# GARDEN BAY PROVINCIAL PARK

MASTER PLAN

South Coast Region

SEPTEMBER, 1992





# **MEMORANDUM**

TO: George Trachuk

DATE:

92 - 09 - 04

Regional Director South Coast Region

FILE:

7-2-165

Re: Garden Bay Provincial Park Master Plan

Attached is the Master Plan for Garden Bay Provincial Park. I am recommending this plan for approval.

N.A. (Drew) Carmichael

District Manager

Garibaldi/Sunshine Coast

APPROVED:

DATE:

George Trachuk Regional Director

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#### 1.0 PLAN HIGHLIGHTS

This Master Plan outlines the importance of Garden Bay Provincial Park for local residents, tourists, and the Sechelt Indian Band.

### Resource Management initiatives include:

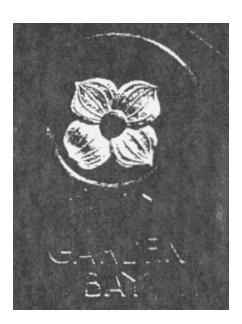
- Protecting the parks cultural resources by ensuring that future facility development is carried out so as not to disturb native cultural sites.
- Promote water quality for both Garden Bay and Garden Bay Lake by reminding visitors that the lake is the local water source and should be respected as such, and that only electric motor boats are permitted.
   Encourage boaters to properly dump their holding tanks at marine sani stations or outside the bay. A pit toilet is located in the park for both day users and boaters.
- Reviewing non park lands to determine if connecting the isolated section of the park to the main body warrants further action.

### Visitor Services Management initiatives include:

- Providing additional picnic tables, a picnic shelter and a barbecue stand.
- Constructing a short walking trail using the abandoned logging road that starts near the dinghy dock.

• Review a variety of options for future camping requirements (i.e. walk-in campsites, auto vehicle access sites etc.) with input from local interest groups prior to construction.

Garden Bay Provincial Park will continue to be promoted as a day use park that has both excellent recreational opportunities as well as unique cultural resources.

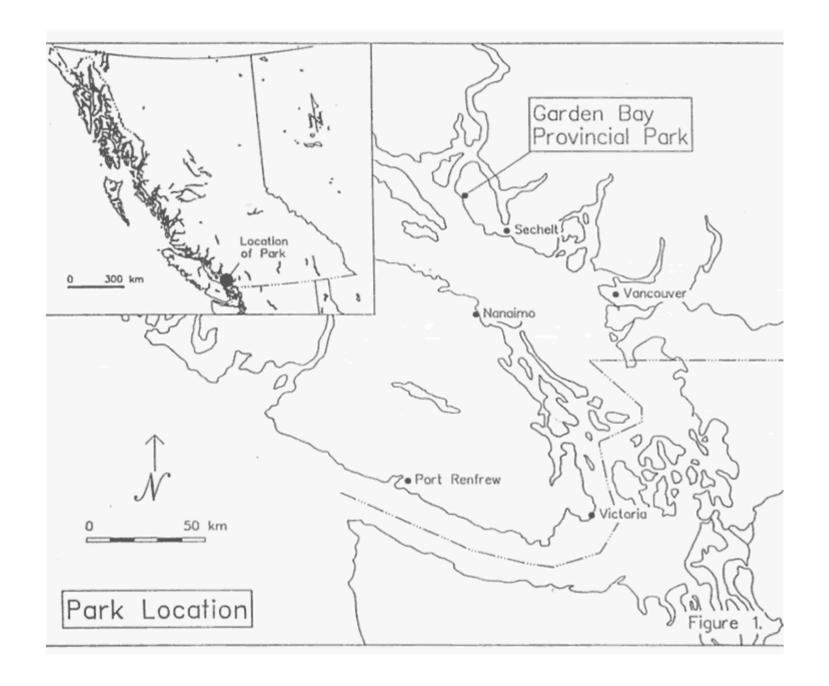


### 2.0 INTRODUCTION

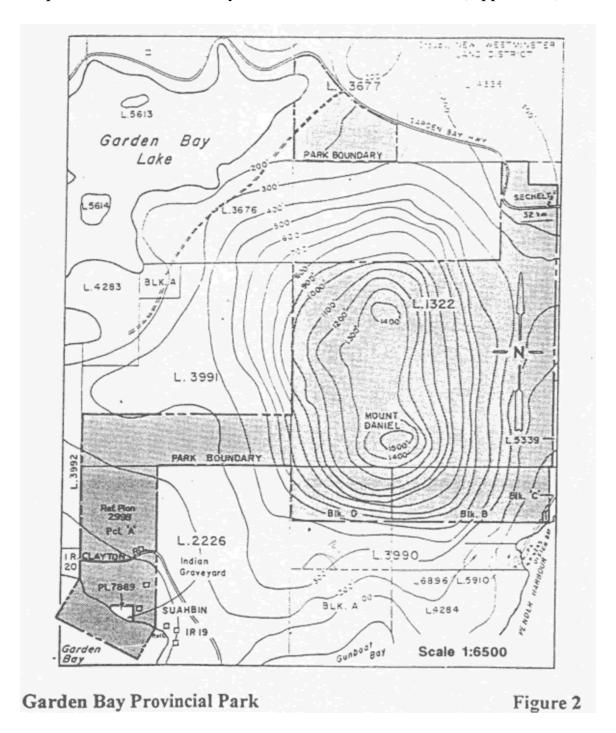
Garden Bay Provincial Park lies 37 kilometres north of Sechelt on British Columbia's Sunshine Coast (Figure 1). It encompasses 163 hectares of land and 5 hectares of foreshore and is bordered by both Garden Bay and Garden Bay Lake. Most of the park is comprised of Mount Daniel. The park may be accessed in one of three ways. From Clayton road off Garden Bay Highway, by an abandoned logging road in the northern section of the park, or by boat from Pender Harbour. The park was established in 1969 as a class A, category 6 provincial park (Figure 2).

Two areas of cultural significance are encompassed within the park boundaries. The top of Mount Daniel shows evidence of past use by Sechelt Indians and stone configurations called "moon rings" can still be seen today. Near the dock at the southern end of the park are burial markers from an Indian graveyard (I.R. #19A).

Garden Bay Provincial Park has traditionally been a little used area due to its undeveloped character. However, due to facility development by volunteers and BC Parks in 1991, the park is expected to show a rise in day use activities. Due to the native cultural resources in the area, management policies for the park must balance the need for recreational opportunities with the preservation of the resources.



A public planning process was initiated in the spring of 1992 in order to ensure public input from both native and local resident groups prior to final development of the Garden Bay Provincial Park Master Plan (Appendix 3).



### 2.1 Plan Purpose

This Master Plan provides the 5 year management strategy for Garden Bay Provincial Park. It presents park specific policies for resource conservation and visitor facility development that guide BC Parks planning, conservation, and visitor services program initiatives.

### 2.2 Background Report Summary

- The climate of the park is generally dry, sunny and moderately warm.
- The park is protected from most winds by surrounding land contours associated with Pender Harbour.
- The boundaries of the park conform to a blocky shape that includes much of
  Mount Daniel, 200 metres of shoreline, a 5 hectare marine component and a
  small detached section of the park lying to the north near the western tip of
  Garden Bay Lake.
- Minimal erosion of the shoreline has resulted in a rough, rocky beach.
- Soils, vegetation and climate corresponds to the coastal Douglas fir biogeoclimatic zone.
- Most of the park is comprised of second growth Douglas fir, Western Red
   Cedar, Broadleaf Maples and Rocky Mountain Juniper.
- Salal, Oregon Grape, and occurrences of Red Huckleberry make up the understory.

- The areas wildlife includes Blacktail Deer, Black Bear, Cougar, a variety of smaller rodents, amphibians, reptiles as well as a large selection of both marine and terrestrial birds.
- Little marine life exists in the foreshore area due to bottom silts, pollution, and weak tidal flushing.
- Access to the park is achieved either by boat from Garden Bay, by road via Claydon Road, or by an abandoned logging road in the north area of the park.
- Recreational opportunities include picnicking, viewing marine activities and nature appreciation.
- Existing facilities include a twenty car parking lot, pit toilet, picnic tables and a dinghy dock.
- Cultural Resources are comprised of the "Moon Rings" on the summit of Mount Daniel, and the small Indian graveyard inholding (I.R. #19A) near the shoreline of the park.
- Visitation to the park has been low due to its small and undeveloped character. However, due to improvement in access and facilities by BC Parks and volunteers, marine and day use is expected to increase.
- Garden Bay Provincial Park is referred to in both *Coastal Marine Parks of British Columbia* and *Sunshine Coast Provincial Parks*.
- Significant park issues include natural and cultural resource protection, park role, park facility development, level of use, and park boundaries.

#### 3.0 THE ROLE OF GARDEN BAY PARK

### 3.1 Regional and Provincial Context

For the residential population of Garden Bay, the park provides marine access and water recreation opportunities, as well as traditional land based and nature oriented activities. The park is located near the north west end of the Sechelt Peninsula, and serves as both a local and regional day-use destination for Sunshine Coast residents.

The Sunshine Coast traditionally attracts Lower Mainland visitors for summer destination holidays. Easily accessible via B.C. ferries from the mainland and Vancouver Island, the Sunshine Coast represents an easy "get away" from B.C.'s urbanized areas.

As a travel corridor, Highway 101 serves the resident and tourist population travelling by automobile between Gibsons and Powell River. Use of the quieter, off highway road system is on the increase as bicycle touring on the Sunshine Coast becomes more popular. Recreational mariners travelling up and down the coast have long recognized the attractiveness of both Pender Harbour and Garden Bay.

#### 3.2 Conservation Role

Garden Bay Provincial Park is located within the Straight of Georgia lowlands unit of the BC Parks Regional Landscapes system. Owing to the relatively small size of the park, there is insignificant contribution to the Landscape Representation goal of BC Parks.

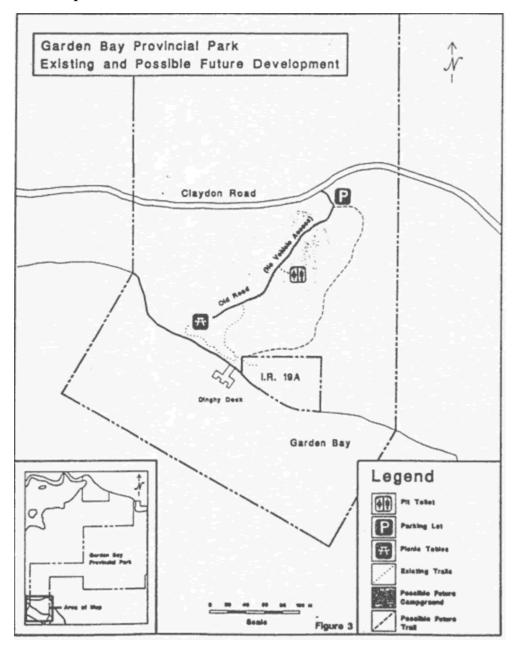
The park contains natural and cultural features that are of local and regional importance, as well as being important to the Sechelt Indian Band. However, there is little contribution to the provincial Outstanding Features goal of BC Parks. The conservation of recreational opportunities, particularly those associated with the waterfront area of the park, is an important role of Garden Bay Park.

Garden Bay Provincial Park conserves features appropriate for outdoor recreation and wildlife habitat, as well as cultural features associated with the native history of the area.

#### 3.3 Recreation Role

Garden Bay Park is an increasingly important day use area for residents of Garden Bay as well as boaters of Pender Harbour. For many people, the park's marine foreshore is the only access to the bay as the adjacent foreshore areas are privately owned.

Recreational opportunities available to both residents and tourists include picnicking, nature appreciation, and viewing of marine activities. The dinghy dock may be used to tie up to, or to launch carry-in boats. The possible implementation of overnight walk-in camping sites will increase the recreational potential of the park. Figure 3 shows current development, and possible development in the future.



#### 4.0 PARK ZONING

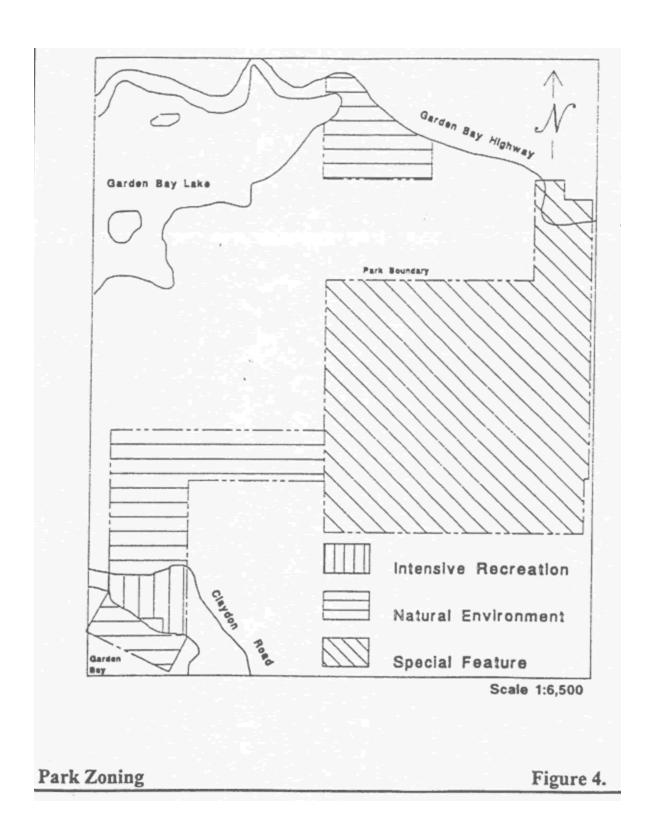
Figure 4 illustrates the zoning plan for Garden Bay Provincial Park. Zone designations define appropriate uses and levels of development for all areas of the park. Refer to Appendix 5 for B.C. Park's Zoning Policy.

### For Garden Bay:

Intensive Recreation: The south end of the park near the bay is zoned to provide the development and promotion of outdoor recreation opportunities. BC Parks recognizes the importance of the Indian graveyard inholding (I.R. #19A) to both the Sechelt Indians and to the cultural aspect of the park. The level and style of protection for this site will be determined through input from the Sechelt Indian Band prior to any development.

**Natural Environment:** The section of the park north of Claydon Road and west of Mount Daniel as well as the isolated section adjacent to Garden Bay Lake is zoned to provide outdoor recreation in a largely undisturbed natural environment. Also included is the foreshore area.

*Special Feature:* The park land encompassing Mount Daniel will be zoned Special Feature so as to protect the native artifacts at the summit of the mountain.



#### 5.0 NATURAL AND CULTURAL RESOURCE MANAGEMENT

#### 5.1 Introduction

The natural and cultural resources of Garden Bay Provincial Park contribute to its recreational importance to both residents and tourists on the Sunshine Coast. Effective management policies will ensure that these resources remain preserved for future public use.

### **5.2** Natural Resource Management Policies

### **Land Management Objective**

To ensure that the park continues to protect recreational and natural values.

#### **Actions:**

• Review with the appropriate agencies and landowners the possibility of acquiring portions of the land between the main body of the park and the isolated section adjacent to Garden Bay Lake. This will add continuity to the park boundary.

### **Water Management Objectives**

To ensure that the quality of water in Garden Bay Lake and Garden Bay is retained or improved upon.

#### Actions

- Encourage boaters to use onshore toilet facilities and refrain from dumping sewage into the bay.
- Ensure that park developments do not impair water resources.
- Encourage boaters to use the park's pit toilet.
- Provide interpretive signage at Garden Bay indicating to hikers that Garden
   Bay Lake is a local water source and should be respected as such.
- Continue to support the "electric motors only" regulation in Garden Bay Lake.

# Wildlife Management Objective

To encourage wildlife use of Garden Bay Park by protecting and enhancing natural terrestrial habitats.

#### Actions

- Retain a hunting and shooting closure over the park.
- Conserve snag trees within the park that may serve as raptor perching trees or homes to woodpeckers.

### **Vegetation Management Objective**

To retain the natural vegetation of Garden Bay.

#### Actions:

- Design and construct park trails and facilities with sensitivity to the natural vegetation cover.
- Manage hazard trees according to B.C. Park Policy.
- A fire management plan will be developed.

### **Cultural Resource Management**

To protect the identified cultural resources within the park.

### Actions

• Ensure any facility development is located appropriately so as to protect the cultural resources of the park, and planned in consultation with the Sechelt Indian Band prior to construction.

#### 6.0 VISITOR SERVICES MANAGEMENT

#### 6.1 Introduction

The natural and cultural features of Garden Bay Park provide significant recreation values. The park attracts a wide range of visitors including boaters, historians, bird watchers, historians, and picnickers from the Sunshine Coast, Vancouver Island, and the Lower Mainland. To maximize a visitor's experience, B.C. parks must provide facilities and opportunities while maintaining the natural beauty of the area.

### **6.2 Visitor Opportunities**

### A) Picnicking

Objective:

To increase and improve the picnicking opportunities.

#### **Actions:**

- Provide additional picnic tables.
- Provide a day use picnic shelter.
- Provide potable drinking water to day-use area.
- Build a barbecue stand in the picnic area.

### *B)* Resource Appreciation

### Objective:

To promote the use of Garden Bay Park for nature study, outdoor education and cultural resource appreciation.

#### Actions:

- Construct a loop trail southeast of the picnic site that generally follows the old logging road.
- Construct new or upgrade the existing trail to the summit of Mount Daniel if
  hiking demand is apparent. This will be done with input from the Sechelt
  Indian Band prior to construction.
- Provide interpretive signage for culturally significant areas.

# C) Camping

The development of a walk-in and/or easy access campground is dependent upon the supply and demand of the area. If one is to be developed, it will first be planned with input from local interest groups and residents.

# **6.3** Management Services

Garden Bay Park is managed as part of the Sunshine Coast Zone of the Garibaldi / Sunshine Coast District. Park staff from the Area Office located at Sechelt will manage this park.

### **6.4** Promotion and Information Program

### Objective:

To promote Garden Bay Park as a "natural recreation area" where wildlife, and marine viewing are presented for public appreciation in a relatively undisturbed setting.

### Actions:

- Update the marketing initiatives for Sunshine Coast Provincial Parks.
- Provide standard highway signing to direct visitors to the park.
- Prepare an Information Package for Garden Bay Park that includes:
  - in-park regulatory signs
  - an information shelter
  - interpretive signing

### 7.0 PLAN IMPLEMENTATION

The following schedule is intended for implementation of the Master Plan and is subject to the availability of staff and funds.

#### Phase 1:

#### Resource Conservation

- Produce a cultural management plan for Garden Bay Provincial Park.
- Locate all facilities (i.e. campground, hiking trails, interpretive signs etc.) to protect natural and cultural resources. This will be done in cooperation with the Sechelt Indian Band and local interest groups prior to construction.

#### **Visitor Services**

- Provide potable drinking water to day-use area.
- Install more picnic tables.
- Complete existing park trails and facilities to park standards.
- Define recreational needs of the park with respect to providing future camping facilities and associated services.

### Phase 2:

#### Resource Conservation

- Prepare a fire management plan
- Explore possibilities for expansion of park boundaries to include lands between existing park areas.

#### **Visitor Services**

- Construct a picnic shelter.
- Complete interpretive facilities, especially for the cultural resources.
- Develop in conjunction with public interest groups prior to construction and only when demand warrants such expansion.
- Construct a loop trail that generally follows the path of the old logging road near the dinghy dock.

# Appendix 1

Garden Bay Provincial Park

**Background Report** 

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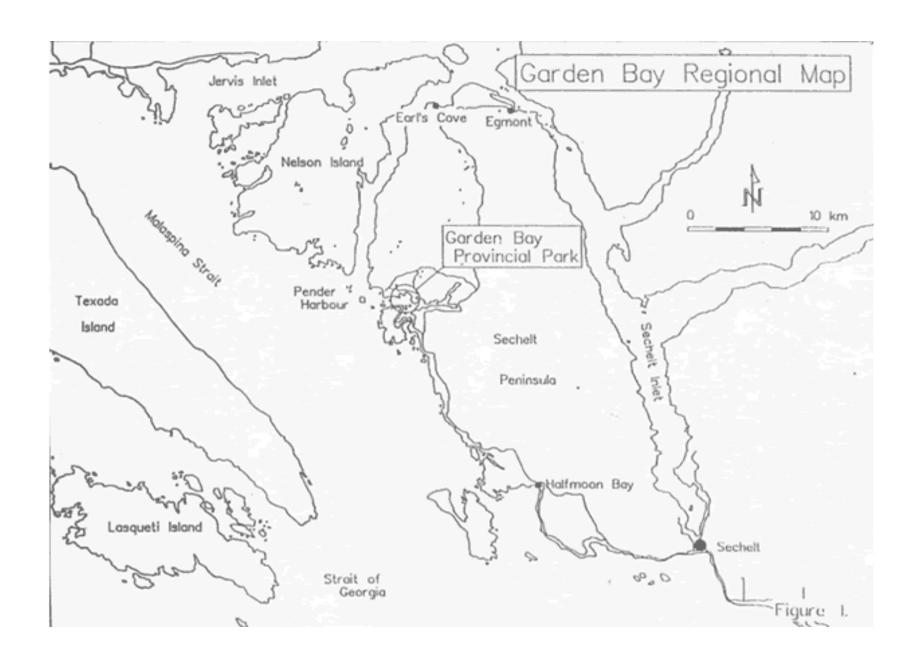
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#### 1.0 INTRODUCTION

Garden Bay Provincial Park lies 37 kilometres north of Sechelt on British Columbia's Sunshine Coast (Figure 1). It encompasses 163 hectares of upland and 5 hectares of foreshore and is bordered by both Garden Bay and Garden Bay Lake. Most of the park is comprised of Mount Daniel. The park may be accessed by boat, from Claydon road off Garden Bay Highway, or by an abandoned logging road in the northern section of the park. The park was established in 1969 as a class A, category 6 provincial park.

Two areas of cultural significance lie within the park boundaries. The top of Mount Daniel still shows evidence of past use by Sechelt Indians. Stone configurations called "moon rings" can still be seen today. Near the dock at the southern end of the park are burial markers from an Indian graveyard.

The park consists of mainly second growth forest with vegetation, wild life, and climate typical of the Coastal Douglas fir biogeoclimatic zone. Recreation opportunities include natural and human interpretation, picnicking, diving, boating and viewing the activities in Garden Bay. The waters of Pender Harbour and the Straight of Georgia southwest of the park offer excellent fishing opportunities.



### 2.0 NATURAL AND CULTURAL RESOURCES

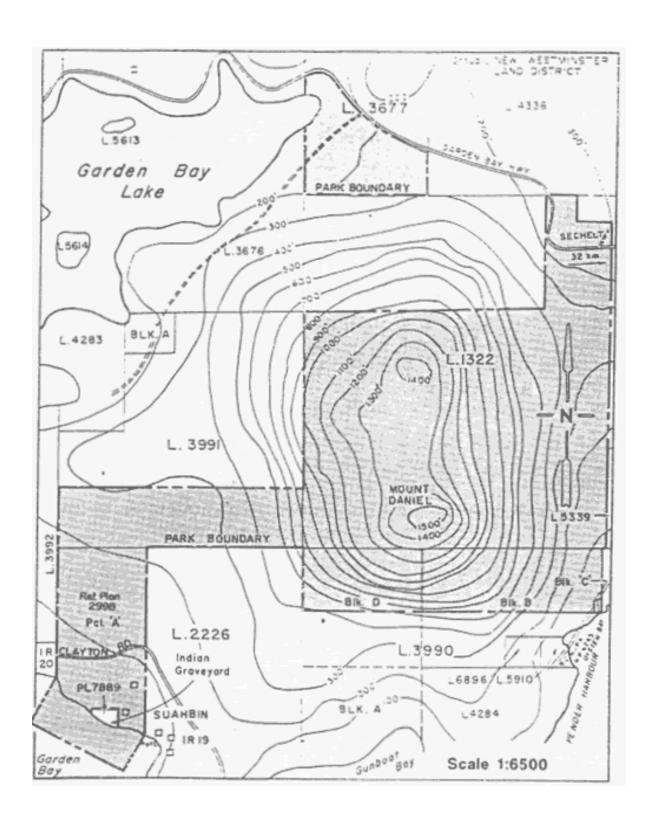
#### 2.1 Climate

Garden Bay experiences a climate typical of the lower west coast. Moderately warm and dry summers with wet, mild winters predominate. Temperatures range from a January average of 0 to 5 degrees, to a July average of 16 to 18 degrees. Measurable precipitation can be expected 6 to 9 days in July and for 14 to 17 days in January. The area averages from 75 to 100 centimetres of precipitation each year. There is a low to moderate amount of snow each winter. The Sunshine Coast is the driest area along B.C.'s coastline (Farley,1979).

Prevailing winds in the area are either southeast or southwest. Average summer wind speeds are 14.7 km/hr. During the winter, this increases to an average of 21.9 km/hr. Garden Bay is protected from most of these winds by the harbour (Pender Harbour Crown Foreshore Plan, 1983).

### 2.2 Physiography

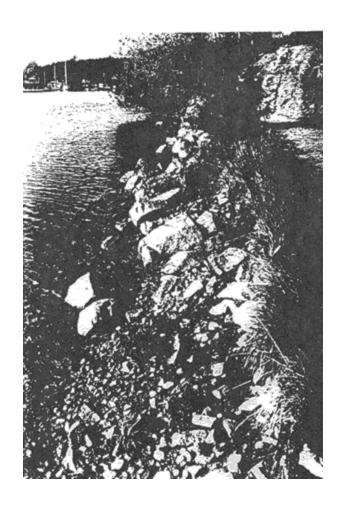
Garden Bay Park conforms to an irregular and blocky shape. The south west area is comprised of a 200 meter stretch of rocky shoreline with border lines extending north approximately 700 meters. This section is bisected by Claydon road. From there, the park boundaries turn east for 300 meters before opening up to include much of Mount Daniel. The north-east corner of this section extends to, and crosses Garden Bay Highway. A small detached section of the park fronts on Garden Bay Lake and is bordered to the north by Garden Bay Highway (Figure 2).



### 2.3 Geology

The park lies on intrusive igneous bedrock material. Formation probably took place during the Mesozoic Era. Since ice retreat about 12,000 years ago, the area has rebounded from isostatic depression (Holland, 1976). This has not been long enough for the ocean to have had any considerable erosion effects on the rocky shore. Therefore, the shoreline is rough with no sandy beaches. There are rock outcrops throughout the park.

Mt. Daniel has been shaped from glacial forces during the last ice age. The mountain may be classed as a roche moutonee as it displays stoss and lee topography. The axis lies in a north-south line and the summit is made up of two peaks. Elevation of the mountain is 450 meters above mean sea level (Garden Bay Provincial Park Master Plan, 1980).



Marine shoreline of the park



Mount Daniel from Garden Bay Lake

### 2.4 Soils

Soils within the park have not been surveyed so only a general description can be presented.

The dominant soil type is humo-ferric podzol. Characteristics include high moisture content with much leaching of iron and aluminium to the B horizon. There is a relatively deep organic layer and moderate evapotranspiration. The ph levels range from 4.0 - 5.0, which is slightly acidic (Valentine et al, 1978).

This soil type is typical of coniferous forests on low lying coastal regions. It corresponds to the coastal Douglas fir biogeoclimatic zone.

### 2.5 Vegetation

The following is a description of the park area south of Claydon Road. The interior of the park has not been studied and other species may be present.

The forests of Garden Bay Park are mostly second growth trees with the occasional large old growth specimen still alive. There is evidence of past forest fires as some trees near Garden Bay are blackened and scarred. Vegetation is representative of the Straight of Georgia lowlands regional landscape.

Vegetation cover is mainly comprised of Douglas-fir (*Pseudotsuga menziesii*) with some mix of Western Red Cedar (*Thuja plicata*). Rocky Mountain Juniper (*Juniperus scopulorum*) occurs on the exposed dry shoreline of Garden Bay and deciduous Broadleaf Maples (*Acer macrophyllum*) are scattered throughout the park.

The understory consists mainly of Salal (Gaultheria shallon), Oregon Grape (Berberis nervosa) and scatterings of Red Huckleberry (Vaccinium parvifolium). There are also a variety of mosses found throughout the park.



Evidence of past fires and logging in the park.

#### 2.6 Wildlife

To date, no formal study on the wildlife in the park has been undertaken. Information in this section is only inferred from wildlife information on the Sunshine Coast as a whole.

The park lies in an area of moderately high development. Wildlife in the southern section of the park tends to be less abundant than other areas on the Sunshine Coast, due to the close proximity of marinas and residences on either side of this section.

Three larger mammals that exist on the Sunshine Coast and occasionally frequent the park are Blacktail Deer (*Odocoileus hemionus*), Black Bear (*Ursus americanus*), and Cougar (*Fells concolor*) (Farley, 1979).

Smaller rodents, reptiles and amphibians most likely live within the park boundaries. There are a variety of birds throughout the park that include ducks, gulls, woodpeckers, crows, hawks and upland game fowl. Herons and eagles can occasionally be seen in the park. A list of waterfowl is included in Appendix 2.

#### 2.7 Marine Life

There is little marine life in the waters of Garden Bay due to pollution, bottom sediments and weak tidal flushing. However, Pender Harbour enjoys a rich diversity of life that may be accessed by boat from Garden Bay. Appendix 2 contains a detailed study of the marine aspect of the park.

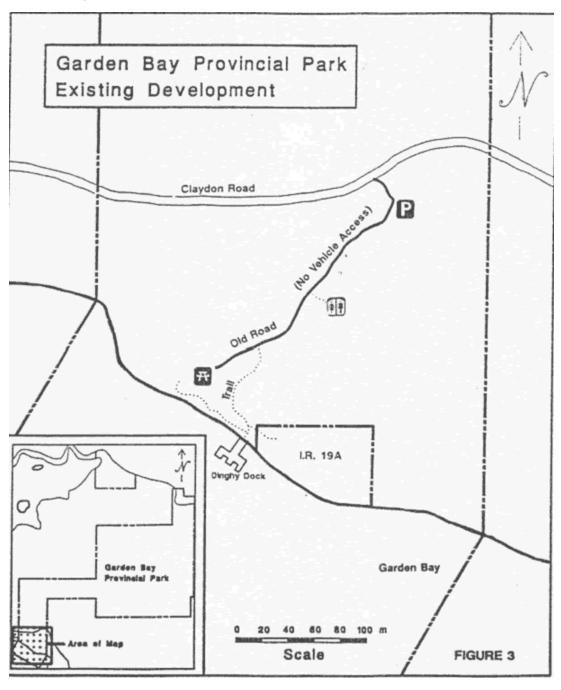
# 2.8 Recreation Features and Opportunities

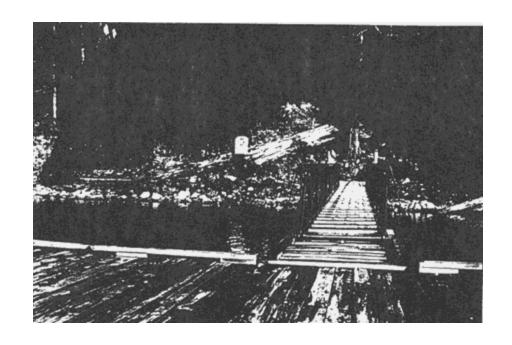
The park provides public vehicle access via Claydon Road to a parking lot adjacent to Garden Bay. There are good picnicking opportunities near the water where picnic tables are currently in place.

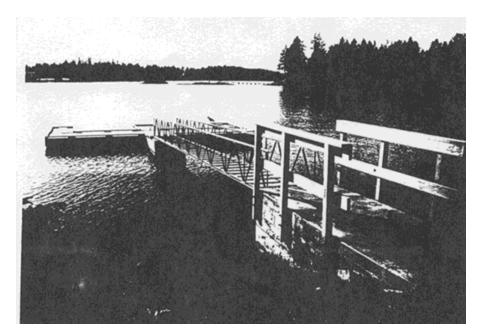


Picnic tables at the park

There are excellent views from this area to watch marine life as well as boats and other marine activity. A dinghy dock to launch small boats or kayaks, or for boats to tie up to for a day visit was constructed in 1991. The waters out past Garden Bay offer fishing and diving opportunities. Current development is shown in Figure 3.







Two views of the dinghy dock.

There is a twenty car parking lot at the entrance to the south end of the park. Access beyond this point is for service vehicles or foot traffic to the waterfront day-use area. A pit toilet is located along this access to the beach.

#### 2.9 Cultural Resources

Mount Daniel is of significant cultural importance to the native people's history of the region. Sechelt Indians once inhabited the area and called the mountain "Kwiss Charn". This mountain was used as an area to protect women and children in case of imminent attack from rival villages (Garden Bay Provincial Park Master Plan, 1980).

More importantly, the mountain was the scene for female puberty rites. At the time of puberty, the girls would be isolated on the mountain for four months. All communication with the tribe was cut off except for daily visits by older women to bring in food. During the four months, the girls would construct rings of smooth stones twenty to thirty feet across. These symbolized the moon and were called Moon Rings. Every evening, a girl would begin her ritual of picking up each rock and speaking to it as if it were the moon. By dawn, the ritual would be over. There is still evidence of these Moon Rings on the summit of Mount Daniel.

South of Claydon road, near the bay and east of the dinghy dock, is evidence of an Indian burial site (I.R. #19 A). Rock configurations can still be seen today.

A house once existed where the picnic tables are now located. The former owner of the land lived in the residence until the mid 1970's. The house was then removed from the site. Just below this area, a beach house existed on the shoreline near the high tide mark. This structure was used as the owner's office while he carried out the duty of Harbour Master. The beach house was disposed of due to public safety concerns in 1991.

# 3.0 TENURES, OCCUPANCY RIGHTS AND JURISDICTIONS

Leases and Permits:	None
Forest Tenures:	None
Water Rights:	Garden Bay Lake source of potable drinking water.
Rights-of-Way:	Claydon Road is a Ministry of Highways Section 4 road. Garden Bay Road is a Ministry of Highways, Section 4 road. Lot 3677 shows a abandoned logging road.
Mineral Claims:	None
Guiding:	None
Foreshore Leases:	None
Air Navigation:	None
Trapping:	None

Archaeological Sites: Site No. DjSa 3 - Indian graveyard. (I.R. #19A).

Site No. DjSa 10 - Stone configurations on

summit of Mount Daniel.

Boating Restrictions: Garden Bay Lake - Electric motors only.

Inholdings: None

Informal Tenures: None

Miscellaneous: Indian Reserve #19A (Sawquamain) of the

Sechelt Band, is an Indian graveyard shown on

plan 7889, Group 1, NWD, Pender Harbour.

(Ministry of Environment, Lands and Parks Green Files).

#### 4.0 MARKET ANALYSIS

# 4.1 Existing Use

Visitation to Garden Bay Provincial Park is low due to the parks small and undeveloped character. There is no measurement system such as a traffic counter to record visitation. However, since the improvement of access and facilities by volunteers and B.C. Parks in 1991, marine and day use is expected to show significant increase.

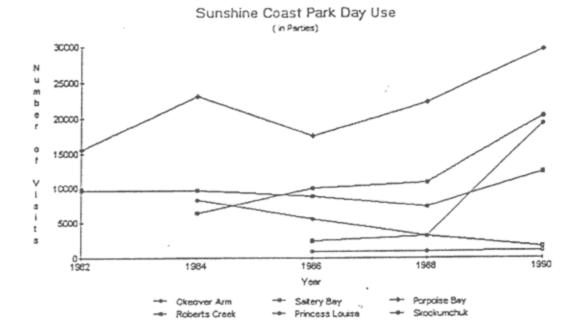
General trends of visitation for the Sunshine Coast auto access parks appears to be increasing while marine parks remain constant (B.C. Park Data Handbooks). This is shown in Figure 3 and Figure 4.

#### 4.2 Promotion and Information

Garden Bay Park is referred to in a number of provincial park brochures including *Coastal Marine Parks of British Columbia* and *Sunshine Coast Provincial Parks*. It is also listed in the B.C. road and park map. At this time, there are no information / directional signs for the park.

#### 4.3 Park Product

Garden Bay will continue to focus on the provision of day use opportunities including picnicking and viewing the marine activities of Pender Harbour. The dinghy dock will continue to be used as a landing area for boaters as well as a launching facility for carry-in boats.



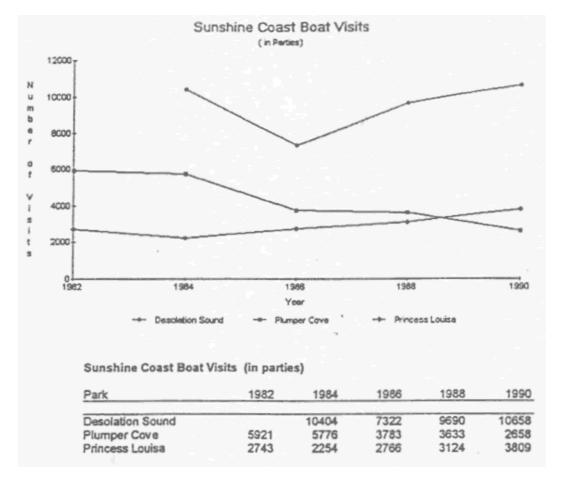
## Sunshine Coast Park Day Use (in parties)

Park	1982	1984	1986	1988	1990
Okeover Arm		8260	5678	3164	19253
Saltery Bay	9659	9707	8837	7362	12338
Porpoise Bay	15504	23150	17522	22358	29657
Roberts Creek		6411	10004	10913	20326
Princess Louisa			971	920	1088
Skookumchuk Narrows			2469	3188	1626

Source: B.C. Parks Data Handbook

Sunshine Coast Park Day Use

Figure 4.



Source: B.C. Parks Data Handbook

Sunshine Coast Marine Park Boat Visits

Figure 5.

#### 5.0 MASTER PLAN ISSUES

There are a number of current issues affecting the future planning and development of Garden Bay Provincial Park which this plan will address. These include:

#### 5.1 Park Role

Garden Bay Provincial Park is one of the marine parks on British Columbia's coastline and often used as a boating stop over for other destinations. The master plan will define the role that the park will play in the provincial park system and discuss its relationship with the surrounding land and local community.

#### 5.2 Natural and Cultural Resource Protection

Two significant native cultural sites lie within the park boundaries. These are the stone configurations on the summit of Mount Daniel, and the small Indian graveyard inholding (Indian Reserve #19A) near the waters of Garden Bay. The master plan will address these areas and set out park management objectives based upon comments and input received from the Sechelt Indian Band.

## **5.3** Park Facility Development

The master plan will address development objectives for the park. These will reflect local opinion over the extent and type of development and be compatible with the zoning plan devised by the park.

#### 5.4 Level of Use

The master plan will identify the level of promotion and visitation suitable to the park. Management plans and objectives will be outlined so as to achieve these goals.

#### 5.5 Park Boundaries

Garden Bay Provincial Park is bisected by privately owned land in the north resulting in an isolated section not joined to the rest of the park. The master plan will review non park lands and make recommendations on the best course of action to meet its land management objectives.

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# Appendix 2

Garden Bay Provincial Park

**Inventory of the Marine Resources** 

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#### **ABSTRACT**

This report discusses the results of the Garden Bay Provincial Park marine inventory and, using the collected data, makes an assessment of the recreational opportunities.

Garden Bay is part of the Sunshine Coast's Pender Harbour inlet which is well known to boaters for its sheltered areas. It has a steep sloping shoreline and a silty bottom.

The park's marine component (5 hectare foreshore) has a very limited number of vegetative and invertebrate species. Without previous data, I could not conclude as to whether this was natural or a result of the high sewage input from moored boats and possible land sources.

Due to the lack of marine life, the pollution, and the physical aspects of the bay it was concluded that the only feasible recreational opportunity was for boaters. The foreshore provides boaters with a sheltered mooring spot as well as land access to Garden Bay Provincial Park.

To prevent any further possible degradation to the bay and improve mooring facilities, recommendations include

- Permanent bouys be provided.
- Use of the park's sanitary facilities be encouraged.
- Use of the garbage disposal facilities at Earls Cove be encouraged.

#### 1.0 INTRODUCTION

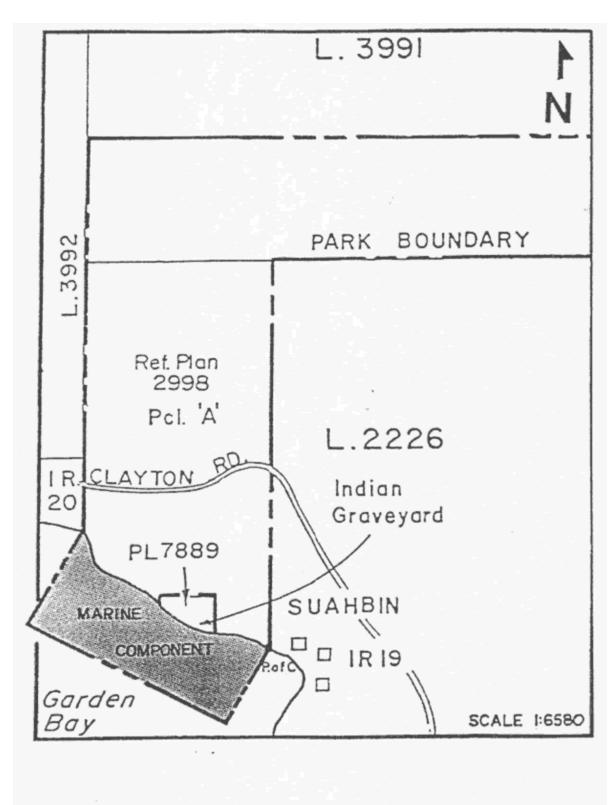
Garden Bay, a Class A, Category 6 Provincial Park established in 1969, is located on the Sunshine Coast 37 kilometre north of Sechelt. The park boundaries also include a 5 hectare marine foreshore component. The location of the marine component is shown in Figure 1.

Garden Bay is part of the Pender Harbour inlet which is popular to boaters due to its sheltered protected bays and excellent fishing. The area receives high visitation during the summer boating months.

#### 1.1 Purpose and Scope

In November of 1991, a basic bio-physical inventory and recreational assessment of Garden Bay's marine resources was completed. The results are contained in this report.

This report covers the type and abundance of marine life in Garden Bay but, does not contain any information regarding the quality of water in the bay. A background on the oceanography of the area is also included.



Location of Marine Component

Figure 1.

#### 2.0 OCEANOGRAPHY

Garden Bay is located within the northern region of Georgia Straight. This area is typified by weak and variable tidal currents. Currents attain speeds of only 10cm/s as compared to a maxima of 100 cm/s in the southern region. (Thomson R.E., 1981)

The tides in the area are mainly semi diurnal and have a mean tidal range of 3.3 m (11 ft) and an extreme range of 5 m (17 ft) (Pender Harbour Crown Foreshore Plan, 1983). Garden Bay's depth at lowest normal tide ranges from 5-10 m and at mean water level ranges from 8.2-13.2 m (Plans Malaspina Straight, Map No. 3536, "Pender Harbour", 1978).

The bay is not fed by any creeks so "flushing is dependent mainly upon tidal exchange. Good flushing is a problem in Pender Harbour. The low water and tidal volumes suggest that surface waters could oscillate with the tides without bringing the exchange of bottom water that's necessary for thorough flushing. During the summer months when good flushing is most needed due to high boating use, it's an even greater problem; the warmed, low salinity, and low density waters from Jervis and Sechelt Inlet slow the mixing of the outflowing Pender Harbour waters with the deep basin waters. Bottom waters consequently remain stagnant for long periods. (Pender Harbour Crown Foreshore Plan, 1983)

Water quality is also an important aspect and could be affected by poor flushing action. No data could be found pertaining to Garden Bay's water quality but there are some public concerns about sewage from moored boats and landwash (Pender Harbour Crown Foreshore Plan, 1983).

#### 3.0 METHODS

#### 3.1 Intertidal Field Studies

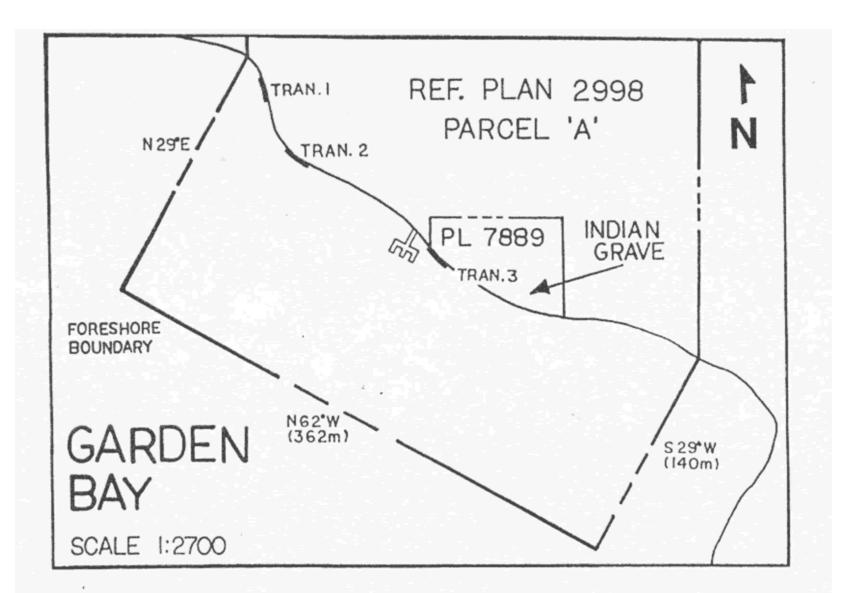
The intertidal study was conducted on November 13, 1991. A lack of low water tides during the available study periods (Wednesdays, Saturdays, and Sundays) prevented transects from being set perpendicular to the shore. Instead, three spot transects were completed parallel to the 200 m shore front. The transect spot locations are shown in Figure 2.

Transect 1 was chosen for its steep, sloping angular rocks that represented the majority of the shoreline.

Transect 2 was chosen for its representation of the few solid bedrock areas along the shoreline.

Transect 3 was chosen for its representation of an intertidal platform, rare in Garden Bay.

At each spot, a 5 metre strip, parallel to the shore front, was walked at the tidal edge. Any vegetation, fish, and/or invertebrates within visibility, below the water's surface, was noted stating the abundance. Water visibility was estimated at being 5 metres that day.



**Intertidal Transect Locations** 

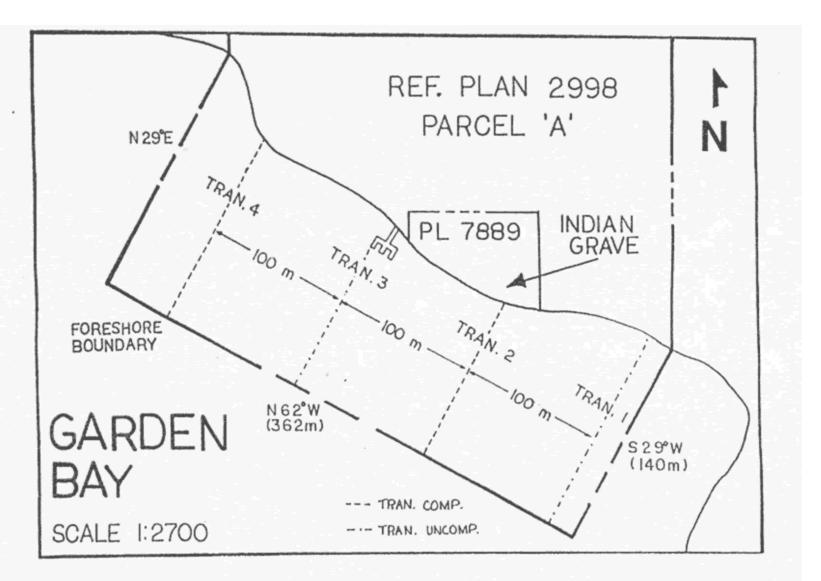
Figure 2

#### 3.2 Subtidal Field Studies

The subtidal study was conducted on November 2, 1991 using SCUBA equipment. Previous to the study:

- The location of the transect lines had been mapped out on a 1;2700 map showing the park's foreshore boundaries (Figure 3).
- The following data collection methods were devised:
  - 1. With a rock, lightly anchor a 50 metre nylon tape to the ocean floor, at the shore end of the transect line.
  - 2. Using a compass to follow a predetermined bearing, swim out perpendicular from the shore and at every 10 metres, sample a 1 m<sup>2</sup> plot.
  - 3. Once at the end of the 50 metre tape, slowly wind it in, lightly reanchor it with a spare rock and repeat the process. This completes the 100 metre transect.

The plans changed slightly during the course of the study. Only two transects were completed (Transect #2 and #4) as the time set to complete each one had been largely underestimated. The method of sampling a 1 m² plot every 10 metres also had to be revised as marine life was scarce. Instead, any life within visibility along the transect line was noted. Underwater visibility was estimated to be 4 metres that day but, as soon as the bottom was touched the clouds of raised sediment reduced visibility to 0.5 metres.



**Subtidal Transect Locations** 

Figure 3.

#### 4.0 RESULTS

## 4.1 Vegetation

## 4.11 Intertidal Vegetation

Throughout the intertidal region, rockweed (*Fucus gardneri* Silva) was the only vegetative species noted as surviving. Only a few plants were found attached to the angular rocks of transect spots 1 and 3, but they were common on the solid bedrock of transect 2.

Callophyllis edentata Kylin, a red algae seaweed, was also noted in the intertidal region, but because it did not seem to be attached to the rocks and is normally a subtidal plant, it was assumed that it had floated in and did not naturally belong.

# 4.12 Subtidal Vegetation

No vegetation was noted in the subtidal region of Garden Bay.

#### 4.2 Marine Invertebrates

#### 4.21 Intertidal Invertebrates

The invertebrates of the intertidal region were generally small species with the exception of the star-fish. The species noted are listed in the following table.

Table I. List of Intertidal Invertebrates

Common Name	Scientific Name	Abunda 1	ance* by Spo 2	t Locations 3
Mollusca				
Sitka periwinkle	Littorina sitkana	F	F	F
shield limpet	Acmaea sp.	F		F
edible mussel	Mytilus edulis		F	F
Olympia oyster	Ostrea lurida		F	F
<b>Echinodermat</b>	a			
pink short spined star	Pisaster brevispinus	F		
orche star	P. ochraceus	F	F	
leather star	Dermasterias	E		
Anthropoda	imbricata	F		
acorn	Balanus			
barnacle	glandula	F		C

Edible mussels were also seen on the sides of the park's dinghy dock. They were abundant in this area.

<sup>\*</sup> F: Few, C: Common, A: Abundant (The definition of each of these terms, varied according to the growth pattern of the species.)

#### **4.22** Subtidal Invertebrates

The only identifiable subtidal invertebrate belonged to the *Cnidaria* phylum. The sun anemone (*Metridium senile*) was basically the only visible life form on the silty bottom of Garden Bay. Both white and orange species were spotted both singularly, or in pairs every 4.5 - 6.0 metres. Approximately one quarter of these were found lying on their sides. Other invertebrates spotted in the subtidal region include:

- Two small anemones, identification is unknown.
- A common abundance of large siphons in the first 20 metres of both transect lines, the species is assumed to be geoduck (*Panopea generosa*).
- A 3 cm wide mottled sandy grey crab, identification is unknown.

Littleneck clam shells were spotted in the intertidal region and therefore are speculated to also reside in the subtidal waters.

Preparation for the *Pender Harbour Crown Foreshore Plan* included a sampling of the benthic organisms within Garden Bay. The results showed that the bay contained a high density of organisms important to juvenile salmonid. In order of decreasing density, they are:

•	Amphipoda Corophiidae	$55,48/\text{m}^2$
•	Copepoda Harpacticoida	$36,540/\text{m}^2$
•	Nematoda	$21,145/\text{m}^2$
•	Cumacea	15.688/m <sup>2</sup>

• Tanaidacae 13,744/m<sup>2</sup>

• Ostracoda 10,621/m<sup>2</sup>

• Formamnifera 2,777/m<sup>2</sup>

• Amphipoda Gamaridae 780/m<sup>2</sup>

(Pender Harbour Crown Foreshore Plan, 1983)

#### 4.3 Marine Fish

Only one fish was spotted during the surveys. It was seen in the subtidal region at the 27 metre mark of transect 2. Visible for just a few seconds, this 4 cm ground fish is speculated to be a speckled sanddab (*Citharichthys sordidus*).

It is reported that Garden Bay also supports a fry salmonid population (Pender Harbour Crown Foreshore Plan, 1983). Chum salmon fry (*Oncorhynchus keta*) migrate around the bay stopping to rear in the bay's southeast and northwest corners.

#### 4.4 Waterfowl

Waterfowl species were noted during both visits to Garden Bay. Common sightings included glaucous gulls (*Larus hyperboreus*) and Brandt's cormorants (*Phalacrocorax penicillatus*). On November 13th, during the intertidal studies, common loons (*Gavia immer*) were sighted within the bay. Species sightings in the bay of only one or two birds included an eared grebe (*Podiceps caspicus*), a hooded merganser (*Lophodytes cucullatus*) and a Great Blue heron (*Ardea herodias*). The nesting of Great Blue herons on the southeast shore of Garden Bay has also been reported (Pender Harbour Crown Foreshore Plan, 1983).

#### 5.0 DISCUSSION

#### 5.1 Habitat Sensitivity

Without previous data it's hard to conclude why there is an observed lack of aquatic plants and animals in Garden Bay. Possible explanations include that the number of species are always so limited or the bay's habitat is being slowly degraded and eliminated due to high pollution input from moored boats and possible land sources.

The large percent of fallen sea anemones are of concern. Speculative reasons as to why include: they were knocked over by dragging anchors or the continuous build up of light silt on the bottom, due to sewage, can not provide a stable enough surface to support them. During the subtidal studies, the depth of the soft layer of silt was measured; it averaged 9 cm at the beginning of the transects and increased to an average of 21 cm at the end of the transects.

# **5.2** Recreational Opportunities

The recreational opportunities within Garden Bay are very limited. The rugged, steep shoreline, the high sewage input from moored boats, and the lack of subtidal life are all limiting factors that discourage activities such as beachcombing, fishing, scuba diving and swimming.

Recreational opportunities associated with Garden Bay include canoeing, kayaking, viewing and nature observation. The sheltered bay also provides excellent moorage.

#### 6.0 CONCLUSIONS AND RECOMMENDATIONS

The foreshore of Garden Bay Provincial Park appears to be most suited for use by boaters. It provides a protected moorage area and access to the park's upland. Very few vegetative and invertebrate species reside in the marine component of Garden Bay Provincial Park. This may be natural or as a result of marine and/or land sewage effluent.

To prevent further possible degradation of the marine life, I recommend that:

- Permanent bouys be installed to reduce the disturbance of the ocean floor's sediments and the sea anemones.
- Use of the park's sanitary facilities be encouraged to reduce sewage input into the bay.
- Use of the garbage disposal facilities at Earls Cove be encouraged to reduce the number of beer bottles tossed overboard into the water.
- The possibility of Pender Harbour becoming a candidate for the Federal Marine Sewage Regulations be researched.

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# Appendix 3

**Garden Bay Provincial Park** 

**Public Involvement Process Summary** 

The following schedule outlines the planning process including public participation in order to complete this Master Plan.

#### October, November 1991

The Garden Bay Provincial Park Background Report and Marine Inventory
was prepared by Brian Bawtinheimer and Schon Hardy, students at the
British Columbia Institute of Technology, in consultation with BC Parks.
 This report was based upon the 1980 Garden Bay Master Plan.

#### March 2, 1992

 Copies of the Draft background documents were sent to the Sechelt Indian Band and local interest groups along with comment sheets so input could be considered.

#### March 31, 1992

- A meeting took place with the Indian Band to discuss their concerns over protection of the native cultural sites at the park.
- An Open House was held in Garden Bay for local residents to comment on the background reports. Although turnout only consisted of seven people, additional comment sheets were received from those unable to attend.

#### October, 1992

• Completion of the Garden Bay Master Plan.

# MASTER PLAN PROCESS COMMENT SHEET



• Do you have any comments regarding the background report?

• Do you have anything you would like to see addressed in the Master Plan?

• Any other comments?

\* Please return this sheet to Parks' staff at the 7:00 p.m. meeting, March 31, 1992, or mail to: **District Manager** 

**B.C. Parks** 

**Garibaldi/Sunshine Coast District** 

P.O. Box 220 Brackendale, B.C.

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#### THANK YOU!

Sample of comment sheet given to the public during the planning process.

# Appendix 4

Garden Bay Provincial Park
Summary of Comments

#### 1.0 Comments from the Sechelt Indian Band

A meeting took place on March 31 between BC Parks and the Sechelt Indian Band. The following agreements were made:

- Discussions between the native elders and the Sechelt Band would take place to learn more about the cultural significance of Mount Daniel and the Indian graveyard (I.R. #19A). This information would be shared with BC Parks.
- Any development plans for these two areas would be in full consideration with the Sechelt Indian Band.
- Prior to any development of the two areas, on-site meetings would take place between the band and BC Park officials to ensure that development plans, if any, include proper protection for the sites.

#### 2.0 Public Comments

An evening meeting between residents of Garden Bay and BC Parks took place March 31. Comment sheets were available for the attending people and several completed sheets were received from those unable to attend. Although all comments could not be included in this document, general suggestions were as follows:

1) Camping:

Garden Bay Provincial Park, at this time, should not cater to motorized access camping, but should provide walk-in, or cycle-in campsites.

2) Interpretive Signs

Signs providing information about native cultural sites should be erected near points of access.

These signs should emphasize that the sites should be respected by the visiting public

3) Trails

Comments were received stating the rudimentary trail up Mt. Daniel be upgraded to park standards.

4) Research

A complete study of the marine and terrestrial biota should take place in the future to catalogue all occurring species and determine if any rare species are within the park.

# Appendix 5

**Garden Bay Provincial Park** 

**B.C. Parks Zoning Policy** 

#### **Intensive Recreation Zone**

## **Management Objective**

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

## **Compatible Activities & Facilities**

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

Facilities may be intensely developed, e.g., campgrounds, play areas, interpretive buildings, boat launches, etc.

#### **Natural Environment Zone**

# **Management Objective**

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

# **Compatible Activities & Facilities**

Walk-in camping, kayaking, cross-country skiing, horseback riding, etc. Facilities are moderately developed, e.g., trails, boat-in campsites, shelters, etc.

# **Special Feature Zone**

## **Management Objective**

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

## **Compatible Activities & Facilities**

Sight-seeing, interpretation and study of history and nature. Facilities may be developed for feature interpretation purposes only.

May be subject to temporary closures or permanently restricted access.

(Striking the Balance: a B.C. Parks Policy, June 1990)