major river valleys, scoured by glacial and fluvial processes, and fjord intrusions. Inland, the Nass Ranges have both rugged peaks and rounded summits with a recent volcanic history. The LRMP lands also include a part of the Nass Basin, an area of low relief surrounded by high mountains. Climatic zones of specific soils, plants and animal communities develop because of the interaction of climate with the land surface and surficial materials. In the Kalum, biogeoclimatic zones **(Map 5)** range from the lower elevation forests and wetlands of the Coastal Western Hemlock and Interior Cedar-Zone to the Mountain Hemlock Zone sub alpine forests and meadows and the alpine heaths and glaciers of the Alpine Tundra Zone. Some plants and animals are widely distributed over several zones; some species have healthy populations but limited distribution because of habitat (ecosystem) requirements; and some species are considered rare and endangered or threatened because of their small population size, discreet ecosystem requirements or ecosystem disturbances. Natural disturbances to ecosystems in the planning area are generally small ranging from the death of an individual tree to a patch of blow down or an avalanche. Human disturbances resulting in a loss of biodiversity are usually related to habitat alienation or degradation from pollution, invasion of exotic species, over-exploitation, environmental change (e.g. climate change) and habitat fragmentation (the breaking up of habitat into small and isolated patches).

The biodiversity issues on the Crown lands of the Kalum LRMP relate primarily to historic and future human disturbances to the forested lands: habitat fragmentation, loss of forest interior conditions and old growth forests and edge effects at clear cut openings. Biodiversity management of forested lands includes the setting aside of forest reserves for representation of ecosystems or special areas such as estuaries and riparian ecosystems, establishing linkages among reserves, spatial and temporal management of large patches of mature and old forests, and maintaining habitats and their structural attributes for forest-dependent species. There is also a need for special efforts to identify and protect the habitats of species known to be at risk, to conduct biodiversity inventories and to acquire species specific knowledge.

Management direction for rare, threatened and endangered ecosystems is covered under the Wildlife General Management Direction.

Management Intent

The general management objective is to ensure the long term sustainability and diversity of native species and populations and to maintain the natural diversity of healthy and functional ecosystems. The intent is to apply an ecosystem management approach that provides suitable habitat conditions for all native species. In this way, habitat diversity is used as a surrogate to

maintain biodiversity. Implementation of biodiversity objectives will minimize or if possible avoid timber supply impacts.

Ecosystem-based land management approaches consistent with the KLRMP will be piloted in key undeveloped watersheds within TFL 41 once the Kalum LRMP process is complete. These pilots will include opportunities for full participation from all interested stakeholders. See attached letter in Appendix E.

Biodiversity	
Objectives	**Strategies**
1. Maintain a range of seral stages across the landscape to meet the needs of a wide variety of species.	**1.1** Establish a range of seral stage targets by biogeoclimatic variant using the best information available. **1.2** Conduct an assessment of the amount of age classes for each landscape unit by biogeoclimatic variant for purposes of applying a specific landscape unit transition strategy to meet seral stage targets. **1.3** Implement early seral stage targets through the following transition measure with the understanding that timber supply impacts will be minimized: (i) Early, mature + old seral stage targets will be achieved in the shortest time possible. (ii) In variants within landscape units where current early seral stage forests are at or below the early seral stage percentage target (as provided in the Biodiversity Guidebook) the early seral stage percent will not exceed the target by more than an additional 10% (e.g. if target is 36% then with 10% over target, would be 46%). (iii) Where current early seral stage forests are above the targets the early seral stage percent will not exceed the target by more than an additional 15%. (iv) Have a focused stand management program, e.g. thinning (precommercial and commercial), to support fibre flow and make mid-seral stands more conducive to understory vegetation. (v) Timber management planning will demonstrate how biodiversity guidebook targets for seral stage distribution will be achieved over time. It is recognized that spatial planning tools will be developed over time to assist this planning. It is recognized that some watershed unit biogeoclimatic variants have special biodiversity sensitivities (see list below). Where ever possible in these watershed variants, resource development planning will pay particular attention to biodiversity sensitivities through conservative application

Biodiversity	
Objectives	**Strategies**
	of the transition strategy (for example, planning harvest blocks in areas that avoid, to the extent possible, the full application of the transition strategies in these specific areas). <u>Biodiversity Sensitivities With Respect To Seral Stage Transition Strategy Application</u> Hirsch CWHvm Skeena River - Kalum CWHvm Kiteen Lower ICHmc1 Seaskinnish ICHmc2 Tseax Lower ICHmc2 Tseax Upper CWHws1 Ansedegan CWHws1 Clore CWHws1 Cecil Lower CWHws1 & CWHvm Note that CWHvm in the above list does not distinguish between vm1 or vm2 based on current known inventory; sensitivities therefore apply to both vm1 and vm2. **1.4** Maintain some stands in mature age classes or extended rotations by limiting harvesting to selective removal of trees at periodic intervals.
2. Managed forests are to have a mosaic of stands consisting of a range in patch sizes in an attempt to have some resemblance of the natural pattern of forest disturbances.	**2.1** In accordance with the best current information (e.g. Biodiversity Guidebook), provide for a range of opening sizes (from single tree canopy gaps to large openings up to 250 hectares), based on natural disturbance patterns within the plan area. To meet the large patch size percent forest area target within a landscape unit, a range of 80 to 250 hectares has been suggested by the biodiversity guidebook; this means that the patch sizes within this range are rationalized based on consideration of natural historic disturbance sizes. Best current information within the plan indicates that smaller openings are more common and occur more frequently than larger openings. Depending upon the risk to other values, additional evaluation may be needed before larger openings are considered. For example, these can include but are not limited to hydrology, amount of retained stand structure within the patch following timber removal, silvicultural system employed, wildlife habitat considerations, and social expectations. **2.2** Provide leave areas in proximity to new openings or aggregations of openings, that, where possible, are

Biodiversity	
Objectives	**Strategies**
	ecologically representative, have varied configurations (size and positioning) and include areas that provide forest interior conditions. The intent is to achieve this leave area distribution at the landscape scale. **2.3** Emphasize retention areas to be included within larger openings.
3. It is recommended to the statutory decision maker to maintain old growth forest attributes through the designations of old growth management areas (OGMAs) across the landscape.	**3.1** Identify and map OGMAs through the implementation of the Landscape Unit Planning Guide. When establishing OGMAs the following criteria should be given primary consideration; • Old growth forest and/or attributes • Variant representation • Non contributing and constrained areas The following can also be considered during OGMA establishment but constitute secondary consideration; • Forest interior conditions, • rare or uncommon ecosystems • connectivity **3.2** Base establishment of old-growth management areas (OGMAs) on meeting the target percentage as provided by the FPC guidebooks (biodiversity & landscape planning unit) by biogeoclimatic variant by landscape unit. **3.3** Consider a suitable representative old growth spruce stand in the Kitimat valley as a Sensitive Area under the Forest Practices Code. **3.4** Establish the old growth areas identified in the Thunderbird IRM Plan as old growth management areas. **3.5** Consider areas with old growth attributes identified in Phase One such as Sockeye Creek, stands between Hyw 16 and the Skeena River and surrounding Kleanza Lake, for prioritization as candidates for old growth retention areas. **3.6** The spruce old growth stand immediately adjacent to the Dala estuary **(Map 6)** be retained for its old growth characteristics. Only single tree selection for boom log production will be permitted. (Refer to General Resource Management for Wildlife and Wildlife Habitats, Fish and Fish Habitats and Ungulate

Biodiversity	
Objectives	**Strategies**
	Winter Ranges.) **3.7** The area visible from the Sue Channel/Hawksbury Island protected area **(Map 6)** will have a single tree or group selection silviculture system with a maximum opening size of 1 – 2 tree lengths.
4. To help conserve the natural species abundance and diversity, maintain the natural composition of dominant tree species across the landscape.	**4.1** Set leading tree species percentage targets at a landscape level. **4.2** Develop a deciduous management strategy to retain the natural deciduous cover and maintain deciduous types in deciduous leading stands. **4.3** Regenerate stands using local seed. **4.4** Retain indigenous species throughout the stand life.
5. Develop practical approaches to minimize potential problems of fragmentation of habitats and populations.	**5.1** Assess strategies for addressing potential problems of habitat fragmentation at a landscape level with the understanding that: The Ministry of Environment, Lands and Parks will establish and lead a technical working group involving agencies and forest licensees to design strategies that could balance the intent to minimize fragmentation and impacts to timber supply. Through consensus-based discussion the technical working group will, support landscape unit and forest development planning by recommending practical means of addressing habitat fragmentation during timber harvest planning. Considerations for addressing habitat fragmentation could include such approaches as: • Incorporation of constrained and non-contributing landbase • Incorporation of management direction from the LRMP • Use of commercial thinning and partial logging • Design of landscape level harvesting plans • Establishment of connectivity corridors to aid in ecosystem network functionality The working group will have the following attributes; • Small number of people for effectiveness and efficiency; • Seek appropriate technical experts;

Biodiversity	
Objectives	**Strategies**
	• Invite technical input/presentations on a guest basis; • Emphasis on local expertise and knowledge. **5.2** Consult with interested parties outside of the LRMP area to address cross-boundary issues. **5.3** During resource development activities maintain the structure and function, for continued wildlife movement, through the level pass between the Kiteen and Cedar drainages identified on **Map 7**. Within the identified area on **Map 7** retain 100% of the forested area located in polygon "A". Within polygon "B" of **Map 7** timber harvesting will be limited to partial cutting systems. **5.4** In the low level pass between the Williams and Thomas/Clore watersheds facilitate wildlife movement by maintaining the structure and function of these wildlife opportunities.
6. In managed forest stands, provide or restore important structural attributes which contribute to habitat and species diversity. The intent is to work to achieve stand structure attributes to the extent possible. It is recognized that operational flexibility is required when implementing the respective strategies in consideration of site conditions, stand structure, habitat values, operational feasibility and economic viability. It is also recognized that not all attributes are achievable in all stands, and that the degree to which any structural attribute can be achieved	**6.1** Phase-in a variety of silviculture systems including even-aged and uneven aged management. **6.2** During forest management activities, include provisions for important structural attributes, such as dead wood, standing dead trees, coarse woody debris, large living trees, tree species diversity, a variety of layers and openings in the forest canopy, and the encouragement of the full range of above and below ground flora and fauna diversity. **6.3** Encourage development and use of a variety of methods to retain or restore biodiversity at the stand level. For example, long butting of trees, leaving logging debris on the ground rather than pile and burn, leaving blow down root wads in place, identifying living trees as future snags or wildlife tree patches, leave some second growth thickets unspaced and some brush unmanaged. **6.4** Encourage the use of manual practices in vegetation management to minimize use of herbicides.

Biodiversity	
Objectives	**Strategies**
will vary from stand to stand.	
7. Encourage extension services to assist private land owners, municipalities and regional districts in the management of biological resources.	**7.1** Through consultation, public education and information dissemination, encourage property owners, municipalities and regional districts to maintain and enhance biological resources including habitat diversity. **7.2** LRMP line agencies to co-ordinate and prioritize the delivery of public education initiatives aimed at the maintenance and enhancement of biodiversity.
8. Over time, inventory landscapes for biodiversity values and enhance or restore lowered values where appropriate.	**8.1** Prioritize watersheds for assessments of biodiversity values, giving priority to watersheds with extensive areas of recently logged or young forests. **8.2** Conduct field ecosystem inventories of the priority watersheds, evaluate opportunities and make recommendations for biodiversity maintenance, enhancement or restoration. **8.3** Evaluate and incorporate the results of the inventories into resource development plans and practices. **8.4** Monitor the effectiveness of implementing the biodiversity recommendations on the ground.
9. Provide opportunities to fulfill biodiversity objectives in key undeveloped watersheds within TFL 41.	**9.1** Ecosystem-based land management approaches that are consistent with the KLRMP will be piloted in key undeveloped watersheds within TFL 41 once the Kalum LRMP process is complete. These pilots will include opportunities for full participation from all interested stakeholders. As per attached letter in Appendix E.

2.2.5. Botanical Forest Products

Resource Values and Issues

Botanical forest products (BFP), including wild edible mushrooms, floral and greenery products, and medicinal plants (see Appendix F), have quickly become important forest resources in northwestern British Columbia. Significant issues surrounding BFP include potential forest ecosystem degradation, impacts of harvesting on species productivity and gene pools, cultivation and enhancement of various species, increased human activity in forest ecosystems, identification of ecological research requirements, and the harvest of rare or endangered species. The Prince Rupert Region (including the Kalum LRMP area) has, in recent years, gained notoriety as one of the most productive mushroom harvesting areas in the province. Of the various marketable wild mushrooms, including Pine Mushrooms, Boletes, and Chanterelles, Pine Mushrooms are by far the most significant commercial species.

In the Kalum plan area Pine Mushrooms (Tricholoma magnivelare) are generally found in Interior Cedar Hemlock (ICH) and Coastal Western Hemlock (CWH), growing on drier, coarsely textured, nutrient poor sites. They form ectomychorrizal associations (symbiotic relationships), giving trees soil nutrients and water in exchange for sugars and carbohydrates. These mychorrizal mushrooms (including the Pine Mushroom) essentially act as an extended root system to the tree. The mycelia, or shiro, is the underground vegetative structure of the Pine Mushroom and is essential for fruiting. Timber harvesting has a known negative effect on mycorrhiza abundance, which is the active part of the underground mycellia. Some silviculture treatments such as thinning dense stands or partial cutting has less impact on Pine Mushroom production.

Sixty percent of the total British Columbia Pine Mushroom harvest originates in the Prince Rupert Region. While the number can vary from year to year, 1995 estimates indicate that 7-9 million dollars in direct revenue was generated from 330,000 pounds of mushrooms harvested from the Nass Valley. The relative abundance of mushrooms in the Kalum LRMP area provides significant benefits to the local economy. The notoriety and value of the Pine Mushroom harvest has created a "gold rush" atmosphere, which in turn has created a number of resource management concerns including: illegal harvesting, conflicts with other resource users (e.g. timber harvesting), unsustainable harvesting methods, and lack of knowledge about Pine Mushroom ecology.

Although the industry is largely unregulated, regulation is seen as an integral step toward sustainably managing the resource. In the United States regulation has been initiated with the introduction of permit systems for both commercial and recreational harvesting of mushrooms. The British Columbian Pine Mushroom Task Force, a multi-agency government committee, recommended in 1994 that licensing of buyers be part of an initial framework to develop future practices for the pine mushroom industry.

Management Intent

The Kalum LRMP confirms that harvesting of botanical forest products is an acceptable practice outside of Protected Areas. It is the general management intent of the Kalum LRMP to maintain opportunities for the commercial, recreational, and traditional harvest of botanical forest products by reducing resource user conflicts and managing the harvest in an ecologically sustainable manner. The management of botanical forest products will be integrated with other resource uses and activities, and research and inventory projects are recommended to both properly locate the resource and identify sustainable management practices.

To ensure a sustainable pine mushroom harvest, new legislation is seen as the most effective means of enabling appropriate regulation of the industry. Particularly, it is suggested that the licensing of buyers and permitting of harvesters would lead to improved management of the resource. Licensing would be used to gain baseline information on the harvest, which in turn would support the evaluation of the resource against other forest resources and support scientific research efforts. Licensing would also generate revenue for government, support the development and distribution of educational materials, and support the enforcement of

legislation. Botanical forest product management will be carried out in a manner that respects to First Nations traditional uses and aboriginal rights.

Botanical Forest Products	
Objectives	**Strategies**
1. Improve the knowledge and information base related to botanical forest product ecology.	**1.1** Undertake ecosystem mapping to identify and theme high, value Pine Mushroom sites (e.g. correlate Pine Mushroom occurrence and abundance with provincial Biogeoclamatic Ecosystem Classification (BEC) System and stand age). **1.2** Encourage ongoing "detection", "evaluation", and "research" monitoring programs for pine mushrooms. **1.3** Identify priorities for botanical forest products research into species-specific ecology based on: • species sensitivity to harvest, • species status (i.e. rare, threatened or endangered), • species importance to Identified Wildlife, • commercial harvesting pressures, • traditional, medicinal, or commercial importance, and • species sensitivity to resource development. **1.4** Based on 1.3 above, determine the appropriate timing, amount, spatial extent, and method of botanical forest product harvesting that avoids negative impact on Identified Wildlife (i.e. loss of species, degradation of habitats). **1.5** Based on the Vegetation Resource Inventory, determine the occurrence and abundance of traditionally, medicinally, and commercially important botanical forest products within the Kalum Forest District. **1.6** Encourage research on the genetic diversity of Pine Mushrooms.
2. Manage PM habitat in support of commercial and recreational Pine Mushrooms harvesting.	**2.1** The Ministry of Forests will establish a Pine Mushroom steering committee, with representation from all affected stakeholder groups, and the LRMP Monitoring Committee, to determine (through a consensus based approach) a percentage of identified high value sites (from 1.1 above) to be managed with an emphasis on Pine Mushroom production. Perform an impact assessment to assess cost/benefits in the determination of Pine Mushroom management areas. Conflict resolution, if required, will be based on section 5.6 of this plan. **2.2** In areas identified for Pine Mushroom management (from 2.1 above) implement timber harvesting/silviculture

Botanical Forest Products	
Objectives	**Strategies**
	strategies designed to maintain/enhance mushroom harvests **2.3** The Pine Mushroom steering committee will recommend an area to be established as an experimental Pine Mushroom management forest. **2.4** The Pine Mushroom steering committee will recommend an area to designated as a recreational Pine Mushroom harvesting area.
3. Reduce resource user and conservation conflicts between botanical forest product harvesting and forest management.	**3.1** Pursue a coordinated approach to pine mushroom management between Kalum planning area and adjacent areas. **3.2** Allow the botanical forest product industry to have an opportunity for input into forest development, landscape unit and access management planning. **3.3** Through consultation with First Nations, identify sites that are important for the traditional harvest of medicinal plants and integrate these into forest development activities at the operational planning level.
4. Manage for the ecological sustainability of botanical forest products.	**4.1** Evaluate the feasibility of regulating the PM harvest through either the licensing of buyers and harvesters or area based tenuring. **4.2** Encourage the establishment of ecologically sustainable botanical forest product harvesting techniques that maintain or restore the integrity of the resource (e.g. discourage raking of mosses, over harvesting in fragmented habitats, concentrated harvesting of floral greens, and removal of flag mushrooms).

2.2.6. Coastal Management

Public Recreation
Management Intent

- Maintain and enhance existing marine recreation opportunities.
- Develop potential opportunities for marine recreational activities.
- Maintain and protect marine recreation values associated with sites or features of recreational significance.
- Maintain access to public recreation areas.

Coastal Management – Public Recreation	
Objectives	**Strategies**

Coastal Management – Public Recreation	
Objectives	**Strategies**
1. Provide a variety of marine recreational opportunities ranging from semi-primitive motorized (Navigable Waters Protection Act ensures that no limitation can be placed on motorized access on marine waters) to roaded resource land according to the Recreation Opportunity Spectrum (ROS) **(Map 8)**.	**1.1** Identify anchorage's for small water-craft and establish as Reserves under the *Land Act*. **1.2** Establish mooring buoys in suitable anchorage's. **1.3** Using current BC Forest Service visual landscape management techniques complete visual landscape inventories and create Known Scenic Areas with established VQO's in Douglas Channel, Gardner Canal, and Devastation Channel. Visual quality management should consider that the majority of viewers will have a high level of expectation associated with identified anchorage's.
2. Minimize noise from marine-based commercial and industrial facilities to avoid disturbing recreational users in areas identified in the *Recreation Activities Map* **(Map 9)**.	**2.1** In areas important to marine recreation, identified in the *Recreation Activities Map*, minimize noise from marine based commercial and industrial facilities to avoid disturbing recreational users.
3. Minimize conflict with public recreation activity.	**3.1** Consult public recreation users prior to establishing commercial recreation tenures so that commercial recreation does not displace public recreation.
4. Minimize impacts to dive sites from other activities.	**4.1** Identify and map dive sites and make maps available to resource developers. **4.2** Manage dive sites in order to maintain dive site characteristics and features (e.g. biophysical, archeological and cultural characteristics).
5. Prevent degradation (through recreational overuse) of recreation sites and features identified in the *Recreation Activities Map* **(Map 9)**.	**5.1** Monitor levels of recreational use and associated impacts (e.g. Limits of Acceptable Change, Visitor Impact Management models) and wherever necessary apply appropriate management applied (e.g. site hardening, site design, use limits). **5.2** Conserve the marine recreation sites and features identified in the *Recreation Activities Map* and manage for the associated recreation values.
6. Maintain or enhance water quality in important	**6.1** Inventory and map recreational shell-fish harvesting areas.

Coastal Management – Public Recreation	
Objectives	**Strategies**
recreational shell-fish harvest areas.	**6.2** Regulate commercial or industrial tenures at or near identified recreational shell-fish harvest areas.

Environmental Management: Fish and Wildlife
Management Intent

- To maintain critical habitat for all marine environment species.
- To maintain or enhance current marine species populations.

Coastal Management: Environmental Management: Fish and Wildlife	
Objectives	**Strategies**
1. Conserve and manage estuaries recognizing their contribution to biological diversity and as critical habitat for many species.	**1.1** Promote the restoration of contaminated estuaries and intertidal zones. **1.2** Identify and maintain critical habitats for red and blue listed species. **1.3** Adopt a no net loss of estuary habitat for the plan area and full rehabilitation following interim (short term) commercial or industrial use. **1.4** In consultation with the Municipality of Kitimat establish the Kitimat River estuary as a Sensitive Area. **1.5** Assist the Municipality of Kitimat in the preparation of a Kitimat Estuary Management Plan that addresses such issues as: • Industrial development • Consumptive and non-consumptive wildlife use • Dredging of Minette Channel • Enhancement of estuary lands above and below high tide. • Native fishery • Restriction of logging on the estuary perimeter • Definition of estuary boundaries that includes Minette Bay and Minette Channel.
2. Maintain or enhance the diversity of salmon habitat.	**2.1** Work towards a net gain in productive capacity for salmon habitat. **2.2** Maintain and enhance water quality in known salmon

Coastal Management: Environmental Management: Fish and Wildlife	
Objectives	**Strategies**
	habitat. **2.3** Conduct Salmon habitat inventories to identify sensitive/critical areas in the marine environment (including coastal estuaries)that require enhanced riparian protection. **2.4** Identify specific projects to enhance salmon habitat.
3. The Province will work with the Department of Fisheries and Oceans to protect and maintain identified herring spawning areas.	**3.1** Work cooperatively to inventory and map herring spawning areas. **3.2** Avoid disturbance caused by industrial and commercial activity during herring spawning periods. **3.3** No facility development will take place in spawning areas.
4. Protect and maintain identified oolichan spawning areas.	**4.1** Inventory and map oolichan spawning areas. **4.2** Avoid disturbance caused by industrial and commercial activity during oolichan spawning periods. **4.3** Prevent facility development from taking place in spawning areas.
5. Protect and maintain known high value marine mammal habitats (e.g. congregation sites).	**5.1** Encourage education regarding the location and timing of marine mammal congregation to avoid disturbance. **5.2** Identify "hot spots" (significant known locations) of marine mammal activity and provide for their conservation.
6. Protect environmentally sensitive areas and marine sensitive zones from negative impact of industrial and commercial activity.	**6.1** It is recommended to the statutory decision maker to identify and establish Sensitive Areas and Marine Sensitive Zones as defined under the *Forest Practices Code* (1998). **6.2** Identify and establish environmentally sensitive areas through review processes associated with Official Community Planning and Environmental Assessment Processes and modify development accordingly.
7. Maintain identified migratory waterfowl and seabird (Appendix G) nesting and staging sites.	**7.1** Minimize disturbance to migratory waterfowl and seabirds while on nesting/staging areas. **7.2** Identify "hot spots" (significant known locations) of migratory sea-bird activity and provide for their conservation. **7.3** Maintain natural hydrological regimes and water quality of Foch Lagoon in order to preserve wintering habitat for Barrow's Golden Eye.
8. Maintain water quality in	**8.1** Implement water quality monitoring programs to identify

Coastal Management: Environmental Management: Fish and Wildlife	
Objectives	**Strategies**
important recreational and commercial shellfish culture and harvesting areas.	contaminated shellfish harvesting areas. **8.2** Inventory and map shellfish harvesting areas as well as areas that are closed to harvest due to microbial contamination and update maps with respect to new shellfish harvesting areas and culture facilities. **8.3** Regulate sewage discharges from upland residences, floating accommodation, and commercial or industrial activities at or near shellfish harvest and aquaculture areas in order to avoid microbial contamination. **8.4** Where shellfish harvesting and aquaculture areas are closed to harvest due to microbial contamination, implement water quality remediation programs.

Foreshore Settlement
Management Intent

- To maintain opportunities for development of residential and public facilities without negatively impacting the marine environment or restricting access.

Coastal Management: Foreshore Settlement	
Objectives	**Strategies**
1. Require all residential and public facility structures, that cross the foreshore meet public safety, environmental regulations and guidelines.	**1.1** Require tenures for all docks and piers constructed in tidal waters. **1.2** Minimize hazards or disruptions to marine navigation from any tenured improvements by complying fully with the provisions of the *Navigable Waters Protection Act.* **1.3** Require all aquatic crown land developments to conform with navigational, public access and zoning requirements of other agencies.
2. Require all residential and public facility structures do not interrupt the full right of the public to access the foreshore.	**2.1** Enforce trespass provisions (recommend closure of non-tenured recreational docks) where these unauthorized facilities are negatively impacting other resource values or activities and uses.
3. Minimize erosion hazard.	**3.1** Prohibit construction of facilities that function as a breakwater or similar structure that may impede littoral drift. **3.2** Require all residential and public facility structures to not negatively interrupt or divert the movement of water or

Coastal Management: Foreshore Settlement	
Objectives	**Strategies**
	material by water along the shoreline.
4. Minimize impacts from new residential and public facilities on habitats, water quality and public recreation.	**4.1** Implement habitat protection measures (i.e. Department of Fisheries and Oceans *Marina Siting Guidelines*) when siting facilities in tidal and near tidal areas.
5. Continue to provide opportunities for local communities to be involved in the Environmental Assessment Process of proposed new shipping terminals.	**5.1** Provide opportunities for public involvement in the siting of new shipping terminals. **5.2** Conduct environmental impact assessments on the expansion of existing or siting of new shipping facilities.

Tourism
Management Intent

- Maintain and enhance existing marine tourism opportunities in the Douglas Channel and Gardener Canal
- Provide opportunities for tourism in the Douglas Channel and Gardener Canal

Coastal Management: Tourism	
Objectives	**Strategies**
1. Provide opportunities to expand marine commercial recreation.	**1.1** Identify opportunities for long term tenure for shore based facilities that support commercial tourism through implementation of the Commercial Recreation Policy. **1.2** Identify potential marine eco-tourism routes and destinations.
2. Protect "sensitive" aquatic environments from sewage discharges from navigable vessels.	**2.1** Identify and nominate "sensitive" aquatic environments for designation as "no dump zones" (sewage) under the *Pleasure Craft Pollution Prevention Regulation.* **2.2** Where feasible, encourage the provision of onshore sewage disposal facilities in designated "no dump zones".

Industrial Activities, Facilities and Access
Management Intent

- Enhance and diversify the local economy through the maintenance and expansion of existing or potential industrial opportunities.
- Maintain access to natural resources for industrial use purposes.

- Industrial development will occur in an environmentally sensitive manner.

Coastal Management: Industrial Activities, Facilities and Access	
Objectives	**Strategies**
1. Maintain access for resource development.	**1.1** Review and/or develop siting guideline criteria for log handling, booming, docking and heli-drop facilities that accounts for development, recreation and conservation interests. Identify areas that meet these criteria. **1.2** Rate areas for suitability for development. **1.3** Maintain access to timber supply in areas identified as suitable for log dumping and booming. **1.4** Encourage research to identify long term impacts of log dumps. **1.4** Develop and implement a pre-approved log handling strategy for identified areas (strat. 1.1) before granting tenure. **1.5** Rehabilitate existing log dumps where impacts are having a known negative effect on other resource values.
2. New and existing facilities will protect marine water quality.	**2.1** Require new facilities to plan for and adequately manage point and non-point marine aquatic discharges (sewage, oil and gas, faecals and other point and non-point discharges). **2.2** Minimize erosion hazard by ensuring that any tenured improvements do not function as a breakwater, groin or similar structure that may impede littoral drift. **2.3** Reduce effects of disturbing accumulated sea-bed toxins by scheduling dredging for new or upgraded terminals so that it does not occur during anadromous fish movement or affect rearing and rearing habitat.

Coastal Management: Cultural Heritage	
Objectives	**Strategies**
1. Through existing legislation protect archeological sites from human disturbance.	**1.1** Identify and designate coastal and underwater archaeological sites (First Nation & Non Native). **1.2** Encourage cooperative management (between Provincial Gov't and First Nations) of coastal and underwater archaeological sites with First Nations (e.g. Guardian program).
2. Recognize the specific	**2.1** Maintain access to food sources through identification of

Coastal Management: Cultural Heritage	
Objectives	**Strategies**
rights of First Nations to sustainably harvest marine aquatic species (e.g. herring spawn on kelp) at traditional locations.	sites for use in resource development planning. **2.2** Minimize impacts to fish habitat by adopting environmentally suitable harvesting rates and methods.
3. Encourage measures that prevent contamination of First Nations traditional use areas for aboriginal food fisheries.	**3.1** Encourage municipal governments and navigational vessels to meet environmental protection standards by restricting sewage discharge to the marine environment at or near First Nation traditional use areas for aboriginal food fisheries. **3.2** Encourage partnerships to increase testing for bio-accumulation of toxins in marine aquatic species used by First Nations for food. **3.3** First Nations traditional use areas for aboriginal food fisheries should not be subject to contamination. Where activities are mandated by the provincial government, implement measures that avoid contamination of traditional use areas for aboriginal food fisheries.
4. Encourage improved knowledge of First Nations food sources (present and historic).	**4.1** Develop partnerships between governments to identify and inventory First Nations food sources.
5. The land development tenuring process will reflect identified First Nations traditional food sources and areas.	**5.1** The land development tenure adjudication process will not unjustifiably infringe on the rights of First Nations to traditional food sources. **5.2** Request the appropriate agencies to consult with First Nations regarding potential damage to marine food harvest areas prior to development. **5.3** Consult First Nations users prior to establishing commercial recreation tenures so that tenuring does not negatively affect cultural and traditional uses.
6. Provide or enhance opportunities (under utilized and/or value added) for the sustainable commercial harvest of marine aquatic species (e.g. kelp) with respect to the rights held by first nations.	**6.1** Promote partnerships between industry, First Nations, and government for research and development of value-added products and marketing for marine and aquatic species. **6.2** Investigate the potential of experimental kelp farming. **6.3** Develop operational procedures to harvest kelp in a sustainable manner, such as; • Restrict cutting of Giant Kelp stems to within 3 metres

Coastal Management: Cultural Heritage	
Objectives	**Strategies**
	of the seabed. • Prior to August 15th restrict harvesting of the Bull Kelp bulb and so that only fronds are harvested no closer than 30 cm from the bulb. • No more than 25% of the standing crop of kelp should be harvested.

2.2.7. Cultural Heritage

Resource Values and Issues

Cultural heritage resources in the Kalum LRMP plan area reflect past and present uses by both aboriginal and non-aboriginal peoples. Three categories of resources are in evidence: archaeological sites containing physical remains of past human activity, historical sites often consisting of built structures or localities of events significant to living communities, and traditional use sites which may or may not show physical evidence of human-made artifacts or structures but maintain significance to living communities. Cultural Heritage Resources are defined as: *an object, a site, or the location of a traditional social practice of historical, cultural or archeological significance to the province, a community or an aboriginal people. Cultural heritage resources include archeological sites, structural features, heritage landscape features, and traditional use sites.*

Known archaeological sites within the plan area include: habitation and subsistence sites with features such as oolichan camps, culturally modified trees, human remains, pictographs, and sites consisting of cultural materials such as stone tools and/or flakes. Historical sites date from the early fur trade and homestead period. Traditional use sites may include sacred sites, resource gathering sites such as berry picking and hunting grounds, as well as sites or postevents of a legendary or cultural significance (e.g. execution site at Exchamsiks bluffs). A complex network of trails, including extensive “grease” trails resulting from trade of oil derived from oolichan processing, is indicative of early traditional use sites and trade routes between the aboriginal peoples of the coast and the interior. Regional trail systems (most notably, the Telegraph and Bella Coola trails) of both traditional and historical significance also traverse the planning area.

An archaeological overview assessment completed for the plan area identifies areas of significant archaeological potential. These areas, primarily associated with lake, stream and other water features, will receive additional investigation through the resource development process as per the *BC Archaeological Impact Assessment Guidelines, Heritage Conservation Act, Protocol on the Management of Cultural Heritage Resources Between Ministry of Forests and Ministry of Small Business, Tourism and Culture.* Traditional Use Studies combine with existing operational level protocols between aboriginal peoples and the Ministry of Forests to avoid or mitigate the impact of resource development on traditional use areas.

Primary concerns include: avoiding the loss of cultural heritage resources and ensuring the maintenance of aboriginal rights in the course of natural resource development, and maintaining appropriate sensitivity in the development of cultural heritage resources.

Management Intent

- Identification and conservation of select Cultural heritage resources.

Cultural Heritage	
Objectives	**Strategies**
1. Manage for archaeological resources.	**1.1** Undertake archaeological overview assessments to assess resource potential and determine the need for further archaeological investigations. Consult with First Nations when undertaking assessments related to First Nations cultural heritage resources. **1.2** Conduct Archaeological Impact Assessments prior to land altering activities in areas that contain or have the potential to contain archaeological sites (sites are protected under the provisions of the *Heritage Conservation Act*).
2. Identify and conserve selected cultural heritage resources.	**2.1** Complete a summary report of heritage resources to identify Provincially/regionally significant archaeological and historical resources (including those in Table 4) and where appropriate propose designation under the *Heritage Conservation Act* or *Municipal Act* .
3. Minimize negative impacts to cultural heritage resources associated with resource development.	**3.1** Undertake appropriate impact management measures either through avoidance or completion of impact management requirements where avoidance is not possible. Sites protected under the *Heritage Conservation Act* can only be altered under permit.
4. Aboriginal rights and/or title will not be unjustifiably infringed upon by land and resource management activities of the Crown or its licensees.	**4.1** Undertake Traditional Use Studies (TUS) in collaboration with First Nations to identify areas of traditional aboriginal land and resource use. **4.2** Undertake consultation with aboriginal peoples, as per government policy, guidelines and protocols, for land and resource management activities that may affect aboriginal rights and/or title. **4.3** Protect sensitive information concerning the location of archaeological sites.
5. Encourage development of cultural heritage interpretative facilities and programs.	**5.1** Assess opportunities for the development of interpretative facilities and programs in co-operation aboriginal peoples and local governments.

TABLE 4: *Provincially/regionally significant archaeological and historical resources (Table 4 was developed as part of the Kalum LRMP local knowledge project. Copies of the document and maps can be found in the Kalum Forest District office).*

PLANNING UNIT	VALUE
Barrie North	• Haisla oolichan processing camps around north side Kemano Bay (103Hpoint17)
Beaver	• Historic First Nations hunting and fishing • Historic cabins (103lpoint37)
Bish	• Indian reserve located at the mouth of Bish Creek and cultural uses in the general area
Cecil	• Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24)
Cedar	• Telegraph line to Telegraph Creek • Cabins in Old Rosswood following the telegraph line and from mineral activities
Chimdemash - Legate	• Mining machinery and equipment remaining in the alpine
Copper Lower	• Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24) • Dardanelle Mine
Foch	• Old mine site up the creek at the entrance to Foch Lagoon on the north side
Hawkesbury Island East	• Culturally modified trees and a native dugout canoe
Hot Springs	• Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24)
Kalum Lower	• Hart Farm historic site – homestead, hotel accommodated travelers on route up Kalum Lake and a sawmill (103lpoint34) • Kalum River log drives from Kalum Lake to Skeena River in the 1950's • Nisga'a water trade route over Kitsumkalum Lake, Redsand Lake and Treston Lake
Kemano River	• Haisla oolichan processing camps around Kemano Bay (103Hpoint18) • Haisla grave site at I.R. 17 and a replica of a historic totem

	pole was erected in the 1990's (103Hpoint22)
Kildala	• Native use of Kildala River for salmon and oolichan
Kowesas	• Haisla historical village and traditional use for fishing, hunting etc.
Lakelse River	• First Nations archaeological sites along the Lakelse River (Kitsumkalum Band?) • Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24)
Little Wedeene	• Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24)
Nelson	• Historical trapping and bear hunting
Skeena River Kalum	• Skeena River historical transportation route for First Nations, traders and settlers from the coast to the interior • Historical steamboats and riverboats route • Spruce from the Dave Estates (Skeena Islands in the Tree Farm License) used to build airplanes during World War II • First Nation's village site at the mouth of Lakelse River • Graveyard Point Cairn in memory of a chief • The bluffs at the mouth of Exchamsiks River were used as execution sites • Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24)
Treasure	• Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24)
Wathl	• Kitimaat Village Haisla community (103Hpoint15) • Gobeil Bay traditional use site (103Hpoly37)
Wedeene	• Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24)
Weewanie	• Numerous examples of Haisla culturally modified trees date pre-1846 and protected under the Heritage Conservation Act • Non-native burial site in the southeast waterfall meadow wall at Eagle Bay
Williams	• Historic First Nations grease trail Kitimat-Lakelse-Thornhill-Copper (103l&93Lline24)

Zymacord	• Paul Hertl 1920's homestead (103lpoint35)

2.2.8. Fish and Fish Habitat

Resource Values and Issues
Fish streams in the Kalum LRMP can be grouped by drainage systems: the Nass River, the Skeena River and the central coast rivers and creeks.

Within the LRMP, the Nass River is sub tidal to the Ishkheenickh River and has a large main stem with sidechannels in a wide floodplain. Its major tributary watersheds are the Ishkheenickh, Tseax and Kiteen Rivers.

West of Terrace, the Skeena River and its floodplain are characterized by numerous side channels and back channels around forested islands. East of Terrace, the main stem Skeena River is more confined with less side channel development. Within the Skeena drainage in the LRMP, the three largest tributary systems are the Zymoetz (Copper) River, Kitsumkalum River, and the Lakelse River.

In the central coast along Douglas Channel and Gardner Canal, fish streams range from small steep gradient creeks to large estuarine systems including the Kitimat, Dala, Kildala, Kemano and Kitlope Rivers.

A range of native fish species are found in the Nass and Skeena River systems including the blue-listed (vulnerable) bull trout in the main stems of the Nass and Kitsumkalum Rivers. Some of the tributaries to the Skeena and Nass Rivers support special runs of anadromous fish stocks. In the smaller central coast watersheds, the number of native species in a drainage may be limited by steep gradients, waterfalls and fish barriers near sea level.

There are seven large freshwater lakes: Lava Lake in the Nass drainage; Kitsumkalum, Alastair and Lakelse Lakes in the Skeena drainage; Foch Lake and Jesse Lake draining into Douglas Channel and Kitlope Lake in the Kitlope River system at the head of Gardiner Canal. These large lakes and a number of small lakes within the plan support fish populations.

Maintaining healthy fish populations in our lakes and streams is a growing concern as additional lands become accessed and developed, particularly where adjacent land uses such as urban development, agricultural activity, road development and timber harvesting conflict with fish habitat protection Where past activities have degraded fish habitat and lowered fish populations, restoration or enhancement works are required to return the habitat and fish populations to historic values. Another major concern, outside of the LRMP mandate, is the need for a more cooperative approach between Department of Fisheries and Oceans, Ministry of Environment, Lands and Parks, the Ministry of Forests, and interested stakeholders.

The area's recreational fishing opportunities are locally, provincially and internationally significant. Seven of the province's classified waters are within the LRMP: the Gitnadoix River and Zymoetz (Copper) River above Limonite Creek are Class I waters; the Kitsumkalum River,

Lakelse River, two main stem reaches of the Skeena River and Zymoetz (Copper) River below Limonite Creek are Class II waters. Classified waters are identified as highly productive trout streams and are specially licensed to preserve their unique fishing opportunities. The range of fishing opportunities and settings, from Skeena River bar fishing for Pacific salmon to steelhead fishing the undeveloped Gitnadoix River or trout fishing on Lakelse Lake, contribute significantly to our reputation as a world class fishing destination. Opportunities to view fish spawning will be encouraged in designated locations to promote environmental education, recreation and tourism.

Management Intent

- Conservation of indigenous fish species and habitats reflective of their requirements throughout their life histories (e.g. spawning, rearing, estuarine, refuge).
- Maintenance of opportunities for the consumptive and nonconsumptive human use of fish.

Fish and Fish Habitat	
Objectives	**Strategies**
1. Prevent or minimize the effects of development activities on fish populations and fish habitat.	**1.1** Where development may affect fish or fish habitat, identify and evaluate presence of fish and fish habitat prior to development using current classification systems. **1.2** Undertake an interagency technical evaluation (as per the *Coastal Watershed Assessment Procedure (CWAPs)* guidebook criteria) to assess the following watersheds for CWAPs. This evaluation will be completed in consultation with affected parties including licensees and First Nations. Where CWAPs are required apply appropriate remediative and mitigative measures to ensure maintenance of fish habitat attributes and water quality. Watersheds for evaluation include: • Kitimat River • Kemano River • Kildala River • Dala River • Williams Creek • Lakelse River • Clore River • Kitnayakwa River • Kleanza Creek • Zymacord (Zymagotitz) River • Cedar River • Clear Creek • Deep/Spring Creek

Fish and Fish Habitat	
Objectives	**Strategies**
	• Hatchery Creek • Beaver (Upper Kitsumkalum) River • Schulbuckhand (Scully) Creek • Furlong Creek • Coldwater Creek **1.3** Apply the joint "Federal/Provincial" Land Development Guidelines" to residential, commercial and industrial developments to mitigate their potential impacts on aquatic habitat. **1.4** Where appropriate, identify in-stream operating work windows and/or protective measures where development activities may affect fish or fish habitat. **1.5** Interpret and adopt policy that is reflective of the federal "no net loss of productive fish habitat" policy.
2. Manage existing populations of vulnerable and/or distinct fish stocks and species for their healthy perpetuation.	**2.1** Identify vulnerable and/or distinct genetic fish stocks and species within the Plan area. **2.2** Endorse the designation of vulnerable and/or distinct genetic fish stocks and species as "regionally significant fish". **2.3** Develop management and access strategies in consultation with affected interests to conserve the habitats of vulnerable and/or distinct fish stocks and species.
3. Rehabilitate fish populations and/or habitat where degraded and, where appropriate, undertake enhancement projects.	**3.1** Identify opportunities, prioritize sites, and implement, monitor and evaluate plans for rehabilitation or enhancement.
4. Provide a range of opportunities for consumptive and non-consumptive use of fish.	**4.1** In consultation with *First Nations* identify and develop suitable fish spawning viewing areas with focused access points and educational opportunities, including: • Lower Shames River • Deep Creek • North end Kalum Lake • Lower Lakelse River • "Herman's Hole" (Lakelse River)

Fish and Fish Habitat	
Objectives	**Strategies**
	• Williams Creek, Skully Creek • Bish Creek • Kemano River • Kleanza Creek, and • Kitimat River. **4.2** Consult with angling stakeholders regarding the range of opportunities and range of access (see Section 1.1, Access Management) including: • a variety of walk-in distances • canoe portaging • boat ramp sites • 2-wheel drive access, and • 4-wheel drive access. **4.3** Conduct lake and stream reach classification and inventories for designation for maintenance within an assigned recreational opportunity class. The intent is to maintain the spectrum of recreational opportunities for the planning area's lakes and streams. **4.4** On high use nonclassified angling waters such as the Kitimat River, develop angling management plans that maintain or restore the quality of the angling experience through: • vehicle access management, • provision of boat access points, • examination of recreational impacts on spawning beds, • provision of angler etiquette such as wading through spawning beds, • provision of camping and/or latrine facilities.
5. Manage for a quality angling experience on classified waters (i.e. class 1 and class 2 water as defined in the fishing regulation).	**5.1** Maintain good water quality with parameters set by BC Environment that are river specific and reflect the natural variances of turbidity and siltation events. **5.2**.Maintain fish habitat in an effort to sustain angler success rate associated with classified waters to the satisfaction of recreational anglers. **5.3** Maintain a perceived uncrowded angling experience through; • Determination of social carrying capacity of

Fish and Fish Habitat	
Objectives	**Strategies**
	classified waters. • Development of access management and angling management plans for classified waters which addresses;. ⇒ vehicle access management, ⇒ provision of boat access points, ⇒ examination of recreational impacts on spawning beds, ⇒ provision of angler etiquette such as wading through spawning beds, ⇒ provision of camping and/or latrine facilities. **5.4** For class 1 water, it is recommended to the statutory decision maker to manage the viewscape by setting Visual Quality Objectives (VQOs) that focus on the identification of foreground preservation. Foreground preservation is defined by a 100 m minimum reserve from the river. Visual quality should be managed to maintain a quality experience along the edge of the reserve where less than 100m makes "best" operational/environmental practice. The intent is to use the reserve strip of timber to protect the visual experience of anglers and recreationalists on the river. Where harvesting is proposed within the 100m reserve for site-specific reasons, licensed angling guides should be contacted directly during the planning phase. For background visual quality management, partial retention will take effect immediately and be in place until such time as a visual landscape inventory with established visual quality objectives is completed. Once complete, Known Scenic Areas will be created with established VQO's. The intent of this strategy is to ensure dialogue between adjacent licensed users along the margin of the reserve area. This does not preclude or in any way diminish opportunity for communication/input to harvesting plans by the broader angling community. **5.5** For class 1 water of the Zymoetz River, consider minimizing disturbance caused by resource development activities during the specified class 1 angling season. **5.6**. Emphasize public recreational angling opportunities on Class 1 water, while maintaining opportunities for guided angling.

2.2.9. Fresh Water

Resource Values and Issues

Water quality within the plan area is considered relatively good. There are abundant rivers, streams, and creeks and several large but significant lakes that together contribute to the environmental, social, and economic well being of the area. The Skeena and Nass rivers are provincially significant river systems that originate from outside of the plan area and play a defining role in the maintenance of healthy ecosystems, vibrant communities and a strong economy. The Kitimat, Kitsumkalum and Zymoetz (Copper) rivers are regionally significant watercourses that also contribute to the socio/economic and environmental vitality of the area.

A large majority of watercourses within the plan area originate from glacial melt and carve steep, narrow channels that are sensitive to disturbance and subject to erosion and sediment delivery events. Communities and Table members are concerned about the impacts of industrial development on water quality and quantity. The use of pesticide is of particular concern to some Table members.

A number of community watersheds have been established in the plan area to manage the quantity and quality of water for the majority of human consumption, however Table members expressed concern regarding broader issues of water management that applied across the landbase. Table members would like to see the quality and quantity of water maintained for a variety of users including flora, fauna, domestic (outside of community watersheds), commercial and industrial users.

Management Intent

The intent of this LRMP is to maintain or enhance the quality and quantity of ground and surface water to maintain flora and fauna aquatic and terrestrial habitat, and to provide for domestic, commercial and industrial uses. In addition, protection of community watershed values and ensuring adequate planning prior to Crown Land development for residential and commercial purposes are emphasized.

Fresh Water	
Objectives	**Strategies**
1. Manage resource development activities to minimize negative impacts on surface and ground water quality for flora, fauna, domestic, commercial and industrial users.	**1.1** Outside of Community Watersheds identify licensed and non-licensed water users for purposes of resource development planning and referral. Water quality and quantity will remain acceptable for identified licensed and non-licensed users. **1.2** Discourage the use of pesticides within identified sub-catchments (identified in strategy 1.1) and near water sources. **1.3** Encourage government to enact effective and achievable monitoring of ground and surface water through an achievable monitoring strategy.

Fresh Water	
Objectives	**Strategies**
	1.4 Provide opportunities for the installation of water quality and quantity monitoring sites throughout the planning area. **1.5** Encourage new programs that enhance water quality and quantity. **1.6** Encourage hydrological research of ground water flow. **1.7** Support reclamation and restoration projects on a priority basis, and identify areas in need of special management attention with respect to water management. **1.8** Identify potential areas of concern with regards to terrain stability and surface erosion hazard through overview mapping. **1.9** Incorporate sediment control strategies into resource development plans. **1.10** Conduct awareness training from the field to planning level about the preventative measures of sediment control and erosion events. The target audience includes forestry, CN, utility companies, highways personnel, and private landowners.
2. Manage human activities to maintain hydrological stability.	**2.1** Undertake an interagency technical evaluation (as per the *Coastal Watershed Assessment Procedure (CWAPs)* guidebook criteria) to assess the following watersheds for CWAPs. Complete this evaluation in consultation with affected parties including licensees and First Nations. Where CWAPs are required apply appropriate remediative and mitigative measures to ensure maintenance of fish habitat attributes and water quality. Watersheds for evaluation include: • Kitimat River • Kemano River • Kildala River • Dala River • Williams Creek • Lakelse River • Clore River • Kitnayakwa River • Kleanza Creek • Zymacord (Zymagotitz) River

Fresh Water	
Objectives	**Strategies**
	• Cedar River • Clear Creek • Deep/Spring Creek • Hatchery Creek • Beaver (Upper Kitsumkalum) River • Schulbuckhand (Scully) Creek • Furlong Creek • Coldwater Creek **2.2** In watersheds (identified through the process identified in strategy 2.1) use appropriate methods (e.g. Coastal Watershed Assessment Procedure (CWAP) to plan resource development and limit negative hydrological impacts (e.g. establishing road densities and clear-cut equivalencies). **2.3** Potential impact assessment issues will be identified for the resultant watersheds in the priority list. **2.4** Water quality, aquatic ecosystem and hydrological regime objectives will be defined in terms of measurable attributes. These measurable attributes will serve as standards or goal posts so that the impact of development can be monitored and assessed. Monitoring and assessment of Lakelse Lake will be a priority. **2.5** Develop watershed management strategies which address water demands, fisheries low flow rate requirements, and water runoff rates (water retention) that maintain the hydrological regime in a near natural state. **2.6** Undertake watershed restoration activities for impacted watersheds to restore hydrological stability and water quality. **2.7** Harvest timber according to the priority spatial and temporal design recommendations in Watershed Assessment Procedures for identified watersheds.
3. Protect life and property from hydrological events.	**3.1** Manage human activities to avoid increasing the effects of seasonal drought conditions. **3.2** Undertake future settlement of floodplains to be undertaken only when the appropriate floodplain prescriptions (e.g. set-backs, by-laws) derived from BC Environment floodplain

Fresh Water	
Objectives	**Strategies**
	standards are met. **3.3** Adequately enforce municipal, village, district and regional district by-laws with respect to floodplain development. **3.4** Where appropriate, floodplain mapping to be conducted prior to Crown Land alienation for development purposes. **3.5** Build flood control and river erosion protection dykes to BC Environment standards when development requires such mitigative measures. **3.6** Encourage establishment of local dyking authorities for the monitoring and maintenance of dykes. **3.7** Require geomorphological surveys and reports to be prepared to the satisfaction of BC Environment prior to Crown Land alienation for development purposes on alluvial fans.
4. Manage human activities to maintain or enhance water quality and minimize water pollution.	**4.1** Undertake inventory projects to identify and assess sources of water pollution (e.g. toxic burial sites, septic tank leakages) and make recommendations for corrective measures. **4.2** Provide opportunities for the installation of water quality monitoring stations. **4.3** Support remediation projects on a priority basis. **4.4** Industrial and community water effluent treatment will meet or exceeds existing standards. **4.5** Provide for adequate enforcement where necessary. **4.6** Official Community Plan's and municipalities to adopt provincial and federal guidelines (i.e. Stream Stewardship Series – DFO/BC Environment) for stream stewardship and land development for the protection of aquatic habitat.
5. Manage lakes for water quality, fisheries, wildlife, recreation and other resource uses.	**5.1** Develop management plans for the following list of lakes: • Lakelse • Kalum/Redsand • Jesse • Lava • Ena, End and Clearwater **5.2** Recommend lake classification in accordance with the Forest Practices Code of BC Act.

2.2.10. Geological and Energy Resources

Resource Values and Issues

The Kalum LRMP area is endowed with provincially significant mineralization in its eastern third, area and has significant geothermal potential in the Lakelse area. Mineral potential mapping, supported by highly prospective geological units, indicate that this area of mineralization has high potential and is an attractive area for mineral exploration and development. A few parts of the area have had a long history of exploration; however, many areas have only had cursory examination. Significant opportunity remains to identify and develop mineral deposits. Please see Appendix H which provides a brief outline of the nature of exploration and development activities.

Exploration and development for minerals and energy, including roaded resource development, are permitted throughout the plan area outside of protected areas. This activity is undertaken in consideration of other resource values such as wildlife habitat, aquatic ecosystems, visual quality, and biodiversity. Outside of protected areas, existing tenure rights are not diminished and new mineral tenures can be staked and recorded on all Crown lands.

Mineral and energy exploration and development are administered under numerous Acts, some of the principal ones for minerals being the *Mineral Tenure Act*, *Mines Act*, Mineral Exploration Code, and *Environmental Assessment Act* (a comprehensive list of applicable Acts can be found in I). Mineral and energy exploration is administered by a comprehensive referral process among government agencies, First Nations and regional districts. Mineral and energy development is administered by comprehensive review and approval processes that ensure all technical, social and environmental aspects are completely assessed. These processes review all project proposals for consistency with the management direction in the LRMP for General Management Direction and Special Management.

Management Intent

LRMP objectives and strategies include some flexibility to accommodate the hidden and site-specific nature of mineral and energy resources. The LRMP confirms the importance of the plan area for mineral and energy resources by ensuring that substantial portions of the landbase are available for exploration and development. This reduces the uncertainty of land use for industry and contributes to a more positive investment climate for exploration and development. Viable exploration and development industries encourage local business ventures and employment opportunities. Over time additional community capacity can be developed which will broaden the community benefits from mineral and energy business and employment, as well as from associated infrastructure.

Geological and Energy Resources	
Objectives	**Strategies**
1. Maintain opportunities for access (e.g. trails, roads) to Crown land for potential development of	**1.1** Make opportunities available for geological and energy resource exploration and development on all lands outside of protected areas, in accordance with Kalum LRMP objectives and strategies and subject to standard regulatory approval

Geological and Energy Resources	
Objectives	**Strategies**
geological (metallic and industrial minerals, coal, sand and gravel) and energy resources (oil and gas, geothermal and other energy-related resources).	processes and conditions. **1.2** Integrate the access needs of prospecting, exploration and development into access management planning processes. **1.3** In areas distant from roads encourage air access for early stages of exploration (note: cross-reference to access section).
2. Mineral and energy values will be integrated into all levels of planning.	**2.1** Provide inventories and maps of mineral and energy values to planning processes. **2.2** Make industry stakeholders aware of opportunities to participate in planning processes.
3. Maintain the opportunity to explore, acquire tenure, develop, produce, process and transport geological and energy resources, (including highway maintenance and construction aggregate), throughout the planning area (excluding Protected Areas).	**3.1** Once decisions have been made concerning protected areas, review and where appropriate remove in a timely manner No Staking Reserves (mineral, placer and aggregate) and Deferred Posting Requests (oil and gas). **3.2** Encourage government to provide explorationists with local access to the information and government services needed to explore and acquire tenure through the Government Agent's Office and other appropriate agencies. **3.3** Encourage studies (e.g. scientific research, geological mapping, geochemical and geophysical programs, extraction and reclamation technological advances and technical workshops) to support opportunities for geological resource discovery and development, and informed resource management decision making. **3.4** Maintain and upgrade provincial geoscience databases for mineral and energy exploration, geotechnical activities, extraction and reclamation activities plus resource management needs.
4. Maximize social benefits and minimize environmental impacts of geological, aggregate and energy exploration and development.	**4.1** EXPLORATION Require mineral exploration activities involving mechanical disturbance to conform to the requirements of the Health, Safety and Reclamation Code, Part 11 Exploration. Aggregate development is to adhere to the Mines Act and Part 12 of the Health, Safety and Reclamation Code. Energy initiatives are to follow the Petroleum and Natural Gas Act and Regulations. These procedures will continue to include: (a) interagency and intergovernmental referral including

Geological and Energy Resources	
Objectives	**Strategies**
	consultation with First Nations and the Regional District. (b) preparation of reclamation plans prior to permitted exploration (mineral) or extraction (aggregate) activities. (c) bonding required to ensure implementation and completion of approved reclamation plans. **4.2** DEVELOPMENT a) Development proposals for large mines or energy resources will follow the procedures of the Environmental Assessment Act. Ensure that this process includes consideration of the cumulative affects of development on the environment (e.g. water quality, fish and wildlife) and involves appropriate public consultation. Where the cumulative affect is found to be too high, take steps to mitigate or alter project proposals. (b) Require development proposals for small to medium mines or energy resources to follow either the Northwest Mine Development Review Process or the Environmental Assessment Process depending on complexity, sensitivity (environmental, social, economic) or health and safety concerns. Provide opportunities for interagency review during the process. In addition study the cumulative effects, on the environment, and provide the public with an opportunity to bring forward social and resource issues of concern if requested by the Northwest Mine Development Review Process. Where the cumulative affect is found to be too high, take steps to mitigate or alter project proposals. **4.3** Encourage the mineral, oil and gas exploration and development industries, when active on "orphaned" or adjacent sites (i.e. no tenure holder) to reclaim these where the remains of past activity are unsightly, unsafe or have been disruptive on productive wildlife and fish habitat. **4.4** Encourage the provincial government, in cases of environmental hazard or public safety, to reclaim "orphaned" mineral, oil and gas exploration and development sites. **4.5** Encourage the exploration and development industries, including sand and gravel, to take into account impacts on such values as scenic views, noise, water quality, fish and wildlife habitat when planning activities and access.
5. Provide certainty of	**5.1** Encourage timely application of the compensation provisions

Geological and Energy Resources	
Objectives	**Strategies**
geological and energy resource tenures. Where land use designations expropriate mineral title, provide for appropriate mitigation or compensation.	under the Mining Rights Amendment Act should mineral tenures be expropriated by Protected Area establishment.
6. Provide for a timely, well defined and expeditious approval process for exploration and development which includes consideration of socio-economic, environmental and social values.	**6.1** Apply expeditious interagency referral processes: 1) as identified by the Health, Safety and Reclamation Code (mineral) , 2) the process used by the Oil and Gas Commission. **6.2** During the Environmental Assessment and Northwest Mine Development Review processes identify and give consideration to the cumulative effects of socio-economic restraints and of regulations on the development project. Where the cumulative affect is found to be too high, take steps to mitigate.
7. Increase public knowledge of geological and energy resources and maintain or enhance, where appropriate, access to Crown Land for public recreational (i.e. untenured) use of geological and energy resources (e.g. rock and mineral collecting and for fossil viewing, gold panning and hot spring use).	**7.1** Encourage opportunities to access public lands for rock and mineral collecting and for fossil viewing as well as recreational gold-panning and hot spring use. These popular pastimes are to be supported by public information (e.g. maps, brochures) about these geological and energy resources as well as generally about mineral and energy resource use and extraction. **7.2** Avoid exploration drilling projects which have the potential to compromise the Mt. Layton recreational hotspring resource.
8. Encourage inventorying and mapping of provincially significant fossil beds .	**8.1** Encourage government to inventory provincially significant fossil bed locations and map them.

Geological and Energy Resources	
Objectives	**Strategies**
9. When provincially significant fossil beds are encountered during resource development provide an opportunity for timely cataloguing and scientific research.	**9.1** Encourage developers to give the scientific community an opportunity to study provincially significant fossil beds for natural history purposes prior to a resource development (e.g. roadbed) covering/tearing up a fossil occurrence.

2.2.11. Grizzly Bear

Background

This document outlines the major elements of conservation and management measures for grizzly bear populations and the land base they depend on in the Kalum LRMP. The direction provided through the LRMP has been designed to help meet the goals of the provincial Grizzly Bear Conservation Strategy (GBCS) and was written to provide an overall framework for managing grizzly bears and their habitat throughout the LRMP area . A number of drafts of this document were reviewed and revised between 1998 and 2000 by the Interagency Planning Team, working groups and Table members. Discussions and analyses primarily focused on achieving an agreement that balances long term grizzly bear population viability and impacts on timber supply and timber flow. Grizzly Bears are designated as a higher level plan species under the Forest Practices Code. Consequently, measures to manage grizzly bear habitats have been recommended within the LRMP area in the broader provincial context. The LRMP objectives related to Forest Practices Code will be incorporated into higher level plans as Resource Management Zone objectives and will subsequently guide operational forest development. LRMP objectives outside of Forest Practices Code Higher Level Plan spices will be considered for Ministry of Water Land and Air Protection policy status and used to guide land and resource management under provincial jurisdiction (for example, Grizzly Bear Management Area designation, Parks management planning, commercial back country recreation and major project development).

BC Environment specialists conclude that the Base Case (i.e. no strategy application) will continue the gradual population decline in the plan area that has been occurring in the last four decades. This decline has been localized due to mortality concentration, bear/human conflict, direct habitat loss, habitat suitability alteration and fragmentation, and an erosion of habitat effectiveness through habitat alienation (displacement from preferred habitat). Although the rate and magnitude of the decline is uncertain, its likelihood is not. It is more effective and cost efficient to initiate proactive measures to stop grizzly bear population decline, than it is to institute more stringent reactive measures in the future to achieve the same objective.

Grizzly Bear Population Units are the highest level of stratification under the Grizzly Bear Conservation Strategy. Within the boundaries of the Kalum LRMP, there are portions of six Grizzly Bear Population Units: Stewart-Meziadin, Khutzeymateen, Cranberry, North Coast, Bulkley-Lakes, and Kitlope-Fjordland **(Map 10)**. All Grizzly Bear Population Units (GBPUs) in

the Kalum LRMP area are currently classed as viable. However, within these GBPUs, watersheds (sub-landscape units) are well below *capability*. S*uitability* or current level of habitat capability and *effectiveness* or usability of the habitat has been compromised by human activities that have lead to habitat loss, habitat displacement, habitat alteration, and excessive mortality contributed by ease of access and bear habituation. The current population estimate for the LRMP, including part of the Nisga'a Lands, is approximately 650 bears plus/minus 200 bears (the population estimation methodology is thorough but has a significant degree of uncertainty without an exact count or population inference).

Due to the historic nature of resource development in the LRMP area, there are many watersheds that require localized habitat and population recovery to stabilize the diversity and abundance of grizzly bears and the ecosystems on which they depend. There are also a number of watersheds that are in their initial stages of resource development. To sustain existing numbers of grizzly bears utilizing these latter drainages, it is important, at the start, to address factors that contribute to grizzly bear decline. The combination of grizzly bear habitat mitigation measures, critical habitat protection and restoration, access management, and measures to address unacceptable levels of grizzly bear mortality, is anticipated to result in increasing the functionality of the LRMP area to support grizzly bears. This will, in turn, achieve a healthy grizzly bear population for the LRMP area. Watersheds have been prioritized for implementation of such measures based on their ability to support grizzly bears and the habitat recovery required. Due to the relatively low reproductive capacity of grizzly bear populations, recovery to achieve population stabilization is anticipated to be slow and it will be a number of years hence, possibly several decades, before conclusive results emerge.

It is recognized that areas in close proximity to human settlement, as identified on **Map 11**, will not be subject to the application of grizzly bear habitat management strategies.

Grizzly Bear Management Areas (GBMAs) are the next level of stratification under the Grizzly Bear Conservation Strategy. GBMAs are proposed to identify lands with key habitat attributes that further the grizzly bear objective of ensuring a viable and healthy population. A **Benchmark GBMA** is proposed for the area surrounding the Khutzeymateen Park. This Benchmark GBMA proposal is a key component to the Grizzly Bear Conservation Strategy and provides grizzly bear population and ecosystem representation in the Coast and Mountains Ecoprovince. Two very small **Linkage GBMAs** are proposed to provide linkage across the major population "fractures" at the Skeena River and Highway 16 corridor (near Little Oliver Creek) and the Lakelse-Kitimat settlement and Highway 37 south corridor where the highway crosses the Kitimat River. All 3 GBMAs are proposed for designation as Special Resource Management Zones.

Some of the management practices are meant to apply throughout the LRMP area except in communities, heavily settled rural areas, agricultural lands, high-use recreation areas, and near mines. These broad objectives and strategies are meant to set the minimum standards for grizzly bear conservation and apply throughout the plan area. Other objectives, strategies and practices are targeted to specific watersheds identified by their inherent ability to support grizzly bears (capability). In addition, the stratification for grizzly bears has been designed to complement the current Biodiversity Emphasis Option proposed for Landscape Units within the Kalum LRMP.

Identified Watersheds have been delineated to highlight particularly important areas of the LRMP for grizzly bear conservation **(Map 11)**. Restoration of habitat effectiveness is proposed for localized areas in these highly capable watersheds. The greater the difference between the current and target effectiveness levels, the greater the proposed emphasis on habitat restoration and habitat recovery. Where the current and target levels of effectiveness are closer, the greater the proposed emphasis on habitat protection and mitigation of the effects of human activities.

Critical Patch Habitats have been described for the entire plan area (refer to Resource Values & Issues section), but have been mapped only in selected watersheds. These unique habitats offer essential seasonal requisites including foraging, bedding and even denning.

Methods

For the Kalum LRMP conservation assessment, a variety of strategic-level inventories were compiled, summarized and analyzed to determine which watersheds are proposed for identified watershed status. The central inventory was the Broad Ecosystem Unit (BEU) map which was interpreted for grizzly bear habitat capability and suitability. Distribution of bear habitat value across the plan area was greatly improved by linking the Department of Fisheries and Oceans average salmon escapement data to watersheds (by salmon species). The LRMP's Grizzly Bear Working Group compiled and mapped road density, recreational user days, industrial user days, and highway user days - each of which influences the "usability" or effectiveness of a watershed. And finally, local knowledge and the Baseline Thematic Mapper (interpreted LANDSAT satellite imagery) was used to map highly altered and alienated land around human settlements where grizzly bear objectives and strategies would not apply.

Resource Values and Issues

Grizzly bears select numerous different types of habitats from the subalpine down to the valley bottoms, from old growth forests to young successional areas, and from wetlands to dry sites in different seasons of the year. This is necessary in order to meet their needs for life (foraging/feeding, cover, denning, bedding etc…). In the Kalum LRMP, home ranges typically are between 100 and 250 km2 for adult males, and 25 and 75 km2 for adult females. Within these home ranges, individual or groups of landscapes (landscape units) have greater values than others. Within these landscapes, some watersheds are more valuable than others. Within these watersheds, various Broad Ecosystems also differ in how they contribute to the health of the bear population. Finally, within those BEU, bears use individual patches, or groups of patches (complexes), at the stand level, that meet several essential life requisites.

Grizzly bears select habitats within the landscapes and watersheds for 2 reasons: 1) generalized seasonal values associated with a certain type of habitat (a unit in an ecological land classification)); and 2) place-specific values associated with a unique occurrence of a habitat type (patch values). Patch values are influenced by the unique characteristics of the patch (e.g. a greater than average cover of preferred grizzly bear foods), its position in relation to important grizzly bear habitats, and the landscape or home range context (e.g. total supply of an important type such as avalanche slopes in a home range or distance from other important patches).

The strategic level inventories assembled for the LRMP, presented at the landscape unit, watershed and BEU scales, are not of a fine enough grain to identify all important grizzly bear habitats. Patches of high quality or critical habitats occurring inside lower ranked watersheds or BEU polygons may be hidden by the strategic level inventory. Grizzly bear critical patch habitat values should be protected, maintained or restored no matter where they occur except near communities, heavily settled rural areas, in agricultural lands, in high-use recreation areas, and near mines. Critical patch habitats include herb dominated avalanche tracks with adjacent forest, non-forested fens, herbaceous riparian meadow/wetland complexes and seepage sites, skunk cabbage swamps, sub alpine parkland meadows, whitebark pine stands, salmon fishing areas and old burns or other successional areas dominated by Vaccinium (blueberry) species. Assessing the patches for their value to bears during operational planning is necessary to locate small, but important habitats and elements such as bedding sites associated with high-value feeding areas, mark trees and den sites, and make these known information as defined in the Forest Practices Code of BC Act and/or identify these elements as Wildlife Habitat Features.

The primary human influences on grizzly bears and their habitats in the Kalum LRMP are related to roads and road use. Regardless of whether the road was built for industrial, residential or recreational use, roads can: 1) increase the likelihood of bear/human encounters and the likelihood of those encounters being fatal for the bears; 2) fragment grizzly bear populations and home ranges; and 3) displace bears from preferred or even critical habitats. Road category (highway, 2 wheel passenger, 4 wheel drive, ATV) and traffic volumes, timing (daily and seasonal) and duration directly influence the degree of fragmentation and displacement. However, regardless of the road type, motorized access of any kind directly influences grizzly bear mortality risk.

The primary effect of forest development on grizzly bears other than forestry roads is related to home-range level forage supply. High rates of clear cut harvesting at low elevations followed by intensive silviculture have the potential to slowly degrade forage supply well below natural levels by creating large contiguous areas of closed canopy mid-seral forests with little or no understories. While grizzly bears feed extensively in recent clear cuts, after about 15 to 20 years, the new crop trees grow too high, and too thick to allow forage plants to persist through the rotation. This condition is of greatest concern when a high proportion of the total forested landbase is designated for timber harvest and fewer areas are supporting grizzly bear forage off the timber harvesting landbase.

Industrial or recreational development and land use can also negatively affect patches of critical grizzly bear habitat. Activities can lead to direct loss, alteration, fragmentation or alienation of these special habitats. Human activity in or near these habitats can also put grizzly bears at higher mortality risk than would otherwise be the case. Bears may concentrate seasonally in these habitats. If the patches are non-forested, bears are more vulnerable to being shot. It may be possible to restore habitat effectiveness to degraded or otherwise dysfunctional critical habitat.

The provision of human foods or garbage will ultimately lead to grizzly bear mortality. Every possible precaution must be taken to eliminate grizzly bear access to human foods and waste in major settlements and at landfills, around rural residences, to temporary industrial or recreational camps.

Grizzly bears are notoriously difficult and expensive to inventory in forested environments. However, the success of any conservation and management system will ultimately depend on its ability to determine if objectives are being met. Monitoring a variety of habitat and population indicators is essential to determine trend, but also to provide the adaptive management feedback to enable periodic update of the strategies put in place.

Management Intent
Guided, in part, by agreed-to habitat effectiveness targets for identified watersheds and the population objective for the LRMP, the management intention is for:

- Maintenance or restoration of grizzly bear habitats through access management and forage supply for the identified watersheds.
- Conservation, mitigation or restoration of critical patch habitats at the stand level no matter where they occur.
- Maintenance of current grizzly bear population density, distribution and genetic diversity in each Grizzly Bear Population Unit to ensure viability.
- Recovery of the local grizzly bear population where appropriate.

Grizzly Bear	
Objectives	**Strategies**
1. Maintain or restore grizzly bear habitats in the watersheds identified on **Map 11**. (For access management direction refer to *Access Management* strategy 1.1)	**1.1** Achieve target effectiveness levels for each identified watershed.
2. Provide an adequate supply of berry feeding in the watersheds identified on **Map 11**.	**2.1** In the following individual identified watersheds no more than 30% of the forested land base, excluding hardwoods, will be between 25 and 100 years old. • McKay-Davies • Copper Application of mitigation measures to managed forests is aimed at achieving and maintaining natural levels of forage supply (as present in old growth forests). Mitigation measures will be applied on the rich and wetter sites (on operationally feasible treatment units of no less than 1 hectare in size) to offset the need for the seral stage restriction. The mitigation measures will also be applied on complexes that include rich and wet site series. In these situations the treatment units will be as small as is practicable, readily identifiable after

Grizzly Bear	
Objectives	**Strategies**
	harvesting, and be a minimum of 0.1 ha. The rich and wetter sites are defined in CWHws1 & CWHws2 as 06, 07, 08, 09, and 11 site series, in the CWHvm1 as 05,07, 08,09,10, and 14 site series and in the CWHvm2 as the 05, 08 and 11 site series. Examples of mitigation measures include: • Harvest at age class 4 • Pre-commercial thinning • Commercial thinning • Group selection • Cluster Planting • Selection harvesting • Variable retention • Pruning • Prescribed fire • Managed to lower stocking standards • Or other appropriate methods **2.2** Application of mitigation measures is aimed at achieving and maintaining natural levels of forage supply that would be present in old growth forests. In areas of future harvesting on the following identified watersheds mitigation measures (see list in strategy 2.1 for examples) will be applied on the rich and wetter sites (see strategy 2.1 for site series list) under the direction of a comprehensive landscape level plan that will implement LRMP management direction and be completed within 3 years of LRMP approval. Aimed at a 20 year planning horizon, the plan will include; • a total chance harvesting plan, • a long term silviculture plan that provides a sequence and description of mitigation measures for achieving grizzly bear effectiveness target, • public input • geographic specificity wherever possible • requirement for periodic review and amendment • flexibility to respond to operational or site specific circumstances within the context of the plan On areas harvested prior to higher level plan approval, and where stocking levels are higher than revised grizzly bear stocking levels (Table 5) application of mitigation measures will be evaluated in a manner that balances grizzly bear forage supply and timber impacts. This does not preclude the opportunity to schedule additional silviculture activities if

Grizzly Bear	
Objectives	**Strategies**
	grizzly bear strategy implementation funding becomes available. • Cedar • Lakelse-Cecil • Wedeene • Star – Alice – Deep **2.3** Application of mitigation measures is aimed at achieving and maintaining natural levels of forage supply that would be present in old growth forests. In areas of future harvesting on the following identified watersheds, mitigation measures (see list in strategy 2.1 for examples) will be applied on the rich and wetter sites (see strategy 2.1 for site series list) on a results- oriented basis to achieve grizzly bear effectiveness targets. On areas harvested prior to higher level plan approval, and where stocking levels are higher than revised grizzly bear stocking levels (Table 5) application of mitigation measures will be evaluated in a manner that balances grizzly bear forage supply and timber impacts. This does not preclude the opportunity to schedule additional silviculture activities if grizzly bear implementation funding becomes available. • Little Oliver – Skeena River East • Nelson • Lower Tseax • Erlandsen • Shames – Zymacord • Maroon – Wesach • Kleanza **2.4** On the rich and wetter sites in all identified watersheds on **Map 11**, identify and implement the regeneration and free to grow standards (refer to Table 5) which will provide conditions to maintain grizzly bear forage that would be naturally present in old growth forests (best approximation is a 35% gapiness at free growing and through remainder of rotation). Not Sufficiently Restocked (NSR) will be recognised as contributing grizzly bear forage and lower stocking (as per standards above or lower) will be accepted. These standards, and a summary of the land area to which they are applied will be included in the data package provided to the Chief Forester for the AAC determination

Grizzly Bear	
Objectives	**Strategies**
	during the timber supply review **2.5** In all identified watersheds on **Map 11**, where opportunities exist on sites other than the wet or rich sites, consider application of mitigation measures (see list in strategy 2.1 for examples) to provide grizzly bear forage.
3. Protect (see strategy 3.1 f) or restore critical stand level patch habitats where they occur.	**3.1** During Forest Development Planning, or normal referral of other types of development, use a combination of resources, including existing information, government and proponent expertise and additional funding sources to as quickly as possible identify and develop appropriate prescriptions for the protection or restoration of critical habitat. Interim solutions may be required for immediate implementation while capacity and detailed information is put in place. That is, the intent is to implement upon LRMP approval, but also to recognize that full implementation will be dependent upon capacity and readiness. For example early efforts may involve simple air photo interpretation and use of existing information. This is not meant, however, to diminish the priority for acquiring the resources to implement the critical patch component of this plan. Further, the intent is to integrate these requirements with the normal process of FDP approval, and to avoid unusual delays in the process. This will be achieved by: a) Classifying and mapping grizzly bear habitat at the landscape level; b) Evaluating seasonal habitats and developing seasonal capability and suitability ratings; c) Modifying habitat suitability ratings for patch specific attributes; d) Developing habitat effectiveness ratings to account for patch context and relationship to home range habitat supply. e) Identifying the highest ranked patches (separating class 1 and 2) for designation as critical habitat, determine the objective (protection or restoration), and develop appropriate prescriptions. f) Critical patch habitat will normally be deferred from development, including road construction and timber harvesting. Determine if there are *practicable alternatives to development. If no alternatives exist develop the patch while recognizing its critical patch

Grizzly Bear	
Objectives	**Strategies**
	habitat status through application of appropriate mitigation measures. *Practicable means feasibility based on consideration of a combination of factors including engineering, contractual arrangements, economic factors, timing etc; balanced against risk to grizzly critical patches. **3.2** In consultation with agencies and licensees BC Wildlife Branch and Habitat Protection Branch provides the operational guidelines for critical patch habitat protection and restoration. **3.3** Guidelines provided will contain operational direction to protect the ecological function of effective critical habitat by: 1) establishing windfirm forested buffers; 2) maintaining natural drainage patterns; 3) preventing disruption of the natural distribution of snow avalanching; and 4) applying other appropriate prescriptions. Forested buffers are intended to provide visual (security) cover and resting cover (bedding areas) adjacent to critical (usually non-forested) feeding areas as well as secure linkages among important habitats. Location and size of forested buffers is location specific and objective-dependant. As a general prescription, buffers should be approximately 50m wide (Impact assessment was modeled on the basis of a 50m buffer). Practitioners should apply the equivalent area of a 50m buffer as required. Practitioners have the flexibility to vary the configuration (size and location) of the buffer to respond to site specific considerations. **3.4** Guidelines provided will also contain operational direction to restore ineffective critical habitat by: 1) retrospectively establishing windfirm forested buffers; 2) re-establishing natural drainage patterns; 3) deactivating roads (to, for example, re-establish natural patterns of snow avalanching); and 4) applying other appropriate prescriptions. **3.5** Recognize that the protection of effective critical patch habitat results in the removal of that patch and its forested buffer (as described in 3.3) from the timber harvesting landbase (THLB) if the land is not already netted out. A total of 3-5% netdown has been modeled for Critical Patch

Grizzly Bear	
Objectives	**Strategies**
	Habitat for the LRMP area. **3.6** Recognize that the restoration of ineffective critical habitat results in the removal of that patch from the timber harvesting landbase if the land is not already netted out. However, if the restoration prescription includes establishment of a forested buffer, that buffer will remain part of the THLB with management status akin to a Riparian Management Area and a partial netdown applied appropriate to the prescription.
4. Establish an effective monitoring and evaluation program for grizzly bear management practices and related implications.	**4.1** As a component of the LRMP implementation and monitoring committee, the Ministry of WLAP and the Ministry of Forests will co-establish and co-manage a grizzly bear working group to monitor and evaluate the implementation of the grizzly bear management direction. The main tasks of the group include: • Technically defining, monitoring and assessing critical patch habitat and landscape level forage supply; • Monitoring timber supply impacts • Assess the funding requirements to effectively implement the grizzly bear management direction of this document and identify these funding requirements to government.
5. Bear mortality from all human causes will not exceed 4% of the estimated population, that less than 30% of the kill is female and that the total kill is not area-concentrated.	**5.1** Monitor grizzly bear mortality and adjust legal mortality levels accordingly. **5.2**Through education and enforcement activities, minimize bear-human conflict to reduce "problem" bear mortality, provide human safety and reduce property damage.
6. Provide hunter harvest opportunities.	**6.1** Wildlife Branch assess opportunities for hunter harvest and consult with stakeholders during establishment of safe harvest levels.
7. Monitor the overall effectiveness of applying the Grizzly Bear Best Management Practices.	**7.1** Establish a long term field inventory and monitoring program for bears and their habitats. **7.2** Over time, evaluate the effectiveness of these Best Management Practices and this combination of objectives and strategies. **7.3** Based on inventory and evaluation results, adjust Best Management Practices under adaptive management.

TABLE 5 *Revised Grizzly Bear Stocking Levels*

		Free growing stocking standards[2] (stems/ha)		
Subzone variant	**Site association[1]**	**Target**	**Minimum**	**Maximum[3]**
vm1 and vm2	BaCw - Foamflower BaSs - Devil's club	600	400	660
ws1 and ws2	BaCw - Devil's club	600	400	660
vm1 and vm2 ws1 and ws2	CwSs - Skunk cabbage	400	200	440
vm1 and vm2 ws1 and ws2	Ss - Salmonberry Ac - Red-osier dogwood	500	200	550

1. Stocking levels for low bench floodplain site associations are not listed; site-specific prescriptions should be developed that account for the naturally low density of microsites appropriate for crop tree growth and high shrub cover.
2. The "well spaced" clause does not apply to forage gaps when stems are clustered as part of the silvicultural prescription. Crop tree size vs. competing brush standards are unchanged from existing regional guidelines. When determining the number of crop trees, minimum inter-tree distances, as stated in the silviculture prescription, still apply to trees within the cluster.
3. If stand exceeds maximum density set in the prescription at free growing, these guidelines recommend spacing back to this stocking level.

2.2.12. Outdoor Recreation

Resource Values and Issues

Outdoor recreation experiences are key to the quality of life enjoyed by local residents. Opportunities exist for a full range of outdoor activities. According to 1989 figures for north-western BC, 27% of resident travellers and 59% of non-resident travellers had a trip purpose that was natural resource based [Ministry of Forests, 1994]. The land and resource requirements for outdoor recreation are generally related to the availability and conservation of natural resource values attractive for outdoor recreation. These values include: wildlife, fish, old forest, pleasing scenery, feature-based recreational activities, remote and/or wilderness areas, and availability of a range of outdoor recreational opportunities from backcountry (low user density) to full-service camping (high user density) experiences. Outdoor recreation concerns focus on providing opportunities for the full range of recreation activities. The spectrum of recreation opportunities will include roaded and non-roaded access, frontcountry and backcountry experiences, consumptive and non-consumptive activities, and public and commercial users.

This section focuses on recreation within the Provincial Forest. Also see commercial tourism and protected area goals, objectives and strategies for related issues.

Management Intent

- Manage for a wide range of outdoor recreational activities and experiences.
- Recognize commercial recreation as a valid and appropriate use of Crown land, subject to the acquisition of required tenures/permits and conformance with approved management plans.
- Recognize support and desire from the Table for a commitment by the BC Forest Service to continue to provide and maintain the existing Recreation Site and Trail infrastructure

Outdoor Recreation	
Objectives	**Strategies**
1. Retain the existing known outdoor recreation opportunities identified on the Recreation Activities map **(Map 9)**.	**1.1** Provide opportunities for recreational activities and experiences ranging from roaded to primitive, at both area-based and site-based scales throughout the planning area with linkages to areas of similar recreation activities where appropriate. **1.2** Government to prepare and co-ordinate access planning for recreation with the development of District-wide access management planning (see Sec. 1.1 – Access Management) to avoid recreation use conflicts between non-compatible users (i.e. cross country skiers and snowmobilers) with the following characteristics: • Primitive camping (not road accessible) • Low level of rustic facility development • Non-motorized recreation • Moderate opportunities for solitude • Closeness to nature • High degree of self reliance • Challenge in using motorized equipment **1.3** Include recreational users and First Nations in consultation opportunities such that: a) commercial recreation operations are developed collaboratively that do not displace public recreation activities. b) First Nations rights are upheld. **1.4** Over time, improve inventories of recreation resources, consistent with Ministry of Forests recreation inventory standards. **1.5** As appropriate, government may prepare more detailed recreation plans using existing information (i.e. Forest Recreation and Tourism Opportunities Study). This information will be used to manage the resource and to identify potential recreation areas and activities that address

Outdoor Recreation	
Objectives	**Strategies**
	local, regional and destination requirements. **1.6** Manage existing recreation opportunities such that sites and trails are not degraded due to over use.
2. Manage for opportunities to experience regionally significant recreation biophysical features such as viewscapes, trails and cultural amenities. Note: Alternatively LUs possessing these features could be listed	**2.1** Using the B.C. Forest Service Recreation Inventory methods inventory and classify recreation biophysical features to facilitate their future conservation and management. **2.2** Manage for a variety of natural viewscapes by utilizing visual landscape management in the course of development planning (see Visual Resources - Strategy 2.2). **2.3** Conserve the identified recreation sites and features, and manage for the associated recreation values.
3. Provide and enhance opportunities for outdoor recreation activities through the development of new and the enhancement of existing infrastructure such as recreation trails and sites.	**3.1** Develop new and enhance existing recreation facilities where gaps have been identified in recreational plans (i.e. offshore / marine recreation opportunities) by using existing government programs and by applying for external funding sources. **3.2** To the extent possible, take advantage of existing and future resource developments to enhance recreation infrastructure. **3.3** As a priority consider the development of a two unit walk in day use recreation site at the west end of Kleanza Lake
4. Provide and enhance opportunities for outdoor education through the development of new and the enhancement of existing, demonstration and community forests.	**4.1**.Enhance outdoor education at the Red Sand Demonstration Forest (MOF) and in future community forests through the use of interpretative signs, brochures, self-guided hiking trails and interpretative programs. Fund these education tools through government and external funding, corporate sponsorship and voluntary community organizations.

2.2.13. Timber Harvesting and Silviculture

Resource Values and Issues

The cool, moist climate, characteristic of the area is ideal for growing conifers such as Western Hemlock, Balsam Fir, Western Red Cedar, Spruce and to a lesser extent Lodgepole Pine. As a result, the Kalum LRMP Planning area is covered extensively by forests (43% of the total area). Due to steep slopes, difficult terrain, slope instability and remoteness, only a portion of these productive forests are suitable for growing successive crops of trees for harvesting; 16% of the total area or 37% of the productive forested area.

Timber harvested is manufactured into lumber in the sawmills located in Terrace and into pulp and paper products in the mills located in Kitimat and Port Edward. As a result, timber harvesting, sawmilling and pulp production have long been a foundation for the Kalum LRMP area's economy. The LRMP recognizes the importance of the timber sector to the future economic and social well-being of the region and its communities.

These forests also provide for other values including fish, wildlife, water, recreation, scenery and botanical forest products. Sometimes these values conflict with the growing and harvesting of timber. For example, the desire to maintain forested scenic areas can restrict the ability to harvest timber in those designated areas. Botanical forest products such as pine mushrooms are more abundant in mature (greater than 80 years) and older Western Hemlock/Lodgepole Pine forests than in young forests (less than 40 years). Consequently there is a demand to maintain some forests in older ages.

Pressures to use forested land for non-timber values or alienation of forested lands for non-forest use decreases the land base under timber production. This reduces the timber volume available for harvest and forest products manufacture.

Achieving a balance between timber production and harvesting, and other forest values is needed. There is a need to utilize suitable areas that reflect favourable economic operations such as road building, harvesting and silviculture activities while at the same time, maintaining and enhancing biological diversity values, where possible, including retention of old growth timber, snags, coarse woody debris and a diversity of tree species (deciduous and conifers). The principal goal with respect to timber management is to facilitate the maintenance or enhancement of a sustainable timber industry, including secondary and value-added wood manufacturing. Particular stands will be identified for incremental silviculture activities to increase stand volumes and value. Criteria such as productivity, accessibility and logging history will be used to identify candidate stands

The LRMP timber suitability map **(Map 12)** was developed to assist with the identification of the most favourable timber harvesting lands. In the future, these lands will provide the greatest potential for silviculture activities. Timber suitability used the following criteria.

- Medium to high growing sites (Site Index 20 or greater)
- Slope gradients up to 60%
- Even to rolling terrain
- Accessible/roaded.

Management Intent

- Identify and secure a forest landbase and sustainable rate of cut.
- Maintain a sustainable and economically viable flow of timber to local manufacturing facilities and forestry based industries which support local communities.
- Maintain and where possible enhance the productivity of forest land
- Manage for a positive economic return on silviculture investments
- Maintain indigenous tree species diversity

- Provide opportunities to acquire timber for a variety of uses.
- Promote research into exotic species and genetics to increase yields.
- Conduct forestry operations to maintain other forest values including fish, wildlife, water, recreation, scenery and botanical forest products.

Timber Harvesting and Silviculture	
Objectives	**Strategies**
1. Provide opportunities for value-added manufacturing, wood based cottage industries, cultural uses of wood, and woodcraft.	**1.1** Increase access to timber for value-added manufacturers, cultural users, woodcraft users and cottage industries. **1.2** Inventory and grade stands most suitable for secondary manufacturing (such as knot free, straight grained). **1.3** Research opportunities to utilize and market all value-added wood products. **1.4** Encourage government and industry partnerships to develop marketing strategies for value-added wood products.
2. Manage for a sustainable rate of timber harvest employing appropriate harvesting and silviculture practices.	**2.1** Periodically undertake timber supply analyses to assist in determining a sustainable rate of harvest.
3. Maintain and where possible enhance the productivity of the forest landbase.	**3.1** Encourage the use of new technology that reduces soil compaction and erosion. **3.2** Use long term planning to locate and rehabilitate roads and landings. **3.3** Utilize harvest systems that maintain soil properties, water and nutrients such as: harvesting at different seasons; use of terra mats to minimize soil compaction.
4. Manage second growth stands to produce a variety of products.	**4.1** On medium to high growing sites, implement incremental silviculture regimes that have the potential to increase value per hectare in consideration of other resource values. **4.2** Identify areas suitable for incremental silviculture activities. **4.3** Procure funding to implement incremental silviculture activities.
5. Maintain long term ecological values such as a diversity of age classes and stand structures.	**5.1** Identify areas suitable for uneven aged management and where appropriate implement silviculture treatments to maintain some multi-storied stands.
6. Provide opportunities for increased use of partial	**6.1** Recognize the real costs of planning and execution of partial cutting systems.

Timber Harvesting and Silviculture	
Objectives	**Strategies**
cutting systems.	**6.2** Establish partial cutting operational trials to educate people on the benefits. Good candidates are the Redsand Demonstration Forest and Thunderbird areas.
7. Maintain a secure land base for timber management.	**7.1** Define a secure future timber harvesting land base by converting Provincial Forest Lands to provincial Forest Land Reserve status, with the exception of the Shames Mountain Controlled Recreation Area. **7.2** Through the adoption of the forest land reserve, secure public forest lands into the future by instituting the formal (FLR) decision process for managing applications for alienation. Because of the economic and social importance of the forest industry, particular scrutiny should be applied to the productive forest lands within the Kitimat and Kalum valleys.
8. Minimize the loss of productive forest land.	**8.1** Where possible design harvesting systems with fewer roads and landings. **8.2** Where appropriate rehabilitate landings after harvesting. **8.3** Harvest in a manner that maintains productivity in environmentally sensitive areas. **8.4** Where possible rehabilitate and regenerate degraded sites.
9. Identify potential stands to maintain or enhance silviculture opportunities.	**9.1** Identify potential stands for incremental silviculture opportunities using the siting criteria: • previous silviculture investment, • medium to high growing sites, • slope gradients up to 60%, • even to rolling terrain, • accessible/roaded, • healthy regenerated stands, and • medium to high value timber stands, • minimal conflict with other resource values**.** **9.2** Field review to confirm candidate stands have favourable growing conditions, terrain features and development costs to justify selection for incremental silviculture opportunities.
10. In conjunction with **9.** above, strive to increase stand volume and value.	**10.1** Where ecologically appropriate and in acceptable proportions, regenerate stands to higher value species. E.g. Western redcedar, Amabilis Fir and Sitka Spruce

Timber Harvesting and Silviculture	
Objectives	**Strategies**
	10.2 Prescribe and implement appropriate incremental silviculture treatments such as juvenile spacing, pruning, site rehabilitation, conifer release, fertilization, commercial thinning, and final harvesting. **10.3** Harvest identified stands at the optimal rotation age based on maximizing growth rates and/or economic return.

2.2.14. Tourism

Resource Values and Issues

The local tourism industry is largely based on part-time/seasonal ventures that capitalize on the area's natural resources. A number of fishing lodges, campsites and related businesses generate a small but significant amount of employment and income. Terrace is the hub and primary access point to the areas abundant rivers, streams, hotsprings and parks. Kitimat offers access to an ocean environment. The southern part of the planning area entails the Huchsduwachsdu Nuyem Jees / Kitlope Heritage Conservancy and the northern boundary is delineated by the Nass River. Tourism is dominated by Salt Water and Fresh Water fishing. The Skeena, Kitimat, Zymoetz and Kalum rivers are the main attraction for salmon and steelhead fishermen. who congregate in the area in large numbers in July and August. The Douglas Channel and Barrie Reach offer salt water fishing and power boat cruising. The Nisga'a Lava Bed Memorial Park and adjoining area are growing in significance as cultural tourism destinations.

Outdoor recreation experiences are key to the quality of life enjoyed by local residents and are the driving force behind commercial tourism. Opportunities exist for a full range of outdoor activities. According to 1989 figures for northwestern BC, 27% of resident travelers and 59% of non-resident travelers had a trip purpose that was natural resource based [Ministry of Forests, 1994]. Tourism studies for the North by Northwest region confirm that fishing, boating, and hunting are the major tourism and outdoor recreation activities. Studies also indicate a trend toward increased backcountry and eco-tourism (e.g., wilderness travel, wildlife viewing) in the region.

The land and resource requirements of commercial tourism and outdoor recreation are generally related to the availability and conservation of natural resource values attractive for outdoor recreation. These values include: wildlife, fish, old forest, pleasing scenery, feature-based recreational activities, remote and/or wilderness areas, and availability of a range of outdoor recreational opportunities from backcountry (low user density) to full-service camping (high user density) experiences.

Commercial tourism and outdoor recreation concerns focus on providing opportunities for the full range of recreation activities. The spectrum of recreation opportunities will include roaded and non-roaded access, frontcountry and backcountry experiences, consumptive and non-consumptive activities, and public and commercial users.

Management Intent
The general management intent of the Kalum LRMP is to maintain a wide spectrum of public recreation and commercial tourism values and opportunities. This will be achieved through conservation of natural resource values attractive to outdoor recreationists, and the linking of desired recreation experiences with compatible resource management zones.

Opportunities and access to Crown land for public recreation and commercial tourism will be maintained and, where appropriate, enhanced. Tourism and recreation activities will be integrated with other resource uses and activities, and conducted in an environmentally responsible manner. Visual resources and other tourism resources will be maintained to a high standard in areas important to tourism. To effectively manage resources important to tourism resource a concerted effort will be made to ensure managers and the tourism industry are aware of those resources. Public recreation and commercial tourism will be permitted within the existing regulatory framework, including the Forest Practices Code, Forestry Recreation Program, and provincial policy for Commercial Backcountry Recreation on Crown Land. The Ministry of Forests *Recreation Activities Map* and the Forest Recreation and Tourism Opportunities Study, commissioned by the Kalum LRMP, identified areas most suitable to tourism and activities that have the highest potential. Practices will be consistent with the resource management objectives for each resource management zone within this Plan.

Detailed recreation management strategies will be developed through local level and protected areas planning processes. Related resource management objectives can be found under the following resources: Fish and Fish Habitat, Outdoor Recreation, Visual Resources, Backcountry Recreation and Protected Areas.

Aboriginal rights and/or title will not be unjustifiably infringed upon by land and resource management activities of the Crown or its licensees.

Tourism	
Objectives	**Strategies**
1. Identify recreation/tourism features, facilities and activities, and evaluate opportunities.	**1.1** Maintain as a priority up to date inventories of recreation/tourism resources, facilities and uses (e.g. Forest Recreation Resource Inventory, Forest Recreation Opportunity Spectrum, Forest Recreation and Tourism Opportunity Study (FRTOS), Commercial Recreation Policy tenures) to identify resources of importance to recreation/tourism. Inform designated officials of responsible agencies (e.g. BC Parks, Ministry of Forests, Ministry of Environment, BC Assets and Lands (BCAL), Department of Fisheries and Oceans) for incorporation of inventories into development, planning, and tenuring. **1.2** Conduct community-scale analysis of resource opportunities and constraints for recreation/tourism activities (e.g. Forest

Tourism	
Objectives	**Strategies**
	Recreation Opportunity Study (FRTOS) recently completed for Kalum District). Inform designated officials of responsible agencies for incorporation of results of this analysis into development, planning, and tenuring. **1.3** Encourage the Ministry of Small Business, Tourism and Culture (MSBT&C), in consultation with interested stakeholders, to prioritize tourism resource values.
2. Maintain recreation/ tourism features, facilities and activities identified in the *Recreation Activities* map, FRTOS (features only) and Commercial Recreation tenures (BCAL).	**2.1** Manage development of identified site-specific recreation/tourism resources to avoid impairing those resources. Management may include the use of undeveloped buffer areas around identified site specific recreation/tourism resources. **2.2** Refer forest development proposals to MoF District Recreation specialist/officer for analysis of potential impacts to recreation. In the event negative impacts to recreation resource features appear likely, advise affected MSBT&C and recreation user groups and provide opportunities for input. **2.3** For commercial and recreation development proposals provide opportunities for public comment.
3. Provide opportunities for recreation/tourism use in both frontcountry and backcountry settings.	**3.1** Manage resource development and recreation/tourism activities to maintain a mixture of frontcountry and backcountry facility-based, dispersed, and low-impact activities, consistent with LRMP zoning emphasis (e.g. different types and levels of opportunities) and strategic tourism planning. **3.2** Manage recreation/tourism and other development activities in frontcountry areas and primary travel corridors so as to enhance opportunities for a range of recreation/tourism uses and infrastructure development. **3.3** Focus and encourage development of tourism facilities within existing settlement areas ('frontcountry' areas), and in appropriate adjacent areas, to allow existing communities to serve as 'gateways' to tourism resources of the Plan Area. **3.4** Refer to strategy 1.1 under Access Management to include consideration of tourism recreation values in logging road deactivation.
4. Maintain visual resources of importance to	**4.1** Maintain an updated visual landscape inventory (in consultation with MSBT&C and recreation user groups) of

Tourism	
Objectives	**Strategies**
recreation/tourism.	scenic resources. Inform affected agencies of inventories. **4.2** Create Known Scenic Areas in consultation with MSBT&C. **4.3** Manage development activities and target rehabilitation to restore visual quality in Known Scenic Areas not currently up to the standards, so as to restore visual quality to the desired levels. **4.4** Refer development proposals in Known Scenic Areas to MSBT&C for an appropriate review and comment period, with the intent of providing operational managers and staff with an opportunity to become familiar with tourism's expectations around visuals management.

2.2.15. Trapping

Resource Values and Issues

Trapping, by both aboriginal and non-aboriginal trappers, has long been a part of the economic and cultural fabric of the Kalum LRMP area. In British Columbia, trappers actively manage furbearer species on registered traplines following standards, legislation and regulations developed by BC Environment. The BC Fur Management Program includes regulating harvest and managing furbearers through the registered trapline system. Each trapline is individually held and confers on the registered holder the exclusive rights to harvest furbearers within the boundaries of the trapline. Harvest levels on registered traplines are guided by species management strategies with furbearers being divided into 3 classes:

- Class 1 Species can be managed on individual traplines. This class includes beaver, fox, marten, mink, muskrat, raccoon, skunk, squirrel and weasel.
- Class 2 Species move between and among traplines and thus are not manageable on individual traplines. Harvests are regulated regionally in consultation with local trappers. This class includes lynx, bobcat, wolverine, fisher and otter.
- Class 3 Species also move between and among traplines but generally are not vulnerable to over trapping. This class includes wolf and coyote. Trappers are encouraged to trap these species, especially in areas of chronic animal damage control problems.

Locally, black bear and wolf may support both trapping and hunting seasons, depending on the current wildlife regulations.

Within the LRMP, the primary issues are the maintenance of a viable trapping industry, the recognition of trappers' rights and tenures in resource management decisions, management of furbearer populations and habitats and acknowledgement of the social and cultural traditions of trapping.

Management Intent
The intent of this LRMP is to maintain opportunities for a viable trapping industry and ensure the continuance of the social and cultural aspects of trapping by First Nations and non-aboriginal peoples through provision of trapping opportunities within all designated trapping tenure areas.

Trapping	
Objectives	**Strategies**
1. Maintain trapping opportunities for the trapping industry.	**1.1** Maintain a system that provides trappers with certainty for the industry and for sustainable distribution of activity across the land base. **1.2** Encourage resource management decisions that enhance the viability of the trapping industry. **1.3** Improve communication and consultation between government resource agencies, major timber tenure holders and trapping tenure holders through operational plan referral, dialogue, planning participation and review forums. **1.4** Encourage the identification of camps, cabins, trap line trails, trapping caches, and valuable use areas for consideration in planning resource development activities, recognizing the potential confidentiality of location information.
2. Maintain the viability of fur bearer populations through habitat management.	**2.1** Within a cut block, use riparian management areas, wildlife tree patches and reserves where they occur to provide furbearer movements across the cut block. **2.2** Within second growth stands, provide for a range of stand densities including thickets. **2.3** Where appropriate, encourage deciduous growth following harvesting for promotion of fur bearer prey species (rabbits, birds, grouse, voles, etc.). **2.4** In consultation with trappers, identify high value furbearer habitat. **2.5** In areas identified by trappers as high value fur bearer habitat, consider reducing log salvage, planting and competitive vegetation control activities. **2.6** For furbearer winter habitat, particularly marten, establish and implement guidelines for the presence and distribution of course woody debris piles.
3. Strive for the continuance of the social and cultural aspects of trapping, and	**3.1** Undertake consultation with individual tenure holders prior to resource development activities to identify and mitigate conflicts between development activities and valuable use

Trapping	
Objectives	**Strategies**
recognize the cultural history associated with the trapping industry, for both First Nations and non-aboriginal peoples.	areas within individual trapping tenures. **3.2** Recognize existing rights of trapping tenures for both First Nations and non-aboriginal peoples. **3.3** Incorporate the social value associated with trapping tenures, for both First Nations and non-aboriginal peoples, as part of comparative resource valuation when assessing the importance of commercial resource industries.

2.2.16. Ungulate Winter Range

Resource Values and Issues

In the Kalum LRMP, the winter ranges of mountain goats and moose require special management. Winter is a period of severe nutritional deprivation for ungulates such as mountain goat and moose. The quality and quantity of forage available in winter influences how quickly summer reserves are depleted and affects chances of survival and reproduction. Thermal or heat regulating cover, in the form of conifers with canopy structures which intercept snowfall and reduce snow accumulations below, is a critical component of ungulate winter range. Thermal cover provides shade to reduce heat stress in the warmer days of early and late winter and shelter from mid-winter cold temperatures and heavy snowfalls. It helps conserve energy or calorie requirements during extreme environmental conditions. Road access to winter ranges is a concern because of increased disturbance and poaching when ungulates are concentrated on winter range. Disturbances on the winter range often results in animal displacements to less suitable habitat, increased vulnerability to predators and reduced survival rates.

In coastal regions, deep wet snowpacks in the alpine zone force mountain goats down into coniferous forests of the subalpine and montane zones where less snow accumulates. Under mild winter conditions, goats may paw for foods or select snow-free slopes adjacent to ravines; under deep-crusted snow conditions, goats will select windblown slopes and ridges or south-facing rock outcrops; and under wet, deep snow conditions, goats use low elevation timbered areas close to rock outcrops. Goats are restricted in their winter habitat use to sites within and near steep and rugged terrain which provides escape areas from predators. Goats generally avoid areas over 800 meters from escape terrain and prefer to establish home ranges that are less than 400 meters from cliffs. Generally, adult goat home ranges are 10-20km2 and include winter ranges of 2-3km2. As snowpack increases in the open areas to greater than 50cm, evergreen forbs such as bunchberry and ferns become unavailable to foraging goats. Conifers, particularly mountain hemlock and western hemlock in the form of erect trees or litterfall, and lichens on tree trunks or in litterfall become the major components of goat winter diet. Ground cover mosses exposed in microsites of rock bluffs and at the edges of timber are particularly important during times of deep snow-pack. Because goat winter habitat is limited, even small areas of habitat alteration that impinge on these sites can have a disproportional larger effect on the goat populations concentrated there.

The maintenance of goat travel routes between patches of escape terrain in winter ranges is important to ensure habitat effectiveness. Removal of old growth forest would decrease available

forage and thus lower the quality of goat wintering sites when snowpacks are present. As timber harvesting moves into the Mountain Hemlock and higher elevation Coastal Western Hemlock subzones, the chances of affecting goat winter habitat have increased dramatically. Old growth forest removal in proximity of rocky niches within goat winter range interupts travel routes, as compacted snow under canopies is replaced by deep, unsettled snow pack in open areas.

Suitable moose winter habitat is limited in the Kalum LRMP because of winter snow accumulations. In the Kalum, moose concentrate on the best available winter range: the spruce-cottonwood riparian habitats on the floodplains of the Skeena River, Nass River and Beaver River and adjacent moist forests. In milder winters, small isolated areas of high value winter ranges are also used. A critical element of moose winter range is tall shrub communities where site conditions provide annual twig growth up to a height of about 3 meters. Upland areas generally have old or mature shrubs that have stopped putting on annual growth. Along major rivers and streams or large wetlands, the yearly flooding and deposition of sediment results in self-perpetuating shrub communities in primary succession or early seral stage. These areas are considered to be the primary winter range for moose within the plan area. Fire and timber harvesting in upland sites will also produce seral shrub communities that moose could browse in winter. These shrub communities are generally temporary in nature unless frequent disturbance events occur. These temporary early seral shrub communities are considered to be secondary moose winter range within the plan area. Willows are the primary moose browse shrub in winter. Dogwood and serviceberry are also used throughout winter into spring. Moose movements or ability to move to feeding sites in winter is highly dependent on snow density and structure. Settled or compact snow deeper than 60cm begins to impede movement as a result of snow depth exceeding the hocks on the legs. At settled snow depths greater than 1 meter, moose movement is severely impaired. Snow crusting in deep snow is also a serious hindrance unless the crusting is thick and hard enough to allow the moose to travel on top. Small river and stream channels on the Skeena and Nass islands and floodplain sidechannels and backchannels are preferred travel routes on the winter ranges. More open stands of mixed conifers and deciduous trees are used for foraging particularly in early and late spring. Stands of old growth conifers with snow-intercepting canopies are preferred for winter bedding sites and also for thermal and security protection during extremes of mid-winter and when March temperatures result in potential over-heating of moose with winter coats. Moose are known to use large old growth trees for protection by backing up to the tree when facing off predators such as wolves. Moose on their winter ranges are particularly vulnerable to poaching and require dense visual screening from roads. Human recreational displacement of moose on their winter range is a real threat to moose, resulting in lowering energy reserves, increasing risk to mortality and inhibiting population maintenance and growth. Restrictive recreational access is a requirement to maintain satisfactory moose winter range. Moose, as are deer, are not as sensitive to recreational displacement as are species such as mountain goat, wolverine or caribou. However, good security cover and visual screening are imperative to keeping moose in close proximity to human recreational areas.

Deer are also found within the Kalum LRMP area. While not as common as moose away from the coast; their much smaller size severely limits their distribution in winter to coastal tidal beaches and rocky bluffs, old growth covered steeper slopes, and to dry rocky ridges with

intermittent deciduous tree cover. In the Terrace area Mule deer and Sitka Blacktail deer ranges overlap and hybridization is not uncommon.

Management Intent
The Kalum LRMP recognizes the need for special management of ungulate winter range. Ungulate winter range will be managed to provide food, shelter and security for mountain goat and moose populations during the critical winter season. Where possible, mountain goat and moose winter range will be incorporated into biodiversity ecosystem networks.

Ungulate Winter Range: Mountain Goat	
Objectives	**Strategies**
1. Maintain winter forage production in timber stands adjacent to escape terrain that provides the winter habitat.	**1.1** Use goat inventories to identify and map escape terrain. Inventory requirements include both: 1) habitat mapping, and 2) occurrence investigation. **1.2** Incorporate local knowledge in identification of winter escape terrain. **1.3** Based on 1.1 above, establish a no timber harvesting zone to secure sufficient forest area as goat winter range **(Map 13** to be refined as per strategy 1.1 and 1.2**)**. (refer to strategy 1.1; refer to old growth management areas and minimizing forest fragmentation in Biodiversity General Management Direction). For purposes of implementation, BC Environment should work with forest licensee to identify areas of priority based on forest development plan proposals. **1.4** It is recommended to the statutory decision maker to establish mountain goat winter range polygons as Ungulate Winter Range under the FPC of BC Act.
2. Minimize human disturbances to goats on their winter range.	**2.1** Where possible, locate roads parallel to goat winter travel routes to avoid blocking winter movements. **2.2** Do not construct roads unless there is no other practical option for road location. Deactivate new nonpermanent roads after use. **2.3** Where possible, adjacent to goat winter range, schedule road building and resource extraction activities (timber, aggregate, mineral and fossil fuels) for June through October. Winter disturbance may be unavoidable, however, where possible, minimize disturbances by using measures that may include restricting access, expanding a timber buffer, timing of activities, increasing distances between activities and winter range, or proceeding with planned

Ungulate Winter Range: Mountain Goat	
Objectives	**Strategies**
	activities where no options exist. **2.4** Manage human access and winter recreational activities to minimize disturbance of wintering goats with the exception of limited entry hunting. Incorporate into Access Management Plans. (Refer to Access General Management Direction)

Ungulate Winter Range: Moose	
Objectives	**Strategies**
1. Manage the Skeena, Nass and Beaver Moose Winter Ranges to sustain the over-wintering moose populations.	**1.1** Require agencies and forest developers prepare Moose Winter Range Plans for primary moose winter ranges identified on the LRMP Moose Winter Range Map **(Map 14)** in accordance with the objectives and strategies outlined in this section. **1.2** Primary winter range as mapped on the LRMP Moose Winter Range Map captures the floodplain and adjacent strip of forested slope. The adjacent slope serves primarily for security cover with some thermal cover and forage in specific locations. It is recognized that the management focus associated with the adjacent forested slope is providing for security cover adjacent to the floodplain. **1.3** Thermal cover retention on the adjacent forested slope will be managed for in the absence of large conifers on the floodplain. This management will generally occur within the immediate forested slope except where significant forage exists on such slopes. **1.4** Forage management on the adjacent forested slope will apply primary winter range objectives when the wet site series (subhygric to hydric) that produce deciduous browse species (willow, dogwood, cottonwood) become the predominant (>50%) site series from a stand level perspective (e.g. cutblock or overview mapping perspective). **1.5** Incorporate moose winter ranges in the application of

Ungulate Winter Range: Moose	
Objectives	**Strategies**
	ecosystem networks where such networks are designated. **1.6** It is recommended to the statutory decision maker to designate primary moose winter range as Ungulate Winter Range under the FPC of BC Act. Clear cut silvicultural systems are applicable for the management of moose winter range.
2. Maintain and where desirable, enhance the quality, quantity and distribution of moose winter forage in the Skeena, Nass and Beaver Moose Winter Ranges.	**2.1** Retain willow and dogwood browse, particularly along island and floodplain channels. **2.2** Establish moose forage production guidelines within the moose winter range plan that are based on ecological parameters such as site series or plant communities. Depending on site classification the following are options for consideration: 1) maintaining the native mixed deciduous-conifer stand profile; 2) reduce the density of conifers stocked; 3) concentrate varied spacing of conifers on higher, dry ground; 4) allow willow and dogwood regeneration on lower, wet ground; 5) thin dense alder stands to encourage willow and dogwood growth; 6) prune old woody willows and dogwoods, more than 3 meters tall, to encourage new growth, 7) give preference the use of manual treatments rather than herbicides for vegetation control, and 8) where possible, use brushing treatments to enhance moose winter forage.
3. Provide a steady long-term supply and distribution of thermal cover in primary moose winter range as identified on the LRMP Moose	**3.1** Retain thermal cover (i.e. conifers) in proximity to useable forage areas appropriate to the size of the habitat unit to be identified in strategy 1.1. A habitat unit is defined from overview ecosystem mapping at 1:20 000 scale. **3.2** Retain a proportion of mature and old growth conifer stands

Ungulate Winter Range: Moose	
Objectives	**Strategies**
Winter Range Map.	with canopy structures which will trap snow, and provide bedding sites particularly adjacent to foraging areas to be identified in strategy 1.1. **3.3** In regenerating areas and plantations, where thermal cover is lacking, identify conifer stands suitable for future thermal cover and manage for thermal cover attributes that mimic natural floodplain forests.
4. Provide security for wintering moose populations for identified primary and secondary moose winter range as identified on the LRMP Moose Winter Range Map. In secondary range, the associated strategies will be based on operational feasibility.	**4.1** Limit road development and recreational use on the winter ranges. Where roads are unavoidable, use measures to maintain security, such as locating roads to maintain dense coniferous visual screens, deactivating roads before November, building temporary roads or using road rehabilitation. (Refer to Access General Management Direction) **4.2** Where possible, minimize moose disturbance in winter by using measures such as: geographically focusing operations within a given winter range, restricted access and timing of activities. (Refer to Access General Management Direction) **4.3** Where operationally feasible, retain, enhance or plant visual screens to obscure the winter ranges from high use transportation corridors. **4.4** Leave a proportion of large old growth trees for moose predator-response behaviour.
5. Encourage forage production and maintain/enhance forested thermal cover on secondary moose winter range.	**5.1** Encourage rotational forest stand development (i.e. harvest at early stand maturity) on sites conducive to both early seral forage and conifer production. **5.2** Promote the duration of early seral stage conditions on prime forage sites (subhygric to hydric) that produce deciduous browse species (willow, dogwood, cottonwood) where such sites predominate (>50%) from a stand level perspective (e.g. cutblock or overview mapping perspective). Stand spacing, pruning, reduced conifer stocking standards, and varied conifer spacing will assist in promoting the duration of early seral stage conditions. **5.3** Provide that adequate thermal cover and screening is available to a maximum range of 75 to 125 meters within and to prime forage areas (i.e. mature to old stands or large wildlife tree patches to be in the range of 150 to 250 meters

Ungulate Winter Range: Moose	
Objectives	**Strategies**
	apart). **5.4** Give preference to ground based vegetation management. **5.5** Maintain the natural deciduous/conifer mix of tree species and shrubs as expected for early seral conditions in prime forage potential sites. **5.6** Allow for natural establishment of willows along decommissioned road right-of-ways.

2.2.17. Visual Resources

Resource Values and Issues
Visual quality is the extent to which the aesthetic or scenic value of a landscape is altered compared to the pre-existing or natural condition.

The primary objective in the management of visual resources is to ensure a level of visual quality, which meets the expectations of the community, yet is consistent with the principles of integrated resource management. It is generally accepted that development can occur within visual resource areas while maintaining the visual quality of significant landscape features. The focus of management concern is on maintaining long-term visual landscape integrity and the capacity of the area to sustain outdoor tourism and recreation experiences in a forest management context. With respect to exploration and mine or energy development proposals, it is understood that the applicable review process will consider visual quality recommendations; however these visual quality recommendations are not meant to form the basis for rejecting or accepting the application. The aesthetic quality of these areas has been identified as a key component in the maintenance of viable tourism and recreation opportunities in the district.

Management Intent
- Maintain the aesthetic values (e.g., scenic areas, lakeshores and streams, significant recreational areas and natural features, travel corridors, and community viewscapes) of the forest landscape to provide a secure environment for tourism operators and ensure a quality natural environment experience for Tourism and local and First Nation communities
- Minimize visual impacts through appropriate landscape design of harvest openings and industrial development.
- Established VQO's may change over time due to new inventory information and changing public values.
- While the intent of forest management is to maintain the integrity of Scenic Areas, catastrophic events (e.g. fire, blowdown, and infestation) may compromise visual quality from time to time.

- Known Scenic Areas with established Visual Quality Objectives (VQOs) will be identified in accordance with the Ministry of Forests Visual Landscape Inventory process and management guidelines.

Visual Resources	
Objectives	**Strategies**
1. Manage the landscape in areas of importance to local and First Nation communities, tourism and recreation to retain existing scenic values.	**1.1** Through the completion of Visual Impact Assessments using the current methodology maintain existing Known Scenic Areas and through public input and forums continue to evaluate the need for new and additional Scenic Areas. **1.2** Using current BC Forest Service visual landscape management techniques complete Visual Landscape Inventories and create known Scenic Areas with established Visual Quality Objectives within Tree Farm Licences 1 and 41, (i.e. Douglas Channel/ Barrie Reach, Dasque and Whitebottom drainage's, the Kalum and Nass valleys, Nisga'a Park Visitors' Center and Lava Lake Picnic site). **1.3** From the rail line complete a visual landscape inventory gap analysis to determine the level of coverage of the current established VQOs. Under the auspices of strategy 1.1 above evaluate the results of the gap analysis and the need for expansion of existing VQOs to include the view from the Railway. Additional Established VQO coverage will be subject to the current MoF Visual Landscape Inventory process. **1.4** Provide opportunities for First Nations and public review of and input to the establishment of Visual Quality Objectives. **1.5** During the planning for non-forest industry development (i.e. rock quarries, utility corridors, industrial development etc.) undertake a visual impact analysis similar to the BC Forest Service Visual Impact Assessment process for Known Scenic Areas. **1.6** Manage slash burning and other industrial activities to maintain air clarity in major valleys. Where possible, to meet tourism and community needs for air clarity in September, explore other options for managing slash (e.g. delay, spread, leave debris on the forest floor). **1.7** Review the viewpoints used in the Visual Landscape Inventory (VLI) that includes the City of Terrace such that viewpoints from within the City (i.e. graveyard hill, the Benches and the downtown core) are considered in the VLI and the established VQOs are adjusted accordingly.

Visual Resources	
Objectives	**Strategies**
2. Within existing Known Scenic Areas integrate the management of scenic resources with other resource values and uses such that the Established Visual Quality Objectives are met.	**2.1** In areas of high visual sensitivity (i.e. recreational waterways, major travel corridors, etc.) conduct resource development in a manner which minimizes visual disturbance over time. **2.2** Through the use of visual landscape design techniques create harvesting openings within Known Scenic Areas to reflect and blend in with the natural topography. **2.3** Where visual quality and wildlife management concerns intersect, maintain visual quality objectives to the extent that they do not compromise wildlife management objectives. **2.4** Wherever possible, incorporate areas of high visual sensitivity into old growth management areas and other areas of constraint (i.e. riparian reserve zones, wildlife tree patches etc.).
3. Evaluate and where deemed necessary manage the landscape, on a site specific basis, in the following locations: • Upper Kitimat • Onion Lake Ski Trails • Terrace to Kitimat Rail route • West side of Lakelse Lake • Furlong Beach	**3.1** Complete a visual landscape inventory gap analysis to determine the level of coverage by existing (Spring 1999) Known Scenic Areas. **3.2** Identify the locations of appropriate viewpoints where gaps exists and evaluate the need for visual landscape design. **3.3** Through the use of visual landscape design techniques, create openings to reflect and blend in with the natural topography.

2.2.18. Wildlife and Wildlife Habitats

Resource Values and Issues

The Crown lands in the Kalum LRMP support many species of wildlife, but for most species the information is informal or anecdotal. Some wildlife, particularly big game animals such as mountain goat and moose, have been the subject of population inventories in the past but these inventories require updating. Many wildlife populations in the planning area have no inventory data. Current habitat inventories for the Kalum are strategic in nature (1:250 000 scale) and not suitable for operational planning or site specific developments. Inventories of wildlife populations and their habitats is a management priority for maintaining naturally occurring species and their habitats. Two populations of particular community concern and priority for information gathering are the local populations of marmots and the Kermode bear (Ursus americanus kermodei). Legislation specific to wildlife habitats and habitat management practices

is currently limited. There is a need for practical wildlife habitat prescriptions or guidelines. Conservation of species and ecosystems that are identified as rare, threatened and endangered (provincial red list) or vulnerable (provincial blue list) is an important public issue. There is also a need for public consultation regarding wildlife management such as hunting and wildlife viewing opportunities, measures to limit poaching and preventing wildlife displacement from increased human access. Because many of our wildlife are seasonal visitors to the Kalum LRMP area or are residents who include adjacent lands in their home ranges, there should be cross-jurisdictional consistency in the management of wildlife issues.

Management Intent

The intent of this LRMP is to maintain the quantity and quality of wildlife populations and habitats, including plant communities, within the planning area. Improved wildlife population and habitat inventories and application of appropriate resource stewardship activities will assist in achieving this intent.

Wildlife and Wildlife Habitat	
Objectives	**Strategies**
1. Maintain naturally occurring species and their habitats, including plant communities.	**1.1** Inventory habitat types and species use of habitat types at the appropriate scale (includes habitat capability and suitability mapping). Conduct these inventories prior to development whenever possible. **1.2** Inventory populations of individual wildlife species. **1.3** Collect information and improve knowledge of local marmot populations. Determine sensitivity of marmot habitat to disturbance and provide recommendations for mitigation if required. **1.4** Encourage continued research and information gathering on Kermode bears. Apply appropriate measures to maintain the white (Kermode) colour phase in the *Ursus americanus* gene pool and to manage their habitats. **1.5** Prescribe measures to manage for functional habitats for wildlife species and plant communities. Prioritization will be on a need basis. For example, where inventories identify deer winter ranges, provide deer thermal cover and winter forage. **1.6** Evaluate wildlife values found in areas where wildfires have occurred prior to approving silvicultural activities. **1.7** Manage for natural predator-prey relationships. **1.8** Apply human access management measures to avoid displacement of wildlife species. (Refer to General Resource

Wildlife and Wildlife Habitat	
Objectives	**Strategies**
	Management Direction for Access Management.) **1.9** Manage riparian areas so that their physical and biological attributes are perpetuated over time. This may require reclamation or rehabilitation for approved development activities. **1.10** Through inventory and consultation with public and stakeholders, apply adequate management practices such that non-threatened habitat types do not fall into the threatened and endangered categories as a result of resource development activities and Crown Land alienation. **1.11** Encourage wildlife habitat enhancement projects.
2. Conserve vulnerable (blue listed), rare, threatened and endangered (red listed) species and their habitat and plant communities. This will include refining the Conservation Data Centre (CDC) list of red and blue listed species and plant communities for the planning area. For CDC species and plant communities listed on the existing or upcoming volumes of the *Identified Wildlife Management Strategy* (IWMS) the IWMS will provide the measures for management. In the absence of the IWMS, conservation measures may be implemented to provide for their perpetuation. Implementation of these measures will consider impacts to other resource	**2.1** Identify and conserve vulnerable, rare, threatened and endangered habitats. **2.2** Determine where and to what degree red and blue listed species are within the timber harvesting landbase. **2.3** Identify and manage critical habitats and plant communities for vulnerable, rare, threatened and endangered wildlife species and plant communities where resource development is planned. **2.4** The Ministry of Environment will establish an interagency/public advisory committee to work out conservation measures for red and blue listed species and plant communities. **2.5** Enhance rare, threatened and endangered species habitats where appropriate.

Wildlife and Wildlife Habitat	
Objectives	**Strategies**
use industries and conservation priorities.	
3. Maintain a diversity of habitats.	**3.1** Use a variety of forest management practices to maintain the diversity of habitats, both at the stand level and the landscape level. (Refer to General Resource Management for Biodiversity.) **3.2** Evaluate the need for natural successional processes to occur for designated areas such as burns and "nonsatisfactory stocked" areas. Where the need is confirmed allow natural successional processes to occur.
4. Maintain linkages and connectivity within and between watersheds.	**4.1** Provide suitable conditions to accommodate wildlife movement, including seasonal travel. (See ecosystem networks in General Resource Management for Biodiversity.)
5. Maintain consumptive and non-consumptive uses of wildlife.	**5.1** Consult with hunting stakeholders regarding access management including 2-wheel and 4-wheel drive access. **5.2** Identify and develop suitable wildlife viewing sites such as: • junction of Clore and Copper River (mountain goats) • Esker Slough, Highway 16 (mountain goats, Trumpeter Swan) • Upper Kitsumkalum (moose) • Lakelse Lake Mailbox Point (Trumpeter Swans, bats) • Lakelse Lake Park, picnic site (Trumpeter Swans, bats) • Kitlope River (oolichan) • Kemano River (oolichan) • North end Kitsumkalum Lake (Trumpeter Swans, Eagles, Great Blue Heron, salmon) • Nass River floodplain (oolichan) • Ginlulak Slough (salmon, grizzly)
6. There should be consistency among strategic plans.	**6.1** Work with adjacent sub-regional and regional plans to ensure consistency in approach to management of cross-jurisdictional wildlife issues.

3. RESOURCE MANAGEMENT ZONE DIRECTION

Resource Management Zones (RMZ) were developed to provide direction for geographically specific areas where resource values warrant management emphasis. The zoning designations are based on underlying resource values that have been identified for their strategic significance. Management direction, through objectives and strategies, were developed for each RMZ to provide the context for resource management activities and guide operational planning and activities within those zones. Management direction was developed for each of the following RMZs.

3.1. Resource Management Zone Categories

TABLE 6: *Resource Management Zone Categories*

Proposed Protected Areas	Areas to be protected for their natural (biophysical), cultural heritage, and/or recreational values. Logging, mining, hydroelectric dams, and oil & gas development are prohibited. One set of objectives and strategies were developed for the whole Proposed Protected Area package.
Settlement Zone	Areas reflecting existing community boundaries and anticipated growth areas. These areas are primarily planned and managed by local governments under the Municipal Act.
Special Resource Management Zone	Resource development and extraction opportunities (e.g., logging, mineral exploration and mining development) exist and are acceptable activities within the SRMZ designation within the constraints of identified conservation values. This management emphasis on special resource values contributes in a significant way to the Plan's environmental conservation objectives, particularly in terms of the conservation of key fish and wildlife habitat areas. This approach also contributes substantially to plan area recreational and tourism objectives, as well as to local economic diversification. There are nine types of SRM zones. They are briefly described in Table 7

3.1.1. Protection Zone

The establishment of new protected areas **(Map 15)** plays a key role in the realization of conservation goals, ecosystem representation, maintenance of biodiversity, and protection of key habitats for rare and threatened species. New protected areas would also contribute significantly to recreational and cultural heritage objectives, as well as to long-term economic objectives. Land use within Protected Areas emphasizes resource conservation to the degree that resource

extraction is excluded and other land uses may be limited or excluded. Mining, logging, hydro dams and oil and gas development are not permitted in Protected Areas.

Substantial Protected Areas (i.e. Kitlope, Gitnadoix, Nisga'a Lava Beds) were already established or agreed to prior to the initiation of the Kalum LRMP in 1996. These areas provide significant contributions to Protected Areas Strategy (PAS) goals within the plan area.

Resource Values and Issues

- One of the purposes of sub-regional land use planning processes such as the Kalum Land and Resource Management Plan is to implement the provincial government's PAS initiative. The two goals of the PAS are outlined in Management Intent. All proposed protected areas will be considered for designation under the *Park Act* or other appropriate legislation, such as the *Ecological Reserve Act.* This Section identifies resource management objectives and strategies for proposed protected areas. A summary of each area, including protection values and their contribution to the Protected Areas Strategy, can be found in Appendix K.
- The Park Act prohibits industrial resource extraction. Other restrictions relating to activities within parks are outlined in Resource and Recreation Use Guidelines (Appendix J). Specific land use and management within park areas is guided by park management plans or management direction statements which include public input.
- As a matter of Cabinet approved policy (Resource and Recreation Use Guidelines), aboriginal rights can continue in protected areas in accordance with the law.
- Marine protected areas planning may occur in the future.

Management Intent

- **Goal 1 - Ecosystem Representation:** To protect viable examples of the natural diversity of the province, representative of the major terrestrial, marine and freshwater ecosystems, the characteristic habitats, hydrology and landforms, and the characteristic backcountry recreational and cultural heritage values of each ecosection.
- **Goal 2 - Special Features Protection:** To protect the special natural, cultural heritage and recreational features of the province, including rare and endangered species and critical habitats, outstanding or unique botanical, zoological, geological and paleontological features, outstanding or fragile cultural heritage features, and outstanding outdoor recreational features.

Protected Areas	
Objectives	**Strategies**
1. To maintain ecosystem representation and integrity, and protect resource values and special natural and cultural features (Goal 1 and Goal 2 areas).	**1.1** Place protected area management emphasis on maintaining the ecosystems, resource values and special features for which protected areas were established. Values identified in Appendix K outline recommended management emphasis. **1.2** Management interventions will not significantly alter natural ecological, hydrological and geomorphic processes except for express management purposes as defined by a protected area management plan.

Protected Areas	
Objectives	**Strategies**
	1.3 BC Parks will work together with other agencies to collect resource inventory for new park areas.
2. Protection key species and their habitats.	**2.1** Investigate opportunities to establish ecological benchmarks for scientific study and management of rare and endangered species and species-at-risk (red and blue listed). **2.2** Rare and endangered species and species-at-risk (red and blue listed), and their habitats will be protected.
3. To provide a range of recreation opportunities from primitive to intensive recreation.	**3.1** Manage protected areas to provide a range of recreational experiences, with direction from the values identified in Appendix K and subsequent protected area management planning. **3.2** Where appropriate, and in consultation with First Nations and affected stakeholders, existing roads and trails within protected areas may be closed or decommissioned to support conservation objectives or recreational experiences. New facilities (including roads and trails) may be limited or managed to maintain the quality of recreational experiences and conservation values. **3.3** Monitor levels of recreational use and associated impacts and, where necessary, apply management to maintain the recreation qualities of an area.
4. To plan and manage parks in a manner which reflects the cultural heritage of those areas.	**4.1** Respect and accommodate traditional uses and aboriginal rights of First Nations **4.2** Consult local First Nations to identify activities and rights occurring within protected areas. **4.3** Identify, protect and where appropriate interpret the cultural history of the protected area (First Nations and historic values).
5. Maintain ecosystem representation, and conservation, recreation and cultural heritage values within the new protected areas.	**5.1** Management plans will be developed for each approved protected area in accordance with the availability of budget resources and the priority resource values identified in Appendix K. **5.2** Management plans will be developed with the benefit of public, First Nations and inter-agency participation and will incorporate LRMP direction. The plans will define park-specific management objectives, acceptable uses, acceptable

Protected Areas	
Objectives	**Strategies**
	levels of use, zoning and other strategies that will minimize conflicts and help ensure the integrity of important protected area values. **5.3** Park management planning processes will include consultation with tourism industry representatives in order to examine potential commercial opportunities within provincial parks, which are consistent with the Park Act and compatible with protecting conservation, recreation and cultural heritage values within the parks. **5.4** Commercial opportunities will be assessed with regard to their compatibility with protected area management plans. Generally, physical commercial infrastructure (e.g., roads, lodgings, staging areas, etc.) will be directed outside of park boundaries in order to minimize impacts within protected areas. **5.5** Pending the development of management plans for each protected area, Management Direction Statements (which provide interim management direction) will be developed with some consultation with affected parties to guide park management and operations.
6. To recognize the legal rights of existing tenure holders and landowners within newly established parks, and to deal fairly with those interests.	**6.1** Industrial resource development and extraction will not be permitted in protected areas. Compensation for affected interests will be addressed through existing government policy. **6.2** Existing tenures within new protected areas for utility rights-of-way, commercial backcountry recreation, guide-outfitting, trapping, water works and use, and other tenures not based in industrial resource extraction, will be permitted to continue, in accordance with the existing management conditions attached to those tenures, provided they are consistent with the Park Act and management objectives for the protected area. In the future, the management conditions attached to those tenures may be amended to comply with the requirements of BC Parks policy and park management plans developed for individual protected areas. **6.3** Alterations to conditions of tenure will be based on sound resource management principles (e.g., sustainability of activity) and/or avoidance of impacts to the values upon which the protected area was established (e.g. wetlands, biodiversity, recreation etc.). Alterations will be made in

Protected Areas	
Objectives	**Strategies**
	consultation with the tenure holder. **6.4** Although considered to be a non-conforming use by BC Parks, trapping will continue as a permitted use in protected areas. Acquisition of tenure by BC Parks would occur on a voluntary basis only (e.g. BC Parks requests right of first refusal on tenure transfer), and in accordance with BC Parks policy. **6.5** Existing owners of private land in-holdings within new protected areas will continue to exercise their rights, and rights to existing legal access to those properties will continue. **6.6** Where approved Silvicultural Prescriptions (SP) occur within new protected areas, the SP holder is obligated to carry out the SP , however, details of the SP will be forwarded to BC Parks and the SP may be amended by the Ministry of Forests District Manager if the SP is not consistent with park management objectives. Costs should not exceed expected cost of implementing the original SP.
7. To increase co-operation between resource users adjacent to parks and park managers with respect to management of resource values within and adjacent to protected areas.	**7.1** BC Parks and other resource management agencies will take a proactive and cooperative approach regarding anticipation, avoidance and mitigation of impacts on park and adjacent resource values due to park management or development of adjacent lands (e.g. prohibited resource development within park boundaries, visual quality from viewpoints within a park, access management adjacent to sensitive protected area features). **7.2** BC Parks will work with other agencies to promote connectivity between a park and wildlife habitat in surrounding areas. **7.3** Management of natural occurrences (e.g., fires, insects, and forest disease) within protected area boundaries will consider the impact on the ecosystem within the boundaries of the protected area, and on the broader ecosystem values of which the protected area is a part. Control actions will only be undertaken if: • consistent with the Park Act (or act used to designate the particular protected area); • forest and/or vegetation loss is expected to be severe and detrimental to the ecosystem, and/or • the value of affected resources within, or adjacent to,

Protected Areas	
Objectives	**Strategies**
	the protected area is exceptionally high.
8. Maintain, where possible, opportunities for recreation and traditional (i.e. First Nations) hunting within protected areas.	**8.1** Recreational and traditional (i.e. First Nations) hunting will be accommodated within protected areas with the following exceptions: • Where human safety and health are perceived to be an issue; • Where wildlife conservation is a concern **8.2** Hunting regulations within protected areas will not be changed without the consultation with the Wildlife Section of the MWLAP. **8.3** Hunting may be restricted, through a master planning process with public participation, where wildlife viewing opportunities are significant and site specific.

3.1.2. Settlement Zones

The intent of the Settlement zone is to identify the area most appropriate for future settlement expansion and development.

In this zone, emphasis will be placed on settlement and industrial development while placing a high value on integrated management for wildlife habitat. The zone includes lands that contain important wildlife habitat. In the Settlement zone, settlement and industrial development will be given greater emphasis than forestry. Existing long-term forestry investments will be identified and accounted for in future development proposals.

Areas incorporated in this zone include:

- areas of settlement, especially those in rural areas, where it is considered important to retain the rural-agricultural character of the settlements and their surrounding lands.

This zone includes areas that are subject to separate planning processes called Official Community Plans (OCP). Such lands are primarily planned and managed by local governments under the *Municipal Act*. Local government may also have jurisdiction in areas where other RMZ boundaries cross settlement lands.

This zone is not intended to include all grazing tenures or smaller pockets of arable soils remote from concentrations of human settlement. These latter areas will generally fall into the GRM zone with direction provided by the agriculture direction. Settlement and industrial development will continue to be considered on suitable lands outside of the Settlement zone subject to the management direction within those zones.

Resource Values and Issues

Settlement in the plan area is concentrated along the Skeena River, and in the Kitimat and Kalum valleys. Primary population centres include the cities of Terrace and Kitimat, and the villages of New Aiyansh, Kitamaat Village, Kitselas, and Kitsumkalum. Rural settlement occurs in the communities of Gitwinksihlkw, Nass Camp, Rosswood, Chimdemash, Usk, Kleanza, Gossen Creek, Thornhill, Copperside, New Remo, Old Remo, Jackpine Flats, and Lakelse.

Local municipalities have anticipated the need for additional lands to facilitate their future growth and development. The Regional District of Kitimat-Stikine Official Community Plan (OCP) directs future settlement to existing communities and services, and identifies Crown lands near to the City of Terrace that are important to future settlement and economic development. The District of Kitimat OCP identifies Crown lands within municipal boundaries that are important for both the expansion of settlement and economic development. Municipalities have also identified lands with potential for development of industrial facilities throughout the Plan area **(Map 16)**. It is generally felt that the Forest Land Reserve designation should not apply to the above areas to avoid unduly restricting future needs for human settlement and economic development.

Opportunities for agricultural and/or waterfront residential development are found along the Skeena River and the shores of Lakelse and Kitsumkalum Lakes, creating demand for conversion of Crown lands in these areas. Concern exists in these locations over the fragmentation and loss of wildlife and fisheries habitat due to incremental settlement and/or agricultural expansion.

Major east-west (i.e., Highway 16) and north-south (i.e., Highway 37 – Nisga'a Highway) corridors bisect the planning area providing key transportation, utilities and communications linkages. A secondary road network also traverses the District. Secondary roads are important as they not only support a variety of resource developments and land-based access needs, but also lead to the fragmentation of wildlife habitat. The planning, development and management of secondary roads are more fully addressed under access management direction found in Section 3.1.

Management Intent

The Kalum LRMP adopts the general management intent of maintaining existing settlement, utility and transportation areas, sites and corridors as well as providing opportunities for the future expansion of these uses. Access and infrastructure for existing development and facilities will be maintained, while future development will be encouraged to utilize existing corridors, areas and sites wherever possible. Specific proposals for expansion of these uses will be evaluated through appropriate environmental assessment and/or inter-agency referral processes. Municipalities are encouraged to minimize, through recycling, the need for future expansion and/or creation of landfill sites. Development, maintenance and upgrading activities associated with settlement, utilities and transportation will take place with sensitivity to high wildlife habitat, scenic, recreational, natural and cultural heritage values.

The Kalum LRMP recognizes local Official Community Plan (OCP) boundaries, as well as lands strategically identified for potential industrial development, and recommends that the Forest

Land Reserve (FLR) designation not apply to these areas in order to allow for future settlement and economic expansion. LRMP resource management zoning and direction will apply to Crown lands within OCP boundaries, however, until such time as they are converted to settlement or economic development uses. Finally, designation of the FLR will be initially deferred to enable evaluation of non-allocated Crown land for suitability for non-forestry purposes.

Settlement Zones	
Objectives	**Strategies**
1. Maintain opportunities for settlement, utility, communication, and other site-specific uses of Crown land.	**1.1** In response to individual proposals, or through proactive marketing methods, suitable Crown land parcels will continue to be allocated for industry, commerce, settlement, utility, communication, transportation, recreation, conservation, foreshore, community development, public works, institutional uses and other site specific, non forestry uses. **1.2** The allocation of Crown Land for settlement purposes will primarily, although not exclusively, be delivered through the designated provincial land management agency (i.e., BC Assets and Lands) within municipal boundaries, Regional District official community plan areas, and existing settlement corridors. **1.3** Provincial agencies will, as appropriate, participate in official community planning processes and regional growth management strategies initiated by local governments to ensure that appropriate information on Crown land suitability for settlement and settlement-related purposes is incorporated. **1.4** Application of the Forest Land Reserve will be initially deferred for Crown lands within Greater Terrace Official Settlement Plan and District of Kitimat OCP boundaries, as well as for Crown lands strategically identified for potential industrial development **(Map 16)**, pending detailed land use studies. It is intended that these studies take place in a timely manner, with the objective of maintaining highly productive forest lands while allowing for settlement expansion and future economic development. **1.5** Update provincial land reserve notations to lands strategically identified for potential development of industrial facilities **(Map 16)** to ensure that options for future economic development are maintained in the course of evaluating land and resource management proposals

Settlement Zones	
Objectives	**Strategies**
	affecting these areas. **1.6** Site-specific development proposals will be evaluated through appropriate environmental assessment and/or inter-agency referral processes.
2. Recognize environmental conservation and other land use and resource management objectives when making decisions on the disposition of Crown land for settlement and other purposes.	**2.1** Proposals for allocating Crown land for settlement purposes will be reviewed on an integrated co-ordinated basis with all interested agencies. Where possible, allocations will be directed away from significant environmental or resource values, such as: • connectivity corridors, • key wildlife habitats, • natural and cultural heritage features, • scenic and recreation features, and • high capability agricultural or forest lands. **2.2** Encourage landowners to return to First Nations those aboriginal artifacts discovered in the course of land settlement and development. **2.3** A co-ordinated approach to siting utility/transportation corridors will be promoted, particularly with respect to connectivity corridors, to minimize linear barriers to wildlife movement. **2.4** Recycling is encouraged in order to minimize the need for expansion of existing or creation of new landfill sites. **2.5** The siting of new landfills will respect management requirements for wildlife (such as black and grizzly bears) and the protection of water quality. **2.6** Discourage fee simple sale or lease of upland Crown land immediately adjacent to Lakelse Lake.

3.1.3. Special Resource Management Zone

The Special Resource Management Zone (SRMZ) emphasizes conservation-oriented land uses and at the same time allows for some resource development. This land use designation incorporates areas with high concentrations of provincially, regionally and locally significant special resource values, such as critical wildlife or fish habitat, community watersheds, and locally important scenic and recreation resources (e.g., backcountry and marine recreation). In this zone, the resource management emphasis is on the conservation of specific special values

that are known to exist in these areas. Direction concerning other resource conservation values (e.g., biodiversity management) is found in Chapter 2, under GRM.

Due to the unique nature and differing management requirements of the identified conservation values, the SRM zone has been divided into nine different types (Table 7). The specific locations of these zones are identified on **Map 2**. Management direction for each SRM zone is provided in this Section.

TABLE 7: *Special Resource Management Zones*

Special Resource Management Zone (Non-Motorized Backcountry Recreation)	An area for which the conservation of a non-motorized backcountry recreation experience is emphasized. Management direction provides for a variety of non-motorized recreational experiences.
Special Resource Management Zone (Marine Backcountry Recreation)	The conservation of a semi-primitive recreation experience is the management emphasis for this RMZ. The main values of concern include scenic landscapes, opportunities for solitude, and rustic recreational opportunities.
Special Resource Management Zone (Community Watersheds)	Areas that require additional conservation measures to maintain a high level of water quality and quantity for purposes of human consumption.
Special Resource Management Zone (Grizzly Bear Benchmark and Linkages)	These areas are established to place emphasis on the management of grizzly bear populations. Grizzly Bear hunting will be prohibited in these areas
Special Resource Management Zone (Lakelse River)	This area is designated as SRM as part of the integration of the TIRMP. Multiple conservation values such as biodiversity, fish habitat, recreation and wildlife are addressed through the management direction of this zone.
Special Resource Management Zone (Upper Kitsumkalum)	An area designated for the conservation of its important biological attributes and ecosystem representation.
Special Resource Management Zone (Kowesas)	An area of high significance to the Haisla First Nation. This area is designated for the conservation and further detailed planning of oolichan, Marbled Murrelets, and other Haisla cultural values.
Special Resource Management Zone (Ascaphus Creek)	This area was established as a SRM zone specifically to conserve its well known tailed frog habitat.
Special Resource	The Class 1 water of the Copper watershed is known for its

Management Zone (Upper Copper River)	high quality steelhead angling opportunities. This area was established to conserve its high value fish and fish habitat and a quality angling experience.
Special Resource Management Zone (Miligit Valley)	This area was established as a distinct SRM zone within the Upper Copper SRM zone. The area includes significant conservation and recreation values which will be primarily managed through visual quality management and *Sensitive Area* designation.

Backcountry Recreation – Non-Motorized and Marine

Resource Values and Issues

The Kalum planning area offers a unique diversity of backcountry recreation experiences. From salt water fishing, kayaking, and sailing to mountaineering, backcountry hiking, snowmobiling and ski-touring the area offers abundant recreational opportunities. In planning for this diversity of users it is important to recognize the diverse interests of various recreationists. With growing demand for recreational resources, and technological advances of outdoor recreation vehicles (e.g. more powerful snowmobiles that can access more terrain), it has become evident that land use planning tables should take advantage of the opportunity to address recreational land use issues through LRMP.

The coastal component of the plan area offers opportunities for a variety of land uses including a marine backcountry experience. This experience is largely maintained through maintaining a high level of visual quality and low levels of industrial and commercial activity.

Backcountry hiking and skiing enthusiasts often seek an environment or experience that is for the most part considered non-motorized. Backcountry skiers, who seek untracked powder snow are particularly vulnerable to snowmobiles and to a lesser extent commercial heli-skiing, due largely to their limited ability to cover large distances in a short period of time. A *Provincial Backcountry Skiing and Snowmobiling Committee (1998)* report suggests that "recreation faces the reality of limits to access and use" and that "this should result in land use decisions that separate recreational activities in space and time" (pg. 3). Snowmobile areas and huts have already been established in several areas within the Kalum Forest District. Currently, no areas have been designated to secure the values sought by backcountry recreationists (e.g. backcountry ski- touring). One of the primary principles of the committee report is that "in some situations motorized recreation should be restricted to maintain the character of areas that are particularly sensitive or important to other forms of recreation."

Management Intent

- Maintain access to public recreation areas
- Maintain and enhance existing marine and backcountry recreation opportunities.
- Develop potential opportunities for marine and backcountry recreational activities

- Maintain and protect marine and backcountry recreation values associated with sites or features of recreational significance
- To secure opportunities for non-motorized backcountry recreation experiences that are alpine in nature and are highly attractive in Summer and Winter months for those interested in enjoying a more primitive and quiet form of recreation

Non-motorized Backcountry Recreation	
Objectives	**Strategies**
1. Provide a variety of non-motorized and/or non-tenured commercial heli-ski/hike backcountry recreation opportunities.	**1.1** Manage the following area, identified on the MoF *Recreation Activities Map* **(Map 9)** (these areas can be generally defined as the area above 3,200 feet above sea level), for non motorized recreation. Tenured commercial heli-ski & hike recreation activities would continue to be permitted (for example; a joint venture situation with heli-skiing from the lower Shames parking lot): • Mount William Brown to Mount Morris (excluding the Shames Mountain Ski Area tenure) • Area East of Shroud Mountain **1.2** Manage the following areas, identified on the MoF *Recreation Activities Map* **(Map 9)** (these areas can be generally defined as the area above 3,200 feet above sea level), for non-motorized recreation opportunities. In these areas tenured commercial heli-ski & heli hike activities would also be prohibited: • Larson Ridge • Mount Remo This designation allows for helicopter drop off and pick up of a non-tenured type. **1.3** In all the areas identified in strategies **1.1** & **1.2** tenured commercial recreation and tourism activities are acceptable (except heli-skiing/hiking in areas under strat. 1.2). **1.4** In all the areas identified in strategies **1.1** & **1.2** the use of snowmobiles, ATVs and dirt bikes will be prohibited, year round, except for emergency or rescue use or for the purposes of mineral exploration and development or resource management activities (e.g. wildlife inventories) carried out by government. **1.5** In the following areas, identified on the MoF *Recreation Activities Map* **(Map 9)** (these areas can be generally

Non-motorized Backcountry Recreation	
Objectives	**Strategies**
	defined as the area above 3,200 feet above sea level), restrict motorized access from June 1 to October 31 to the developed roads only. Except for emergency or rescue use, for the purposes of mineral exploration and development or resource management activities (e.g. wildlife inventories) carried out by government **off road motorized** access would be **prohibited**: • Sleeping Beauty Mountain • Maroon Mountain south to Glacier Peak **1.6** In the Maroon Mountain and Mount Garland areas fly in cabins may be built for the purposes of commercial backcountry recreation. **1.7** In areas where increased helicopter activity may occur (as the result of increased recreation activity) near goat populations, the Ministry of Environment will be consulted to assist in the determination of flight paths.
2. Maintain opportunities for the operation and expansion of the Shames Mountain ski area.	**2.1** Address future expansion of the commercial ski facility tenure (at Shames mountain) through the British Columbia Assets and Lands (BCAL) tenuring process, which includes opportunities for public consultation. **2.2** Should the Shames Mountain ski facility close and the developed area occupied by the Shames Mountain Ski Corp tenure revert to unencumbered Crown land: In consultation with stakeholders, user groups and local government this area should be considered for inclusion into the non-motorized recreation zone and managed under Strategy **1.1** above. **2.3** Under the conditions described in strategy **2.2** above and specific to the developed portion of Shames Mountain, in a 14 day window in the Winter months of each year, allow Terrace area snowmobile clubs to stage an annual motorized event in the non motorized recreation zone. **2.4** If under the conditions of **2.2** above a similar commercial downhill skiing operation successfully applies for and receives a tenure , the Non-Motorized designation would be lifted and would not negatively impede the business application process.
3. Maintain mineral exploration and	**3.1** Prospecting, blasting and staking associated with mineral and oil and gas exploration, development and testing

Non-motorized Backcountry Recreation	
Objectives	**Strategies**
development opportunities.	activities will continue in the non-motorized recreation zone.

Marine Backcountry	
Objectives	**Strategies**
1. Provide opportunities for a marine backcountry recreation experience (e.g. hunting, power boating, kayaking, sailing, fishing, crabbing) defined by the following characteristics: • Primitive camping (not road accessible) • Low level of rustic facility development • Moderate opportunities for solitude • Closeness to nature • High degree of self reliance • Challenge in using motorized equipment	**1.1** Manage the following areas, for marine recreational opportunities by creating Known Scenic Areas with an established Visual Quality Objective of Retention. • Jesse Lake • Lower Sue Channel Narrows Design, construct and/or rehabilitate landings and log dumps to minimize visual impact from the water. **1.2** Potential future development of large commercial and industrial facilities should not compromise the semi-primitive experience (as defined by the Ministry of Forests Recreation Opportunity Spectrum) in: • Jesse Lake • Sue Channel (both upper and lower) **1.3** Where potential industrial development sites have been identified (i.e. Miskatla Inlet) and commercial or industrial development **does not** occur, manage for a marine backcountry recreation experience. If development **does** occur, manage marine backcountry recreation values to the greatest extent possible.

Community Watersheds

Resource Values and Issues

The plan area includes six existing community watersheds including Deep Creek, Drake Creek, Gitzyon Creek, Wathl Creek, Eneeksagilaguaw Creek, and Ksa Miintl Am Hawak Creek. The quality and quantity of water from these watersheds is of primary concern to the communities within the plan area. Industrial development can have a negative effect on water quality/quantity and therefore is managed to minimize its impact. Monitoring is seen as an essential component of maintaining both the quality and quantity of water.

There are many smaller communities within the planning area that have significant populations using surface water as their primary source of drinking water. Where water use is concentrated to a single source by a number of licensed and non-licensed users the Table felt that these areas should be designated as community watersheds.

Management Intent
The Kalum LRMP confirms that the maintenance of water quality/quantity for purposes of human consumption and safety in areas of intensive community water use is a primary desire of the communities within the plan area. The Table also wishes to establish community watersheds **(Map 17)** in those areas where there are a significant number of users drawing from a common source.

Community Watersheds	
Objectives	**Strategies**
1. Maintain water quality to meet Canadian Drinking Water Standards through minimizing water turbidity, sediment, and other contaminants.	**1.1** It is recommended to the statutory decision maker to designate as Community Watersheds those areas of intensive community water use which meet the criteria established in the *Community Watershed Guidebook*, including: • Rosswood (Clear Creek), • Usk (Skovens Brook), • Kleanza (Singlehurst Creek), • Gossen (Gossen Creek), and • Hatchery Creek **1.2** Undertake a Watershed Assessment Procedure (WAP) for community watersheds where no Level 1 assessment has been performed. Where Level 1 assessments were completed upgrade assessments through application of a Reconnaissance Channel Assessment. **1.3** Establish water quality/quantity monitoring programs for all community watersheds. **1.4** Where monitoring programs show unacceptable water quality or quantity take appropriate remedial action. **1.5** Water quality and watershed protection are primary considerations when development and/or resource extraction activities are proposed in areas adjacent to *licensed* domestic water supply sources. **1.6** Using existing referral systems so that appropriate licensees, resource specialists, and agencies are informed of, and provide input to, plans for resource extraction and other development activities.

Community Watersheds	
Objectives	**Strategies**
	1.7 Over time maintain/restore stream corridors, shorelines and other riparian areas to reduce erosion and sedimentation and to protect water channel stability.
2. Manage access into Community Watersheds to maintain water quality.	**2.1** Incorporate Community Watershed access concerns into access management plans (refer to strategy 1.1 in Access management) including regulation of access for recreational and industrial users. **2.2** All roads, trails, and other construction activity must be undertaken according to the standards outlined in the Forest Road Engineering Guidebook (Forest Practice Code) and Stream Stewardship Guidelines (Ministry of Environment) under appropriate weather conditions, and deactivated in a similar manner. **2.3** . Domestic grazing will not be permitted in community watersheds.
3. Maintain the quantity and flow of water in community watersheds within their natural range.	**3.1** Maintain natural flow regimes to the extent possible by ensuring a clear-cut equivalency of less than 20% of the watershed area in sub-basins larger than 250 hectares. **3.2** Manage runoff and volume of water extracted to maintain summer low flows and to minimize high freshet flows through: • Where necessary establishing a minimum summer low flow indicator below which water extraction is restricted • Intercepting sub-surface flows (creating cross drains in roads) • Wet season inspection of roads • Effective and timely road deactivation • Annual road deactivation inspections so that hydrological requirements are achieved • Expeditious removal of landslide deposits

Grizzly Bear Benchmark and Linkages

Resource Values and Issues

Grizzly bear population distribution and status across British Columbia has been strongly influenced by human activities. Mortality and habitat alienation, alteration, fragmentation and

loss have threatened bear populations with localized extinction in parts of the province. While much of coastal British Columbia remains populated by grizzlies, there is a concern that over the long term managers will need a conservation benchmark against which to compare the outcomes of management strategies. The additional benefit is that the benchmark will act as a population source or reserve; some bears will disperse outwards. Benchmarks are proposed as a form of insurance for the future. They attempt to ensure that natural population processes continue in perpetuity.

The Skeena-Nass Benchmark GBMA, proposed for the area surrounding Khutzeymateen Park, provides the best opportunity for grizzly bear population and habitat representation in the Coast and Mountains Ecoprovince. The protected core is a high density well studied population. Surrounding watersheds have high capability and limited human influence.

Population fragmentation is one of the reasons for grizzly bear decline elsewhere in BC. Isolated populations have less resilience to change - either natural or human-caused. The two proposed linkage GBMAs are designed to prevent population fragmentation in the long term by providing secure dispersal and movement corridors.

The British Columbia Wildlife Federation (BCWF) supports the concept of GBMAs, but has continued concerns about:

1. Cumulative loss of hunting opportunity in areas where there is no conservation concern;
2. The uncertainty associated with the settlement of treaties with First Nations and the corresponding uncertainty with the resulting allocation of wildlife harvest (i.e. grizzly bear) to the non-native hunter.

Management Intent

A Skeena-Nass Benchmark Grizzly Bear Management Area and two small Linkage Grizzly Bear Management Areas (Skeena and Kitimat) are established as Special Resource Management Zones **(Map 18)**. This Benchmark places emphasis on management of the grizzly bear population and grizzly bear habitats in the Khutzeymateen Grizzly Bear Population Unit as representative of the Coast and Mountains Ecoprovince. There will be no grizzly bear hunting opportunities in this Population Unit. Included in this intent are the following conditions;

- No hunting for grizzly bears applies to all people,
- If hunting is re-instated for all or any portion of the GBMA that portion of the GBMA must be opened to all people for hunting, and the remainder must be assessed for effectiveness as a GBMA,
- Hunting of other wildlife species is not affected by the GBMA direction in the LRMP,
- The GBMA establishment order should make reference to the LRMP Management Intent to ensure that the understanding of the LRMP agreement is reflected.

Underlying the Benchmark, the Linkages and on the rest of the LRMP area, important grizzly bear habitats are managed through General Resource Management direction.

Skeena-Nass Benchmark Grizzly Bear Management Area

Objectives	Strategies
1. Designate a Skeena-Nass Benchmark Grizzly Bear Management Area **(Map 18)** as a Special Resource Management Zone to: • protect grizzly bears from hunting; • control recreational activities and human uses of grizzly bear habitats; and • manage the area to sustain a benchmark, naturally regulated grizzly bear population representative of the Coast and Mountains Ecoprovince.	**1.1** Prepare and implement, in consultation with the LRMP Monitoring Committee, a management plan for the area. The plan will give clear directions for applying population management measures within the Grizzly Bear Management Area. **1.2** Prior to establishment of the Khutzamateen management area, a review of existing grizzly bear hunting closed areas in the region will be conducted.

Skeena and Kitimat Linkage Grizzly Bear Management Areas	
Objectives	**Strategies**
1. Prevent population fragmentation and genetic isolation by designating and managing a Skeena Linkage Grizzly Bear Management Area and a Kitimat Linkage Grizzly Bear Management Area through Special Resource Management Zones **(Map 18)**.	**1.1** Prohibit hunting of grizzly bears within the Linkage Areas. **1.2** Inventory and monitor bear use of the Linkage Areas.

Lakelse River

Resource Values and Issues

The Lakelse River Corridor Special Resource Management (SRM) Zone was developed as a means of integrating the Thunderbird Integrated Resource Management Plan (TIRMP) into the Kalum LRMP. The TIRMP was developed in 1992 though consensus seeking, interest based negotiations with representation from a broad array of local interests including members of the public and industry. It should be noted that mineral representatives were not part of the original TIRMP development. Management direction from the TIRMP has been integrated into the LRMP through discussions with the Thunderbird Resource Advisory Committee (TRAC), the Small Business Forest Enterprise Program (SBFEP) and the LRMP planning table. Many elements of the TIRMP were integrated into the Kalum LRMP through General Resource Management direction and new Protected Areas. The SRM direction within this section is of primary importance to fulfilling the full integration of the TIRMP into the Kalum LRMP.

The Lakelse River Corridor Special Resource Management (SRM) Zone encompasses approximately 1 km on either side of the Lakelse River (refer to LRMP zoning map). The actual boundary was developed using the following criteria; existing land use patterns, topography, and fish and wildlife habitat and use patterns. Within the SRM zone the following two subzones are delineated:

Subzone 1

Area approximately 200 metres on either side of the Lakelse River. The actual boundary is based on the above criteria.

Subzone 2

All other area within the SRM zone. This area is generally defined as a buffer to Subzone 1.

The Lakelse River is one of the most biologically rich and productive rivers within the Skeena watershed. It provides the habitat for large numbers of both anadromous and non-anadromous fish including Pink, Coho, Steelhead, Sockeye, Chinook, Cutthroat Trout, Dolly Varden etc. The abundant fish contribute to making this area high capability habitat for both grizzly bear and black bear. In combination with the rivers proximity to Terrace, the abundant fish populations also provide for excellent angling opportunities. The Lakelse accounts for the highest number of angler days of all the rivers within the Kalum planning area. Many local people also use the area for other forms of recreation. The area is also an important part of the SBFEP's chart area. The area has good growing sites, a developed road network, and relatively flat terrain.

The Lakelse Rivers natural productivity make it an area of key importance to a variety of interests. Land use planning is essential to ensure a sustainable balance in the management of the values associated with those interests. The integration of the TIRMP into the Kalum LRMP recognizes the hard work of TRAC members, and the endurance of a plan that has maintained its relevance.

Management Intent

This Kalum LRMP confirms that the Lakelse River area is an important resource to a variety of interests and values. It is the management intent of the Kalum LRMP to maintain the natural integrity of this highly productive and unique river. The management of the Lakelse River Corridor SRM zone will have a conservation orientation but will also integrate other resource

uses and activities. Management will focus on maintaining fish habitat, a quality angling/recreation experience, and wildlife habitat.

Subzone 1	
Objectives	**Strategies**
1. Maintain the productive capacity of fish habitat.	**1.1** Maintain stream bank integrity, adjacent sources of large organic debris, vegetative cover, fish food producing materials and organisms for the stream. **1.2** Maintain good water quality with parameters set by BC Environment that are river specific and reflect the natural variances of turbidity and siltation events.
2. Maintain a high quality angling/recreational experience.	**2.1** Maintain fish habitat in an effort to maintain fish populations to sustain angler success rate to the satisfaction of recreational anglers. **2.2** Provide for an angling/recreational experience that is perceived to be uncrowded through; • Determination of the social carrying capacity of the Lakelse River. • Development of an access management and river management plan for the Lakelse River. **2.3** The Lakelse main logging road, on the south-west side of the river, should be managed in such a manner as to prevent it from becoming a circle route.
3. Maintain wildlife habitat and biodiversity.	**3.1** No logging will occur in Subzone 1. **3.2** Blowdown will not be harvested.

Subzone 2	
Objectives	**Strategies**
1. Manage for characteristics that maintain the integrity of old growth forest conditions within Subzone 1 (e.g. preventing blowdown).	**1.1** An early seral stage (i.e. less than 40 years) target will be set at a maximum of 27%. Where *feasible undertake selection silviculture systems. Where not feasible the maximum opening size will be 15 hectares. There shall be a minimum 15% retention within the cut-block to add structural diversity. In any 5 year planning cycle at least 50% of the timber volume harvested shall be by selection silviculture systems.

Subzone 2	
Objectives	**Strategies**
*A selection silviculture system is considered feasible when a timber sale is tendered and bid(s) are received. It is not considered feasible when bids are not received.	

Upper Kitsumkalum

Management Intent

- to conserve moose winter range, fish and wildlife habitat values, biodiversity values, and water quality;
- for moose management objectives and strategies, cross reference to moose ungulate winter range SRMZ language.

Upper Kitsumkalum	
Objectives	**Strategies**
1. Manage for biological diversity and provide for ecosystem representation in the Upper Kitsumkalum valley.	**1.1** Establish the Upper Kitsumkalum SRM zone as "no-logging".

Kowesas

Management Intent

- to conserve oolichan, grizzly bear, marbled murrelets, and goat habitat and populations

Kowesas	
Objectives	**Strategies**
1. Protect and maintain identified oolichan spawning areas.	**1.1** In the Kowesas watershed road building will be restricted, where physically feasible, to outside of 100 metres of the river. Road building will not occur during the oolichan spawning period. **1.2** No ground skidding will occur within the Kowesas watershed.
2. Manage for multiple resource uses and values	**2.1** Harvesting will be deferred to allow for the joint preparation of a comprehensive resource management plan

Kowesas	
Objectives	**Strategies**
within the Kowesas watershed, through the preparation of a comprehensive resource management plan prior to development.	for Kowesas. Each stage of the planning process will be developed &/or agreed to through the consensus of all parties involved. The plan will determine how to manage the forest resources to sustain cultural, fish and wildlife, recreation, timber, biological and ecological values and will be implemented accordingly. Planning will be consensus-based involving the Haisla, provincial agencies, and tenure holders. Provide dedicated funding to support this plan through various funding sources.

Ascaphus

Management Intent

- Conserve tailed frog habitat.

Ascaphus	
Objectives	**Strategies**
1. Conserve tailed frog habitat.	**1.1** Establish "no-logging" within the Ascaphus Creek SRM zone to maintain: • natural levels of large organic debris adjacent to streams • microclimatic conditions • water quality (i.e. clarity, temperature, PH) • water quantity (i.e. naturally fluctuating levels including torrent flushes) • opportunities for continued tailed frog research

Upper Copper

Resource Values and Issues

The Skeena River watershed supports four of the five provincial Class 1 waters and a number of Class 2 waters. Classified waters are identified as highly productive trout streams and are specially licensed to preserve their unique fishing opportunities.

The Zymoetz (Copper) River within the LRMP planning area is Class 1 water above the Limonite Creek confluence and Class 2 water below the Limonite Creek confluence. The special management zone encompasses the Class 1 water portion of the Zymoetz River. Class 1 angling water offers a special fishing experience that is becoming ever more unique from a global perspective. As such, planning tables in British Columbia have either protected such waters (Babine River - Kispiox & Bulkley LRMPs) or designated them as special management zones (Sustut River - Fort St. James LRMP, Upper Zymoetz - Bulkley LRMP).

At the time Class 1 water was designated in British Columbia (1990) fishing on Class 1 water was characterized as an experience where high quality angling is found in combination with unblemished water quality, an unmodified visual landscape and an abundant diversity of natural flora and fauna. Some erosion of these attributes has occurred for the Class 1 portion of the Zymoetz River since its 1990 designation. LRMP strategic plan direction and continued interagency/forest licensee discussions are required to ensure no further erosion of these resource attributes occur.

Class 1 water is often difficult to access. This limitation is a desirable characteristic associated with the fishing experience if these rivers are to remain primitive in nature.
The access limitation for Class 1 water must recognize three elements: persistent noise from traffic and industrial machinery is minimized, crowding from anglers or other recreationalists is limited, and the sense of accomplishment from being on the water is maximized. Access development in the vicinity of the Zymoetz Class 1 water will require coordination between government agencies, proactive and long-term planning, public and Crown Land tenure holder input, and the designation of maintenance and enforcement responsibility for gates, barriers and unauthorized entry.

Management Intent
The management intent is to maintain, and where possible, restore the resource attributes associated with the designation of the Zymoetz River Class 1 portion. The resource attributes to be considered in the implementable objectives and strategies include, but are not limited to:

1. good water quality that is river specific and reflect natural variances of turbidity and siltation;
2. exceptional fisheries as defined by angler success rate;
3. uncrowded angling experience with a personal feeling of remoteness;
4. pristine or near pristine river viewscape;
5. minimal noise disturbance caused by industrial activity;
6. abundance of flora and fauna diversity and viewing experience.

Upper Copper	
Objectives	**Strategies**
1. Maintain natural water quality by ensuring that human induced soil erosion, turbidity and sedimentation is prevented, mitigated and closely monitored.	**1.1** Ministry of Water Land and Air Protection to set river specific water quality parameters that reflect the natural variances of turbidity and sedimentation. (5.1 F&FH, 2.4 Freshwater) **1.2** Identify potential areas of concern with regards to terrain stability and surface erosion hazard through overview mapping.. (1.8 Freshwater) **1.3** Incorporate sediment control strategies into resource development plans. (1.10 Freshwater) **1.4** Undertake watershed restoration activities for impacted watersheds to restore hydrological stability and water

	quality. (2.6 Freshwater) **1.5** Conduct a Coastal Watershed Assessment Procedure (CWAP). Implement CWAP recommendations to limit negative hydrological impacts. (2.2 Freshwater) **1.6** Prioritize the development of watershed management strategies which address water demands, fisheries low flow rate requirements, and water runoff rates (water retention) that maintain the hydrological regime in a near natural state. (2.5 Freshwater)
2. Maintain and improve the exceptional fisheries available to the angling community.	**2.1** Monitor angler success rate for indications of trend over time and recommend/conduct corrective measures when and where appropriate. (1.7, 5.2 F&FH) **2.2** Public recreation angling opportunities will be emphasized while maintaining opportunities for commercially guided angling. Recommended proportions will be determined through a river use plan that considers the social carrying capacity of the river.
Upper Copper	
Objectives	**Strategies**
3. Develop a river management plan to manage angling use to reflect an uncrowded condition with a feeling of remoteness. (5.3 F&FH)	**3.1** Where possible, all roads should be designed, laid out and managed to ensure walk-in access only to the river along its Class 1 portion. **3.2** Discourage deactivating the existing main roads. **3.3** Develop a 1:20 000 plan that delineates a boundary where temporary road only access is permitted outside of the Class 1 angling season and no road access is permitted within the Class 1 angling season. Such a plan will require joint approval by MWLAP, MOF & MEM. **3.4** Bridging the Class 1 portion should be discouraged. Where no alternative feasible options exists, joint approval by MWLAP, MOF & MEM is required for any bridge crossing of the Class 1 portion, but under the condition that only one bridge crossing is permissible at any time to inhibit river crowding via excessive boat fishing.
4. Manage for a pristine or near pristine river viewscape as part of the desired resource attribute associated with Class 1 Water.	**4.1** For class 1 water, it is recommended to the statutory decision maker to manage the viewscape by setting Visual Quality Objectives (VQOs) that focus on the identification of foreground preservation. Foreground preservation is defined by a 100 m minimum reserve from the river. Visual quality should be managed to maintain a quality experience along

	the edge of the reserve where less than 100m makes "best" operational/environmental practice. The intent is to use the reserve strip of timber to protect the visual experience of anglers and recreationalists on the river. Where harvesting is proposed within the 100m reserve for site-specific reasons, licensed angling guides should be contacted directly during the planning phase. For background visual quality management, partial retention will take effect immediately and be in place until such time as a visual landscape inventory with established visual quality objectives is completed. Once complete, Known Scenic Areas will be created with established VQO's. (5.4 F&FH) **4.2** Strive to reduce slash and pile burning in the greater valley basin during the classified season to provide for desired air clarity. (June table meeting suggestion)
5. Minimize industrial noise disturbance during the classified season.	**5.1** Consider minimizing disturbance caused by resource development activities during the specified Class 1 angling season. (5.6 F&FH)

Miligit Valley	
Objectives	**Strategies**
1. Conserve the recreation and conservation values associated with the Miligit watershed.	**1.1** It is recommended to the statutory decision maker to manage the viewscape by establishing Known Scenic Areas and setting *Partial Retention* Visual Quality Objectives (VQOs) in the areas identified on **Map 19**. **1.2** It is recommended to the statutory decision maker to establish *Sensitive Areas* identified on **Map 19** in the valley bottom wetlands to conserve uncommon reticulated fens. **1.3** The waterfall identified on **Map 19** will be established as a recreation feature in the Ministry of Forests recreation inventory.

4. ECONOMIC STRATEGIES

4.1. Jobs, Communities and Quality of Life

The Kalum plan area encompasses a wide variety of economic opportunities and lifestyle choices. Diversity of economic opportunity is extremely important to the small and rural communities in the plan area as it acts to stabilize the population and enables residents of these communities to achieve a high quality of life in rural and remote settings. Maintaining accessibility to and sustainability of a diverse range of resources, at a local scale, is critical to sustaining this quality of life.

Community concerns include, but are not limited to:

- economic opportunities in the forest sector through commercial thinning, innovative forest practices, increased salvage opportunities, expansion of the woodlot program, and the promotion of the Small Business Forest Enterprise Program.
- economic opportunities in the tourism sector through both large-scale resort development and small scale ecotourism development,
- economic opportunities in the geology and energy sector;
- skills training programs for both intensive silviculture work, woodcrafting and geology and energy-related employment;
- sustainable forest practices certification;
- research and development in energy production (e.g. co-generation); uses and conversion of under-utilized wood and exploration and development in geology and energy-related industries;
- industrial development that is compatible with other resource values;
- local bidding opportunities and hiring practices; and
- business partnerships between forest licensees, local communities and First Nations.[13]

Management Intent

To promote community stability, growth and quality of life by maintaining and enhancing resource accessibility and sustainability for the benefit of all residents living in the planning area.

Objectives and Strategies

Objective 1: Investigate opportunities for maintaining existing and creation of new economic activity in the forest products sector.

Strategies:

- Encourage the establishment of a Northwest Forestry Council, in consultation with existing forestry-based groups (such as the Northwest Forestry Coalition, etc.) which would

[13] Refer to Objective 1 and associated management strategies in "Timber Harvesting & Silviculture" for value-added manufacturing opportunities.

investigate regional forestry sector issues and opportunities and advocate for community interests within the regional context.

- Explore opportunities to expand the timber supply available to local processing facilities from outside the plan area.
- Encourage licensees to work with the community on exploring new and innovative initiatives in forest practices. Projects involving innovative forest practices may include: intensive silviculture treatments, non-conventional timber harvesting systems and the relationship between pine mushroom harvesting and timber harvesting
- Encourage commercial thinning of second growth forests through:
    a. providing small scale salvage opportunities for small diameter wood,
    b. reducing administrative impediments of commercial thinning,
    c. promotion of small diameter wood processing opportunities to local business through the SBFEP program,
    d. increase salvage opportunities for under-utilized waste wood through reducing stumpage and coordinating access.
- Develop the local skill base for intensive silviculture work, through development of long term, local and diversified training programs, to increase the capture of silviculture spending by local communities.
- Encourage local employment opportunities (e.g. through preferred local bidding and hiring practices).
- Promote Small Business Forest Enterprise Program opportunities through:
    e. identifying and actively marketing high volume and multi-year bid proposals for value added activities,
    f. placing maximum evaluative weight on locally-based SBFEP bids, and
    g. encourage major licensees to make a portion of their product available (at market prices) to local value-added wood manufacturers
- Explore opportunities to expand the Kalum Forest District Woodlot Program through:
    h. new sources of funding for District extension staff,
    i. inventory of forested landowners,
    j. establishment of a log yard for woodlot owners to improve financial returns on harvested timber,
    k. streamlining forestry management and planning for woodlot operators.
- Pursue energy production through co-generation as a disposal options for wood waste and hog fuel inventories through:
    l. matching co-generation power production with industrial electricity requirements in the region,
    m. maintaining siting and service options suitable for a co-generation facility, and
    n. preparation of strategies for investment attraction.
- Preparation of strategies for investment attraction.
- Increase research and development into uses and manufacturing of under-utilized low quality, non-commercial and leading deciduous timber stands through:
    o. assembly of local information base incorporating research on under-utilized wood processing,
    p. establishing research and extension linkages with provincial Universities and Forestry research agencies, and

q. identification of local partnership opportunities for research.

- Pursue internationally accepted sustainable forest practices certifications as a means of accessing segments of the wood products market closed to suppliers without such certification.
- Develop skill-base for intensive woodcrafting through a local training centre for finished wood products.
- Encourage business partnerships between Kalum Forest District licensees and local communities, specifically First Nations.
- Encourage investment opportunities in rehabilitation projects to enhance fish, wildlife and forest habitats for community stability.
- Provide a range of employment opportunities by providing a range of tenure types across the landbase (e.g. forest Licenses, woodlot licenses, etc.)
- Explore opportunities to mitigate "boom and bust" cycles and fluctuations in community employment.

Objective 2: Investigate opportunities for the creation of new economic activity in the botanical forest products sector.

Strategies:

- Work with local botanical forest products companies to promote value-added activities related to local harvest, including processing opportunities (e.g. pine mushrooms)

Objective 3: Investigate opportunities for the creation of new economic activity in the tourism sector.

Strategies:

- Explore the opportunity and potential for development of a high quality RV park/facility specifically targeted at large motorhome/fifth-wheel tourism.
- Promote an interpretive Kalum circle road tour incorporating the Nass Valley, Aiyansh and Cranberry Junction through completion of the Nisga'a Highway road upgrading project.
- Explore the potential to attract a large scale tourism resort development and small scale ecotourism development to the Plan area (e.g. Miskatla inlet).
- Explore further development of cultural and heritage tourism products and services by First Nations.
- Explore potential for half and full-day river tours providing wildlife viewing opportunities to the rubber tire market.
- Undertake visitor research in the Kalum area, including both demographic and consumer data, to ensure market demand data is accurate and comprehensive.
- Undertake tourism impact analyses for specific tourism sectors and/or seasons (e.g. coho "crisis of Fall, 1998).

Objective 4: Encourage opportunities for industrial development that are compatible with other resource values

Strategies:

- Pursue/identify additional strategies for international diversification and utilization of Recommended opportunities for new export/import facilities and additional world-scale tidewater (or coastal) manufacturing that contributes to Canada's global trade.

- Pursue/identify additional strategies for international diversification and utilization of additional resources.
- Develop human resources potential beyond resource extraction.
- Encourage the establishment of training facilities for other employment opportunities.

Objective 5: Promote geology and energy-related local businesses and services, as well as job opportunities, with the intent of long term employment and economic benefits that include future generations.

Strategies:

- Utilize the suggestions of the Economic Opportunities and Barriers Study, developed in conjunction with the LRMP.
- Encourage employment and training opportunities.
- Increase the capacity for local business development and employment related to the exploration and development industries.

5. IMPLEMENTATION, MONITORING AND AMENDMENT

5.1. Introduction

Now that the LRMP has been approved by Government, the management direction in the plan will be implemented and monitored. Implementation is the application of the LRMP objectives and strategies to on-the-ground management of land and resources. It is the responsibility of government agencies. The public has an ongoing role in monitoring government progress in implementing the plan and whether the stated management intent of the plan is being achieved. Through ongoing feedback, the implementation of the plan can be adapted to optimize the overall effectiveness of the delivery of the LRMP.

5.2. Roles and Responsibilities

There are a number of different groups and agencies involved in the implementation and monitoring of the LRMP. The roles and responsibilities of the various participants in the process are as follows:

5.2.1. Provincial Ministries and Agencies

The role of the provincial government in the implementation and monitoring of the LRMP occurs at the level of both the interagency level and that of individual agencies.

Interagency Management Committee (IAMC)

The Prince Rupert Interagency Management Committee (IAMC) is a group of senior managers from the resource agencies. The IAMC oversees implementation of strategic land use plans throughout the Prince Rupert region. The IAMC will:

- Oversee implementation of the Kalum LRMP;
- Monitor implementation progress and compliance by agencies and resource users;
- Interpret plan management objectives and strategies and resolve issues where necessary;
- Prepare periodic monitoring report on plan implementation;
- Establish and coordinate the activities of a Monitoring Committee;
- Review recommendations from the Monitoring Committee on proposed plan amendments and provide advice on those amendments to Government; and
- Advise Government of specific problems regarding plan implementation.Government Agencies

Government agencies are the primary vehicles for the implementation of the LRMP through the ongoing delivery of government programs, policies and initiatives. The relevant ministries and agencies will:

- Carry out responsibilities under the plan;

- Prepare an Implementation Plan detailing tasks arising from LRMP objectives and strategies, including defining priorities for implementation and more detailed planning;
- Provide the LRMP document to licensed resource users, resource agency staff, stakeholders, First Nations and interested public;
- Require consistency with the LRMP by resource users;
- Advise the IAMC on aspects of plan interpretation and implementation;
- Prepare summaries for the monitoring report;
- Initiate, review and/or provide recommendations on proposed revisions and amendments to the plan.

5.2.2. First Nations

Government is committed to working with First Nations on a government-to-government basis. The LRMP is without prejudice to aboriginal rights and treaty negotiations. All First Nations are encouraged to participate in monitoring and review of the plan, at their own discretion.

5.2.3. LRMP Monitoring Committee

The role of the LRMP Monitoring Committee is to monitor resource management and development activities to assess compliance with, and effectiveness of, activities to meet the intent of the Kalum LRMP. The Committee does not have the mandate to make land use planning decisions.

The membership of the Committee is intended to be inclusive and to reflect the diversity of the planning table that developed the LRMP, including representatives of local government and First Nations, at their discretion.

One of the first tasks of the members of the Monitoring Committee will be to develop a Terms of Reference and Ground Rules. The range of activities of the Committee could include the following:

- To review and provide input to the monitoring report;
- To bring any concerns and new information to the attention of the IAMC;
- To provide advice to agencies on plan interpretation and implementation at the request of the IAMC or individual agencies;
- To review and provide recommendations on proposed plan amendments, based on the monitoring reports; and
- To provide community liaison concerning plan implementation and monitoring.

5.2.4. Public

The nature and level of public involvement in more detailed planning will be determined in response to emerging issues, stakeholder interests and agency resources. Interest-based, participatory processes are encouraged in principle. The public is expected to continue its role as an important contributor to the effective implementation of the LRMP in partnership with government agencies and First Nations.

5.2.5. Local Governments

Local governments will be kept informed about the implementation of the LRMP and are encouraged to participate in the implementation and ongoing monitoring and review of the plan.

Local governments are encouraged to inform the IAMC and agencies of settlement planning initiatives that may have implications for implementing the LRMP direction.

5.3. Implementation

In the Management Direction for the LRMP, the management intent and objectives provide the overall management intent for the plan, while the strategies provide details about the types of activities that should occur on the landbase to achieve that intent. During plan implementation, the direction in the LRMP will guide approval processes and overall operational planning. Implementation of the LRMP can occur through a number of processes:

- More detailed plans, such as landscape unit plans, forest development plans, range use plans;
- Approval processes such as the Environmental Assessment Process;
- Resource development permits;
- Land dispositions; and
- Incremental activities implemented as specific LRMP projects.

Members of government agencies that were involved in the process may act in an advisory role to their respective agencies in regard to initial implementation and interpretation of the Kalum LRMP. The LRMP implementation plan will provide detail of how strategies will be applied in the day-to-day business of the resource agencies. The plan will also set implementation priorities. While it is expected that all elements of the LRMP will be fully implemented, various components of the LRMP (e.g. inventory and/or mapping) are subject to funding availability.

The management intent in the Kalum LRMP will be reflected in resource management and development activities as soon as possible.

5.3.1. Legal Designations

Higher Level Plans Under the Forest Practices Code

It is expected that objectives in the LRMP that direct forestry or range practices may become higher level plans under the *Forest Practices Code of B.C. Act*. Higher level plans guide operational plans which guide forest practices, including timber harvesting and road construction. Operational plans, such as forest development plans and range use plans, must be consistent with higher level plans.

The regional director of the Ministry of Sustainable Resource Management (MSRM) intends to establish the objectives for landscape units as higher level plans. These objectives will be consistent with direction in this LRMP.

Protected Areas

Protected areas within the Kalum Plan Area will be legally designated under the *Park Act, Environmental Land Use Act* or the *Ecological Reserve Act*. The Parks Division of the Ministry

of Environment, Lands and Parks is the agency with responsibilities for management of parks and ecological reserves. B.C. Parks in cooperation with other agencies will implement the Kalum LRMP within protected areas.

Forest Land Reserve

The forest land reserve is intended to protect and secure the commercial forest land base across the province. Crown forest lands and lands classified for taxation purposes as private managed forest lands are included in the reserve. Protected areas, the Settlement zone, agricultural lands and private lands other than private managed forest lands are not included in the reserve. Lands cannot be removed from the reserve without a review process. The Provincial Forest in the Kalum Plan Area will be declared under the *Forest Land Reserve Act* after protected areas are legally designated.

5.3.2. Direction to more Detailed Planning

As part of implementation, it will be necessary to refine the broad, strategic guidance in the LRMP in more detailed plans. Some of these detailed plans include landscape unit plans, range use plans, access management plans, parks management plans, settlement use plans (pursuant to the *Municipal Act*), and any future local plans.

In all cases, it is expected that detailed planning initiatives and the resulting products will be guided by, and be consistent with, LRMP management direction. Where more detailed planning processes reveal new information, a minor revision or amendment to the LRMP may be warranted, in accordance with the criteria outlined in Section 5.5.

5.3.3. Public Education

Throughout the Management Direction there are strategies to increase the awareness of the public or specified user groups about issues related to resource use and management in the LRMP area.

5.4. Monitoring

The monitoring phase of the LRMP involves ongoing assessment of how well the management intent in the LRMP is being implemented. The public, as part of the LRMP Monitoring Committee, have an important role to play in monitoring the LRMP.

There are two aspects to plan monitoring:

- An assessment of LRMP implementation through agency projects and programs; and
- The effectiveness of plan implementation in achieving the overall management intent of the plan, as reflected in the management intent and objectives. If the desired outcomes of the LRMP are not being achieved, it may be necessary to consider revisions or amendments to the plan.

Indicators for all resource values will be used to determine if the LRMP direction are being implemented appropriately. The Kalum LRMP planning table developed a matrix (see Social, Economic and Environmental Analysis) indicating the range of projected timber supply impacts associated with their land use recommendations. The midpoint of these impacts was chosen to be

used as an indicator (but not a maximum or minimum) to assist in the implementation and monitoring of the LRMP.

5.4.1. Adaptive Management

The management direction in the Kalum LRMP has been developed using the best information and knowledge available at the time of development. At the same time the planning table acknowledges that there is inevitably some amount of uncertainty as to the ultimate effectiveness of management direction. Therefore the planning table endorses a process of adaptive management, including assessments and where necessary recommendations, to allow the continual improvement of management practices and policies. This means that new information, research or improved analysis may be utilized to modify and improve management activities. This effective approach to planning recognizes the need for change to respond to a dynamic environment. In this sense the Kalum LRMP is a 'living' document that evolves over time. By monitoring key indicators at various stages and incorporating new information and knowledge, agencies will be able to analyze the outcomes of their management practices in light of the original LRMP objectives and incorporate those results through amendment or future planning.

5.4.2. Monitoring Report

Accountability to the plan is described in the Monitoring Report, in which individual agencies report on implementation progress and the status of completion of tasks or actions identified in the LRMP Implementation Strategy. The Report also summarizes, through the evaluation of performance indicators, the achievement of expected outcomes for the LRMP.

The Prince Rupert Interagency Management Committee is responsible for preparing the Monitoring Report. Those ministries responsible for implementing the LRMP objectives contribute annual reports on their agency's progress on LRMP tasks and activities.

The Monitoring Report will be presented to the LRMP Monitoring Committee for review at a meeting to ensure that projects and programs are being implemented in accordance with the management direction and intent of the LRMP. As part of the review process, the Monitoring Committee may make recommendations on plan implementation and amendments. The IAMC will report back to the Monitoring Committee on how the recommendations of the Committee have been addressed.

5.5. Plan Amendment

Proposed revisions to the LRMP as identified by agencies, the LRMP Monitoring Committee, or through more detailed planning, will be identified in the Monitoring Report. The Prince Rupert IAMC will review and approve minor revisions to the plan, but major amendments will need to be approved by the Ministers.

5.5.1. Minor Revisions

Recommendations for minor revisions to the plan will be made by the Monitoring Committee to the IAMC. Minor revisions can be brought forward at any time. After IAMC approval, minor revisions will be documented in the Monitoring Report.

Examples of minor revisions include:

- Revised priorities for implementation;
- Small changes to boundaries of resource management zones;
- Refinements to objectives and strategies as suggested by more detailed plans or new information; and
- Changes required to make the plan conform with new laws and regulations.

5.5.2. Major Revisions

A major revision to the plan is called an amendment. The following are considered amendments to the plan:

- Major revisions to objectives or management intent statements; or
- Changes of 500 hectares or more to the boundaries of resource management zones, not including protected areas.

Amendments to the plan will not include boundary changes to protected areas. Protected area boundaries are legislated under the *Park Act, Environment and Land Use Act* or *Ecological Reserve Act* and cannot be changed without an Order in Council.

Although the LRMP Monitoring Committee does not have the mandate to make land use planning decisions, it can make recommendations for revisions or amendments to the plan. Any proposed amendments will be identified in the Monitoring Report and at the Monitoring Committee meeting. The IAMC will decide when an amendment process is required and will coordinate the process to ensure it is consistent with existing legislation, regulations and policy.

5.5.3. Plan Review

The Kalum LRMP is subject to a periodic, comprehensive review. The Prince Rupert IAMC may consider annually whether or not a comprehensive review is warranted.

The IAMC will establish the Terms of Reference for the review, in consultation with the public, First Nations, and the LRMP Monitoring Committee and consistent with existing legislation, regulations and policy.

5.6. Interpretation & Appeal

From time to time, the public or agencies may become concerned about how the plan is being interpreted or about specific land and resource practices. In all instances of concern, the issues will be dealt with in a cooperative manner.

5.6.1. Interpretation of Land Use Objectives and Strategies

The objectives and strategies in this LRMP are intended to be interpreted at a broad or strategic level wherever possible. Where a concern is raised over the interpretation of land use objectives and strategies, the concern should be addressed directly to the affected agency or agencies. The responsible manager will respond to the concern in writing, consulting with the IPT where necessary.

If the matter is not satisfactorily resolved, the concern will be forwarded to the IAMC for resolution. The IAMC will determine if the decision is consistent with the intent of the LRMP. If it is consistent, no further action will be taken. If it is not, the agency responsible will be directed to revise the decision to be consistent with the intent of the plan. The IAMC may consult with the LRMP Monitoring Committee on issues of plan interpretation.

5.6.2. Appeal of Resource Management Practices

Where the public or agencies raise concern with specific management practices that are occurring in the LRMP, there are a number of avenues for appeal, depending on the issue and whether or not there is an existing review and appeal process in place.

- If there is an existing review and appeal process in place (e.g., the Forest Practices Board or the Environmental Appeals Board) the issue should be dealt with through that process.
- If there is not an existing review and appeal process in place, the issue should be raised with the resource agency that is mandated to manage those specific values.
- Issues may also be raised at the annual meeting of the Monitoring Committee to review the Monitoring Report.

6. GLOSSARY OF TERMS

ACCESS PLAN: A plan that shows how road construction, modification and deactivation will be carried out to protect, or mitigate impacts on known resources or sensitive locations while maximizing the efficiency of resource development.

ACTIVE FLOODPLAIN: An active floodplain is any level area with alluvial soils, adjacent to streams, which is flooded by stream water on a periodic basis and is at the same elevation as areas showing evidence of:

- Flood channels free of terrestrial vegetation
- Rafted debris or fluvial sediments newly deposited on the surface of the forest floor or suspended on trees or vegetation
- Recent scarring of trees by material moved by flood waters.

The active floodplain is typically flooded every few years and may be less extensive than a broader floodplain that is bounded by a distinct terrace or slope break

ACCESS MANAGEMENT PLAN: A plan that directs the control of public access following road development to minimize impacts on sensitive habitats and wildlife populations e.g., through gating, access control points, or seasonal road closures.

ADAPTIVE MANAGEMENT: The rigorous combination of management, research, and monitoring so that credible information is gained and management activities can be modified by experience. Adaptive management acknowledges institutional barriers to change and designs means to overcome them.

ADVANCED EXPLORATION: Development work to provide an estimate of the size, shape, position and value of an occurrence of oil, gas, minerals or rocks in advance of a production decision. Advanced exploration can involve techniques such as detailed borehole drilling, surface or underground bulk samples from trial pits, headings, drifts and tunnels.

AGRICULTURAL LAND: Land that is used for farming, including ranching, and land that has biophysical attributes that make it suitable for agricultural use. The latter includes lands identified by the Canada Land Inventory agricultural capability classes 1 to 5, as well as unique lands that have the capability to sustain agriculture in the regional context.

ALLOWABLE ANNUAL CUT (AAC): The allowable rate of timber harvest from a specified area of land. The chief forester sets AACs for timber supply areas (TSAs) and tree farm licences (TFLs) in accordance with Section 7 of the Forest Act.

ALPINE: The zone in a mountain system which lies above the timberline.

ALTERNATIVE SILVICULTURE SYSTEMS: Silviculture systems other than clearcutting or clearcutting with reserves that maintain significant mature forest cover.

ANADROMOUS FISH: Fish that spawn in freshwater and migrate to sea to grow to maturity.

ARCHAEOLOGICAL SITES: Locations containing or with the potential to contain the physical remains of past human activity. These sites are assessed through archaeological investigations (see also cultural heritage resource).

BACKCOUNTRY RECREATION: The Ministry of Small Business, Tourism and Culture defines a backcountry area as one that is accessible by neither paved nor gravel road. A backcountry area under this definition is more than 1 km from any road. Backcountry areas are remote and have little to no visible evidence of human activity or development.

BASE CASE (LRMP): Present conditions and likely future developments in a planning area in the absence of any changes to existing land and resource management. This should include a description of current resources and resource uses, current management strategies and land use designations, and relevant historical conditions and trends, as well as a discussion of their contribution to current and long term social, economic and environmental conditions. In LRMP, the base case provides a benchmark for scenario evaluation.

BIODIVERSITY: (SEE BIOLOGICAL DIVERSITY)

BIOGEOCLIMATIC ECOSYSTEM CLASSIFICATION: A hierarchical classification scheme that integrates climatic, vegetation and site factors at three levels: regional, local and chronological.

BIOGEOCLIMATIC ZONE: A large geographic area with a broadly homogeneous macroclimate. Each zone is named after one or more of the dominant climax species of the ecosystems in the zone, and a geographic or climatic modifier. British Columbia has 14 biogeoclimatic zones.

BIOLOGICAL DIVERSITY: The diversity of plants, animals and other living organisms in all their forms and levels of organization, including genes, species, ecosystems, and the evolutionary and functional processes that link them.

BIODIVERSITY RESERVE: Areas of the forest land that, by law or policy, are not available for timber zones harvesting or production

BLUE-LISTED SPECIES: Sensitive or vulnerable species as identified by the Ministry of Environment, Lands and Parks. Blue-listed species are considered to be vulnerable and “at risk” but not yet endangered or threatened. Populations of these species may not be decline but their habitat or other requirements are such that they are sensitive to further disturbance. The blue list also includes species that may not be in decline but that are generally suspected of being vulnerable, but for which information is too limited to allow designation in another category.

BOTANICAL FOREST PRODUCT: Non-timber based products gathered from forest and range land. There are seven recognized categories: wild edible mushrooms, floral greenery, medicinal products, fruits and berries, herbs and vegetables, landscaping products, and craft products.

COARSE WOODY DEBRIS: Sound and rotting logs and stumps that provide habitat for fungi, plants, animals and insects and their predators, and that provide a source of nutrients for soil development.

COMMERCIAL TIMBER HARVESTING: The cutting and removal of trees from a forested area for the primary purpose of producing forest products and/or practising forest management. “Commercial Timber Harvesting” does not include the incidental cutting and removal of trees for other purposes (e.g., mining).

COMMUNITY WATERSHED: Defined in the *Forest Practices Code of British Columbia Act* as:

> a) the drainage area above the most downstream point of diversion on a stream for a water use that is for human consumption and that is licensed under the *Water Act* for
>
> > i) a waterworks purpose, or
> > ii) a domestic purpose if the licence is held by or is subject to the control of a water users’ community incorporated under the *Water Act* if the drainage area is not more than 500 km 2 and the water licence was issued before June 15, 1995 or
>
> b) an area that is designated as a community watershed under subsection (10).

CONNECTIVITY: A qualitative term describing the degree to which late-successional ecosystems are linked to one another to form an interconnected network. The degree of interconnectedness and the characteristics of the linkages vary in natural landscapes based on topography and natural disturbance regime. Breaking of these linkages results in fragmentation.

CONSENSUS: Generally described as broad agreement. Operational consensus for the purpose of the Cassiar Iskut-Stikine Land and Resource Management Plan was defined in the Ground Rules for the planning process as " general agreement, or no substantial disagreement, by everybody-but-one on an issue or on the final package of recommendations."

COVER: Features or characteristics of the landscape that allow animals to either reduce the risk of predation and/or avoid extreme temperature (heat or cold including the wind chill) and/or avoid deep snow.

CRITICAL WILDLIFE HABITAT: Part or all of a specific place occupied by a wildlife species population of such species and recognized as being essential for the maintenance of the population. {wetlands, breeding sites, mineral licks, rutting arenas, etc.), birthing sites (calving, spawning, etc.), riparian zones, colonies, rookeries, hibernacula, winter range and over wintering area (caribou, ungulates, trumpeter swan, etc.), caves, talus slopes, avalanche chutes, denning sites, nesting sites and cliffs.}

CROWN LAND: Land that is owned by the Crown; referred to as federal Crown land when it is owned by Canada, and as provincial Crown land when it is owned by a province. Land refers to the land itself and the resources or values on or under it.

CULTURAL HERITAGE RESOURCE: An object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to the Province, a

community or an aboriginal people. Cultural heritage resources include archaeological sites, structural features, heritage landscape features and traditional use sites.

CUMULATIVE EFFECTS: Effects on biota of stress imposed by more than one mechanism (e.g., stress in fish imposed by both elevated suspended sediment concentrations in the water and by high water temperatures). Can also result in several beneficial effects in a positive combination.

CUTBLOCK: Defined in the *Forest Practices Code of British Columbia Act* as a specific area of land identified on a forest development plan, or in a licence to cut, road permit, or Christmas tree permit, within which timber is to be or has been harvested.

DEACTIVATION (see ROAD DEACTIVATION)

DEFERRED AREA: Defined in the Forest Practices Code of British Columbia Act Operational Planning Regulation as an area specified in a higher level plan where
a) timber harvesting or other forest development activities have been postponed for a period of time, or
b) that the district manager has determined should not be harvested or otherwise be developed until a higher level plan for the area is completed.

DETECTION MONITORING: Entails surveys of occurrence or inventories of abundance that are repeated to detect trends (e.g. are Pine Mushrooms in a given location and how regularly does it fruit?).

ECOLOGICAL RESERVE: Crown land reserved for ecological purposes under the *Ecological Reserve Act* including areas:

> a)suitable for scientific research and educational purposes associated with studies in productivity and other aspects of the natural environment;
> b)that are representative examples of natural ecosystems within the province;
> c) where rare or endangered native plants or animals in their natural habitat may be preserved; and
> d)that contain unique and rare examples of botanical, zoological or geological phenomena.

ECOSECTION: An ecological unit based on climate and physiography.

ECOSYSTEM: A functional unit consisting of all the living organisms (plants, animals and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size — a log, pond, field, forest or the earth's biosphere — but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, or range ecosystem.

ECOSYSTEM INTEGRITY: The soundness or wholeness of the processes and organisms composing the ecosystem. To maintain ecosystem integrity one must maintain functioning, self-sustaining ecosystems with characteristics similar to the original ones.

ECOSYSTEM MANAGEMENT/ ECOSYSTEM-BASED MANAGEMENT: A strategy or plan to manage ecosystems to provide for all associated organisms, as opposed to a strategy or plan for managing individual species.

EFFECTIVENESS MONITORING: Is based on an assessment to determine whether the implementation of the LRMP strategies are contributing to the achievement of the plan's goals and objectives. The effectiveness monitoring system includes the following steps:

- Identify desired outcomes
- Select indicators
- Conduct effectiveness assessment
- Prepare monitoring report
- Recommendations

ENVIRONMENTALLY SENSITIVE AREA: An area identified during a forest inventory that is sensitive to disturbance and/or is significantly valuable for fisheries, wildlife, water and recreation resources.

EQUIVALENT CLEARCUT AREA (ECA): Describes a second-growth block in terms of its hydrological equivalent as a clearcut. As second growth develops, the hydrological impact on a site is reduced. The rate of reduction is expressed in proportion to the height of the second growth. For example, a 20 ha block with 6m tree heights is 50% recovered so the ECA of the block is 10 ha (20ha x 50%). A stand must be at least 9m tall before it can be considered 90% hydrologically recovered.

EVALUATION MONITORING: Examines correlation's or cause and effect relations between the sampled object and potentially related variables such as management activities (e.g. studying the effects of Pine Mushroom and timber harvesting on mushroom productivity).

FOREST COVER REQUIREMENTS: Specify desired distributions of areas by age or size class groupings. These objectives can be used to reflect desired conditions for wildlife, watershed protection, visual quality and other integrated resource management objectives.

FOREST DEVELOPMENT PLAN: An operational plan guided by the principles of integrated resource management that details the logistics of timber development, usually over a period of five years. Methods, schedules and responsibilities for accessing, harvesting, renewing, and protecting forest resources are set out to enable site-specific operations to proceed.

FOREST PRACTICES CODE (FPC): Commonly used to refer to the legislation (including the *Forest Practices Code of British Columbia Act* and associated regulations), standards and guidebooks that govern forest practices in BC.

FRONTCOUNTRY TOURISM: Defined by the Ministry of Small Business, Tourism and Culture as any area that is accessible by paved road or is under the influence of paved-road access. Usually refers to roads that areas that are within 1 km of a paved road.

GENETIC DIVERSITY: Variation among and within species that is attributable to differences in hereditary material (DNA).

GRAZING: The consumption of any kind of standing, non-woody vegetation by livestock or wildlife.

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

HABITAT: The place where an organism lives and/or the conditions of that environment including the soil, vegetation, water and food.

HABITAT CAPABILITY: is defined as the ability of the habitat, under optimal conditions to provide life requisites of a species, irrespective of its current habitat conditions. It is the potential of a forested ecosystem under ideal conditions for the wildlife species in question to support that species - the right plant species, forest stand age and stocking rate for each wildlife species. The current stage age is not relevant to a capability assessment, because what is being evaluated is the site series, with the assumption that at some stage it can produce the forage that is required to support the species in question. All forests go through changes, and once a forest has been logged or burned there is a series of well defined stages - herb & low shrub, tall shrub, pole sapling, young forest, mature forest, and old forest. If one of those stages has the ability to provide the necessary forage, then the site series is rated for that value for the species. ***For example, site series that can produce mixed spruce and aspen forest with open spacing are high capability moose winter habitat; whereas site series that only produce dense pine forests are low capability moose winter habitat.***

HABITAT EFFECTIVENESS: is defined as a measure of a species ability to use current or potential habitat conditions. It is an estimate of the effects of human activities, such as roads, fences, recreational uses, industrial developments, settlements, on the usability of the habitat. ***For example, a watershed may have high grizzly bear habitat capability, moderately high grizzly bear suitability but be rated ineffective because of high road densities and high numbers of recreational user days.***

HABITAT MANAGEMENT: Management of the forest to create environments which provide habitats (food, shelter) to meet the needs of particular organisms.

HABITAT SUITABILITY: is defined as the ability of the habitat in its current condition to provide the life requisites of a species. It is the potential of a forested ecosystem in its current state to support a given wildlife species - the current plant species, current stand age and current stocking rate. It is an estimate of how well current habitat conditions provide the specified life requisites of the species being considered. The suitability of the land is frequently less than the capability because of unfavourable seral conditions or conflicting land use. ***For example, the high capability caribou winter habitat of mature lodgepole pine forest becomes low suitability winter habitat following clearcut harvesting; or the high capability waterfowl estuary has lower suitability after dredging***.

HERITAGE TRAIL: A trail having cultural significance by reason of established aboriginal use or use by early immigrants (see also cultural heritage resource).

HIGHER LEVEL PLAN: Defined in the *Forest Practices Code of British Columbia Act* as

a) an objective for a resource management zone
b) an objective for a landscape unit,
c) an objective for a sensitive area,
d) an objective for a recreation site, recreation trail or interpretive forest site.

HISTORIC SITE: A site noted or famous in history.

IDENTIFIED WILDLIFE: defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as those species at risk that the Deputy Minister of Environment, Lands and Parks, or a person authorized by that deputy minister, and the chief forester, agree will be managed through a higher level plan, wildlife habitat area, or general wildlife measure.

IMPACT ASSESSMENT: A study of the potential future effects of resource development on other resources and on social, economic and/or environmental conditions

IMPLEMENTATION MONITORING: The process to determine if the LRMP direction is being carried out. It is conducted each year to track progress on projects identified in the LRMP workplan. Each project is assessed in terms of:

- Work completed relative to the previous year's commitment
- Cumulative progress (i.e. achievement of major project milestones)
- Achievement of expected outcomes for completed projects
- Implementation issues and/or constraints

Agency status reports should be used to determine the amount of work completed on each project relative to the previous year's committments

INTERAGENCY PLANNING TEAM: Committee of local resource planners from government agencies and who provided technical support for the KALUM Land and Resource Management Plan

INTERAGENCY MANAGEMENT COMMITTEE (IAMC): The interagency committee of senior land and resource management officials in each region of the province. The committee is responsible for integrating all resource planning and protected areas work in a region and for setting regional planning priorities.

INTERIOR FOREST CONDITIONS: Conditions achieved at a point where edge effects no longer influence environmental conditions within a patch. The conditions changed usually involve light intensity, temperature, wind, relative humidity and snow accumulation and melt.

KEYSTONE SPECIES: A species that plays an important ecological role in determining the overall structure and dynamic relationships within a biotic community. A keystone species' presence is essential to the integrity and stability of a particular ecosystem.

LAND AND RESOURCE MANAGEMENT PLANNING (LRMP): An integrated sub-regional consensus-based process requiring public participation that produces a Land and Resource Management Plan for review and approval by government. The plan establishes direction for land use and specifies broad resource management objectives and strategies.

LANDSCAPE INVENTORY (SEE VISUAL LANDSCAPE INVENTORY)

LANDSCAPE UNIT: Planning areas established under the *Forest Practices Code of British Columbia Act* by the district manager and based on topographic or geographic features such as a watershed or series of watersheds.

MAINTAIN: To preserve from failure or decline; to cause to continue.

MINERAL: Ore of metal and every natural substance that can be mined and that either is in place where it was originally formed or deposited, or is in talus rock, and includes rock or other materials from mine tailings, dumps and previously mined deposits of minerals, but does not include: coal, petroleum, natural gas, earth, soil, peat, marl, sand and gravel, and rock and riprap used in the construction of roads, buildings or structures.

MINERAL TENURE: A claim or lease issued under the *Mineral Tenure Act* (= mineral title).

NATURAL DISTURBANCE TYPES: Forest cover types resulting from natural disturbance regimes, such as wildfires, windstorms and, to a lesser extent, insects and landslides. For the purposes of setting biodiversity objectives, five natural disturbance types are recognized as occurring in BC:

- NDT1 Ecosystems with rare stand-initiating events
- NDT2 Ecosystems with infrequent stand-initiating events
- NDT3 Ecosystems with frequent stand-initiating events
- NDT4 Ecosystems with frequent stand-maintaining fires
- NDT5 Alpine Tundra and Sub-alpine Parkland ecosystems.

NATURAL HERITAGE: Means land, water and atmosphere, their mineral, vegetable and other components, and includes flora and fauna on or in them.

NO STAKING RESERVE: There are two types of reserves which are currently in use to manage mineral lands. A “no staking” mineral and/or placer reserve precludes location (staking) of a mineral and/or placer claim. To permit location with specific conditions or restrictions, a “subject to conditions” reserve would be established.

OBJECTIVE: An aim, goal or end of action. Objectives and associated strategies contained in plans provide direction on land use and resource management for the plan area.

OFFICIAL COMMUNITY PLAN (OCP): General statement of the broad objectives and policies of the local government respecting the form and character of existing and proposed land use and servicing requirements in the area covered by the plan.

OLD GROWTH: Forest that contains live and dead trees of various sizes, species, composition and age class structures. Old growth forests, as part of a slowly changing but dynamic ecosystem, include climax forests but not sub-climax or mid-seral forests. The age and structure of old growth varies significantly by forest type and from one biogeoclimatic zone to another.

OLD GROWTH ATTRIBUTES: Structural attributes and other characteristics of old growth forests, including: large trees for the species and site; wide variation in tree sizes and spacing; accumulations of large dead standing and fallen trees; multiple canopy layers; canopy gaps and understory patchiness; elements of decay such as broken or deformed tops or trunks and root decay; and the presence of species characteristic of old growth.

OPERATIONAL PLAN: *Forest Practices Code of British Columbia Act* states that within the context of area- specific management guidelines, operational plans detail the logistics for development. Methods, schedules, and responsibilities for accessing, harvesting, renewing, and protecting the resource are set out to enable site-specific operations to proceed. Operational plans include forest development plans, range use plans, silviculture prescriptions, and stand management prescriptions.

PROTECTED AREA: A land designation for areas of land and water set aside to protect natural heritage, cultural heritage or recreational values (may include national park, provincial park, or ecological reserve designations).

PROTECTED AREAS STRATEGY (PAS): The Provincial government strategy in place to meet BC's commitment to develop and expand the protected areas system to protect 12% of the province by the year 2000. The goals of the strategy are to protect viable, representative examples of natural diversity in the province, and special natural, recreational and cultural heritage features.

PROVINCIALLY SIGNIFICANT SITE: A site which has historic significance for the province. In applying for provincial designation under the Heritage Conservation Act, the applicant must demonstrate the provincial significance of the site.

RANGE: Any land supporting vegetation suitable for wildlife or domestic livestock grazing, including grasslands, woodlands, shrublands and forest lands.

RANGE USE PLAN: An operational plan that describes the range and livestock management measures that will be implemented to ensure that range resources are protected and that the management objectives for other identified resource values are achieved.

RARE ECOSYSTEMS: Ecosystems are rare when they are restricted in number and areal extent. At the landscape level they are biogeoclimatic site series or surrogates that make up less then 2% of the landscape unit and are not common in adjacent units.

RESEARCH MONITORING: Consists of long term, intensive investigations of basic biological, ecological, and ecosystem management questions (e.g. to understand the impacts of

timber harvesting , managers need to understand genetic structure, dispersal mechanisms and reproductive processes and the role of mushrooms in the forest ecosystem).

RECREATION: Any mental or physical revitalization and the voluntary pursuit of leisure activities. Outdoor recreation is recreation that takes place out-of-doors, and forest recreation takes place in a forest or wildland setting.

RECREATIONAL MUSHROOM HARVESTING: Harvesting for personal consumption (e.g. not to sell).

RED-LISTED SPECIES: Threatened or endangered species as identified by the Ministry of Environment, Lands and Parks. The taxa on the red list are either extirpated, endangered or threatened, or are being considered for such status. Any indigenous taxon (species or sub-species) threatened with imminent extinction or extirpation throughout all or a significant portion of its range in British Columbia is endangered. Threatened taxa are those indigenous species or sub-species that are likely to become endangered in BC if factors are not reversed.

REFERRAL: The process which by applications for permits, licenses, leases, etc., made to one government agency by an individual or industry are given to another agency for review and comment.

REGIONAL PROTECTED AREAS TEAM (RPAT): The inter-ministry committee in each region that is responsible for conducting the technical inventories and analyses required to identify gaps in the protected areas system, identify areas of interest, consult with the public and propose study areas.

REGIONALLY SIGNIFICANT SITE: A site which has historic significance for a region.

RESOURCE ANALYSIS: The critical examination of resources and environment so as to support planning and decision-making. Resource analysis consists of:

- gathering, examining and interpreting relevant resource-related information;
- organizing and integrating information to assist in developing scenarios; and,
- assessing the impacts of a proposed course of action (scenario).

RESOURCE MANAGEMENT ZONE (RMZ) — FROM REGIONAL OR SUB-REGIONAL PLAN: A division or zone of the planning area that is distinct from other zones with respect to biophysical characteristics, resource issues or resource management direction. Resource management zones may be drawn on a map to describe general management intent. The zones are usually further defined using descriptive objectives and strategies to explain future land use and resource management activities.

RESOURCE VALUE: Values on Crown land which include but are not limited to biological diversity, fisheries, wildlife, minerals, oil and gas, energy, water quality and quantity, recreation and tourism, natural and cultural heritage, timber, forage, wilderness and aesthetic values.

RIPARIAN: The land adjacent to the normal high water line in a stream, river or lake and extending to the portion of land that is influenced by the presence of the adjacent ponded or

channelled water. Riparian areas typically exemplify a rich and diverse vegetative mosaic reflecting the influence of available surface water.

RIPARIAN HABITAT: Vegetation growing close to a watercourse, lake, swamp, or spring that is generally critical for wildlife cover, fish food organisms, stream nutrients and large organic debris, and for streambank stability.

RIPARIAN MANAGEMENT AREA: Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as an area, of width determined in accordance with Part 10 of the regulation, that is adjacent to a stream, wetland or lake and consists of a riparian management zone and, depending on the riparian class, a riparian reserve zone.

ROAD DEACTIVATION: Measures taken to stabilize roads and trails during periods of inactivity, including the control of drainage, the removal of sidecast where necessary, and the re-establishment of vegetation for permanent deactivation.

> **Temporary deactivation** includes measures to control drainage and reduce risk of erosion, repair or removal of bridges, and removal of sidecast, where necessary.
>
> **Semi-permanent deactivation** includes removing stream culverts, enhanced measures to control of drainage and erosion, repair or removal of bridges, and removal of sidecast, where necessary.
>
> **Permanent deactivation** includes removal of stream culverts and restoration of channel and bank stability, removal of bridge superstructures, enhanced measures to control drainage and erosion, removal of sidecast, and establishment of vegetation.

ROAD RECLAMATION: see **Permanent deactivation** under **ROAD DEACTIVATION**.

ROADLESS: is defined as an area of no active roads and no open 2-wheel or 4-wheel accessible roads within a biogeoclimatic subzone in watersheds greater than 10 square kilometers. Roadless areas may include roads made inaccessible through access controls and open roads where the frequency of use is less than 10 vehicles per day. However, managers should recognize that even if the frequency of use is less than 10 vehicles per day, thus minimizing habitat alienation or displacement, bear mortality risks may not be minimized. Grizzly bear mortality risk is a function of both the frequency of encounters between bears and humans and the "lethality" of those encounters.

ROTATION: The planned number of years between the formation or regeneration of a forest stand and its final cutting at a specified stage of maturity.

SCENIC AREA: Any visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process carried out or approved by the district manager.

SENSITIVE AREAS: Sensitive Areas may be established to manage or conserve unique or locally significant forest resources. They are intended to be small in size (up to 1000 hectares, but typically much smaller) and may be established where special circumstances require that an area of land be treated differently from adjacent land. Sensitive Area boundaries are defined by the nature of the resources being managed, and may be influenced by such factors as

environmental characteristics, resource use patterns and administrative boundaries. Sensitive Area objectives specify how forest resources will be managed over time. Although geared towards conservation, sensitive area objectives are not generally intended to prevent resource development from occuring. Activities such as timber harvesting and road construction may be modified, however, to ensure that operations are compatible with the resources being conserved. To date, established or proposed Sensitive Areas and objectives have addressed the conservation of recreation features, critical wildlife habitat, rare plant communities and cultural heritage resources.

SERAL STAGES: The stages of ecological succession of a plant community. e.g.,, from young stage to old stage. The characteristic sequence of biotic communities that successively occupy and replace each other by which some components of the physical environment become altered over time.

SILVICULTURAL SYSTEM: A planned program of treatments throughout the life of the stand to achieve stand structural objectives based on integrated resource management goals. A silvicultural system includes harvesting, regeneration and stand-tending methods or phases. It covers all activities for the entire length of a rotation or cutting cycle.

The Forest Practices Code *Silvicultural Systems Guidebook* identifies six major categories of silvicultural system: five even-aged systems and one uneven-aged system. Even-aged categories include the clearcut, patch-cut, coppice, seed tree and shelterwood systems. Uneven-aged systems are termed selection silvicultural systems.

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

SLASH: The residue left on the ground as a result of forest and other vegetation being altered by forest practices or other land use activities.

SPECIES OF CONCERN: Wildlife species of local concern through not red or blue listed.

STAND: A community of trees sufficiently uniform in species composition, age, arrangement, and condition to be distinguishable as a group from the forest or other growth on the adjoining area, and thus forming a silviculture or management entity.

STAND STRUCTURE: The distribution of trees in a stand, which can be described by species, vertical or horizontal spatial patterns, size of trees or tree parts, age, or a combination of these.

STRATEGIC LAND USE PLANNING: Planning at the regional, sub-regional and, in some cases, at the local level which results in land allocation and/or resource management direction. Strategic land use planning at the regional and sub-regional level involves the preparation of resource management zones, objectives and strategies.

STRATEGIES: Specific management instructions to achieve an objective.

STRUCTURAL ATTRIBUTES: Components of a forest stand (including living and dead standing trees, canopy architecture, and fallen dead trees) which together determine stand structure.

SUBALPINE: Situated in the higher slopes of mountains, just below the timber line.

SUITABILITY: A measure of the current condition of an area to meet the needs of a resource value (e.g., wildlife habitat) or use (e.g., recreation, timber harvesting).

SUSTAINABILITY: A state or process that can be maintained indefinitely. The principles of sustainability integrate three closely interlinked elements — the environment, the economy and the social system — into a system that can be maintained in a healthy state indefinitely.

TIMBER: In terms of industrial logging, any trees or stands of trees that are commercially valuable.

TIMBER SUPPLY AREA (TSA): An integrated resource management unit established in accordance with Section 6 of the *Forest Act*. TSAs were originally defined by an established pattern of wood flow from management units to the primary timber-using industries.

TOURISM: The aggregate of all business that directly provides goods or services to facilitate business, pleasure or leisure activities away from the home environment.

TRADITIONAL USE SITE: A geographically defined site that has been traditionally used by one or more groups of people for some types of activity. These sites will often lack the physical evidence of human-made artefacts or structures and maintain cultural significance to a living community of people. Traditional use sites are usually documented with the assistance of oral historical or written archival sources. Examples include: sacred sites, resource gathering sites such as berry-gathering grounds and culturally modified trees, and the site of a legendary or past events of cultural significance (See CULTURAL HERITAGE RESOURCE).

VISUAL IMPACT ASSESSMENT (VIA): An evaluation of the visual impact of resource development proposals on forest landscape

VISUAL LANDSCAPE INVENTORY: The identification, classification, and recording of the location and quality of visual resources and values.

VISUAL LANDSCAPE MANAGEMENT: The identification, assessment, design and manipulation of the visual features or values of a landscape, and the consideration of these values in the integrated management of provincial forest and range lands.

VISUAL QUALITY: The character, condition, and quality of a scenic landscape or other visual resource and how it is perceived, preferred or otherwise valued by the public.

VISUAL QUALITY OBJECTIVE (VQO): A resource management objective established by the district manager or contained in a higher level plan that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. Five categories of VQO are commonly used: preservation; retention; partial retention; modification; and, maximum modification.

WATERSHED: An area of land that collects and discharges water into a single main stream through a series of smaller tributaries.

WATERSHED ASSESSMENT: Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as an evaluation of the cumulative impact that proposed activities and developments would have on stream flows, suspended sediment, landslide and stream channel stability within the watershed.

WETLAND: A swamp, marsh or other similar area that supports natural vegetation that is distinct from adjacent upland areas.

WHERE POSSIBLE: Includes the concept of both physical practicality and economic feasibility, unless otherwise indicated.

WILDLIFE: Defined in the *Forest Practices Code of British Columbia Act* as

> (a) a vertebrate that is a mammal, bird, reptile or amphibian prescribed as wildlife under the *Wildlife Act*,
>
> (b) a fish, including
>
> > (j) any vertebrate of the order *Petromyzoniformes* (lampreys) or class *Osteichthyes* (bony fishes), or
> > (ii) an invertebrate of the class *Crustacea* (crustaceans) or class *Mollusca* (mollusks) from or in the non-tidal waters of the Province, and
>
> (c) an invertebrate or plant listed by the Minister of Environment, Lands and Parks as an endangered, a threatened or a vulnerable species, and includes the eggs and juvenile stages of these vertebrates, invertebrates and plants.

WILDLIFE HABITAT: Areas of land and water that support specific wildlife or groups of wildlife.

WILDLIFE TREE PATCH: A stand of trees and other habitat features (e.g., wetland, lick, etc.) deferred from harvest to maintain some habitat requirement for wildlife (e.g., hiding/security cover, thermal cover, nesting, perching, forage, etc.). The size and shape required for a wildlife tree patch will depend on the habitat requirement being provided.

WILDLIFE TREE: Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as a tree or group of trees that are identified in an operational plan to provide present or future wildlife habitat. A wildlife tree is a standing live or dead tree with special characteristics that provide valuable habitat for the conservation or enhancement of wildlife. Characteristics include large diameter and height for the site, current use by wildlife, declining or dead condition, value as a species, valuable location and relative scarcity.

AAC	Allowable Annual Cut
AAH	Annual Allowable Harvest
ALR	Agricultural Land Reserve
AT	Alpine Tundra Zone (a biogeoclimatic zone)
BEO	Biodiversity Emphasis Option
CAMP	Coordinated Access Management Plan
CWAP	Coastal Watershed Assessment Procedure
ESSF	Englemann Spruce Subalpine Fir Zone (a biogeoclimatic zone)
FEN	Forest Ecosystem Networks
FLR	Forest Land Reserve
FPC	Forest Practices Code
GBCS	Grizzly Bear Conservation Strategy
GBPU	Grizzly Bear Population Units
GIS	Geographic Information Systems
GRMZ	General Resource Management Zone
IAMC	Interagency Management Committee
IPT	Interagency Planning Team
IRM	Integrated Resource Management
LRMP	Land and Resource Management Plan
LU	Landscape Unit
MELP	Ministry of Environment, Lands and Parks[14]
MEM	Ministry of Energy and Mines
MOF	Ministry of Forests
MOU	Memorandum of Understanding
MSRM	Ministry of Sustainable Resource Management
OCP	Official Community Plan
ROS	Recreation Opportunity Spectrum

[14] In June of 2002 the Ministry of Environment Lands and Parks was replaced by the Ministry of Water Land and Air Protection and the Ministry of Sustainable Resource Management .

RMZ	Resource Management Zone
PAS	Protected Areas Strategy
SBFEP	Small Business Forest Enterprise Program
SRMZ	Special Resource Management Zone
TUS	Traditional Use Studies
VQO	Visual Quality Objective
WAP	Watershed Assessment Procedure
WLAP	Ministry of Water Land and Air Protection

Kalum Land and Resource Management Plan

Appendices

APPENDIX A: NISGA 'A NATION MAP

APPENDIX B: KALUM LRMP TABLE

NAME	Group/Organization
Art Matthews	Gitxsan
Bruce Whyte	Ministry of Small Business, Tourism and Culture
Cheryl Brown	Recreation/Conservation
Chris Bechard	Ministry of Aboriginal Affairs
Damian Keating	West Fraser – Skeena Sawmills
Dave Bewick	Ministry of Forests
Dave Reindeau	Ministry of Agriculture
Diana Wood	Forestry consulting
Eamon O'Donoghue	Process Coordinator, LUCO[15]
Eero Karanka	Department of Fisheries and Oceans
Elizabeth Zweck	Program Manager, LUCO[15]
Fred Philpot	Forestry consulting
George Kofoed	Trapper
Gord Enemark	Ministry of Employment and Investment
Gordon Erlandson	Facilitator
Guy Morgan	Gitanyow
Jim Culp	Tourism
Jim Mulvey	Mining
Joe Mallia	Labour
Joe Truscott	Ministry Of Fish
John Perras	Ministry of Forests
Judy Chrysler	Naturalist
Justin Kumagai	Skeena Cellulose
Justin Rigsby	Terrace Chamber of Commerce
Karen MacDowell	BC Parks

[15] Land Use Co-ordination Office (LUCO) was eliminated with the establishment of the MSRM.

NAME	Group/Organization
Kim Haworth	Forestry
Len Vanderstar	Ministry of Environment[16]
Les Watmough	Kitimat-Stikine Regional District
Mary Lou Malott	Ministry of Energy and Mines
Myrtle Muldoe	Gitxsan
Renee Mikaloff	Naturalist
Sara-Jane Brocklehurst	Assistant Coordinator, LUCO[15]
Steve Wilson	Haisla
Terry Pratt	BC Acquisitions and Lands
Tony Morgan	Gitanyow
Val George	City Councillor, City of Terrace
Wayne Topolewski	B.C. Wildlife Federation
Whitney Lukuku	Haisla

[16] BC Environment is presently the Ministry of Water, Land and Air Protection.

[15] Land Use Co-ordination Office (LUCO) was eliminated with the establishment of the MSRM.

APPENDIX C: COMMUNITY RESOURCE BOARD

The following individuals were members for the Community Resources Board:

Damian Keating, West Fraser

Dave Bewick, Ministry of Forests

Dennis Horwood, Naturalist

Doug Webb, Steelhead Society

Eero Karanka, Department of Fisheries and Oceans

Fred Philpot, Philpot Forestry

Gerry Bloomer, Recreation

Gil Payne, Wildlife

Henry Stiksma, Chamber of Commerce

Jim Culp, Tourism

Joe Mallia, Labour

John Perras, Ministry of Forests

Justin Kumagai, Skeena Cellulose Inc.

Karen MacDowell, BC Parks

Kathy Stuart, BC Environment[17]

[17] The BC Environment is presently the Ministry of Water Land and Air Protection.

Ken Houlden, Forest Industry

Mary Lou Malott, Ministry of Energy and Mines

Norma Kerby, Historical/Cultural

Paul Houillebecq, Youth

APPENDIX D: POLICY RECOMMENDATIONS

The following issues have been identified by Table members as potential constraints to meeting the Table's land use or economic interests. Because it is outside of the official mandate of the LRMP to make recommendations on these issues, they have been included as policy recommendations separate to the main body of the LRMP Recommendations package.

Aquaculture and Marine Plant Harvesting	• It is recommend that the provincial government implement the Salmon Aquaculture Ploicy Framework prior to considering any new farm development. • It is recommend that the province require applicants to submit an assessment of proposed fish farm sites and potential impacts on other resources and uses. • Continue existing and promote additional research on the extent of aquaculture – environmental interactions.
Biodiversity	• Skeena Region, BC Environment to be staffed with a public liaison officer specialized in education, habitat management, and wildlife (animal, plant & fish) resources.
Botanical Forest Products	• Encourage sustainable management (both economic and environmental) of the wild edible mushroom industry through the mandatory licensing of mushroom buyers and harvesters that enables adequate enforcement and encourages significant local employment. • Direct a portion of licensing revenues to botanical forest product research and inventory.
Environment Management – Fish and Wildlife	• Encourage effective monitoring and enforcement of DFO 'no net loss' regulation and policy.
Fish and Fish Habitat	• The table requests clear joint federal/provincial direction for fish management with a focus on deep sea fisheries.
Fresh Water	• Encourage, through the provision of adequate funding, the enforcement of water protection and management legislation.
Geological and Energy Resources	• Establish an inventory and mapping of known and potential sand and gravel pits and resources • social and environmental issues being addressed, in advance to development, with public participation (where the extraction is near settlement). These issues are with regard to concerns such as access, size (limits?), abundance (concerns re density and proliferation), visual impacts, noise, dust, timing • the reclamation of old pits • a more straight forward involvement of government agencies regarding the above issues (i.e. a more expeditious/clearer line of responsibilities of agencies).
Jobs and Quality of Life	• The Table recommends that LRMP zoning and implications will not result in compensation for tenure holders through the privatization of Crown land (Non-Consensus Item) • Undertake a review of the contract bidding evaluation system to ensure consideration of criteria beyond low cost and a fair return to contractors.
Protected Areas	• The table recommends that there be adequate resources for the timely completion of park management planning, inventories, monitoring and operations • Where alterations to conditions of tenure act, in practical terms, to

	extinguish tenure, it is recommended that the tenure holder be fairly compensated. • The table recommends that in new protected areas, small scale tenure holders (e.g. angling guides and trappers), who held tenures prior to park establishment have Park Use Permit fees waived. Subsequent tenure holders (new businesses or new owners of older tenures) would pay Park Use Permit fees. • (After further discussion with First Nations, we anticipate crafting some policy recommendations regarding - a desire for forming partnerships to manage protected areas, to adequately implement and fund such partnerships, and to provide clarity regarding the terms of the partnerships. Comments from the approval support team regarding these topics are welcome.)
Timber Harvesting and Silviculture	• Collect cost data and incorporate into stumpage determinations. • In stumpage determinations include estimated costs for partial cutting systems on an interim basis prior to actual cost data collection and inclusion in the cost base.
Tourism	• Encourage government to enhance opportunities for public consultation in resource management planning by increasing awareness through education.
Wildlife and Wildlife Habitats	• Ensure that adequate conservation officer enforcement addresses poaching concerns within the plan area.

APPENDIX E: LETTER FROM WEST FRASER

APPENDIX F: BOTANICAL FOREST PRODUCTS

Botanical Forest Products found in the Kalum LRMP Area		
Product Use	**Common Name**	***Scientific Name***
Floral Greens	Salal	*Gaultheria shallon*
	Sword-fern	*Polystichum munitum*
	Evergreen huckleberry	*Vaccinum ovatum*
	Beargrass	*Xerophyllum tenax*
	Dwarf Oregon grape	*Berberis nervosa*
	Oregon boxwood	*Pachistima myrsinites*
	Mosses	*Isothecium spp.*
		Hypnum spp.
		Neckera spp.
Christmas Greens and Boughs	Douglas-fir	Pseudostuga menziesii
	Noble fir	*Aies procera*
	Western red cedar	*Thuja plicata*
Edibles	Huckleberries	*Vaccinium spp.*
	Berries	*Rubus spp.*
	Fiddlehead	*Pteridium aquilinium*
	Mushrooms:	
	Chantrelle	*Catherellus cibarius*
	Morel	*Morchella spp.*
	Matsutake	*Tricholoma magnivelare*
	King bolete	*Boletus edula*
Medicinals and herbs	Pacific yew	*Taxus brevifolia*
	Cascara	*Rhammus purshiana*
	Devil's club	*Oplopanax horridus*
	Prince's pine	*Chimaphila*
	Stinging nettle	*Urtica dioica*

Botanical Forest Products found in the Kalum LRMP Area		
Product Use	**Common Name**	***Scientific Name***
	Sitka valerian	*Valeriana sitchensis*
	Balsam poplar	*Populus balsamifera*
	Bedstraw	*Galium spp.*
	Common horsetail	*Equisetum arvense*
	Common plantain	*Planyago major*
	Cow parsnip	*Hercleum lanatum*
	Dull oregon grape	*Mahonia aquifolium*
	False hellebore	*Veratrum Viride*
	Foxglove	*Digitalis purpurea*
	Gentian	*Gentiana spp.*
	Kinnikinnick	*Arcto staphylos uva-ursi*
	Maidenhair fern	*Adiantum pedatum*
	Rocky mountain juniper	*Juniperus scopulorum*
	Sitka mountain ash	*Sorbus sitchensis*
	Skunk cabbage	*Lysichiton americanum*
	Subalpine fir	*Abies lasiocarpa*
	Tall oregon-grape	*Mahonia nervosa*
	Trembling aspen	*Populus tremuloides*
	Western redcedar	*Thuja plicata*
	Wild ginger	*Asarum caudatum*
	Wild sarsaparilla	*Aralia nudcaulis*
	Willow	*Salix spp.*

APPENDIX G: IDENTIFIED MIGRATORY WATERFOWL AND SEABIRDS

APPENDIX H: OUTLINE OF MINING EXPLORATION AND DEVELOPMENT ACTIVITIES

Mineral and energy resources are not as readily identified as others since they are hidden below the earth's surface. The exploration industry needs access to a broad landbase over which geological mapping, rock sampling, geochemical and geophysical testing can be used to narrow down the prospective ground. Once a promising locality is found then diamond drilling is utilized to test sub-surface levels for economic concentrations of mineral (metals like gold, silver, copper, lead, zinc; coal; and industrial minerals such as marble, granite or sand and gravel--including aggregates for highway maintenance and construction) or energy values (oil, gas or geothermal). When economic concentrations are indicated, an advanced stage of exploration can ensue with the drilling becoming more intense and possibly an adit (tunnel) is constructed to sample underground mineralization. It is at this latter stage that a road may be needed to facilitate heavy drilling equipment, underground excavating, sampling and transporting equipment. At this advanced stage, the tenure holder may wish to proceed to development once an economically viable deposit is pinpointed. This is the point at which a proponent enters the project in the environmental review and approval process. If approval is granted, on the ground development can proceed if market conditions support the venture. The exploration phase may occur over a number of decades before a deposit is pinpointed. In addition, once a deposit has been found, the claims over the deposit may need to be held for decades before technology, infrastructure or market conditions are suitable for development. The combination of hidden values, market conditions, infrastructure, technology and time frame needed to pin-point and develop a viable deposit creates significant risks to the investment in such ventures. However, economic benefits can be very high if a venture proceeds through to development.

The LRMP area is under-explored. In order to stimulate exploration activity and achieve viable exploration and development industries that can locate and produce mineral and energy wealth within the LRMP area, the uncertainty for the industries can be addressed by consideration of the following concerns:

- ability to access a broad land base
- certainty of access to areas of insufficient geological information
- certainty that the tenure held will be secure for the decades it takes to prove up a deposit and bring it into production
- certainty that contiguous tenure holdings will not be fragmented by land use decisions thus dissipating investment
- a long time frame may be needed for technological or infrastructure advances before the deposit can be processed
- after entering any review and approval process ensure that due process is followed to completion
- once a project is approved, if economic conditions are not favourable, tenure needs to be secure until markets improve
- compounding constraints may create the cumulative effect of non-viable exploration and extraction industries
- maintain options for hydroelectricity, power lines and pipelines

APPENDIX I: LIST OF APPLICABLE ACTS

PROVINCIAL AGENCIES

Forest Renewal BC

- Forest Renewal BC Act

Ministry of Aboriginal Affairs

Ministry of Energy and Mines:

- Mineral Tenure Act
- Mining Right of Way Act
- Petroleum and Natural Gas Act
- Mines Act
- Northern Development Act
- Geothermal Resources Act
- Ministry of Energy, Mines and Petroleum Resources Act

Ministry of Environment, Lands and Parks[18]

- Ecological Reserves Act
- Park Act
- Wildlife Act
- Land Act
- Ministry of Environment Act
- Environment and Land Use Act
- Water Act

Ministry of Fisheries

- Fisheries Renewal Act
- BC Fisheries Act
- Fish Protection Act

Ministry of Forests

- Forest Practices Code of British Columbia Act
- Forest Act
- Range Act
- Ministry of Forests Act

[18] The name has been changed to Ministry of Water, Land and Air Protection

Ministry of Small Business, Tourism and Culture

- Heritage Conservation Act

FEDERAL AGENCIES

Fisheries and Oceans Canada

- Fisheries Act
- Oceans Act
- Coastal Fisheries Protection Act

Parks Canada

- National Parks Act
- Historic Sites and Monuments Act

Environment Canada

- Canada Wildlife Act
- Migratory Bird Convention Act

Canadian Environmental Assessment Agency (CEAA)

- Canadian Environmental Assessment Act

APPENDIX J: RESOURCE AND RECREATION USE GUIDELINES WITHIN PROTECTED AREAS[19]

In June 1993, the Government of British Columbia released *A Protected Areas Strategy for British Columbia – the protected areas component of B.C's land use strategy*. This policy sets forth a vision for a comprehensive protected areas system in British Columbia and a set of policies related to system goals, definitions and criteria to meet this vision; sets forth a process and associated guidelines for identifying candidate protected areas; defines linkages to land use planning processes; addresses transitional issues such as existing land and resource use tenures and the compatibility of some existing designation with the definition of protected areas; and commits the government to increase the percentage of the provincial land base dedicated to protected areas from 6% to 12% by the year 2000.

The Protected Areas Strategy identifies the broad framework within which protected areas will be examined and protected. It does not, however, explicitly address resource use issues or the appropriateness of a variety of recreation and tourism activities and services within protected areas, causing uncertainty among resource users and others participating in land use processes or potentially impacted by the designation of new protected areas.

The management of protected areas differs markedly from that of other lands and waters. The maintenance of ecological integrity, consistent with supporting recreational and cultural experiences where and when appropriate, will be the primary factor in management decisions while respecting government's land use plan commitments.

The protected areas management principles are intended to provide overall management guidance and to serve as a decision-support framework for determining appropriate uses in protected areas. The principles and accompanying policies on allowable activities within protected areas should be viewed as guidelines rather than absolutes. They are intended to provide the necessary flexibility to respond to practical realities, incorporate Cabinet directions stemming from earlier land use decisions and provide increased certainty respecting the long-term management of protected areas.

Protected Areas Management Principles

The protected areas system comprises a family of protected areas. The system, rather than individual areas, provides for the diversity of ecosystems, special features and outdoor recreation opportunities and experiences sought. As such, not all allowed uses are appropriate within every protected area.

An allowed activity may not be appropriate within all areas of a protected area. Individual protected areas may be zoned to provide optimum protection to protected area values. Zones within protected areas should range from areas which exclude public access in order to protect fragile and vulnerable ecosystems and sensitive, rare and endangered species, to zones which accommodate and/or enhance recreational and cultural opportunities and experiences.

Protected areas are established in perpetuity so that the ecological systems they encompass can continue to evolve with minimum of intervention. Active management/habitat manipulation may be allowed when the structure of formation of ecosystems is seriously altered and manipulation is the only possible or best alternative available to restore ecological integrity.

Use of protected areas will be encouraged, where appropriate and consistent with the principle of maintaining ecological integrity, in order to realize the spiritual, recreational, educational, cultural, tourism and health benefits that protected areas can provide. Allowable activities and uses should draw their meaning from association with and direct relation to the natural and cultural resources of the protected area. All uses of protected areas must be assessed in regard to their impact on the ecological systems and the key natural, cultural and recreational values of particular areas.

Land use activities and traditional cultural uses that have changed a landscape and have acquired significance in

[19] This appendix is a reproduction of the document: Resource and Recreation use Guidelines from Protected areas (Province of British Columbia, August 1995)

their own right, may be recognized and respected.

The Protected Areas Strategy respects the treaty rights and Aboriginal rights and interests that exist in British Columbia. Aboriginal people may use protected areas for sustenance activities and traditional ceremonial and spiritual practices, subject to conservation objectives.

Developments within protected areas should be fully compatible with the principles of maintaining ecological integrity and minimum intervention with natural processes. Developments should directly complement and be integral to the opportunities being provided and complement the purpose, objectives and role of the particular protected area. Whenever possible, intensive recreational and tourism developments should occur in adjacent areas outside the protected area boundaries.

Recognition and special consideration will be given to existing tenures, licenses, authorizations and public use where uses are compatible with the objectives for which the area was established. Uses which have been approved for continuation in protected areas will be fully respected.

Protected areas are not islands;' they exist as part of larger ecosystems and cultural landscapes. Therefore , management decisions, both inside and outside the protected areas, should be coordinated and integrated to the greatest extent possible while recognizing that resource development activities outside of protected areas are appropriate and necessary.

Protected areas are a public trust and opportunities for the public to provide input into the planning and management of the protected areas system and individual areas must not be abridged. Planning and management should be done in partnership with key public stakeholders and government resource agencies.

Protected area management plans will be established through an open public process.

COMPATIBILITY OF SELECTED ACTIVITIES, SERVICES AND USE IN PROTECTED AREAS

Activity/Use/Facility	Allowed/Not Allowed	Comments
Logging	Not Allowed	As approved by Cabinet (PAS)
Mining	Not Allowed	As approved by Cabinet (PAS)
Hydroelectric Development	Not Allowed	As approved by Cabinet (PAS)
Grazing	Allowed Subject to the Management Plan	As approved by Cabinet. Existing tenures are normally replaceable and transferable. No new tenures to be issued except for expressed management purposes as defined by a protected area management plan.
Hunting	Allowed Subject to the Management Plan	
Fishing	Allowed Subject to the Management Plan	
Fish Stocking and Enhancement	Allowed Subject to the Management Plan	The use of species or stocks not native to the watershed will not be allowed.
Trapping	Not allowed/Existing tenures grand parented	May be permitted for expressed management purposes as defined by Protected Area Management Plan. Existing tenures are normally renewable and transferable.
Horse Use	Allowed Subject to the Management Plan	Limited to designated zones and/or trails.
Pack animal use	Allowed Subject to the	Limited to designated zones and/or trails

Activity/Use/Facility	Allowed/Not Allowed	Comments
	Management Plan	
Water control structures	Allowed Subject to the Management Plan	Only in intensive recreation zones to enhance recreational opportunities or for expressed management purposes as defined by management plan. Infrastructure existing at the time of area establishment normally allowed to remain.
Powerline/Transmission Line and Other Rights-of-Way	Not Allowed	Allowed if there are no practical and feasible alternatives. If present at time of area establishment, normally allowed to continue.
Communication Sites	Not Allowed	Allowed for essential protected area management communication needs or if there are not practical or feasible alternatives. If present at the time of area establishment, normally allowed to continue.
Commercial Guiding: **Hunting** **Fishing** **Nature Tours** **River Rafting**	Allowed Subject to the Management Plan	Permits from managing agency will be required.
Commercial oyster and Marine Plant Harvesting	Not Allowed/existing Licenses Grand parented	Existing licenses are normally renewable and transferable
Recreational Shellfish and marine Plant Harvesting	Allowed Subject to the Management Plan	
Finfish, Shellfish and Marine Plant Farming	Not Allowed/Existing Licenses Grand parented	Existing licenses are normally renewable and transferable.
Commercial Fishing: **Non-Tidal Waters** **Marine Waters**	Not Allowed	Subject to agreement by DFO
Tourism-Related Infrastructure: **Resorts**	Not Allowed	As Approved by Cabinet (PAS). Facilities existing at the time of area establishment allowed to remain.
Marinas	Not Allowed	Infrastructure existing at the time of area establishment allowed to remain.
Roads within Protected Areas	Allowed Subject to the Management Plan	New road developments must be identified in management plan.
Off-Road Activities **Snowmobiling** **Mechanical Activities (vehicles which are not motorized, e.g. mountain bikes)**	Allowed Subject to the Management Plan	Limited to designated zones and/or trails
Off-Road Activities: **Motorized**	Not Allowed	

Activity/Use/Facility	Allowed/Not Allowed	Comments
Activities (vehicles with motors)		
Water: Motorized activities	Allowed Subject to the Management Plan	
Aircraft access	Allowed Subject to the Management Plan	For destination access purposes only (drop visitors off)
Heli-skiing	Allowed Subject to the Management Plan	
Heli-hiking	Allowed Subject to the Management Plan	
Cat-assisted skiing	Allowed Subject to the Management Plan	
Fire Management: **Wildfire Management** **Prescribed Fire Management** **Prevention and Preparedness**	Allowed Subject to the management Plan	Wildfires are a naturally occurring ecological process. Policy recognizes need to protect public safety/facilities, values on adjacent lands, etc. Only for expressed management purposes as defined by protected area management plan.
Insect/disease control	Allowed Subject to the Management Plan	Indigenous insect/disease outbreaks are naturally occurring phenomena. Policy recognizes the need to prevent unacceptable damage to values on adjacent lands, prevent damage to significant recreation features or values etc… Commercial logging to remove infected trees MAY be allowed.
Exotic organisms control	Allowed Subject to the Management Plan	
Scientific research	Allowed Subject to the Management Plan	Manipulative activities normally not allowed. Specimen collections only allowed if results in information providing increased scientific knowledge (e.g. geology, forestry, etc…) or protection and/or understanding of protected area values. Permits from managing agency will be required.
Ecosystem and Habitat Enhancement	Allowed Subject to the Management Plan	

APPENDIX K: PROPOSED PROTECTED AREA VALUES AND RECOMMENDED MANAGEMENT EMPHASIS

Name	Protection Values	Recommended Management Emphasis and Comments	Area (ha)
Brim River	Undeveloped hotsprings, unusual and sensitive vegetation complexes, high grizzly bear values	Recommended Management Emphasis: Conservation. Comments: Environment and Land Use Act recommended to ensure that access is not prevented to upper Brim River valley. Recreation is not encouraged to high bear values and sensitive vegetation.	988
Coste Rocks Douglas Channel Recreation System	recreational diving on underwater pillar; very high bird watching; underwater sea garden	Recommended Management Emphasis: Recreation Comment: Cabinet approved PAS study area	35
Dala/Kildala River Estuaries	productive estuary complex, one of top ranking north coast wetlands (total biological and social values) tidal ecosystems; wildlife habitat: high grizzly, high black tailed deer, high trumpeter swan, very high waterfowl values; coho, chinook, pink; chinook spawning in rivers. Within the protected area recreational activities include: bird viewing, hunting, fishing, crab and shellfish harvesting	Recommended Management Emphasis: conservation Comments: Cabinet approved PAS study area. High recreational values upstream of protected area. Two proposed log dumps adjacent to protected area.	452
Foch/Giltoyees	high biodiversity, estuary, scenery, waterfall, anchorage, fishing, tidal narrows,	Recommended Management Emphasis: conservation and recreation Comment: Cabinet approved PAS study area	59,765
Eagle Bay	large anchorage, holding ground for spring salmon, recreational crabbing, gravel beach and hiking, proximity to Kitimat, wreckage from Grumman Widgeon plane on beach, trail to look out, tourism, scenic	Recommended Management Emphasis: conservation and recreation Comments: includes proposed log dump, has been controversial issue	259
Exchamsiks River Park Expansion	red listed Sitka spruce salmonberry community (CWHvm1/09), blue listed Amabilis fir/Sitka	Recommended Management Emphasis: conservation and recreation	1565

Name	Protection Values	Recommended Management Emphasis and Comments	Area (ha)
	spruce-Devil's Club community (CWHvm1/08), allows for management of the boat launch presently outside of the park, provides alternate location for camping which is located in blue listed plant community (Amabilis fir/Sitka spruce-Devil's Club (CWHvm1/08), included viewscape (bluffs) from river, includes mountain goat habitat in NE corner, and high goat habitat in NW corner, culturally modified trees, salmon habitat	Comments: interest in maintaining access to timber values upstream of protected area, could be addressed through ELU designation.	
Gitnadoiks (Spelling has been changed from "Gitnadoix" to "Gitnadoiks" as a recommendation from the Tsimshian First Nation)	Ecosection representation, wetland habitat, high fishery values, Class I waters, wilderness recreation	Recommended Management Emphasis: Conservation Comments: Planning table recommended an upgrade from recreation area to Class A Park. Better boundary description required especially near mouth of the Gitnadoiks River. Designation status will be determined following discussions with Tsimshian First Nation.	57,760
Hai Lake – Mount Herman	remnant old growth forest (rare at regional level), wetlands, hiking trail	Recommended Management Emphasis: Conservation with opportunities for rustic recreation (e.g. trail) Comments: PAS proposal, forest district manager deferral and mining no staking reserve requested Mar 98, within District of Kitimat	309
Jesse Falls	waterfall and recreational viewing opportunity	Recommended Management Emphasis: Recreation Comments: PAS proposal, forest district manager deferral and mining no staking reserve requested Mar. 1998	19
Kitimat River Ecological Reserve Proposal	remnant old growth forest along Kitimat River	Recommended Management Emphasis: Conservation Comments: PAS proposal, forest district manager deferral and mining no staking reserve requested Mar 98	39
Kitsumkalum Lake North	wetlands, waterfowl habitat	Recommended Management Emphasis: Conservation Comments: PAS proposal, forest district manager deferral	354

Name	Protection Values	Recommended Management Emphasis and Comments	Area (ha)
		and mining no staking reserve requested Mar 98	
Lakelse Lake wetlands (south end)	wetlands, waterfowl habitat	Recommended Management Emphasis: Conservation Comments: PAS proposal, forest district manager deferral and mining no staking reserve requested Mar 98	1197
Lower Skeena River sites (islands at mouth of Exstew and Kasiks Rivers)	riparian ecosystems, wildlife habitat	Recommended Management Emphasis: Conservation Comments: Cabinet approved study area, mining no staking reserve requested Mar 98	622
Lundmark Bog	wetland complex, kettled kame terrace	Recommended Management Emphasis: Conservation Comments: PAS proposal, forest district manager deferral and mining no staking reserve requested Mar 98	68
Nabeelah Creek wetlands	highly significant wetland complex, geologically unique features, earthflow crater, blue listed bog-adder's mouth orchid, raised acidic bogs, paleohistorical value. High value grizzly bear habitat and high value coho and cutthroat rearing habitat	Recommended Management Emphasis: Conservation Comment: PAS proposal	311
Owyacumish River	Old growth coastal forests, high grizzly bear values	Recommended Management Emphasis: Conservation	
Sleeping Beauty Mountain	recreational hiking, skiing, tourism, scenery, hiking trail	Proposed Management Emphasis: recreation Comments: popular recreational trail close to Terrace	295
Swan Creek	Scenic waterfall, tourism	Proposed Management Empasis: Recreation Comment: Table proposed area	99
Sue Channel/ Hawkesbury Island Douglas Channel Recreation System	Marine recreation, safe anchorage, sport fishing tourism, whale watching (all very high significance)	Recommended Management Emphasis: Recreation Comment: Cabinet approved study area	60

Name	Protection Values	Recommended Management Emphasis and Comments	Area (ha)
Sue Channel/Loretta Island Douglas Channel Recreation System	Marine ecosystems, marine recreation, boating and anchorage, sport fishing, tourism whale watching (all very high significance)	Recommended Management Emphasis: Recreation Comment: Cabinet approved study area	148
Weewanie Hotsprings Douglas Channel Recreation System	Hotsprings and camping (both very high significance anchorage (high significance)	Recommended Management Emphasis: Recreation Comments: Cabinet approved study area	31