BYIW

Options for the Babine River Area

MINISTRY OF FORESTS
Prince Rupert Forest Region
Bulkley Forest District
Kispiox Forest District

BC Environment
B.C. ENVIRONMENT
Skeena Region

and
BABINE TECHNICAL ADVISORY COMMITTEE

Preface

This planning process is jointly sponsored by the Ministry of Forests and B.C Environment with assistance from the Babine River Technical Advisory Committee (TAC). The Options report was written with TAC consultation and Steering Committee review.

The purpose of the Options report is to get your comments on land management strategies and access route options for the Babine River planning area. In addition, your feedback on the option recommended by the TAC and on general resource issues will be used in making recommendations to Cabinet and in developing the integrated resource use plan for the area.

The report is divided into three parts:

Options (Part A): Three alternate land management strategies and access routes are identified and their consequences for resource values are discussed. Information on key resources and related issues is provided.

Consensus Option (Part B): This section presents specifics of one land management strategy which includes a mix of resource uses. The Babine Technical Advisory Committee (TAC) worked out these details.

Appendices: The Appendices are grouped as they relate to Part A: Options or Part B: Consensus Option.

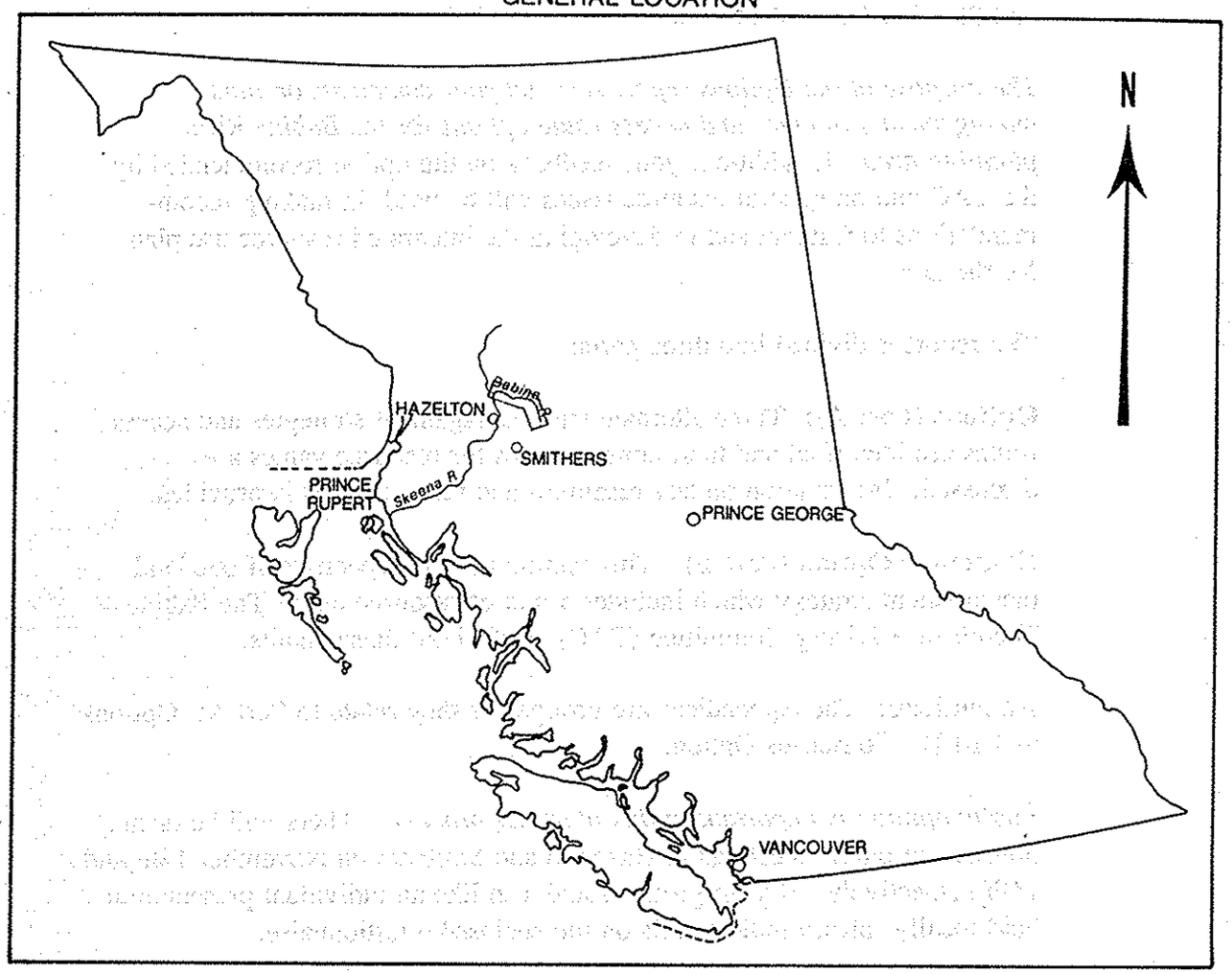
Public opinion is important to this planning process. There will be open houses and public meetings in Hazelton and Smithers on November 13th and 14th respectively. If your group would also like an individual presentation held locally, please indicate this on the enclosed questionnaire.

PLEASE COMMENT! A response to the questionnaire would be appreciated by December 13, 1991. You can leave it at the Prince Rupert Forest Region, B.C. Environment or Bulkley Forest District offices in Smithers, or at the Kispiox Forest District office in Hazelton; or mail to:

Ministry of Forests
Prince Rupert Forest Region
Bag 5000
Smithers, B.C.
VOJ 2NO

Attention: Planning Forester

GENERAL LOCATION



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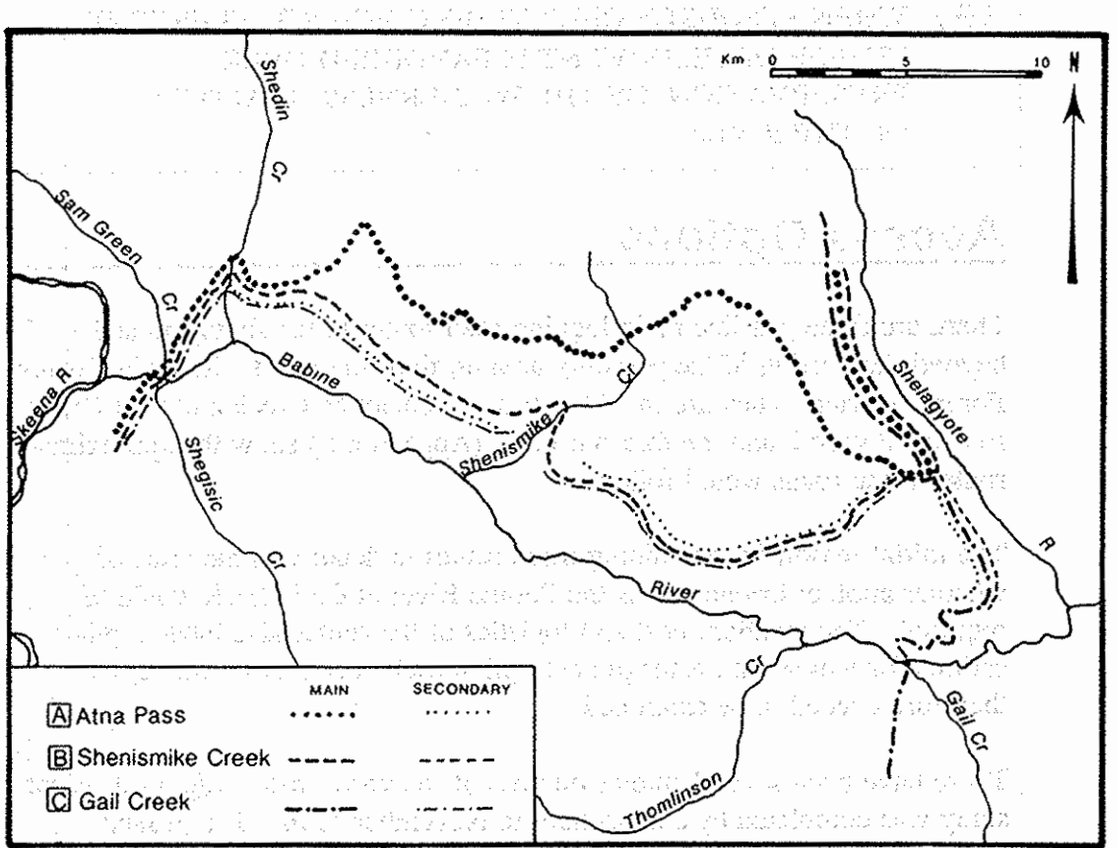
Part A Options

Some general considerations about the access route options are:

- Costs associated with logging roads include construction costs, maintenance, snow removal and log hauling costs.
- All of the above are related to length, elevation and steepness of the proposed route.
- Roads paralleling the bottom third of the river will not be visible from the water because of the canyon-like setting.
- Any increased access has the potential to negatively affect the grizzly bear population.
- The more often grizzly bears must cross roads to move to seasonal habitat, the more likely negative effects will occur.
- The degree of impact on grizzlies can be lessened by access control to high use bear habitat and by leaving strips of vegetation for visual screening along migration corridors.
- Road construction and maintenance can result in decreased water quality for fish but technical knowledge of terrain and soils can be used to identify potential problems.

Figure 2: Access Routes



In the Babine area, the resource values can be categorized as wilderness, timber, wildlife and fisheries. Besides deciding the importance of each resource, choices must be made on how to manage within each broad class. For example, will wilderness be managed for preservation or for recreational use? Will timber production be to maximize volume, or product value? Is the fishery more valuable as a wilderness recreation experience or a widely used resource?

Three benchmark management directions that are possible for the planning area have been identified:

LAND MANAGEMENT OPTIONS

1. THE MOST IMPORTANT MANAGEMENT OBJECTIVE IS TO RETAIN WILDERNESS VALUES, PARTICULARLY WILDERNESS RECREATION OPPORTUNITIES.

2. THE MANAGEMENT OBJECTIVE IS TO RETAIN WILDERNESS QUALITIES ALONG THE RIVER WHILE ACCESSING THE PLANNING AREA FOR TIMBER.

3. WHEN RESOURCE OBJECTIVES CONFLICT, EFFICIENT TIMBER DEVELOPMENT IS FAVOURED OVER PRESERVATION OF THE WILDERNESS QUALITIES OF THE RIVER.

Access Options

There are three possible main logging road routes to the forests in and beyond the portion of the planning area north of the Babine River in Kispiox Forest District. They are the Atna Pass, Shenismike Creek and Gail Creek routes. Figure 2 and the fold-out maps (Appendix L) show the approximate routes these roads would follow.

The initial reason for examining these routes in detail was the issue of whether another bridge across the Babine River at Gail Creek would be required. The location, cost and logistics of the routes also have implications for which land management option each is compatible with, and therefore needed to be examined.

There have been several studies on possible access routes. The most recent study was completed by a consultant in November 1990. The ground locations shown on the maps in Appendix L and the cost summary provided in Appendix C are based on this report.

Land Management and Access Options

Each of the three access options will affect resources in the planning area. Accordingly they have some degree of compatibility (or incompatibility) with each land management option. Table 1 is an illustration of potential combinations of land management and access routes.

Table 1: Land Management and Access Route Compatibility

Access Route Option	Land Management Option (1)	Land Management Option (2)	Land Management Option (3)
[A] Atna Pass	1A *Compatible*	2A *Incompatible with timber objectives*	3A *Incompatible*
[B] ShenismikeCreek	1B *Incompatible*	2B *Compatible*	3B *Incompatible*
[C] Gail Creek	1C *Incompatible*	2C *Incompatible with wilderness objectives*	3C *Compatible*

– – – Potential Combinations

Land Management Option (1)

1A The Atna Pass route is the only access option compatible with Land Management Option 1. It is the only route which can access timber beyond the planning area by construction outside the area.

Land Management Option (2)

2A The Atna Pass route is incompatible with timber objectives. Although a feasible route, the cost and logistics of developing timber from this route are expensive.

2B The Shenismike Creek route is compatible with optimizing the mix of resource uses IF there is careful resource planning and management. The potential to benefit from all resource values is maintained.

2C The Gail Creek route shifts the recreation emphasis from wilderness-like recreation to more public use. There would be access to the Babine River near Gail Creek. This route does not maintain wilderness-like values.

Land Management Option (3)

3C The Gail Creek route is compatible with Land Management Option 3. It provides the least cost and best logistics for timber development.

Option Consequences

This section describes the consequences of three land management options in combination with the applicable access route. These options represent the range of values and interests identified in the initial planning stages. All information describes the situation in the planning area unless otherwise noted.

Consideration of these options should be made under the following assumptions:

- Modified logging techniques to protect grizzly bears, such as leaving trees to screen high use habitats and controlling access to these sites, will be practised outside as well as inside the planning area.

- Sediment control measures, such as following the Coastal Fish-Forestry Guidelines (1988) and the Watershed Workbook (1987), and terrain mapping will be implemented on tributaries to the Babine River.

- Regulations pertaining to the hunting of grizzlies and the fishing of steelhead will be applied and enforced in the planning area and the manpower and financial resources will be available to carry out such activities.

- The plan which comes about from this process will be constantly reviewed and updated as information gaps are filled and improved timber harvesting techniques evolve.

OPTION 1

will be available for present or future harvesting under this option. As well, additional timber north of the planning area will be considerably more expensive to harvest under this option because the possibility of through-road access is eliminated.

Removal of operable timber and productive land base will mean a significant reduction in volume available for harvest in both the Kispiox and Bulkley Forest Districts. It is difficult to make a direct link between the loss of timber available for harvest and the effect on local and regional communities and the Province as a whole (e.g. direct and indirect jobs, industry payroll, stumpage, taxes). Many variables come into play which make it impossible at this time to arrive at a definitive answer as to the direct relationship between these factors and timber available for harvest. For additional detail see Appendix C.

Pest control, such as containing mountain pine beetle infestations, will continue, as will fighting forest fires. The method and approach to these protection activities will differ from other options. The expense may be greater as logging is not an option nor is access available.

Access

The Atna Pass route is the only access option compatible with land management option 1 because it is the only route which can access timber beyond the planning area without infringing on the planning area. The access route options are shown on the maps supplied with this document.

From a timber harvesting viewpoint, the Atna Pass route is the most expensive to construct and maintain due to its length, elevation and the steepness of the terrain it crosses.

Access from the Atna Pass route's main haul road to the Babine River is the most difficult of the three options, thereby helping to preserve the wilderness-like quality inherent in land management option 1.

Whether the areas the Atna Pass route traverses are high use grizzly bear and other important animal habitat is unknown, but, because of its length and location in the alpine, the potential exists for negative impacts on wildlife.

The Atna Pass option does not present any major impact on the fishery resource if road construction guidelines are met as outlined in the Coastal Fish-Forestry Guidelines (1988) and the Watershed Workbook (1987).

OPTION 2: THE MANAGEMENT OBJECTIVE IS TO RETAIN WILDERNESS QUALITIES ALONG THE RIVER WHILE ACCESSING THE PLANNING AREA FOR TIMBER.

Wilderness

This option embodies the concept of a protected zone along the river, surrounded by a buffer zone, then the rest of the planning area. The degree of management effort to protect river-based values increases as one approaches the river. The intensive management effort required by this option is based on a high level of planning and resource information.

For most visitors to the planning area the wilderness-like river recreation experience, enhanced by the terrain's scenic qualities, will be preserved because the foreground landscape remains natural.

If a wilderness corridor is designated along the Babine River in the planning area, it will be the only one of its type in the Province.

Grizzly Bears

Neither timber harvesting nor logging road construction would occur in the Babine River corridor, which is a high-use grizzly bear habitat. Logging activities will occur in other parts of the planning area The chance of human/grizzly bear contact increases under this option because of access development. This results in increased risk to grizzly bears. Access control to high-use grizzly sites will be required to decrease the chance of human/bear contact.

The 1990-1991 B.C. Environment hunting regulations stated an open hunting season on grizzly bears within the planning area between Sept. 15 and Oct. 26, 1990 and April 15 and June 15, 1991. Adopting this option will likely mean a change in hunting regulations. No differentiation is planned between the three zones nor the drainage, as far as hunting regulations are concerned.

Grizzly bears move about in the planning area constantly during the snow free months. They tend to be found in higher concentrations in important habitat areas. One of these areas is the river corridor where bears use certain sites to eat fish and travel between them on the break-of-land near the river. Grizzlies do not like to meet one another while travelling in the corridor; therefore the Wilderness Zone must be wide enough for bears to give each other a wide berth.

OPTION 2

Important high use habitat for grizzlies also occurs in other parts of the planning area and outside the planning area. This makes predicting the effect of option 2 on grizzly populations difficult. Much depends on what is happening outside as well as inside the planning area.

Steelhead

Timber harvesting within the planning area means care will have to be taken to protect any spawning areas in tributaries and to prevent erosion of unstable terrain. Enforcement of existing guidelines can ensure protection of the fisheries resource.

Recreation/Tourism

The physical quality of the setting in the Babine River corridor remains intact. Increased access would likely lead to more people using the corridor, altering the current wilderness-like experience. Views along the river remain natural. For those using the river, the potential to see clearcuts in the distance is higher than in option 1 if they land their craft and walk to the break-of-land near the river in the middle section of the planning area.

Access by foot is easier, although people still have to hike through the Wilderness Zone to get to the river. A wilderness management plan will be required to address recreation development within the Wilderness Zone and an access management plan will be required to address access development and control strategies throughout the planning area.

If grizzly bear populations decline there is potential for the recreation/ tourism appeal of the planning area to decline as grizzly viewing is one of the reasons people visit the area.

Timber

No logging will occur in the Wilderness Zone. The only road construction in this zone will be to access the Big Slide Chart. The Big Slide Chart road will pass through the lower end of the Wilderness Zone for a considerable distance. This is a significant exception to the Wilderness Zone philosophy and is addressed in Appendix I.

The logging and near-total road restrictions mean 1 120 000 cubic metres and 560 000 cubic metres of merchantable coniferous trees within the Bulkley and Kispiox sections of the planning area, respectively, are unavailable for harvesting. The Allowable Annual Cut (AAC) would not immediately drop to reflect this withdrawal but there could be an adjustment in the future in the operable land base. Alternative harvesting systems, such

as partial cutting and small clearcuts, will take place in the buffer zone. Logging in the remainder of the planning area proceeds as usual within the context of the special values present.

In contrast to option 1, operable timber will be available under option 2. There will still be a reduction in timber land base because of that set aside in the Babine River corridor. Special management techniques in the buffer zone, such as use of alternate harvesting systems like partial cutting and smaller clearcuts, may reduce the rate-of-cut. Increased management means higher than average logging costs.

Logging in the planning area will follow at least a three-pass system. The three-pass harvesting cycle will not exceed 40, 30 and 30 per cent of the operable volume in the first three passes.

Option 2 means the planning area within the Wilderness and buffer zones will look significantly different from other major river corridors which have been logged in the Province. For example, views from the river will retain their wilderness-like character and small-scale ecosystems will have a good chance to evolve naturally.

Access

The Shenismike Creek route is the only option compatible with optimizing the mix of all resources as defined in land management option 2 . The Atna Pass route is compatible with option 2 except for timber objectives and the Gail Creek route is compatible with option 2 except for wilderness recreation objectives. Access route options appear on the foldout maps in Appendix L.

Shenismike Creek is comparable with Gail Creek in construction and maintenance costs and second to Gail Creek in providing operational flexibility in timber harvesting.

As a main haul road, the Shenismike Creek route provides access to within two kilometres of the Babine River in the planning area, maintaining the potential for wilderness-like river recreation experiences.

The Shenismike route parallels the Babine River, increasing the likelihood of grizzly bears having to cross a main road. The number of high use grizzly habitats crossed by this route is unknown.

This option does not present any major impact on the fishery resource if road construction guidelines are met as outlined in the Coastal Fish-Forestry Guidelines (1988) and the Watershed Workbook (1987).

OPTION 3

OPTION 3: WHEN RESOURCE OBJECTIVES CONFLICT, EFFICIENT TIMBER DEVELOPMENT IS FAVOURED OVER PRESERVATION OF THE WILDERNESS QUALITIES OF THE RIVER.

Wilderness

Although there are no specific wilderness zones under this option, the entire planning area will not necessarily be logged without consideration of river-based values. One facet of this approach is that the visible landscape adjacent to the river would not be logged.

Grizzly Bears

Visual screening around important habitat, leave strips along migration corridors, partial cutting systems, small cutblocks and increasing to four-pass from the three-pass harvesting regime are the type of measures used to protect grizzly bears under this option. Access control to high use habitat will also be required to decrease the chance of bear/human contact. Grizzly habitat mapping in the planning area has occurred, but radio telemetry studies to determine migration corridors have not been done. Until such studies take place, migration corridors will have to be determined based on the experience of experts in B.C. Environment, local fishing, hunting and river guides and other resource users.

It is unlikely the grizzly bear population can be maintained at its present level if the planning area becomes fully roaded and accessible to people without any restrictions. An access management plan could be required to reduce the liability of timber development to grizzly bears and would consider such actions as blockading roads to high use grizzly habitat and using only winter access to remove timber.

Regulations will control the hunting pressure on grizzlies. Current regulations will need changing.

Steelhead

Clearcut and alternate harvesting systems will occur along sections of tributaries to the Babine River which run through the planning area. The technical knowledge of soil and terrain conditions within and outside the planning area is good enough to know which measures to take in order to curb erosion and sediment loading.

Recreation/Tourism

OPTION 3

A greater number of noncommercial visitors will be able to enjoy the planning area due to increased access. Visitors will not have to walk very far to reach the Babine River.

The type of recreation experience enjoyed in the planning area will change. The experience will be more typical of other semi-wilderness sites in the Province (e.g. the Morice River and the Bulkley River).

The wilderness-like quality found along the river will change. The foreground landscape will be preserved but more boat and foot traffic along the river will mean more crowded angling conditions.

Improved access may make shorter commercial rafting trips possible, which could appeal to a wider clientele. More boaters, such as kayakers, will likely make use of the river as trips can be reduced to a shorter time period.

Timber

Clearcut harvesting will predominate in the planning area. Alternate systems may be used, where ecologically and economically feasible, in order to meet other resource objectives. Environmentally sensitive areas, such as key riparian zones and areas with unstable terrain, will receive special management. Sites visible from the river corridor will be logged with visual sensitivity in mind.

All of the merchantable timber available in the planning area (11 330 000 cubic metres), except for a buffer along the river to maintain visual values, will be removed on a minimum three-pass system which will not remove more than 40, 30 and 30 per cent of the operable volume in the first three passes. The cost of timber harvesting is less than in option 2.

Access

Gail Creek is the only access route compatible with Land Management Option 3 because it provides the least cost and best logistics for timber development. The access route options are indicated on the maps in Appendix L.

Gail Creek is comparable with the Shenismike Creek route for construction and maintenance costs, has the lowest overall cost when hauling is considered, and provides the most flexibility in timber harvesting operations.

This route would provide increased public access at the Gail Creek bridge across the Babine River in the middle of the planning area. The bridge site would provide a convenient take out point for people looking for a two- or three-day boat trip. The river after this point is for expert and/or guided boaters. Easy access to the river and a wilderness-like river recreation experience are not compatible.

The Gail Creek option lessens the probability of bears crossing a main haul road and is the route traversing the planning area for the shortest distance. But this route also provides easy access to prime grizzly habitat along the river, increasing the chance of bear/human contact.

This option does not present any major impact on the fishery resource in the planning area if road construction guidelines are met as outlined in the Coastal Fish-Forestry Guidelines (1988) and the Watershed Workbook (1987).

Evaluation of Options

Although there are information gaps on resources in the planning area, a considerable amount of information was presented by TAC members during their meetings and gathered in commissioned reports at the request of the committee. Appendix E outlines these reports which include studies on habitat mapping, grizzly bear habitat use, nonclearcut silviculture systems, forest protection, landscape, recreation and access routes.

The TAC gained a good understanding of management issues through discussions and the available resource studies. As a result, considerable progress was made towards finding possible resolution of these issues. The TAC recommended not to commission cost-benefit analyses as a means to evaluate land management options for the planning area. Some of this type of information is found in previous studies. Although cost-benefit analysis is useful in many instances, distortion is possible when comparing such different values, and perhaps not necessary where common ground can be found. The TAC used an intuitive cost-benefit approach to arrive at their consensus.

The government agencies (Forests, Environment and Tourism) believe an assessment of the impact of land management options on resource values is required. Appendix D summarizes the impact on resource values that could be expected for each land management option. As a result of the subjective nature of this assessment, the TAC has not agreed on all of the rankings. The information represents the technical opinion of the managing agencies.

Public values placed on the resources, and on the mix of resource use opportunities in the planning area, are important in evaluating land management options. This public review is being used to understand public values better so they can be incorporated into the evaluation of options.

Resources and Issues

The future of the important resources in the planning area within the Babine River watershed is the main issue driving this planning process. Making a choice on a land management option, including an access route, is what this phase of the planning process is all about.

The following is a description of some of the important resources found in the planning area and a discussion of related issues. More information can be found in Appendix C.

Wilderness

The term wilderness is used throughout the options report. Wilderness is a value-laden word and hence very personal, but the Babine River watershed setting can be described as at least wilderness-like. There are existing roads and development near both ends of the planning area. A few logging blocks and three lodges are within the planning area.

A total wilderness option--removing the Babine River from the timber harvesting land base--was not considered in this options report. The total wilderness option was not identified in the planning Terms of Reference.

Large wilderness areas are more appropriately considered at the Resource Management planning level. Planning levels are linked so any comments on the entire watershed will be noted for the appropriate plan. Tributaries within the Babine watershed are shown in Figure 1. A discussion of areas and volumes involved is found in Appendix C.

"Wilderness for the 90s" is a current provincial-scale look at candidate wilderness areas. The Mt. Shelagyote part of the Babine River drainage has been identified for consideration as a candidate wilderness area. The Babine River corridor, as described in this options report, was identified as a potential wilderness area already being discussed in a public planning process. Further information on the current Forest Service Wilderness Program is available upon request.

Answers to questions such as the quantitative worth of the wilderness in the planning area are unknown. This makes assessing the trade-offs inherent in each option difficult, but the value of various aspects of the wilderness-like qualities found in the planning area are stated in descriptive terms under **Option Consequences** (pages 6 to 15) and Appendix C.

Wilderness Issues

- The wilderness-like quality of the river, including landscape and wildlife viewing, along with the excellent water conditions and sport fishing opportunities, make the area increasingly attractive for many recreationists and commercial wilderness businesses.
- The maintenance of wilderness-like qualities along the river is central to existing guiding and rafting companies.
- The river can provide some kinds of additional use and still retain its uniqueness; however, more intensive planning and regulations would also be required.
- Strict access control to the river is required if its wilderness-like qualities are to be maintained.
- Views from the river are important, and objectives for these views should match the selected land management and access options.
- Simply knowing the wilderness-like qualities have been maintained is important for some people as is the spiritual and aesthetic value associated with wilderness-like settings.
- The Babine Planning area is included within the area of traditional use by the Na'doet'en (Carrier Sekani) and lies within the land claim of the Gitksan-Wet'suwet'en (refer to Appendix B for more information on native participation and viewpoints).

Fisheries

Many species of fish use the Babine River and its tributaries in the planning area as a migration corridor, for spawning and for living part or all of their life cycle. Although all these species are important to maintain biological diversity, one species--steelhead--has received more attention than the others.

Like grizzly bears, the issue of maintenance of steelhead stocks is a matter not only effected by management in the planning area, but is intimately linked with activities outside the planning area. Provincial fisheries biologists point to the commercial fishing pressure at sea as the most significant factor affecting steelhead populations.

Class 1 designation of the Babine River, along with promoting a "catch and release" fishery, ensures sport fishing pressure in the planning area will not negatively affect steelhead stocks. In Class 1 waters, all angler-days will eventually be regulated according to a water-specific management plan. A draw or reservation system will be used to allocate non-guided opportunities when required.

Currently, only the upper end of the river near the existing bridge and fish weir is easily accessible by foot. A series of rock-strewn rapids immediately downstream limits use to experienced powerboat anglers. Most people fishing downstream are guided anglers who reach base camps by jet-powered river craft or aircraft. Lack of easy access downstream reduces casual drift and inflatable craft use of the river. This helps maintain the wilderness-like fishing experience.

Water clarity of the Babine River within the planning area during the sport fishing season is important. Sport fishermen, in order to catch fish, need a higher level of water clarity than steelhead require for survival. Erosion prone areas on tributaries, which can lead to sediment loading in the Babine River, primarily occur closer to the boundary and outside of the planning area than near the river. When timber harvesting occurs near these tributaries (regardless of whether the cutblock in in the planning area) guidelines such as the Watershed Workbook (1987) and Coastal Fish-Forestry Guidelines (1988) need to be applied to ensure adverse sediment loading does not take place.

The wilderness-quality of the steelhead fishing experience in the planning area is an issue which will be affected by this planning process. The physical appearance of the foreground from the river is one important aspect of the wilderness fishing experience. Not logging in the planning area, or leaving a buffer along the river, will maintain the existing appearance of the river corridor foreground.

Buffer zones along rivers protect streambank erosion, provide large organic debris to the river and ensure visual screening along the river. Generally, they have little effect on sediment loading in the river, a function of soil and terrain stability along the river's tributaries.

Fisheries Issues

- The wilderness-like setting in the planning area, a wild summer steelhead run with world record size fish, and the angling experience, together are of international significance.
- The drainage system also contributes provincially important populations of salmonids supporting additional sport, commercial ocean and native

food fisheries.

- The Babine River is legislated as a Class 1 River, subject to a B.C. Environment management plan, suggesting greater emphasis on a wilderness-like fishing environment.
- Existing strict sediment control guidelines will need to be applied to any development in the area if the the clear-water fishing conditions are to be maintained.

Timber

Data on timber in the planning area are more available than qualitative information on the other resources found there. Where possible, the costs of each option regarding the timber resource are stated. General information about the value of timber is included in Appendix C.

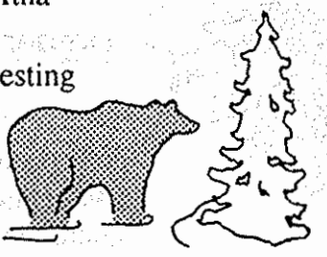
The link between the value of resources, such as relating the reduction in trees available for harvest to increased job loss in the forest industry, is not a black and white issue. Too many variables act on such relationships to accurately describe these linkages and answer cost-benefit questions within the time frame of this planning process. The timber volume represented by trees in the planning area equals about eight and five percent of the annual harvest from the Bulkley and Kispiox TSAs respectively. Community stability is therefore partly tied to this forest.

Mountain pine beetle has attacked some of the mature pine in the planning area, particularly in the Bulkley District. All unaffected mature pine stands are susceptible to infestation. Mountain pine beetle outbreaks mean timber volume and quality losses. The natural succession sequence for these stands is that beetle kill and forest fires result in reversion to young pine and spruce stands. In an attempt to imitate nature, the best control measure to prevent pine beetle from spreading within and outside of the planning area is logging the attacked trees. The pine and spruce stands have greater commercial value than the more common hemlock and balsam found elsewhere.

Substantial timbered areas occur north of the planning area within the Kispiox TSA. These forests will become accessible for logging once an access route through or around the planning area is chosen and constructed. This timber is important to the forest industry in addition to that within the planning area. The cost and logistics of developing this timber will be dramatically increased if the Atna Pass access option is chosen.

Timber Issues

- Pine stands in the planning area have been attacked by mountain pine beetle and are susceptible to further infestation.
- Pine and spruce stands have the greatest commercial value to the local mills.
- Development of timber north of the planning area will require access through or around it; development costs will be greatest with the Atna Pass route.
- Any areas set aside from logging will mean a reduced timber harvesting land base.



Wildlife

Many wildlife species use the habitat available in the planning area. Most interest has focussed on grizzly bears. Grizzly bears form an important part of the wilderness-like experience in the planning area. Because of dwindling numbers worldwide, the grizzly population using habitat in the planning area is considered a provincially significant resource.

A number of questions remain unanswered about grizzly bear ecology. It is important to state some of the generalities known about grizzly behaviour in the planning area, so it becomes clear why there are uncertainties about each option's effect on grizzly bear population. More details on grizzly bear behaviour can be found in the Wildlife section of Appendix C.

Although grizzlies range widely, they infrequently encounter humans due to the wilderness-like quality of the area. Experience has shown that mixing people and grizzly bears results in a loss of bears. Six grizzlies were killed within the accessible part of the planning area last year. It is estimated that three to four bears killed by humans per year is the maximum sustainable level the population using the Babine River drainage can support.

Bears cannot live on salmon alone and many biologists feel berries are even more important in a grizzly's diet than fish. Grizzlies also use plant roots and greens as important seasonal food sources. Sites for these different food sources are spread across a number of ecosystems. Add to this the bear's use of alpine and subalpine sites for mating and denning (respectively), at different times of the year, and the picture of the frequent movement of grizzlies becomes clear.

A grizzly's range can be 60 to 80 kilometres which means bears from outside the planning area drainage likely use the Babine River corridor. The issue of maintenance of the grizzly population using the planning area, therefore, is not within the scope of this planning process but could

Part B Consensus Option

Introduction

The Terms of Reference handed down to the TAC state that its purpose is to ensure adequate information has been obtained prior to formulating options and management prescriptions. The ministerial direction was to use a local resource use planning process to develop an integrated resource use plan for the area which would include looking at potential bridge locations.

Integrated resource use planning is a process which identifies and considers all resource values, along with social, economic and environmental needs. Although this definition does not preclude any single use option, the TAC found that its best contribution was to use its composition of technical (government agency) and resource-user perspectives to work towards reaching consensus on a land management strategy for the planning area that would include a mix of resource uses.

In the spirit of achieving consensus, TAC members with initial positions moved from their original vision for the planning area. For all, there was a learning process; for some, a change of "their resource" perspective to accommodate other resource uses. The consensus solution was worked out in considerable detail because much of the cement binding it together is the high level of detailed planning and coordination that would be required to make it work.

This section and the Part B Appendices present details of the TAC consensus option. The first reason for presenting this amount of information is to give the reader as clear an indication as possible of one way that land management option 2 could be implemented. The second reason is that although the TAC included a range of resource use perspectives, it did not represent everyone concerned with the Babine River area. It is therefore important to know where the reader agrees or disagrees with the TAC's proposed management strategy.

Objectives and Methods

In order to recommend the best means for integrating resource values, the TAC developed objectives for fisheries, timber, tourism/recreation, and wildlife management within the planning area. The objectives are the rationale on which the consensus option is based.

The TAC talked about methods to attain these objectives. Recommendations for studies on alternate silviculture systems and grizzly bear habitat have been acted upon. Other methods would be addressed at a management plan, development plan, or operational level.

"It has been recognized that the Babine River corridor possesses unique natural values and features of provincial significance. It has also been recognized that an important timber resource is contained within the Babine River planning area. As a result, the following Goal Statement and planning Objectives and Methods have been developed in order to provide the framework to maintain the unique features of the Babine River along with forest management activities."

...Babine TAC

GOAL STATEMENT

To manage the identified natural resource values in the Babine River planning area in a manner which optimizes the social and economic benefits for both the people of the province and local residents while recognizing the ability of the natural resources to produce sustainable benefits.

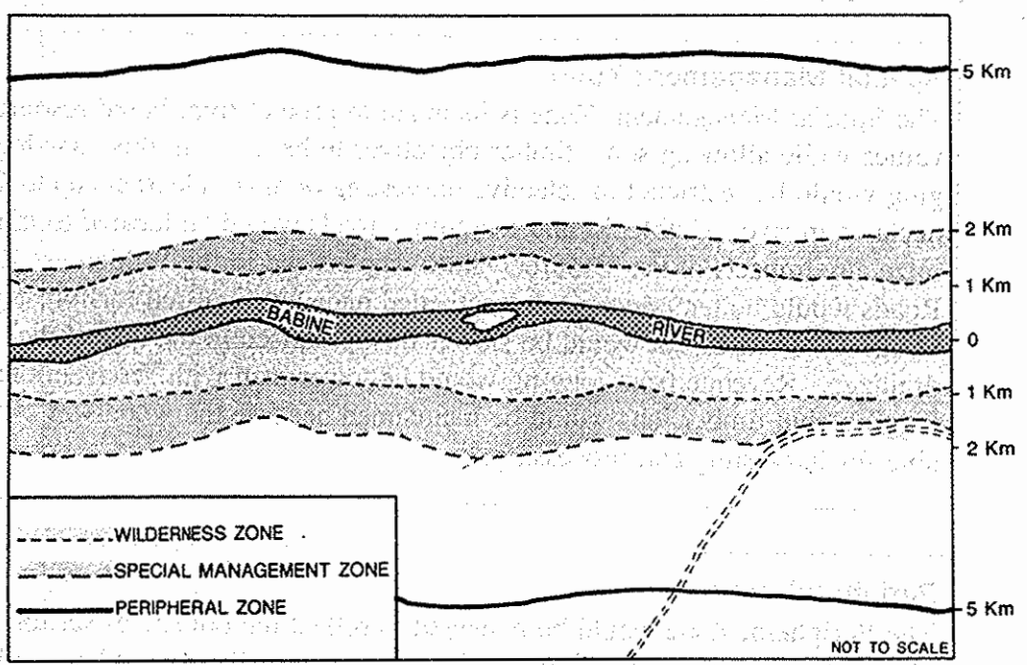
The TAC Objectives and Methods are found in Appendix G. If you do not agree with the Consensus Option it may be because you disagree with one or more of the objectives; conversely it may be the strategy to achieve an objective with which you disagree. It would be useful to know which is the case and what alternatives you would recommend.

Zones

Zones are recommended based on the principle that high wilderness, fisheries, recreation and wildlife values converge as one approaches the river. Hence management objectives and resource emphasis will change with distance from the river.

The TAC located boundaries for three zones which it named the Wilderness, Special Management and Peripheral Zones. The proposed location of these zones is shown on the fold-out maps (Appendix L) and the following sketch map.

Figure 3: Planning Zones



The **Wilderness Zone** extends the length of the river east from the Nilkitkwa Road to the Kiskegas Indian Reserve in the west. The width of the Wilderness Zone varies from 0.2 to 3.0 kilometres and averages about 0.9 kilometres on either side of the river.

The **Special Management Zone** is bounded on the inside by the Wilderness Zone; the outside boundary is two kilometres from the river or a main road, whichever is closer to the river.

The **Peripheral Zone** extends from the Special Management Zone out to the planning area boundary which is five kilometres either side of the river. For all intents and purposes however, this zone extends beyond the planning area boundary wherever resource management objectives within the planning area dictate.

The TAC has proposed specific guidelines for the three zones. These guidelines are set out in Appendix H. The following explains the general intent for each zone:

Wilderness Zone

The Wilderness Zone reserves a corridor along both sides of the river from logging. Within this zone are areas of sensitive soils, landscapes that are highly visible from the river and a mosaic of forest ecosystems, both coniferous and deciduous. Its outer boundary is based on important grizzly bear habitat which was identified through biophysical mapping and habitat ratings. There is commercial timber that will not be harvested.

Special Management Zone

The Special Management Zone is intended to protect river based resource values while allowing some timber objectives to be met. In this zone logging would be restricted to selective harvesting or small clearcuts up to 15 hectares in size. Cutblocks and temporary roads would be located to minimize any impacts of the resource values emphasized in the Wilderness Zone. Roads would be temporary and deactivated once not required for forestry work. The rate of cut would be slower than practised in the rest of the drainage. Revenue from logging would be lower than with "conventional logging" but timber jobs would be maintained because the wood was available for harvesting and processing.

Peripheral Zone

The Peripheral Zone would be managed to reflect the objectives set for the planning area. For example the Fish-Forestry Guidelines would be applied and buffers would be left along sensitive areas bordering tributaries to the Babine River. Grizzly bear hunting restrictions and measures to restrict access and maintain high use habitat would be applied to meet grizzly bear management objectives. Areas visible from the river would be managed to retain their natural appearance. The Interim Timber Harvesting Guidelines for the Interior of the Prince Rupert Forest Region (1991) will provide a minimum standard for operations.

In addition to reserving a corridor along the river from logging, **the TAC recommends that the Wilderness Zone be designated by legislation as Wilderness under Section 5.1 of the Forest Act.**

The following are features of a Provincial Forest Wilderness:

- No commercial timber harvesting;
- No public roads;
- Restricted or prohibited motorized access and use;
- Subsurface resource use not prohibited but carefully regulated;
- Existing trapping may be allowed;
- Area-specific objectives and guidelines established in Wilderness Management Plans;
- Normal agency jurisdictions prevail (e.g. commercial recreation use administered by Ministry of Lands and Parks subject to Wilderness Management Plan);
- Hunting may be allowed, subject to B.C. Environment Regulations and Wilderness Management Plan.

Access

Careful access planning is required to maintain the wilderness-like setting along the river and the grizzly bear population in the drainage. The TAC considered ways to limit access to protect these values while still providing benefits from recreational use of the area. Bridge crossings, main roads, access to logging blocks in the special management zone and access control measures were discussed.

A bridge crossing of the Babine River near Gail Creek is not recommended. Alternative routes would use a crossing point near Sam Green Creek, west of the planning area. The Gitksan-Wet'suwet'en had a court injunction over bridge construction at this location; this was recently dismissed by the B.C. Court of Appeal. Other considerations of a crossing at Gail Creek are:

- Grizzly bears frequent the Gail Creek area so bear mortality is anticipated;
- There is an existing lodge to the east of Gail Creek that would be negatively impacted;
- As the bridge would bisect the 90-kilometre stretch of wilderness-like river, wilderness tourism opportunities would be considerably reduced;

- shorter, less difficult trips would be possible from the Nilkitkwa River to the bridge (however, given the trend of increasing recreational use, at some point the river's carrying capacity will be reached whether there are two- or five-day trips available);
- even if the Gail Creek bridge was constructed, the difficult waters and few campsites downstream from it mean that section of the river would remain a recreation opportunity for only very experienced and/or guided boaters.

The Shenismike route is recommended as it is the most compatible with the planning objectives outlined by the TAC. The first proposal for this route was within two kilometres of the river, which was unacceptable to the TAC. In 1990, however, it was successfully field located two kilometres back from the river. Although this route is not as economical for timber harvesting as the Gail, it has the best potential for meeting multi-resource objectives. Whether it does depends on the management strategy for the area.

The TAC recommends that all main roads be located two kilometres or greater from the river to protect river based values. Locations of main access roads in the planning area have been proposed. The TAC looked at specific instances where it was not possible to locate roads according to this guideline. One notable exception is the Big Slide Chart Area south of the Babine River, within the Kispiox District; here, topographic constraints mean that a main road would be located within one kilometre of the river and within portions of the Wilderness Zone. A discussion of this and other exceptions is found in Appendix I.

The TAC recommends that a Coordinated Access Management Plan be developed and implemented. This is in accordance with the TAC's objective to "manage access to the river corridor so wilderness values are maintained." One aspect is to prevent four wheel drive and other all-terrain vehicles from reaching the river while providing access to those who would walk a few kilometres. If there is extensive access to the river then the features and hence value of the Class 1 fishery as outlined in Appendix C would be severely diminished.

The TAC proposes to ensure that motorized access to the river is prevented by using bridges at the Nilkitkwa, Nichyeskwa and into the Big Slide Chart Area as access control points. Bridge spans, or the entire bridge, would be removed during periods of highest grizzly bear and recreational use of the river. Harvesting activities would not occur beyond the bridge during these periods. Some harvesting may be agreed to in specific instances where alternative summer harvesting areas cannot be found. In general, the bridges would be in place and harvesting would occur in the winter.

Appendices

PART A: OPTIONS APPENDICES

Removing bridge decks is not popular with those who access areas other than the river. Another possible option is to deactivate existing and proposed roads at two kilometres from the river. This is difficult and expensive to do effectively. If road deactivation was ineffective, access control at the bridges could then be used. Criteria to judge at what point this would be necessary must be set and the annual monitoring must be rigorous.

Secondary roads providing access through high use grizzly bear habitat or the Wilderness Zone would be "put to bed" or made impassable once not required for forestry activities. Specifics would be worked out at the management and development planning levels and would be governed by the Coordinated Access Management Plan. Representatives of user groups should be involved in this management plan.

Monitoring

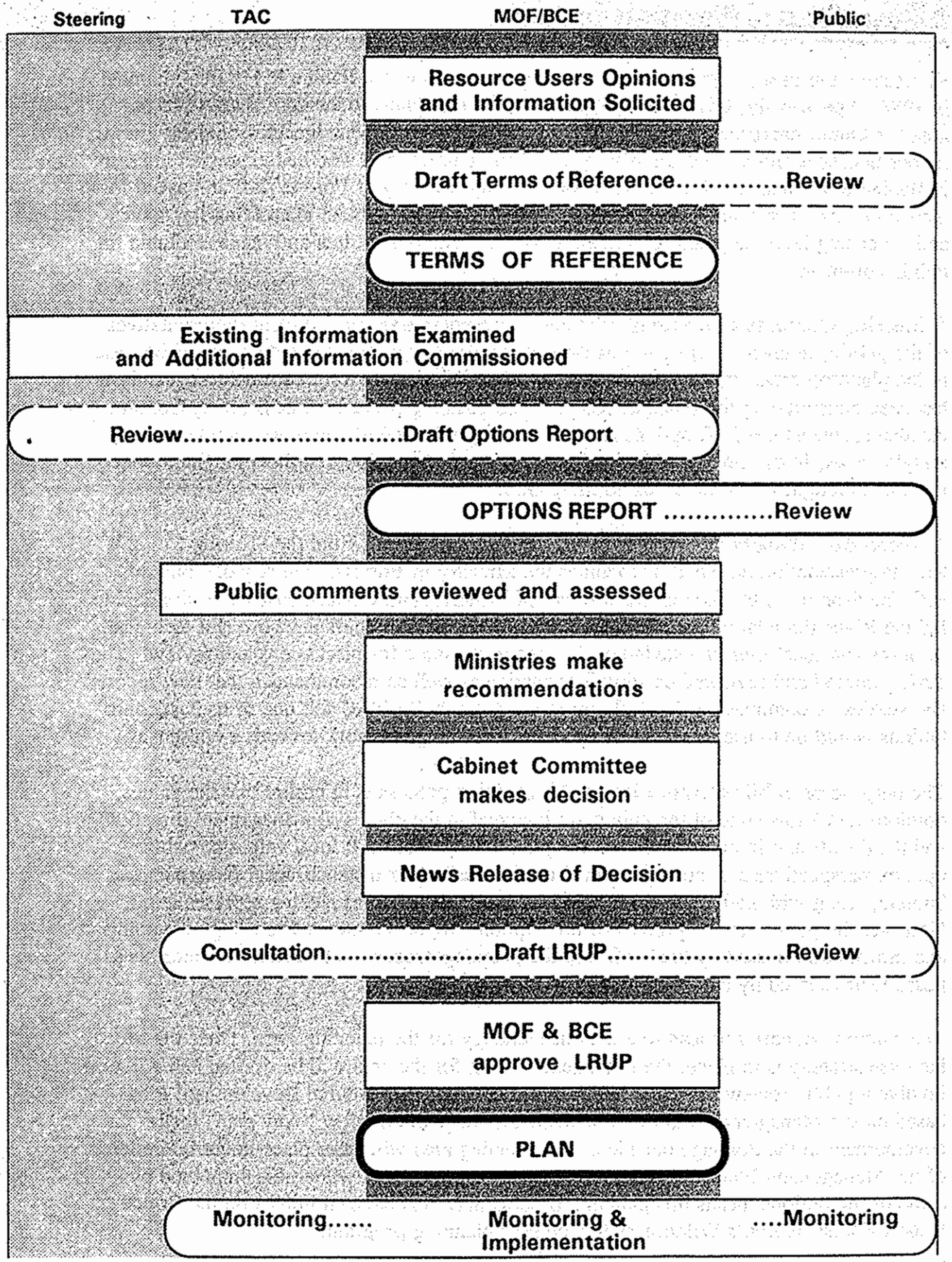
Annual monitoring and a comprehensive five year assessment of the plan for the Babine River area is recommended. The success of the TAC Consensus Option is based on coordinating the management of resources to a level of detail far beyond current practice. The need to learn and incorporate new resource management information as it becomes available, and to check that management objectives are being met, is necessary to ensure that excellence in resource management is achieved.

The One Kilometre Strategy is recommended as a special monitoring requirement. This strategy was proposed to apply to areas within one kilometre of the river not included in the Wilderness Zone. As the management techniques proposed in the Special Management Zone are largely new and unproven, this strategy provides a security measure for the areas indicated on the fold-out maps (Appendix L). The strategy is outlined in Appendix J.

Another critical piece of monitoring information is reported bear mortalities. Last year six grizzlies were reported killed within the planning area. It is estimated that within the drainage there can only be four mortalities per year without a population decline. **The TAC therefore recommends that there should not be an open hunting season for grizzly bear in the Babine drainage as currently exists. Options are to have limited entry hunting only or a complete closure.**

The TAC considered other criteria that could measure the success of management activities. Once plan objectives are set, baseline information and a more comprehensive set of monitoring criteria would be required. For example, to monitor river recreational use, criteria such as encounters per day with float and shore parties, and biophysical condition of campsites could be used. Other ideas are presented in Appendix J.

Babine River Local Resource Plan (LRUP) Planning Process



App2

BCE B.C. Environment Ministry
MOF Ministry of Forests
TAC Technical Advisory Committee

Step
Document

Appendix A: Planning process

Harvesting and user group pressures for competing uses in the Babine River area mounted in 1988. Specifically, this process began in reaction to plans to increase access into the area for timber harvesting purposes. That same year government agencies, interest groups, timber licensees and individuals who were resource users, and who had expressed interest in Babine River resource issues, were contacted by Ministry of Forests staff and asked for their opinions. From this information a draft Terms of Reference, identifying key issues and proposing how the planning process would unfold, was written and made available for public comment.

A **Steering Committee** consisting of about 35 members was formed from representatives of the public, interest groups and government agencies to embody a wide range of interests in the planning area. Its first task was to review the Terms of Reference. Subsequently it has been consulted on the broad direction of the planning process. The Steering Committee also reviewed the draft options report. Although the report could not represent everybody's views, it was revised to include much of the information that Steering Committee members thought would be useful to the public.

A **Technical Advisory Committee (TAC)** was formed from within the Steering Committee. Representation on the TAC includes the Ministry of Forests, Ministry of Tourism, B.C. Environment, the federal Department of Fisheries and Oceans, Friends of the Babine, Babine River Foundation and the forest industry. TAC members have brought technical, resource and local user knowledge of the area to the table for discussions and review. The TAC gathered and reviewed existing information as well as recommended that new reports and studies be commissioned. Early on in the process, the TAC felt one of its best contributions would be to use its technical and local knowledge to work towards a consensus.

The purpose of **public consultation** in this planning process is to ensure that the values, opinions and knowledge of the public are included in the choice of management direction and the details and implementation of the plan for the area. All local values or public opinion perspectives are not represented on the TAC. For instance, local fishermen and hunters, along with native groups, could readily be identified as lacking representation. However the public review process of this Options Report is intended to bring viewpoints and information missed by the TAC into the planning process so that as many interests as possible are served by any plan developed for the area.

This Options Report will lead to a land use strategy for the planning area. Once the broad land use strategy is in place, the Management Plan for the area will be drafted and will also involve a public review process. When this is completed, Resource Development Plans based on the Management Plan will be available for public review. Any plans for resource development in the drainage outside of the planning area will take place in consideration of the Management Plan. As well, the potential for legislated wilderness embodied by some of the options means this planning process may also have an impact on the Prince Rupert Forest Region's Wilderness for the 90's planning program.

For example, this year the Fort Babine natives intend to harvest 100,000 adult sockeye salmon and sell them to a commercial fish packer. In forestry the Fort Babine natives are involved in a road maintenance contract. They realize their people need training in forestry and see taking over a small percentage of a forest company's AAC on territorial land as a way of gaining experience in modern forest management techniques.

Trapping still occurs on the territorial land. It is not simply an economic or sustenance practice but is an integral part of Na'doet'en political and societal life. The Fort Babine Na'doet'en want to keep this traditional aspect as part of their lives in the future.

Generally, the Fort Babine Na'doet'en feel all wildlife and fish are important and should be conserved and protected. They want protection of trapping and trap lines in their territories as well as protection of sacred areas, such as berry picking sites. They do not want to adopt the non-native mental outlook, but they do want to be involved in the management of resources in their territory. They would like to see employment opportunities, derived from local resources, for natives in the area.

In 1906 the Canadian army removed traditional fish weirs at the original Na'doet'en community at the east end of the planning area and moved the people living there to Fort Babine.

Today the community of Fort Babine is comprised of about 135 natives and a handful of non-natives. A road reached the community in the 1970s. Electric power arrived in 1985, the same year a bridge was built across "rainbow alley" to the community on the east side of the narrows.

Resources

The environment is important to the Fort Babine natives. Their idea of the environment includes all insects, animals, vegetation, aquatic life and soils and not just facets of those categories of interest to non-natives as resources. All natural things found in Na'doet'en territory are sacred resources because they are part of the sacred land.

The Fort Babine Na'doet'en wonder about the narrow focus on a few natural elements in a small piece of land called the planning area. For example, they understand the specific attention paid to grizzly bears and their management, but this understanding is through the non-native approach to the environment. In the Fort Babine Na'doet'en approach, the grizzly bear is important but so are all the other animals who use the forest land. In fact the Na'doet'en do not share the non-native view of the grizzly as "king of the forest". They point to the example of a grizzly bear abandoning a den if it becomes inhabited by a porcupine as illustrating who is really powerful in the forest. Again, regardless of who is most powerful, the Fort Babine natives see all animals in the planning area as sacred.

A traditional Na'doet'en fishery occurred at the present day Department of Fisheries and Oceans weir at the east end of the planning area. The fishery consisted of weirs guiding fish into baskets which were lifted out of the river. Records kept by non-natives estimated about four million fish were harvested annually. The Na'doet'en had conservation conventions such as how many fish should pass before the weirs were used and removing the baskets at night when no one was present to empty them.

Living in wilderness has been commonplace in the lives of the Fort Babine natives; it is the normal situation. Because of this, the non-native idea of attaching value to wilderness is a somewhat foreign concept to traditional Na'doet'en philosophy. The Fort Babine natives can understand wilderness as many non-natives do--as means to earn a livelihood. However the Fort Babine Na'doet'en are economically depressed and find it extremely difficult to raise capital for tourism ventures such as fishing and hunting lodges.

The unemployment figure in Fort Babine is more than 95 per cent so the people living there are interested in developing sustainable employment opportunities on the land. Plans include commercial fisheries, forestry and tourism.

Appendix C: Resource descriptions/evaluations

Setting

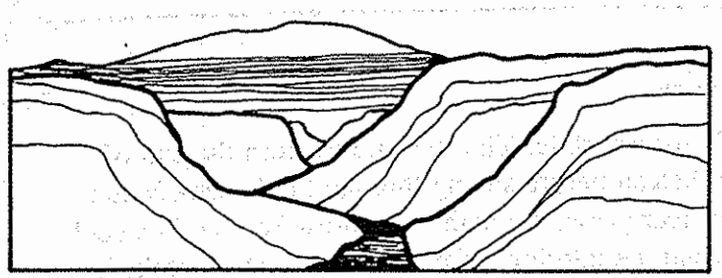
The Babine River watershed is in a fairly natural state. The river flows from the end of Nilkitkwa Lake and across the Nechako Plateau before slicing through the Skeena Mountains and joining the Skeena River. The river passes through two Forest Service biogeoclimatic zones--the sub-boreal spruce zone and the interior cedar-hemlock zone. Creeks in the upper elevations of the watershed also pass through two biogeoclimatic zones--the alpine tundra zone and the Engelmann spruce-subalpine fir zone. Climax forests and naturally disturbed areas, including those burned by wildfire, are typical of the Babine watershed. The combination of these two systems provides varied habitat supporting abundant and diverse flora and fauna.

Logging roads and harvesting activities are found along the Skeena River west of the planning area, in the upper Gail and Cataline Creeks south of the Babine River and around Babine Lake and the Nilkitkwa drainage east of the planning area. No road access is available to most of the planning area so limited logging has occurred near the planning area. Within the planning area there are three fishing guide operations located along the upper river. Limited access and a low state of development means the area is currently in a wilderness-like state.

From the river, the pristine riparian environment and some excellent views of the upland hills and mountains make an attractive setting. The river is contained within a relatively narrow valley incised into the plateau to the east, and into the Skeena Mountains to the west and north. This narrow valley broadens somewhat in the middle section of the river. The western third of the river is particularly canyon-like but views once again open up before the Babine meets the Skeena River. Predominant views are of forest and river scenery. The sketches in this appendix represent some typical views along the river.

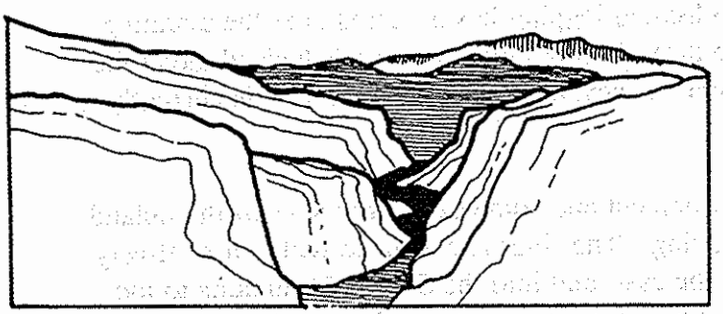
A landscape inventory determined 13 per cent of the planning area is visible from the river. Of this 70 per cent is very sensitive to visual landscape alterations such as logging. Much of the highly visible area is within the immediate foreground of the river and will not be logged under any management option. Visual objectives for the remaining areas seen from the river will be set to match the land management strategy option selected. For example, if natural scenery from the river is to be maintained, then an objective of retaining moderate or highly visible background areas could be assigned. If logging was permitted in these areas it could meet these objectives using alternatives such as selective logging, terrain-based cutblock design, slower rate-of-cut, or deferral of logging.

Babine River -- landscape sketches



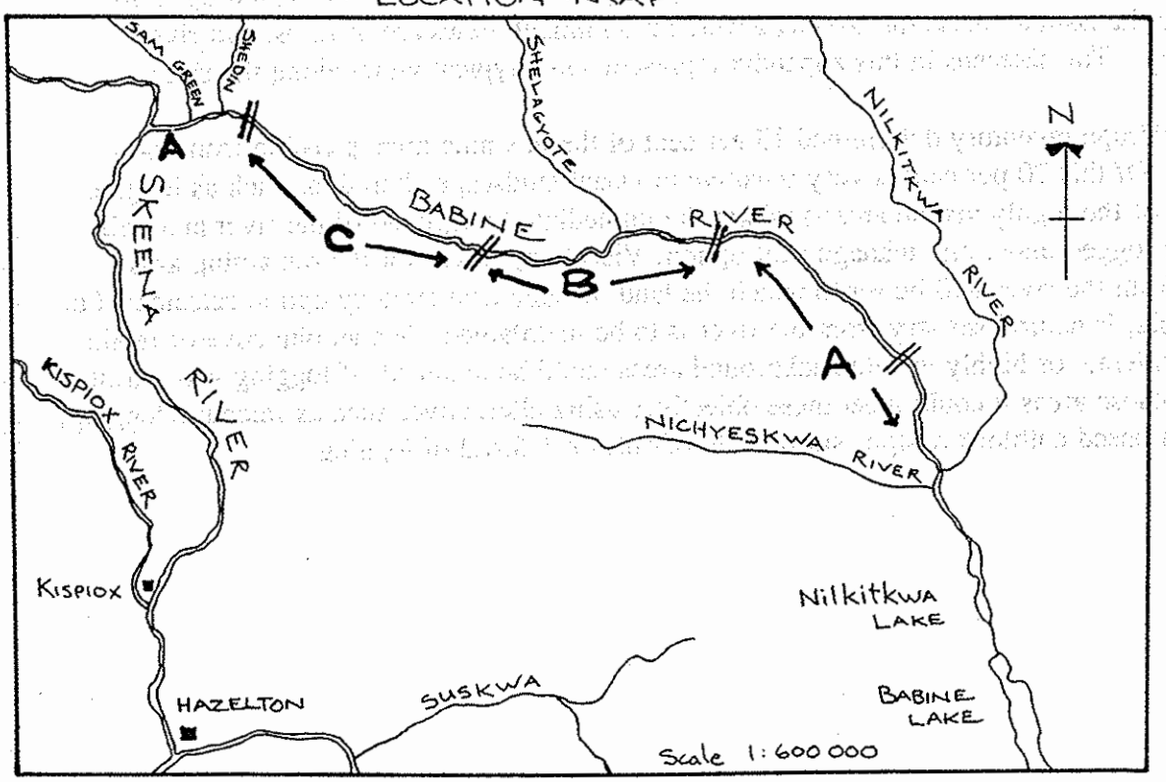
A NARROW STEEP VALLEY
typical of upper and lower river sections, restricted views

B WIDE, MODERATELY SLOPED VALLEY
typical mid-river, greater viewing opportunities



C TYPICAL NARROW CANYON
e.g. Kisgegas Canyon; very restricted views

LOCATION MAP



Fisheries

The Babine River watershed, in terms of numbers and size of fish, is one of B.C.'s best. Within the Skeena drainage, it is the largest single producer of both sockeye salmon and steelhead trout. Large populations of chinook, coho and pink salmon, Dolly Varden char, cutthroat trout and other fish species are present as well. The Skeena drainage sockeye salmon population is the largest in the province next to the Fraser River system. Commercial, recreational and native fishermen catch fish from the Babine watershed around Prince Rupert, through the Skeena's mainstem, the Babine River and in Babine Lake.

The steelhead sport fishery in the Babine River is world renowned. The fish have sustained a healthy guiding industry for almost thirty years. The value and uniqueness of this "catch-and-release" sport is due to quality natural steelhead stocks, water clarity and uncrowded fishing conditions. The Babine River is the only river in the entire steelhead range where world record size wild summer steelhead can be caught in a wilderness-like environment.

The Babine River is one of only five legislated Class 1 rivers in the Province. The Class 1 designation was recently established to protect superlative sport fishing opportunities as angling pressures increase. The intent is to maintain a quality fishery over the long term, thereby sustaining the benefits it brings. Fishing opportunities will be limited by the Class 1 permit system giving first priority to Canadian residents and second to nonresidents. Strict water sedimentation control measures will be required as water clarity beyond that required for fish habitat protection is critical for quality sports angling. B.C. Environment has the responsibility for Class 1 fisheries management.

There are currently four licensed guides, three of which operate during the steelhead season of September through October. Guides pay a $200.00 annual guiding licence fee plus $1.00 per day per client. There are a total of 1708 rod-days currently allocated to the three guides which comprises about 40 per cent of the present total steelhead angling use. Total use is not legislated at this point. It is unlikely that the portion allocated to guides will be increased when it is legislated, given the current B.C. Environment direction. Non-guided B.C. residents pay $1.00 per day and non-B.C., non-guided residents pay $20.00 per day for steelhead fishing.

A Steelhead License Survey is provided in the following table.

BABINE RIVER - STEELHEAD LICENSE SURVEY[1]

NUMBER OF ANGLERS

	B. C. Resident				Non B. C. Resident				
Year	Local	(%)	Non-Local	(%)	Canadian	(%)	Non Canadian	(%)	Total
1977-78	47	14.9	91	28.9	9	2.9	168	53.3	315
78-79	52	16.3	90	28.1	21	6.6	157	49.1	320
79-80	86	26.7	69	21.4	8	2.5	159	49.4	322
80-81	103	27.2	93	24.6	15	4.0	167	44.2	378
81-82	61	21.0	84	26.9	12	4.1	134	46.0	291
82-83	118	34.0	61	17.6	6	1.7	162	46.7	347
83-84	114	28.9	76	15.3	11	2.8	193	49.0	394
84-85	83	23.2	70	19.6	5	1.4	200	55.9	358
85-86	99	22.9	85	19.7	12	2.8	236	54.6	432
86-87	179	29.6	85	14.1	17	2.8	323	53.5	604
87-88	83	16.3	81	15.9	9	1.8	335	65.9	508
88-89	84	17.9	81	17.3	33	7.0	271	57.8	469
89-90	43	10.9	97	24.7	2	0.5	251	63.9	393
90-91	79	15.3	148	28.6	28	5.4	263	50.8	518
Mean	88	21.8	87	21.4%	13	3.3	216	53.4	404

ANGLER DAYS

	B. C. Resident				Non B. C. Resident				
Year	Local	(%)	Not Local	(%)	Canadian	(%)	Non Canadian	(%)	Total
1980-81	427	20.8	460	22.4	171	8.3	996	48.5	2054
81-82	203	13.2	397	25.8	71	4.6	865	56.3	1536
82-83	577	31.6	254	13.9	26	1.4	971	53.1	1828
83-84	477	24.1	393	19.9	68	3.4	1040	52.6	1978
84-85	467	22.2	419	19.9	29	1.4	1187	56.5	2102
85-86	507	20.1	431	17.1	56	2.2	1529	60.6	2523
86-87	1178	35.1	304	9.1	68	2.0	1805	53.8	3355
87-88	482	15.0	756	23.6	17	0.5	1948	60.8	3203
88-89	399	13.3	982	32.8	118	3.9	1492	49.9	2991
89-90	487	19.5	501	20.0	5	0.2	1510	60.3	2503
90-91	799	26.7	572	19.1	120	4.0	1498	50.1	2989
Mean	546	22.2	497	20.2	68	2.8	1349	54.8	2460

[1]Information compiled and collected by B.C. Environment, Skeena Region, from standard mail questionnaires.

The ability of the river corridor to support land-based activities, such as camping and hiking, varies considerably along the river's length. Poor soil drainage, sensitive soils and steep slopes along the uppermost portion of the river limit campsite locations. The lower part of the river corridor cannot withstand much additional use due to steep, unstable and failing slopes. Campsite locations are scarce in this lower third of the river. The middle section of the river is wider and provides numerous well-drained gravel bars and dry river terraces which could sustain more use. Locations of the high quality fish runs and the need for acceptable daily travel times for various types of trips are considerations for any potential recreational development.

The Babine Wild River Proposal Resource Values Analysis

The Babine Wild River Proposal Resource Values Analysis, June 1989, Ric Careless, Ethos Consulting was commissioned by the Babine Foundation. The report looks at resource values in the Babine River area and transportation options in relation to those resource values. The following information is excerpted from pages 18 through 27 of this report.

Babine River Adventure Tourism Product Value (1987$)*

Product	Current	Potential
Steelhead Fishing	$ 979,776	$2,020,032
Rainbow Trout Fishing	302,400	378,000
Rafting	162,000	378,000
Wildlife Viewing		364,121
Total	$1,444,176	$3,140,153

(* Gross direct revenues)

Commercial Sports fishing

Steelhead

Three sports fishing camps operate on the Babine focussing on the world class steelhead fishery. All commercial sports fishing is on a catch and release basis. Given current usage levels, this top calibre fishery is sustainable at the present level and quality as long as the environmental integrity of the river is maintained.

Presently these three steelhead operations have a combined capacity of 48 clients per day.

Babine River Commercial Fish Camp Capacities

Silver Hilton Lodge	12 clients
Babine Steelhead Lodge	18 clients
Babine Nor-Lakes Lodge	18 clients
Total Babine River Fish Camp capacity	48 clients

Source: Individual Babine River fish camp operators.

Given that the commercial sports fishing season is 63 days, the commercial capacity on the Babine is 3024 angler days.[1]

In 1987, the average daily fee for the three steelhead operations was $324 to yield gross revenues at capacity of $979,776. (Note this figure only includes the lodge fee charged by operators. Hence all tourism travel costs, licence fees, and indirect expenditures are not included here.) Since then, rates have risen substantially: currently the most established lodge is charging and receiving $437/day. At this as a bench mark rate, then the commercial Babine steelhead fishery has a current market potential worth of $1,321,488 annually.

However, given the premier world class worth of this steelhead river, these rates still undervalue the resource. A report undertaken in 1987 for the Babine River Working Group by C. Brown, Economist with the Ministry of Environment, stated that the Babine steelhead fishery could ultimately fetch a market price of: $668/angler-day particularly if the river receives Special Fisheries status (since this would enhance market image and assure product quality). (Note: This per diem figure is derived by assessing similar quality product worldwide.)

Therefore at this level, the potential market value for the Babine sports fishery would be $2,020,032 per year (1987$).

[1] Although 3024 angler days (48 clients x 63 days) is the figure used here, the B.C. Environment regulated total is 1708 angler days and is not planned to be increased.

Rainbow Fly Fishery

One operator (Babine Nor-Lakes) also runs a rainbow trout fly fishing operation on the upper river - from Nilkitkwa Lake to Nor-Lakes Steelhead camp - for the months of mid-June to mid-August. This is a lower value product with less value growth potential than for steelhead (since it does not qualify as a world trophy class). Still in 1987, the operator reported charging $300/day. Given a facility capacity of 18 and a season of 56 days, the gross revenues of this operation at capacity are $302,400. The potential for rate increase on this product is conservatively estimated to be 25% for a potential value of $375 x 18 x 56 = $378.00.

Rafting

Currently 6 different companies are known to offer trips here. The favoured commercial trip length is 4 days (although some run to 5) and takes 15 customers on average. The leading B.C. wilderness rafting companies set the market rate of this river to be $180/ person day. In 1987, 15 trips in total were run on the Babine by the various companies. Therefore, in that year commercial rafting use of the Babine generated an activity level of 15 (trips) x 4 (days) x 15 (people) x $180 to generate estimated direct gross revenues of $162,000.

Operators note that the river could handle at least 35 trips per season with no decline in client wilderness experience. (This launch rate ensures no crowding at campsites on the river, and allows a 70:30 commercial to private trip ratio.) Therefore at this use level, and charging the current market day rate, the Babine rafting industry has the potential to generate gross revenues of $378,000 per year. This represents a growth of $216,000, or 133% over the present.

Wildlife Viewing

Operators on the Babine are just beginning to develop the capability to provide wildlife viewing services. Present activity is limited to animals seen while rafting. However, several other viewing packages are possible. Product description, season, cost and gross revenues have been forecast below:

1. Late Winter wolf-howling/moose viewing: Offered in March and April, this particular package would be operated out of the Silver Hilton Lodge and would be integrated with cross-country skiing.

Season: 4 weeks	28
Number of accommodation units available	12
Price/guest-day	$130
Gross revenues	$43,680

2. Spring Bear Viewing: Offered for 3 weeks in May when the bears have descended from their mountain den sites, this package would offer moderate bear viewing as well as moose viewing opportunities.

Season: 3 weeks	21 days
# of accommodation units available	24
Price/guest-day	$130
Gross revenues	$65,520

3. Peak Bear Viewing: Offered for 3 weeks in August during the height of the salmon run, this package offers the chance to see the most bears, a very major salmon spawn and large numbers of eagles during summer weather conditions. Therefore, it is the highest value package.

Season: 3 weeks	21 days
# of accommodation units available	48
Price/guest-day	$200
Gross revenues	$201,600

4. Fall Bear Viewing: Offered for 4 weeks in September, this package still offers excellent bear viewing opportunities, although the size of the salmon run declines in later September. Moose are also easily seen on the river at this time. However, weather conditions are not as attractive at this time as in August. The number of accommodation units available at this time are much reduced since this is the heart of the steelhead season.

Season: 4 weeks	28 days
# of accommodation units available*	16
Price/guest-day	$160
Gross revenues	$71,680

*Based out of Nilkitkwa Lake Camp

On the basis of the foregoing packages, the potential commercial wildlife viewing revenues of the Babine River are estimated to be $382,480 (or $364,121 in 1987$). These revenues can all be realized at existing facilities.

Non-Guided Sport fishing Expenditures (in 1987$)

	Daily Gross Expenditure/ Angler-day*	# Angler-days**	Total Expenditures
Current Use Levels			
Residents	$62.77	1,503	$ 94,343
Non-Residents	$97.04	377	$ 36,584
Total Current:		1,880	$130,927
Potential Expenditures			
Residents	$62.77	1,640	$102,943
Non-Residents	$97.04	410	$ 39,786
Total Potential:		2,050	$142,729

Sources:* Ministry of Environment. Economic Values and Impacts of Freshwater Sports Fishing in B.C., 1988.

** Ministry of Environment, Babine Fishery Economic Evaluation -- Summary; C. Brown, April 1988.

Timber Development

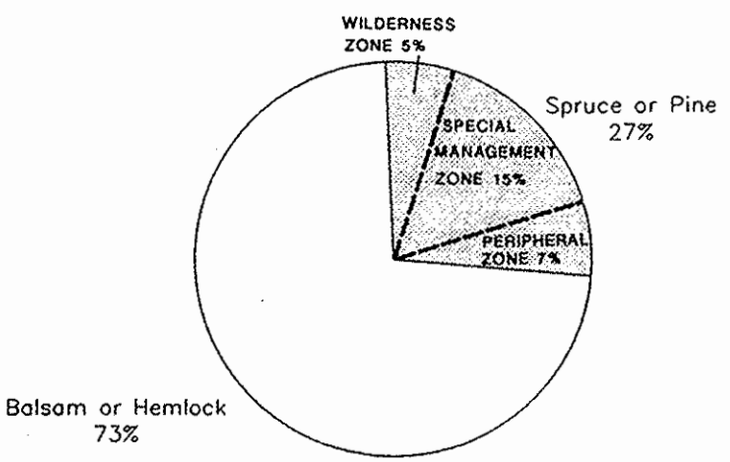
There are substantial forests within and adjacent to the study area. If logged, the trees will be used by local mills for lumber and chip production. Harvesting would be through Forest Licenses, Small Business and Value Added tenures. The timber volume represented by the trees in the planning area equals about eight and five per cent of the annual harvest from the Bulkley and Kispiox TSAs respectively. Volumes are detailed in Appendices C and K.

The segment of the planning area within the Bulkley Forest District contains about 80 per cent merchantable pine and spruce. In contrast, the remainder of the District has a higher portion of balsam than is found in the planning area. Pine and spruce trees are more valuable to the mills than the lower-valued balsam and help to keep the milling operations viable.

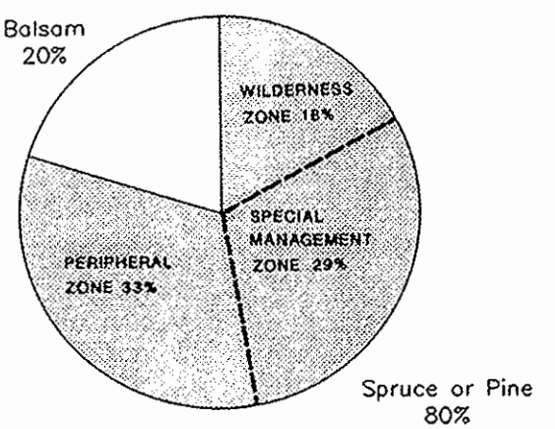
In that part of the planning area in the Kispiox TSA, balsam and hemlock make up 73 per cent of the merchantable timber. The species distribution shown in the figure below is reflective of the overall situation within the Kispiox TSA. The area also has deciduous trees which, although not currently utilized, have future economic potential.

Merchantable Volume by Leading Species

Planning Area within Kispiox District



Planning Area within Bulkley District



Employment in the Forest Industry in B. C. 1983 - 1987

	Logging	Manufacturing	Total
	..person years/000m³ harvested..		
Coast	0.41	0.94	1.35
Interior	0.16	0.49	0.65
Total	0.25	0.65	0.90

Note: Manufacturing includes Sawmills, Plywood, Veneer, Pulp and Paper and Shingles & Shakes

Source: Statistics Canada - Canadian Forestry Statistics
Ministry of Forests - Annual Reports

Estimates of Provincial Revenues from the Forest Industry
Forest Revenues

		Corporate Tax Revenue				
Year	Logging Income Tax	Corporate Income Tax	Social Ser.Tax	Property Tax Prov.& Mun.	Electricity Taxes	Total
		(millions of 1990 dollars)				
1990	3.0	7.0	191.0	133.0	74.0	408.0
1989	35.9	129.7	190.9	117.1	53.8	527.4
1988	45.2	178.2	164.1	101.3	54.0	540.8
1987	27.4	99.3	188.6	114.1	54.8	462.1
1986	10.6	85.9	135.3	140.0	58.8	430.5
$/m						
1986-90	0.32	1.31	2.23	1.59	0.78	6.22

Note: Stumpage, Royalties and Rents not included.

Source: Price Waterhouse

Revenue from royalties and rents is insignificant.

Babine Development and Transportation Study

The following summary is excerpted from Babine Development and Transportation Study, November 1990: T. M. Thomson & Associates Ltd.

Capital, maintenance and haul costs for the three development options are summarized as follows:

	Development Option 1	2	3
Total Capital Cost	$3,757,370	$3,297,390	$4,763,090
Maintenance cost/year	157,850	153,320	228,730
Hauling Cost	$11.25/m³	$11.98/m³	$12.33/m³

If twenty years are allowed for a first pass logging operation and amortization of capital costs, then the following costs may be calculated:

	Development Option 1	2	3
Capital Cost	0.86	0.81	1.09
Maintenance Cost	0.72	0.70	1.04
Hauling Cost	11.25	11.98	12.33
Total	$12.83/m³	$13.49/m³	$14.46/m³

Therefore, the cost of not building a Babine River bridge near Gail Creek and developing the Shelagyote drainage via the Shenismike route is $0.66/m³ or a total of $2.88 million for the first pass operation (20 year harvest).

Should the route via Atna Pass be considered, this extra cost is $1.63/m³ or $7.11 million for the first pass operation.

Although Development Option 1, development of the Shedin drainage from Kisgegas and the Shelagyote drainage from Gail Creek, will not result in the lowest cost for main road construction, the savings in haul costs and the reduced operating constraints more than outweigh the higher capital costs.

Development Option 2, development of both the Shedin and the Shelagyote drainage from Kisgegas via the Atna Pass route, is definitely the least desirable option. This option not only requires the highest capital and haul costs, it will also present the most operating constraints.

As to visual impact of any of the proposed routes, only the crossing at Gail Creek and some of the initial sections of that road would be visible from the Babine River; similarly, of course, the crossing at Sam Green Creek and the section of road between Sam Green Creek and the Kisgegas Indian Reserve. The Shenismike route for access to the Shelagyote drainage does not seem to be visible from the Babine River. Sections of the Atna Pass route, however, are expected to be visible from certain spots along the Babine River.

Alternative Silviculture Systems Analysis

The source of the following excerpts is: Alternative Silviculture Systems Analysis for the Babine LRUP; October, 1990; Fred Newhouse, Pacific Regeneration Technologies Inc.

The assessment of alternative silviculture systems in the Babine River corridor was conducted during the summer of 1990. Management Units were developed using Biophysical mapping and Biogeoclimatic maps.

Transects were identified throughout the corridor to sample management units and timber types. Plots along the transects measured cruise information as well as data on advanced regeneration and non-resource constraints.

Stand structures were classified and the decision key for silviculture options was applied to the acceptable leave trees.

The Habitat Units as mapped by the Ministry of Environment can be used for broad scale timber planning as they match the ecosystem sites closely.

The alternate silviculture systems available to forest managers are limited by the age and health of the Babine Corridor forest stands. Smaller clearcuts are always an option, although road costs are high for the volume removed and access must be maintained to remove the small units.

Seed-tree systems are not familiar to the Rupert Region's forest managers, but offer an opportunity to harvest larger block sizes while maintaining the visual quality objective and some key features of the old growth forests such as overstory, and where seed-trees are deferred, snags and dead and down woody material. The other advantage to seed-trees is yarding costs for conventional skidding are not much higher and options are still available for site preparation and planting where the need exists.

The other advantage to the seed-tree system is the ability to manage on a two (2) pass and close down the access roads till the next pass in 35 - 45 years.

Shelterwood systems seem applicable in the ESSF portion of the Special Management Zone where residual balsam is sound and relatively stable. There are a lot of snags in these stands and restrictions on working beneath snags will need review during the planning stage.

Selection systems are not applicable in the mature and older stands. There are younger age 50 to 60 stands where selection may be practised and future plans should assess these stands once access is available.

Economic Assessment

The general statement on the economics of the alternate silviculture systems is that less volume per hectare will be removed during the first pass on the seed-tree, shelterwood, and selection systems. Road costs, skidding and hauling costs will stay the same or increase. An Oregon study compared shelterwood harvest versus clearcut and found ground skidding was 13% more expensive while skyline systems were 39% higher. (Kramer 1985).

One option is to decrease clearcut size and achieve the visual quality objectives by removing a third of the block at a time.

The feasibility of any large development such as the Babine Corridor is not determined block by block, but by the total available volume potentially available within a 20 year cutting period. Fixed costs can only be amortized at this level of assessment.

The major selling point for shelterwood systems is stated well by D. Smith 1979: "... shelterwood becomes a way of acting on the common fact that some of the trees in even aged stands can continue to earn their own way beyond the time when it becomes logical to give some of the growing space over to the next crop."

Biological Applicability

The variation in a stand's structure and health as it climaxes may be greater than any generalization mentioned on the suitability of the silviculture system to provide a sustaining forest.

Wildlife

The variety of wildlife within the Babine River watershed includes grizzly bear, moose, black bear, wolf, eagle, mule deer, mountain goat, caribou, fur bearers, and numerous nongame animals. Of these species, the grizzly bear and moose are considered the most important from a wildlife management viewpoint. The river corridor has a large diversity of habitats which results in high wildlife use. The numbers and variety of animals attract hunters and also provide excellent opportunities for diverse wildlife viewing for fishermen and rafters.

The Babine River watershed supports a provincially significant population of about 110 grizzly bears. The limited floodplain of the Babine River, and the deciduous forest on the south-facing slopes adjacent to the river, are examples of important spring range used by grizzly bears. From August until late fall, when spawning salmon are abundant, grizzlies congregate on the shores of the Babine River. High grizzly bear use of salmon occurs at the eastern end of the river, near the fishing weir at Nilkitkwa for short periods, and at grizzly drop, the rapids where Shenismike Creek joins the Babine River in the lower canyon. There are good viewing opportunities near the weir itself. There also exists high risk to bears from people in this area. Typical denning sites can be found near tree line.

In general, unregulated access and increased river use will have a negative impact on grizzly bear populations. Access through high-use grizzly habitat has the most impact. Typically an increased incidence of poaching or bear-human encounters, which often leads to dead grizzly bears, accompanies such access. This can be reduced by not accessing high-use habitats, using visual screens such as strips of standing trees, access control and public education.

Moose are an important wildlife species. A large area of excellent moose winter range exists along the Babine River, particularly on the south-facing slopes and riparian areas. Hunting pressure on the population has been limited due to the lack of easy access. Access control would reduce potential hunting opportunity throughout the planning area.

Seasonal Habitat Use By Grizzly Bears

The following summary is from Seasonal Habitat Use by Grizzly Bears in the Babine River Drainage; December 1990: Keith Simpson, Keystone Bio-Research.

The Babine River watershed requires special resource development planning because of very high fisheries, recreation and wilderness values. Two important components of the resource values were grizzly bears, which can be viewed along the river, and timber, which will be required to supply local mills. The purpose of this report was to identify key grizzly bear habitats which may be adversely affected by forestry or other development. Biophysical habitat units mapped by the Ministry of Environment were rated for spring, summer and fall use by grizzly bears. Representative sites in each category were visited by road, boat or helicopter to assess seasonal grizzly bear use.

Bears fed on green vegetation in June, mainly horsetail, cow parsnip, grasses and sweet vetch. Moose were probably an important food in early spring. In summer, similar vegetation was used but insects and early ripening berries, especially soopolallie, were also important. In fall, salmon, cranberries and devil's club berries were important along the river, while huckleberries were used almost exclusively at higher elevations. Forest openings such as meadows, seepage areas and avalanche paths provided the most abundant vegetable foods. Deciduous forests, where moose wintered, and the river provided the best sources of meat. Berries were most abundant at higher elevations; however, some low elevation habitats mainly along the river supplied some berries and a variety of other foods. Based on the distribution and observed use of habitats, grizzlies were expected to move from den sites in the mountains to:

1. low elevation south slopes, riparian forests and wetlands in spring for early green vegetation and moose,
2 mid-elevations and north slopes in summer for vegetation, and river bottoms and low benches for early berries,
3. high elevation burns for berries and the river for salmon and nearby berries in late summer and fall,
4. the river for salmon after berries drop in October.

Road access to high use grizzly habitats was seen as the greatest potential impact of forest development on grizzly bears. Many of the best feeding areas are maintained in early to middle seral stages by fires, flooding, seepage or snow avalanches and these areas must be protected from human disturbance. Roads should avoid riparian floodplains, deciduous south slopes, seepage areas and avalanche sites. Most of these units have low forest values; however, forest screening must be maintained around them to provide cover and bedding habitat. Forests within one kilometre of intensively used salmon feeding areas may be essential to provide security cover from people and reduce the potential for intraspecific aggression between grizzlies. Logging in spruce-devil's club and spruce-oakfern habitat units would reduce the devil's club berries available to bears; however, an adequate supply of forest berries should remain within complex habitat units and buffers adjacent to high use feeding areas where forest cover should be maintained. Forest clearing would increase the availability of most other foods, particularly high elevation berries. An appropriate long term mosaic of seral stages should be available to bears if harvests are scheduled uniformly over the rotation period.

Appendix D:

Resource Management Implications of Land Management Options

...a qualitative assessment of the effect of Land Management Options on existing resource values and objectives

	Land Management Options		
	(1)	(2)	(3)
FISHERIES MANAGEMENT			
Maintenance of Fish Population Levels: salmon (sockeye, chinook, coho, chum, pink) and steelhead trout	0	0	0
Fish Habitat Maintenance:			
· water quality (amount and clarity)	0	0	0
· effort required to enforce and monitor water quality	0	-1	-2
Special Fisheries Objectives:			
· wilderness fishing experience	+2	0	-2
· value of commercial guiding	+2	+1	-2
· effort required to enforce permitting system	+2	+1	-2
· use by non-guided recreational anglers (B.C., Alberta, Washington)	+1	0	-1
RECREATION/TOURISM MANAGEMENT			
Maintenance of Wilderness Recreation Resources:	+2	0	-2
Potential for Long-term General Wilderness Recreation:	+1	0	-2
Wilderness Opportunities Maintenance:			
· priority for maintenance of natural scenery from river corridor	+2	+2	0
· maintenance of wildlife viewing opportunities from the river	+2	0	-1
· maintenance of existing commercial guiding and rafting	+2	0	-2
· compatibility with other potential recreation activity	+2	+1	-1

Rating Key:

+2	very compatible; very desirable effect
+1	compatible; desirable effect
0	impact neutral or hard to predict
- 1	incompatible; undesirable effect
- 2	very incompatible; very undesirable effect

General Intents of Land Management Options

Option 1: maximize wilderness opportunities
Option 2: maintain all resource values
Option 3: timber development is favoured

Comments

.....Population levels are influenced by Babine drainage and Skeena River system as well as ocean fisheries and natural ocean survival.

.....Fluctuations may occur from "natural" events and potentially from harvesting activities.
.....More effort required to implement Fish Forestry Guidelines the more logging and roads there are throughout the drainage.

.....Related to degree of crowding, preservation of steelhead and salmon stocks, and natural scenery.
.....Based on wilderness fishing experience.
.....Increased access means greater difficulty in enforcing fishing restrictions.
.....More opportunities with easier access to river; however if too crowded loses appeal.

.....Wilderness resources eliminated under Option 3

.....Related to ease of access to the river. Option 3 would see more boating use; however amount of fishing would still be restricted by permit system but would be difficult to enforce given current agency resources.

..... Option 3 - some distant logging may be visible but no logging would be visible along the river.

..... Requires maintenance of population levels and undisturbed setting.

..... The quality hence commercial value of the wilderness experience diminishes with increased use.
..... Increased future demand for recreation will require maintenance of recreational features.

Resource Management Implications on Land Management Options (continued)

	Land Management Options (1)	(2)	(3)
TIMBER MANAGEMENT			
Timber Harvest Level:			
· maintain land base for timber harvesting	-2	+1	+2
· maintain quality of wood supply to mills	-2	+1	+2
Net Return from Timber Development:			
· cost effective road and access expenses	-2	+1	+2
· cost effective protection of timber, especially from fire and beetle	-2	-1	+2
· forest renewal and harvesting expenses	0	0	+2
WILDLIFE MANAGEMENT			
Maintenance of existing grizzly bear population levels	+2	0	-2
Maintenance of moose and other wildlife population levels	+1	+1	-1
General hunting opportunities (moose)	0	+1	+2
GENERAL PLANNING			
Need for access control through coordinated access management plan	-1	+2	-1
Need for legislated wilderness to protect wilderness values	0	+2	-2
Need for wilderness plan	+2	+2	-2
Need for resource use guidelines (plan) and monitoring	-2	+2	+1

General Intents of Land Management Options

Option 1: **maximize wilderness opportunities**
Option 2: **maintain all resource values**
Option 3: **timber development is favoured**

.....No available landbase in Option 1, 75% in Option 2, Option 3 maintains about 90%.
.....About 80% of volume in Bulkley TSA of high quality species.

.....Option 3 least expensive; Option 1 requires expensive road to access timber north of planning area as cannot build road in planning area.
.....Relates to timing and kinds of activities permitted by the management plan. Protection activities occur in wilderness areas to protect adjacent values.
.....Option 2 requires innovative harvesting and forest renewal methods; costs not yet established.

.....Relates to limiting human-bear encounters and maintaining habitat and cover. This is true not only for the planning area but throughout the Babine drainage.
.....Population levels may increase in Options 2 & 3 with increased habitat diversity, but there would be increased hunting opportunities.
.....In Option 1 there would be no further access through planning area. In Option 2 there is restricted access.

.....Option 1 may have access control outside planning boundaries.Option 2 is based on restricting access, especially to river. Option 3 could have some access control to protect key grizzly habitats.
.....Legislation for Option 1 would depend on ranking in Wilderness Systems Plan. Option 2 would require legislation to ensure protection of wilderness values.
.....Option 1 needs plan to ensure that wilderness opportunities are maximized; Option 2 needs plan to optimize wilderness opportunities.
.....Plan objectives would be different for Options 2 and 3. Option 2 would require high level of planning.

Appendix E: Babine River Resources Studies

The following studies provide resource information to the Babine River planning process. This information is available at the Prince Rupert Forest Region, Bag 5000, 3726 Alfred Avenue, Smithers, B. C., VOJ 2N0 Attention: Planning Forester. Or, phone 847-7500.

BIOPHYSICAL MAPPING:
Aerial photos were stratified into wildlife units. These were checked on the ground and then transferred to 1:50 000 scale maps. These maps are useful for knowing the location and availability of wildlife habitat.

LANDSCAPE INVENTORY AND ANALYSIS:
The visible area as seen from viewpoints along the river is mapped at a scale of 1:50 000. These visible areas are rated as to how sensitive they would be to visual alterations. A report entitled the Babine River Landscape Assessment (1988), Prince Rupert Forest Region was completed.

RECREATION INVENTORY:
An inventory and assessment of informal camping locations and soil suitability for recreational development was completed in 1989. The existing features inventory was also revised. Maps at a scale of 1:50 000 were produced. This work is useful for planning the maintenance, development and enhancement of recreational values.

RESOURCE OVERLAY MAP:
A 1:50 000 composite map of the planning area was made which shows various resource values in the planning area. Existing and possible access routes, recreation potential, fishing lodges and satellite camps, important grizzly habitat along the river and commercial timber areas are all shown using an overlay system.

GRIZZLY BEAR STUDIES:*
In 1990, two grizzly bear studies were completed under contract to B.C. Environment and the Ministry of Forests. Field investigations were conducted in the spring and summer of 1990 with the purpose of rating each biophysical unit for spring and summer use by grizzly bears and identifying key habitat areas.

PARTIAL CUTTING SYSTEMS:*
In 1990, a study was contracted by the Ministry of Forests to investigate the feasibility of using selective cutting, small patch cutting and other alternative silviculture systems in the planning area.

PROTECTION:
A report assessing protection concerns in the planning area was completed in 1991. Key protection concerns discussed are Mountain Pine Beetle and fire protection.

RECREATION:*
Commercial recreational values were studied in The Babine Wild River Proposal Resource Values Analysis (Ric Careless, January 25, 1991) which was commissioned by the Babine Foundation and used by the TAC.

TRANSPORTATION STUDIES:*
The Babine Development and Transportation Study was completed in November, 1990 under contract to the Ministry of Forests. Proposed access routes were field checked and a more acceptable Shenismike Creek route was located.

For studies marked with "*", there is a report summary or excerpts under the appropriate section of Appendix C, Resource Descriptions.

Appendices

PART B: CONSENSUS OPTION APPENDICES

Recreation/Tourism Management

Objectives

GENERAL: Preserve the features and natural characteristics of a river corridor[1] in order to provide opportunities for recreational experiences in a wilderness setting and to manage the rest of the planning area in a manner that reinforces this objective and provides for additional tourism opportunities.

4. Provide a high quality multi-day wilderness river experience.

5. Maintain the quality of wildlife viewing opportunities.

6. Maintain water clarity for recreational sport fishing.

7. Maintain the quality of the natural environment as experienced from the river, including maintaining viewscapes.

8. Maintain the potential to develop recreational and tourism opportunities in the planning area including but not limited to rafting, wildlife viewing, hiking, hunting and sport fishing.

9. Maintain or increase key fish and wildlife populations.

10. Manage access to the river corridor so wilderness values are maintained.

Methods

4. To establish the river's recreational carrying capacity, a user perception survey should be done and levels of recreational use monitored, recorded and analyzed. Access to the river must be controlled to keep levels of use consistent with maintaining a wilderness experience.

5. Identification and protection of wildlife migration routes, maintaining habitat diversity and minimizing poaching will maintain wildlife viewing opportunities.

6. Methods identified for maintaining water clarity and quality under methods for fish objectives are also applicable for this section.

7. Establish a corridor along the river in which no further development will be allowed. For areas adjacent to the corridor this will be supplemented by management strategies consistent with objectives within the corridor, e.g. visual quality objectives.

8. As access is developed, possibilities for other recreation/tourism opportunities will be assessed and incorporated into long term forest management activities.

9. Plan and conduct recreational use of fish and wildlife resources so as not to negatively impact their population levels.

10. Monitor access to the river to ensure the coordinated access management plan is effective and modifiable.

[1] RIVER CORRIDOR means an area of land adjacent to the river being recommended as a wilderness area, as per legislated "Wilderness Area".

Timber Management

Objectives

GENERAL: Provide for the rational and economic development of the timber resource in both the Bulkley and Kispiox Forest Districts.

11. Maintain working forest land base outside the river corridor.

12. Realize a net economic return from the forest land base outside the river corridor.

13. Develop and harvest timber in a manner which recognizes and limits the impact on non-timber resource values.

14. Improve and protect the health of the timber resource.

Methods

11. Review alternate harvesting silviculture systems for areas within the special management zone.

12. Plan efficient timber development operations within the context of the LRUP.

13. Develop a coordinated access management plan and establish harvesting priorities for the planning area which recognize and limit potential impacts on non-timber resource values.

14. Identify the potential risks and hazards of the existing forest stand within the planning area. Guidelines must be developed to deal with the serious forest health problems along with a fire management strategy.

Objectives

GENERAL: Identify and maintain important wildlife habitat.

15. Maintain grizzly bears in at least present numbers and manage them primarily as a viewing resource.

16. Identify and maintain known grizzly movement corridors to and along the river as well as those areas back from the river utilized by the bears.

17. Maintain or increase wildlife habitat diversity.

Methods

15. Immediately impose a no shooting zone in the area (ie: three kilometres downstream from the weir) where most destructive bear/man interactions occur.

16. Conduct a study in the spring/summer/fall of 1990 in the Babine River corridor in order to identify important grizzly bear habitat.

17. Habitat diversity may be achieved through retention of special habitats and guidelines for rate of cut and silvicultural systems.

Appendix H: Intended Direction for Proposed Zones

Wilderness Zone

Management intent will be consistent with the Ministry of Forests policy ''Managing Wilderness in Provincial Forests''.

Some of the specific management directions that would be embodied in a wilderness management plan for the area are as follows:

1. The cutting of trees would not be permitted except for purposes such as safety, fire fighting and pest management.

2. Mining exploration and development would not be prohibited; however any activities related to mining must ensure that the wilderness values are considered and not compromised.

3. Access management, including the management of motorized use, is the key to wilderness management. Public roads would not be constructed into the wilderness area. Management prescriptions in the adjacent Special Management Zone would emphasize the need to minimize the creation of access to the river and the rest of the wilderness area.

4. The following pest (ie. Mountain pine beetle) management direction would be employed in order to minimize the impact of an epidemic population developing within the wilderness area and spreading into adjacent stands:

   (i) Utilize fall and burn and MSMA control measures.

   (ii) If falling and burning is employed it would preferably take place from November to March so that impacts to river recreationists would be minimized. Activities planned outside this time frame would be discussed with primary river users.

   (iii) If MSMA is used, concurrent operations would be carried out so that identification of infected trees and application would be completed by August 30th. This timing would minimize the impact on guided fishermen. This activity would be subject to a pesticide use permit being granted and regulation contained therein.

   (iv) Tree marking (ie. flagging and paint) would be minimized along the river so that the wilderness experience will not be degraded. After operations all flagging will be removed and major blazes painted with a dark colour so they become indistinguishable.

5. The suppression of wild fires in the wilderness area is also an important consideration in the protection of adjacent forest values. The following are some

highlights of the fire management strategy which would be detailed further in the wilderness management plan:

(i)All fires regardless of cause will receive immediate and vigorous Initial Attack. The Ministry will attempt to control all fires by 10:00 am of the day following detection.

(ii) Initial attack response will include (but not be limited to) helitack crews, air tankers, helicopters, foam, etc.

(iii)The Babine River is identified as a critical drop zone. Precautions will be taken to avoid stream contamination whenever retardants are used in fire suppression.

(iv) In the event that expanded attack is required to address a large fire, the Ministry of Forests would use the principle of a ''light hand on the environment'' in carrying out suppression activities. This principle will be translated into guidelines and communicated in the wilderness management plan as well as the District Fire Management Plan.

Special Management Zone

The Special Management Zone will lie immediately adjacent to the Wilderness Zone and is designed to act as a buffer which will ensure that wilderness management objectives are met. The following are some of the management guidelines proposed for this zone:

1. For the first five years of the plan, no harvesting would be permitted within one kilometre of the river. This will allow time to evaluate the success of management strategies for protecting wilderness values within the identified Wilderness Zone while not compromising the objectives of those who prefer to have the Wilderness Zone at least one kilometre from the river in all cases.

2. Partial cutting (ie. group selection, seed tree, shelter wood, etc.) will be used to ensure environmental values are maintained or enhanced.

3. Permanent access will not be created within this zone with the exception of the Babine West Mainline (south side of the Babine River in Bulkley Forest District) and the Big Slide Mainline (south side of the Babine River in the Kispiox Forest District). The intent is to keep all permanent roads at least two kilometres from the river. The exceptions mentioned have their preliminary location as far from the river as possible but are constrained due to the physical characteristics of the terrain. Access control measures will be utilized on both of these roads in order to ensure the wilderness management objectives are met.

4. Any temporary access that is created will be located in a manner which takes advantage of natural barriers. Such access will not be constructed closer than 300

metres to the one kilometre line or wilderness boundary. In this case the furthest point from the river will prevail.

5. Harvesting operations would only be allowed in the winter months.

6. Where clearcutting is carried out, a guideline maximum size of 15 hectares will be used. Leave strips between blocks will exceed logged block sizes.

7. It is intended that for the majority of this zone a slow rate of cut will prevail with harvesting targeted to stands presently infected with Mountain pine beetle or at high risk to infection. This strategy may differ for the Big Slide Chart Area where the first pass could be shortened in order to minimize duration of potential conflict with other resource users. The cutting pattern and sequence will be detailed in a Total Chance Plan for the Special Management Zone.

8. Grizzly habitat will be identified and protected in this zone. The security of grizzlies using this habitat is a management concern. In order to address this concern, sight distances (distance of unobscured vision) should be minimized and in no case should exceed 300 metres.

9. The same fire management strategy as described for the Wilderness Zone would be used in this zone.

10. The pest management strategy would be essentially the same as the Wilderness Zone except that the infected trees would be removed through harvesting activities where possible.

11. Smoke management is a concern in this area and will be addressed in a strategy for the entire planning area. The potential impacts of smoke from prescribed burning on the river users is well recognized, but requires more detailed review in relation to future silviculture prescriptions within the planning area.

12. As a guiding principle, it is intended that forest development activities would be sequenced to occur from the outside of the planning area towards the inside. This will allow activities to be evaluated and ensure that management objectives are being achieved.

13. Operational trials and demonstration sites will be established within the Special Management Zone so that management techniques and prescriptions can be thoroughly evaluated and demonstrated to those charged with future resource management responsibility for this area.

14. There are three fishing lodges along the river. The protection provided by the Wilderness Zone plus extra consideration in the Special Management Zone will ensure the integrity of the natural surroundings for these facilities.

Peripheral Zone

This zone will lie adjacent to the Special Management Zone on both sides of the river. The intent of this zone is to further emphasize the need for detailed planning, implementation and monitoring within the planning area for the Babine LRUP.

An indication of the general management intent for this zone is as follows:

1. Grizzly bear habitat and migration routes will be identified and measures taken to ensure maintenance of these areas.

2. Areas of sensitive soils will be identified using terrain hazard mapping. The information will be incorporated into harvesting and access development proposals.

3. Water quality of the Babine River will be maintained as a primary objective. The "Sediment Transfer Hazard Classification System" will be used in the planning phases prior to harvesting and road building in the planning area.

4. Water control measures such as ditching, installing culverts, water bars, sowing grass, etc. will be used to minimize sediment production and transportation.

5. Recreation opportunities within this zone will be identified and mapped. Harvesting operations will be planned so that these opportunities are maintained or enhanced where possible.

6. A Coordinated Access Management Plan (CAMP) will be completed for the entire planning area.

7. Main access route construction will be accelerated for beetle control and to provide access to the Special Management Zone.

Appendix I: Access Considerations

Bulkley Forest District

In the Bulkley District the only crossing of the Babine River will be the existing Nilkitkwa Bridge near the east end of the planning area. A road leading to an alternative crossing point has been deactivated. Main access routes have been determined subject to further field confirmation. The TAC approved of these road locations, including a few exceptions where the road is less than two kilometres from the river due to topographic constraints.

Proposed access control points are the bridges at the Nilkitkwa and Nichyeskwa Rivers. Removable jump spans could be installed to be removed from September 1 to November 15 of each year. If a removable span was not utilized then an existing road past the Nilkitkwa Bridge and road within two kilometres of the river past the Nichyeskwa Bridge would be deactivated as they currently provide access into the Wilderness Zone.

Kispiox Forest District

In the Kispiox District, a bridge crossing outside the planning area near Sam Green Creek has been previously approved by the Ministry of Forests. The Gitksan-Wet'suwet'en court injunction over bridge construction here was recently dismissed by the B.C. Court of Appeal. The TAC recommendation is to utilize the Shenismike route so that no additional bridge crossing of the river is required.

The **Big Slide Chart** area is one notable exception to the TAC recommendation that all main roads be located two kilometres or greater from the river. Here, topographic constraints mean that a main road would be located within one kilometre of the river and within portions of the Wilderness Zone. A detailed discussion of this exception and the measures that the TAC and forest company involved agreed to take to protect the wilderness values of the river follows. The Big Slide Chart area and proposed road are shown in Appendix L.

Big Slide Chart--Details of Proposed Timber Development

The road will be constructed to a summer access standard to eliminate yearly re-freezing of winter grade, with an access control bridge located as far west of "grizzly drop" as feasible. The specific access constraint plan utilizes a 15 foot span metal bridge that will be lifted out and set in front of its constructed location, to effectively provide a 30 foot barrier of vehicular access. The bridge will be constructed at a steep, rocky cut slope location in the road, rather than at a creek crossing, to minimize environmental disturbance and to further restrict access by all-terrain vehicles. This access constraint will be in place in two time frames; firstly, during each summer, and secondly, after first pass harvesting operations are completed - to minimize access to known grizzly bear habitat and populations.

Beyond the access control point, first pass harvesting operations will be scheduled to occur over a shorter than normal time (approximately 5 to 7 years) and in the winter season only to minimize long term public access to "grizzly drop". Operations west of the access control point will be planned for the summer months where ground conditions permit. Harvesting in the Big Slide Chart area is not scheduled to commence before November of 1991.

Through the course of the first pass operations, the bridge will have to be reinstalled for approximately 3 to 4 weeks in the summer to facilitate some silviculture operations beyond the barrier, such as tree planting, mechanical site preparation, and brushing and weeding. A lockable gate will be constructed directly in front of the removable bridge to further discourage public access during these times. The specific time of silviculture operations in areas beyond the barrier can be altered somewhat (either in June or August) to ensure a minimum of impact on grizzly bear populations. Whenever possible, silviculture projects will be conducted simultaneously and in as short a time as possible, to keep access to the area at a minimum. As well, the Company will conduct comprehensive worker education and follow-up sessions with all silviculture employees who will be working in the chart area to ensure that their operations in no way compromize the Babine LRUP objectives.

Due to the difficult topography of the Big Slide Chart Area, and the relatively low operable timber volumes present, first pass harvesting operations will be permitted within one kilometre of the river, but only above the mainline road location. The restriction of operations within one kilometre of the river will severely limit the economic viability of accessing the entire chart area. Operations between the mainline and the one-kilometre line would be scheduled as late in the first pass operations as possible and be conducted within the constraints of the "Special Management Zone" Commitments.

Harvesting and road construction operations throughout the entire Big Slide Chart Area will be designed and conducted to meet the objectives of the LRUP, including Landscape Management Objectives, block sizes, the use of alternate silviculture systems, water quality, wildlife habitat, etc.

Big Slide Chart--Area and Volume Summary

	Total Area (x 1000 ha)	% of Total Area	Total Volume (x 100000 m^3)	Merchantable Volume(x 100000 m^3)
WILDERNESS	0.8	19	2.6	1.4
ONE KM	1.2	30	4.1	2.7
RIVER TO ROAD	0.8	22	2.9	1.7
PROPOSED FOR HARVEST* (ABOVE ROAD)	3.1	78	9.7	5.6
TOTAL CHART	3.9	100	12.6	7.3

* additional volume is available outside of planning boundary

Appendix J: Monitoring

The following are some of the criteria for measuring the success of management activities that the TAC suggests for monitoring of the plan:

Fishery

1. Has the water quality of the Babine River changed significantly since the implementation of the plan?
2. Has there been an increase in the man-made sediment due to forest development activities in the planning area?
3. Has the "Sediment Transfer Hazard Classification System" been useful in predicting and planning for possible sedimentation problems?

Timber

1. Have pest and fire management been successful within the Wilderness and Special Management Zones?
2. Have access planning measures in the Special Management Zone achieved our objectives?
3. Have the harvesting guidelines been applied successfully?

Tourism/Recreation

1. Has there been an increase in the number of people who have accessed the river?
2. Have unauthorized trails been cut to the river for access?
3. Has ATV traffic to the river been made possible?
4. Have the objectives for the Class 1 fishery been met?
5. Have high use informal recreation sites been established?

Wildlife

1. Have grizzly bears been reported killed within the Babine drainage downstream of Babine lake? A report will be completed by B.C. Environment staff which describes reported losses.

2. Have river users reported any changes in grizzly bear numbers?

One Kilometre Strategy

The One Kilometre Strategy provides for a five year deferral of logging of areas within the Special Management Zone that are less than one kilometre from the river, according the following conditions:

1. For the first five years of the plan's life no logging would be allowed within one kilometre of either side of the Babine River.

2. Special management techniques such as selection harvesting, clear cuts less than 15 hectares, non permanent roads, winter harvesting, etc. would be implemented in the Special Management Zone, as determined by the Babine River plan.

3. The monitoring component of the Babine River LRUP would require a formal review, after the first five years of the plan's life, of the effectiveness of these special management techniques in meeting plan objectives. If proven effective, consideration would be given to applying the special management guidelines to the areas less than one kilometre from the river but outside the legislated wilderness. If proven ineffective, the special management techniques would be revised and another formal review would be scheduled.

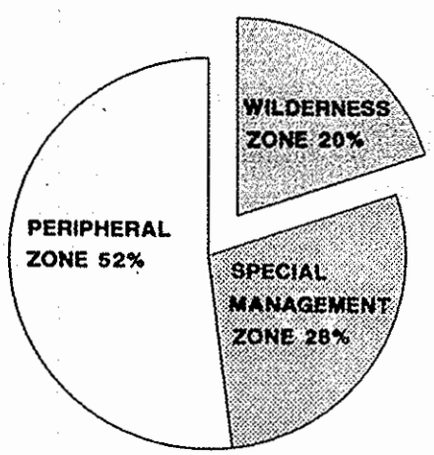
4. The details of the criteria for evaluating the effectiveness of special management techniques would be a component of the Babine River plan.

5. A contact person with the Ministry of Forests will be identified so that any possible breach or inadequacies of the guidelines can be reported and quickly rectified.

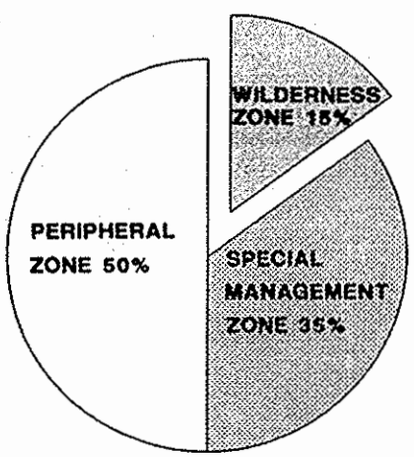
Appendix K: Area and Volume Summary

ZONES	Total Area (x 1000 ha)			Total Volume (x 100000 m^3)			Merchantable Volume (x 100000 m^3)		
	Bulkley	Kispiox	Total	Bulkley	Kispiox	Total	Bulkley	Kispiox	Total
Wilderness	5.9	8.8	**14.7**	13.6	13.7	**27.3**	11.2	5.6	**16.8**
Special Management	8.1	12.4	**20.5**	20.4	29.3	**49.7**	19.3	20.9	**40.2**
Peripheral	16.0	21.4	**37.4**	31.2	50.8	**82.0**	29.1	27.3	**56.3**
Entire Planning Area	30.0	42.7	**72.7**	65.3	93.8	**159.1**	59.6	53.7	**113.3**
One Km	6.1	10.0	**16.1**	15.3	18.7	**34.0**	12.8	9.1	**21.9**

Total Area



Total Volume



Appendix L: Planning area maps

Maps are located on inside back cover and in envelope.