

MANAGEMENT PLAN

January, 1997



for Tetrahedron
Provincial Park



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COLUMBIA

Ministry of Environment,
Lands and Parks
BC Parks Department

Tetrahedron
Provincial Park

MANAGEMENT PLAN

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for Garibaldi/Sunshine District
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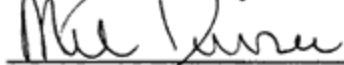
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**TETRAHEDRON
PROVINCIAL PARK**

MANAGEMENT PLAN


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BC Parks would like to give special recognition to the members of the public who volunteered their time to be on the Tetrahedron Advisory Committee. This dedicated and hard working group was chaired by Barry Janyk. Special thanks go to Nicky Hastings who provided excellent secretarial duties/minutes to the committee and Bobbie Grimard, typist. Other committee members included Harry Almond, George Smith, Sheane Reid, Michel Frenette, Dennis Lozinsky, Duane Sept, Dan Bouman and Dave Lasser.

The committee would like to dedicate its efforts in memory of Chris Beach who was a major motivator in having the Tetrahedron protected for its wilderness values and watershed resources.

Representatives from First Nations including the Sechelt Indian Band and Squamish First Nation were invited to participate in the planning process and review the draft plan at each stage.



Tetrahedron Peak (photo credit G. Smith)

PLAN HIGHLIGHTS

- Establish a volunteer Tetrahedron Provincial Park Public Advisory Committee whose objective would be to assist BC Parks in implementing this management plan and future annual management plans. Representatives from the Sechelt Indian Band, Squamish First Nation and the Sunshine Coast Regional District will also be asked to sit on this committee.
- A Park Use Permit (PUP) will be issued to the Sunshine Coast Regional District (SCRD) to allow for continued management of the Chapman/Gray Creek watersheds within the park as a community water supply for residents of the Sunshine Coast. Chapman and Gray Creek watersheds are the only water supplies offering sufficient water quality, quantity and timing of flows for a regionally scaled water supply along the Sunshine Coast. Where regional water supply improvements are proposed within the park, an impact assessment and comprehensive public consultation process will be developed. Retention of the park's natural and wilderness values will remain a high priority.
- A number of designation options will be prepared and a decision will be sought that will enable BC Parks to authorize the SCR D to enhance and manage the Chapman/Gray Creek watersheds within the park for future population needs. A public consultation process to review any options proposed by government that may affect the existing park status will be implemented.
- Because of its importance as a community watershed, Tetrahedron Provincial Park will not be actively promoted as an outdoor destination area and will be managed to provide for only limited backcountry recreation activities. Camping will only be permitted at the four existing cabin sites.
- A strategy with the Sechelt Indian Band and Squamish First Nation that will protect and allow for the continued practice of traditional activities for present and future generations of First Nations people in relationship to the lands within the park will be developed.
- Open fires, domestic animals and hunting will be prohibited within Tetrahedron Provincial Park.
- The park will be closed to all mechanized recreation and one main trailhead access will be located at the Branch 500 and Gray Creek junction and summer only access for higher clearance vehicles will be allowed one kilometre higher to the existing trailhead.
- BC Parks will work closely with the Tetrahedron Ski Club and other volunteer organizations to protect the limited recreation opportunities and to manage the recreation facilities.
- BC Parks will liaise with local newspapers, Chambers of Commerce, business and community groups, as well as critical provincial publications and tourism organizations, stressing the limited recreational carrying capacity of the park and the importance of maintaining the fragile and critical local water supply.

INTRODUCTION

What is a Management Plan?

A management plan is an administrative manual which guides a park's management for a five to ten year term. It sets out objectives and actions for conservation, development, interpretation and operation of a park. This plan also relies on current information relating to such things as park resources, recreation uses and activities occurring on surrounding lands. Information is available from park managers, discussions with other government agencies, previously prepared reports, public interest groups, Study Teams and from the general public. The process for preparing a plan involves a rigorous analysis of the overall goals of the park, patterns of use, management objectives and possible sources of conflict among park policies.

Management plans both establish a long-term direction for a park and deal with immediate issues. This means that the plan will generally contain numerous statements describing management actions that need various degrees of attention. Since BC Parks cannot carry out every task at the same time, the plan must also set priorities for management actions. Approval of the plan is not an indication that funding to implement management actions is available. Standard funding procedures will apply during implementation of the plan.

BC Parks prepares management plans with a high degree of public involvement. The general public and public interest groups have opportunities to provide comments to BC Parks through a variety of means including public meetings, questionnaires and local Study Teams.

This plan is presented in six main sections:

- (1) The purpose or context of the plan, highlighting key planning issues and providing a summary of background information on the park is provided;
- (2) The role of the park, its Vision Statement and overall management goals and objectives are presented. These outline the importance of the park and critical goals and principles that establish a long-term foundation for protection of park values;
- (3) The plan presents park zoning which divides the park into units of consistent management objectives;
- (4) Fourth, the objectives and associated actions for protecting and managing the park's natural and cultural resources are discussed;
- (5) The plan outlines strategies for access, park information formulation and distribution, and provision of outdoor recreation opportunities and management services;
- (6) The priorities for implementation of this management plan are described.

Relationship With Other Land Use Planning

This management plan is the result of recommendations from the Protected Areas Strategy process, Tetrahedron Local Resource Use Plan (LRUP) and recommendations found in the May, 1966 Chapman and Gray Creeks Integrated Watershed Management Plan (IWMP). These processes have taken a number of years and considerable effort by government, interest groups and licensed stakeholders who were involved as members of the planning team to develop a watershed management plan. In 1990, the Ministry of Environment and the Ministry of Forests initiated the IWMP process and input was solicited from the watershed's various resource users.

The Sunshine Coast Regional District (SCRD) is responsible for managing the regional water system for the Sunshine Coast and for land use planning in the unincorporated areas on the Sunshine Coast, both which have an impact on the future role of Tetrahedron Provincial Park.

Tetrahedron Provincial Park lies within the Sechelt Indian Band's traditional territory and the entire Chapman and Gray Creek watersheds have helped to sustain its people socially, economically and culturally. The eastern portion of the park that drains into Howe Sound lies within the Squamish First Nation's traditional territory. The Sechelt Indian Band and Squamish First Nation are currently in the treaty negotiation process with federal and provincial governments. Any recommendations found in this report are without prejudice to both the Sechelt Indian Band and Squamish First Nation negotiating positions or to the legal positions taken by any of the parties in Court or otherwise.

How Was The Plan Prepared?

As a result of the Protected Areas Strategy process and recommendations from the Land Resource Use Plan (LRUP) and much involvement by local residents, the Tetrahedron was established as a provincial park in 1995. In order to develop a management plan with public input, the Tetrahedron Public Advisory Committee was formed. This group, comprised of a wide cross section of community interests, knowledge and experience, assisted the Garibaldi/Sunshine District Manager and Regional Planner in preparing this management plan. Their dedication and hard work during the past year is greatly appreciated and their valued input will help to guide the future management for this special park.

Reason For The Plan

The management plan states the goals, objectives and strategies for park management. The Vision Statement outlines important values associated with the park and sets the tone for discussing specific management objectives over the long term.

The purpose of this plan is to guide protection and conservation of the park's special natural and cultural features and Chapman/Gray Creek community watersheds, while allowing for limited backcountry recreational activities. The provincial government is committed to working

with the SCR D for the management of these watersheds, as community water supply sources are integral components in the development of an overall park plan. This management plan will reflect policies outlined in the Forest Practices Code of the British Columbia Community Watershed Guidebook.

It is the aim of BC Parks and the Tetrahedron Advisory Committee to develop a management plan that ensures compatibility with the values and needs of the Sechelt Indian Band, Squamish First Nation and Sunshine Coast residents, and that meets the broader public interest. Management plan implementation and park management will take place with ongoing discussions between BC Parks, the Sechelt Indian Band and Squamish First Nation, Sunshine Coast Regional District, the Tetrahedron Ski Club and local interest groups.

Key Issues

The management plan addresses a number of planning issues identified by BC Parks, LRUP, IWMP, special interest groups and the general public. Some of the key management and planning issues to be considered in this plan are described as follows:

Role of the Park

The roles of Tetrahedron Provincial Park are to maintain and enhance the area's water quality and community watersheds for Sunshine Coast residents and preserve its wilderness characteristics by offering limited backcountry recreation opportunities. Carrying capacity and managing for the existing number of users (estimated to be over 4,000 annually) will need to be monitored to determine future recreation and resource management actions.

Watershed Management and Ensuring Water Quality and Quantity

BC Parks needs to establish a watershed management agreement (Park Use Permit) with the Sunshine Coast Regional District in order to maintain portions of the Chapman/Gray Creek watersheds within the park. These watersheds are the only water supply offering sufficient water quality, quantity and timing of flows for a regionally scaled water supply along the Sunshine Coast.

Access to the Park

The challenge is to ensure safe and clearly marked access, while not creating an unmanageable, costly operation or promoting access which may prove detrimental to natural park wilderness and community water values. Promotion of the park will be kept to a minimum.

Future Designation

Designation under the *Park Act* does not allow for future flooding diversion and storage of water for community purposes. Options for future designation need to be explored so that the commitment as a watershed does not weaken the *Park Act* legislation.

Background Summary

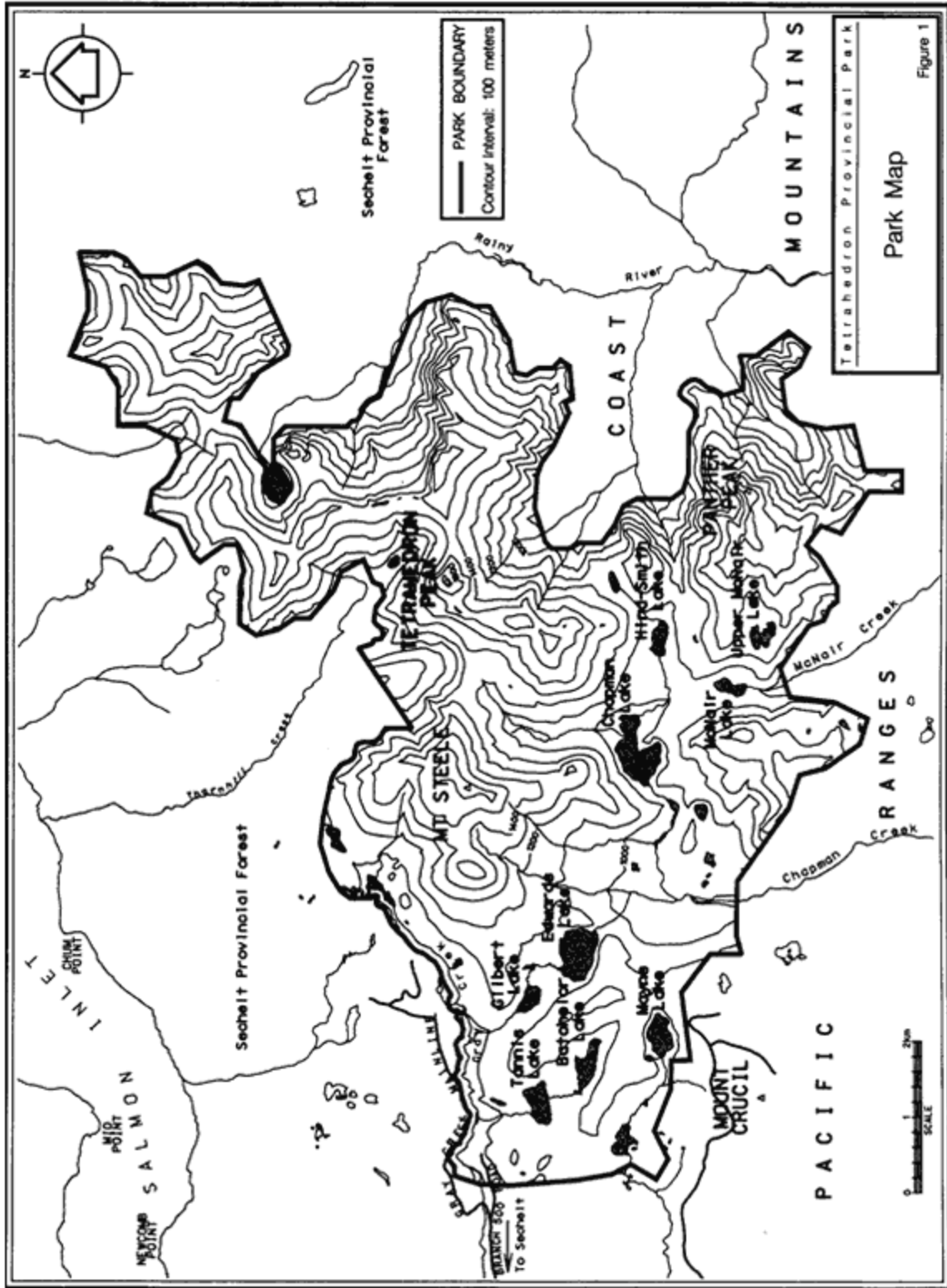
On June 1, 1995, the Provincial Government announced the creation of Tetrahedron Provincial Park (Figure 1). In that announcement, the Minister indicated there would be a Public Advisory Committee established with local community representation and that the park would include the headwaters of Chapman and Gray Creeks. The Chapman/Gray Creek watersheds are principle sources for the Sunshine Coast Regional District (SCRD) water system, which serves over 6,500 subscribers and an estimated population of 21,000 people. Water quality is routinely monitored by the SCR D. The Minister also indicated that "protection of community water supply and recreation values will be paramount objectives in the planning process." This management plan is the combined effort of the Tetrahedron Public Advisory Committee, BC Parks, public and private sectors.

Comprising 6,000 hectares of mid-elevation forests and mountain peaks, the park is situated between the Sechelt and Salmon Inlets, the Tantalus Range of the Coast Mountains, Howe Sound and Georgia Strait. Three distinctive mountain peaks, Tetrahedron (1,727 metres), Panther Peak (1,681 metres) and Mt. Steele (1,651 metres) are landscape benchmarks clearly visible across Howe Sound from Vancouver and Vancouver Island.

The park is situated within the Southern Pacific Ranges ecosection and Coastal Western Hemlock/Mountain Hemlock biogeoclimatic zones. The park contains one of the oldest undisturbed forests in Canada with stands containing trees over 1,000 years. Semi-open meadows, marsh complexes and dense understorey (eg. blueberry) are characteristic of the park, which also contains ten lakes.

A number of wildlife species are found in the Tetrahedron area, many of the larger animals tending to be transient using wildlife corridors to pass through the park. Black-tailed deer, mountain goat, black bear, cougar and coyote are common visitors. Mink, marten, river otter, bobcat, a variety of rodents, Rock Ptarmigan, woodpecker, grouse, ravens, raptors and marbled murrelets also have been recorded in the park. In the lakes are found cutthroat trout, some Dolly Varden char, and rainbow trout, along with many varieties of amphibians.

Climatic conditions in this area are typical of mid-elevations in the Pacific northwest, featuring short, cool summers and long, cool, wet winters. The park has a maritime subalpine boreal climate with heavy snow cover for several months of the year.



Tetrahedron Provincial Park
Park Map
 Figure 1

The park lies within the traditional territories of the Sechelt Indian Band and Squamish First Nation. There is, however, little knowledge that the area was of significance to both First Nations people or early European settlers. Today, human impact is evident from recent logging operations that are highly visible both inside and outside the park.

The Tetrahedron area is used for winter ski touring and summer hiking. There are four log cabins located in the park which were constructed in 1987, offering backcountry wilderness accommodation as a complement to the 35 kilometres of summer/winter hiking and nordic skiing trails.



Edwards Lake Trail (photo credit J. Morris)

THE ROLE OF THE PARK

Provincial and Regional Context

The Tetrahedron area has long been acknowledged as important both for conservation of the Sunshine Coast community watersheds and as a wilderness area. This is strengthened by the increasing level of urban development which the Sunshine Coast is experiencing and the traditional values of First Nation's peoples. Tetrahedron Provincial Park presents the only area of old growth forest larger than 1,000 hectares on the lower Sunshine Coast.

Currently there are five provincial parks offering day use, viewing, hiking, camping, swimming, boating and interpretation on the Sunshine Coast (Figure 2). In addition, there are regional and municipal parks and private campgrounds providing a variety of recreation opportunities.

The conservation of lands and water and provision of recreation facilities are the cornerstones of the provincial park system.

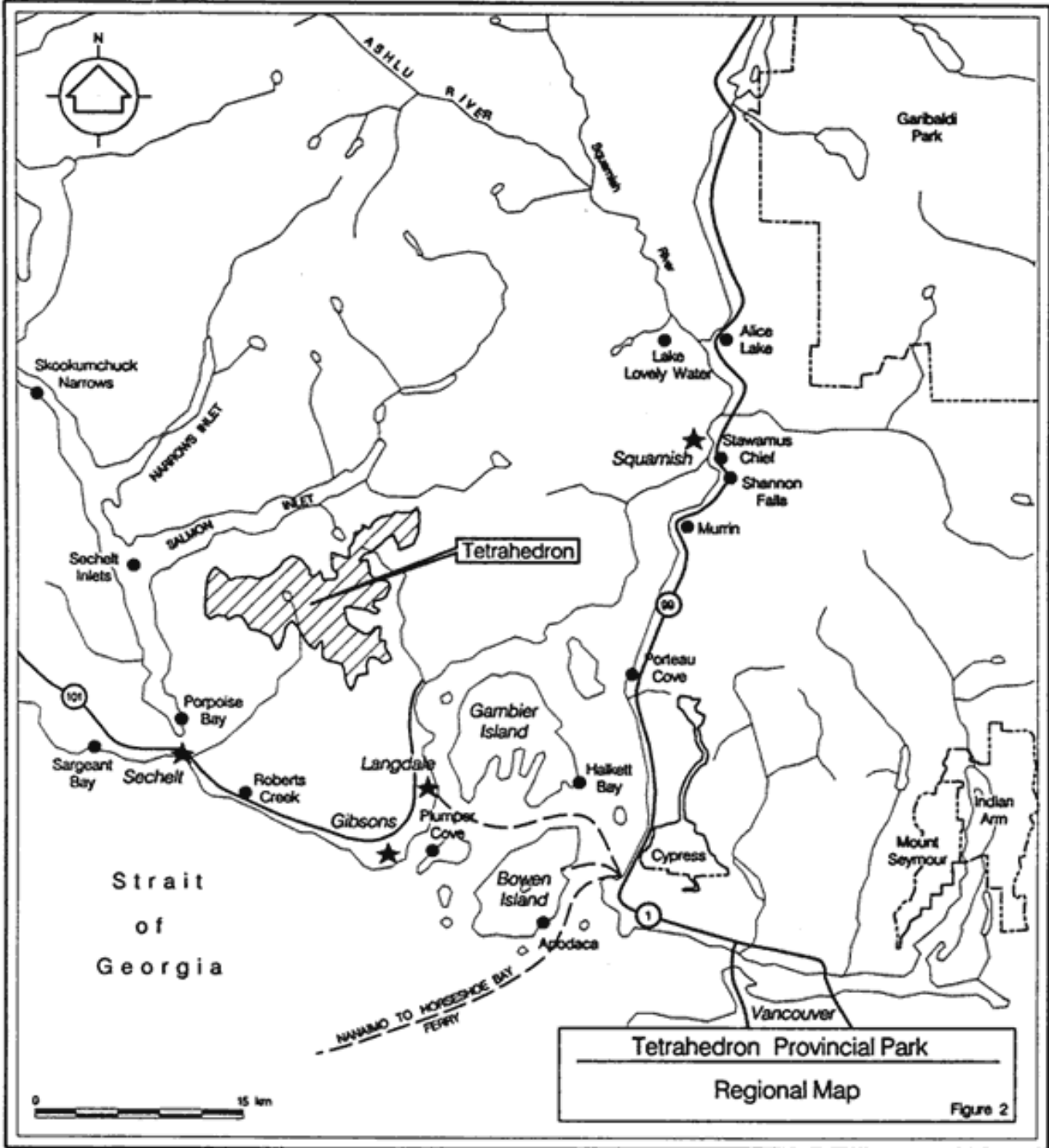
Conservation Role

BC Parks has two conservation goals; *ecosystem representation and special features conservation*. Tetrahedron Provincial Park contributes to both goals, and park management will emphasize both goals. The overall management goal of Tetrahedron Provincial Park is to protect Chapman/Gray Creek watersheds, conserve and enhance its cultural, natural, ecological and aesthetic values; specifically:

- Protect the park's natural and cultural resources and retain its wilderness character by managing/controlling the number of park visitors to an acceptable level of use;
- Reduce and/or remove recreational uses which compromise the priority conservation role of the park, particularly as it concerns the goal to ensure the highest level of water quality.

Recreation Role

BC Parks has four recreation goals; *tourism travel routes, outdoor recreation holiday destination, backcountry and local/regional recreation*. Tetrahedron Provincial Park contributes to both the backcountry and local/regional recreation goals. Park management will facilitate limited backcountry recreational and educational activities that have minimal impact on the significant natural ecosystems, watersheds, water quality and cultural features within the park, specifically:



- Permit only non-consumptive park recreation uses;
- Retain only clearly defined and limited backcountry recreation uses within the park's natural carrying capacity.

Vision Statement

A Vision Statement for Tetrahedron Provincial Park has been developed for the future and sets the tone for how the park may differ from what it is today. Being clear about the long-term vision helps to guide what should be done in the short-term. The Vision Statement is an important guide for reacting to changing demands for recreation or incorporating new approaches to conservation management. The development of priorities for new management initiatives will be directed by this statement.

"The management plan for Tetrahedron Provincial Park will ensure a high level of water quality and quantity for the residents of the Sunshine Coast, while preserving the integrity of the park's natural, cultural and diverse ecosystems, maintaining its educational and spiritual values, and providing limited backcountry recreational experiences. "



Tetrahedron Peak (photo credit G. Smith)

ZONING

Zoning is a procedure used to assist the planning and management of *Park Act* designations by dividing each park into logical land and water units based upon uniform and consistent management objectives. The zones reflect the intended land use, the level of management and development required and, thus the level of human activity to be accommodated. Appendix B provides a detailed description of BC Parks' zoning.

Tetrahedron Provincial Park is divided into two zones (Figure 3):

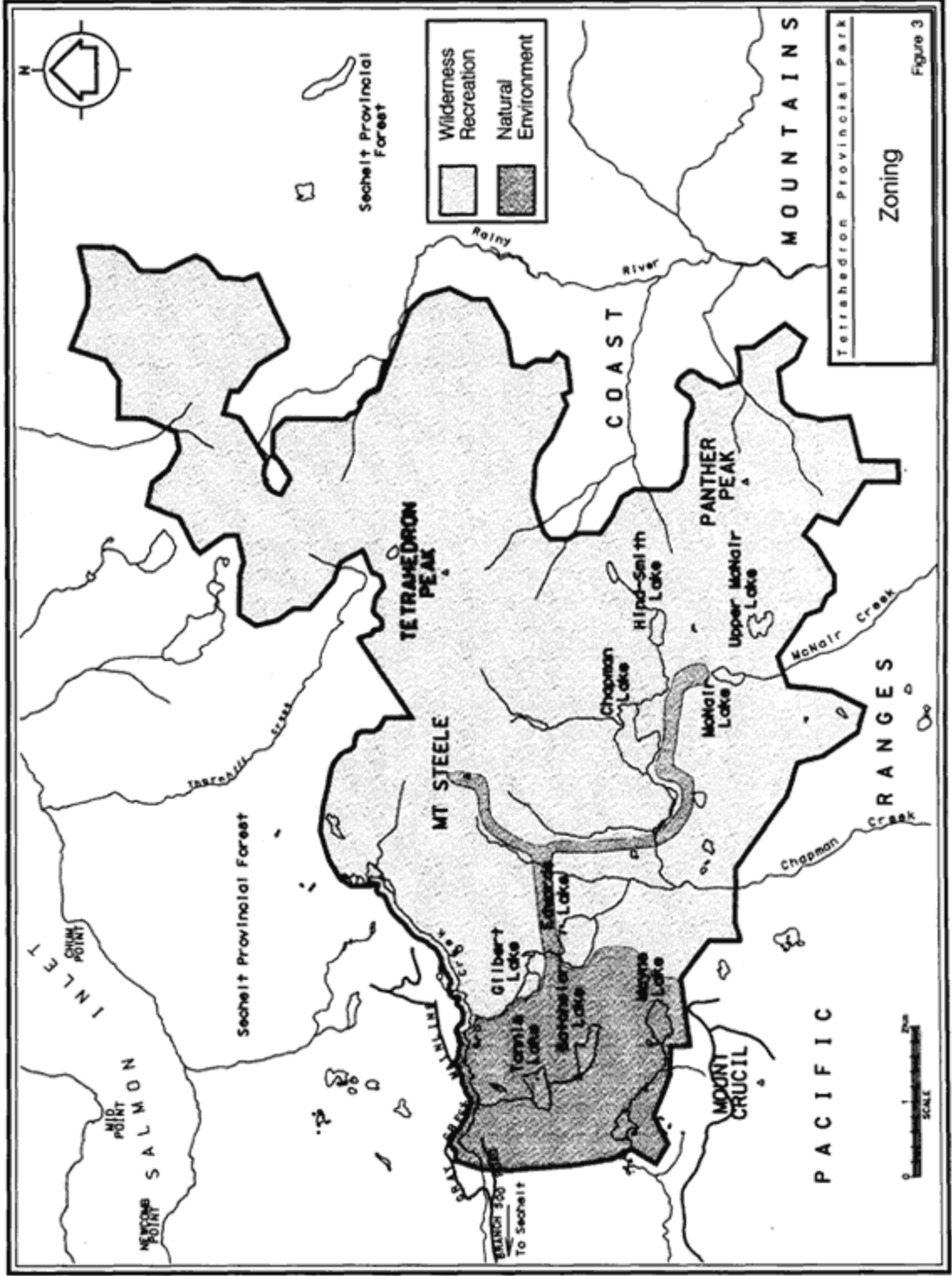
- **Natural Environment Zone** which includes the parking and trailhead, the cabins and surrounding areas, and the existing main trails and corridors, including existing and some future opportunity for development of the regional water system infrastructure.
- **Wilderness Recreation Zone** which contain the remaining parkland, including the headlands of the two community watersheds, but not including the existing cabins and trail system within these watersheds.

The objectives of these zones are as follows:

- Natural Environment Zone -** to protect scenic values and to provide for backcountry recreation opportunities in a largely undisturbed natural environment.
- Wilderness Recreation Zone -** to provide for backcountry recreation in a remote natural environment, with emphasis on a wilderness atmosphere. It must be noted that the Sunshine Coast Regional District manages two watersheds within this zone.

At the present time, there are no special feature zones in Tetrahedron Provincial Park. However, in the future, there may be identified Special Features Zones which would include any cultural/heritage and natural features identified through discussions with the Sechelt Indian Band, Squamish First Nation and local interest groups.

- Special Features Zone -** to preserve and present significant natural or cultural resources, features or processes because of their special character, fragility and heritage value.



Tetrahedron Provincial Park
Zoning
Figure 3

NATURAL AND CULTURAL RESOURCES MANAGEMENT

Introduction

Tetrahedron Provincial Park contains many natural and cultural resources that are significant to the Sunshine Coast. Situated within the Southern Pacific Ranges ecosection, the park is representative of the Coastal Western Hemlock and Mountain Hemlock biogeoclimatic zones. The park contains lakes, wetlands, open parkland, mountains and an undisturbed ancient forest with numerous trees in excess of a thousand years, making it one of the oldest stands in Canada. The park's landscape is relatively undisturbed and only the west and southwest edges have been logged, as have the adjacent areas outside the park boundary.

The Tetrahedron is recognized as the traditional territory of the Sechelt Indian Band and Squamish First Nation, although records indicate that historical aboriginal use was limited due to the area's altitude and relative inaccessibility. The Sechelt Indian Band still actively utilizes the Tetrahedron area to exercise its aboriginal practices, both spiritually and culturally (eg. hunting, spiritual retreat, fishing, food, medicine and herb gathering).

Modern European history of the Sunshine Coast includes utilizing the region's rich natural resources (eg. timber, fish and minerals). However, the majority of the Tetrahedron area has remained in its natural state, untouched by settlement and resource development. The Tetrahedron has been recognized as a sensitive wilderness area supporting two community watersheds, and more recently a destination catering to local and regional hikers, backcountry skiers and to a lesser degree, mountaineers.

Protection of the Tetrahedron has received special interest over the years, as it is also the main watershed for residents of the Sunshine Coast (Figure 4). With a rapidly growing population along the Sunshine Coast, maintaining and protecting high quality potable water resources is a major concern to both area residents and seasonal visitors.

Land and Resource Tenures

Land/Park Boundary

Tetrahedron Provincial Park is one of several parks created under the 1995 Lower Mainland Nature Legacy program. Prior to park establishment, the Tetrahedron Local Resource Use Plan (LRUP) involved many government, forest industry, public and private groups and individuals over a five year period in making recommendations to Cabinet on a number of complicated resource topics, as part of the Protected Areas Strategy program. Government, upon park designation, made a commitment to allow for continued management and enhancement of the Chapman/Gray Creek watersheds as future community water supply sources for the Sunshine Coast residents. However, the *Park Act* does not allow for improvements to existing watershed infrastructure in the park, and new methods of land designation must be reviewed in order to permit this type of non-conforming use within Tetrahedron Provincial Park.

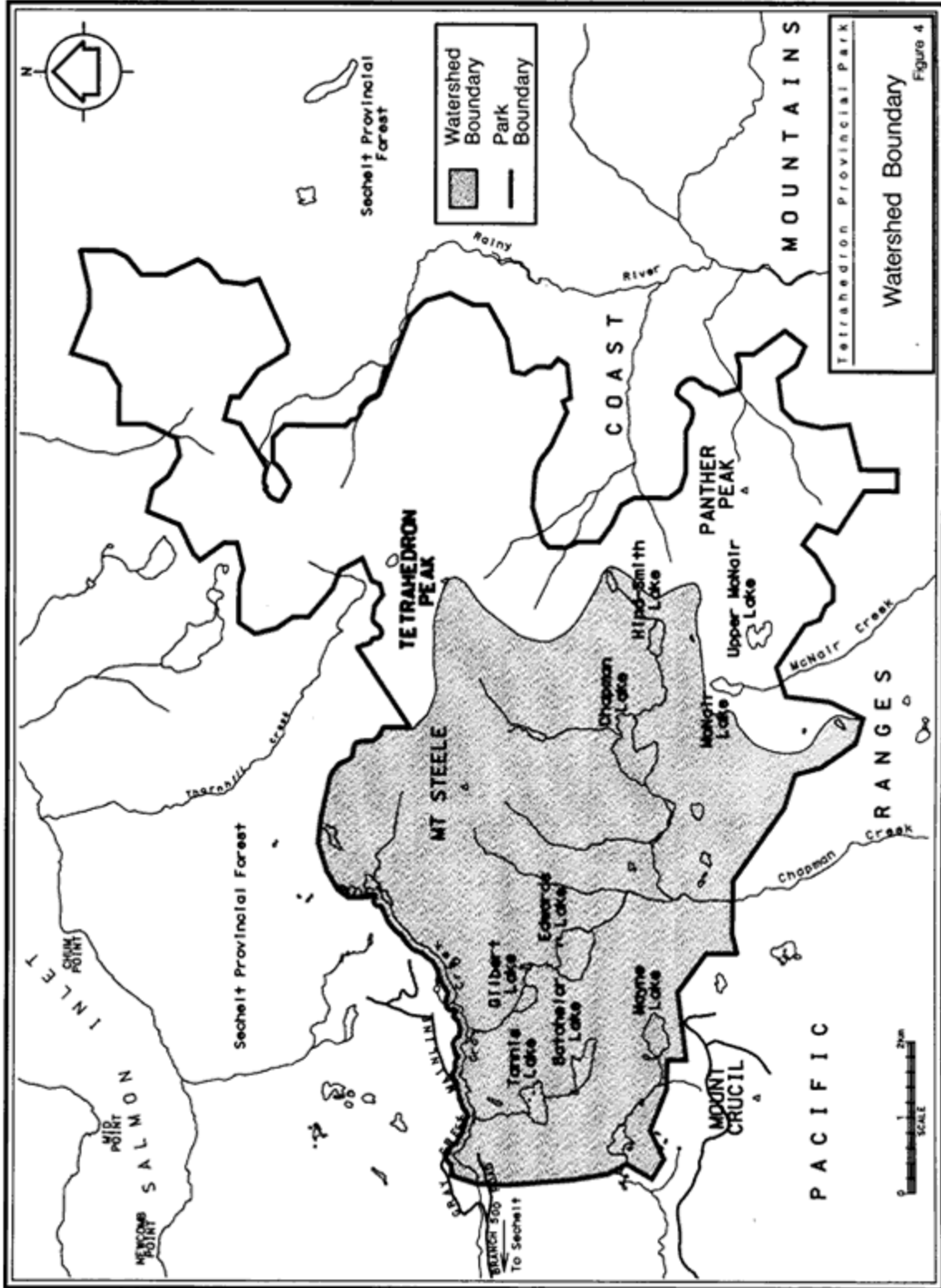


Figure 4
Watershed Boundary

Objectives: *To review existing park boundaries to ensure full protection of the park's natural resources.*

To review the park designation as it relates to the management of the Chapman/Gray Creek watersheds within the park and determine the appropriate course of action to manage and maintain the existing watersheds, and enhance these watersheds as a continuing community water supply source for the Sunshine Coast.

- Actions:**
- Amend the park boundary along the northwest corner of the park to exclude the Gray Creek Mainline forest access road right-of-way and to add the Branch 500 corridor to the park.
 - Establish permanent benchmarks for on ground boundary reference.
 - Issue a Park Use Permit (PUP) to the Sunshine Coast Regional District (SCRD) to allow for continued management of its existing watershed uses and infrastructure within the park as a community water supply for residents of the Sunshine Coast.
 - Review the current designation of Tetrahedron Provincial Park with respect to the SCR D's need to enhance its water system infrastructure/water use of the Chapman/Gray Creek watersheds within the park for future community water supply. A public consultation process to review any options proposed by government that may affect the existing park designation will be implemented.
 - Determine with Ministry of Forests the appropriate management and land designation for the Branch 500 parking lot and trail corridor to the park boundary and also additional areas that may be worthy of inclusion into the park.
 - Work with Ministry of Forests to develop a Landscape Unit Plan for the Sechelt area which includes Tetrahedron Provincial Park and a Forest Ecosystem Network (FEN) that will consider biodiversity requirements of the landscape as a whole.

Water

The Tetrahedron is characterized by spongy, water laden meadows and numerous small lakes. These physical attributes provide a large headwaters storage reservoir for Chapman and Gray Creeks which flow from the park into Sechelt Inlet and the Strait of Georgia. Abundant rainfall and deep winter snows ensure continual recharge of freshwater supply. Chapman and Gray Creeks provide the potable water source for an area population of

over 21,000 people. These watersheds are the future water sources for growth along the Sunshine Coast whose projected growth will be in excess of 60,000 people. Administered and maintained by the Sunshine Coast Regional District, this water system stretches from Langdale to Secret Cove (50 kilometres) with over 200 kilometres of distribution and trunk mains.

Water draining the higher elevation plateau area of Chapman and Gray Creeks Headwaters is naturally laden with a range of dissolved organic substances that give the water its characteristic red colour. These "organics" are generated by native bog vegetation in which sphagnum moss predominates. This red colour in itself, poses no health threat to those drinking the water directly. [Note: Further information on water quality can be obtained from Ministry of Environment, Ministry of Forests, Sunshine Coast Regional District, and in the Chapman and Gray Creeks Integrated Watershed Management Plan, 1996.]



Steele Creek (photo credit G. Smith)

Objectives:

To protect and maintain the natural water quality of all lakes, streams and creeks found in the park.

To ensure there is an appropriate mechanism for authorizing existing and future watershed enhancement and infrastructure development that may be required by SCRD for future population growth on the Sunshine Coast.

To monitor water quality and quantities and ensure identification of events or circumstances which present risks to the community water supplies in the Chapman/Gray Creek watersheds (Figure 4).

To ensure that the domestic and raw water supply meets the Canadian Water Quality Guidelines.

Actions:

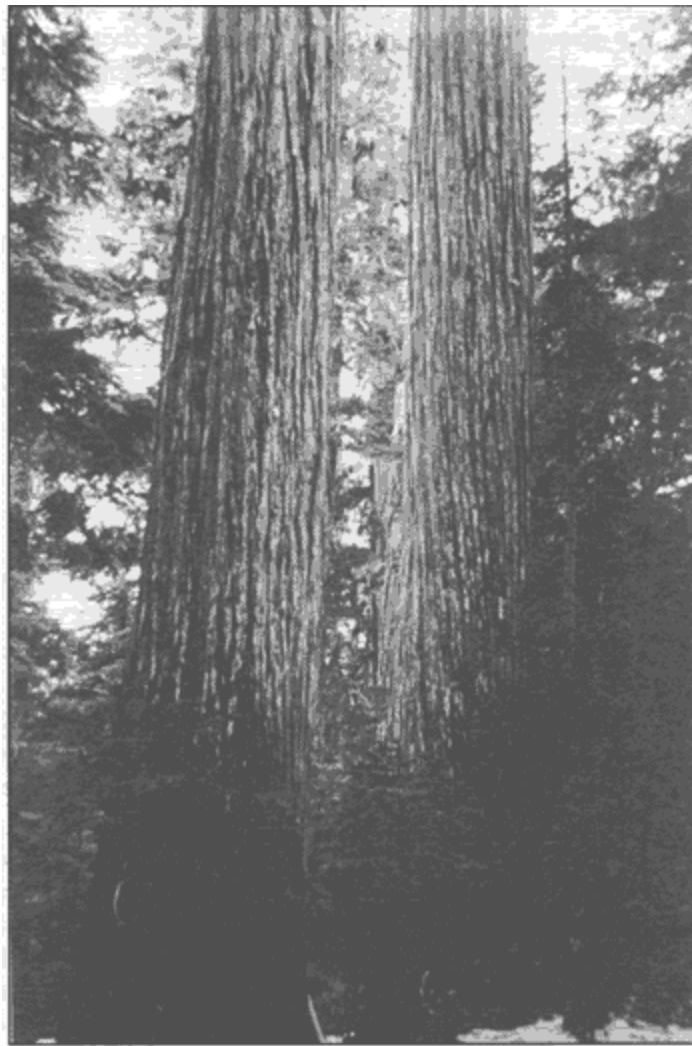
- In conjunction with the SCRD, carry out appropriate water quality testing to ensure human use areas are not, and will not, affect consumptive water sources, and establish a monitoring system for ensuring no risk of contamination to consumptive water sources.
- Review the options available to government and review process, seeking a decision that will enable BC Parks to authorize the SCRD to enhance and manage the Chapman/Gray Creek watersheds within the park for future population needs. Where regional water supply improvements are proposed within the park, an impact assessment and comprehensive public consultation process will be developed.
- Prevent potential contamination of consumptive water sources by closing the park to all domestic animals, locating human activity away from water sources where possible, and resolving any contamination problems on a priority basis.
- Develop a contingency plan with assistance from the SCRD to address what is to be done if water quality in the park is compromised or threatened by human activity.
- Liaise with Chapman and Gray Creeks Integrated Water Management Plan technical committee (C/G IWMP) to ensure that the park management plan objectives/actions are consistent with IWMP objectives/recommendations and actions.
- Establish a management strategy that monitors current park use to ensure that the number of park visitor days does not increase above the established existing numbers of users over the long term.

Vegetation

The lower elevations of the park contain western hemlock and western red cedar, while the higher forests support mountain hemlock and its associates, yellow cedar and Pacific silver fir. Semi-open meadows and marsh complexes are found throughout the park. Dense ground cover and brush border the mature forests and a variety of heather cover the sub-alpine areas. Common shrubs include blueberry, huckleberry, alpine rhododendron, spirea and kinnikinnick.

Objectives: *To ensure vegetation representative of Mountain Hemlock (MH) and Coastal Western Hemlock (CWH) biogeoclimatic zones is protected and natural successional processes occur.*

To maintain the park's vegetation in a natural state.



Old Growth (photo credit G. Smith)

Actions:

- Undertake a detailed vegetation inventory and encourage research studies of plant communities/species found in the park.
- Develop an ecosystem/fire management plan to maintain the natural pattern of vegetation, while ensuring watershed quality protection. The role of fire, disease and insects will be included as part of this plan.
- Ensure that sensitive vegetation resources are protected when developing recreation facilities and visitor management strategies.
- Discourage the introduction of any exotic plant species, and inhibit the spread of exotics from culturally modified areas in the park.
- Provide signage and limit recreation activities in areas where plants are sensitive to human impact in order to minimize further degradation.

Wildlife

Wildlife diversity in the park requires additional study and information from other sources, (i.e., Fish and Wildlife Branch, conservation, wildlife and sports clubs). At present, the park is closed to hunting.

Objectives:

To maintain the diversity of native animal species and protect their wildlife habitat/environment.

To identify and protect connector wildlife corridors inside and outside the park.

To implement a policy regarding rare and endangered species.

Actions:

- Tetrahedron Provincial Park will continue to be closed to hunting.
- Develop a wildlife management strategy which includes detailed inventories/studies. Based on these inventories, BC Parks will develop recommendations for appropriate wildlife management actions.
- Ensure sensitive wildlife habitats are protected when developing recreation facilities and visitor management strategies.
- Work with Ministry of Forests to develop a FEN which will have connections with the protected areas within the Sechelt Landscape Unit area, and will consider biodiversity requirements of the landscape as a whole.

- Determine with Fish and Wildlife Branch the feasibility of reintroducing mountain goat into the park.
- Ensure sensitive wildlife habitats are protected when developing recreation facilities and visitor management strategies.

Fish

There are a number of lakes, streams and creeks within the park that provide fish habitat. These lakes are used for angling, but little information is available on types, numbers and size of these fish or the current or future impacts of recreational fishing in the park. A lakes inventory will be necessary to determine the success of earlier fish stocking programs and to study fish population dynamics.

Objectives: *To protect fresh water lakes and streams for healthy reproduction of natural fish populations and aquatic plant life.*

To maintain streams and creeks for fish rearing habitat.

To acquire more detailed information on the types of fish and their required habitat in the park.

- Actions:**
- Conduct a lake inventory of all native fish species and aquatic plant life in the park in order to determine angling capacity and fishing regulations and to gain understanding about the impact of introduced species on the Tetrahedron aquatic environment.
 - Discourage fishing as a key recreational opportunity within Tetrahedron Provincial Park. The main lakes in the park will be maintained as natural fishery with no enhancement. Fishing will continue provided the resource remains on a self-sustaining basis.
 - Prohibit the introduction of non-native fish stocks into streams and lakes.
 - Evaluate, in conjunction with Fish and Wildlife Branch and First Nations, their current fish enhancement and modification priorities in the region with the intention of creating strategies for the park that are consistent with the maintenance of natural fish species and with regional angler utilization pressures.

Visual

The visual and aesthetic values associated with the Tetrahedron area require protection and careful management. The mountains, lakes, marshlands and native vegetation provide a unique natural setting which is greatly appreciated by visitors to this park.

Objectives: *To minimize unnatural changes to the views from both within and outside of the park so that the visual qualities and atmosphere of the park are maintained and protected.*

To ensure that limited backcountry recreational experiences are delivered in an aesthetic manner that complement the natural setting of the park.

Actions:

- Continue to work with Ministry of Forests, forest companies, SCRD, private land owners and other agencies to promote and maintain the visual integrity of lands surrounding the park that may impact on key visual points in the park.



Batchelor Lake and 1991 clearcut in background

- Encourage local volunteer groups to assist in the revegetation of areas that have been visually impacted by human activity (eg. Junior Forest Wardens).
- Identify, classify and record the location and quality of visual resources and values through an updated visual landscape inventory.
- Initiate with Ministry of Forests a Visual Landscape Analysis. Develop recommended Visual Quality Objectives (VQOs) from key viewpoints within the park for incorporation into the updates of the existing landscape analyses.

Cultural Resource Management

Tetrahedron Provincial Park covers traditional aboriginal territories of both the Sechelt Indian Band and Squamish First Nation. Historical knowledge is limited and there has been no archaeological assessment of the area. The Sechelt Indian Band is currently carrying out an overview assessment of traditional use, heritage and cultural sites and will be providing BC Parks with the information gained from this study. BC Parks will incorporate recommendations from these studies into this plan and annual work plan action statements.

Objectives: *To protect any cultural or historical features associated with the park.*

To identify cultural features and spiritual areas of importance and significance to local First Nations.

- Actions:**
- Review traditional use, heritage and archaeological inventory/assessment conducted by the Sechelt Indian Band in order to develop annual work plan action statements. This information will be shared on a government to government basis in order for the Sechelt Indian Band to protect its cultural and heritage interests in the park.
 - Consult with First Nations groups on an ongoing basis to determine the locations of any cultural or historic features, and provide awareness/ information on their importance to park users if discovered, and as agreed to by First Nations.
 - Ensure that First Nations' cultural and spiritual values associated with Tetrahedron Provincial Park are protected for the present and future generations of First Nations people.

Outdoor Recreation Features

Objective: *To ensure that limited backcountry recreation, development and use are in keeping with the park's objectives for conservation and protection of the quality of the communities' water supply.*

Actions:

- Manage limited backcountry recreation use in conjunction with the park's zoning plan so that outdoor recreation features and natural resources will be minimally impacted.



Mayne Lake with Tetrahedron Peak in background (photo credit G. Smith)

- Ensure that sanitary facilities meet Ministry of Health standards and visitors are aware of the sensitivity of the watershed as a source of potable water for Sunshine Coast communities. Any upgrading of trails, cabins and backcountry recreation facilities will be consistent with those objectives for maintaining the park's water quality and ecological integrity.

- Develop, in cooperation with IWMP Committee and local citizens/user groups, a recreation impact assessment process to manage for the identified carrying capacity for recreation use within the park based upon current uses (estimated at over 4,000 users per year).
- Control park visitation by reviewing and properly locating winter and summer parking lots.

Education

Tetrahedron Provincial Park is well suited for natural and cultural resource education and interpretation. The park's unique natural features, numerous lakes and recreation opportunities enhance park visitation, requiring increased public awareness on watershed management and protection of the park's resources.

Objective: *To encourage limited low impact backcountry visitation to Tetrahedron Provincial Park for educational purposes.*

- Actions:**
- Develop an interpretive strategy to include educational signs on the park's natural and cultural resources.
 - Promote the principles of carrying capacity and risk management to protect the park's resources for future generations.
 - Ensure that interpretation and education on the Tetrahedron maximizes awareness of the park's ecological values of a fragile high elevation ecosystem and its importance as a local water resource.

Scientific Research

Objective: *To encourage research of the park's water and natural/cultural resources that will increase our understanding and improve our ability to manage them.*

- Action:**
- Encourage research studies of all resources that are an integral part of the overall management for Tetrahedron Provincial Park. Studies of streams/watersheds, unique plant communities, higher elevation regeneration, wildlife, geological and cultural resources will provide a better data base in order to better manage the park.

Relationship with First Nations

The Sechelt Indian Band and Squamish First Nation recognize portions of the Tetrahedron as part of their traditional territories. BC Parks has limited information on the values of the park's resources and features as they relate to First Nations' culture and heritage.

Currently, the Sechelt Indian Band and Squamish First Nation are involved in treaty negotiations with senior levels of government. First Nations' contributions to this management plan are recognized and understood to be without prejudice to future treaty negotiations.

Once a formal Treaty agreement has been reached with the Sechelt Indian Band and Squamish First Nation, this management plan will be reviewed to determine whether it is in compliance with the Treaties. If it is not in compliance, then this management plan will be revised accordingly. Changes will be done through an open public review process so everyone understands what these changes mean to the park and its use.

Objective: *To develop ongoing communication and working relationships with First Nations' people whose traditional territories include the park.*

Actions:

- Discuss with First Nations areas of special spiritual and cultural interest they have identified and how BC Parks will recognize and protect those aboriginal cultural features found in the park.
- Develop a strategy with the Sechelt Indian Band and Squamish First Nation that will protect and allow for the continued practice of traditional activities for present and future generations of First Nations people in relationship to the lands within the park.

VISITOR SERVICES MANAGEMENT

Introduction

The Ministry of Forests, under its forest recreation program initiated a rudimentary hiking trail system in the Tetrahedron in the early 1980s. Then in 1987, an expanded trail system and four cabins were constructed by numerous volunteers, corporate donations, and employment bridging programs directed by the Tetrahedron Ski Club. The Ministry of Forests provided funding to assist the Tetrahedron Ski Club with ongoing maintenance until 1995 when the park was established.

The backcountry recreational values of the park's mid and high elevation landscape of forests, mountains, lakes and parkland has been well recognized in studies completed for the land use planning process. Old growth mountain hemlock and yellow cedar forests offer a good opportunity to experience original high elevation coastal temperate forest. These values are particularly important to the local residents who utilize the backcountry cabins and trail system for hiking, fishing and backcountry skiing. The park is unique in that it protects the only subalpine "semi-wilderness" area on the Sunshine Coast where accessibility and size can offer a high quality but limited (due to community watersheds and fragile ecology) backcountry recreation experience.

The visitor services proposed for this park will:

- provide limited non-consumptive wilderness recreation opportunities in the park including hiking, backcountry skiing, wilderness camping, viewing and cultural/nature interpretation, recognizing that the Chapman/Gray Creek watersheds are the primary water sources for Sunshine Coast residents;
- protect and interpret special natural and cultural resources, features or processes because of their special character, fragility and heritage value;
- provide only for those currently established park visits/uses which function within the identified carrying capacity for the park.

Outdoor Recreation Opportunities

The following summary outlines each activity, its objective and the facilities or services required. These limited backcountry recreation opportunities must be compatible with the protection and future management of the Chapman/Gray Creek watersheds. Figure 5 shows existing development in the park.

Natural and Cultural Appreciation

Objectives: *To preserve and interpret special cultural and natural resources found in the Tetrahedron area.*

To work closely with the First Nations to discuss appropriate methods in presenting the native history associated with the Tetrahedron and surrounding region as part of BC Parks' interpretive and overall management plan.

- Actions:**
- Develop an interpretive strategy which identifies opportunities and methods to provide visitor information about the park's natural and cultural resources and special features.
 - Seek corporate and volunteer assistance in providing park facilities, programs and general information to visitors.

Hiking/Backcountry Skiing

There are approximately 35 kilometres of established trails in Tetrahedron Provincial Park. These trails are used by hikers in the summer and backcountry skiers in the winter. Due to the high water table level, many of these trails are boggy and muddy during the summer and certain sections require significant upgrading.

Objective: *To retain viable wilderness hiking/skiing trails in the vicinity of a select number of lakes and mountains in the park.*

- Actions:**
- Develop a detailed trail inventory of the park upon which recreation management actions can be based.
 - Upgrade and/or relocate existing hiking and ski trails to an appropriate standard for current levels of visitor use; provide proper signage and detailed trail maps; and close and rehabilitate redundant trails.
 - Locate hiking trails away from sensitive/fragile areas to help minimize impacts on plants and potable water sources.
 - Locate information and sanitary facilities at the trailhead.
 - Encourage hikers, where possible, to stay on designated trails.



Backcountry Skiing with Mt. Steele cabin in background (photo credit A. Moore)

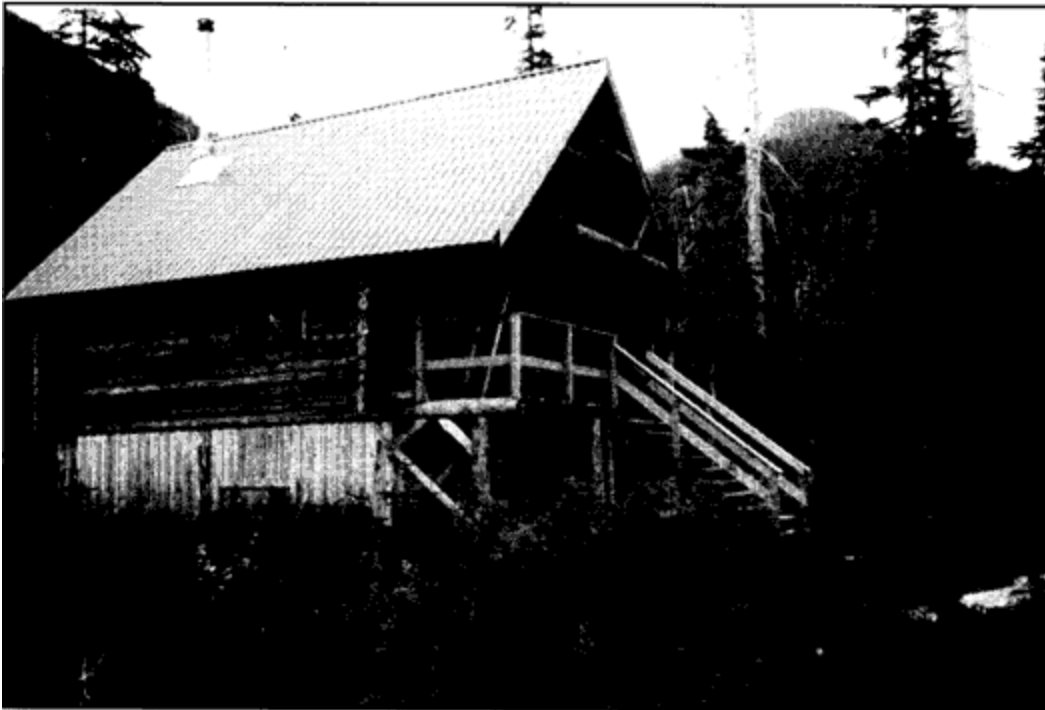
Camping

Batchelor, Edwards, McNair and Mount Steele cabins and adjacent sanitary facilities were constructed in 1987 by the Tetrahedron Ski Club with the support of many local volunteers and businesses, the Ministry of Forests, private donations and funding support primarily from the federal and provincial governments. These cabins are in excellent condition providing year round accommodation and are accessed by hiking/ski touring trails.

Objective: *To provide limited backcountry recreation opportunities in Tetrahedron Provincial Park recognizing that the Chapman/Gray Creek watersheds are protected and maintained as the prime source of potable water for Sunshine Coast residents.*

- Actions:**
- Limited camping will continue to be allowed at the four designated cabin site locations. Camping will not be permitted in any other locations within the park's watershed boundaries, except under special authorization by the Garibaldi/Sunshine Coast District Manager.
 - Continue to provide sanitary facilities which meet current Ministry of Health standards at the cabin sites.

- Prohibit open fires in the park, especially in those areas surrounding the cabins.
- Explore the development of a partnership agreement with the Tetrahedron Ski Club and major park users to manage and maintain the cabins and trails.
- Monitor cabin use and maintenance in the park as a basis for adjusting recreation management actions. Improved collection of overnight use figures will provide a data base to help determine the carrying capacity for these facilities.
- Determine the appropriateness in making changes to the existing cabin system in order to maintain the park's water quality and wilderness character and reduce vandalism and increased garbage problems.
- Informal wilderness camping will be permitted within the Wilderness Recreation Zone of the park outside the boundaries of the Chapman/ Gray Creek watersheds.



Edwards Lake cabin (photo credit J. Morris)

Outdoor Education

Objective: *Within the limited carrying capacity of the park, encourage public understanding, awareness and support of the special natural and cultural features associated with Tetrahedron Provincial Park.*

- Actions:**
- Provide education of natural history and cultural themes through information brochures.
 - Include programming about the Tetrahedron in the existing summer interpretation programs at Porpoise Bay Provincial Park.
 - Encourage local schools to visit Tetrahedron Provincial Park and learn about the park's natural and cultural features and importance in preserving the Sunshine Coast's community watersheds.
 - Seek the assistance of the Sunshine Coast Natural History Society, local interest groups and First Nations to help in providing park interpretation.

Other Activities

- **Angling**
Fishing will continue, provided fish conservation objectives are met.
- **Horseback Riding/Domestic Animals**
Because of the sensitive nature of area's watershed/watercourses, there will be no horseback riding permitted in Tetrahedron Provincial Park. Guide outfitters using horses or other domestic animals, such as mules or llamas, will also be prohibited in the park.
- **Bicycling**
Similarly, no bicycling or mountain biking will be permitted in the park due to the watershed and sensitivity of the area.
- **Mountaineering**
Day use mountaineering trips, as well as overnight expeditions will be managed for their existing level of use where summer and winter users stay in the existing cabins.
- **Swimming**
Due to the fragility and importance of the park's water resources, swimming and bathing will not be permitted within the Chapman/Gray Creek watersheds.

Management Services

Park Headquarters and Service Yard

Tetrahedron Provincial Park falls within the Garibaldi/Sunshine Coast District headquarters in Squamish at Alice Lake Provincial Park. The park is locally managed from the Sechelt Area office located in Porpoise Bay Provincial Park, Sechelt. An area service yard is also located at Porpoise Bay providing operation services for Sunshine Coast provincial parks.

Site and Facility Design Standards

All sites and facilities developed for public use will meet the design standards of BC Parks and complement the park's natural and cultural attributes. Factors to be considered include watershed sensitivity, visual aesthetics, durability and operational efficiency.

Safety and Health

Objective: *To ensure that the safety and health of visitors and the potable water quality of Chapman/Gray Creek watersheds are not negatively impacted by visitors.*

- Actions:**
- Work in conjunction with the SCRCD to ensure that community potable water sources meet the Canadian potable water quality guidelines. Managing for the existing number of visitors/uses may not increase the community health risk from a contaminated watershed water supply. However, if water contamination risks are identified, restrictions on access may be introduced.
 - Equip each cabin with appropriate fire extinguishers and basic fire control equipment.
 - Ensure that the location of pit toilets and their maintenance meet provincial health standards and do not present a risk to the water quality of the Chapman/Gray Creek watersheds.
 - Encourage backcountry hikers and skiers who use the more remote areas of the park to carry the necessary survival equipment in case of emergency or inclement weather.
 - Provide appropriate informational signage and educate visitors on watershed management and protection.

- Develop a Search and Rescue Plan in conjunction with local emergency search and rescue organizations and the RCMP.
- Encourage Ministry of Forests to implement and maintain adequate forest road safety signage on the Gray Creek Road for those forest management activities and access, as outlined in the Chapman and Gray Creeks IWMP management plan.

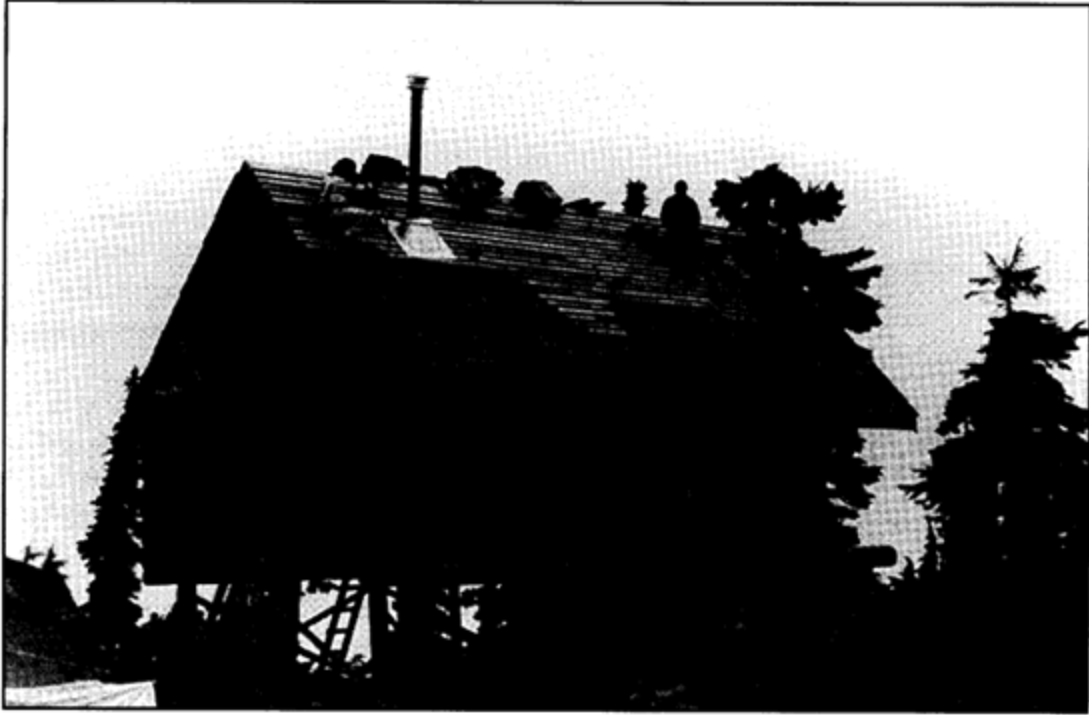
Volunteer Stewardship and Partnerships

Objective: *To develop relationships and partnerships with the public, volunteers, contributing partners and local governments, which will ensure the long-term protection of the park's natural and cultural resources and the delivery of park services, and will provide facilities as recommended in this management plan.*

- Actions:**
- Establish a volunteer Tetrahedron Provincial Park Public Advisory Committee whose objective would be to assist BC Parks in implementing this management plan and future annual management plans.
 - Encourage public stewardship to foster support for the park; coordinate volunteers; and encourage contributing partners to provide funding, sponsorship, expertise, research and other required services.
 - Establish a management partnership between BC Parks, the Sechelt Indian Band and the Sunshine Coast Regional District to manage the park and watershed in a way that protects park values and ensures the integrity of the local watersheds.
 - Continue to work closely with existing volunteer organizations such as the Tetrahedron Ski Club and potential new volunteers to encourage them to continue their role in the provision of volunteer trail and cabin maintenance.

Commercial Services

- Action:**
- BC Parks will not entertain any commercial services in the park, with the exception of low impact and non-mechanized professional backcountry guiding services.



Mt. Steele cabin construction by Tetrahedron Ski Club (photo credit G. Smith)

Carrying Capacity

The carrying capacity of the park is critically important not only to the park's inherent natural features, but also to keeping the risk of contaminating the regional water supply to an absolute minimum. To introduce more park users or new park users will increase the risk to community health. Managing for the existing number of users (eg. controlled vehicle access) will also maintain the number of recreationists needing to pass through the community watersheds.

Objectives: *To determine the park's carrying capacities for different recreational activities.*

To maintain the park's wilderness and water quality characteristics so as to preserve the water quality within Chapman/Gray Creek watersheds, the quality of the park's natural resources, and the quality of the current backcountry recreation experience.

Actions:

- Collect day use and overnight/camping use figures, monitor park use, and implement management initiatives that address how to maintain present levels of recreational use in order to determine an appropriate carrying capacity, which will help to preserve the water quality within Chapman/Gray Creek watersheds, the park's natural resources, and the quality of current backcountry recreation experience.

- Undertake and annually update the impact assessment of recreational use in consultation with the Integrated Water Management Plan (IWMP) Committee and concerned community groups in order to make recommended management strategies/actions. If this assessment indicates that recreational activity appears to be negatively affecting water quality, existing levels or patterns of recreation may have to be decreased or altered.

Promotion and Information Program

Access Strategy

Objective: *To ensure that access to the park is controlled through limited road/trail routes in order to encourage responsible use, and to protect the park's natural resources and facilities.*

- Actions:**
- Centralize the main park access to the bottom of Branch 500 where parking, signing and sanitary facilities will be located, as this point is the limit of practical access during the winter snow season.
 - Summer only access for higher clearance vehicles will be allowed one kilometre higher to the existing trailhead. The road between the main park (winter access) and trailhead (summer access) will have permanent water bars and allow for only 4-wheel drive vehicles. Use of this portion of the road will be monitored to determine future vehicle restrictions and road/access management actions.
 - Develop an access management strategy with Ministry of Forests, Interfor, Sunshine Coast Regional District and the Sechelt Indian Band which addresses issues such as gating and brushing Branch 500, snow ploughing and road maintenance.
 - BC Parks will issue a Park Use Permit to the Ministry of Forests for those roads (i.e., Mainline and W522 Branch Road) necessary to carry out forest management activities until these forest activity obligations are completed. Upon completion of the need for W522, this road will be rehabilitated as per the terms and conditions stated in the Park Use Permit.

- Prohibit aircraft landings, including ultralights, in the park except for emergency rescue procedures, research or management and maintenance of park facilities, and for purposes of the water purveyor to manage and maintain the region's water supply.
- Deactivate all old access roads beyond the existing trailhead which is located approximately one kilometre from the Gray Creek main and Branch 500 intersection. This would be accomplished and funded as part of the Chapman/Gray Creeks Watershed Restoration Program.

Information Strategy

As the area of Tetrahedron Provincial Park is relatively small and health issues related to preserving water quality in community watersheds are paramount, park use levels must be kept to a minimum. Recognizing the provincial mandate of BC Parks, this plan also acknowledges the predominance of local recreation use and will try to maintain existing use levels by not actively promoting the park.

Objective: *To provide a basic level of information to both local and general public, while at the same time not promoting the park as a major summer/winter recreation area.*

- Actions:**
- Develop an "In-Park" information strategy to include an information shelter at the parking lot and signs at strategic locations throughout the park.
 - Ensure that the provincial and regional advertising program for BC Parks and Tourism BC minimizes the tourism aspect of recreation in the Tetrahedron and maximizes the awareness of the park's small size, fragile ecological values and importance in protecting the water resources and watersheds.
 - Develop an information plan which emphasizes the sensitivity of the watershed area as a potable water source for Sunshine Coast residents.
 - Ensure all park information will state that the park is managed to protect its wilderness character and watershed resources by managing for a carrying capacity where access will be limited to the existing number of park visitors and users.

Marketing and Promotion

Objective: *The marketing and promotion strategy will protect the integrity of the park's natural and cultural resources, and protect the area's watersheds as a potable water source for Sunshine Coast residents.*

- Actions:**
- Liaise with local newspapers, chambers of commerce, business and community groups, as well as critical provincial publications and tourism organizations, stressing the limited recreational carrying capacity of the park and the importance of maintaining the fragile and critical local water supply.
 - Tetrahedron Provincial Park will not be promoted through BC Parks' publications, brochures or at tourist information offices. Information will be gained at the park, by word-of-mouth or from local park interpretation programs (eg. Porpoise Bay Provincial Park).
 - Ensure that regional and provincial advertising programs for BC Parks maximize visitor awareness of the ecological values in a fragile high elevation ecosystem, and its importance as a local water resource.



Tarn near McNair Cabin (photo credit T. Turner)

Plan Implementation

Introduction

This section compiles all of the actions listed throughout this management plan and lists them in order of priority. Implementation of these actions is dependent upon the availability of BC Parks' financial and staff resources, and will be affected by the needs of other parks in the Garibaldi/Sunshine Coast District, and in the rest of the BC Parks system. Approval of this plan does not constitute automatic approval of funding for implementation. In addition, BC Parks may have to seek corporate, community or interagency partnerships to implement many of the actions listed in this plan.

Prioritizing of the main resources and visitor management proposals is necessary to effectively implement this five to ten year management plan. The following outline lists the proposed actions in three sections: Highest Priority Actions; Task or Project-Oriented Actions; and Ongoing and Monitoring Actions.

The first list (Highest Priority Actions) highlights actions that are of the highest priority and require attention within the near future.

The second list (Task or Project-Oriented Actions) highlights actions that require a specific task or project. Park managers will review this list for upcoming budgets and annual work plans for staff. This list is separated into Resource Management actions and Visitor Services actions.

The third list (Ongoing Monitoring Actions) describes actions that require ongoing or monitoring types of tasks or projects. This list will be reviewed regularly by park managers to ensure that the overall spirit and intentions of this management plan are being followed. This list is also separated into Resource Management actions and Visitor Services actions.

HIGHEST PRIORITY ACTIONS

- ? Issue a Park Use Permit to the Sunshine Coast Regional District (SCRD) to allow for continued management of its existing watershed uses (Chapman/Gray Creeks) and infrastructure within the park. Where regional water supply improvements are proposed within the park, an impact assessment and comprehensive public consultation process will be developed.
- ? Review the options available to government and seek a decision that will enable BC Parks to authorize the SCRD to enhance and manage Chapman/Gray Creek watersheds within the park for future population needs. A public consultation process to review any options proposed by government that may affect the existing park status will be implemented.
- ? Establish a volunteer Tetrahedron Provincial Park Public Advisory Committee whose objective would be to assist BC Parks in implementing this management plan and future annual management plans.
- ? Liaise with the Chapman and Gray Creeks Integrated Water Management Plan technical committee (C/G IWMP) to ensure that the park management plan objectives/actions are consistent with IWMP objectives/recommendations and actions.
- ? BC Parks will not entertain any commercial services in the park, with the possible exception of low impact and non-mechanized professional backcountry guiding services.
- ? Tetrahedron Provincial Park will continue to be closed to hunting, and domestic animals will be prohibited from the park.
- ? Ensure that First Nations' cultural and spiritual values associated with Tetrahedron Provincial Park are protected for the present and future generations of First Nations people.
- ? Discuss with First Nations those areas of special spiritual and cultural interest and how BC Parks will recognize and protect any aboriginal cultural features found in the park.
- ? Manage recreation use in conjunction with the park's zoning plan, so that outdoor recreation features and natural resources will be minimally impacted.
- ? Initiate with Ministry of Forests a Visual Landscape Analysis. Develop recommended Visual Quality Objectives (VQOs) from key viewpoints within the park for incorporation into the updates of the existing landscape analyses.

- ? Ensure that sanitary facilities are properly designed and visitors are aware of the sensitivity of the watershed as a source of potable water for Sunshine Coast communities. Any upgrading of trails, cabins and backcountry recreation facilities will be consistent with the objectives for maintaining the park's/area's water quality and ecological integrity.
- ? Ensure that the interpretation/education for the Tetrahedron maximizes awareness of the park's ecological values as a fragile high elevation ecosystem, and its importance as a local water resource.
- ? Seek corporate and volunteer assistance in providing park facilities, programs and general information to visitors.
- ? Control park visitation by formalizing and properly locating winter/summer parking lots.
- ? Liaise with local newspapers, Chambers of Commerce, business and community groups, as well as critical provincial publications and tourism organizations, stressing the limited recreational carrying capacity of the park, and the importance of maintaining the fragile and critical local water supply.
- ? Locate information and sanitary facilities at the trailhead.
- ? Limited camping will continue to be allowed at the four cabin site locations. Camping will not be permitted in any other locations within the park's watershed boundaries, except under special authorization by the Garibaldi/Sunshine Coast District Manager.
- ? Prohibit open fires in the park.
- ? Work in conjunction with the Sunshine Coast Regional District to ensure that community potable water sources continuously meet the Canadian Water Quality Guidelines. Managing for the existing number of visitors/uses will not increase the community health risk from a contaminated watershed water supply. However, if water contamination risks are identified (eg. inappropriate park uses, exceeding present carrying capacity), then further access limitation procedures will be introduced.

TASK OR PROJECT-ORIENTED ACTIONS

Natural and Cultural Resources Management

- ? Amend the park boundary along the northwest corner of the park to exclude the Gray Creek Mainline forest access road right-of-way, and to add the Branch 500 corridor to the park.
- ? Determine with Ministry of Forests the appropriate management and land designation for the Branch 500 parking lot and trail corridor to the park boundary, and other areas worthy of inclusion in the park.
- ? Develop a wildlife management strategy which includes detailed inventories/studies. Based on these inventories, BC Parks will develop recommendations for appropriate wildlife management actions.
- ? Work with Ministry of Forests to develop a Landscape Unit Plan for the Sechelt area which includes Tetrahedron Provincial Park and a Forest Ecosystem Network (FEN) that will consider biodiversity requirements of the landscape as a whole.
- ? Establish permanent benchmarks for on ground boundary reference.
- ? Develop a contingency plan with the assistance of the SCR D to address what is to be done if water quality in the park is compromised by human activity.
- ? Undertake a detailed vegetation inventory and encourage research studies of plant communities/species found in the park.
- ? Develop an ecosystem/fire management plan to maintain the natural pattern of vegetation, while ensuring watershed quality protection. The role of fire, disease and insects will be included as part of this plan.
- ? Conduct a lake inventory of all native fish species and aquatic plant life in the park in order to determine angling capacity and fishing regulations, and to gain understanding about the impact of introduced species on the Tetrahedron aquatic environment.
- ? Evaluate, in conjunction with Fish and Wildlife Branch and the Sechelt Indian Band, their current fish enhancement and modification priorities in the region with the intention of creating strategies for the park that are consistent with the maintenance of natural fish species and with regional angler utilization pressures.
- ? Review traditional use, heritage and archaeological inventory/assessment conducted by the Sechelt Indian Band in order to develop annual work plan action statements. This information will be shared on a government-to-government basis in order for the Sechelt Indian Band to protect its cultural and heritage interests in the park.

- ? Develop a strategy with the Sechelt Indian Band and Squamish First Nation that will protect and allow for the continued practice of traditional activities for present and future generations of First Nations people in relationship to the lands within the park.
- ? Develop, in cooperation with IWMP Committee and local citizens/user groups, a recreation impact assessment process to manage the identified carrying capacity for recreation use within the park based upon current use (estimated at over 4,000 users annually).

Visitor Services Management

- ? Develop an interpretive strategy to include educational signs on the park's natural and cultural resources.
- ? Develop a detailed trail inventory of the park upon which recreation management actions can be based.
- ? Upgrade and/or relocate existing hiking, ski trails and bridges to an appropriate standard for current levels of visitor use; provide proper signage and detailed trail maps; and close and rehabilitate redundant trails.
- ? Locate hiking trails away from sensitive/fragile areas to help minimize impacts on plants and potable water sources.
- ? Develop a Search and Rescue Plan in conjunction with local emergency search and rescue organizations and the RCMP.
- ? Prohibit aircraft landings, including ultralights, in the park except for emergency rescue procedures, research or management and maintenance of park facilities, and for purposes of the water purveyor to manage and maintain the region's water supply.
- ? Explore the development of a partnership agreement with the Tetrahedron Ski Club to manage and maintain the cabins and trails.
- ? Equip each cabin with appropriate fire extinguishers and basic fire control equipment.
- ? Develop a management strategy with Ministry of Forests, Interior, Sunshine Coast Regional District and the Sechelt Indian Band which addresses access issues, such as gating and brushing Branch 500, road maintenance and snow ploughing.
- ? Deactivate all old access roads beyond the existing trailhead, which is located approximately one kilometre from the Gray Creek and Branch 500 intersection. This would best be accomplished and funded as part of the Chapman/Gray Creek Watersheds Restoration Program.
- ? Include programming about the Tetrahedron in the existing summer interpretation programs at Porpoise Bay Provincial Park.

- ? Develop an "In-Park" information strategy to include an information shelter at the parking lot and sign at strategic locations throughout the park.

ONGOING AND MONITORING ACTIONS

Natural and Cultural Resources Management

- ? In conjunction with the SCR D, carry out appropriate tests to ensure human use areas are not and will not affect consumptive water sources and establish a monitoring system for ensuring no risk of contamination to consumptive water sources.
- ? BC Parks will issue a Park Use Permit to the Ministry of Forests for those roads (i.e., Mainline and W522 Branch Road) necessary to carry out forest management activities until these forest activity obligations are completed. Upon completion of the need for W522, this road will be rehabilitated as per the terms and conditions stated in the Permit.
- ? Prevent potential contamination of consumptive water sources by closing the park to all domestic animals and locating human activity away from water sources where possible, and resolving any contamination problems on a priority basis.
- ? Establish a water management strategy that monitors current park use to ensure that the established existing number of park visitor days is maintained over the long term.
- ? Continue to work with Ministry of Forests, forest companies, SCR D, private land owners, and other agencies to promote and maintain the visual integrity of lands surrounding the park that may impact on key visual points in the park.
- ? Encourage research studies of all resources that are in an integral part of the overall management for Tetrahedron Provincial Park. Studies of streams/watersheds, unique plant communities, high elevation regeneration, wildlife, geological and cultural resources will provide a better data base in order to better manage the park.
- ? Discuss with appropriate agencies the protection/promotion of wildlife corridors outside of and connecting to the park.
- ? Discuss with Fish and Wildlife Branch the possible reintroduction of mountain goats to their historical population in the park.
- ? Consult with First Nations groups on an ongoing basis to determine the locations of any cultural or historic features, and provide awareness/information of their importance to park users if discovered, and as agreed to by First Nations.
- ? Undertake and annually update the impact assessment of recreational use in consultation with the Integrated Water Management Plan (IWMP) Committee and concerned community groups in order to make recommended management strategies/actions. If this

assessment indicates that recreational activity appears to be negatively affecting water quality, existing levels or patterns of recreation will have to be decreased or altered.

Visitor Services Management

- ? Collect day use and overnight/camping use figures, monitor park use and implement management initiatives that address how to maintain present levels of recreational use in order to determine an appropriate carrying capacity which will help to preserve the water quality within Chapman/Gray Creek watersheds, the park's natural resources, and the quality of current backcountry recreation experience.
- ? Informal wilderness camping will be permitted within the Wilderness Recreation Zone of the park outside the boundaries of the Chapman/Gray Creek watersheds.
- ? Ensure that the provincial and regional advertising program for BC Parks and Tourism BC minimizes the tourism aspect of recreation in the Tetrahedron and maximizes the awareness of the park's small size, fragile ecological values and importance in protecting the water resources and watersheds.
- ? Continue to provide sanitary facilities which meet current Ministry of Health standards at the cabin sites.
- ? Determine the appropriateness in making changes to the existing cabin system in order to maintain the park's water quality and wilderness character and to reduce vandalism and increased garbage problems.
- ? Monitor cabin use and maintenance in the park as a basis for adjusting recreation management actions. Improved collection of overnight use figures will provide a data base to help determine the carrying capacity for these facilities.
- ? Encourage local schools to visit Tetrahedron Provincial Park and learn about the park's natural and cultural features and importance in preserving the Sunshine Coast's community watersheds.
- ? Seek the assistance of the Sunshine Coast Natural History Society, local interest groups and First Nations to help provide park interpretation.
- ? Promote public stewardship to foster support for the park; coordinate volunteers; and encourage contributing partners to provide funding, sponsorship, expertise, research and other required services.
- ? Encourage Ministry of Forests to implement and maintain adequate forest road safety signage on the Gray Creek Road for those forest management activities and access, as outlined in the Chapman and Gray Creeks IWMP access management plan.

APPENDIX A

Provincial Parks Systems Goals

The British Columbia Provincial Parks System has two mandates:

- To conserve significant and representative natural and cultural resources
- To provide a wide variety of outdoor recreation opportunities

CONSERVATION GOALS

Goal 1 Protection of Representative Ecosystems

The Provincial Parks System will include areas that are representative of the natural ecosystems of British Columbia, thereby protecting and presenting for posterity, the characteristic combinations of flora, fauna, landforms and waters associated with this diverse province.

Goal 2 Protection of Outstanding Special Features

The Provincial Parks System will contain a wide scenic selection of the best provincial outdoor recreation resources, natural features, wilderness areas and historic resources of British Columbia.

RECREATION GOALS

Goal 1 Outdoor Recreation Holiday Destination Opportunities

The Provincial Parks System will include appropriate outdoor recreation lands and facilities providing for the use and enjoyment of major outdoor recreation destinations in British Columbia.

Goal 2 Tourism Travel Route Opportunities

The Provincial Parks System will include, as a complement to other suppliers, outdoor recreation lands and facilities in association with major provincial travel corridors to ensure that travelling vacationers are supplied with a basic network of scenic stopoffs.

Goal 3 Regional Recreation Opportunities

The Provincial Parks System will include, as a complement to other suppliers, land and facility-based opportunities for outdoor recreation distributed in association with British Columbia's natural geographic regions in order that British Columbians are assured a basic supply of outdoor recreation services close to home.

Goal 4 Backcountry Recreation Opportunities

We want to build the province's reputation for backcountry recreation by protecting and managing our most outstanding wilderness areas. Some sites may feature adventure tourism, while in other areas, the wilderness would remain untouched.

APPENDIX B

BC Parks Zoning Policy

Below are descriptions of the various zones that can be applied in provincial parks. The lists of activities and facilities shown for each zone indicate what could occur and not necessarily what must occur. In many parks, only a few of the activities or facilities shown in the list would occur.

INTENSIVE RECREATION ZONE

Management Objective

To provide a variety of high-use, readily-accessible, facility-oriented outdoor recreation activities.

Activities

Camping, picnicking, beach activities, power boating, nature appreciation, skiing and fishing.

Facilities

May be intensely developed, (eg. campgrounds, play areas, interpretive buildings and boat launches).

NATURAL ENVIRONMENT ZONE

Management Objective

To provide a variety of easily-accessible off-road outdoor recreation activities in a largely undisturbed natural environment.

Activities

Walk-in camping, kayaking, cross-country skiing and horseback riding.

Facilities

Moderately developed, (eg. trails, wilderness/boating campsites and shelters).

SPECIAL FEATURE ZONE

Management Objective

To protect and present significant natural or cultural resources, features or processes because of their special character, fragility and heritage value.

Activities

Sightseeing, interpretation and study of history and nature.

Facilities

May be developed for feature interpretation purposes.

May be subject to temporary closures or permanently restricted access.

WILDERNESS RECREATION ZONE**Management Objective**

To provide backcountry recreation in a remote natural environment, with emphasis on a wilderness atmosphere.

Activities

Backpacking, river rafting, fishing, hunting and nature appreciation.

Facilities

Development limited to user convenience and protecting the environment, (eg. trails, primitive campsites and shelters).

Mechanized access may be allowed to specific points.

WILDERNESS CONSERVATION ZONE**Management Objective**

To protect a remote, undisturbed natural landscape and provide backcountry experiences based on a pristine environment where no motorized activities will be allowed.

Activities

Backpacking, river rafting, fishing and nature appreciation.

NO hunting and NO mechanized access allowed.

Facilities

No development.

APPENDIX C

Terms of Reference Tetrahedron Provincial Park Management Plan

PROVINCIAL PARKS PLANNING STUDY

Project Name: Tetrahedron Provincial Park

Originating Office: South Coast Planning Office

Project Contact: Jim Morris

Type of Planning: Park Management Plan

Purpose:

To produce, with the help of a Public Advisory Committee and with public review, a comprehensive management plan for Tetrahedron Provincial Park. Objectives included are:

- To develop a common understanding between BC Parks, the Sechelt Indian Band, Squamish First Nation, provincial and local interests, the general public and other government jurisdictions on the management needs and direction for this park.
- To ensure that the Chapman/Gray Creek Watersheds which are partially located within the park are fully protected and managed to provide a potable water source for the area residents of the Sunshine Coast.
- To identify the role this new park will play in BC Parks' system and actions required for the protection of the cultural and natural values and outdoor recreation opportunities.

Scope of Study:

Tetrahedron Provincial Park is a 6,000 hectare park, located on the Sunshine Coast east of Sechelt and was part of the Lower Mainland Nature Legacy initiative announced in the spring of 1995. The park protects a variety of biogeoclimatic zones which range from the 900 metre to the 1,800 metre elevation. The area has traditionally provided wilderness backcountry recreation opportunities to area residents, as well as providing sources of drinking water for the Sunshine Coast communities.

A considerable amount of interagency and public discussion originated through a public planning process which preceded park establishment. The Tetrahedron Local Resource Use Plan (LRUP) process involved many government, forest industry, public and private groups and individuals over its five year duration. From a variety of sub-committee reports, the

planning team made its final recommendation to Cabinet, that the Tetrahedron be designated a provincial park, as part of the Protected Areas Strategy program.

A number of issues have been identified from the LRUP process and the Public Advisory Committee created when the park was established. There is general consensus by the Advisory Committee that the Vision Statement for Tetrahedron Provincial Park should read: "The management plan for the Tetrahedron will ensure a high level of water quality for the residents of the Sunshine Coast, while preserving the integrity of the park's natural, cultural and diverse ecosystems, maintaining its educational and spiritual values and providing limited backcountry recreational experiences".

Planning Issues:

Chapman/Gray Creek Watersheds Management

Preserving the Chapman/Gray Creek watersheds as the major source of potable water for Sunshine Coast residents is of primary concern. The Sunshine Coast Regional District must play a major role in monitoring and managing this watershed, while recognizing the preservation of the park's natural and cultural resources. Cooperation, joint stewardship and public awareness on the protection of this watershed will be addressed in the management plan.

Defining Appropriate Recreation Opportunities Including Facilities and Services

The area has traditionally been used for limited wilderness hiking and backcountry nordic skiing. The local Tetrahedron Ski Club has constructed four cabins in this area and there are 35 kilometres of developed trails. Any additional development including roads, parking and park information/promotion will have a direct impact on the sensitive watershed management issue. A review of existing recreation facilities, calculating existing and projected levels of use, and conducting user surveys and impact studies are required in order to balance the protection of watershed and park values with increased recreational demands.

Park Boundary Review

The boundaries that were established were intended to protect known values at the time of park designation, but other values may be discovered through the planning process.

Cooperative Management Strategies

BC Parks should encourage the Sunshine Coast Regional District to play a major role in co-managing the watershed area within the park. Stewardship and volunteer programs with the Tetrahedron Ski Club, government agencies and other interest groups will have an influence on the park management strategy.

Public Involvement Process:

Public assistance and comments in formulating a final management plan will be acquired through the Tetrahedron Advisory Committee (TAC), public open houses and meetings. The Advisory Committee, whose members have been appointed by the District Manager, will review and comment on the Background Report, as well as provide input into the draft management plan prior to public presentation. The TAC will also assist the planner by providing technical information and advice on plan formulation at monthly meetings. The public will be invited to review and provide comments on the draft management plan at an open house held in June. Following public review, the Tetrahedron Management Plan will be forwarded to the Assistant Deputy Minister for final approval.

Other Agency Involvement:

There are a number of other agencies that have an active interest in the management of the park and have already been involved in the park’s establishment through the LRUP process. These agencies include Ministry of Forests, BC Environment (Fish and Wildlife Branch, Water Management Branch), BC Lands, Sunshine Coast Regional District, private forest companies, environmental organizations and the Tetrahedron Ski Club.

First Nations Consultation:

BC Parks will encourage ongoing communication and seek direct input from the Sechelt Indian Band and Squamish First Nation in developing the management plan through the planning process. Their information on possible traditional uses and special cultural and natural features will be recognized in the management plan. The Sechelt Indian Band and Squamish First Nation will also be invited to sit on the Advisory Committee and/or BC Parks will meet with them separately to discuss identifying their traditional activities, spiritual areas and special cultural features, as well as facility development and other park management issues.

Project Team:

The following people will be required to assist in formulating the plan:

- Drew Carmichael District Manager
- Jim Morris Regional Planner
- Tom Eng Planning Technician
- Sid Quinn Sechelt Indian Band
- Randall Lewis Squamish First Nation
- Nicky Hastings Volunteer and member of Advisory Committee
- Advisory Committee
- Headquarters’ staff

Project Schedule/ Target Dates:


- | | | |
|-----|---|--------------------|
| 1) | Management Plan Terms of Reference Approved | |
| 2) | Tetrahedron Advisory Committee (TAC)
Terms of Reference Approved | January, 1996 |
| 3) | Initial First Nation Consultation | January, 1996 |
| 4) | Assemble TAC and elect chairperson | January, 1996 |
| 5) | Ongoing discussions with First Nations on
traditional activities, cultural features, and
park management issues | March/ May, 1996 |
| 6) | Review Background Report and prepare
draft plan with input from TAC | May/ June, 1996 |
| 7) | Conduct Public Open House/ Meeting to
review draft plan | September, 1996 |
| 8) | One month written comment period
1996 | September/October, |
| 9) | Revisions and plan approval
1996 | October/November, |
| 10) | Submission of the plan for PMC approval | November, 1996 |

Recommend Approval:



M.H. Turner, Manager of Planning Services


Date 96.05.12



Drew Carmichael, District Manager

Date 96.05.12

Approved:



Director of Planning

Date 96.07.23

APPENDIX D

Terms of Reference Tetrahedron Provincial Park Advisory Committee

Background:

BC Parks will be preparing a draft management plan for public review for the newly established Tetrahedron Provincial Park. A management plan is a document outlining the management objectives, policies and strategies required to achieve a balance between conservation and recreation, appropriate over the long-term for the particular park. The management planning process will be initiated in late summer 1995 and is scheduled to be completed in the spring of 1996. The plan and process will be guided by the BC Parks Management Planning Policy and Ministry of Environment, Lands and Parks' Policy to involve First Nations.

To facilitate the preparation of the management plan and ensure that a broad range of resource management and use issues, and options for conservation and recreation are brought forward for review and consideration, BC Parks desires the assistance of a Public Advisory Committee.

Mandate:

The committee will assist in the preparation of a draft Management Plan for Tetrahedron Provincial Park by providing advice to the District Manager on:

1. the planning process, including the public involvement process;
2. specific issues, such as water quality management, recreation development, and access arising through and from the planning process; and
3. the proposals, recommendations and policies of the plan.

Meeting Requirements:

1. The committee will be required to meet formally at least three times during the planning process and as required by committee decision.
2. The committee may be requested to attend, participate and/or chair public meetings.
3. Additional committee meetings may be called to review specific issues between scheduled meetings.

Composition:

1. The committee will be made up of no more than seven people.
2. The makeup of the committee should reflect a diversity of relevant interests, expertise and knowledge.
3. The committee will reflect the principles of employment equity.
4. BC Parks will provide the technical and support staff required for the planning process but will not be a member of the committee.
5. BC Parks will solicit volunteers to serve on the committee by:
 - advertising the terms of reference
 - other advertising methods, (eg. word of mouth, letters to various clubs, groups, organizations and individuals).
6. Potential candidates will be asked to submit a resume of qualifications and experience, a brief statement outlining their reasons for wanting to be a member of this committee, and letters of recommendation or endorsements.
7. The District Manager, with advice from the Chair of the Tetrahedron LRUP Committee, will review all applications and select the committee.

Selection Criteria:

To ensure the committee embraces a broad range of knowledge and abilities, the following criteria will be used in selecting committee members:

1. At least one person will have a provincial perspective on outdoor recreation issues and/or knowledge of British Columbia's Parks System.
2. At least one person will have expertise or knowledge in watershed management.
3. At least two persons will have familiarity with Tetrahedron Provincial Park and related issues.
4. At least three persons will have a strong interest, expertise or knowledge in one or more of the following areas:
 - Human and natural history
 - Resource conservation and management
 - Outdoor recreation
 - Environmental law

- Planning and research
 - Engineering/trades
 - Aboriginal issues and culture
 - Watershed management
5. Members will be selected on their own merit and not as representatives of any special interest group(s) with which they may be associated.

Procedures

1. The committee will operate on a consensus basis. If consensus cannot be achieved, all opinions will be forwarded to the District Manager.
2. Four committee members will be considered a quorum.
3. The committee will elect a chairperson.
4. The committee is appointed by and reports to the District Manager who reserves the right to make amendments to the committee structure as required, appoint new members to the committee or to terminate the committee. The reasons for any decisions in these matters will be publicly stated.
5. The committee will prepare agendas in consultation with the District Manager, who will provide relevant background information on issues referred to the Advisory Committee for consideration.
6. BC Parks will provide a secretary to record minutes and those minutes will be distributed to each member after the committee meeting.
7. The committee has no authority to call public meetings, commit funds, enter into contracts or represent BC Parks.

Recommendations

Concerns or advice from the committee will be in the form of written recommendations to the District Manager.

Remuneration

Members of the committee will serve without remuneration, but BC Parks will pay appropriate and necessary out-of-pocket expenses that arise directly from the performance of their duties as members of the Advisory Committee, in accordance with the *Financial Administration Act and Regulations*.