Kalum Forest Recreation and Tourism Opportunities Study

Prepared for:

Interagency Planning Team

Kalum Land and Resource Management Plan

Funded by Forest Renewal British Columbia

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Abstract

This report describes the results and methods of the Forest Recreation and Tourism Opportunities Study undertaken in the Kalum Forest District for the Interagency Planning Team of the Kalum Land and Resource Management Plan. The study was conducted between June and October 1998. Funding was provided by Forest Renewal British Columbia. Technical support was provided by the Ministry of Small Business, Tourism and Culture and the Ministry of Forests. The project provides information which will contribute to integrated resource planning in the Kalum Forest District and will be useful in supporting appropriate, sustainable recreation and tourism development. There are three project components: data collection and mapping, tourism product capability modelling and an analysis of recreational and tourism use and potential.

Data collection was conducted by Geoscape Environmental Planners with the assistance of three local residents. Significant effort was expended to identify and contact all Kalum Forest District based tourism operators, including those based elsewhere, who use the District for a portion of their operations. A total of 199 tourism operators were identified. Twenty-five were confirmed to no longer be in business. Of the remaining, 99 operators participated in the study through engaging in an interview, returning a survey or attending a meeting. Forty percent of the tourism operators had not been identified through previous studies. An extensive database provides attribute information regarding each tourism operator including name, address, services and activities offered, and the operation size. A summary of activities offered by the surveyed tourism operators is provided in a table. The report also includes a discussion of the tourism products which were determined to have the greatest economic significance, the highest participation levels, or the best potential for expansion in the Kalum Forest District. Each product is discussed in terms of existing use, capability and potential for expansion.

Digital mapping and modelling was conducted by Clover Point Cartographics Ltd.. Tourism operators and recreational users who participated in the study were asked to record biophysical, cultural and infrastructural resources which support recreation and tourism activities. Existing use areas, facilities or bases of operation, trails, routes and tourism or recreation related features identified by tourism operators and recreational users were mapped with the aid of ARC/INFO Geographic Information System (GIS) at a detailed (1:20,000) scale. Other digital and hardcopy data sources were reviewed and incorporated into the digital maps files as appropriate.

Ten tourism products / recreational activities were modelled for capability using GIS technology. Infrastructure, existing use, natural and cultural features and resource data were combined and analysed to determine the physical capability of the land and water to support each tourism activity. The models identify areas of high, moderate and low capability to support each product. Suitability, based on constraints, was not included as part of the capability modelling.

Existing use and tourism product capability were reviewed and ten high potential areas for tourism or recreation development have been identified and ranked. The characteristics of these areas and their significance on a local, regional and provincial level are discussed. Further analysis to identify constraints and determine the suitability of the identified potential areas is recommended before development proceeds.

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1. INTRODUCTION

1. Background

Tourism is one of the world's largest employment and revenue generators. *Tourism Canada* expects tourism to out-perform all other economic sectors as we approach the next century. In the United States, forest based recreation and tourism is expected to generate 100 billion dollars in economic activity by the year 2000 (Mitchell, 1997).

British Columbia has become increasingly reliant on tourism to generate revenue and create jobs. The province is world renowned for it's natural environment; "Super Natural British Columbia" is a marketing focus of Tourism British Columbia. The ability of the tourism industry to thrive and expand depends, in part, on the maintenance of the natural environment. Recreation, for many residents, is an important component of personal well-being. The decision to reside in one region over another is often influenced by the recreational opportunities to be found nearby. Thus the government is tasked with balancing the land and environmental requirements of the industrial sectors with those of tourism and recreation.

The Ministry of Forests (MoF) is responsible to administer and manage recreation on Crown forest lands. The Ministry of Small Business, Tourism and Culture (MSBTC) is responsible for ensuring tourism values and interests are fully considered and accommodated within provincial, regional and sub-regional land, water and resource use planning initiatives. The Interagency Planning Team of the Kalum Land and Resource Management Plan (LRMP) is responsible to provide inventory data, analysis and planning recommendations to agencies mandated with resource management and planning functions in the Kalum Forest District. Forest Recreation and Tourism Resource inventories are fundamental components to fulfilling these obligations.

The Kalum Forest District contains diverse coastal, marine and upland landscapes and features which support a broad range of recreational and tourism activities. These have been documented through a number of inventories. A 1:250,000 scale Tourism Resource Inventory (TRI) was completed in 1996. The 1:20,000 Forest Recreation Inventory (FRI) was conducted for Tree Farm Licence (TFL) 1 in March 1997 and for the Kalum Timber Supply Area (TSA) in 1992. The Kalum TSA was updated in 1997. A FRI was conducted for the Nass TSA (formerly Kalum North) in 1995. This study builds on the previously completed work to provide information for the ongoing Kalum LRMP.

The available natural features, resources and landscapes dictate the nature of the tourism products offered and recreational activities undertaken within a given region. Technically sound inventories of these attributes can be used to develop forest recreation and tourism opportunities. These opportunities will allow local agencies, First Nations and community groups to diversify their economy while maintaining access for residents and minimizing conflict among users. This study provides further information which will support MoF and MSBTC efforts in integrated resource and community planning targeted towards economic, social and environmental sustainability. The results will help to define current and possible future resource values to the tourism and recreation sectors.

1.2 Study Area Description

1. Geographic Description

The Kalum Forest District covers an area of about 3.8 million hectares in northwestern British Columbia. The Skeena River flows through the lower third of the district. The northern boundary reaches to the headwaters of the Nass River near the southern boundary of Spatsizi Plateau Wilderness Area. The area extends south to the Kitlope Park Heritage Conservancy Protected Area. The southwestern corner also cuts through Hawkesbury Island in the Douglas Channel.

The topography of the Kalum Forest District is varied, from mountainous and rugged terrain in the south to the picturesque mountain valleys in the north. The southern landscape is dominated by the rugged Coastal

Mountains, shining fjords, and salmon-bearing rivers. There are several large lakes in the district: Bowser lake, Lava Lake, Kitsumkalum Lake, Lakelse Lake, and Meziadin Lake.

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. The major tree species in the district are Western Hemlock and Amabilis Fir with smaller components of Western Red Cedar, Sitka Spruce and Lodgepole Pine.

2. The People and Communities

The Kalum Forest District contains approximately 36,000 people. The greater Terrace area, encompassing the city of Terrace and the community of Thornhill, has a population of about 21,000. It is the largest community within the District and the supply and distribution centre for the area. The industrial community of Kitimat boasts a population of about 12,000 people. The District of Stewart has a population of about 1,500. Other smaller population centres include a number of First Nations communities located throughout the district. There are also numerous rural settlements. Population projections suggest the district will grow at a rate of about 1.4% a year over the 1995 - 2000 period.

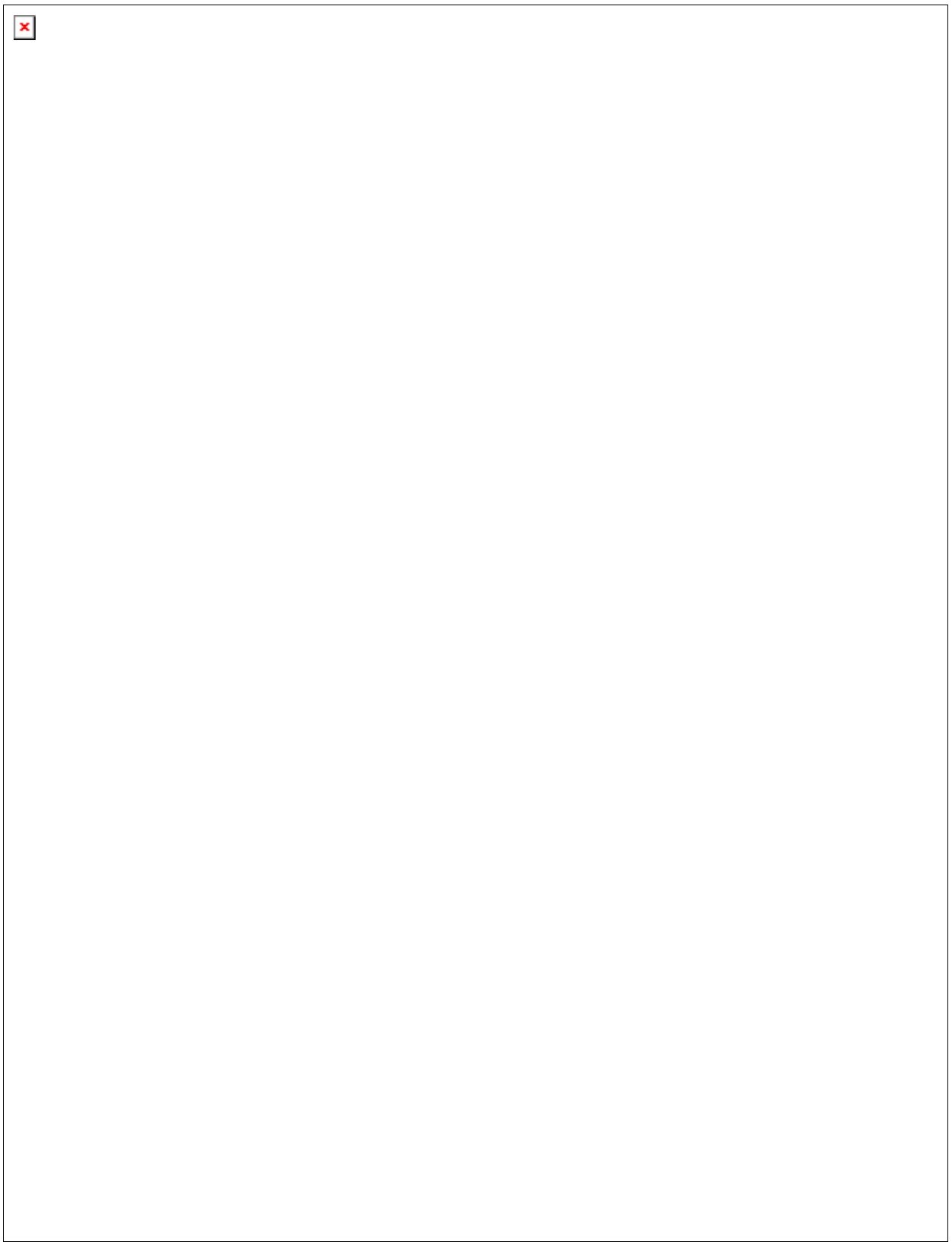
Five First Nations people consider this area their ancestral home. The population of the Tsimshian, Nisga'a, Haisla, Gitxsan and Gitanyow Nations number about 4,200 people, about 12% of the total area population. Much of this population resides in the villages of Kitselas, Kitsumkalum, Gitalkdamix, Gitwinksihlkw, and Kitimaat. These five communities consist of 65 reserves covering close to 5,000 hectares. All of these First Nations are involved in treaty negotiations.

3. Economic Structure

Employment in the district reflects the importance of natural resources to the District's residents. The service sector is gaining in importance, but its strength is heavily tied to the goods producing sector. Twenty nine percent of the jobs in the Kalum Forest District are in the public sector, the largest employer by sector. Forestry follows with 25% of the jobs. The minerals industry, mainly the Alcan Smelters and Chemicals Ltd. aluminum smelter in Kitimat, provides 19% of the employment in the district. Alcan depends on the hydro electric power produced at a generating station in Kemano, a small community southeast of Kitimat. Manufacturing and transportation account for another 14% of employment in the district, followed by tourism which contributes 10%.

Fishing and agriculture are small but important sectors of the economy, providing additional diversification and stability within the communities. The relatively mild coastal climate and rich valley bottom soils provide conditions that are favourable for agriculture. Many of the southern river valleys average 130 frost free days per year and the average annual rainfall is over 100mm. However, the amount of land suitable for agriculture is quite limited. In total, approximately 200 people make their primary income from mixed agriculture, mainly horticulture (fruits, vegetables and greenhouse crops), livestock, and poultry rearing. Commercial salmon fishing employs about 110 people. The Skeena, Nass and Kitimat River systems have important salmon runs for all five species of salmon as well as steelhead.

Figure 1 - Study Area



1.3 Goals and Objectives

The goal, objectives and products of the Kalum Forest Recreation and Tourism Opportunities Study are as follows.

Goals:

1. To use local resources (Planning Agencies, Community Groups, First Nations, tourism operators and

recreational organizations) to build on and improve the existing Forest Recreation and Tourism Resource inventories;
2. To match identified tourism and recreation resources / features against a 1:20,000 TRIM base map and produce digital files, with specific database attributes, of these resources;
3. To develop computer based product / activity models using a Geographic Information System; and
4. Generate a report which identifies areas of good potential for sustainable forest recreation and tourism development, specify the nature of these opportunities and review the constraints to their development.

Objectives:

1. Maintain a high degree of communication with Ministry staff;
1. Reflect the present and future needs of the tourism industry, local recreational users and government agencies responsible for recreation and tourism;
1. Respect the confidentiality of data;
1. Be consistent with RIC standards;
1. Identify tourism operators and map existing tourism operations and infrastructure;
1. Identify major recreational user groups and map spatial extent and patterns of recreational use;
1. Identify and model ten key regional products for tourism capability;
1. Review the models developed and data collected through field visits and in conjunction with members of the tourism industry in the region;
2. Identify areas of good potential for tourism and recreation activity development, specify the nature of these opportunities along with significant constraints which may affect potential development; and
1. Provide geo-referenced digital files of the above information in ARC/INFO format in NAD83 with the database files compatible with the Ministry's other GIS inventories.

Products:

- Digital ARC/INFO files in Albers projection, NAD 83 Datum of facilities, features, routes, existing use and viewscapes.
- Digital ARC/INFO files in Albers projection, NAD 83 Datum of product capability for ten tourism product models.
- Digital ARC/INFO files in Albers projection, NAD 83 Datum of potential areas for development.
- Bound, unbound and digital User's Manual describing the inventory methodology and data dictionary, modelling information, a discussion of candidate areas for development, potential constraints and a summary of comments and observations.

1.4 Definitions

The focus of this project was to develop a GIS based inventory of features and to determine their importance from a recreation and tourism perspective. Throughout this process the following definitions are used.

GIS is an acronym for Geographic Information System. A GIS is used to store, analysis and manage spatial information. This project used ARC/INFO GIS software.

Recreation consists of any outdoor or leisure activity area where the participant did not pay a commercial operator for the privilege of partaking in the activity. The activity can be a single or multi day event. Recreationists can be local residents or from outside the region.

Tourism is any recreation in which a fee for service relationship exists. Generally the activity occurs greater than 80 kilometres from the participants residence or involves an overnight stay. Tourism is comprised of two components:

1. Activities
1. Support Services

i. accommodation services
ii. food and beverage services
iii. transportation services
iv. activity support services

Each of these components is equally important, and they are not perceived separately by the tourist. The most successful tourism operators combine popular activities with support services.

Tourism Capability refers to the ability of the natural and cultural resources to support a defined tourism product or recreation activity.

Tourism Operators are defined as persons or organizations who make a business of providing commercial recreation opportunities not funded by tax monies or charitable contributions. These include suppliers of accommodation, attractions and activities.

Tourism Product is a leisure or recreation activity provided or facilitated by a commercial operator.

A **Tourism Resource** is any recreation-related destination, activity or feature that attracts individuals or groups to an area.

Suitability refers to the legislative, social and environmental constraints which may prevent a potentially high capability activity from occurring. Suitability considerations include land use zoning and designation, carrying capacity, market and economic factors, safety and seasonality.

A **Use Area** is an area (polygon) identified by a tourism operator as the area used while providing a service of product for the tourist. Most operators indicated that their use area corresponded with their **viewscape.**

A **Viewscape** is an area (polygon) identified by a tourism operator as containing essential or key viewing components to their operation. The area can be adjacent to the land or water unit being used in their operation.

The terms tourism and recreation are often used interchangeably. There is significant overlap between the two. A considerable amount of recreational use is just for the day. A significant portion of tourism involves no recreational component (e.g. visiting relatives and conferences). The overlap between the two can be seen in the following diagram.

tourism use

recreation recreation non- recreation

day use overnight use overnight use

recreational use

2 RESULTS

1. Existing Use - Tourism Operator Offerings

The information on tourism operator activity offerings, displayed in Table 1, has been extracted from the survey

responses and secondary sources. Sums are greater than the total number of operators because an operator may have several activities or services that are considered their primary offering (e.g. fishing lodge - accommodation and fishing). Secondary activities are considered to be those which are incidental to the primary attraction. For instance a fishing lodge may also offer kayaking, swimming and nature viewing as part of their package. However fishing and the associated accommodation is their primary focus, without which they would not be in business.

Traditional Activities

These constitute activities that are most familiar to the recreating public and traditionally have the greatest number of participants. The Kalum Forest District has historically been linked to freshwater fishing opportunities and access to salt water fishing opportunities. These activities have been the primary tourist attraction in the District. Usage is dispersed throughout the District's river corridors and coastal areas. The experience of participating in the activity is the prime attraction.

Examples of Traditional Activities include:

- Fresh water fishing
- Saltwater fishing
- Camping
- Hunting
- Snowmobiling
- Some lodge based activities for freshwater fishing

Alternative Activities

Public awareness and concern for nature and heritage has expanded the market for the viewing of scenery, wildlife and heritage values and low impact recreation activities. The ability to participate in non-traditional activities has increased with the advent of new technologies and the general fitness of the recreating public. Adventure, or the perception of adventure or risk, is an increasingly large component of Alternative Activities. More sedate and less active opportunities for the growing seniors demographic category are also found in the Alternative Activities categories. The insights and education gained through a tour guide's interpretation is as important as the actual experience to participants. Alternative Activities generally require large wilderness or naturally appearing areas with remote access. Wildlife and landscape viewing areas are of increasing importance. Highlights for Alternative Activities include alpine areas, glaciers, lava features, hot springs and cultural heritage features.

Examples of Alternative Activities include:

- Hiking
- Kayaking
- Mountain Biking
- Nature and wildlife viewing
- Adventure recreation
- Backcountry Skiing

A total of 174 tourism operations were identified as being based in or using the Kalum Forest District. Of these 43 indicate that the only service or activity they offer is accommodation.

Table 1 - Summary of Tourism Operator Primary and Secondary Activities

Activity type	# of operators indicating this is their primary activity offering	# of operators indicating the activity is a secondary activity

Total Accommodation (non-gov't)	100	
Hotel/motel	27	
B&B	28	
Lodge	15	
Overnight Charter	16	
RV Campground	22	
Camping (non-facility)		12
Marina *	2 (public)	3 (private)
Museum	4	
Art Gallery / Sales	5	
Golf course	2 (public)	1 (private)
Ski Facility	1	
Ski Touring	2	3
Snowmobiling		2
Air tours/charters	14	18
Car Rental	5	
Taxi, Bus or Van tours	4	10
4x4 tours		3
Freshwater charter (fishing)	20	31
Jetboating		3
Salt water charters (fishing/tours)	37	41
Marine mammal		14
Motor cruising		27
Sailing		4
Scuba diving	6	13
Kayaking	5	11
Canoeing		10
Beach Activities/Swimming		12

Nature / Hiking	8	
Nature		29
Hiking		30
Fossil Hunting		6
Rock Climbing		4
Mountain biking		4
Horse and Trail	3	3
Hunting (MoE Guide-Outfitter)	3	
General Hunting		6
Wildlife viewing (land or water)		47
Bird watching		15
Scenic viewing		29
Heritage viewing		11

*Tourism operations only. Does not include Federal Government Wharves

1.
2. **Product Discussion**

Below is a discussion of the tourism products which were determined to have the greatest economic significance or potential and highest levels of participation in the Kalum Forest District. Each product is discussed in terms of existing use, capability and potential for expansion. A map showing the high capability areas for each activity is included in Appendix D. A description of the digital existing use map layers can be found in Section 5. Information regarding each product's capability model can be located in Section 6.

1. **Freshwater Fishing**

   Suitability/Existing Use - Freshwater fishing is the best known tourism activity in the Kalum District and is of international significance. The streams and rivers attract fishers for a variety of species throughout the year. Chinook, coho, steelhead and rainbow trout are the traditional target species. Pink and sockeye are targeted in the Skeena and are very popular, especially during the summer months. Other target species include Cutthroat Trout, Dolly Varden, Lake Trout, Northern Pike, Kokanee, Brook Trout, 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.

   Most rivers within a one-hour drive of Terrace and Kitimat see high levels of use (Zymoetz / Copper, Kitimat, Kildala, Dala, Gitnadoix, Skeena, Lakelse, Exchamsiks, Kitsumkalum and Exstew). Farther north the Nass, Bear, Kiteen, Ishkheenichh, Tseax, Cranberry Rivers are important. Lakes are also popular fishing destinations, including Lakelse, Meziadin, and several smaller lakes in the north (Damdochax, Teigen, Kwinageese, Bonney, Fred Wright). The Brim, Gilttoyees, Kemano and Kitlope Rivers in the south are highly productive but difficult to access.

Capability - This activity can be undertaken in all major lakes and rivers throughout the Kalum Forest District.

Potential - Existing tourism operators indicated that the prime rivers used have not reached their social carrying capacity. However, expansion of this product within the Kalum Forest District is contingent on stock availability. The expansion of tourism operations is highly regulated through provincial commercial licencing restrictions. Steelhead has traditionally been undertaken as a catch and release activity whereas other sportfishing has been undertaken as "catch and keep". Recent declines in coho stock have resulted in changes to the management of freshwater and saltwater coho fisheries. The coho fishing closures have also affected the opportunities to fish for other salmon species. International perspectives on the fishing opportunities within the Kalum Forest District are affected by area closures and retention limits. Tourists will go elsewhere (Alaska - Florida) where they can be assured of the "catch and keep" experience. The greatest potential for expansion is through the development of remote access, lodge based fishing. There is also potential to increase access to more remote locations through the use of helicopters.

2.

3. **Hiking/Backpacking**

Suitability/Existing Use - Hiking is an important component of recreation and tourism in the Kalum Forest District. 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. Ministry of Forests and forest companies play a key role in providing access to trailheads and developing regional trails for recreational users. Interpretative trails, such as those at Redsand Lake Forest Service Site, provide a valuable tourism resource. The trailheads are generally accessible via two-wheel drive vehicle. Non-local recreationists participate in extended (multi-day) mountaineering in several locations throughout the region. Seven Sisters Ventures has been granted a commercial tenure for an alpine hut-to-hut hiking endeavour east of Terrace. Heritage trails, including the Telegraph Trail (Damdochax Valley), Nass River Grease Trail and mining trails near Stewart, receive limited use.

Capability - Moderate to High capability for hiking is found along slopes of moderate steepness and on rounded ridgetops. Glaciers and lake edges also provide higher capability terrain. Heritage trails near heritage and mining features show a high capability.

Potential - The key advantages the Kalum Forest District 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 Williams Creek, Weedeene, Mount Charlie and Mount Clague alpine, Mount Elizabeth and Robinson Ridge. The Grease and Telegraph heritage trails are underutilized resources which could be developed to enhance further opportunities. There is potential to develop helicopter access to alpine ridges for older or less fit clientele. Some potential exists to promote and develop the activity in the larger river valleys adjacent to Douglas Channel and Gardner Canal (tideline to timber line hikes). The construction of additional trails to attractive destinations would increase the potential to develop hiking and backpacking for both recreational and tourism users.

4. **Lodge**

Suitability/Existing Use - The existing lodges are associated with the freshwater fishing activity, close to rivers. The Skeena and Nass rivers are dominant.

Capability - High capacity for resort development exists where a cluster of activities can be found within 1 hour transportation (boat / floatplane / helicopter).

Potential - The remote wilderness in northern portion of study area has potential. Development can be tied into frontier theme (Stewart/Hyder), mining and First Nations heritage. Douglas Channel/Devastation Channel has some potential around the hotsprings. Expansion of lodges focused on the fishing industry is not expected in the near future due to the uncertainty of the fish resource.

5. **Mountain Biking**

Suitability/Existing Use - Mountain biking is predominantly focused on recreational use. Local clubs also sponsor racing events attracting regional participation. The areas between Lakelse Lake and Kitsumkalum Lake absorb the majority of use. Outside of the Terrace-Kitimat corridor the main usage is found in the Telkwa Pass area, via the Zymoetz road network.

Capability - Mountain biking capability can be found on logging roads throughout District. The greatest capability can be found on roads in proximity to Terrace. With the exception of the Stewart/Granduc area, there is limited capability in the north.

Potential -Mountain biking potential is linked predominantly towards recreational day use rather than multi-day tourism use. The product needs to be close to a population centre to be viable. Expansion and marketing of dedicated bike trails may boost the potential for recreational use of this product. Possible multi-day tours include linking an overnight trip to Smithers via the Telkwa Pass (overnight in alpine hut) and by van back to Terrace. High potential for mountain biking can also be found in the vicinity north and south of Granduc mine. This region has a network of roads and a variety of natural and cultural features. The powerline between Kitimat and Kemano has potential to be developed as a mountain biking loop tour. However, permission from Alcan and upgrading over the pass would be required for this route to be feasible.

6. **Nature Appreciation / Wildlife Viewing**

Suitability/Existing Use - Nature appreciation and wildlife viewing is generally considered a by product to other commercial activities. The Kalum Forest District is regionally significant for viewing of mountain goat, grizzly bear, black bear, moose, beaver, deer, and birds (waterfowl, song birds and birds of prey). Natural features, including the lava beds and glaciers, provide a focal point for general viewing. The number of users has been increasing with the advent of eco-tourism type alternative activities.

Although there are no major bird flyways in District, several sites are noted as nationally important wintering or migration staging sites (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). Bear 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.

Capability - Focal points for wildlife viewing and nature appreciation include rivers, lakes, estuaries, wetlands, old growth, avalanche chutes, alpine zones and major roadways.

Potential - Several locations have high wilderness values where there is high potential for wildlife viewing and nature appreciation. In the north these include Bear Pass, Meziadin Lake, Kinskuch Lake, Damdochax River Valley, Nisga'a Lava beds, Highway 37/37A corridor and the Nass corridor. Central Kalum focal points include the Lower Exstew, Exchamsiks, and Maroon Mountain. Southern potential areas include Gitnadoix, Kowesas and Kitlope Rivers. Glaciers and alpine provide spectacular scenic viewing opportunities. There is significant potential to build a tourism product around the scenic beauty found in these areas. Interpretative and educational tours are increasing in prominence throughout the province.

Although wildlife can be found throughout the district, it would be difficult to build a viable tourism product around wildlife viewing due to unpredictability / seasonality of the popular viewing species. There is potential for more general, interpretative tours involving landscape viewing, nature appreciation, First Nations culture and wildlife combined with hiking, road touring or boating. The Stewart area affords potential for combining wildlife, natural feature, scenic landscapes and heritage viewing. Lower Nass (New Aiyansh) offers similar potential.

7. **River Kayaking**

Suitability/Existing Use - There is no organized, tourism related river kayaking usage. However, the Kalum Forest District has regionally significant recreational use on the numerous smaller, fast flowing creeks and streams surrounding Terrace and Kitimat. Examples of known rivers and their classes include:

Class 1-3: Wedeene and Kitimat (suitable for canoes and beginners. More skill required at high water)

Class 1-4: Kalum River (Easy (1) until the Kalum Canyon (levels 3-4))

Class 2-4: Chore (Beginner/intermediate at the upper stretch to a 4 at the canyon)

Class 3-5: Kleanza (deep valley, steep canyons), Zymoetz (3 runs), Williams Creek (well known clean granite canyon with 'bumby' waters, waterfalls). Legate Creek.

Class 4-5: Kitanyakwa

Capability - There is moderate to high capability on portions of the upper Nass, Bell-Irving, Copper Kitimat, Exchamsiks, Kleanza, Williams, Clore and Kalum Rivers.

Potential - The region offers a wide spectrum of opportunities and has significant potential on a regional or provincial basis. Existing use is light. A range of river classes (beginner, intermediate, advanced) as well as experiences within these classes can be found within a one-hour drive of Terrace. Easy access is the key to expansion. Slower moving rivers also are suitable for canoeing but may conflict with other boating opportunities (jet boating).

8. **Saltwater Fishing / Marine Activities**

Suitability/Existing Use - The traditional tourism activity of saltwater fishing has the largest number of purveyors in the Kalum Forest District. Douglas and Devastation Channel sees much local use, especially on route to sports fishing locales and hotsprings within and outside the District. Although many of the region's more popular or better known fishing areas are outside the Kalum Forest District, Kitimat and consequently Douglas Channel draw international clientele as a staging area and access route. Tourists embarking from a coastal point outside the region (e.g. Prince Rupert) are rarely found inside the district due to the significant opportunities found elsewhere. However outside visitors from interior communities, such as Prince George, Smithers and Houston, contribute significantly to the regional user profile. Southern Gardner Canal is rarely used as conditions for fish (nutrients, water temperature, turbidity) are superior elsewhere and the canal does not connect back to the outer coast (no "loop tour" potential).

Salmon species, including chinook, coho, pink and sockeye, are the main target for tourists. Recreational users also target halibut, cod, snapper, crabs and prawn. Saltwater fishery participants are focused on the retention of their catch, as opposed to the catch and release standards of freshwater fishing. Few specific use locations were noted for crab and prawn fishing. Users indicated that marine based wildlife viewing is undertaken on an opportunistic basis as sightings cannot be guaranteed.

Capability - The capability models show that sheltered areas with adjoining features (e.g. river mouths or anchorages near hotsprings or cultural features) have the highest capability. Intersections of major channels, where there are a mix of nutrients and current flows, also could be expected to have high capability.

Potential - The product is heavily used within the coastal portions of the region; several participants in this study considered the protected marine passages and islands in the Douglas Channel to be crowded. Maintaining the existing levels of use for this product is contingent on salmon stock availability. At present there are no licensing restrictions (aside from possession limits) preventing new operators from developing a salt-water based fishing operation. This has had the effect of increasing the competition on a limited resource. The activity could be enhanced though combining the fishing activity with wildlife or landscape viewing, cultural activities (learning about First Nations culture), and the visitation of hotsprings. Limited anchorages, concerns regarding the long-term viability of the salmon stock and unreliable marine wildlife viewing may restrict the opportunities for expansion of a marine tourism product based solely within the Kalum Forest District.

9. **Snowmobiling**

Suitability/Existing Use - Snowmobiling is a traditional activity of local significance to recreational users; tourism use and visitation from outside the district is virtually nil. Many lower elevation areas are encumbered by coastal type vegetation. A number of sites are significant to area clubs, including Sterling, Big Cedar, Mount Thornhill, Trapline, Bolton, Robinson Ridge and Claque Mountain. Backcountry snowmobiling takes place around Summit / Long lake and also in sections of the Cambria icefields (late spring).

Capability - Snow conditions (depth, duration and water moisture) dictate the locations where this activity can occur. Generally the activity can be undertaken in areas where the marine influence is minimized. Access via logging road network is critical for snowmobiling capability.

Potential - Long distances from major population centres and large areas of primarily coastal influences lowers the tourism potential of this activity. New Aiyansh area has good potential, as does Telkwa Pass. Snowmobiling will remain most important to recreational users.

10. **Ski touring / Backcountry Skiing / Heli-skiing**

Suitability/Existing Use - The Shames area (Mt Morris to Mt Remo) has regional significance for backcountry touring and downhill skiing because of the ease of access and the high quality snow conditions. There is some regional interest in the backcountry skiing opportunities found in the alpine areas surrounding Bell II and Ningunsaw Pass. A commercial heli-ski venture for the Bell Irving has been granted tenure by BC Lands. Recreational users have indicated that they may have conflicts with this venture.

Cross country skiers are mainly of local origin. Use is centred on the extensive trail system surrounding Onion /Clearwater Lakes. Cross country skiers may also be found around Mt Thornhill and, to a lesser extent, Stirling Mountain.

Capability - Backcountry and heli-skiing capability is highest throughout glacial dominated regions. Glaciers also offer significant terrain for ski touring. Snow conditions (depth, duration and water moisture) dictate the locations where this activity can occur. Generally areas where the marine influence is minimized have the highest capability.

Potential - There is significant potential to expand the backcountry skiing profile, although the attraction would be to out-of-region recreationists rather than higher spending tourists. The Stewart (Summit / Long lake and Cambria icefields) and the Bell Irving areas have many potential multi-day wilderness opportunities. Permanent glaciers and longer winter season allows for expansion in some areas. Areas which are long distances from major

population centres or which are influenced primarily by the coastal environment have lower potential for this activity. Access, rather than climate, is a major limiting factor for this activity. The increase in popularity for helicopter skiing has potential to provide increased economic activity within the region.

11. **Two-Wheel Drive Touring**

Suitability/Existing Use - Two-wheel drive touring is focused on four roads, with the amount of use decreasing the farther one is removed from Highway 16. The main route consists of Highway 16, which bisects the district through Terrace. Highway 37 (Kitimat to Terrace) and, to a lesser extent, the Kitsumkalum road (Terrace to New Aiyansh and the Nisga'a Memorial Lava Bed Park) are also highly used. Highway 37 north through the district and the Stewart connector receive high levels of use by Alaska bound travellers during the summer months. Roads throughout the district are enjoyed by both independent travellers and tourism operators.

Capability - In addition to the aforementioned roads, the Stewart to Granduc Mine road is identified as having high capability. The Kitimat to Kemano road is also identified as having high capability, but in reality is rough gravel to the Dala River, very rough and private (no access) up the Kildala Valley and ends in the valley before reaching the pass to Kemano.

Potential - All two wheel drive roads in the Kalum Forest District can handle increased tourist traffic. Packaging bus and van tours with the other amenities in the region is one key to increasing opportunities in this sector. Tours which provide linkages to other activities (heritage viewing or scenic viewing) could increase usage. Loop tours linking features in the Kalum Forest District with those outside the district could enhance the potential of the touring product.

There is potential to develop and market a loop tour between Terrace and the Nass Valley via Kitwanga. The lower portion of the Nass Valley (Cranberry Junction to Greenville) also has some potential for tours which could be realised with additional marketing efforts. Highway 37A linking Meziadin with Stewart and the roads from Stewart to Granduc Mine have scenic values of provincial significance. The Kitimat to Kemano powerline access road is a private industrial road (Alcan) that does not currently extend beyond the Kildala Valley. The costs for upgrading the route to two-wheel drive capability would likely preclude development. With permission, however, this route could be developed as an ATV or mountain bike loop tour with minimal upgrading.

12. **Other Products**

A number of additional activities were identified as either being important for local recreationists or having significant potential in the Kalum Forest District. Generally these activities either occur throughout Kalum (hunting, camping and boating), are complimentary activities which do not by themselves draw tourists or non-local recreationists into the region to participate exclusively in them (heritage and landscape viewing), or are activities which have a small niche market, poor supporting resources or superior potential outside the region (climbing and rafting). The discussion below highlights some of these activities.

Although province-wide participation rates are declining, hunting is a significant regional revenue generator. Both local residents and non-BC residents (with a licensed guide-outfitter) participate in this activity. Licensed guide-outfitters are diversifying the products they offer to lengthen their operating season and maximize their investments.

Golfing and downhill skiing remain predominately of local or regional significance. The major inhibiting factors to increasing participation include the length of operating season, capital cost required for development and distance from major population centres. The Kalum Forest District is not known as a destination for either of these activities, although participants from nearby communities outside the region do travel to Kalum to participate.

Camping and boating are important activities for local recreational users and also attracts non-locals. Generally these

activities are connected to other activities such as fishing and hunting and by themselves do not generate significant economic activity for tourism operators. Canoeing and non-motorized boating are popular recreational activities for residents. The Swan Lake Protected Area, Bonney and Fred Wright lakes, portions of the Skeena River, Exchamsiks River, Exstew River and Zymoetz River (from McDonnell Lake to Clore River) provide exceptional non-motorized opportunities.

A number of tourism operators offer scuba diving tours, based out of Kitimat. Expansion potential within the Kalum Forest District is limited due to superior opportunities nearby. The distance to travel from Kitimat to these popular dive sites is an inhibiting factor. Several sites in the Douglas/Devastation Channel were noted as popular sites by local recreationists.

River Rafting has potential within the region but exceptional opportunities elsewhere in British Columbia may preclude this activity from being developed.

Rock climbing is of regional significance for recreational users with potential for increased opportunities due to the availability of exposed granite. Specific use sites include Tyee, Copper Creek and Chist Creek. Potential to develop a tourism opportunity around rock climbing is limited due to the smaller population in the north and superb opportunities found elsewhere in the province.

The region has significant historic and cultural features which could be marketed as a component of an eco-tour package or as an attraction within other activities (mountain biking, hiking or road tours). Landscape viewing is a component of most tourism products. Generally scenic quality is more important to visitors who have travelled greater distances than to local participants.

3.
4. **High Tourism Potential and Recreation Value Areas**

1. **Determining Recreation Value**

   There are many qualities to consider when evaluating areas for recreational value, including the following elements. Each of these qualities are considered when identifying the high value areas. However polygons are not assigned an individual score or rank for each of the categories nor are the final rankings based exclusively on these considerations.

   Feature Significance: Feature significance is based on the activities that biophysical and cultural/historical recreation features can collectively support.

   Sensitivity/Vulnerability: This is a rating of the current importance of an area to recreationists. It is an assessment of the likelihood that carrying out resource development activities would give rise to some degree of concern. This could be of an economic nature (negative impact on a tourism operation) or a social nature (negative impact on a public recreation opportunity).

   Scarcity and Uniqueness: This identifies special features that are particularly rare or unique; such as outstanding or fragile cultural heritage features, outstanding outdoor recreation features such as trails, critical habitats for rare and endangered species, etc.

   Diversity and/or Concentration of Features (Multi-feature): Recreationists seek areas that have a diversity of features which allow for multi-faceted experiences (e.g. an area with a lake, waterfalls, rapids and an abundance of wildlife viewing opportunities).

   Range Of Difficulty (Multi-level): The needs of novices and experts are different, and, consequently, efforts should be made to provide opportunities for both types of recreationists. Novices often prefer areas where they can participate in their chosen activity in a way that feels safe and unthreatening, where the skill level required is

relatively low and the sites are easy to access. Experts possess high technical abilities that allow them to recreate on more challenging terrain.

Opportunity For A Multi-day Experience: Multi-day excursions can provide recreationists with a feeling of relief from urban living and a connection with nature. Routes can be linear, circuitous or multi circuits. Such experiences increasingly attract international visitors.

Aesthetics: Visually pleasing areas are more attractive to visitors. Some landscape features which increase the aesthetic value associated with an area include: lakes, rivers, waterfalls, hotsprings, forests (both old growth and well-designed managed forest), mountain vistas, alpine, sub-alpine, and glaciers.

Access: The effort involved in reaching a site affects the amount of use an area receives. Each person's definition of "reasonable" is different and reflects the type of outdoor experience desired. Generally, locations that are easier and quicker to access are preferred by most recreationists. However, some recreationists are willing to put more effort into reaching a particularly challenging or remote destination.

Unique Features: Some recreation activities require sites with specific landscape features, for example: rock climbing, hang gliding and windsurfing. Resource planning should take into account that sites for these activities are often difficult or impossible to replace.

Opportunity to Experience Wilderness Settings: Recreationists seek areas where they can commune with nature in relative solitude. Wilderness opportunities can be provided with careful planning of resource extraction and access.

2. **Determining Potential for Tourism**

Tourism potential is based primarily on two factors, the significance of the area in a provincial, regional or local context and whether the area has both destination and complimentary features.

Provincial, regional and local significance

Provincial, regional and local significance of a polygon with high recreation values is primarily based on the capability to repeat an experience elsewhere. Certain high value recreation areas may be scarce on a local level but common in an adjoining region. Likewise from the international perspective, certain tourism products such as sports fish are identified with the north west of North America. Similar products offered in differing areas gain further significance over another area when considering additional factors such as accessibility, travel time, costs and general aesthetics. An area which has local significance is likely to draw activity participants from nearby. Provincially significant areas may be of little interest to local residents but could draw tourists from afar.

Destination and Complimentary Features

Certain features provide a complimentary or secondary role to a feature that is the primary attraction or destination feature. For example, sports fish may be the primary attraction but wildlife and scenery may provide an important complimentary role that increases the attractiveness of a locale. Complimentary features may also provide the foundation of alternative forms of recreation activities. Areas with the highest tourism potential have both a destination feature and a suite of complimentary features. Generally the more complimentary features which can be found in a given area, the greater tourism potential an area has.

3. **Potential Polygon Identification and Rank**

High tourism potential and recreational value polygons are identified through a two stage process. First areas of high recreation value in the Kalum Forest District, as defined by the recreational value considerations described above, are

identified. These areas are refined through a review of the tourism capability models, the existing use coverage and tourism / recreation features coverage.

Second, each of the high potential tourism and recreation polygons are ranked against each other according to their recreation and tourism values within a Provincial, Regional and Local context. Polygons are not assigned an individual score or rank for each of the categories nor are the final rankings based exclusively on the either recreational or tourism considerations. Although both tourism and recreation are considered, the final rankings are biased towards the polygon's significance to tourism rather than towards recreation. While the polygons are ranked for the purpose of this study, all have relatively high potential for tourism development compared to areas outside the polygons. Although present circumstance plays an important role in determining rank, the potential opportunities increase a polygon's stature.

Figure 2 - High Potential Tourism Polygons

Table 2- High Potential Tourism and Recreation Polygons

Poly #	Descriptive Name	Discussion	Rank		
			Prov	Reg	Local
1a	Bell II	High quality backcountry recreation and scenic viewing	3	6	7
1b	Granduc	Regionally scarce. Destination features.			

		• Provincially significant glacier viewing along Hwy 37A and the road to Granduc mine. • Scenic - peaks / valleys, travel corridors, glaciers. • Significant backcountry values. • Icefields and glaciers. Quality snow. • Large back country lake (Bowser Lake). • Quality activities: • Backcountry skiing, heli skiing, snowmobiling. • The Bell area is of high regional significance. Provincially with the exception of remoteness, the experience can be found elsewhere. • Road touring, wildlife viewing.			
2a 2b	Damdochax River Valley Bonney Lake to Nass River	Regionally significant wildlife values. Locally scarce. Destination features. • Wildlife viewing and hunting. • Provincially significant heritage trail. • Excellent fishing. • Boating and canoeing on lakes and rivers.	9	9	8
3	Nisga'a Memorial Lava Beds and adjoining area	Provincially scarce. Destination features. Compliments other high potential polygons. • Provincially significant Nisga'a Memorial Lava Beds provide scenic touring, hiking and interpretation opportunities. • Relationship to Nisga'a tribal lands increases meaningfulness (i.e. heritage values). • Regionally significant area for snowmobiling (Sterling and Big Cedar). • Significant ridge walking opportunities to the east of lava beds.	2	3	6
4	Lower Nass	Regionally scarce. Locally common. Complimentary to surrounding polygons. Accessible. • River related activities: • Fishing. • Wildlife viewing. • Relationship to Nisga'a tribal lands increases meaningfulness (i.e. heritage values). • Undeveloped hotspring.	6	10	10
5	Shames/ Exstew	Regionally and locally scarce. Accessible. Complimentary to international users and destination to regional/local users. • Scenic valleys. Some are relatively unaltered. • Boating, canoeing, beginning kayaking. • Fishing. • Touring.	7	1	3

		• Ridges: • Shames Mountain offers high regionally significant ski touring opportunities. • Ski mountaineering opportunities. • Downhill skiing near community.			

Poly #	Descriptive Name	Discussion	Rank		
			Prov	Reg	Local
6	Kitsumkalum to Kitimat	Provincially, regionally and locally scarce. Destination features but also compliments surrounding regions. High degree of accessibility important feature. • International and regional significance. • Variety of high quality opportunities adjacent to main population centres. • Lakes and rivers: • Fishing International and Regional significance. • Kayaking (rivers with regional significance), boating, canoeing. • Wildlife viewing. Potential Kermode bear. • Alpine, subalpine. • Trail access. • Hotsprings. • Resort.	1	5	1
7a 7b	Lower Skeena Upper Skeena	Regionally and locally scarce. Destination features for international users and complimentary for regional/local users. • Provincial and international significant fishing. • Rafting opportunities. • Heritage.	4	8	5
8	Copper River	Provincially, regionally and locally scarce. Destination but also used as complimentary feature for surrounding areas. • Regionally significant valley. • Fossil beds. • Canyon viewing. • High value kayaking opportunities. • Rock climbing. • Fishing. • Road approach to subalpine/alpine and Telkwa Pass.	5	2	2
9	Foch, Hawkesbury, Jesse	Locally scarce. Complimentary features. • Regionally significant marine interface area. Compliments international tourism opportunities	8	4	4

		nearby and provides alternative opportunities. • Foch Lagoon offers very high scenic values. • Channels offer high marine mammal viewing and fishing opportunities. • Heritage values (paintings). • Local features (Jesse Falls). • Hotsprings. • Anchorage.			
10a 10b	Kitimat - Kemano Brim River	Regionally and locally scarce. Complimentary features. • Regionally significant values at estuaries (fishing, wildlife). • Scenic values Kildala River and Kemano Pass. • River recreation. • Offroad potential (ATV, mountain bike). • Undeveloped hotsprings. • Coastal opportunities.	10	7	9

NB - polygons are ranked against each other with 1 being the highest rank and 10 being the lowest.

3 SUMMARY OF TOURISM RESOURCE ISSUES

Tourism resource issues expressed by individual tourism operators on the survey or at the meetings are summarized below. It is important to note that the issues described in this report are not all inclusive. They represent a 'picture in time' view from the operators who participated in this study. They are presented in non-prioritized order.

Tourism in the Region:

In general there is concern that the government is not providing adequate promotion of tourism in the Region.

- "Of course our use of the Nass valley is in question. It is one of the few areas where the government has spent money promoting and upgrading and we can't use it. For example: Crater Lake and the lava beds.
- I have seen other tourist companies go under and ours will be another shortly because of the lack of tourists who stay here long enough to find tourist-based activities. My wish would be fewer surveys and more money spent encouraging tourism in this area. This is a beautiful area and I feel this could be a full time occupation for myself and my husband but nobody will see it but us locals."
- Advertising and co-ordinated marketing needed for the area.
- Suffering heavily due to lack of interest and lack of client base in the Northwest, as well as failure to attract tourists from outside of the District as many other hills in BC do.

Recreation and Tourism Development:

Operators are expecting the government to develop infrastructure to support the tourism industry, such as trails, campsites, and public sanitation facilities.

- Hartley Bay as a major overnight moorage site in future for all water activity in district heading to open water-if properly developed
- Kalum Lake (limited ramps to lake)
- Future considerations for facilities i.e. outhouses in and around base of Copper Mt. climbing area
- I think a lot more could be utilized down the channels if trails and camping were more accessible by boat.
- " I would like to develop hiking trails, horse trails, and cross country ski trails but am unaware of constraints I might face, and procedures I should follow in order to accomplish those goals. If you could send me the appropriate information I would be most appreciative."
- Marked and maintained hiking trails - like at Banff etc., with appropriate mapping and promotion."
- Tourism infrastructures that would be helpful in fostering outdoor based non-motorized activities.
- Not enough campsites along Kitimat River

Promoting Rock Climbing:

- As the sport continues to experience growth and with the possibility of an indoor climbing gym being developed, need for reassessment of future requirements is a must".
- Climbing programs for youth with social/criminal problems ("Hoods in the Woods") are valuable methods of influencing youth's positive attitudes about themselves and their role in society. Would like to see these programs in this area. It is amazing what results from effectively offering someone a personal challenge , the likes of which they've never been exposed to before."

Communication:

Communication among government branches and effective dialogue between the government and tourism operators could be improved. Improvements in these areas are hoped to result in less bureaucracy.

Regulation of Operators:

Issues relating to licensing segments of the tourism industry and the Commercial Backcountry Recreation Tenure process.

- Is concerned that there is little or no regulation of insurance and business licensing for charter boats, which is resulting in too many boats vying for market.
- Concerns with exclusive & sole land use allocated to Last Frontier Heli-Skiing (8-13,000 sq. km); doesn't believe that we are seeing proper or fair multiple use of land an questions the land use process used to determine such allocations.

Timber Extraction:

The perception of naturalness is very important to tourists. Real and perceived damages resulting from harvesting operations may cause potential visitors to holiday elsewhere, either elsewhere in BC or outside of the province. Tourism is not seen as having an equal value as forestry and other industrial forest land used.

- Timber extraction is the single largest restraint for outdoor recreation in the KFD and is reflected in planning process.
- Concern of siltation caused by clearcutting
- Logging is a concern for visuals and runoffs are a concern.

Areas of Interest - Concerns for Visuals and Development:

Concerns for preserving the appearance of a natural state for a number of valleys, inlets and features. High profile areas (highway corridors, tourism facilities etc) are particularly import.

- Areas of operation include Foch to Miskatla Inlets. Concerns for natural state of these inlets.
- Particular emphasis on Foch Lagoon for viewscape importance.
- Preserve riparian areas along angling rivers (Zymoetz, Kalum, Mainstream Skeena, Kasiks, Exten and Kitimat).
- Scenic backdrops. Zymoetz has outstanding views.
- Kaisks Rivers (Views).
- Hotsprings are a focal point.
- Visual corridor along highways.

Logging Roads and Access:

Decommissioning roads and thus preventing access is an issue amongst recreationists. Developing roads into previously unroaded areas increases access and decreases the perception of wilderness among visiting tourists.

- Quit decommissioning the logging roads unless in extremely sensitive areas. They provide access for a huge range of recreational activities; it's pretty stupid to be destroying those assets.
- New logging roads increase access into what was previously wilderness areas which has a negative affect on tourism operations relying on the wilderness concept.

Fishing Concerns:

Amongst operators dependent on Coho, there is dissatisfaction and anger at the manner in which closures are imposed in a seemingly arbitrary manner that does not take into account the tourism operators dependence on the resource. Changing schedules affect the capability for operators to plan accordingly while at the same time negatively affecting the experience for arriving tourists.

- Coho closures are killing business.
- Loss of clientele due to fishing stop in the Skeena River.
- Loss of clientele due to fishing stop.

4. RESEARCH AND DATA COLLECTION

Geoscape Environmental Planners were responsible for developing the list of tourism operators, coordinating the mail-out survey (Appendix B), conducting survey follow-up, compiling the survey results, and organizing the public information meetings.

4.1 Operator List

A central focus of the study was to identify all businesses offering tourism-related services in the study area (including those based outside the study area). The list of known tourism operators was generated jointly by Geoscape and Clover Point Cartographics Ltd.. Sources include the 1996 Tourism Resource Inventory, the Ministry of Small Business, Tourism and Culture Publications (*1998 Accommodation Guide*, *1998 Bed and Breakfast Guide, 1998 Tourism Product Guide*), regional guidebooks and publications, Ministry of Environment, Lands and Parks Guide outfitter and Provincial Park Use Permits, the regional phone directory, names passed on by tourism operators and the local knowledge of Geoscape staff. In addition to researching names and addresses, attribute information such as the season of operation, fees, number of employees and activities and services offered were recorded from secondary sources where available. Attribute data was recorded using the schema established by the Ministry for similar projects.

4.2 Mail Out / Fax Survey

In order to record attributes regarding each tourism operator's facilities, capacity, resource needs, activities and use areas a user survey and map , developed by Clover Point Cartographics. Geoscape customized the survey for this project, which cab be found in Appendix B.

Methodology Flow Chart

Surveys were sent following an initial contact call to all operators on the list established. If the operator had participated in the 1996 survey, attempts were made to verify and update the information previously provided and ask questions relevant to this survey. Areas of operation were verified to establish pertinence to this survey for newly identified operators. The survey and relevant maps were then faxed or mailed. Telephone calls were followed a week later to remind the operator of the survey. In many cases charter operators or those operators in fixed locations were willing to do the interview over the telephone precluding the need for a survey mail-out. Once collected, attribute information was entered into a digital spreadsheet.

A total of 199 operators were initially identified. Forty percent of these were operators not identified in previous inventories. Twenty-five tourism operators appeared to be no longer in business. Ninety-nine operators responded to the surveys and interviews. Information regarding operators who did not participate in the survey was extracted from secondary sources. The deadline for a response was established for September 18, 1998.

Table 3 - Data Collection Responses

	Operators identified in 1996	Operators not previously identified			
Completed					
Guide charters	30	13	43		
Hotels, etc.	34	22	56		
	Completed			99	
Not in service (all)	19	6	25		
	Information verified				**124**
Attempted contacts					
Telephone	14	10	24		
Survey sent	18	9	27		
	Unsuccessful attempts			51	**51**
No contact Attempted					
Airline/ car rental / museum / art gallery	4	20	24		**24**
	Total # of operators identified				**199**

4.3 Other Contacts

Contact was maintained with tourism operators throughout the study via telephone, fax, electronic mail, site visits and meetings with sectoral representatives. To further determine suitability of the land base to support tourism development, non-commercial users were interviewed. This process provided additional information which outlined areas presently used for recreation.

4.4 Public Open House

An open house was held in Terrace on September 22, 1998. Although tourism operators were directly called and informed of the open houses attendance was relatively poor. Hard copy maps of the tourism capability models, information on how the models were created, and hardcopy maps displaying existing use and some of the resource data collected were available for viewing at each open house. The consultant team also verified the information known about tourism operator (address, phone etc.).

5 MAP COMPILATION

The digital base and resource maps used the Kalum Forest Recreation and Tourism Opportunities Study were provided by a number of sources. The digital files were revised as necessary to conform to the modified RIC standards. Database structures are found in Appendix C. All digital map files meet the following specifications:

Coordinate System: Albers

1st Standard Parallel 50 00 00

2nd Standard Parallel 58 30 00

Central Meridian 126 W

Latitude of Origin 45 00 00

False Easting 1000000

False Northing 0

Datum NAD83

Operational Scale 1:20,000

5.1 Map Sources

1. **TRIM Maps**

TRIM is used as the base against which all tourism and recreation resources are matched. The Kalum LRMP arranged for 366 1:20,000 TRIM mapsheets to be transferred to the contractor for use of this project. FME software was used to extract the layers listed below. A Digital Elevation Model (DEM) was generated from TRIM to assist in the capability modelling.

Base Map Layers

- Bridges
- Roads (all types)
- Trails
- Coastline
- Rivers, lakes & streams
- Glacier/Icefield
- Pipelines
- Transmission lines
- Rail lines
- DEM

Resource Layers

- Airfields
- Falls / rapids
- ExtractionSites (mines, pits, quarry, sand & gravel quarry)
- DesignatedAreas (dumps, settling ponds, built up areas, campground, golf course etc)

1.
2. **Ministry of Forests**

The Ministry of Forests, through the Kalum LRMP data centre, supplied the 1:20,000 forest cover and forest recreation inventory for the Kalum Timber Supply Area (TSA) and Tree Farm Licence (TFL) 1. Inventory data was not available in digital format for TFL 41. The Kalum TSA recreation inventory was completed in 1992 and updated in 1997; the Nass TSA (formerly Kalum North) was conducted in 1995; the TFL 1 recreation inventory was undertaken in 1997. Some gaps exist in the TSA coverage and there is some overlap between the TSA and TFL layers. Figure 3 shows the extent of forest service recreation feature coverage.

Codes from the TSA and TFL coverages were translated and significant recreation features and activities were identified and placed as point or line features into the FEATURE coverage. Features and activities reviewed include:

Activities

- 4x4ing
- Camping
- Canoeing
- Climbing/mountaineering
- Fishing
- Gathering
- Hiking
- Horseback riding
- Hunting
- Jetboating
- Kayaking/rafting
- Mountain biking
- Skiing
- Snowmobiling
- Viewing
- Wildlife viewing

Features

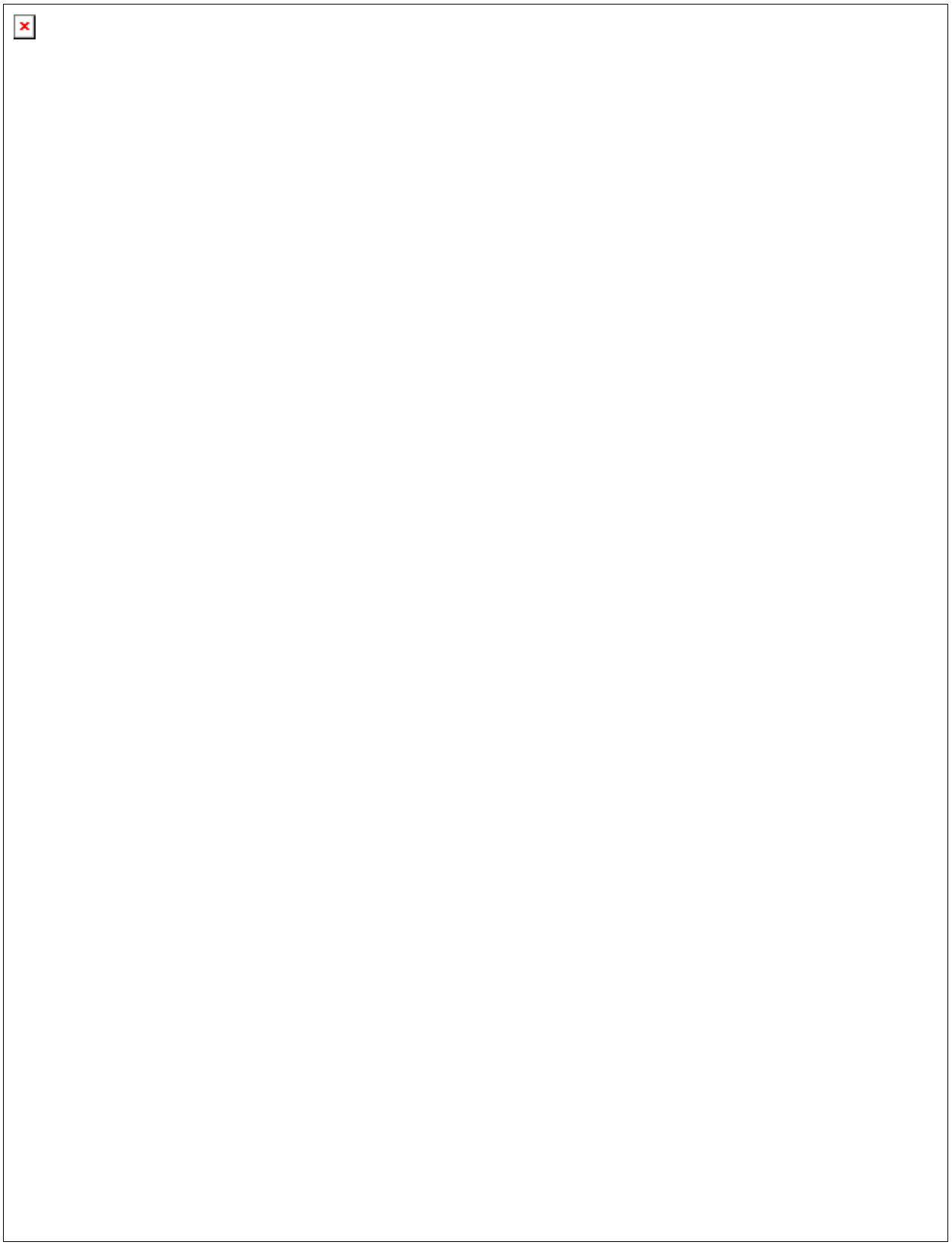
- Beach
- Canyon
- Estuary
- Fish run viewing site
- Fossil
- Volcano
- Waterfall/rapid
- Wildlife congregation

Several specific activities were separated out and used in the modelling process, as described in Section 6.2.3. The Ministry also provided access to files used to generate the study area boundary at a 1:20,000 scale.

1. **Ministry Small Business, Tourism and Culture**

The Ministry supplied access to the 1:250,000 Tourism Resource Inventory conducted for the Northwest in 1996. Layers included features, facilities, routes, use, viewscapes, airfields and landing strips, guide-outfitter territories, and scenic quality. Input sources and data quality information can be found in the *Northwest Tourism Resource Inventory User's Manual* (Nicolson, 1996). All coverages were clipped to the study area boundary and the feature, facility and route layers were matched to the TRIM basemap.

Figure 3 - Coverage of TSA and TFL 1 Recreation Inventory



The Ministry also supplied exposure, shoretype and coastal scenic files from the Coastal Tourism Resource Inventory Project (CTRIP). These files were generated in 1991 and used in the saltwater fishing tourism capability model. The shoretype file is also used to identify coastal estuaries and beaches for inclusion in the FEATURES coverage.

MSBTC supplied access to several other layers of digital data, for which they are not the primary custodians. All layers are accurate to 1:250,000 unless otherwise stated.

- Biogeoclimatic Zones (Ministry of Environment, Lands and Parks). This layer was subject to some intermediate processing described in Section 6.2.1.
- Transportation Centreline Network (Ministry of Transportation and Highways). This layer consists of highways, urban road networks with street names and addresses, and some backcountry roads. The coverage is accurate from 1:10,000 to 1:20,000 in urban areas and 1:50,000 to 1:250,000 in rural areas. Intermediate processing of this layer is described in Section 6.2.2.
- Digitally restructured provincial basemap (Ministry of Environment, Lands and Parks). Layers include lakes, rivers, double lined rivers, roads, cities, towns, and annotation. These files are used as background for small scale plot generation.
- Fish Information Summary System (FISS). This data was produced by the Ministry of Fisheries. Tourism worked with Fisheries staff to generate a GIS coverage which links the Fisheries Branch FISS data with the MELP watershed atlas (1:50,000) and identified species of interest for tourism. The database includes attribute data on freshwater fish species and provided the basis for the freshwater fishing model.

1. **Resource Management Division**

   The Resource Management Division (RMD) provided access to the biological and human use data collected for the Oil Spill Response Information System (OSRIS) during 1997/8 at scales varying from 1:40,000 to 1:250,000. Coastal bird habitat, seal haul-outs and colonies, fish escapement, anchorages, tourism facilities, moorage, coastal trails and marine routes were matched to the TRIM basemap and merged in to the FEATURE coverage or used as resource layers for modelling. Several other layers from OSRIS were reviewed (e.g. kelp presence, recreational sportfishing and crabbing, whale sightings) but found to contain no data in the study area.

2. **Kalum LRMP**

Several layers of data collected for the Kalum LRMP were used as part of the basemap, incorporated into the feature layer, or used as resource files for modelling. The LRMP also provided the Ministry of Forests data in ARC/INFO format. Supplied layers included:

- Class 1 and 2 angling waters (1:250,000 scale)
- Recreation sites for region 6 (1:250,000 scale)
- Protected Areas (1:250,000 to 1:50,000 scale)
- TSA and TFL Recreation Inventory (1:20,000)
- TSA Forest Cover (1:20,000)

1. **Secondary Published Sources**

Clover Point staff collected and reviewed reports, publications and hardcopy maps to identify features for the resource and existing use layers. Sources (full listings can be found in the Bibliography) include:

- Kalum Forest District Draft Recreation Management Strategy
- Kalum Land and Resource Management Plan Resource Atlas - Planning Unit Resource Values
- Salmon Glacier Self Guided Auto Tour
- Kalum Forest District Recreation Map
- Kalum Forest District Recreational Trail and Recreational Opportunities brochures
- Northwest British Columbia Travel and Recreation Guide
- West Fraser Mills/Skeena Sawmills TFL 41 Recreation sites and Road Map (Kitimat to Onion Lake)

2. **Base Map Layers**

   Two base maps are used in this project. The 1:20,000 basemap is developed from the TRIM mapsheets supplied. All existing use layers are matched to this base. The basemap consists of roads, railways, rivers, lakes, coastline and a DEM. The Transportation Centreline Network and Protected Areas coverages are used as basemap layers.

   The BC Lands 1:250,000 digitally restructured NTS base is used as a background layer for all small scale plots. This basemap was also used in the 1996 Northwest Tourism Resource Inventory and is fully described in the *Northwest TRI User's Manual* (Nicolson, 1996).

3. **Existing Use Mapping**

The following section describes the existing use mapping layers. These were either developed specifically for this project or taken from the 1996 Northwest Tourism Resource Inventory. Data from the 1996 TRI are matched to the new 1:20,000 TRIM base and had their database attributes updated. Database structures can be found in Appendix C.

1. **Air Bases**

   Air bases (***air_base.e00***), including airports, landing strips, heliports, and water aerodromes, were taken from the larger dataset developed for the Northwest TRI. Sources include the Canadian Flight Supplement, TRIM, 1:250,000 NTS mapsheets and the 1993 TRI. Database attributes, where known, include the management agency or organization, services and facilities, runway dimensions and the type of aircraft supported. Linework showing the planimetric area of the airfields are extracted from TRIM. This cover is included in the existing use mapping because air bases can function as staging areas for tourists from outside the region.

2.
3. **Guide-Outfitter Territories**

   The digital file of guide-outfitter territories (***guide.e00***) created for the 1996 TRI was supplied by MSBTC. Territory boundaries are not modified from the original files, but licensee information is updated. Database attributes include outfitter name and contact information and species hunted.

4. **Tourism Operator Database**

   There is one master database for all known tourism operators in the Kalum Forest District (***tour_op.dbf***). This database includes attribute (e.g. name, address, contact, season of operation, number of employees) and product information (e.g. type of operation, activities and services offered, facility descriptors) for each operator. A unique identifier (***tourcode***) has been assigned for all entries. This identifier can be used to link the operator information to facility, existing use or viewscape coverages. The ***source*** field identifies the main sources of attribute and activity information found during the research and preliminary data collection phase. Blank fields indicate that either no information is available or information is not applicable.

5. **Operator Facilities**

   Facility.e00 contains points representing the bases of operation for each operator. Facilities include accommodation, attractions, ski hills, and golf courses. Operators who offer outdoor activities such as fish guiding, hunting, river rafting, and hiking have their main base of operations captured as a facility point or have a point located in the community they operate out of. One point has been placed for each operator based on the

survey and map information supplied or on location descriptions from secondary sources. The accuracy of point placement can be determined through the ***base_quali*** field.

Table 4 - Rating Tourism Operator Facility Point Placement Accuracy

Rating ***(base_quali***)	Meaning
1	High quality - placed on actual ground location (survey map return or accurate secondary source)
2	Medium quality - placed near the correct location - unsure of actual ground location
3	Poor quality - placed in correct community but unknown ground location
4	Based outside of the study area

6. **Features**

Feature.e00 contains points and lines which represent locations of features or activity sites important to tourism operators and recreationists. Features include:

- geological/natural features (significant beaches, waterfalls, caves, and rock bluffs, areas frequented by wildlife),
- water features (rivers, waterfalls and hot springs),
- man-made features (campsites, sites of historic or cultural significance, boat launch), or
- activity sites (wildlife viewing sites, fishing, scuba diving, anchorages).

Forest service recreation sites are included as point features in this coverage. This coverage does not include heritage or archaeological sites unless they were explicitly identified as a tourism resource by a tourism operator or in one of the secondary sources.

The ***activity*** and ***feature*** fields contain information on the type of feature and/or activity each point and line represents. Feature and activity codes are found in Appendix C. With the exception of anchorages, features are not ranked nor is the accessibility of each feature evaluated. Anchorages (from RMD) are ranked according to the following table:

Table 5 - Rating Anchorages

RI	**Definition**
5	Excellent
4	Very Good
3	Good
2	Poor
1	Very Poor or Temporary Layover

(From RMD)

The ***source*** field indicates who identified the feature (tourism operators, secondary published source, field work). The

comments field provides additional information, such as the feature name or a description of the feature. In the case of forest service sites, the number of campsite is recorded in the comments field. The features file should not be considered comprehensive, although most major features and points of interest are captured.

Several operators may have indicated they use the same point in the features point file therefore a 'one-to-many' ***relate*** is necessary. The ***relate*** allows several operator ***tourcode***s to be associated with each feature point's unique identifier (***linkcode***). The ***relate*** requires that a ***link*** file be created. This ***link*** file (***feature.feature***) has two fields, the ***linkcode*** and ***tourcode***. If five operators identified the same feature point then the ***link*** file will contain five entries with the same ***linkcode***, each with a different ***tourcode***. A second ***relate*** can then be performed to attach operator attribute information from ***tour_op.dbf*** to each ***tourcode***. The link file relates to point features only - no link file was created for linear features in this coverage.

1. **Land and Water Routes and Trails**

   Route.e00 contains lines representing land or marine routes and trails (e.g. sea kayaking, boating, bus tours, 4x4 tours, hiking, mountain biking) identified by participants in the study or through reviewing secondary sources. Marine routes are mapped as single lines in the middle of channels used by marine traffic; these lines may not reflect the actual route taken but indicate that a particular channel is used for marine activities.

   Because the focus of this study was not to identify all trails and routes in the study area, it is likely that several existing trails are not identified. No analysis has been undertaken to determine the difficulty of a trail or route. The ***activity*** field contains one or more activity codes that describe the types of activity which the source has identified that the route supports.

   The ***relate*** allows several operator ***tourcodes*** to be associated with each trail/route's unique identifier (***linkcode***). The ***relate*** requires that a ***link*** file be created. This ***link*** file (***route.route***) has two fields, ***linkcode*** and ***tourcode***. If five operators identified the same trail/route then the ***link*** file will contain five entries with the same ***linkcode***, each with a different ***tourcode***. A second ***relate*** can be performed to attach operator attribute information from ***tour_op.dbf*** to each ***tourcode***.

2. **Use Areas**

   Use.e00 contains polygons that represent existing tourism operator use areas identified during this study. Each polygon contains an ***activity*** field with one or more activity codes identified by operators as occurring in that area. The ***comments*** field contains further information about each polygon. The coverage does not identify all tourism use areas as some operators declined to participate in this study.

   In many cases the use areas identified by operators overlapped. To allow delivery of a single coverage, each use area is digitized as an independent polygon and a series of ***overlays*** are performed. Intersections are created where use areas overlapped and attribute information from all overlapping polygons is placed in the resultant polygonal coverage. A 'one-to-many' ***relate*** can be performed to access information on which polygons are used by individual operators. The ***link*** table (***use.use***) contains two fields, ***linkcode*** and ***tourcode***. A second ***relate*** can be performed to attach operator attribute information from ***tour_op.dbf*** to each ***tourcode***.

   The coverage ***use_96tri.e00***. contains the tourism use areas identified in the Kalum Forest District during the 1996 Tourism Resource Inventory.

3. **Viewscapes**

No viewscapes were identified by participants for this study. The coverage ***view_96tri.e00*** contains the tourism viewscapes identified in the Kalum Forest District during the 1996 Tourism Resource Inventory.

6.

7. CAPABILITY MODELLING

Capability is defined as the ability of the natural and cultural resources to support a defined tourism product. Tourism/recreation capability map layers are generated through the analysis of natural resources, human resources and existing use map layers. To produce the maps, a series of models are developed which combine attributes determined to be the most important to the success of a specific product.

For each product a series of questions are applied to determine attributes which:

- Are essential to the viability of the product;
- Excludes an activity from occurring; and
- Modifies the quality of the product offered (either positively or negatively).

The selected attributes are then developed into the models. It should be noted that products are modelled for the capability of the land to support a given activity. Suitability considerations are not factored into the models. Therefore areas noted as having a high capability to support a certain activity might not be suitable for that activity to take place. Other social and environmental considerations such as carrying capacity, seasonality, safety and marketability are not considered in the digital modelling process. The models represent the digital data used and may not reflect reality. Instances where the models are inaccurate (through omissions, inclusions or inaccurate rankings) indicate that the existing use or resource map layers require modification or are a reflection of the buffering process. Model outputs were used to identify high tourism potential and recreation value polygons.

6.1 Model Selection

The decision of which products to model and which attributes to include in each model was made by the Interagency Planning Team in conjunction with tourism sector representatives. The system used to assess and rank tourism products is described below and follows the methods developed previously for MSBTC. Products were evaluated to determine which appear to offer the greatest potential for tourism development in the region. Evaluation criteria for the product selection includes:

- Resource considerations (quantity, quality, accessibility and seasonality);
- Market considerations (existing market, trends in tourism/recreation, potential market and geographic market); and
- Economic considerations (job creation, job duration/seasonality, revenue and employment income).

The tourism products are broken into the following five broad based groups:

- snow based / winter outdoor activities;
- water based outdoor activities;
- land based, non-motorized outdoor activities;
- touring activities; and
- facility based services.

Each of the products should be rated against the evaluation criteria where:

0 = Not available

1 = Poor / Low

2 = Average

3 = Good

4 = Excellent

Table 6 defines the evaluation criteria. Each are deemed to be of equal value (unweighted) so as not to skew the evaluation towards any single product or product group. While the selection of the criteria and ranks assigned are subjective and rely on the knowledge of the subject by the evaluator, the system is designed to be consistent throughout the range of products. Furthermore, it allows a large amount of subjective information about each product to be summarized concisely and systematically.

The evaluation results for each product are averaged and recorded in Table 7. The higher the number in the Total Score, the greater the tourism potential for each product. The selection of the final **ten** products for modelling is based on further analysis of a number of issues, including:

- Existing level of activity/service for the product;
- Business development opportunities, or the ease of developing a business based around a particular product. Related factors include future growth of the product and quality of resources; and
- Data needs and digital data availability.

Based on the analysis above, the following products/activities were selected:

- freshwater fishing
- hiking
- lodge/resort
- mountain biking
- nature/wildlife viewing
- river kayaking
- saltwater fishing
- ski touring / backcountry skiing / heli-skiing
- snowmobiling
- two wheel drive road touring

Table 6 - Definitions of Tourism Product Evaluation Criteria

Evaluation Criteria	Definition
Resource Criteria:	
Quantity	Does the resource exist? How extensive is the resource base? What is the ability of the resource base to support each product?
Quality	What is the quality of the resource from a tourism perspective?
Accessibility	How accessible is the resource for this product usage? Distance from population centre? Transportation to resource? Terrain. Safety. Appropriate access for product?
Seasonality	How many months can the product be utilized?
Market Criteria:	
Existing Market	How often is the product utilized for tourism in the region today? How important is the product in relation to other products offered in the region?
Trends in Tourism	How does this product relates to local, regional & national trends in tourism activity participation?
Potential Market	What is the potential of this product to attract additional visitors to the region

	or have visitors increase their stay? This criteria is dependent on resource quality, existing market and market trends.
Geographic Market	What is the "highest" visitor market to which this product appeals? In increasing importance these area 1) local, 2) Provincial, 3) border states and provinces, 4) remainder North America/International.
Economic Criteria:	
Job Creation	What is the likely job creation potential associated with expanding the market for this product?
Job Duration	What is the duration (weeks/months/full year) of jobs created to support this product? This criteria relates to resource seasonality.
Tourism Revenue	How much are tourists and recreationists willing to spend to participate in this activity? Is there potential to increase the actual per capita spending in the region on this activity?
Employment Income	How does this product contribute to the local economy in direct and spin-off jobs?

Table 7 - Product Evaluation Matrix

Tourism Product		Resource Criteria			Market Criteria				Economic Criteria			Total Score
	Quantity	Quality	Accessibility	Seasonality	Existing Market	Trends	Potential Market	Geographic Market	Job Creation	Job Duration	Tourism Revenue	Employment Income	
Snow Based:													
Alpine Skiing	3	3	2	2	1	3	2	2	3	2	2	2	27
Heli-Skiing	3	4	3	2	2	4	4	4	3	2	4	3	38
Nordic Skiing (x-country)	2	2	3	2	1	3	3	2	1	2	1	1	23
Ski Mountaineering	3	3	2	2	2	3	2	3	1	2	1	1	25
Snowmobiling	3	3	3	3	3	3	3	3	2	2	3	2	33
Water based:													
Beach Activities (e.g. swimming, surfing)	1	2	2	1	2	3	2	2	1	2	1	1	20
Freshwater Fishing	4	4	4	3	3	2	3	4	2	3	3	2	37
Ocean Kayaking / Canoeing	2	2	2	2	2	3	3	3	2	2	3	3	29
River Kayaking / Canoeing (whitewater)	3	3	3	3	1	3	3	3	2	3	2	2	31
River Rafting	3	3	3	3	2	2	2	2	2	3	3	3	31
Sailing / Power Boat Cruising (ocean)	3	2	3	2	3	3	3	3	1	2	2	1	28
Saltwater Fishing	3	3	3	2	3	2	3	3	2	2	3	3	32
Scuba Diving	2	3	3	2	2	2	3	3	1	2	2	2	27
Wildlife Viewing (marine based)	2	2	3	2	2	2	3	3	2	2	2	2	27
Land Based:													
Backpacking	4	4	3	2	3	3	4	4	2	2	2	2	35
Camping	4	4	3	2	3	3	3	3	1	2	2	2	32

Day Hiking	4	4	4	3	3	4	4	3	2	2	2	2	37
Golfing	1	2	3	2	2	3	3	2	3	2	3	2	28
Heli-Hiking	4	4	3	2	2	3	3	3	2	2	3	3	34
Hunting	4	3	3	2	3	1	2	4	2	2	3	3	32
Mineral Exploration / Collecting	2	2	3	2	2	2	1	2	1	2	1	1	21
Mountain Biking	3	3	3	2	2	3	3	3	2	2	2	2	30
Mountaineering	2	2	2	2	2	2	2	2	1	2	2	1	22
Natural History / Photography / Landscape View	3	4	4	3	3	4	4	3	2	3	2	2	37
Rock Climbing	2	3	3	2	1	3	3	2	1	2	1	1	24
Road Biking	3	3	3	2	2	3	3	3	2	2	2	2	30
Trail Riding	1	3	3	2	2	3	3	3	3	2	2	2	29
Wildlife Viewing (land based) (incl. birdwatching)	3	4	3	3	3	3	3	4	2	3	2	2	35
Touring:													
Air Touring (fixed wing/helicopter)	2	3	3	3	2	2	2	2	2	3	3	4	31
4x4 / ATV Touring	3	3	3	3	3	2	2	2	1	3	1	1	27
Automobile Touring (2 wheel drive / bus / van)	4	4	3	3	3	3	3	4	3	3	3	2	38
Marine Cruising (e.g. Cruise Ship)	2	3	3	2	1	2	2	2	0	2	1	1	21
Facility/Services:													
Accommodation (road access)	3	3	3	4	3	3	3	4	4	4	3	3	40
Lodge (remote access)	4	4	3	3	3	3	3	4	4	3	3	3	40
Heritage / Cultural Related	3	3	3	3	3	3	3	4	4	3	2	3	37
Events / Festivals	2	2	2	3	2	3	3	3	3	1	3	2	29

6.2 Intermediate Map Analysis

For some tourism products it was necessary to develop intermediate maps from the following input layers:

- biogeoclimatic mapping;
- road buffers;
- Forest Recreation Inventory sub-coverages;
- scenic quality;
- physiography; and
- features.

Because each of these models are complex and often apply to many tourism product models they have been described in this section instead of being included with the capability models.

1. **Biogeoclimatic Mapping**

   Biogeoclimatic ecosystem mapping is a hierarchical classification of the landscape into zones or units defined by variations in climate, vegetation and site conditions (geology, elevation and soils). Further information on biogeoclimatic zone classification can be found in *Ecosystems of British Columbia* (Meidinger and Pojar, 1991).

   Twenty biogeoclimatic subzones and variants exist in the study area. The approach taken was to collect climatic and other information about the biogeoclimatic zones and interpret that information to rank each subzone and

variant for their suitability for summer (hiking) and winter (ski touring and snowmobiling) activities.

Table 8 shows the baseline data and rankings for individual subzones and variants. Baseline data was extracted from Reynolds (1997) and the zonal summaries by Meidinger and Pojar (1991). The cut-offs used to develop ranks (Table 9) is based on the break points used in the previous TRI, but customized for the Kalum Forest District. Rankings range from 1 to 4. The lowest number reflects the least desirable characteristics. Higher numbers reflect increasing potential for a given attribute.

The weighting of attributes are displayed in Table 10. Weights assigned are subjective and based on the importance of an attribute in determining the potential of a particular recreational activity. The same weights are used for backcountry skiing and snowmobiling, while hiking uses a different set of weights.

Weighted attributes are summed (Table 11) for attributes deemed relevant for a given activity to generate an overall attribute score for each activity in each subzone or variant. For backcountry skiing and snowmobiling attributes 1-4, 7 and 8 are summed and for hiking attributes 4, 5 and 8 are summed. Summed attribute scores are divided into High (H), Medium (M), and Low (L) for summer and winter activities (Table 12).

Table 8 - Summary of climatic data/attribute scores used for developing ratings for biogeoclimatic subzones and variants.

BEC	Mean Annual Snowfall (cm)	Potential length of snow season (days)	Snow Moisture	Mean Temp of Coldest Month (C)	Mean Temp of Warmest Month (C)	Mean Summer Precipitation (cm)	Mean Winter Precipitation (cm)	Views/ openness
ALPINE TUNDRA (AT)								
AT p	551.4 / 4	262 / 4	moist / 3	-11.1 / 3	9.5 / 1	287.0 / 3	84.1 / 4	4
COASTAL WESTERN HEMLOCK (CWH)								
CWH vh 2	119.3 / 1	56 / 1	very wet / 1	2.1 / 4	13.8 / 3	762.2 / 1	379.7 / 2	1
CWH vm	no data / 2	no data / 1	very wet / 1	no data / 4	no data / 4	no data / 1	no data / 2	1
CWH vm 1	161.7 / 1	79 / 1	very wet / 1	0.3 / 4	16.0 / 4	574.6 / 1	440.5 / 1	1
CWH vm 2	578.7 / 4	no data / 2	very wet / 1	no data / 4	no data / 4	615.7 / 1	517.6 / 1	1
CWH wm	628.1 / 4	170 / 3	wet / 2	-7.7 / 4	14.4 / 4	501.9 / 1	323.7 / 2	1
CWH ws 1	424.6 / 3	152 / 2	wet / 2	-6.8 / 4	15.4 / 4	343.8 / 3	244.5 / 3	1
CWH ws 2	no data / 3	no data / 2	wet / 2	no data / 4	no data / 4	no data / 2	no data / 2	1
ENGELMANN SPRUCE - SUBALPINE FIR (ESSF)								
ESSF mc	no data / 4	no data / 3	moist / 3	-12.6 / 2	9.5 / 1	279.5 / 3	no data / 2	3
ESSF mk	1041.0 / 4	233 / 4	moist / 3	-9.1 / 4	11.3 / 2	398.5 / 2	297.4 / 2	3
ESSF wv	no data / 4	no data / 3	wet / 2	no data / 3	no data / 1	no data / 2	no data / 2	3
INTERIOR CEDAR - HEMLOCK (ICH)								
ICH mc 1	no data / 2	no data / 3	moist / 3	no data / 2	no data / 3	no data / 3	no data / 4	1
ICH mc 2	218.6 / 2	178 / 3	moist / 3	-10.2 / 3	14.9 / 3	281.6 / 3	95.6 / 4	1
ICH vc	no data / 3	no data / 3	very wet / 1	-12.6 / 2	13.8 / 3	249.6 / 3	no data / 4	1
MOUNTAIN HEMLOCK (MH)								
MH mm 1	818.4 / 4	165 / 3	moist / 3	-2.25 / 4	13.2 / 3	700.9 / 1	1404.8 / 1	2
MH mm 2	no data / 3	no data / 3	moist / 3	no data / 4	no data / 3	no data / 1	no data / 1	2
MH unr	no data / 3	no data / 3	no data / 2	no data / 4	no data / 3	no data / 1	no data / 1	2
MH wh 1	no data / 3	no data / 3	wet / 2	no data / 4	no data / 3	no data / 1	no data / 2	2
SUB-BOREAL SPRUCE (SBS)								
SBS mc	197.1 / 1	no data / 4	moist / 3	-13.3 / 2	12.3 / 2	261.4 / 3	66.0 / 4	1
SBS mc 2	237.1 / 2	213 / 3	moist / 3	-12.6 / 2	12.3 / 2	227.9 / 4	75.4 / 4	1

Table 9 - Attributes, attribute classes and unweighted attribute scores for assessing backcountry skiing, snowmobiling and hiking.

Attribute	Least Desirable			Most Desirable
1) Mean Annual Snowfall	**0** very low <199 cm	**1** low 200 to 349 cm	**2** medium 350 to 499 cm	**3** high >500 cm
2) Duration of Snow Season	**1** intermittent <99 days	**2** moderate 100 to 159 days	**3** persistent 160 to 219 days	**4** very persistent >220 days
3) Snow Moisture	**1** very wet climates	**2** wet climates	**3** moist climates	**4** dry climates
4) Mean Temperature of the Coldest Month	**1** very cold < -15.1 C	**2** cold -15.0 to -12.6 C	**3** very cool -12.5 to -10.1 C	**4** cool >-10.0 C
5) Mean Temperature of Warmest Month	**1** cold <11.2 C	**2** cool 11.3 to 13.2 C	**3** warm 13.3 to 14.9 C	**4** hot >15.0 C
6) Mean Summer Precipitation	**1** wet > 450 cm	**2** moist 350 to 449 cm	**3** dry 250 to 349 cm	**4** very dry <249 cm
7) Mean Winter Precipitation	**1** wet > 401 cm	**2** moist 251 to 400 cm	**3** dry 101 to 250 cm	**4** very dry <100 cm
8) Views/openness	**1** level terrain and lower slopes - views impeded	**2** middle and upper slopes - views impeded	**3** upper slopes and ridge crests - views slightly impeded	**4** upper slopes and peaks - views unimpeded

Table 10 - Weights for attributes

Attribute	Weight	Winter	Summer
1) Mean Annual Snowfall	6	*	
2) Duration of Snow Season	6	*	
3) Snow Moisture	3	*	
4) Mean Temperature of the Coldest Month	4	*	
5) Mean Temperature of Warmest Month	4		*
6) Mean Summer Precipitation	6		*
7) Mean Winter Precipitation	2	*	
8) Views/openness	8	*	*

Table 11 - Weighted ratings for attributes and summary attribute scores for backcountry skiing, snowmobiling and hiking.

BEC	Weight MAS	Weight PLSS	Weight SM	Weight MTCM	Weight MTWM	Weight MSP	Weight MPWM	Weight V/O	**Summed Weight Winter**	**Rank Winter**	**Summed Weight Hiking**	**Rank Hiking**

ALPINE TUNDRA (AT)												
AT p	24	24	9	12	4	18	8	32	109	H	54	H
COASTAL WESTERN HEMLOCK (CWH)												
CWH vh 2	6	6	3	16	12	6	4	8	43	L	26	L
CWH vm	12	6	3	16	16	6	4	8	49	L	30	L
CWH vm 1	6	6	3	16	16	6	2	8	41	L	30	L
CWH vm 2	24	12	3	16	16	6	2	8	65	M	30	M
CWH wm	24	18	6	16	16	6	4	8	76	M	30	M
CWH ws 1	18	12	6	16	16	18	6	8	66	M	42	M
CWH ws 2	18	12	6	16	16	12	4	8	64	L	36	L
ENGELMANN SPRUCE - SUBALPINE FIR (ESSF)												
ESSFmc	24	18	9	8	4	18	4	24	87	H	46	H
ESSFmk	24	24	9	16	8	12	4	24	101	H	44	H
ESSFwv	24	18	6	12	4	12	4	24	88	H	40	H
INTERIOR CEDAR - HEMLOCK (ICH)												
ICH mc 1	12	18	9	8	12	18	8	8	63	L	38	L
ICH mc 2	12	18	9	12	12	18	8	8	67	L	38	M
ICH vc	18	18	3	8	12	18	8	8	63	M	38	L
MOUNTAIN HEMLOCK (MH)												
MH mm 1	24	18	9	16	12	6	2	16	85	H	34	H
MH mm 2	18	18	9	16	12	6	2	16	79	M	34	M
MH unr	18	18	6	16	12	6	2	16	76	M	34	M
MH wh 1	18	18	6	16	12	6	4	16	78	H	34	M
SUB-BOREAL SPRUCE (SBS)												
SBS mc	6	24	9	8	8	18	8	8	63	L	34	L
SBS mc 2	12	18	9	8	8	24	8	8	63	L	40	L

Table 12 - Cut-off points for activity scores calculated in Table 11

Recreation Potential Rating	Symbol	Backcountry Skiing/Snowmobiling	Hiking
high	H	≥ 80	≥ 40
moderate	M	65-79	35-39
low	L	≤ 64	≤ 34

Climatic and Landscape Attribute Data Discussion

In general there is little climatic information available for biogeoclimatic units. Data is summarized on a zonal basis from specific stations which may not be located in the study area. This lack of information is one of the factors that has lead to the utilization of the biogeoclimatic approach, which uses vegetation to interpret regional climates. Several subzones and variants have no specific data for some or all attributes. Scores for their attribute class are estimated from information on related subzones or variants.

Mean annual snowfall and potential length of snow season are used to represent the overall suitability of subzone

of variant for snow related activities. Snow quality is considered of overriding importance for winter recreation, so is heavily weighted. Snow moisture is derived from the moisture code used to describe each subzone and is used as an estimate of snow quality. Dry snow is considered of greater value than wet snow. The mean winter precipitation denotes the chance of precipitation during the wettest month. Colder temperatures are generally considered to restrict certain winter activities. Therefore mean temperature of the coldest month is used to reflect the negative effects of very cold temperatures. Mean temperature is not heavily weighted as there is no firm data on what temperature is too cold to undertake an activity. Climatic factors are not weighted heavily as potential snow conditions because bad weather can be avoided and the climatic data is generally weak.

The mean temperature of the warmest month and mean summer precipitation are used as climatic factors to compare the suitability of subzones and variants for hiking. Precipitation is of greater concern to participants and is therefore given a higher weight. Warm, dry units are considered to be more desirable for summer activities than cold, damp subzones.

Views/openness is a qualitative attribute based on the zonal summaries by Meidinger and Pojar (1991). The attribute is a function of the forest cover and aesthetics and assumes that users enjoy the vistas available from increased elevation and openness of the forest cover. Non-forested and parkland forest is considered to have the greatest potential for all activities, as it provides the greatest views and degree of access to all terrain. Views are subject to the heaviest weighting in the model because of their importance to the activities.

The ratings and ranks found in Table 11 are constrained by the reliance on climatic data. Limited climatic data is available for the Northwest. Furthermore, the ability of a unit to support activities such as backcountry skiing is dependant on a number of additional factors such as snow stability, avalanche risk and road access. These factors would likely have a significant impact on the outcome of the models.

2. **Road Buffers**

Paved and major roads, as defined by the Transportation Centreline Network, were buffered by 2 km (*pvrd_buf.r00*) . The coverage is used as the primary input layer in paved road touring capability and as an exclusion in the backcountry skiing capability. Gravel roads, rail lines, pipelines, transmission lines and trails from TRIM were buffered by 1 km to create *gravbf.e00*. This coverage was merged with the paved road buffer to develop an access layer (*access.e00*). Access is used as a modifier in snowmobiling and river kayaking. *Access.e00* was itself buffered to generate a new coverage which highlighted all areas within 10 kilometres from any road feature (*access10.e00*). This coverage is used in the mountain biking capability model.

3. **Forest Recreation Inventory**

Activity codes in the TSA and TFL Forest Recreation Inventory (FRI) were used to isolate the activities and features listed below. Each activity was developed as a independent coverage and used as an input layer in the appropriate product capability model.

- freshwater fishing
- wildlife viewing
- wildlife presence
- skiing
- snowmobiling
- mountain biking
- glaciers
- general viewing (landscape)

1. **Scenic Quality**

The scenic coverage was developed for the 1996 Northwest Tourism Resource Inventory. A description of the input process used in 1996 is described below. Each polygon has the following attributes recorded from the perspective of the land-based user.

- alteration - degree and type;
- water influence and type;
- terrain height;
- general physiography;
- variety in topography;
- views; and
- scenic features

Degree of Alteration

The degree of alteration was determined for each scenic resource polygon by reviewing the satellite images. NTS mapsheets were used as a secondary source to confirm features such as roads, powerlines and mines. The degrees of alteration are described below. No visual difference between natural appearing and unaltered was found, therefore ***unaltered*** was not used to describe the degree of alteration. Ministry of Forests Visual Quality equivalents are written in brackets.

1. **intensively developed** (Excessive Modification/Maximum Modification) - highly concentrated, large, pre-green-up clearcuts; urban areas; industrial plants
2. **highly altered** (Modification) - clearcut logging; major gravel extraction, towns, urban fringe, extensive farming

3) moderately altered (Partial Retention) - sparse, small, clearcuts which have reached green-up; subdivisions; major roads; large powerlines; moderate farming

4) minor alteration (Retention) - scattered cabins; minor roads; trails; small powerlines; small or individual farms; small village outposts

5) natural appearing (Preservation) - no apparent human alteration; natural processes

9) no information available - no satellite image

Type of Alteration

The type of alteration was identified to the extent possible from the 1:250,000 scale satellite images and NTS mapsheets. Where more than one type of alteration occurred within a polygon, the types were listed from the most to least dominant occurrence, to a maximum of three types. The alteration types are as follows:

1) logging

2) agriculture

3) urban/residential

(including roads and trails)

4) natural appearing

5) mining

6) natural processes (e.g. fire)

Water Influence

The presence of water is generally considered to increase the visual quality of a landscape unit. The degree of water influence in each polygon was determined using the NTS mapsheets. The definitions of the degrees of water influence are listed below:

1. **low** - water not obvious in most of polygon
2. **moderate** - water evident in landscape throughout much of polygon
3. **high** - water dominant in landscape throughout most of polygon

Water Type

The type of water influences which activities can occur in a unit. The primary type of water in each polygon was identified from the NTS mapsheets. If two types were dominant, the water type with the higher scenic value was recorded. The order does not reflect a ranking of scenic value. The ratings of the dominant water type are as follows:

0) no water

1) small river or stream (single line)

2) large river (double line)

3) medium/large lake

4) small lake (and small rivers)

5) ocean or inlet

Terrain Height

The terrain height was classified as the difference between the highest and lowest elevations in a polygon, using the contour lines on the NTS mapsheets. Ranks are as follows:

1. **low** - less than 1000 feet (<300 meters)
2. **moderate** - between 1000 and 2500 feet (300 to 800 meters)
3. **high** - greater than 2500 feet (>800 meters)

Physiographic Description

The satellite images and NTS mapsheets were used to determine the general physiography of each polygon. The physiographic types are listed below:

1) mountains

2) valley

3) plateau/plain

5) hills

6) small island

Variety in Topography

Areas with greater variety of terrain are generally considered more scenic. The variety of the terrain within each polygon was assessed using primarily the NTS mapsheets. Vertical variation (e.g. variety in slopes) was considered, along with horizontal variation (e.g. meandering valleys, crenulated coastline). Topographic variety was rated as follows:

1. **low** - flat; little topographic variation or definition horizontally or vertically
2. **moderate** - rolling steep terrain; obvious peaks and valleys; generally horizontal or vertical variety
3. **high** - high topographic variation or definition; generally high horizontal and vertical variety; or an extreme level of variety in one dimension (e.g. archipelago with highly crenulated shoreline)

Views

The terrain and land cover on the satellite images were used to classify the extent of views within a polygon and out towards other polygons. The definitions are listed below:

1. **limited** - fairly enclosed views
2. **moderate** - some views of mid-ground and background
3. **excellent** - panoramic views within and/or outside of the polygon

Scenic Features

The scenic features within each polygon were recorded in the scenic resource attribute file. The number of alpine peaks and snow-capped mountain peaks were counted on the NTS mapsheets. An attempt was made to count each peak, and to maintain consistency as to which peaks were to be counted or not. However, these numbers should be interpreted as relative numbers of peaks per polygon as opposed to absolute quantities.

Special features such as glaciers, icefields and lava beds were recorded in a character field. The presence or absence of one or more special features in a polygon was also noted (with a 1 or a 0). The occurrence of rockbluffs in polygons was also counted. Dry landscape was indicated where there were no water features present in a polygon.

Scenic Quality Limitations

The quality of the data is limited by both the method used and the age of the satellite images. Rankings are subjective and no fieldwork verification has been undertaken. No information regarding the date of acquisition or quality of the satellite images was available, however the images pre-date the 1993 Tourism Resource Inventory.

Scenic Quality Intermediate Model

A four stage process was undertaken to develop an intermediate scenic quality model. The coverage is used for input in the freshwater fishing, hiking, mountain biking, nature touring, river kayaking and two-wheel drive touring capability models. Scenic quality is evaluated from the perspective of where it is, not where it is seen from. Therefore while an area directly beside a road may have a low scenic quality, high quality scenery may be visible from a point on the road. The influence of this quality scenery may not be reflected when evaluating the capability of the point on the road for two wheel drive road tours.

For stage one, a matrix was developed which determines the alteration value. The matrix is based on the assumption that the degree and type of alteration are the primary variables which affect scenic values. Relatively unaltered areas are rated low (3) while highly and moderately altered areas are rated higher.

Stage 1. Matrix - Value for Alteration			
		Alteration Degree	
Type of Alteration	**Intensively Developed / Highly Altered**	**Moderately Altered**	**Minor Alteration / Natural Appearing**
Logging / Industry	1	2	3
Agriculture	2	3	3
Urban / Residential	2	3	3
No Visible Alteration	-	-	3

The second stage incorporates the inherent characteristics of the scenery. The characteristics which were determined have the greatest influence of scenery are water influence and topographic variety. Water type, general physiography description, terrain height and views were not included in these calculations. The former two are general descriptions which relate to the type of activity which can occur, but not the scenic quality. The later two bias the scenery to high elevation areas, primarily in the alpine zone.

Stage 2. Matrix - Inherent Characteristics		

		Topographic Variety	
Water Influence	Low	Moderate	High
Low	1	1	2
Moderate	1	2	3
High	2	3	3

The third stage outlines the influence of the scenic features by merging the inherent characteristics (Stage 2) with feature density. Features include both those identified in the Scenic Quality coverage and those identified in the FRTOS project. Polygons which contain special features are automatically upgraded to a high number of features.

Stage 3. Matrix - Scenic Features			
		Feature Density	
Stage 2	Low (<0.002)	Moderate (0.05 - 0.002)	High (>0.05)
Low (1)	1	1	2
Moderate (2)	1	2	3
High (3)	2	3	3

The final stage of the intermediate scenic quality model merges the scenic features (stage 3) with the alteration value (stage 1). The result is a value of scenic quality.

Stage 4. Matrix - Scenic Quality			
		Alteration Value	
Stage 3	Low (1)	Moderate (2)	High (3)
Low (1)	L	L	M
Moderate (2)	L	M	H
High(3)	M	H	H

1.
2. **Physiography**

Slope and aspect have a significant effect on a number of tourism activities. Four of the products chosen for modelling (hiking, mountain biking, lodge / resort and ski touring / heli-skiing) are constrained or modified by slope considerations. Aspect is used in the later two models to further refine the output. Because slope and aspect added a significant degree of complexity to the resultant polygon outputs, each of the aforementioned models are run twice, once with those attributes and once without.

A 20 meter lattice was generated from the TRIM Digital Elevation Model for each of the 1:20,000 mapsheets. This lattice was in turn used to create a polygon coverage with the following slope ranges. An aspect coverage was also

generated from the lattice for each 1:20,000 mapsheet with the following aspect ranges.

Slope Ranges

- 0° to 20°
- 21° to 40°
- ≥ 41°

Aspect Ranges

- North (315° to 45°)
- South (225° to 135°)

The resultant coverages were clipped to their respective 1:20,000 neatline, appended together and then dissolved to remove the neatline between similar polygons. The size of each of the final coverages dictated that they be split into two: north and south. The end result was six coverages: Slope (northern half and southern half), Northern Aspect (northern half and southern half) and Southern Aspect (northern half and southern half).

1. **Features**

Different types of features can enhance the capability of an area to support tourism products. Each model contains a variety of feature variables, depending upon what is considered important for each product. Features, represented as points and lines, were extracted from the tourism activity and resource digital files collected and created for this project. In order to ensure that features would be visible at the mapping scale, and to account for the fact that the proximity to feature is an important aspect of tourism capability, point and line data is buffered by one kilometre, unless otherwise specified. The following table lists which features were included in each model.

Features

	Fresh water Fishing	Hiking / Back-packing	Lodge / Resort	Mountain Biking	Nature	River Kayaking	Saltwater Fishing	Ski tour / Heli - Skiing	Snow-mobiling	Two WD Road Touring
Biophysical										
Beach	✓	✓	✓ b		✓		✓			✓
Canyon/Gorge	Exc	✓		✓	✓	Exc				✓
Waterfalls		✓	✓ c	✓	✓	Exc	✓			✓
Rapids		✓		✓	✓	✓				✓
Hotspring	✓	✓	✓ a	✓	✓	✓	✓	✓	✓	✓
Estuary (500m buffer)	Exc	✓			✓	Exc	Exc			✓
Natural Feature - glacial/rock/volcanic/vegetative		✓	✓ b	✓	✓	✓		✓	✓	✓
Slope (degrees)		✓ (20-40)	✓ (20)	✓ (20-40)				✓ (20-40)		
Aspect N								✓		
Aspect S			✓							
Scenery (coastal)							✓			
Scenery (inland)	✓	✓		✓	✓	✓				✓
Viewing	✓	✓	✓	✓	✓	✓		✓		✓
Exposure							✓			
Biogeoclimatic		✓						✓	✓	
Ice Mass Edge		✓		✓						✓
Icefield/Glacier				Exc				✓	✓	

Snowfield (rec. inventory)								✓	✓	
Ocean Shoreline		✓	✓ c		✓					✓
Lake (>200 ha) or large river		✓	✓ c	✓	✓					✓
Lake/river (500m buffer)	✓					✓				
Heritage										
First Nations		✓	✓ c	✓	✓					✓
Post Contact		✓	✓ c	✓	✓					✓
Wildlife										
Birds	✓	✓			P2		✓			✓
Land Mammal		✓			P2					✓
Marine Mammal					P2		✓			
Fish										
Fish run view	✓	✓	✓ c	✓	P1					✓
Lake/river	P		✓ b							
Escapement					✓		P			
Use Feature										
Anchorage							✓			
Airfield / Helipad	A	A	A		A			A		
Campsite	✓	✓		✓	✓	✓				✓
Wildlife - Viewing	✓	✓	✓ b	✓	P1	✓				✓
Nature Appreciation		✓		✓	P2					
Picnic Area	✓	✓		✓	✓	✓				✓
Viewpoint		✓	✓ c	✓	✓	✓				✓
Kayak Routes						P				
Snowmobile Use									P	
Backcountry Ski Use								P		
Mountain Bike Use				P						
Fishing Use	P		✓ b				P			
Fishing Use (rec. inventory)	P						P			

✓ = Included as a feature (feature coverages for models)

A = Displayed as access information on plots

a, b, and c in Lodge/resort refer to feature class assigned

Exc = used as exclusion

P, P1 or P2 = Included in primary input layers for model

	Fresh water Fishing	Hiking / Back-packing	Lodge / Resort	Mountain Biking	Nature	River Kayaking	Saltwater Fishing	Ski tour / Heli - Skiing	Snow-mobiling	Two WD Road Touring
Facility										
Boat Launch	A				A	A	A			✓
Trails	A	P	✓ b	✓	A	A				✓

		A		A						
Cabins / Huts	✓	✓		✓				✓	✓	
Marina / Public Dock	✓		✓ b		A		✓ A			✓
Golf Course			✓ a							✓
Ski Facility			✓ a					✓		✓
Paved Roads				✓ (10 km)		✓		Exc	✓	✓
Gravel Roads				✓ (10 km)		✓			✓	
Capability										
Backcountry Ski (high/v. high)			✓							
Exclusion										
Urban			✓		✓			✓	✓	
Industry		✓	✓		✓			✓		
Ocean, large lakes or rivers		✓	✓	✓				✓	✓	✓
Ocean	✓					✓	✓			

✓ = Included as a feature (feature coverages for models)

A = Displayed as access information on plots

a, b, and c in Lodge/resort refer to feature class assigned

Exc = used as exclusion

P, P1 or P2 = Included in primary input layers for model

6.3 Capability Models

The following sections describes and illustrates the tourism capability models. For each of the models selected a series of questions are applied to determine attributes which:

- are essential to the viability of the product;
- physically excludes an activity from occurring;
- modifies (positively or negatively) the quality of the product offered; and
- allow access to an activity.

The results are discussed in the sections below. Access is generally shown on the capability models as a graphic layer. This can help in planning for tourism.

6.3.1 Freshwater Fishing Capability

This activity includes both single-day and multi-day guided and unguided fishing on lakes and rivers. Only areas within one kilometre of large lakes and rivers, as well as waterbodies known to contain sport fish, are considered in the model. Locations which receive regular, current use are rated high. Waters which contain sport fish are also rated high if the scenery is also good or there are other features present which support the activity. Supporting fishing features include beaches, areas of bird or wildlife congregation, campsites, and hotsprings. Access is provided by roads, trails and boat launches.

The model could be improved if more accurate data on target species location were available. The MELP FISS data was available for only a portion of the study area at the time the model was generated. Limitations to the scenic quality layer also effects the reliability of the model. The scenic layer is derived from early 1990's satellite data and is based mainly on the alteration characteristics. Therefore the dataset has a built in bias, with the higher scenic quality focused

away from the river valleys where the majority of the alteration has occurred. This bias is somewhat mitigated through the inclusion of water bodies which are known to receive regular fishing usage.

6.3.2 Hiking Capability

This activity includes day and overnight guided and unguided hiking and backpacking trips. Oriented towards the average hiker, the model does not include extreme conditions or mountaineering.

A primary determinant of hiking capability are the biogeoclimatic zones and scenic quality. Appropriate climatic conditions are considered of prime importance when determining the capability of an area to support hiking. The rationale behind the intermediate biogeoclimatic zone model is describe above.

Limitations to the scenic quality layer effects the reliability of the model. The scenic layer is derived from early 1990's satellite data and is based mainly on the alteration characteristics. Therefore the dataset has a built in bias, with the higher scenic quality focused away from the river valleys where the majority of the alteration has occurred. This bias is less of a concern for this model than others as users indicated that the most significant attractors include alpine lakes and ridges, areas which are perceived to be natural or that have wilderness qualities and trails or routes which lead to a destination feature or significant views. The highest scenic quality is generally found at higher elevations where there is little evidence of modification.

Slopes of less than 20 degrees and the presence of associated hiking features enhance the capability. Hiking/backpacking features include the shoreline of all major water bodies, canyons, glacier edges, waterfalls, hotsprings, wildlife viewing locations and wildlife areas, campsites, cabins/huts, and heritage sites. Weighting is not applied to highlight the importance of one type of feature over another for the hiking product. Urban areas and very steep slopes are excluded from consideration.

6.3.3 Lodge / Resort Capability

The lodge / resort model is processed in two stages: feature capability to support a resort development and site selection considerations. First, features and activities are divided into three classes. Each feature class is then buffered by 1, 5 and 20 kilometres. Polygons in each class are assigned a value which decreases as the distance from the feature or activity site increases (see table below). The principle behind assigning weighted feature classes and a distance decay factor is that certain features or activities have a greater attraction than others to visitors; visitors will travel greater distances to visit these features or participate in these activities. The greater the distance from the feature, the less "drawing power" that feature possesses. Tourism operators indicated that visitors will travel great distances to visit a unique natural or cultural feature such as a heritage site or hotspring. Facilities such as a golf course or ski hill will also attract users from greater distances, due to their scarcity in the region. Features in classes B and C are more likely to be used in tourism operations or recreational activities if they are closer in proximity to a higher class feature. Unless these B and C class features are regionally or provincially scarce, their importance towards enhancing the tourism potential decreases significantly as the distance from the feature increases. Feature/activity classed and their assigned values are shown in the table below.

Table 13 - Lodge/Resort Activity and Feature Class and Value

Class	Features and activities. Coverages containing:	1 km buffer value	5 km buffer value	20 km buffer value
A	• Golf Course, • Ski facility, • Hotspring	10	8	6

B	• Marina/Public Docks, • Trails, • Fishing Use, • Wildlife Viewing Use (point or area), • High and Very High Backcountry Skiing Capability • Beaches and Significant Natural Feature (Glacial, Volcanic, or Vegetative)	8	5	3
C	• Viewpoint, Waterfall, Fish Migration, Heritage Site • Ocean Shoreline, Major Lake or River,	5	3	1

The three buffered coverages for each class type (11 in total) are then merged and the resultant polygons assigned the highest class value. Next, the 11 coverages are merged together, their values summed and the resultant polygons assigned a value from very high to low based on the total polygon value. A histogram is used to identify natural breaks for classifying the feature values, shown below.

Sum of 11 feature/activity coverage values	**Assigned rank**
0	No feature capability
1-17	Low feature capability
18-28	Moderate feature capability
29-39	High feature capability
>40	Very high feature capability

The resultant coverage is then merged with site selection considerations, including slope and aspect, to derive the final model. Areas which fall on glaciers, steep slopes, or within the influence of urban areas or industrial sites are excluded from consideration. Sites with a southerly aspect are considered more favourable than ones with northerly aspects.

This model relies on several assumptions:

1. There are only three classes of features. Increasing the number of classes may increase the accuracy of the model.
2. Features are assigned into the correct class (A, B or C).
3. The value assigned to the buffer distances for each feature class is appropriate.
4. All features of the same class are equal in value. In reality each feature has a different potential draw to various types of visitors. One visitor may be very interested in a particular feature while another may have no interest. Furthermore, features from the same coverage (e.g. waterfalls) are not all of the same significance. No effort was made to rank the tourism or recreation significance of each feature.
5. The decay function is an accurate reflection of the real world. In reality some features may draw individuals from 100's of kilometres away while others have no "drawing power" beyond it's immediate vicinity.

6. A feature's location has a negligible influence on the value of a feature. In reality, access is an important component of a feature's overall tourism value. This concern is somewhat mitigated through the way the digital feature file was developed. Generally, the identified features and activities are ones which are accessible, noted by tourism operators, local recreationists, or are present on public domain maps.
7. Proximity has a negligible influence on the value of a feature. However, if features are clustered, the total sum of their value is greater than each of their individual values in isolation.

Factors which are not included in the model include the distance from a land or marine based access point (marina, airfield, paved road etc) and a minimum site size (5 hectares recommended).

6.3.4 Mountain Biking Capability

This activity includes both single and multi-day guided and unguided excursions. The model only addresses capability within ten kilometres of existing roads and trails. Scenic quality, appropriate slope and the presence of mountain biking features are the prime determinants of capability. Limitations to the scenic quality layer effects the reliability of the model. The scenic layer is derived from early 1990's satellite data and is based mainly on the alteration characteristics. Therefore the dataset has a built in bias, with the higher scenic quality focused away from the river valleys where the majority of the alteration has occurred. Scenic quality is of lesser importance for mountain biking than for other activities. In fact, once green-up has occurred, harvested areas are attractive sites for mountain biking due to the availability of road networks and trails.

Mountain biking features include the shoreline of all major water bodies, canyons, waterfalls, hotsprings, tidal rapids, wildlife viewing sites, campsites, cabins/huts, and heritage sites. Weighting is not applied to highlight the importance of one type of feature over another for the mountain biking product. Glaciers and waterbodies are excluded from consideration. Flat or steep areas may be less attractive to mountain bikers, but are not incorporated as negative capability influences.

6.3.5 Nature and Wildlife Viewing Capability

This activity include single and multi-day guided and unguided wildlife and nature viewing on the land or water. While the primary focus is on wildlife viewing, other natural and heritage features are also of interest. Areas identified as receiving current use for wildlife viewing are rated high. Areas likely to have wildlife are rated high if the scenery is attractive and relatively unmodified. Limitations to the scenic quality layer effects the reliability of the model. The scenic layer is derived from early 1990's satellite data and is based mainly on the alteration characteristics. Therefore the dataset has a built in bias, with the higher scenic quality focused away from the river valleys where the majority of the alteration has occurred. Natural features are not weighted towards those which have a greater likelihood than others to attract wildlife. All areas are classified as having some capability as there is a chance of seeing wildlife throughout the study area. Access is provided by boat launches, marina, public docks, roads and trails.

6.3.6 River Kayaking Capability

This activity include single and multi-day guided and unguided ocean excursions by kayak. Features such as rapids, beaches, special shoreline formations, waterfalls, hot springs, heritage sites and wildlife viewing locations improve the quality of the experience. Unmodified scenery increases the attractiveness of an area.

Limitations to the scenic quality layer effects the reliability of the model. The scenic layer is derived from early 1990's satellite data and is based mainly on the alteration characteristics. Therefore the dataset has a built in bias, with the higher scenic quality focused away from the river valleys where the majority of the alteration has occurred. The

importance of campsites, landing beaches and staging areas is not taken into account nor are different kayaking features weighted or ranked for importance. Travel distances from staging areas is an important factor in kayaking but is not incorporated into the capability model. Users recommend a 10 and 15 kilometre minimum route distance.

This model does not incorporate river classification, and therefore relies heavily on the FRTOS identification of kayaking use. Rivers which do not have identified use rely on the scenic quality and accessibility to determine capability. If river classification data becomes available, the model should be redeveloped. Rivers between class 2+ and 4 are considered optimum for river kayaking. Class 5 and up is considered to difficult and less than class 2 is not considered enough of a challenge.

6.3.7 Saltwater Fishing Capability

The salt water fishing capability model considers fishing and related marine activities. Only coastal areas within one kilometre of the shoreline are considered. Known fishing "hot-spots" and river mouths with recorded escapement are rated moderate to high, depending on the exposure regime. Other areas are rated from low to high depending on the exposure to wind and waves, scenic quality (as seen from the water) and presence of related features such as anchorages, heritage sites, beaches, estuaries, sea haul-outs or hotsprings. Features are not weighted or ranked for importance.

The model could be improved if more reliable exposure and scenic quality data became available. The datasets used in this model are small scale and date from the early 1990's. Data quality issues are somewhat mitigated through the inclusion of known fishing locations. The model is also slightly biased towards ranking polygons with higher rather than lower capability.

6.3.8 Ski Touring / Heli-skiing Capability

The ski touring / heli-skiing capability model considers primarily backcountry opportunities, both guided and unguided. Because the snow quality (depth, duration and dry verses wet), is the most important consideration for this activity, the model is driven by the biogeoclimatic intermediate model. More accurate information on snow quality would improve the precision of this model. The presence of backcountry skiing use, identified through the FRTOS project or in the TSA or TFL recreation inventories, is incorporated to highlight high capability areas. Glaciers and icefields are also used as indicators of high potential. Features such as hotsprings, viewpoints and other natural phenomena improve the quality of the experience. No attempt is made to rank skiing features or to place greater weight on one feature over another. The model does not incorporate the need to provide a mix of glacial and tree ski-runs within one heli-ski use area. The model also does not incorporate the 8000 to 10,000 minimum use area requirement identified for heli-ski operations.

Slopes which fall between 20 and 40 degrees are considered optimum for skiing. Lesser slopes, while important as approach routes for ski touring or backcountry skiing, are not optimum for heli-skiing and are therefore not incorporated into the model. Users indicated steeper slopes are also less desirable, primarily due to avalanche considerations and the degree of skill required to ski steeper slopes. Slopes with a northerly aspect are considered more desirable as they generally hold the snow base for longer and contain better quality snow than slopes with a southerly aspect. Waterbodies, urban areas, land within the paved road buffer and industrial areas are excluded from consideration.

The principle difference between these activities is related to access considerations. Heli-skiing requires slopes within 100 kilometres from a road accessible staging area. Aside from flying time, the distance to the use area and terrain between the staging and use areas is of little concern. Vast areas of seemingly pristine wilderness, or areas that provide the perception of being unaltered, are required. Heli-skiing generally begins and ends each day at a lodge based facility.

Backcountry skiing can involve single or multi day trips with overnight camping. The size of the potential area is less important but the approach distance is more critical than for heli-skiing. The activity involves skiing into an area

(usually on skins), climbing to the alpine or sub-alpine and skiing the bowls or areas between trees. Lodges or huts are considered to enhance the activity.The approach route should not contain steep slopes. Cross country skiing usually involves day trips over flat terrain and was not modelled for this project.

6.3.9 Snowmobiling Capability

Snowmobiling capability is based primarily on the biogeoclimatic intermediate model because snow conditions (depth, duration and dry verses wet) is the most important consideration. More accurate data on snow quality would improve the precision of this model. The capability of an area is enhanced by the presence of snowmobiling features, including hotsprings, glaciers and significant natural features. No attempt is made to rank snowmobiling features or to place greater weight on one feature over another. Users indicated that ridges and valley bottoms are important features for snowmobiling, although these factors were not suitably mapped for inclusion in the capability model.

Generally the activity is undertaken on a day-use basis and access to snowmobiling areas is a major factor when considering capability. Capability is considered higher for land areas within the road buffer (paved or gravel). Access information, such as which backcountry roads are plowed or maintained in the winter, was not available for inclusion when the model was run. Areas recorded during the FRTOS process as supporting snowmobiling use are incorporated into the model. Urban areas and waterbodies are excluded from consideration. Winter wildlife habitat should be excluded from consideration to avoid disturbing wildlife during the sensitive winter season.

6.3.10 Two-wheel Drive Road Touring Capability

The two wheel drive touring activity includes guided and unguided road touring using cars, vans, or buses. The model considers only areas within two kilometres of a paved or major gravel road. Major gravel roads include gravel highways and major industrial roads linked to the provincial transportation system and leading to a destination . All designated highways are considered paved roads.

Areas within the road buffer which contained a feature such as a canyon, a major river or lake, the shoreline, the edge of a glacier, waterfalls or rapids, hotsprings, estuaries or other natural features, wildlife or landscape viewing sites, designated heritage sites, campsites, boat launches, trails, or facilities such as marinas, golf courses or ski hills are designated as having high capability. The capability of areas without features is determined by the quality of the surrounding scenery.

The model could be improved through more accurate identification of 2 wheel drive accessible roads. For instance, roads where access is currently restricted due to bridge closures are included in the model. Several roads frequently used by 2-wheel drive vehicles, such as the industrial road up the Copper River, are not included in the model. Other roads, such as the Kitimat to Kemano route, are impassable but included in the model. The model could be further enhanced through ranking the significance of the automobile tour features. At present the model considers all features to be of equal importance.

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APPENDICES

Appendix A:

TOURISM OPERATORS

Appendix B:

CORRESPONDENCE

Appendix C:

Digital Files and Data Dictionary

All files delivered on the CD are listed below. The data dictionary only covers files developed or updated for this project (existing use and capability models). A data dictionary has not been compiled for intermediate files which were created for inclusion in the capability modelling.

Directory of D:\kalum_frtos\base20

Portion of 1:20,000 base map data used in project

name	file size	date	time	type	description
boundary.e00	1,151,674	12-31-98	4:17p	polygon	Study area boundary (Kalum Forest District) at 1:20,000
built_up.e00	50,183	10-15-98	3:39p	polygon	TRIM built-up areas
gravel.e00	17,087,403	12-31-98	4:44p	line	Gravel roads from TRIM
highway.e00	140,179	12-31-98	4:45p	line	Provincial highways in Kalum FD (from TCN)
k_tcn.e00	685,809	09-17-98	1:54p	line	Kalum portion of provincial road network (from Transportation Centreline Network - TCN)
park.e00	369,768	07-26-98	11:13a	polygon	Provincial parks and protected areas (from RMD)
rail.e00	463,330	12-09-98	6:00p	line	Railway from TRIM
transmis.e00	523,699	12-09-98	6:00p	line	Transmission lines from TRIM
ttrnpave.e00	3,845,627	12-31-98	5:03p	line	Paved roads from TRIM

- The 1:20,000 TRIM files used in this project are not included on CD.
- The 1:250,000 BC Lands digitally restructured NTS basemap was used to generate plots. These files are not included on CD.

Directory of D:\kalum_frtos\exist_use

Existing use data.

name	file size	date	time	type	description
air_base.e00	47,859	12-31-98	4:13p	point / line	Airport & landing strips, helicopter landing, water aerodromes
boundary.e00	1,151,674	12-31-98	4:17p	polygon	Study area boundary (Kalum Forest District) at 1:20,000
facility.e00	164,329	12-31-98	4:13p	point	Tourism operator bases
feature.e00	581,178	12-31-98	4:13p	point / line	Tourism features
guide.e00	112,490	12-31-98	4:13p	polygon	Guide-outfitter territories
potential.e00	304,861	01-20-99	9:55a	polygon	Tourism potential
route.e00	512,136	12-31-98	4:13p	line	Tourism routes used by land and water vehicles
tour_op.dbf	272,808	12-29-98	3:48p	dbf	Tourism operator database
use.e00	352,656	12-31-98	4:13p	polygon	Tourism operator existing use areas
use_96tri.e00	241,935	12-31-98	4:14p	polygon	Tourism operator existing use areas from 1996 TRI
view_96tri.e00	57,032	12-31-98	4:14p	polygon	Tourism operator existing viewscapes from 1996 TRI

Directory of D:\kalum_frtos\resource

Other information layers used in FRTOS

name	file size	date	time	type	description
b20k.e00	224,316	07-04-98	12:16p	polygon	1:20,000 BCGS grid covering Kalum FD
rec_tfl1.zip	1,594,803	10-05-98	8:43p	ZIP	Recreation Inventory for TFL 1
trec_ka.e00	23,943,339	10-14-98	10:33a	polygon	Recreation Inventory for Kalum TSA

rec_tfl1.zip contains the following:

rec_inv.e00	4,106,083	10-01-98	2:01p	polygon	Recreation Inventory for TFL 1
rec_op.e00	1,718,906	10-01-98	2:01p	polygon	ROS for TFL 1
vli_barr.e00	66,935	10-01-98	2:01p	line	Visual Landscape Inventory for TFL 1
vli_poly.e00	823,674	10-01-98	2:01p	polygon	Visual Landscape Inventory for TFL 1
vli_rp.e00	50,439	10-01-98	2:01p	point	Visual Landscape Inventory for TFL 1

Directory of D:\kalum_frtos\intermediate

Data used to generate capability models

name	file size	date	time	type	description
access.e00	965,775	01-12-99	10:34a	polygon	Paved and gravel buffer merged (1 km buffer)
access10.e00	190,243	01-12-99	10:34a	polygon	As above but with 10 km buffer
biogeo.e00	3,190,360	01-12-99	9:34a	polygon	Biogeoclimatic zones
birds.e00	34,927	01-12-99	9:32a	polygon	Bird polygons - nesting & staging areas
c_scenic.e00	156,601	09-17-98	11:37a	polygon	Scenic quality from CTRIP
coastbuf.e00	231,576	01-12-99	12:03p	polygon	Ocean shoreline buffered by 1 km
escapeme.e00	9,436	01-12-99	10:29a	point	Fisheries escapement at river mouth
estuary.e00	57,476	01-12-99	10:28a	polygon	Coastal estuaries
exc.e00	62,719	01-12-99	10:34a	polygon	Exclusions (mines, pits)
golffacil.e00	8,473	01-12-99	10:30a	point	Golf courses
gravbf.e00	803,623	01-12-99	10:28a	polygon	TRIM gravel roads, transmission lines, railway lines, pipelines, cut lines buffered by 1 km
ice_edge.e00	1,861,158	01-12-99	10:31a	polygon	Edge of glaciers (from TRIM) buffered by 1 km
icemass.zip	5,089,206	01-21-99	2:06p	ZIP	Zipped coverage of glaciers (from TRIM)
kcity.e00	19,163	01-12-99	12:04p	polygon	Built up areas (from 1:250K)
la_ri500.e00	16,608,971	01-12-99	8:58a	polygon	Lakes and rivers buffered by 500 meters
lake200.e00	5,522,711	01-12-99	10:30a	polygon	Lakes (1:250K) greater than 200 hectares
lake200b.e00	558,787	01-12-99	10:30a	polygon	As above buffered by 1 km

marina.e00	43,333	01-12-99	9:31a	point	Marinas
north.e00	604,257	01-12-99	8:54a	polygon	Northern clip coverage for models using slope or aspect
ocean.e00	1,318,704	01-12-99	12:04p	polygon	Ocean coastline - used to exclude ocean or land from models
pvrd_buf.e00	388,666	01-12-99	10:28a	polygon	Paved roads buffered by 2 km
ri500.e00	11,163,175	01-12-99	9:32a	polygon	Major (1:250K) rivers buffered by 500 meters
scen_view.e00	5,236,659	01-12-99	10:28a	polygon	Merged high scenic quality (from scenic.e00) and landscape viewing use from TSA and TFL recreation inventory
scenic.e00	1,831,520	12-31-98	5:02p	polygon	Scenic Quality
skifacil.e00	7,195	01-12-99	9:32a	point	Ski facilities
south.e00	552,108	01-12-99	8:54a	polygon	Southern clip coverage for models using slope or aspect
trailbuf.e00	337,188	01-12-99	10:29a	polygon	Trails buffered by 1 km
tsa_fish.e00	1,143,623	01-12-99	8:49a	polygon	Freshwater fishing use from TSA and TFL recreation inventory
tsa_glacier.e00	1,132,851	01-12-99	8:50a	polygon	Glaciers, icemass and snowfields from TSA and TFL recreation inventory
tsa_hiking.e00	1,940,808	01-12-99	8:50a	polygon	Hiking use from TSA and TFL recreation inventory
tsa_landm.e00	1,668,105	01-12-99	8:51a	polygon	Land mammal presence from TSA and TFL recreation inventory
tsa_mtnbike.e00	669,677	01-12-99	8:51a	polygon	Mountain biking from TSA and TFL recreation inventory
tsa_ski.e00	800,604	01-12-99	8:51a	polygon	Backcountry skiing from TSA and TFL recreation inventory
tsa_snowmo.e00	312,028	01-12-99	8:52a	polygon	Snowmobiling from TSA and TFL recreation inventory
tsa_view.e00	2,046,111	01-12-99	8:52a	polygon	Landscape viewing from TSA and TFL recreation inventory
tsa_wildv.e00	582,062	01-12-99	8:53a	polygon	Wildlife viewing from TSA and TFL recreation inventory
watbuf.e00	2,766,866	01-12-99	12:04p	polygon	trails with 3 km buffer (from TRAIL)
water.e00	911,899	01-12-99	12:04p	polygon	Merged coastbuf and la200b
waterx.e00	3,885,041	01-12-99	12:05p	polygon	merged ocean and lakes. Used to exclude water from models

icemass.zip contains

icemass.zip	21,578,964	01-12-99	10:33a	polygon	Glaciers (from TRIM)

Directory of C:\ARCMAPS\388-qci_model

Tourism capability models directories

name	file size	date	time	type	Description
ffish		01-21-99	9:08a	<DIR>	Directory for freshwater fishing capability
hike		01-21-99	11:55a	<DIR>	Directory for hiking / backpacking capability
lodge		01-21-99	11:55a	<DIR>	Directory for lodge / resort capability
mtnbk		01-21-99	11:56a	<DIR>	Directory for mountain biking capability
nature		01-21-99	11:55a	<DIR>	Directory for nature and wildlife viewing capability
rdtour		01-21-99	11:56a	<DIR>	Directory for 2 wheel drive road touring capability
rkayak		01-21-99	11:56a	<DIR>	Directory for river kayaking capability
sfish		01-21-99	11:56a	<DIR>	Directory for salt water fishing and marine activities capability
ski		01-21-99	11:56a	<DIR>	Directory for backcountry skiing capability
snowmo		01-21-99	11:56a	<DIR>	Directory for snowmobiling capability

Directory of D:\kalum_frtos\models\ffish

Freshwater fishing capability model & data

name	file size	date	time	type	description
c_ffish.e00	**13,180,901**	**11-20-98**	**3:41p**	**polygon**	**Capability for freshwater fishing**
e_ffish.e00	60,531	11-20-98	3:48p	point/line	Exclusion for freshwater fishing from FEATURE coverage
f_ffish.e00	86,355	11-20-98	3:48p	point/line	Features for freshwater fishing from FEATURE coverage
ffish.aml	3,603	11-20-98	3:07p	AML	AML used to generate freshwater fishing model
fishpres.e00	1,397,967	12-28-98	3:04p	polygon	MELP coverage of fish presence
p_ffish.e00	140,241	11-20-98	3:50p	point/line	Freshwater fishing use

Directory of D:\kalum_frtos\models\hike

Hiking/backpacking capability model & data

name	file size	date	time	type	description
c_hike.zip	79,772,991	01-21-99	10:35a	ZIP	Capability for hiking/backpacking (with slope for north and south)
c_hike.e00	**17,451,882**	**12-04-98**	**10:13a**	**polygon**	**Capability for hiking/backpacking (without slope)**
f_hike.e00	682,013	11-18-98	10:04a	point/line	Features for hiking from FEATURE coverage
hike_n.aml	1,858	12-28-98	2:29p	AML	AML used to generate hiking model without slope
hike_s.aml	1,853	12-28-98	3:39p	AML	AML used to generate hiking model with slope for southern study area
hiking.aml	3,796	12-04-98	9:15a	AML	AML used to generate hiking model with slope for northern study area

c_hike.zip contains

c_hike_n.e00	**289,848,608**	**12-28-98**	**10:48p**	**polygon**	**Capability for hiking/backpacking (with slope for north)**
c_hike_s.e00	**403,265,381**	**12-29-98**	**7:55a**	**polygon**	**Capability for hiking/backpacking (with slope for south)**

Directory of D:\kalum_frtos\models\lodge

Lodge/resort capability model & data

name	file size	date	time	type	description
c_lodge.zip	96,248,815	01-21-99	11:34a	ZIP	Capability for lodge (with slope & aspect for north and south)
c_lodge.e00	**40,322,086**	**12-29-98**	**1:51p**	**polygon**	**Capability for lodge (without slope or aspect)**
f_lodgea.e00	11,076	11-18-98	10:05a	point	"A" class features for lodge from FEATURE coverage
f_lodgeb.e00	219,629	11-18-98	10:05a	point/line	"B" class features for lodge from FEATURE coverage
f_lodgec.e00	235,143	11-18-98	10:05a	point/line	"C" class features for lodge from FEATURE coverage
feature.zip	6,693,597	01-21-99	2:09p	ZIP	Buffered A, B, & C class features combined for feature capability
lodge.aml	1,512	12-09-98	3:53p	AML	AML used to generate lodge capability (no slope or aspect). Based on FEATURE coverage
lodge_a1.aml	588	12-17-98	8:19a	AML	AML used to generate lodge capability. Merging aspect and calculations for southern portion of study area
lodge_a2.aml	587	12-17-98	8:18a	AML	AML used to generate lodge capability. Merging aspect and calculations for northern portion of study area
lodge_f.aml	10,387	12-08-98	8:35a	AML	AML used to generate feature capability component of lodge model
lodge_n.aml	484	12-17-98	8:15a	AML	AML used to generate lodge capability. Merging slope and calculations for southern portion of study area
lodge_s.aml	488	12-17-98	8:16a	AML	AML used to generate lodge capability. Merging slope and calculations for northern portion of study area

c_lodge.zip contains

c_res_n.e00	**448,439,292**	**12-29-98**	**12:43p**	**polygon**	**Capability for lodge (with slope & aspect for north)**
c_res_s.e00	**359,347,933**	**12-29-98**	**1:46p**	**polygon**	**Capability for lodge (with slope & aspect for south)**

feature.zip contains

feature.e00	29,126,955	12-23-98	9:20a	polygon	Feature capability component of lodge model

Directory of D:\kalum_frtos\models\mtnbike

Mountain biking capability model & data

name	file size	date	time	type	description

bk_n_s.aml	2,239	12-28-98	2:31p	AML	AML adds in slope to mountain biking model for north & south areas
c_mtnbike.e00	**23,183,745**	**01-21-99**	**12:30p**	**polygon**	**Capability for mountain biking (without slope)**
c_mtnbike.zip	32,299,596	01-21-99	11:27a	ZIP	Capability for mountain biking (with slope for north and south)
f_mb.e00	652,242	11-20-98	10:39a	point/line	Features for mountain biking from FEATURE coverage
mtnbike.aml	3,073	11-20-98	8:35a	AML	AML used to generate mountain biking model without slope
p_mb.e00	35,774	11-20-98	10:38a	line	Mountain bike use from ROUTE coverage

c_mtnbike.zip contains

c_mtbk_n.e00	**12,405,627**	**12-22-98**	**8:56a**	**polygon**	**Capability for mountain biking (with slope for north)**
c_mtbk_s.e00	**19,893,747**	**12-22-98**	**9:26a**	**polygon**	**Capability for mountain biking (with slope for south)**

Directory of D:\kalum_frtos\models\nature

Nature & wildlife viewing capability model & data

name	file size	date	time	type	description
c_nat.e00	**8,984,375**	**01-12-99**	**12:06p**	**polygon**	**Capability for nature & wildlife viewing**
nat.aml	3,459	11-18-98	5:38p	AML	AML for nature & wildlife viewing

Directory of D:\kalum_frtos\models\rdtour

Two wheel drive road touring capability model & data

name	file size	date	time	type	description
c_road.e00	**1,554,475**	**11-18-98**	**12:06p**	**polygon**	**Capability for 2 wheel drive tours capability**
f_road.e00	675,802	11-20-98	11:46a	point/line	Features for 2 wheel drive tours from FEATURE coverage
road.aml	3,958	11-18-98	11:48a	AML	AML for 2 wheel drive tours capability

Directory of D:\kalum_frtos\models\rkayak

River kayaking capability model & data

name	file size	date	time	type	description
c_kayak.e00	**13,129,900**	**11-20-98**	**11:58a**	**polygon**	**Capability for river kayaking**
e_kayak.e00	148,507	11-20-98	11:52a	point/line	Exclusions for river kayaking from FEATURE coverage
exc_kay.e00	5,534,253	11-19-98	4:51p	polygon	Exclusions (polygons) for river kayaking from FEATURE coverage
f_kayak.e00	440,288	11-20-98	11:51a	point/line	Features for river kayaking from FEATURE coverage
p_kayak.e00	145,907	11-20-98	11:56a	line	River kayaking use from ROUTE coverage
rkayak.aml	3,331	11-19-98	5:43p	AML	AML used to generate river kayaking model

Directory of D:\kalum_frtos\models\sfish

Salt water fishing and marine activities capability

model & data

name	file size	date	time	type	description
c_scenic.e00	252,983	11-20-98	12:15p	polygon	Coastal scenic quality from CTRIP
c_sfish.e00	**317,735**	**12-28-98**	**2:59p**	**polygon**	**Capability for salt water fishing**
e_sfish.e00	15,636	11-20-98	12:12p	point	Exclusions for salt water fishing from FEATURE coverage

f_sfish.e00	170,542	11-20-98	12:13p	point/line	Features for salt water fishing from FEATURE coverage
p_sfish.e00	162,503	11-20-98	12:13p	point/line	Salt water fishing use from FEATURE coverage
sfish.aml	3,282	11-19-98	7:13p	AML	AML used to generate salt water fishing model

Directory of D:\kalum_frtos\models\ski
Backcountry skiing capability model & data

name	file size	date	time	type	description
backski.aml	2,863	12-04-98	1:00p	AML	AML used to generate backcountry skiing model without slope & aspect
bkski_n.aml	1,469	12-16-98	6:07p	AML	AML used to generate backcountry skiing model with slope & aspect for N
bkski_s.aml	1,469	12-16-98	6:08p	AML	AML used to generate backcountry skiing model with slope & aspect for S
c_ski.e00	**6,898,160**	**12-28-98**	**3:31p**	**polygon**	**Capability for backcountry skiing without slope or aspect**
c_ski.zip	151,404,483	01-21-99	1:40p	ZIP	**Capability for** backcountry skiing with slope & aspect for north & south
f_ski.e00	20,057	11-18-98	10:04a	point/line	Features for backcountry skiing from FEATURE coverage
p_ski.e00	20,910	11-18-98	10:03a	line	Backcountry skiing use from ROUTE & FEATURE coverages

c_ski.zip contains

c_ski_n.e00	**347,889,970**	**12-21-98**	**9:55p**	**polygon**	**Capability for backcountry skiing (with slope & aspect for north)**
c_ski_s.e00	**359,347,933**	**12-22-98**	**10:02a**	**polygon**	**Capability for backcountry skiing (with slope & aspect for south)**

Directory of D:\kalum_frtos\models\snowmo
Snowmobiling capability model & data

name	file size	date	time	type	description
c_snow.e00	**8,705,828**	**12-04-98**	**12:58p**	**polygon**	**Capability for backcountry skiing without slope or aspect**
f_snowmo.e00	20,113	11-18-98	10:04a	point/line	Features for snowmobile capability from FEATURE coverage
p_snowmo.e00	12,244	11-18-98	10:03a	line	Snowmobiling use from ROUTE coverages
snowmo.aml	2,622	12-04-98	11:03a	AML	AML used to generate snowmobile model

NB Files in **BOLD** indicate capability models

The following files were developed for this project but not included on CD due to space restrictions:

Asp_n1.e00	114,073,564	12-21-98	10:51a	polygon	North Aspect for northern portion of study area
Asp_n2.e00	167,114,799	12-21-98	11:44a	polygon	North Aspect for southern portion of study area
Asp_s1.e00	113,537,451	12-29-98	3:40p	polygon	South Aspect for northern portion of study area
Asp_s2.e00	132,746,164	12-30-98	11:24a	polygon	South Aspect for southern portion of study area
Slope_n.e00	192,787,101	12-29-98	12:07p	polygon	Slope for northern portion of study area
Slope_s.e00	251,794,262	12-29-98	1:27p	polygon	Slope for southern portion of study area

Data Definitions/Codes for TOURTYPE

ACCOMMODATIONS

Codes	Value	Description
A01	Hotel	multi-unit, roofed, frontcountry accommodation
A02	Motel	multi-unit, roofed, frontcountry accommodation
A03	RV/Campground	non-roofed accommodation, front/mid/back country
A04	Lodge/Resort	roofed multi-unit, mid/back country
A05	Camps	backcountry, non-roofed
A06	Huts/Cabins	secondary facilities, roofed, backcountry (no road access)
A07	Cabins/Cottages	roofed individual units, road-accessible
A08	Guest Ranch/Farm	agricultural operation with accommodation
A09	Bed and Breakfast	private residence w/accommodation; owner on premises
A10	Condominiums	private residence w/accommodation; owner not on premises
A11	Hostel	multi-unit w/shared facilities; may share accommodation rooms
A12	Cruise Ship	mobile accommodation on scheduled runs, or charter vessel w/>12 units
A13	Vessel Lodge	non-moving vessel w/accommodations (location fixed for >14 days)
A14	Float Camp	non-moving vessel or other facility on water; has legal tenure
A15	Charter boats	moving vessel w/accommodation =<12 units
A16	Other accommodation	Accommodation types not defined

TOURS & EXPERIENCES

Codes	Value	Description
R01	Guide-outfitter	MoE tenured, licensed guides with designated territories
R02	River rafting	MoE tenured river rafters
R03	Marine charters, salt	includes fishing, nature and tours
R04	Marine charters, fresh	includes fishing, nature and tours
R05	Air tours/charters	includes flightseeing and transport sites
R06	Geology & Minerals	goldpanning, rockhounding, etc.
R07	Kayak/Canoe	paddle-powered vessels; flatwater, whitewater and marine
R08	Bus tours	scheduled and charter operations; includes land transport to sites
R09	Rail tours	scheduled and charter
R10	Hell/Cat ski/hike	transport assist by helicopter or snow-cat
R11	Hiking/Mountaineering/Nature	includes most nature viewing products
R12	SCUBA/snorkelling	all types of underwater explorations
R13	Caving/spelunking	all types of underground explorations
R14	Snowmobile	snow-machine-based activities
R15	Cycling	bicycle-based activities (touring, mountain trails, etc)
R16	Rock climbing	extreme rock products
R17	Horse and Trail	Equestrian and trail riding, all types of riding animals
R18	Ski touring	cross-country, telemark and touring by ski and dog sledging
R19	Other	Touring products not defined

R20	Car Rental	Automobile (car / van / bus) Rental operations

ATTRACTIONS		
Codes	**Value**	**Description**
T01	Museum	displays and Interprets artefacts of historic interest
T02	Arts/Culture/Heritage	displays/interprets items/events of arts/culture/heritage interest
T03	Recreation	offers opportunity to pursue recreation activity
T04	Industry	displays/interprets Industrial activity
T05	Winery/Brewery	displays/interprets wine/beer production processes
T06	Science/Technology	displays/interprets items of science/tech. interest
T07	Nature	displays/interprets natural features of interest
T08	Sports	offers opportunities for organized sports, general team sports
T09	Golf - public	golf course open to public
T10	Golf - private	golf course open only to members
T11	Golf-semi-private	golf course open to members and select public
T12	Marina - public	marina open to public and transient boaters
T13	Marina - private	marina not open to public or transient boaters
T14	Ski Facility	downhill ski facilities and other ski facilities
T15	Other	attraction types not defined
T16	Rental	Rentals other than automobile

Data Definitions/Codes for SERVICE

Restaurant	S01	Conference facility	S19
Coffee Shop	S02	Sani-dump	S20
Fine Dining	S03	Hook-ups	S21
Pub	S04	Showers	S22
Catering Services	S05	Laundry	S23
Other food services	S06	Child Care	S24
General/convenience store	S07	Playground	S25
Gift shop	S08	Data/net connections	S26
Grocery store	S09	Sauna/hot tub/jacuzzi	S27
Beer/wine/liquor sales	S10	Swimming pool	S28
Fuel	S11	Pay phone	S29
Activity-specific supplies	S12	Auxiliary sports facilities	S30
Equipment rentals	S13	Fitness facility	S31
Activity lessons	S14	Boat launch	S32
License sales	S15	Boat moorage	S33

Tour bookings	S16	Other accommodation service	S34
Marine/auto repairs	S17	Driving range	S35
Other supply/repair facilities	S18	Water supplied (marina)	S36

Data Definitions/Codes for ACTIVITIES

NB - copied from MoF Rec - version 2.1 98/10/09

	Air Sport Activities
A00	Air Sports, general
A01	Hang Gliding
A02	Paragliding
A05	Skydiving (*added by MSBTC)*
A06	Bungee Jumping (*added by MSBTC)*
A20	Flightseeing (*added by MSBTC)*

	Water Sport Activities
B00	Water Sports, general
B01	Beach Activities
B02	Boating (non-motorized)
B03	Canoeing
B04	Kayaking (river)
B05	Parasailing
B06	Rafting
B07	Sailing
B08	Scuba Diving / Skin Diving
B09	Snorkeling
B10	Surfing
B11	Swimming / Bathing
B12	Tubing
B13	Wind Surfing
B14	Water Sliding (*added by MSBTC)*
B15	Sea Kayaking (*added by MSBTC)*

	Snow Sport Activities
D00	Snow Sports, general
D01	Cross-country Skiing
D02	Dog Sledding
D03	Downhill Skiing
D04	Ice-skating

	Fishing Activities
F00	Fishing, general
F01	Sport Fishing (freshwater)
F02	Ice Fishing
F03	Shell Fishing (eg clams, crabs)
F20	Fly Fishing (*added by MSBTC)*
F21	Sport Fish (Saltwater) (*added by MSBTC)*

	Gathering / Collecting Activities
G00	Gathering / Collecting, general
G01	Beachcombing
G02	Berry Picking
G03	Fossil Hunting
G04	Mineral Panning
G05	Mushroom Picking
G06	Rock Hounding
G07	Vegetation Picking / Collecting

	Hunting Activities
H00	Hunting, general
H01	Large Game
H02	Small Game
H03	Target Shooting
H04	Upland Fowl (eg grouse)
H05	Waterfowl

	Summer Land Sport Activities
I00	Summer Land Sports, general
I01	Hiking / Backpacking
I02	Mountain Biking
I03	Horseback Riding
I04	Orienteering

D05	Ski touring
D06	Sledding / Tobogganing / Tubing
D07	Snow Boarding
D08	Snow Shoeing
D09	Telemark Skiing
	Exploring Activities
E00	Exploring, general
E01	Cave/spelunking
E02	Canyoning
I05	Survival Games
I06	Road bike Touring (*added by MSBTC)*
	Camping Activities
K00	Camping, general
K01	Cabin / Hut Use
K02	Cottaging
K03	Picnicking
K04	Summer Camping
K05	Snow / Winter Camping

	Motorized Activities
M00	Motorized Land Activities, general
M01	All-Terrain Vehicle (ATV)
M02	Trail-bike Riding
M03	Off-road Driving (4x4)
M04	Driving for pleasure (2WD)
M05	Snowmobiling
M06	Snow-cat Skiing
M07	Motor Water Activities, general
M08	Boating (motorized)
M09	Jet boating
M10	Water Skiing
M11	Flight Activities, general
M12	Helicopter Access
M13	Fixed-wing Access
M14	Heli-skiing
M15	Float plane access (*added by MSBTC)*
M16	Heli-hike (*added by MSBTC)*
M20	Go-carts (*added by MSBTC)*
M21	Race cars (*added by MSBTC)*
	Nature Activities
N00	Nature Activities, general
N01	Nature Study / Appreciation
N02	Photography / Drawing / Painting
N03	Relaxation / Contemplation
	Viewing Activities

	Other Activities
X01	Mini golf (*added by MSBTC)*
X02	Golf (*added by MSBTC)*

Q00	Viewing, general
Q01	Aquatic / Fish run
Q02	Astronomical / Meteorological
Q03	Big Tree
Q04	Bird Watching
Q05	Cultural / Historical
Q06	Large Land Mammal
Q07	Large Marine Mammal
Q08	Scenic
Q09	Wildlife
Q10	Petting Animals (*added by MSBTC)*
Q11	Animal Racing (*added by MSBTC)*
	Climbing
R00	Climbing, general
R01	Ice Climbing
R02	Mountaineering
R03	Rock Climbing
R04	Ski Mountaineering

Data Definitions/Codes for FEATURES

NB - copied from MoF Rec - version 2.1 98/10/09

Aquatic Flora/Fauna Features	
A00	Aquatic Flora / Fauna, general
A01	Fish
A02	Aquatic Habitat
A03	Aquatic Birds / Waterfowl
A04	Edible Aquatic Foods
A05	Marine Mammals, Large
A06	Marine Mammals, Small
Shore Features	
B00	Shore Features, general
B01	Shorelands
B02	Coastal Plain
B03	Crenulated Shore
B04	Delta
B05	Estuary
B06	Headland / Point / Cape

B07	Lagoon
B08	Rock or Sea Arch
B09	Rock Platform / Ledge
B10	Sand / Gravel bar
B11	Sea Cave / Shore Cave
B12	Sea Stack
B13	Spit or Hook
B14	Tidal Flat / Tidal Marsh
B15	Tombolo
B16	Beach, general
B17	Fine Textured Beach
B18	Sand Beach
B19	Pebble Beach
B20	Cobble Beach
B21	Rubble Beach
B22	Pocket Beach
B23	Raised Beach
B24	Offshore Feature, general
B25	Islets
B26	Island, small
Cultural Features (Modern)	
C00	Cultural Features, general
C01	Art
C02	Structural Feature
C03	Cultural Use Site
C04	Cultural Trail or Route
Hydrologic Features	
D00	Hydrologic Features, general
D01	Junction of Rivers / Streams
D02	Rapids and Chutes
D03	Riptides and Currents
D04	Springs, Thermal
D05	Springs, Freshwater
D06	Springs, Mineral

D07	Water Clarity
D08	Water Colour
D09	Waterfall, Site-Specific
D10	Waterfall, Landscape
D11	Waves
Vegetation Features	
E00	Vegetation Features, general
E01	Alpine / High sub-alpine
E02	Regenerating Stand
E03	Coniferous
E04	Deciduous
E05	Mixed Coniferous / Deciduous
E06	Forest Parkland
E07	Brush
E08	Wetland Vegetation
E09	Grassland
E10	Meadow / Open Space
E11	Pastoral / Agricultural
Glacial Features	
G00	Glacial Features, general
G01	Cirque / Cirque Basin
G02	Col
G03	Crevasse
G04	Drumlin
G05	Erratic
G06	Esker
G07	Glacial Outwash
G08	Glacial Trough ('U'-shaped Valley)
G09	Glacier
G10	Hanging Valley
G11	Horn / Matterhorn / Arete
G12	Ice Fall
G13	Ice Tunnel / Cave
G14	Icefield or Snowfield

G15	Kame / Kettle
G16	Moraine or Till (eg moraine ridge)
G17	Roche Mountonnee / Crag & Tail Hill
G18	Nunataks
Historic Features	
H00	Historic, general
H01	Art
H02	Structural Feature
H03	Traditional Use Site
H04	Traditional Use Route or Trail
Periglacial Feature	
J00	Periglacial Features, general
J01	Patterned Ground
Cave / Karst Feature	
K00	Cave / Karst Features, general
K01	Cave
K02	Sinkhole
K03	Limestone Plateau

Mass Movement Feature	
L00	Mass Movement Features, general
L01	Landslide / Rockslide / Avalanche
L02	Earth Slump
L03	Rock Fall / Topple (Colluvial, Talus, Scree Cones)
L04	Snow Avalanche
Waterbody Features	
M00	Waterbody Features, general
M01	Frequent Small Waterbodies
M02	Lake, Small (<40 ha)
M03	Lake, Mid-size (41-200 ha)
M04	Lake, Large (201-1000 ha)

M05	Lake, Very Large (> 1000 ha)
M06	Tarn
M07	Pro-glacial / Ice-dam Lake
M08	Oxbow
M09	Large River (double-line on 1:50,000)
M10	Anastamosing Channel (Fluvial)
M11	Meandering / Irregularly Sinuous Channel (Fluvial)
M12	Braided Channel (Fluvial)
M13	Small River, Stream or Creek
M14	River / Stream Deposits
M15	Cove or Bay
M16	Fjord
M17	Inlet
M18	Marine Channel
M19	Ocean, Open

Generic Landform Features	
Q00	Generic (Broad) Landform Features, general
Q01	Canyon / Gorge / Ravine
Q02	Cliff
Q03	Fan
Q04	Gully
Q05	Hill
Q06	Hoodoo
Q07	Hummocky / Rolling / Undulating Terrain
Q08	Mountain
Q09	Peak(s)
Q10	Plain
Q11	Plateau
Q12	Ridge
Q13	Sand Dune
Q14	Sidehill
Q15	Terrace
Q16	Topographic Pattern / Contrast
Q17	Valley

Bedrock Features	
R00	Bedrock Features, general
R01	Exposed Bedrock (subordinate)
R02	Exposed Internal Rock Structure (dominant)
R03	Mineral Deposits
R04	Fossils

Trail or Route Features	
T00	Trail or Route Features, general
T01	Developed Land Trail
T02	Developed Snow Trail
T03	Land Route
T04	Snow Route
T05	Water Route
T06	Water / Land Portage Route

Harbour Features	
U00	Harbour Features, general
U01	Large Harbour
U02	Protected Moorage
U03	Boat Launch (*added by MSBTC)*

Volcanic Features	
V00	Volcanic Features, general
V01	Columnar Basalt
V02	Cinder Cone
V03	Lava Flow
V04	Tuya

Wildlife Features	
W00	Wildlife Features, general

W01	Upland Bird
W02	Land Mammal, Small
W03	Land Mammal, Large
W04	Freshwater Mammal
W05	Wildlife Diversity
W06	Amphibian
W07	Reptile
Human-made Feature	
Y00	Human-made Features, general
Y01	Developed Campsite
Y02	Undeveloped Campsite
Yn	Human-made Features <number & name>
Miscellaneous Feature	
Xn	Miscellaneous Feature <number & name>

AIR_BASE / PAT.DBF

Layer: Points representing airfields, helicopter landing pads, and water aerodromes

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	reserved for ARC/INFO
5	PERIMETER	4	12	F	3	reserved for ARC/INFO
9	AIR_BASE#	4	5	B	-	reserved for ARC/INFO
13	AIR_BASE-ID	4	5	B	-	reserved for ARC/INFO
17	NAME	50	50	C	-	name of airfield or airport
67	PHONE	8	8	C	-	telephone number of operation
75	ELEVATION	4	4	I	-	elevation (m) above sea level
79	OPR	75	75	C	-	operator name (individual or organization)
154	PF	35	35	C	-	public facilities - space delimited • NONE or N/A (none or information not applicable) • 1 = telephone • 2 = food • 3 = taxi • 4 = medical facilities • 5 = accommodation • 6 = car rental
189	FUEL	1	1	C	-	fuel available (Y/N)
190	OIL	1	1	C	-	oil available (Y/N)
191	SERVICING	11	11	C	-	services available - space delimited

						• NONE of N/A (none or information not available) • 1 = storage available • 2 = servicing/minor repairs • 3 = major repairs • 4 = parking (extended term) • 5 = tie down facilities • 6 = plug in facilities
202	LONG_RUN	9	9	C	-	landing area dimensions
211	SURFACE	20	20	C	-	landing area surface
231	HELI	1	1	C	-	supports helicopters (Y/N)
232	SEAPLANE	1	1	C	-	supports seaplanes (Y/N)
233	PLANE	1	1	C	-	supports fixed wing aircraft (Y/N)
234	COMMENTS	254	254	C	-	general notes on feature
488	SOURCE	30	30	C	-	source for above information • 1993 TRI - 1993 Tourism Resource Inventory • FLIGHT SUPPLEMENT - *Canada Flight Supplement* • NTS XXXX - 1:250,000 NTS mapsheet • NW BC TRAVEL & RECREATION MAP • TRIM - 1:20,000 digital TRIM coverage

BIOGEO / PAT.DBF

Layer: Biogeoclimatic intermediate model

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	reserved for ARC/INFO
5	PERIMETER	4	12	F	3	reserved for ARC/INFO
9	BIOGEO#	4	5	B	-	reserved for ARC/INFO
13	BIOGEO-ID	4	5	B	-	reserved for ARC/INFO
17	BEC	10	10	C	-	biogeoclimatic ecological classification
27	ZONE	6	6	C	-	biogeoclimatic zone
33	SUBZONE_VA	13	13	C	-	biogeoclimatic subzone and variant
46	PLSS	8	8	C	-	probable length of snow season
54	MWS	5	5	C	-	months with snow
59	FFP	7	7	I	-	frost free period
66	RANK1	7	7	I	-	rank for mean probable length of snow season
73	WT_1__6#	4	5	B	-	weighted rank for probable length of snow season
77	MAS	9	9	C	-	mean annual snowfall
86	RANK2	7	7	I	-	rank for mean annual snowfall
93	WT_2__6#	4	5	B	-	weighted rank for mean annual snowfall
97	SM	9	9	C	-	snow moisture
106	RANK3	7	7	I	-	rank for snow moisture
113	WT_3__3#	4	5	B	-	weighted rank for snow moisture
117	V_O	4	4	I	-	views / openness
121	WT_4__8#	4	5	B	-	weighted rank for views / openness

125	MTCM	8	8	C	-	mean temperature coldest month
133	RANK5	7	7	I	-	rank for mean temperature coldest month
140	WT_5__4#	4	5	B	-	weighted rank for mean temperature coldest month
144	MTWM	8	8	C	-	mean temperature warmest month
152	RANK6	7	7	I	-	rank for mean temperature warmest month
159	WT_6__4#	4	5	B	-	weighted rank for mean temperature warmest month
163	TR	8	8	C	-	temperature regime
171	MSP	8	8	C	-	mean summer precipitation
179	MPDM	8	8	N	1	mean precipitation driest month
187	RANK7	7	7	I	-	rank mean summer precipitation
194	WT_7_6#	4	5	B	-	weighted rank mean summer precipitation
198	MPWM	7	7	N	1	mean precipitation wettest month
205	RANK8	7	7	I	-	rank mean wettest precipitation
212	WT_8__2#	4	5	B	-	weighted rank mean wettest precipitation
216	WILDLIFE	3	3	I	-	wildlife viewing potential
219	TA	3	3	I	-	terrain access
222	OLD_RANK_W	11	11	C	-	rank winter activities (1996 TRI)
233	OLD_RANK_S	11	11	C	-	rank summer activities (1996 TRI)
244	TOT_WIN	9	9	I	-	summed weight winter activities
253	RANK_WIN	11	11	C	-	rank winter activities
264	TOT_SUM	9	9	I	-	summed weight summer activities
273	RANK_SUM	11	11	C	-	rank summer activities

C_FFISH / PAT.DBF

Layer: Capability model for freshwater fishing

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_FFISH#	4	5	B	-	Reserved for ARC/INFO
21	C_FFISH-ID	4	5	B	-	Reserved for ARC/INFO
25	FFISHCAP	1	1	C	-	Capability for freshwater fishing

C_HIKE / PAT.DBF

Layer: Capability model for hiking (model generated without slope)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_HIKE#	4	5	B	-	Reserved for ARC/INFO
21	C_HIKE-ID	4	5	B	-	Reserved for ARC/INFO
25	HIKECAP	1	1	C	-	Capability for hiking (slope NOT included calculations)

C_HIKE_N / PAT.DBF

Layer: Capability model for hiking in northern Kalum FD (model generated with slope)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_HIKE_N#	4	5	B	-	Reserved for ARC/INFO
21	C_HIKE_N-ID	4	5	B	-	Reserved for ARC/INFO
25	HIKECAP	1	1	C	-	Capability for hiking (slope included calculations)

C_HIKE_S / PAT.DBF

Layer: Capability model for hiking southern Kalum FD (model generated with slope)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_HIKE_S#	4	5	B	-	Reserved for ARC/INFO
21	C_HIKE_S-ID	4	5	B	-	Reserved for ARC/INFO
25	HIKECAP	1	1	C	-	Capability for hiking (slope included calculations)

C_KAYAK / PAT.DBF

Layer: Capability model for river kayaking

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_KAYAK#	4	5	B	-	Reserved for ARC/INFO
21	C_KAYAK-ID	4	5	B	-	Reserved for ARC/INFO
25	KAYAKCAP	1	1	C	-	Capability for river kayaking

C_LODGE / PAT.DBF

Layer: Capability model for lodge/resort development (model generated without slope or aspect)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_LODGE#	4	5	B	-	Reserved for ARC/INFO
21	C_LODGE-ID	4	5	B	-	Reserved for ARC/INFO

25	C_LODGE	1	1	C	-	Capability for lodge/resort development (slope and aspect NOT included in calculations)

C_LODGE_N / PAT.DBF

Layer: Capability model for lodge/resort development in northern Kalum FD (model generated with slope and aspect)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_LODGE_N#	4	5	B	-	Reserved for ARC/INFO
21	C_LODGE_N-ID	4	5	B	-	Reserved for ARC/INFO
25	C_LODGE	1	1	C	-	Capability for lodge/resort development (slope and aspect included in calculations)

C_LODGE_S / PAT.DBF

Layer: Capability model for lodge/resort development in southern Kalum FD (model generated with slope and aspect)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_LODGE_S#	4	5	B	-	Reserved for ARC/INFO
21	C_LODGE_S-ID	4	5	B	-	Reserved for ARC/INFO
25	C_LODGE	1	1	C	-	Capability for lodge/resort development (slope and aspect included in calculations)

C_MTNBIKE / PAT.DBF

Layer: Capability model for mountain biking (model generated without slope)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_MTNBIKE#	4	5	B	-	Reserved for ARC/INFO
21	C_MTNBIKE-ID	4	5	B	-	Reserved for ARC/INFO
25	MTNBIKE	1	1	C	-	Capability for mountain biking (slope NOT included in calculations)

C_MTBK_N / PAT.DBF

Layer: Capability model for mountain biking in northern Kalum FD (model generated with slope)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_MTBK_N#	4	5	B	-	Reserved for ARC/INFO
21	C_MTBK_N-ID	4	5	B	-	Reserved for ARC/INFO
25	MTNBIKE2	1	1	C	-	Capability for mountain biking (slope included in calculations)

C_ MTBK _S / PAT.DBF

Layer: Capability model for mountain biking in southern Kalum FD (model generated with slope)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_MTBK_S#	4	5	B	-	Reserved for ARC/INFO
21	C_MTBK_S-ID	4	5	B	-	Reserved for ARC/INFO
25	MTNBIKE2	1	1	C	-	Capability for mountain biking (slope included in calculations)

C_NAT / PAT.DBF

Layer: Capability model for natural feature and wildlife viewing

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_NAT#	4	5	B	-	Reserved for ARC/INFO
21	C_NAT-ID	4	5	B	-	Reserved for ARC/INFO
25	NATCAP	1	1	C	-	Capability for natural feature and wildlife viewing

C_ROAD / PAT.DBF

Layer: Capability model for two-wheel drive road tours

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_ROAD#	4	5	B	-	Reserved for ARC/INFO
21	C_ROAD-ID	4	5	B	-	Reserved for ARC/INFO
25	ROADCAP	1	1	C	-	Capability for two-wheel drive road tours

C_SFISH / PAT.DBF

Layer: Capability model for salt water fishing and marine activities

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_SFISH#	4	5	B	-	Reserved for ARC/INFO
21	C_SFISH-ID	4	5	B	-	Reserved for ARC/INFO
25	SFISHCAP	1	1	C	-	Capability for salt water fishing and marine activities

C_SKI / PAT.DBF

Layer: Capability model for backcountry skiing (model generated without slope and aspect)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_SKI#	4	5	B	-	Reserved for ARC/INFO
21	C_SKI-ID	4	5	B	-	Reserved for ARC/INFO
25	BACKSKICAP	2	2	C	-	Capability for backcountry skiing (slope and aspect NOT included in calculations)

C_SKI_N / PAT.DBF

Layer: Capability model for backcountry skiing in northern Kalum FD (model generated with slope and aspect)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_SKI_N#	4	5	B	-	Reserved for ARC/INFO
21	C_SKI_N-ID	4	5	B	-	Reserved for ARC/INFO
25	C_SKI	1	1	C	-	Capability for backcountry skiing (slope and aspect included in calculations)

C_ SKI _S / PAT.DBF

Layer: Capability model for backcountry skiing in southern Kalum FD (model generated with slope and aspect)

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO

9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_SKI_S#	4	5	B	-	Reserved for ARC/INFO
21	C_SKI_S-ID	4	5	B	-	Reserved for ARC/INFO
25	C_SKI	1	1	C	-	Capability for backcountry skiing (slope and aspect included in calculations)

C_SNOW / PAT.DBF

Layer: Capability model for snowmobiling

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Reserved for ARC/INFO
9	PERIMETER	8	18	F	5	Reserved for ARC/INFO
17	C_SNOW#	4	5	B	-	Reserved for ARC/INFO
21	C_SNOW-ID	4	5	B	-	Reserved for ARC/INFO
25	SNOWCAP	1	1	C	-	Capability for snowmobiling

FACILITY / PAT.DBF

Layer: Tourism operators facilities or bases of operation

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	Reserved for ARC/INFO
5	PERIMETER	4	12	F	3	Reserved for ARC/INFO
9	KFACIL#	4	5	B	-	Reserved for ARC/INFO
13	KFACIL-ID	4	5	B	-	Reserved for ARC/INFO
17	TYPE	8	8	C	-	Type of FACILITY (for plots) • Accom - accommodation • Camp - RV park or campground • Charter - charter operator • Golf - golf course • Marina - marina facility • Museum - museum • REC - recreational or non-profit organization • Rental - car & equipment rentals • Ski - Ski Facility
25	TOURCODE	6	6	I	-	Unique identifier assigned by Ministry/contractor
31	BASE_QUALI	2	2	I	-	Accuracy of point location of facility on digital map 1 - high quality; exact location 2 - medium quality; approximate location 3 - low quality; in correct community 4 - operator based outside of study area
33	MAIL	3	3	C	-	C - contact attempt via telephone I - telephone interview N - did not attempt to contact / could not contact

						S - sent survey & telephone call - no response SR - returned survey
36	NAME	60	60	C	-	Name of the tourism operator / company
96	CONTACT	50	50	C	-	Name of contact person for operation
146	ADDRESS1	35	35	C	-	Mailing address
181	ADDRESS2	35	35	C	-	Physical address (if different than above)
216	CITY	25	25	C	-	City
241	PROV	2	2	C	-	Province
243	CODE	7	7	C	-	Postal code
250	PHONE1	12	12	C	-	Phone number (including area code)
262	PHONE2	12	12	C	-	Alternative phone number (including area code)
274	FAX	12	12	C	-	Fax number (including area code)
286	EMAIL	30	30	C	-	Email address
316	WEB_SITE	50	50	C	-	Web page address
366	LOCATION	50	50	C	-	Description of location of operation
416	TOURTYPE	20	20	C	-	Principal type of operation (**see tourtype codes above**) multiple entries - space delimited
436	ACTIVITIES	100	100	C	-	Listing of all activities **(see activity code sheet above)** Multiple entries - space delimited
536	SERVICES	100	100	C	-	Listing of all services **(see service codes above)** Multiple entries - space delimited
636	UNITS	4	4	C	-	Number of roofed sleeping units (rooms / beds / berths for charter boat operations)
640	SITES	4	4	C	-	Number of camping sites
644	RV	4	4	C	-	Number of RV sites (serviced)
648	BERTHS	4	4	C	-	Number of berths (overnight charter boats)
652	SEASON	24	24	C	-	Months of operation A - January g - July b - February h - August c - March i - September d - April j - October e - May k - November f - June l - December

676	USE	12	12	C	-	Level of use Season Use Level A - Summer (July-Aug.) 0 - Not available B - Fall (Sept-Nov.) 1 - Low (< 54% of capacity) C - Winter (Dec.-Mar.) 2 - Medium (55-84% of cap.) D - Spring (Apr.-June) 3 - High (> 85% of capacity)
688	DATE_KALUM	100	100	C	-	Dates of trips offered in Kalum FD in 1998

788	KALUM_PER	10	10	C	-	% of trips offered which take place in Kalum FD
798	GROUP_SIZE	15	15	C	-	Approximate size of groups on tour
813	GUIDE_PAR	15	15	C	-	Ratio of guides to participants
828	CLIENTS_97	40	40	C	-	Number of clients in 1997
868	EXP_98_CLI	40	40	C	-	Expected number of clients in 1998
908	DURATION	20	20	C	-	Length of excursion (in days)
928	FEES	100	100	C	-	Charge to participants for services or experience
1028	EMPLOYEE	20	20	C	-	Number of employees (full time year round/full time seasonal/part time year round/part time seasonal/total)
1048	KALUM_EMP	15	15	C	-	Number of employees from Kalum FD
1063	TENURE	100	100	C	-	Type of land tenure for operation
1163	PERMIT	2	2	C	-	Operator has a Park Use Permit (Y/N)
1165	SPECIES	30	30	C	-	Species hunted by guide-outfitter a - Black Bear g - Deer b - Grizzly Bear h - Elk c - Caribou i - Moose d - Cougar j - Mountain Sheep e - Mountain Goat k - Wolf f - Guided fishing x - Other
1195	MOORSLIPS	4	4	I	-	Number of moorage slips
1199	MOORFEET	4	4	I	-	Length of dock (in feet)
1203	HUTUSE	5	5	C	-	Day or night - hut/cabin available for day use or overnight use
1208	HUTACCESS	2	2	C	-	Available for public use (Y/N)
1210	VERTICAL	4	4	I	-	Vertical drop at ski hill (meters)
1214	RUNS	3	3	I	-	Number of runs at ski hill
1217	TRAMS	2	2	I	-	Number of tram and/or gondola lines at ski hill
1219	CHAIRS	2	2	I	-	Number of chair lifts at ski hill
1221	TOWS	2	2	I	-	Number of t-bars and/or rope tows at ski hill
1223	TRACK	6	6	I	-	Length of track set Nordic trails (kilometres)
1229	NOTRACK	6	6	I	-	Length of untracked Nordic trails (kilometres)
1235	HOLES	2	2	I	-	Number of holes at gold course
1237	PAR	2	2	I	-	Par of golf course from men's tee
1239	YARDS	5	5	I	-	Total yardage of golf course from men's tee
1244	COMMENTS	254	254	C	-	Additional notes regarding the operation
1498	UPDATE	8	10	D	-	Date last updated
1506	SOURCE	30	30	C	-	Main source of information (how was operator located) 1996 SURVEY - 1996 Tourism Resource Inventory BROCHURE - Company brochure COFFEE NEWS NEWSLETTER - Community advert. CONNECTIONS MAG - Community advert. FIELD - Found during field work GUIDE/OUTFITTER - Licensed MoE Guide Outfitter

						OSRIS - RMD Oil Spill Response Information System OUTDOOR/ADVENTURE GUIDE - Community advert POLK - POLK Directory TEL - BC Telephone Directory TOUR-INFO - Tourist Information Centre Web page
1536	DISTRICT	20	20	C	-	Ministry of Forest District
1556	REGION	15	15	C	-	Ministry of Forest Region
1571	LANDCODE	4	4	I	-	Unique ID for linking to BC Lands Commercial Backcountry Recreation Inventory (where applicable)

FEATURE / AAT.DBF

Layer: Lines representing tourism related features

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	FNODE#	4	5	B	-	Reserved for ARC/INFO
5	TNODE#	4	5	B	-	Reserved for ARC/INFO
9	LPOLY#	4	5	B	-	Reserved for ARC/INFO
13	RPOLY#	4	5	B	-	Reserved for ARC/INFO
17	LENGTH	4	12	F	3	Reserved for ARC/INFO
21	FEATURE#	4	5	B	-	Reserved for ARC/INFO
25	FEATURE-ID	4	5	B	-	Reserved for ARC/INFO
29	FEATURE	40	40	C	-	Listing of all features found at this site **(see feature code sheet above)** multiple entries - space delimited
69	ACTIVITY	40	40	C	-	Listing of all activities occurring at this site **(see activity code sheet above)** multiple entries - space delimited
109	COMMENTS	254	254	C	-	General notes on feature
363	UPDATE	8	10	D	-	Date last updated
371	SOURCE	30	30	C	-	Source of update information • KALUM TSA - Recreation Inventory for TSA • KFD DRMS - Kalum Forest District - Draft Recreation Management Strategy • LRMP RESOURCE ATLAS • TFL1 - Recreation Inventory for TFL 1 • TRIM - Provincial 1:20,000 Digital Baseline Mapping
401	DISTRICT	20	20	C	-	Ministry of Forest District
421	REGION	15	15	C	-	Ministry of Forest Region
436	TYPE	15	15	C	-	Type of feature (for plots) • CAMPSITE • CANYON

- HERITAGE
- RAPID
- WATERFALL
- WILDLIFE

NB - no link table created as data in this map file developed from resource layers. Tourism operators did not provide any linear data.

FEATURE / PAT.DBF

Layer: Points representing tourism related features

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	Reserved for ARC/INFO
5	PERIMETER	4	12	F	3	Reserved for ARC/INFO
9	FEATURE#	4	5	B	-	Reserved for ARC/INFO
13	FEATURE-ID	4	5	B	-	Reserved for ARC/INFO
17	LINKCODE	4	5	B	-	link field between point in FEATURE coverage and operator TOURCODE
21	FEATURE	40	40	C	-	listing of all features found at this site **(see feature code sheet above)** multiple entries - space delimited
61	ACTIVITY	40	40	C	-	listing of all activities occurring at this site **(see activity code sheet above)** multiple entries - space delimited
101	COMMENTS	254	254	C	-	general notes on feature
355	UPDATE	8	10	D	-	date last updated
363	SOURCE	30	30	C	-	source of update information • 1993 TRI - 1993 Tourism Resource Inventory • 1996 TRI - 1996 Tourism Resource Inventory • CLI MAPS (1993 TRI) - Can. Land Inventory • CTRIP - Coastal Tourism Resource Inventory • CHS XXXX - Canadian Hydrographic Service chart • ESR VENTURES INC - Tourism op. map • EXPLORE NC - *Exploring the North Coast of BC* • FS REC - Kalum District FS Recreation Map • KALUM TSA - Recreation Inventory for TSA • KFD DRMS - Kalum Forest District - Draft Recreation Management Strategy • KITIMAT COC - Kitimat Chamber of Commerce • LRMP RESOURCE ATLAS • OPERATORS - from 1998 Kalum FRTOS • SELF GUIDED AUTO TOUR • TFL1 - Recreation Inventory for TFL 1 • TFL41 - Recreation Inventory Map for TFL 41 • TRIM - Provincial 1:20,000 Digital Baseline

						Mapping • UREP - from qurep_ka
393	DISTRICT	20	20	C	-	Ministry of Forest District
413	REGION	15	15	C	-	Ministry of Forest Region
428	TYPE	15	15	C	-	type of feature (for plots) • ANCHORAGE • BEACH • BOATLAUNCH • CABIN • CAMPSITE • CANYON • CLIMBING • ESTUARY • FISH HATCHERY • FISHING • FISHRUN • FS REC SITE • HERITAGE • HOTSPRING • KAYAK • MOORING BUOY • NATURAL FEATURE • PLANNED STRUCTU • RAPID • SCUBA • UREP SITE • VIEWPOINT • WATERFALL • WILDLIFE
443	RI	2	2	I	-	Relative Importance (for anchorages only) 5 = excellent; 1 = poor / temporary only
445	MAP_TAG	16	16	C	-	From coverage qurep_ka
461	QUREP_TAG	16	16	C	-	From coverage qurep_ka
477	FTYPE	2	2	C	-	From coverage qurep_ka

FEATURE.FEATURE / LINK TABLE

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	LINKCODE	4	5	B	-	link field between point in FEATURE coverage and operator TOURCODE
5	TOURCODE	6	6	I	-	unique identifier assigned by Ministry/contractor

GUIDE / PAT.DBF

Layer: Polygons representing guide-outfitter territories

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	Reserved for ARC/INFO
5	PERIMETER	4	12	F	3	Reserved for ARC/INFO
9	GUIDE#	4	5	B	-	Reserved for ARC/INFO
13	GUIDE-ID	4	5	B	-	Reserved for ARC/INFO
17	TOURCODE	6	6	C	-	Unique identifier assigned by Ministry/contractor
23	NAME	60	60	C	-	Name of the tourism operator / company
83	CONTACT	50	50	C	-	Name of contact person for operation
133	ADDRESS1	35	35	C	-	Mailing address
168	ADDRESS2	35	35	C	-	Physical address (if different than above)
203	CITY	25	25	C	-	City
228	PROV	2	2	C	-	Province

230	CODE	7	7	C	-	Postal code
237	PHONE1	12	12	C	-	Phone number (including area code)
249	PHONE2	12	12	C	-	Alternative phone number (including area code)
261	FAX	12	12	C	-	Fax number (including area code)
273	LOCATION	35	35	C	-	Description of location of operation
308	SPECIES	30	30	C	-	Species hunted by guide-outfitter a - Black Bear g - Deer b - Grizzly Bear h - Elk c - Caribou i - Moose d - Cougar j - Mountain Sheep e - Mountain Goat k - Wolf f - Guided fishing x - Other
338	PERMIT	2	2	C	-	Permit status
340	COMMENTS	254	254	C	-	Additional notes regarding the operation
594	UPDATE	8	10	D	-	Date last updated
602	SOURCE	30	30	C	-	Main source of information
632	DISTRICT	20	20	C	-	Ministry of Forest District
652	REGION	15	15	C	-	Ministry of Forest Region
667	LANDCODE	4	4	C	-	Unique ID for linking to BC Lands Commercial Backcountry Recreation Inventory (where applicable)

ROUTE / AAT.DBF

Layer: Lines representing land and water routes used by tourism operators

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	FNODE#	4	5	B	-	Reserved for ARC/INFO
5	TNODE#	4	5	B	-	Reserved for ARC/INFO
9	LPOLY#	4	5	B	-	Reserved for ARC/INFO
13	RPOLY#	4	5	B	-	Reserved for ARC/INFO
17	LENGTH	4	12	F	3	Reserved for ARC/INFO
21	ROUTE#	4	5	B	-	Reserved for ARC/INFO
25	ROUTE-ID	4	5	B	-	Reserved for ARC/INFO
29	LINKCODE	4	5	B	-	link field between line in route coverage and operator TOURCODE
33	ACTIVITY	40	40	C	-	listing of all activities occurring on this route **(see activity code sheet above)** multiple entries - space delimited
73	COMMENTS	254	254	C	-	general notes on route
327	UPDATE	8	10	D	-	date last updated
335	SOURCE	30	30	C	-	Source • ESR VENTURES INC - Tourism op. map • FS REC - Kalum District FS Recreation Map • KALUM TSA - Recreation Inventory for TSA

						• KFD DRMS - Kalum Forest District - Draft Recreation Management Strategy • LRMP RESOURCE ATLAS • NW BC TRAVEL & RECREATION MAP • OPERATORS - from 1998 Kalum FRTOS • TFL1 - Recreation Inventory for TFL 1 • TFL41 - Recreation Inventory Map for TFL 41 • TRIM - Provincial 1:20,000 Digital Baseline Mapping
365	DISTRICT	20	20	C	-	Ministry of Forest District
385	REGION	15	15	C	-	Ministry of Forest Region
400	DISTANCE	10	10	N	2	recorded length for trail features
410	TYPE	15	15	C	-	type of route (for plots)

• 4x4	• KAYAK
• BOATING	• KAYAKING
• BOATING FISHING	• KAYAKING FISHIN
• CANOEING	• NATURE
• FISHING	• SKIING
• HIKING	• SNOWMOBILE
• HORSE	

ROUTE.ROUTE / LINK TABLE

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	LINKCODE	4	5	B	-	link field between line in ROUTE coverage and operator TOURCODE
5	TOURCODE	6	6	I	-	unique identifier assigned by Ministry/contractor

Scenic / PAT.DBF

Layer: Scenic Quality intermediate model

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	reserved for ARC/INFO
5	PERIMETER	4	12	F	3	reserved for ARC/INFO
9	SCENIC#	4	5	B	-	reserved for ARC/INFO
13	SCENIC-ID	4	5	B	-	reserved for ARC/INFO
17	ALTERAT	2	2	I	-	dominant alteration for each polygon • 1 = intensively developed • 2 = highly altered • 3 = moderately altered

						• 4 = minor alteration • 5 = natural appearing • 9 = no information available
19	ALT_TYPE1	2	2	I	-	dominant type of alteration in polygon • 1 = logging • 2 = agriculture • 3 = urban/residential (incl roads) • 4 = natural appearing • 5 = mining • 6 = natural processes
21	ALT_TYPE2	2	2	I	-	secondary alteration type - as above
23	ALT_TYPE3	2	2	I	-	alternative alteration type - as above
25	WATR_INF	2	2	I	-	degree of influence of water in polygon • 1 = low • 2 = moderate • 3 = high
27	WATR_TYP	2	2	I	-	dominant type of water in polygon • 0 = no water • 1 = small river / stream • 2 = large river • 3 = medium / large lake • 4 = small lake & small river • 5 = ocean or inlet
29	HEIGHT	2	2	I	-	difference in elevation in polygon • 1 = low (<1000 feet) • 2 = moderate (1000 - 2500 feet) • 3 = high (> 2500 feet)
31	DESCRIPT	2	2	I	-	general physiology in polygon • 1 = mountains • 2 = valley • 3 = plateau / plain • 4 = hills • 5 = small island
33	TOPO_VAR	2	2	I	-	topographic variety in the polygon • 1 = low • 2 = moderate • 3 = high
35	VIEWS	2	2	I	-	extent of views within and from polygon • 1 = limited • 2 = moderate • 3 = excellent
37	SNOW_MTN	4	4	I	-	number of snow-capped peaks in polygon
41	ALPINE	4	4	I	-	number of alpine peaks in polygon
45	SPECIAL	30	30	C	-	description of special feature(s)
75	SPECIALNUM	2	2	I	-	special feature in polygon (0 = present; 1 = not present)
77	ROCKBLUFF	2	2	I	-	number of rock bluffs in polygon
79	DRYLAND	2	2	I	-	dry landscape throughout polygon

						(0 = present; 1 = not present)

81	ALT_VAL	2	2	I	-	Value Stage 1 calculation
83	LAND_FEAT	2	2	I	-	Number of features
85	LANDF_SUM	3	3	I	-	Sum of scenic quality features
88	SCENIC	2	2	C	-	1st version scenic calculation
90	SUM_FEAT	3	3	I	-	Temporary calculation field
93	WATR_TOP	2	2	C	-	Calculation of inherent qualities
95	SCEN_FEAT	10	10	I	-	Sum of features from FRTOS
105	FEAT_TOT	10	10	I	-	Sum scenic quality features + FRTOS features
115	FEAT_RANK	10	10	C	-	Calculation rank for features based on density
125	DENSITY3	4	16	F	8	Calculation feature density
129	STAGE2	2	2	C	-	Calculation inherent qualities and feature density
131	SCENIC_F	2	2	C	-	Scenic Quality (H, M, or L)

TOUR_OP.DBF

Database with tourism operator information

FIELD	ITEM NAME	WIDTH		TYPE	N.DEC	DESCRIPTION
1	TOURCODE	6	6	C	-	Unique identifier assigned by Ministry/contractor
2	MAIL	3	3	C	-	C - contact attempt via telephone I - telephone interview N - did not attempt to contact / could not contact S - sent survey & telephone call - no response SR - returned survey
3	NAME	60	60	C	-	Name of the tourism operator / company
4	CONTACT	50	50	C	-	Name of contact person for operation
5	ADDRESS1	35	35	C	-	Mailing address
6	ADDRESS2	35	35	C	-	Physical address (if different than above)
7	CITY	25	25	C	-	City
8	PROV	2	2	C	-	Province
9	CODE	7	7	C	-	Postal code
10	PHONE1	12	12	C	-	Phone number (including area code)
11	PHONE2	12	12	C	-	Alternative phone number (including area code)
12	FAX	12	12	C	-	Fax number (including area code)
13	EMAIL	30	30	C	-	Email address
14	WEB_SITE	50	50	C	-	Web page address
15	LOCATION	50	50	C	-	Description of location of operation
16	TOURTYPE	20	20	C	-	Principal type of operation (**see tourtype codes above**)

						multiple entries - space delimited
17	ACTIVITIES	100	100	C	-	Listing of all activities **(see activity code sheet above)** Multiple entries - space delimited
18	SERVICES	100	100	C	-	Listing of all services **(see service codes above)** Multiple entries - space delimited
19	UNITS	4	4	C	-	Number of roofed sleeping units (rooms / beds / berths for charter boat operations)
20	SITES	4	4	C	-	Number of camping sites
21	RV	4	4	C	-	Number of RV sites (serviced)
22	BERTHS	4	4	C	-	Number of berths (overnight charter boats)
23	SEASON	24	24	C	-	Months of operation A - January g - July b - February h - August c - March i - September d - April j - October e - May k - November f - June l - December
24	USE	12	12	C	-	Level of use <u>Season</u> <u>Use Level</u> A - Summer (July-Aug.) 0 - Not available B - Fall (Sept-Nov.) 1 - Low (< 54% of capacity) C - Winter (Dec.-Mar.) 2 - Medium (55-84% of cap.) D - Spring (Apr.-June) 3 - High (> 85% of capacity)
25	DATE_KALUM	100	100	C	-	Dates of trips offered in Kalum FD in 1998
26	KALUM_PER	10	10	C	-	% of trips offered which take place in Kalum FD
27	GROUP_SIZE	15	15	C	-	Approximate size of groups on tour
28	GUIDE_PAR	15	15	C	-	Ratio of guides to participants
29	CLIENTS_97	40	40	C	-	Number of clients in 1997
	EXP_98_CLI	40	40	C	-	Expected number of clients in 1998
30	DURATION	20	20	C	-	Length of excursion (in days)
31	FEES	100	100	C	-	Charge to participants for services or experience
32	EMPLOYEE	20	20	C	-	Number of employees (full time year round/full time seasonal/part time year round/part time seasonal/total)
33	KALUM_EMP	15	15	C	-	Number of employees from Kalum FD
34	TENURE	100	100	C	-	Type of land tenure for operation
35	PERMIT	2	2	C	-	Operator has a Park Use Permit (Y/N)
36	SPECIES	30	30	C	-	Species hunted by guide-outfitter a - Black Bear g - Deer b - Grizzly Bear h - Elk

						c - Caribou i - Moose d - Cougar j - Mountain Sheep e - Mountain Goat k - Wolf f - Guided fishing x - Other
37	MOORSLIPS	4	4	I	-	Number of moorage slips
38	MOORFEET	4	4	I	-	Length of dock (in feet)
39	HUTUSE	5	5	C	-	Day or night - hut/cabin available for day use or overnight use
40	HUTACCESS	2	2	C	-	Available for public use (Y/N)
41	VERTICAL	4	4	I	-	Vertical drop at ski hill (meters)
42	RUNS	3	3	I	-	Number of runs at ski hill
43	TRAMS	2	2	I	-	Number of tram and/or gondola lines at ski hill
44	CHAIRS	2	2	I	-	Number of chair lifts at ski hill
45	TOWS	2	2	I	-	Number of t-bars and/or rope tows at ski hill
46	TRACK	6	6	I	-	Length of track set Nordic trails (kilometres)
47	NOTRACK	6	6	I	-	Length of untracked Nordic trails (kilometres)
48	HOLES	2	2	I	-	Number of holes at gold course
49	PAR	2	2	I	-	Par of golf course from men's tee
50	YARDS	5	5	I	-	Total yardage of golf course from men's tee
51	COMMENTS	254	254	C	-	Additional notes regarding the operation
52	UPDATE	8	10	D	-	Date last updated
53	SOURCE	30	30	C	-	Main source of information (how was operator located) 1996 SURVEY - 1996 Tourism Resource Inventory BROCHURE - Company brochure COFFEE NEWS NEWSLETTER - Community advert. CONNECTIONS MAG - Community advert. FIELD - Found during field work GUIDE/OUTFITTER - Licensed MoE Guide Outfitter OSRIS - RMD Oil Spill Response Information System OUTDOOR/ADVENTURE GUIDE - Community advert POLK - POLK Directory TEL - BC Telephone Directory TOUR-INFO - Tourist Information Centre Web page
54	DISTRICT	20	20	C	-	Ministry of Forest District
55	REGION	15	15	C	-	Ministry of Forest Region
56	LANDCODE	4	4	I	-	Unique ID for linking to BC Lands Commercial Backcountry Recreation Inventory (where applicable)

USE / PAT.DBF

Layer: Polygons of existing use

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	Reserved for ARC/INFO
5	PERIMETER	4	12	F	3	Reserved for ARC/INFO
9	USE#	4	5	B	-	Reserved for ARC/INFO
13	USE-ID	4	5	B	-	Reserved for ARC/INFO
17	LINKCODE	4	5	B	-	link field between polygon in USE coverage and operator TOURCODE
21	ACTIVITY	40	40	C	-	listing of all activities occurring in this polygon **(see activity code sheet above)** multiple entries - space delimited
61	COMMENTS	254	254	C	-	general notes on use polygon
315	UPDATE	8	10	D	-	date last updated
323	SOURCE	30	30	C	-	source • OPERATORS - from 1998 Kalum FRTOS
353	DISTRICT	20	20	C	-	Ministry of Forest District
373	REGION	15	15	C	-	Ministry of Forest Region

USE.USE / LINK TABLE

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	LINKCODE	4	5	B	-	link field between polygon in USE coverage and operator TOURCODE
5	TOURCODE	6	6	I	-	unique identifier assigned by Ministry/contractor

USE_96 / PAT.DBF

Layer: Polygons of existing use from 1996 TRI

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	Reserved for ARC/INFO
5	PERIMETER	4	12	F	3	Reserved for ARC/INFO
9	USE_96TRI#	4	5	B	-	Reserved for ARC/INFO
13	USE_96TRI-ID	4	5	B	-	Reserved for ARC/INFO
17	ACTIVITY	40	40	C	-	listing of all activities occurring in this polygon **(see activity code sheet above)** multiple entries - space delimited
57	COMMENTS	254	254	C	-	general notes on use polygon

311	UPDATE	8	10	D	-	date last updated
319	SOURCE	30	30	C	-	source
349	DISTRICT	20	20	C	-	Ministry of Forest District
369	REGION	15	15	C	-	Ministry of Forest Region
384	LANDCODE	4	4	C	-	Unique ID for linking to BC Lands Commercial Backcountry Recreation Inventory (where applicable)

note - no tourcodes were available for this coverage

VIEW_96 / PAT.DBF

Layer: Polygons of viewscapes from 1996 TRI

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	4	12	F	3	Reserved for ARC/INFO
5	PERIMETER	4	12	F	3	Reserved for ARC/INFO
9	VIEW_96TRI#	4	5	B	-	Reserved for ARC/INFO
13	VIEW_96TRI-ID	4	5	B	-	Reserved for ARC/INFO
17	COMMENTS	254	254	C	-	general notes on viewscape polygon
271	UPDATE	8	10	D	-	date last updated
279	SOURCE	30	30	C	-	source
309	DISTRICT	20	20	C	-	Ministry of Forest District
329	REGION	15	15	C	-	Ministry of Forest Region
344	LANDCODE	4	4	I	-	Unique ID for linking to BC Lands Commercial Backcountry Recreation Inventory (where applicable)

note - no tourcodes were available for this coverage

Appendix D:

High Capability Maps for Selected Tourism