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SOUTH
MORESBY
ISLAND
WILDERNESS
PROPOSAL

**An
Overview Study**



Province of British Columbia

Environment and Land Use
Committee Secretariat

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SOUTH MORESBY ISLAND WILDERNESS PROPOSAL - AN OVERVIEW STUDY

ENVIRONMENT AND LAND USE COMMITTEE SECRETARIAT

PROVINCE OF BRITISH COLUMBIA

1979-01-23

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REVIEW OF THE PROPOSAL FOR A WILDERNESS
AREA ON SOUTH MORESBY ISLAND

I. INTRODUCTION

1.1 Background

In November 1974, a citizens' group on the Queen Charlotte Islands (the Islands Protection Committee - I.P.C.) requested the Provincial Government to designate that portion of Moresby Island south of the Tagil Peninsula and Tasu Sound as a Wilderness Area (Figure 1). In April of 1975, the Environment and Land Use Committee instructed the ELUC Secretariat to examine the proposal. In view of the workload on the Secretariat at that time, the Environment and Land Use Committee concurrently agreed that the Secretariat defer this investigation until the summer of 1976.

Work conducted in 1976 involved a public consultation and recording process in the Queen Charlotte Islands and an inter-ministry technical assessment of the proposal.

This lead to preliminary conclusions that the wilderness features of the area could be managed and protected through an integrated resource planning process plus the establishment of a representative cross-section of South Moresby Island as a Provincial Park. However it was further concluded that additional information on the features and resources of the South Moresby area was required before seeking policy response to this proposal. This report contains information compiled over the past two years which confirms earlier conclusions as well as supports proposals for follow-up actions required to protect the outstanding environmental features of the South Moresby Island area.

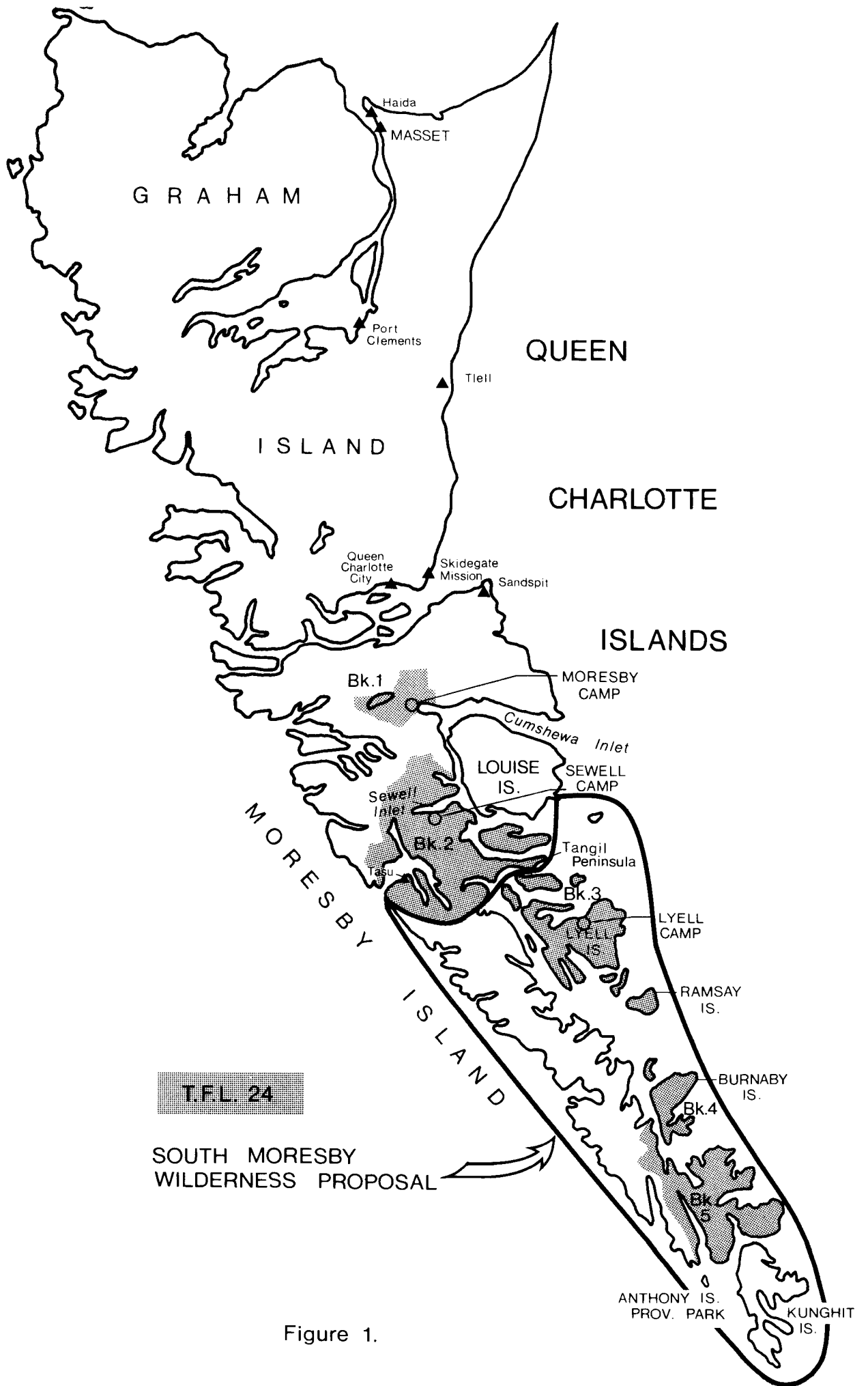


Figure 1.

At this point, it should be noted that the above conclusions do not rule out the option of establishing a wilderness area designation throughout the area, as proposed by the Islands Protection Committee. The area as a whole does have natural history and indigenous cultural features worthy of preservation from British Columbian, Canadian and perhaps international perspectives. Yet the question of setting aside the entire area as a wilderness with resource extraction limited to hunting, gathering and fishing as well as some cutting of trees for local use implies foregoing an estimated \$18,000,000 annual direct and indirect payroll in British Columbia (source: Rayonier Canada Ltd.) and related social impacts. Furthermore, the necessity of such a major step is questionable when significant features of the area can be maintained through careful planning and management.

1.2 Study Objectives and Approach

The basic objective of this study has been to provide an overview analysis of resources and land use in the area proposed as a wilderness by the Islands Protection Committee. Implicit in the term overview is the general understanding that only existing data sources are used and that results will be in the form of suggested courses of action regarding further detailed studies, rather than detailed land allocation or resource management prescriptions.

While the ELUC Secretariat did not undertake or commission any detailed field studies, it is notable that much of the information contained in this written volume and the accompanying folio of maps has been collected and compiled during 1976, 1977 and 1978 by other agencies of the Provincial Government which acted with the knowledge that their findings could be applicable to this study. Furthermore, considerable discussion about land use in the SMWP has taken place among agencies of government, forest companies, and the public. Hence, the broader understanding of individual and mutual interests in the SMWP gained from these discussions plus the information collected over the past four years provide, while not leading to detailed conclusions, a solid base for actions towards sound environmental management of the resources in the South Moresby Island archipelago.

In addition to technical information provided by provincial and federal government agencies and forest companies, this report also refers to public interests expressed in correspondence with Ministers of the Provincial Government and during numerous public meetings which were either organized by the ELUC Secretariat or attended by a Secretariat staff member.

1.3 Format of the Report

As noted above, this report consists of a written volume and a separate folio of the following maps:

1. Land Status
2. Forestry - Logging History and Proposed Logging
3. Forestry - Operability
4. Salmon Streams
5. Commercial Marine Resources
6. Mineral Potential and Existing Claims
7. Birds and Marine Mammals
8. Historical and Archaeological Features
9. Recreation
10. Existing and Proposed Ecological Reserves
11. Parks Branch Areas of Interest

The written report provides brief commentaries on the data illustrated on these maps as well as on important relationships between resource values, hence these volumes should be used together.

II. SOUTH MORESBY WILDERNESS PROPOSAL - CHRONOLOGY

The South Moresby Wilderness Proposal (SMWP) arose following the Rayonier Canada (BC) Ltd. presentation of a tentative five-year logging plan for Burnaby Island to a public meeting in August 1974. Rayonier had been progressively logging TFL 24 on a sustained yield basis since 1951, starting with Blocks 1 and 2 north of the Tangil Peninsula. Their proposed plans for Burnaby Island would reintroduce major logging in the South Moresby Island area for the first time in several decades. Natural reforestation had restored the landscape of this area giving it the quality of an untouched wilderness which stood out in sharp contrast to extensively clearcut areas to the north.

Despite concerns expressed during public meetings about the effects a Burnaby Island logging camp population might have on traditional Skidegate Band food supplies in the Burnaby Narrows area, the proposed logging plan for Burnaby Island received the approval of various government agencies in late August. Rayonier's plans were not raised as an issue again until the Premier visited the Queen Charlotte Islands in October. Subsequently in November at an open public meeting hosted by the Skidegate Band, a newly formed local organization, the Islands Protection Committee (IPC) proposed a moratorium on all logging south of the Tangil Peninsula and suggested that a wilderness designation be placed over much or all of this area. In correspondence to the Provincial Government which followed, the IPC reiterated its proposal and also noted its concerns about how logging practices had lead to soil erosion and siltation of streams.

On December 19, 1974, the Minister of Lands, Forests and Water Resources announced that a five-year moratorium was to be placed on logging on Burnaby Island. Although this policy was never formally transmitted to the Forest Service or to Rayonier, it has the net effect of causing Rayonier to defer its plans to log Burnaby Island and proceed first with logging on Lyell Island (Block 3) just south of the Tangil Peninsula, where there is a sufficient supply of timber to sustain Rayonier's annual allowable cut for a period of 15-17 years (includes some cutting in Block 2).

Following receipt of further correspondence regarding the SMWP, in April 1975 the Environment and Land Use Committee approved an overview examination of the wilderness/ecological reserve potential of the area, to be undertaken by the ELUC Secretariat in consultation with the Forest Service and the Department of Recreation and Conservation, with work to be deferred until the summer of 1976.

The initial phase of the overview examination began in July 1976 with a series of public meetings organized by the Secretariat to determine local attitudes towards the SMWP. That summer, the Parks Branch and the Forest Service undertook field investigation as well as participated in the public meetings. The Fish and Wildlife Branch also began inventory studies in association with the Provincial Museum but data from these studies was not scheduled for completion until the following year after further studies were conducted.

In late 1976 a draft report on the SMWP was prepared by ELUC Secretariat staff. This report concluded that an integrated management policy with emphasis on protection of significant recreation and scenic areas throughout the SMWP area plus the rigorous application of environmental management guidelines would be appropriate for the area. The report also supported the interest of the Parks Branch in securing a representative portion of the area as a Provincial Park.

Following review of this report by the Skeena Resource Management Committee in early 1977, the Secretariat agreed to hold its report in abeyance pending completion of the inventory studies which had commenced in 1976 and were ongoing in 1977. At that time, the Secretariat also requested the Forest Service to determine whether alternative sources of timber could be supplied to Rayonier from outside the SMWP area.

During 1977, inventory studies proceeded on bird and marine mammals. The Forest Service began environmental protection assessment of the Queen Charlotte PSYU portion of the SMWP area and field investigations were carried out by the Ecological Reserves Unit. Rayonier also conducted

additional resource inventory and planning studies for Blocks 3, 4 and 5. Deferral of the draft report also gave the ELUC Secretariat more time to obtain information on commercial fishing resources, archaeological sites, logging history, generalized logging operability as well as other information contained in the following sections of this report and presented in the accompanying folio of maps.

Public interest in the SMWP continued throughout 1977 culminating in a major symposium in November of that year. This symposium, held in the Skidegate Museum on Graham Island and sponsored by the IPC, involved a panel of invited representatives from federal, provincial and local government agencies; local groups and organizations; the forest industry; as well as interested individuals. These people either presented their views on the SMWP or provided information on the resources of the area. Even though no resolution in support of the SMWP resulted from this symposium, primarily because of the range of interests expressed by speakers, the symposium did result in a broader awareness of the SMWP, and this was reflected in increased public correspondence with the Provincial Government in 1978.

By mid-1978, with new forest legislation in place, carrying with it a requirement for the Minister of Forests to offer renewal of TFL 24 to Rayonier by early January 1979, completion of the overview study became a priority. Work then began on expediting the completion of the field study results and on mapping data which had been collected in previous years in order to present a report to the ELUC at the earliest possible date.

As noted above, public interest in the SMWP increased during 1978. This continued to be divided in its support for or against the SMWP. With the offer of renewal of the TFL imminent, another major public meeting was held, this time in Victoria on December 7, under the sponsorship of the National and Provincial Parks Association. Presentations were made by four panelists, two of which advocated the continued harvesting of forests in the SMWP area and two of which advocated support for the SMWP. As in all earlier major public meetings, audience participation reflected these two outlooks.

III. FEATURES OF AND LAND USE CONSIDERATIONS IN THE SMWP AREA

1. The Queen Charlotte Islands - Their Significance

The Queen Charlotte Islands are among the most isolated and interesting islands in Canada. This large archipelago consists of rugged mountains cut by deep fiords, rising steeply on the west and falling off less steeply to the east, gradually into many small islands. The cool, humid maritime climate frequently engulfs the land with cloud, fog and rain, hence the term 'The Misty Isles'. The Islands' forests are unexcelled "in size and grandeur anywhere in Canada".¹ In addition, the Queen Charlotte Islands contain some plants which occur nowhere else in the world and conclusions have been drawn that "although far less isolated than the Galapagos Islands, with less evolutionary time and badly affected by glaciation, the Queen Charlotte Islands are a showcase of evolution in northwestern North America and can be termed the 'Canadian Galapagos'".¹

In addition to the study from which the above quotes are drawn, Parks Canada has commissioned four other detailed studies on the B. C. coast, in keeping with its prime objective of protecting areas which are significant examples of Canada's natural heritage. These studies focussed on biological, geological and oceanographic themes, and while they examined several different areas on the B. C. Mainland Coast, all concluded that the South Moresby Island Area had Canadian significance. Similarly on a Provincial scale, the Parks Branch has identified two distinct natural regions on the Queen Charlotte Islands, one of which is represented in Naikoon Provincial Park. The other would be represented by park establishment in the South Moresby Island Area (see Section III-9 and Map 11).

Recognition of the SMWP in whole or in a major way would thus have the effect of protecting a mix of natural values of significance to a local, regional, provincial, national and perhaps a world community.

¹Natural History Theme Study of a National Area of Canadian Significance on the Queen Charlotte Islands, B. C. A report to Parks Canada. J. B. Foster and J. Pojar. May, 1977.

2. Land Status - Map 1

The SMWP area lies within the Moresby Provincial Forest Reserve which is administered by the B. C. Forest Service under the newly-proclaimed Forest Act and Regulations. There are two large administrative units: the Queen Charlotte PSYU on the Moresby Island mainland as well as Kunghit Island (the southern-most island) and Rayonier's TFL 24 on Moresby Island's sheltered eastern side and adjacent islands. In the SMWP area, TFL lands mainly include Lyell Island (Block 3), Burnaby Island (Block 4), and the southern tip of Moresby Island (Block 5). Smaller administrative units include one small Provincial Park (Anthony Island), two small established ecological reserves, two Indian Reserves, one private lot and four old temporary tenures held by MacMillan Bloedel.

Also the Parks Branch¹, Fish and Wildlife Branch and Ecological Reserves Unit have located five "map" reserves to note their interests.

3. Forestry - Maps 2 and 3

As noted in the Chronology of the SMWP and shown on Map 2, commercial forestry has been a longstanding activity of the Queen Charlotte Islands. In the Queen Charlotte PSYU portion of the SMWP area, logging has been limited to a few small handlogging licences - 2,300 cunits have been cut to date.

The B. C. Forest Service is presently conducting a "Timber Supply Analysis" for this area to more accurately determine the annual allowable cut, but this is not yet complete.

Map 3 - Forestry - Operability shows operable areas for TFL and PSYU lands (before consideration of non-forest land uses). It is mainly from these areas that the new AAC will be calculated.

¹Parks Branch interests have changed with recent studies. See Map 11 for current interest areas.

Large areas of the PSYU have been identified as having unstable soils. Although these lands have not been withdrawn from the forest land base, the B. C. Forest Service has reduced the AAC contribution from these lands by 90%. This procedure enables the Forest Service to allow roads and/or cutting in sensitive areas if further study assures that excessive damage will not result.

Rayonier Canada (B.C.) Ltd.'s forest operations have moved from Block 1 and currently consist of a company operation on Block 2 and a contract operation on Lyell Island in Block 3 where an AAC of 154,000 cunits per year is being logged by a workforce of 185 people. If implemented in full, the SMWP would reduce the present AAC and workforce by two-thirds.¹ Map 2 shows existing and proposed logging for Blocks 3, 4 and 5.

As shown on Map 3, Rayonier has identified which stands in the TFL are economic to log and although actual figures are not yet available, Rayonier estimates that the present harvesting level of 154,000 cunits/year can be sustained. Yet this estimate does not allow for withdrawals of operable lands from the TFL for non-forest land uses (except for the Dodge Point Ancient Murrelet colony), or allow for possible reductions due to terrain (soils) sensitivity.

Assuming all operable forest lands can be harvested without excessive damage to the soil base, Rayonier lists direct benefits from logging TFL 24 at the current rate as follows:

1977 wage and salary payments	\$4,540,000
1977 supply and services payments	5,735,000
1977 income tax paid by employees	1,326,000
Average stumpage, royalty, rental and property taxes	<u>1,100,000</u>
Total:	\$12,701,000

Relating this to the SMWP, the expectation is that two-thirds of this value, or \$8,000,000 would be lost. The total payroll loss in B. C. is \$18,000,000 annually using Rayonier's estimate for the multiplier effect.

¹All statistical references to Rayonier on this page and elsewhere in this report are taken from "TFL 24 MORESBY AND THE SOUTH MORESBY WILDERNESS PROPOSAL - A CHRONICLE AND STATEMENT", by Rayonier Canada Ltd., Vancouver, B. C., September, 1978.

4. Salmon Fishery

Map 4 shows salmon streams located throughout the SMWP area. The major species are Coho, Pink and Chum. Salmon are harvested by netting and trolling with the catch going mainly to processing plants at Prince Rupert and Vancouver. Other species of fish are caught in this area and include herring, halibut, sole and cod. Statistical records for fisheries do not enable an accurate assessment of the contribution of the SMWP area to the catch on the B. C. coast, however, Rayonier has estimated this area to contribute \$20,000,000 in wholesale value to the fishing industry.

5. Commercial Marine Resources

Map 5 shows the location of major herring spawn, abalone, clam and shrimp areas.

The herring fishery is second in economic importance next to salmon and its value has been increasing. The major product, herring roe, is exported to Japan. Herring are caught by seiner and gillnetter and then roe is either directly removed or the herring are placed into "herring ponds" with kelp where they "panic spawn" on the kelp. The product is called "roe on kelp" and is a Japanese delicacy. There are nine herring pond licenses in the area, with each pond producing from \$100,000 to \$200,000 per year.

In 1977, 11,000 tons of herring were caught from Skincuttle Inlet and 3,000 tons from Louscoone Inlet. These are the most important herring areas north of Cape Caution and both are in the SMWP area. Prices for herring range from \$500 to \$1,000 per ton.

No shrimp are currently harvested and clam harvesting is prohibited as a result of paralytic shellfish poisoning (closure affects all B. C. coast north of Cape Caution). Abalone has been harvested for many years in this area and once supported several canneries (e.g. Jedway).

While harvesting of abalone is still active, it is now reduced from previous levels for conservation purposes (approximately 500,000 lbs. were harvested in 1977).

6. Mining

About 30 companies have held claims at one time or another in the area. Today, Wesfrob Mines Ltd., located at Tasu (just north of the SMWP area) is the only active mine and is producing over 1,000,000 tons of iron ore per year with a 1978 sales value of \$11,800,000. 140 persons live at the minesite. This mine is expected to be active until early 1982. The only other major mine in the SMWP area, at Jedway, produced 2,283,000 tons of iron ore between 1962 and 1968.

As shown on Map 6, there are several areas in the SMWP with active claims and with a mineral potential of class 2. A reserve from claim staking, exploration or mining in these areas would be unacceptable to the Ministry of Energy, Mines and Petroleum Resources.

7. Birds and Marine Mammals

An area, coincident with the South Moresby Wilderness Proposal area, has been identified as one of Canadian significance after an assessment of bird and marine mammal species and populations along the B. C. coast.¹ As shown on Map 7, the main features which make this area significant are seabird breeding colonies; migratory and wintering populations of waterbirds; and sealion rookeries.

Excluding Triangle Island off the northern tip of Vancouver Island, about 70% of the Province's breeding population of seabirds are found on the Queen Charlotte Islands. Most of these are found off the coasts of Moresby Island, an area especially important to the following seven seabird species:

¹Natural History Theme Study of Bird and Mammal Habitats of Canada's Pacific Coast and Adjacent Coastal Waters. A report to Parks Canada. K. R. Summers and R. W. Campbell. 1978.

<u>Species:</u>	<u>Moresby Island Contains:</u>
Fork-tailed Storm Petrels	30% of B.C.'s population
Leach's Storm Petrels	33% " " "
Common Murres	1 of the 2 major colonies in B.C.
Pigeon Guillemots	30% of B.C.'s population
Ancient Murrelets	70% " " "
Cassins Auklets	50% ¹ " " "
Tufted Puffins	63% ¹ " " "

In addition, the area is well known for its relatively high populations of Peale's Peregrine Falcon and Bald Eagle which are considered threatened species in Canada.

Feeding by hundreds of thousands of migratory shorebirds, loons, grebes, waterfowl, cormorants, and many other species within Moresby Island's inlets and passages occurs mainly in the fall. This diversity of species making seasonal use of the area and their large numbers add to its significance.

In addition, three subspecies of birds are endemic to the Queen Charlotte Islands and a fourth subspecies is found only on Vancouver Island and the Queen Charlottes. A fifth subspecies is found in the Queen Charlottes and other islands to the north. These, in order, are the Hairy Woodpecker, Saw-whet Owl, Steller Jay, Pine Grosbeak and the Song Sparrow.

Cape St. James contains the second largest breeding concentration of Northern Sealions in British Columbia. Several other rookeries are within the study area.

8. Archaeology and Historic Sites

The Queen Charlotte Islands have a long and extremely interesting period of cultural development extending back over 10,000 years. At the time of European contact in 1774, the Islands were occupied by the Haida speaking peoples who still maintain aboriginal occupancy of the

¹Excludes Scott Islands.

Islands. According to Fladmark (1969) the particular way of life maintained by the Haida at the time of contact can be archaeologically traced back as far as 1,500 B.C., suggesting a very longstanding and continuous cultural adaptation.

The story of this occupation and life on the Queen Charlotte Islands can only be read from the fragile remains of man's day to day activities. Since less than 2.5% of this story took place after European contact, this main period of human occupation requires archaeological interpretation. At present, there are a total of 192 Archaeological Sites known to exist within the boundaries of the SMWP (see Map 8). More than 80% of these sites relate to the more recent occupation of the Haida and their immediate ancestors.

This pattern does not necessarily reflect the time disposition of Archaeological Sites within the SMWP, but rather the relative ease by which more recent sites can be found. Archaeological investigations on the Queen Charlotte Islands in general are in their infancy. Even though studies have not progressed beyond initial inventory on Moresby Island, the scanty work completed has indicated that the Queen Charlotte Islands have a very long and extremely significant potential for yielding data pertinent to the recognition and reconstruction of human history not only on the Islands themselves but also for the Province of British Columbia in general.

Euro-Canadian involvement on the Islands over the past 200 years - the interaction with native life styles, early sea and land based fur trade, and the development of the logging and fishing industries - has yet to be investigated and may be of equal significance to that of the Islands' pre-history.

9. Recreation and Heritage Preservation

The SMWP area represents a major portion of a distinct physiographic and as yet unprotected region of B. C. It is thus of interest to the Provincial Parks Branch which seeks to have areas of each of the Province's physiographic regions represented in the Provincial Parks

system. As briefly described in the preceding pages and illustrated in the maps, the SMWP area contains a rich visual variety of fiords, islets, forests, bogs, seabird colonies, eagles and falcons and beaches with the impressive San Christoval Mountain Range as background. Adding to the area's attractiveness are a hot spring, interesting vegetation and historic evidence of Haida and post-European contact settlement, plus exceedingly rich marine life.

At present, no major parks or reserves exist in this area. There is one small Provincial Park on Anthony Island which is an abandoned Haida village site and two small ecological reserves. And while there is a major Provincial Park on the northeastern tip of the Queen Charlotte Islands, Naikoon Provincial Park, this area consists of a very flat terrain occupied by bogs and scrub forest and represents a landscape and natural features not comparable to those in the SMWP area.

Current recreation use of the isolated South Moresby area is relatively low, however the trend is toward increased numbers of visitors drawn by both facts and legends about the character of this area. Access is by sea-plane or by boat. Because the exposed, rocky west coast of the islands present unpredictable hazards, most recreation is centred upon the sheltered lagoons, bays, inlets, and passages of the east coast.

The major recreational features, located on the "Parks Branch Areas of Interest" map (Map 11), can be categorized into four groups:

- (1) Natural History Area - This zone represents the Queen Charlotte Mountains natural region. The physical and biotic characteristics of both land and adjacent marine areas were used as criteria for selection.
- (2) Recreational development areas - These sites are of specific value for the future development of basic, rudimentary facilities needed at camping beaches and moorages.

- (3) Natural and Cultural Heritage Sites - These include selected areas of giant spruce stands, endemic plants, seabird colonies, sea mammal rookeries, historical sites, and archaeological sites. In some cases, special protective management may be necessary.
- (4) Wilderness boating experience area - The east coast of Moresby Island is an outstanding boat touring area. Interest focuses upon the unusual landscapes and geological features; the array of smaller islands, lagoons, coves, and narrow passages; the superb freshwater and saltwater sport fishing; the shellfish beds, intertidal life, and near-shore sea life; the marine mammals and seabirds; the eagles and falcons; and the cultural history of the area.

Pervading the entire setting, perhaps surpassing in importance the specific elements of this northwest coast environment, is the significance of the Queen Charlotte Islands as a major symbol to British Columbia. It is a symbol of the wild, rugged and majestic aspects of Canada's west coast proclaimed in such sources as school textbooks and Emily Carr paintings. This is the image for which the Queen Charlottes are famous; and it is this image which draws people to experience the SMWP area's beauty firsthand.

10. Ecological Reserves

There are four main reasons for the establishment of these reserves:

- (1) Outdoor laboratories for researchers in the fields of pure science and resource management;
- (2) Conservation of all kinds of natural environments imperative for survival and maintenance of large, heterogeneous natural gene pools of different organisms.

- (3) Samples of vegetation and fauna as benchmarks against which to gauge land management practices elsewhere;
- (4) Outdoor classrooms for educating students in the principles of ecology, primeval landscapes and their biota.

The two Ecological Reserves established to date in the SMWP were to protect marine wildlife, especially nesting colonies of seabirds (Peale's peregrine falcon, ancient murrelet, Cassin's Auklets, Leach's storm petrel and fork-tailed storm petrel) and plant associations (mostly those which are affected by sea-spray).

Two other Ecological Reserves have been proposed on:

- (1) Islands adjacent to Anthony Island and Kerouard Islands - to protect a variety of seabird species, marine intertidal ecosystems and the second largest sealion breeding site in B. C.; and in the
- (2) Windy Bay Area - to conserve the last sizeable natural watershed on the east coast of the Queen Charlottes, containing mature productive forest stands within the Coastal Western Hemlock and Mountain Hemlock Biogeoclimatic Zones. This Reserve would also protect wildlife and fisheries values: specifically the largest known colony of nesting Ancient Murrelets in Canada, two Peale's Peregrine Falcon eyries and, according to escapement records, the most productive pink and coho salmon stream in the SMWP area.

11. Terrain Stability

Although not a resource value in the sense of those values described on the previous page, terrain (the soil base) is the foundation upon which all land, fresh water and possibly several marine resources ultimately depend.

On the Queen Charlottes Islands where some of the most inherently unstable terrain in the Province is found, any discussion of land use or environmental management must refer to terrain conditions. Here, extremes of rainfall intensity, high winds, soil characteristics, steep slopes and seismic activity combine to make large tracts of land naturally unstable.

Thorough documentation exists to show that forests act to stabilize steep slopes and that clearcutting promotes erosion and landslides.¹ This has been found to be especially applicable to the Queen Charlotte Islands, where standard logging practices in some areas has caused land and debris slides resulting in sedimentation of streams and, increasingly, physical destruction of fish spawning and rearing areas. Rates of slope failure, which generally commences 3 to 5 years following logging, have been found to greatly increase on logged slopes over 30°.

Another major cause of slides is windthrow of standing timber along logged boundaries which can be progressive in the more unstable areas. In some cases stabilization does not even occur following reforestation of logged areas. Windthrow failures are still progressing in some areas logged by A-frame in the 1930's and more serious failures are occurring on extensively clearcut sites with 10 to 15 year old forest regeneration.

A recent study² of terrain stability on the Queen Charlotte Islands concluded that the geomorphic processes (avalanching, mass wasting, i.e. major slumping and gullyng) associated with unstable terrain present hazards which are of concern to land utilization in two major areas:

¹The concensus of opinion is that the root network stablizes steep sites.

²Queen Charlotte Islands - Aspects of Environmental Geology, N. Alley and B. Thompson. Ministry of Environment, 1978.

the hazards "alter the aquatic environment by adding sediment and debris to the streams and thus affect fish populations, and they are of additional significance since they may reduce forest productivity and cause considerable damage to logging facilities and possible loss of life".

Federal Fisheries has concluded that if sensitive sites are to continue to be logged in the Charlottes, maintenance of fish habitat and production in commercial quantities will not be possible. As the agency responsible for fisheries, they are not willing to accept the consequences of disturbance and recently took action in this regard in Rennell Sound of Graham Island by banning logging on a 50 acre site.

Two additional areas of concern lie in the bird and marine resource sectors. These values could be indirectly (if not directly) affected by changes in land, fresh water and marine ecosystems caused by excessive erosion.

IV. CONCLUSIONS

1. Overview Study Conclusions

The south Moresby Island area has natural and heritage features worthy of protection as well as economically significant forest, salmonid and marine resources, and areas of high mineral potential. Economic development opportunities need not be foregone in favour of an overall wilderness designation as there are extensive areas where development potential is non-existent or very low. Furthermore, in the numerous areas where resources values are in conflict, there are administrative and legislative provisions which will enable the withdrawal or special management of areas which are determined after further detailed study to require protection from development activity. In particular, there are strong arguments throughout the study for the government to consider trade-offs in situations where forest resource productivity and operability is high in association with:

- high values for salmonid and marine resources;
- representative ecological systems;
- recreational corridors and sites;
- culturally significant areas and heritage sites; and,
- unstable terrain areas which if logged will suffer loss of soils, resulting in alterations to connected ecosystems and (usually) declines in productivity for affected resources.

2. Withdrawal Procedures

As noted above, the designation of areas for protection and/or management of non-timber values, depending on their extent and nature, may be achieved in several ways. These range from administrative recognition in working plans, to Ministerial withdrawal from forest development, to reservation or Order-In-Council designation under protective legislation.

Minor withdrawals from harvest for other land uses may be achieved administratively by the Ministry of Forests (PSYU) or by Rayonier of Canada (B.C.) Ltd.. Such areas would be identified through integrated resource management planning prior to the granting of timber sales in the PSYU or the approval of a five-year management and working plan in the TFL respectively. Similarly, if as a result of planning analysis the capability of the area to produce timber was found, in the opinion of the Chief Forester, to be adversely affected by logging or, in the opinion of a Federal Fisheries officer, logging would have an adverse affect on salmonids or their habitat, environmentally-sensitive areas would not be logged and the annual allowable cut would have to be adjusted accordingly to allow for other land uses.

However, where major withdrawals are deemed necessary, it is likely that policy decisions will be required. For instance, with respect to TFL lands, the Minister of Forests may under Section 53 of the Forest Act withdraw from a TFL lands which contribute up to five percent of the Annual Allowable Cut without compensation to the licensee, plus any non-productive lands. Compensation would be required if withdrawals in excess of these provisions are deemed appropriate by the Minister of Forests. Lands withdrawn under Section 53 need not be removed from the Provincial Forest since the Forest Act has provisions for recreational management and/or protection for environmental purposes. However, if deemed to be in the public interest, such lands can be further withdrawn from the Provincial Forest and designated under such legislation as the Park Act and the Ecological Reserves Act for special protection and/or management.

2. Suggested Follow-up Actions

This study does not provide sufficiently detailed information to enable well-documented recommendations regarding detailed land use designations, nor does it provide detailed resource management prescriptions for the protection and management of sensitive landscapes and waters and the maintenance of their productivity. Rather it underlines the basic policy issues and offers related guidance on follow-up actions.

It is apparent from the overview study that:

- Extensive areas will be preserved simply because there is little, if any, development potential in these areas. Action on some form of wilderness designation of these areas appears appropriate under the Park Act (note some new provisions may be required in this Act to allow designation of a Wilderness Recreation Area).

- In view of the economic significance of forestry and the potential for preserving large areas of the SMWP where development is not likely, as well as opportunities for securing significant portions of productive forest lands, TFL 24 should be renewed with reference to the following:
 - Full application of Section 53 land withdrawals are anticipated and additional withdrawals may be likely following detailed studies and planning outlined below. The latter must be compensated, ideally with suitable alternative sources of timber supply on the Queen Charlotte Islands;

 - No management and working plans will be approved for Blocks 4 and 5 for a period of at least 10 years pending the completion of detailed land use and resource management plans for this area;

 - the Windy Bay Watershed and adjacent Ancient Murrelet colony habitat should be exempted from cutting pending the completion of a detailed analysis of the proposed Ecological Reserve and timber resource values and until a policy decision on the use of this area has been made by the ELUC. Work should proceed immediately on this with completion within 2 years;

 - analysis of terrain and operability conditions throughout Blocks 3, 4 and 5 should be conducted within five years with the AAC for these blocks adjusted accordingly (note reductions in AAC (if any) resulting from these studies are not comparable to withdrawals under Section 53 and are not subject to compensation);

- study costs associated with the above proposals as well as the proposals outlined below that are incurred by the licensee should be allowed as forestry costs in the calculation of government revenues charged to Rayonier.
- The area south of the Tangil Peninsula (SMWP area) be the subject of a five-year multiple land use planning program (including resource inventory and analysis) with the objective of determining specific proposals for:
- land use designation with reference to the findings of this overview study regarding significant preservation and recreation values and the Provincial Government's commitment to harvesting of operable timber;
 - environmental management prescriptions for watersheds and marine shorelines with specific attention to soil stability and landscape scenic quality.
- Participants in the above program should include:
- Forest Service (Chairman)
 - Rayonier Canada (B.C.) Ltd.
 - Parks Branch
 - Ecological Reserves Unit
 - Federal Fisheries and Marine Services
 - Fish and Wildlife Branch
 - Public

and others may also be involved.