

DEVELOPMENT OF POLICY GUIDELINES FOR PUBLIC USE  
OF RESOURCE ACCESS ROADS IN NEWFOUNDLAND

by

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A Practicum Submitted  
In Partial Fulfillment of the  
Requirements for the Degree,  
Master of Natural Resources Management

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## **ABSTRACT**

The Newfoundland public has traditionally used resource access roads for recreation and domestic benefits. Resource managers are concerned that public use may conflict with resource management programs. This study reviews public use of access roads in order to develop guidelines for government policy on public use of access roads.

All Provincial land tenures are reviewed with respect to planning and construction of, jurisdiction over, responsibilities for, and public right to use access roads. This review showed that access roads are planned primarily from a single resource perspective, though they serve multiple resource uses. Jurisdiction over and responsibilities for access roads are ill defined on unalienated Crown Lands.

Policy with respect to public use of access roads in other provincial jurisdictions is reviewed. No formal policy on the public use issue exists in any reviewed Canadian jurisdiction, though several jurisdictions perceive a need to establish a policy. Respective resource agencies decide the address of public use conflicts which concern them. Restricting public use, though legal in several jurisdictions, is seldom used and has mixed results.

Integrated resource decision-making is necessary for resolving resource conflicts.

Policy goals, criteria, alternative strategies and implementation are discussed with respect to access roads in Newfoundland. Within each parameter a number of choices are outlined.

A policy for public use of access roads is recommended. Firstly, the jurisdiction over access roads is defined as basis for the policy. Policy maintains the traditional benefits of public use of access roads, however, resource conflicts are recognized and various means to address such conflicts are outlined. Decision makers, responsibilities, and procedures to address resource conflicts from public use of access roads are outlined.

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## Chapter I

### INTRODUCTION

#### 1.1 BACKGROUND

Resource developments such as forestry and mining commonly require access roads. Forest industries are well known for their extensive network of access roads but other developments, such as hydro facilities and mining operations also require road systems to remote areas. Many access roads, though constructed for a single purpose, increase the access to other resources, both for development and public use, and thereby create additional benefits and costs.

Access roads are a known cause of environmental problems such as erosion and stream siltation. Less well understood as a problem of access roads is the public use of these roads. The problems of public use of access roads may be perceived as depletion of resources, disturbance of wildlife, degradation of the environment and a decline in the enjoyment of the outdoor experience. Other problems stem from conflict among road users, i.e., those using the access roads for commercial and recreational pursuits. The public may also place demands for services on the resource agencies. There may also be destruction of or theft of private property by the public use of roads.

These problems have increased in Newfoundland in recent years as people have more leisure time and are more mobile in their pursuit of the domestic and recreational benefits of access roads. The effects of the public use of access roads is varied depending on the resources or environments the roads access. The demands of public use on the resource agencies varies as well. At present in Newfoundland there is little management of public use of access roads. The problem of public use will continue until management of public use of access roads is formalized.

## 1.2 PROBLEM STATEMENT

Resource access roads on Crown Lands in Newfoundland are open to the public, and continued resource development in the Province will require more access roads to be built. The problems arising from public use of access roads are expected to increase. The major question is whether the public should continue to have unlimited use of access roads when problems or detriment may occur. At present there is no stated policy for management of public use of access roads which would guide the decision-makers and resource managers of the Province. This study recognizes the lack of policy guidelines in Newfoundland, reviews the problem and suggests policy guidelines applicable to Newfoundland.

### 1.3 OBJECTIVES

The purpose of this practicum is to develop policy guidelines for the public use of access roads in Newfoundland. Specific objectives are:

1. to review the planning, construction, jurisdiction of and responsibility for access roads in Newfoundland,
2. to identify and survey conflicts from public use of access roads and illustrate the presence of these conflicts in Newfoundland,
3. to review policies and studies on public use of access roads in other Canadian jurisdictions,
4. to identify and discuss alternative a) policy goals, b) evaluative criteria, c) policy options, d) policy instruments and procedures, and
5. to recommend a policy on public use of access roads and to provide a rationale for that recommendation.

### 1.4 DELIMITATIONS

1. The policy developed herein applies to Crown Lands.
2. This study is aimed at developing policy guidelines for public use of existing access roads. The study does not directly address future planning of access roads.
3. The Case Study of the Upper Salmon hydroelectric development is used to illustrate the conflicts that

can arise from public use of access roads. No attempt is made to reconcile the conflicts on this particular access road or any other specific access road.

4. This study does not necessarily represent the position of any government agency, companies or persons interviewed.

### 1.5 DEFINITIONS

Resource agency: Any jurisdiction, either private or public, which, as part of its mandate, deals with the development or management of any natural resource.

Resource decision: Any choice of action leading from discussion of inputs to the management of any natural resource.

Resource access road: A road built for the purpose of reaching and using a natural resource.

Single use: A term used in reference to a resource access road which is intended for the use of only one natural resource.

Multiple use: A term used in reference to a resource access road which is intended for the use of two or more natural resources.

### 1.6 METHODS

The objectives of this study were accomplished through interviews, literature reviews, written correspondence with other jurisdictions, and an analysis of a hydro project in Newfoundland as a Case Study.

The interviews included individuals representing the provincial government, the federal government, a provincial crown corporation and a private company in Newfoundland (Appendix A). A preliminary meeting was held to explain the study and the interview process. Prior to the interview each representative received a list of questions to guide discussion. Information gathered from interviews aided the review of access roads in Newfoundland, the review of conflicts resulting from public use of access roads in Newfoundland and to detail the case study. Information was recorded as written notes.

The literature review included legislation, scientific reports and government documents, and various communications. The information aided the review of access roads in Newfoundland and conflicts from public use and to detail the Case Study. This review also provided input to developing policy options for public use.

Written correspondence was mailed to resource personnel in the provincial and territorial jurisdictions in Canada. These personnel were questioned about policies for public use of access roads in their jurisdiction, respective legislation, public rights to use access roads, problems from public use and any methods used to resolve these problems. The information presented in the review of these jurisdictions is a syntheses of all information received from each jurisdiction. Quebec, Prince Edward Island and

Manitoba are not reviewed because of insufficient information.

The case study of Upper Salmon hydroelectric development was synthesized from information obtained during interviews and from review of various reports including the Environmental Impact Assessment for the project. Further insight was gathered by a site visit and discussion with various workers and members of local communities.

The information from interviews, literature review, and the case study provided basis for developing policy alternatives and choosing policy to complete the main objective of this study.

## 1.7 PRACTICUM OUTLINE

Chapter I introduces the concerns of public use of access roads in Newfoundland and identified the problem of no management policy for this use. A study of the issue is proposed and objectives and the methods to accomplish these objectives were outlined.

Chapter II presents a review of access roads in Newfoundland as proposed in Objective one. This review includes land tenure agreements, jurisdiction over access roads, public rights on tenured lands and access roads thereon, planning and construction of access roads and other responsibilities inherent with access roads. The review

establishes the present working environment with respect to access roads and indicates where problems from public use can occur.

Problems from public use of access roads are the focus of Chapter III. A literature review of the issue of public use of access roads is presented followed by a case study of Upper Salmon hydroelectric development. This case study illustrates the variety of concerns which may arise from public use of access roads in Newfoundland. The concerns are especially evident where there is not an established plan or process for decisions making on the issue among the various resource agencies in the Province.

The experiences of other Canadian jurisdictions in dealing with public use are presented in Chapter IV. These jurisdictions were censused with respect to problems from public use of access roads and whether formal policy or other methods exist to deal with the issue.

Chapter V is a review of policy making with respect to policy in general and in the specific case for public use of access roads. The review includes goals, criteria, options, and the variables of implementing policy: policy instruments and decision makers. Each variable was reviewed and alternatives within each variable were outlined.

The information of the previous five chapters lead to Chapter VI in which conclusions are drawn and a policy is recommended. Rationale for policy choice is also presented.



## Chapter II

### REVIEW OF ACCESS ROADS IN NEWFOUNDLAND

#### 2.1 INTRODUCTION

This chapter reviews the working environment of access roads in Newfoundland. The discussion describes the types of land tenure and the rights accorded by land tenure.<sup>1</sup> Also discussed are jurisdiction of access roads, public right of access to land and access roads on the tenure, and present management of public use of access roads.

There are five forms of land tenure in Newfoundland: freehold, lease, license, Crown and other. Other includes parks, reserves and municipal areas. The distribution and areas of the various tenures are illustrated in Appendix C and Table 1.

---

<sup>1</sup> A more complete description of land tenure and the rights thereof can be found in John A. Munro, "Public Timber Allocation Policy in Newfoundland." Ph.D. thesis, University of British Columbia, Department of Forestry, 1978.

TABLE 1

## Summary of Land Ownership, Island (1000's hectares)

Owner	Freehold	Lease	Licenses	Non- alienated	Total
Bowater*	607		1,957		2,564
Price	160	518	1,317		1,996
Nfld. Crown				6,396	6,396
Park reserves				15	15
Other**	179				179
Totals	946	518	3,274	6,411	11,150

\* Figures reflect transfer of 534,000 ha of licenses in Unit 7 to the Crown

\*\* Included Municipal and Federal Lands, Original estimates have been adjusted to account for the purchase of 81,685 ha of Reid holdings by the Crown.

Source: Report of the Royal Commission on Forest Protection and Management Part 1, February 1981.

## 2.2 FREEHOLD-LANDS

Freehold land dates mostly from various grants given to Reid Newfoundland Company between 1896 and 1912, in payment for construction of the Newfoundland Railway completed in 1897. The freehold status of these lands, commonly known as Reid Lots, gave complete ownership of all rights to Reid Newfoundland Company and its assigns (Appendix D). This ownership also included the right of transfer of any or all of the rights so included. Over time the two paper companies on the island, Bowater Newfoundland Limited and Price (Nfld.) Pulp and Paper Limited, acquired most Reid lots. The government purchased the remainder of the lots in 1974.

Access roads on freehold tenure are planned and constructed for purposes of the pulp and paper companies. The companies operate independently, and each have their own departments which determine the type of road required and construct the roads. Each company determines the basis by which roads will be maintained.

The completeness of the rights for the Reid Lots place the ownership of, jurisdiction over, and liability for access roads completely with the paper companies. These rights can be affected in several ways. The Minister of Forests Resources and Lands, usually in cooperation with paper companies, may restrict use of these lands or roads

during times of extreme fire hazard (Crown Lands Act R.S.N. 1970, Ch. 11). Plans for access roads must be included as part of companies' Forest Management Plan under the Forest (Management & Taxation) Act (N.S. 1975, No. 59). Also, under the Environmental Assessment Act (N.S. Ch.3, 1980), major public and private projects which may include access roads can be subject to government evaluation prior to commencement. However, to date, neither Act has affected access roads on freehold lands.

Public use of access roads on freehold land is at the discretion of the paper companies. At present, both paper companies permit extensive public use of their access roads as part of their public relations programs. This use allows the public to gain access to areas for hunting, fishing and other purposes. Some roads are open to the public at all times, others are opened intermittently, and some roads are not open at all. The rationale for intermittent and full closure includes the protection and safety of company equipment, staff, the public itself, and the pulpwood resources. The usual means to prevent public use is by gates, sometimes in conjunction with guards.

### 2.3 LEASED LANDS

In 1905 the Government of Newfoundland granted a lease of 518 thousand hectares to the Anglo Newfoundland Development Company Limited on which to establish a newsprint mill at Grand Falls. This lease covers the upper part of the Exploit's River watershed around Red Indian Lake and Victoria Lake (Appendix C). Though it was a lease, the rights approached those of freehold. Price (Nfld.) Pulp and Paper Limited has rights to land, timber, minerals and certain water resources. The only variance in rights from freehold was a time clause of 99 years, and since the lease is renewable for the same time period at the option of the leaseholder, it may be considered near permanent. The Company plans, constructs and maintains access roads on its leased tenure in the same manner as on its freehold land.

The complete rights over the leased land places jurisdiction with the paper company. Though approaching freehold status in the extent of the company's rights over the tenure, the lease is explicit with reference to the public access. The public has the right to fish, hunt and navigate waterways. There is no mention of access roads in the tenure documents as roads were not the travelways of the day. But, it could be argued that the waterways are the equivalent of access roads and so the public should be permitted use of the access roads. This argument has not been tested and in recent years Price (Nfld) Pulp and Paper

Limited allows the public to use access roads on leased lands as they do for their freehold lands.

## 2.4 LICENSED LANDS

This tenure originated from the Government of Newfoundland's efforts to encourage the pulp and sawmilling industries in the Province. Legally, the licenses are really leases to rent a land area, but the wording has been kept to separate them from the leased land held by Price (Nfld) Pulp and Paper Limited. The licenses conveyed only property rights to cut timber on and over a defined area within a specific time period of 21, 50, or 99 years: Today only the 99 year leases remain in effect. The conditions of the license included an annual land rental fee of two dollars per square mile, a fee of fifty cents per one thousand board feet of lumber, but there was no charge for pulpwood. The timber rights are transferable and ownerships to these rights have changed many times, as various proposals emerged to establish wood based industries in the Province. Most of the licenses are now held by Bowaters Newfoundland Limited and Price (Nfld) Pulp and Paper Limited (Appendix C).

The jurisdiction over access roads on licensed lands is not explicit. Originally the construction, jurisdiction and use of access roads on licensed lands were the responsibility of the paper companies. However, in recent

years government funds were used to build access roads on these lands. The most notable cases were the access roads built to salvage budworm damaged timber. By virtue of the Department of Transportation and Communication Act (S.N. 1973, No. 36 S. 23) the use of government funds places the jurisdiction of such access roads in the public arena. To date, the jurisdiction has not been clearly defined in terms of who accepts which responsibilities.

Though jurisdiction over and responsibilities for access roads on licensed lands may be uncertain, the license tenure documents make direct reference to public access. The public has the right to cut timber for domestic needs and bonafide purposes of the fishery. Also the public is allowed to use roads and to travel over grounds of the licensed area. In some cases the public cannot reach the roads because there are freehold areas located along connecting roads and the freehold land owners may legally keep the public from crossing their land. Generally the roads on licensed lands are open. But, the paper companies exercise their right to keep public out of some areas. The public, for the most part, is not aware that they are entitled to use the licensed lands beyond the freehold lands.

## 2.5 CROWN LANDS

Unalienated Crown lands on the Island of Newfoundland occupy an area of 6396 thousand hectares, approximately 57 percent of the Island's area (Appendix C).

Government departments, Crown Corporations and private citizens have built access roads on Crown Land. The Forestry Branch of the Department of Forest Resources and Lands has the most comprehensive access road program. The roads are planned and constructed as part of the annual programs of the Department. Departmental staff plan the roads and construction is tendered to private firms.

The Agriculture Branch of the Department of Rural, Agriculture and Northern Development builds access roads to access agricultural land and blueberry crops. The Agriculture Branch determines its road requirements but the Forestry Branch arranges the planning and construction of the roads.

The Crown Lands Branch of the Department of Forest Resources and Lands arranges the planning of and tenders construction for roads to cottage developments, but the cottage owners pay costs for these roads.

The Department of Fisheries builds access roads to suitable coastal areas for the purpose of fisheries development. The construction of roads to coastal areas is



through the Department of Transportation and Communication but the Department of Fisheries accepts financial responsibility for the roads.

The Wildlife Branch of the Department of Culture, Recreation and Youth has, on occasion, paid for road and bridge maintenance to enable hunters to enter desired areas. Road and bridge maintenance is not a regular program and the Wildlife Branch does not initiate any new road construction.

The Department of Transportation and Communications does not initiate resource access roads for its own purposes. The department does construct access roads for other agencies and also performs maintenance on access roads at the request of resource agencies and elected representatives.

Newfoundland and Labrador Hydro, a Crown Corporation builds extensive access roads to suitable hydroelectric sites. Newfoundland and Labrador Hydro determines its road requirements and finances its roads, but construction is tendered to private firms.

Each resource agency operates independently when planning its access road requirements. Over the past few years such plans are referred to other resource agencies for evaluation and comment, but no formal process has evolved except where projects are large enough to be registered with the Department of Environment under the Environmental Assessment Act (N.S. Ch. 3, 1980).

Access roads on Crown lands are the responsibility of the Government of Newfoundland and Labrador. However, on several accounts it is difficult to attach specific jurisdiction over and responsibility for access roads. Responsibility cannot be assigned for old and abandoned roads for which records are not available, either because records were not kept or because the records were lost during department realignments. Also, even for roads which are on record there are no legal or binding documents (i.e., a land disposition) required by a resource agency before they build a road on Crown lands. Thus no definite jurisdiction is given or responsibilities defined. Resource agencies may abandon roads on record, which are no longer needed because such roads are a strain on budgets. In reverse a resource agency may claim jurisdiction over a neglected access road if that agency spends funds on it.

A controversial point in much of the jurisdiction/responsibilities question is the maintenance of access roads because maintenance is costly. Each agency plans its maintenance on a priority basis dependent on present need for and use of the road. These maintenance budgets and operating schedules do not leave room for unplanned maintenance work.

The jurisdiction of access roads on Crown lands may ultimately be with either of two government agencies. Under the Department of Transportation and Communication Act (S.N.

1973, N. 36 S.23) the department is responsible for roads on which public monies have been spent. The Department does not claim responsibility because access roads are not in their current inventory, and these roads may also be affected by another Minister responsible for original construction.

Crown Lands Branch of the Department of Forest Resource and Lands could have jurisdiction over the access roads on Crown lands because the branch is the custodian of Crown lands. There are also no land dispositions alienating access roads from Crown lands. Because of the maintenance cost, the Crown Lands Branch does not claim jurisdiction.

The question of jurisdiction is under going discussion among various resource agencies to resolve the confusion and designate jurisdiction and responsibility in a more definitive way.

## 2.6 CONCLUSION

Many resource agencies, both public and private, are involved in the construction of and maintenance of access roads in Newfoundland. Each agency operates independently thereby producing access roads which are basically single purpose roads. Costs results from this independent pursuit of goals as evidenced in part by the redundancy of services and staff to meet road requirements by the province on a whole.

Consideration for possible development of other resources served by access roads, or to the use of these resources by the public is not part of the planning process for access roads. The access roads are really multiple use roads, and conflicts exist.

The present situation with access roads in Newfoundland is most notable with respect to Crown lands. The access roads on Crown land are not the defined jurisdiction on any specific resource agency, though at least seven agencies of the Government of Newfoundland and Labrador as well as private concerns are actively involved with access roads. There is no formal mechanism to ensure coordination on access road needs among the various resource agencies that operate on Crown lands.

Any policy, especially with respect to public use will require coordination among the various resource agencies. The policy must recognize the existing Newfoundland situation of open public use and provide appropriate measures to clarify responsibility for access roads and reduce conflicts. Chapter III will define conflicts arising from public use of access roads.

## Chapter III

### CONFLICTS FROM PUBLIC USE OF RESOURCE ACCESS ROADS

#### 3.1 INTRODUCTION

The purpose of this chapter is to review the problems that may arise from public use of resource access roads. A general literature review of these problems is presented followed by a case study. The case study of the Upper Salmon hydroelectric development will be used to illustrate conflicts from public use of access roads in Newfoundland.

The case study includes a description of the project, the access road, and also a general inventory of the resources accessed by the road. The study illustrates that an access road, although built for a single purpose, once constructed has multiple uses and encourages resource use especially by the public. Multiple use of access roads has implications for the management of the many resources that are accessed because usually the management of the resource is after the fact and not planned into such resource access programs. The lack of any policy with respect to public use complicates these circumstances. This lack of policy was recognized in the case of Upper Salmon hydroelectric development where several resource departments wanted the

public excluded from the area as compared to the general case where the public has free access when roads have met their use.

### 3.2 LITERATURE REVIEW OF CONFLICTS

The conflicts which arise from public use of access roads are varied and seldom of one dimension. The conflicts at times may be quite evident, while at other times conflicts may be subtle and difficult to define. Many observations are contained in the literature noting the effect on natural resources of public use of access roads, however, the definition of the problem and the effects attributable to public use itself has not developed precisely as yet.

The easy access to resources by use of access roads is seen as the most severe problem of roads (Bergerud 1977). As more hunters, trappers, fishermen and other users gain access to previously isolated areas, overuse of resources may occur. Moose populations in areas of Alberta and southwestern Northwest Territories show significant decrease in numbers since the opening of access roads (Donihee & Gray, 1982). A high level of activity is generated on and around access roads. In Northern Alberta, 80% of hunter effort and 23% of total harvest occurs within 1.6 kilometers of access roads (Lynch, 1973 quoted in Donihee & Gray, 1982). The area close to access roads receive disproportionate use when one compares the amount of resources around the road versus other isolated areas.

Illegal activities such as poaching of game and fish, or illegal cutting of timber are facilitated by improved access.

Roads attract animals because regenerating plant growth along cut areas increases the available food supply (Newfoundland and Labrador Hydro, 1980), or because roads are easier to travel especially during winter snow conditions (Byrne, 1983, personal communication). Roads may also be important as areas in which caribou can avoid mosquitoes during the summer (The Arctic Policy Review, October, 1982). The tendency for wildlife to move to cleared roadways make the animals more accessible.

Increased activity along access roads increases the disturbance of wildlife habits. The effects of increased road use in terms of disturbance to wildlife has not been documented in quantitative terms. Recent reports of human disturbance and caribou reaction have been ambiguous and sometimes even contradictory (Mahoney, 1980). There are more questions than answers (Donihee & Gray, 1982) but there are serious concerns.

Disturbance has implications for caribou, a species which seems to be more sensitive than other wildlife to human disturbance. Geist (1975 in Mahoney, 1980) pointed out the considerable risk of emphysema, fetus displacement, elevation of metabolism, lowered birth ratios and an

increase in the general susceptibility to disease in disturbed caribou. Disturbance may disrupt traditional movements, or alter other normal behavior such as rutting. Activity along roads affect the willingness of animals to cross roads (Newfoundland and Labrador Hydro, 1980). Klein (1971) notes that reindeer stopped crossing a road and a railroad in Scandanavia after several years and the reindeers' total range decreased. The effect of habitat loss may affect the quality of available food and increase grazing pressure on the smaller areas of habitat. Animals in attempting to avoid a disturbance can be injured, have increased energy expenditure and can decrease feeding time. The latter two effects can place animals in energy deficit during harsh environmental conditions.

Avoidance of humans by smaller animals (furbearers) is harder to determine, but it is generally accepted that small animals are less abundant when there is an increase of activity and people (Newfoundland and Labrador Hydro, 1980).

Ream (1974) noted a decline in loon reproduction because nests were vacated when disturbed by human activity.

Environmental quality along access roads can be affected by the increase in traffic. The disposal of garbage, both as litter from passerbys or as deliberate dumping is commonplace along access roads. Rubbish often attracts animals making the animal more accessible to humans. At



times the animals create a nuisance and may have to be destroyed. The risk and number of forest fires increases with activity along access roads. All-terrain vehicles, which contribute greatly to erosion and vegetation destruction, decrease water and land quality.

The outdoor experience is also lessened by excessive public use of access roads. Many wilderness camps lose their appeal, as well as economic viability, when the public has easy access in the camp area. Roads provide unmistakable routes that allow even inexperienced people to move farther and faster into wilderness country (Mahoney, 1980). To some people, wilderness is an essential part of their outdoor experience and is lessened considerably by contact with people. The obstruction free surface and safety of a cleared right-of-way increase the range of snowmobiles and other off-road vehicles which normally are tiring to ride and slow moving in unbroken country. Public use could quickly destroy extraordinary wildlife habitat and wilderness areas (The Arctic Policy Review, October, 1982). Also affected are traditional life styles where roads access remote areas that were used only by trappers or native people.

Often overlooked, as problems of public use, are functional points involving public safety. Driving conditions on access roads are not always safe. Large vehicles hauling timber pose a threat to other users.

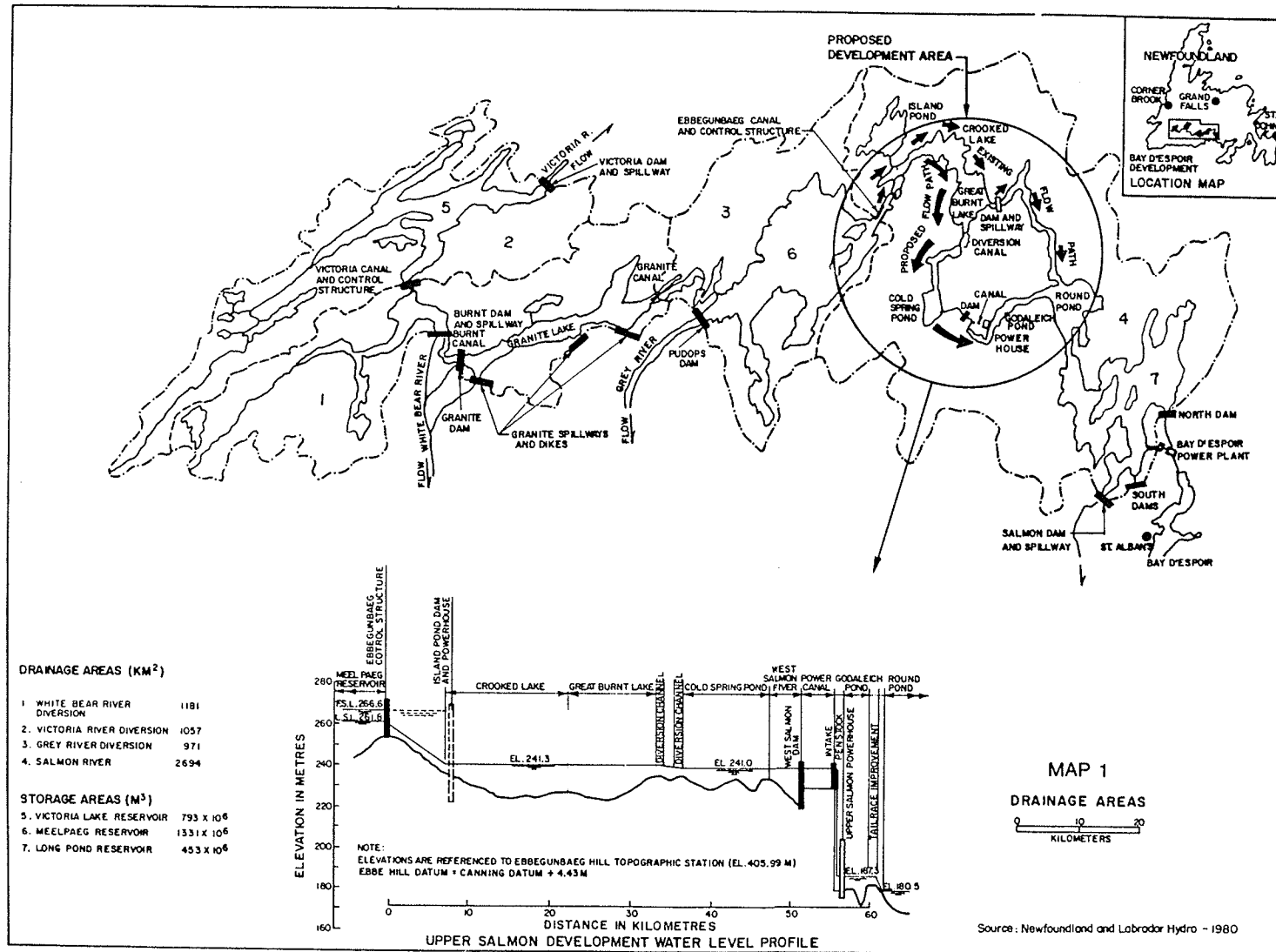
Indiscriminate parking of private vehicles of public users create hazards and affect the efficient movement of commercial traffic. Safety problems also arise due to lack of road maintenance or from emergencies such as floods and washouts. One of the most important reasons to keep the Dalton Highway in Alaska closed is public safety (The Arctic Policy Review, October, 1982). Safety to both logging crews and hunters is a prime concern during hunting seasons where unrestricted public use of roads increases hunter density.

Public use of access roads is also costly to companies and taxpayers. Costs are incurred to meet demands for road maintenance, for better public facilities and campgrounds, and for extra planning and construction of roads to accommodate public safety and public vehicles. Public use of access roads during soft road conditions increases maintenance costs substantially. Other costs include vandalism and theft of property belonging to resource developers.

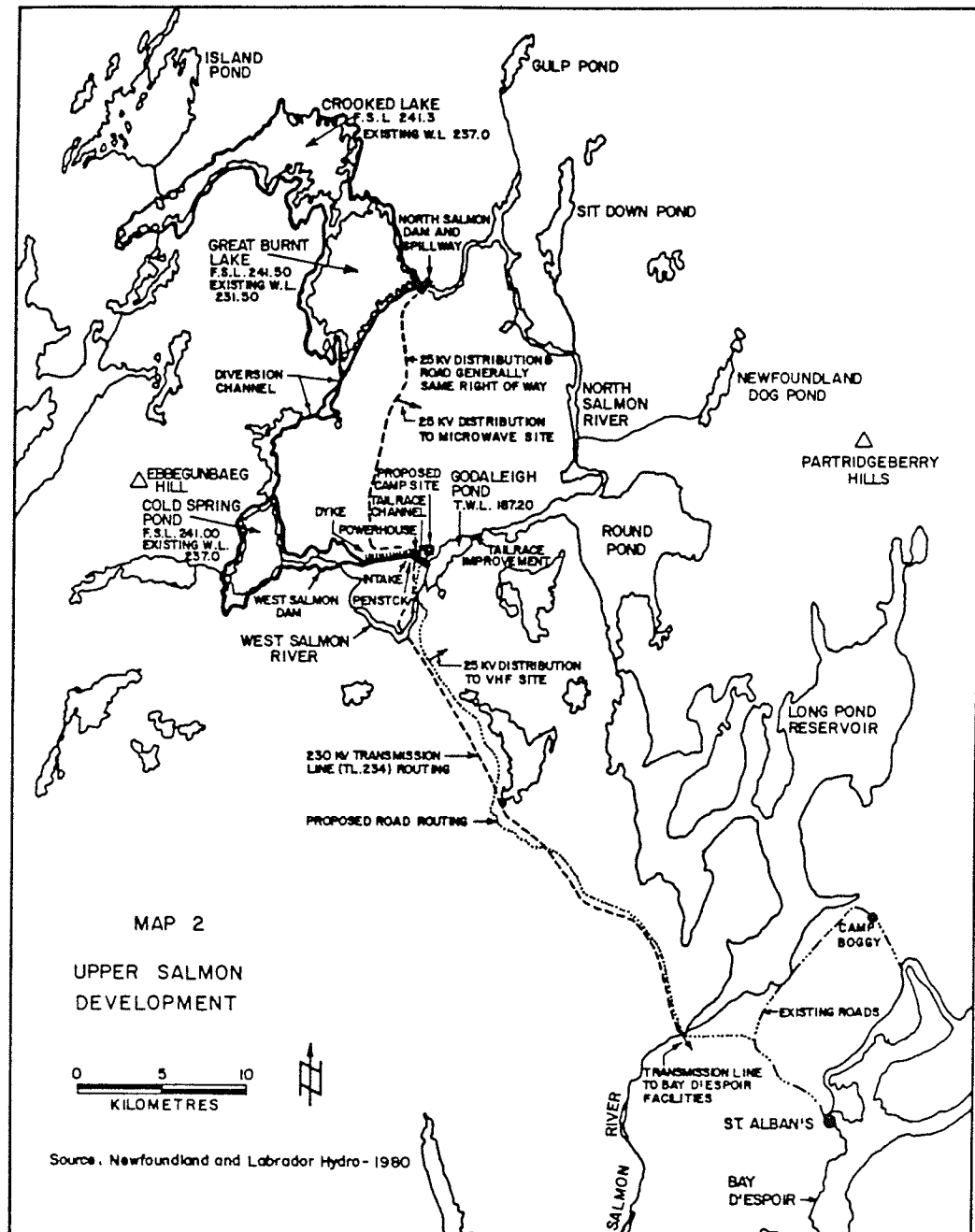
### **3.3 CASE STUDY**

#### **3.3.1 Project Background**

The Upper Salmon hydroelectric development is located approximately 50 kilometers from Bay d'Espoir and is between Meelpaeg Reservoir and Round Pond water storage areas of the existing Bay d'Espoir hydroelectric complex (Maps 1 and 2). The project diverts water from Great Brunt Lake into Cold



Map 1 - Upper Salmon development drainage areas and water level profile



Map 2 - Upper Salmon development

Spring Pond and through the power canal to Godaleich Lake and Round Pond. This water diversion produces 73 Megawatts of electricity for the Provincial electric power grid and was designed to offset a power deficit forecast for late 1982.

In March 1975, Newfoundland and Labrador Hydro informed the Department of Consumer Affairs and Environment (now the Department of Environment) that North Salmon River (Upper Salmon) was being considered as a possible hydroelectric site. Preliminary environmental work recommended further study and terms of reference for the study established. The Assessment Committee provided under the Environmental Assessment Act (S.N. 1980 Ch. 3) met in October 1978 to evaluate the progress of the assessment. Additional studies commenced when several concerns about archaeology, caribou, and public access were voiced. The Assessment Committee reviewed the preliminary results in the fall, 1979.

While environment studies were being conducted, Newfoundland and Labrador Hydro completed its technical studies for development. Construction was scheduled to start in June of 1980 to meet the deadline of 1982. The Environmental Impact Assessment (EIA) had not been completed and Newfoundland and Labrador Hydro requested Executive Council permission to start the access road arguing that the road was needed to ensure projected power requirements. Objections were raised by several agencies noting that all

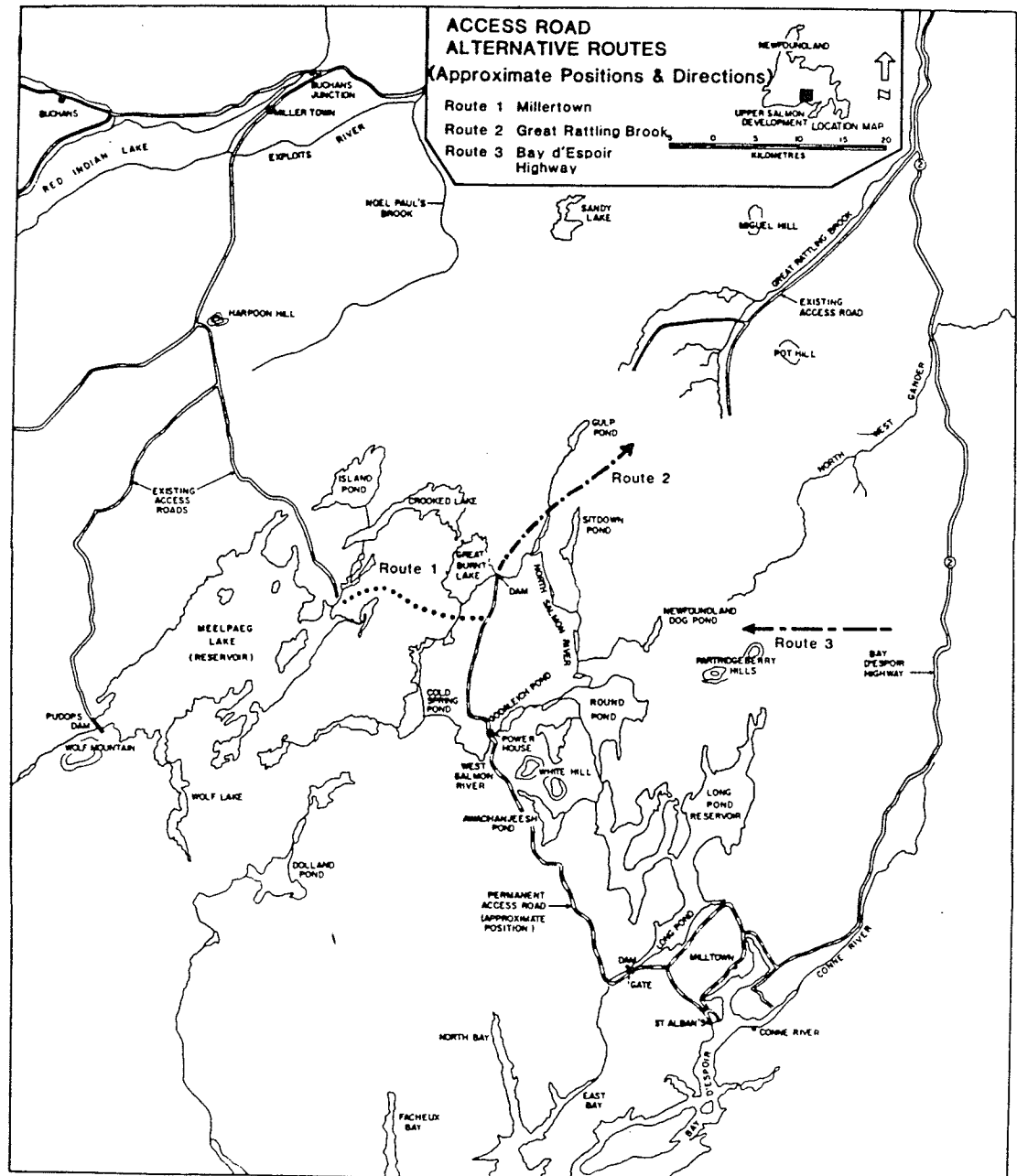
impacts had not been defined and questioning the value of an E.I.A. produced after the fact. Cabinet authorized construction of the access road by an Order in Council on August 24, 1979, but attached conditions for mitigation of environmental impacts. Construction of the access road started in the fall of 1979 and was completed in the summer of 1980.

### 3.3.2 Access Road

The access road to Upper Salmon originates in Bay d'Espoir and is 40 kilometers long and 6.7 metres wide. There were four choices of road location proposed (Map 3). The were: (1) from Millertown, (2) along Great Rattling Brook, (3) from Bay d'Espoir Highway in the vicinity of Partridgeberry Hills, and (4) from Bay d'Espoir - the chosen route.

Each access road alternative route had different proponents and justifications. All resource agencies agreed to eliminate the Partridgeberry Hills route because that route would conflict directly with the Partridgeberry Hills caribou.

The Wildlife Branch of the Department of Culture, Recreation and Youth thought that the Millertown route was to be used because most of the route was in place from the previous development of Bay d'Espoir hydroelectricity. The



Map 3 - Access road - alternative routes

Wildlife Branch had also argued that the Millertown route would keep the very isolated Upper Salmon area open from mainly one direction (north west) rather than from two directions as the Bay d'Espoir (southeast) or Great Rattling Brook (northeast) routes would do.

The Department of Environment, which oversaw the Environmental Impact Assessment thought the Great Rattling Brook route would be the chosen route because that route was perceived as having the least environmental impact.

Newfoundland and Labrador Hydro had initially approached the Millertown route because that route was mostly in place and thus less costly. But, they later endorsed the Bay d'Espoir route arguing that a bridge at Red Indian Lake could not support the weight of generators to be used at the Upper Salmon station.

The final choice of the Bay d'Espoir route surprised the various resource agencies because each agency believed that their route and rationale was to be the accepted choice. The final choice of road location was made during a meeting of Cabinet and the rationale for this choice perceived to be based on political and socioeconomic reasons.

The Bay d'Espoir region is one of the least prosperous areas of the Province with few employment opportunities. The region has the closest work force to the project. This work force had gained experience from the previous Bay



d'Espoir development. The road from Bay d'Espoir permitted that labour force to obtain employment on the project. That road gave the workers direct access to the project rather than require more travel and time away from home that the other routes would require. There would also be spinoff effects to the communities of the area over the three years of construction.

The choice of the Bay d'Espoir route drew criticism. There was criticism that the access road was constructed before the Environmental Impact Assessment was completed thus questioning the purpose of such assessments. Another criticism was the change of route from the Great Rattling Brook route which was endorsed by the Department of Environment which has the major role in the assessment.

Though the criticisms raise valid issues there are arguments that the Upper Salmon project was an aberration of the Environmental Assessment process. The arguments are that the Environmental legislation was new and that the personnel were not acquainted with the time frame for the process. To back this argument it is noted that other project assessments (Cat Arm hydroelectric development) are on schedule. Also, it is argued that the Assessment process got caught in the squeeze to meet the forecast power deficit.

The change of route choice was disconcerting to the players in the Environmental Assessment process, however, that change of route is the prerogative of elected representatives. One can only surmise the relative value of social, economic, political and environmental inputs to their decision.

The Upper Salmon project may well have been an aberration of the Environmental Assessment process due to bad timing. Nonetheless the experience with respect to the Upper Salmon access road is evidence of the complexity of decision-making related to access roads. However, development of policy guidelines for public use of access roads would provide a basis for decision making and establish a common provincial approach to be used by all resource agencies.

### **3.3.3    Resource Inventory**

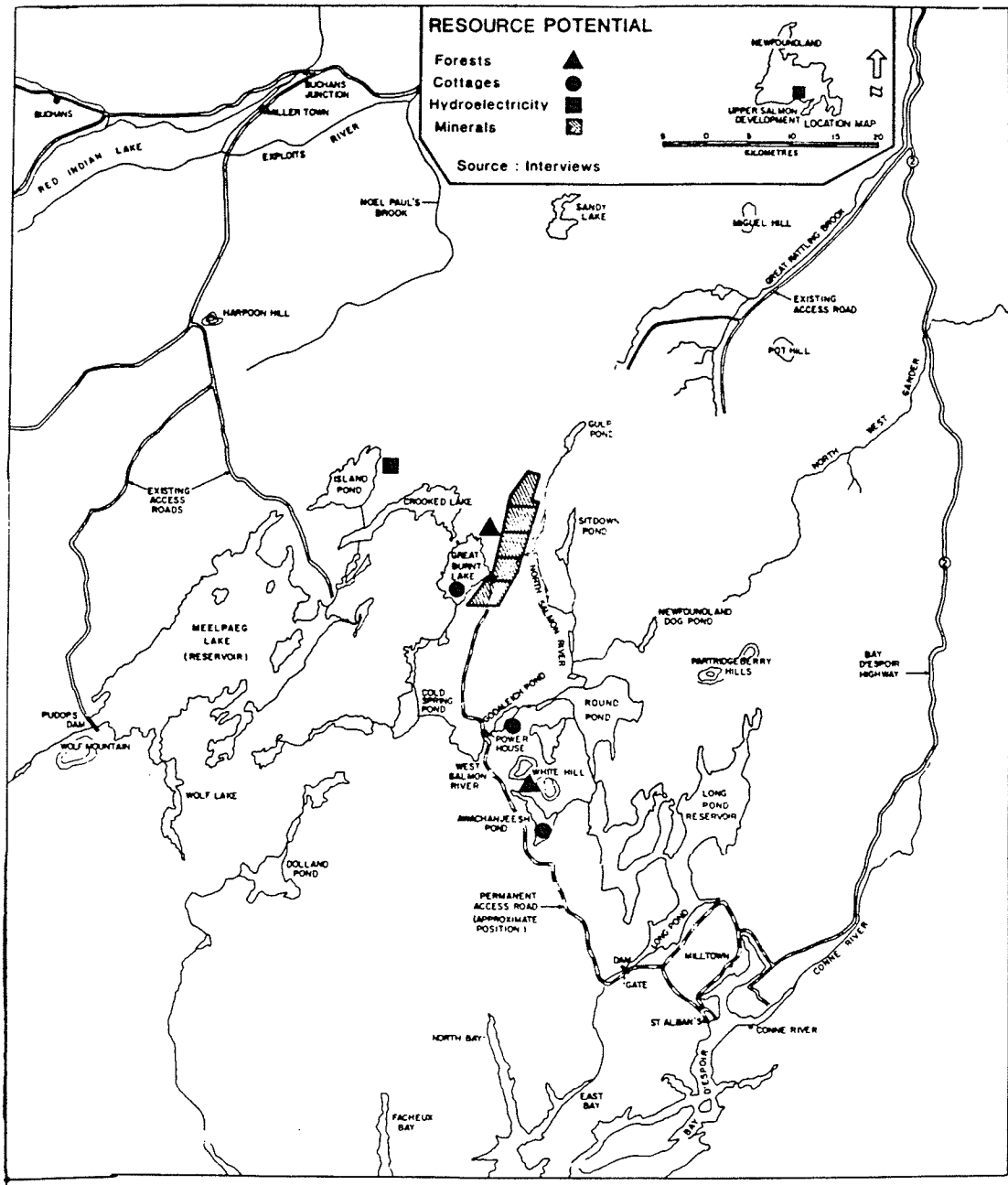
The following discussion presents a survey of resources accessed by the Upper Salmon road. This discussion illustrates that there are many resources available when an access road is constructed. Few studies were available prior to the environmental assessment of the project and there are still ongoing studies.

### 3.3.3.1 Forestry

Forests around the White Hills and North Salmon River contain wood suitable for pulpwood and lumber (Map. 4). The future of this wood is uncertain because of incomplete forest inventory and questionable economic viability. A major input to decisions to use this wood supply is the employment situation in the region which is traditionally forest related. The completion of the Upper Salmon Project and the completion of a government sponsored forestry program will increase the unemployment situation. That situation may result in use of this wood regardless of economic concerns. There are requests for cutting licenses in this area but no licenses have been issued to date.

### 3.3.3.2 Crown Land

The Upper Salmon road passes several areas that are suitable for cottages (Map 4). Use of some areas may be limited by water fluctuations at the project. The area is used extensively by snowmobilers in winter, and now the possibility of road access in summer has prompted numerous application for cottage leases. No lease has been issued pending project completion and pending decision concerning public use of the access road.



Map 4 - Resource potential of Upper Salmon area

#### **3.3.3.3 Fisheries**

The area offers some of the best sport fishing in Newfoundland. The species present are Atlantic salmon, brook trout, arctic char, eels, ouananiche, three spine stickleback. The fish are generally older and larger, typical of unexploited populations found in relatively inaccessible areas. Population levels, age structure and species differences will occur because of flooding and lost stream habitat but the total yield of salmonids in the reservoir itself will increase. Fishing pressure should be light due to distance from large population centres and the vast water areas available.

#### **3.3.3.4 Parks**

The largely virgin territory around the Upper Salmon project would not be suitable for a provincial park because the development conflicts with Parks' philosophy toward creating parks with unique and special environmental features. The distance from population centres and travel routes are also a hindrance.

#### **3.3.3.5 Tourism**

This area is far removed from travel routes and is not likely to attract many tourists except to view caribou herds. The area offers good fishing and hunting but

tourists are more likely to fly to more isolated areas away from the road. A fly-in camp has been approved within the watershed area at Sitdown Pond far removed from the project.

#### **3.3.3.6 Agriculture**

The soils in the area are not favourable for extensive agriculture. The area is remote from populated areas which also makes the area less favourable for farming.

#### **3.3.3.7 Hydroelectricity**

There is potential for further hydro capacity at Island Pond (Map 4). There are no plans to use this potential as there are other choices, the present ongoing Cat Arm development and the Lower Churchill in Labrador. Future industrial development related to the offshore oil and gas developments could play a major role in the need for this capacity.

#### **3.3.3.8 Minerals**

A copper deposit on a Lease owned by Abitibi-Asarco is located on the East Side of Great Burnt Lake (Map 4). Previously the deposit was not economic because of the cost of road access, however, the presence of the road makes the deposit attractive to government action. Economic study is required and development may well depend on socioeconomic and political factors.

The presence of this deposit and the road make the area attractive for further exploration. The Provincial Government had an ongoing mineral mapping program in the area until 1983.

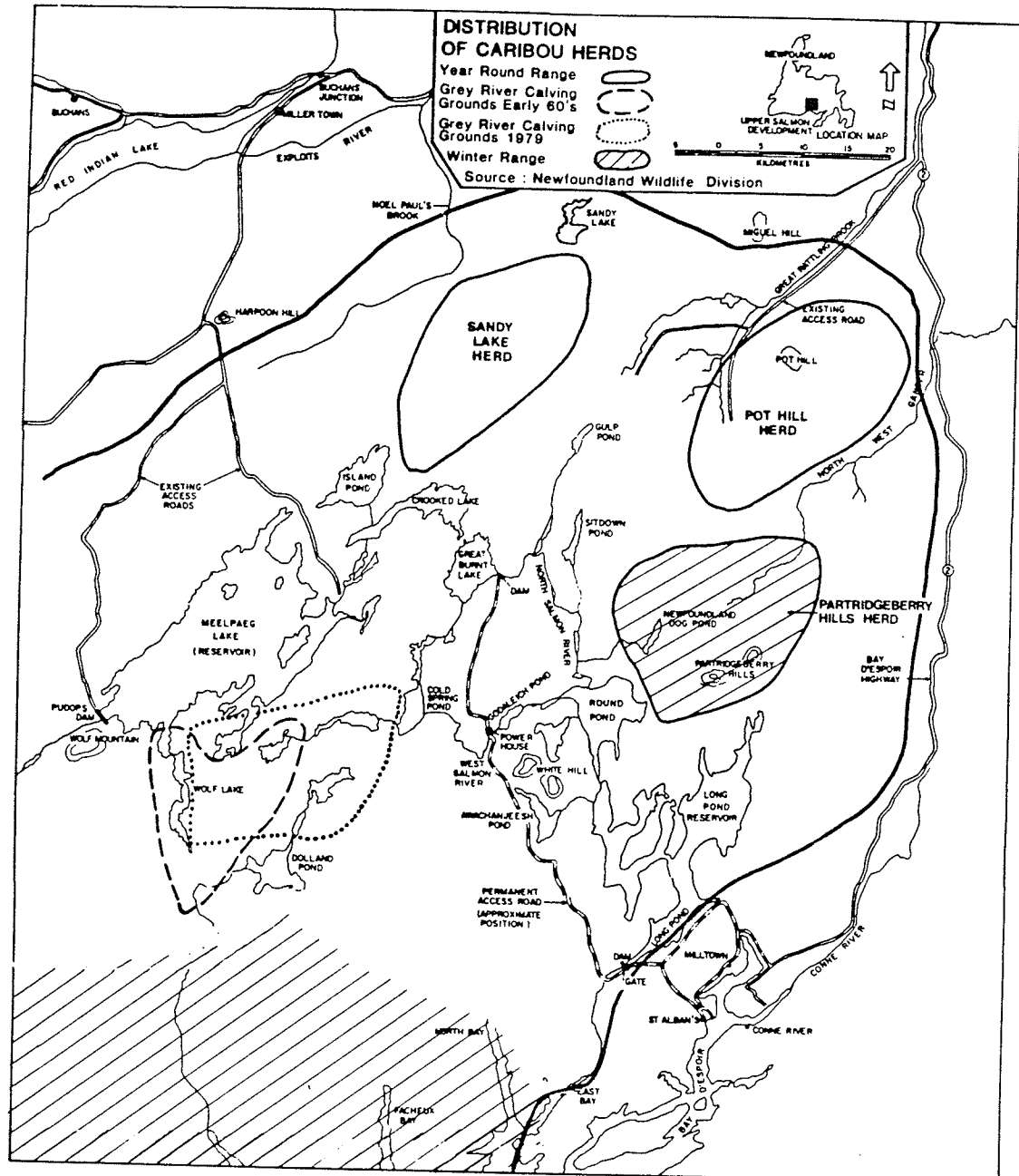
Aggregates in the area are suitable for construction material for offshore oil and gas structures if the area was selected for development of the construction industry.

#### **3.3.3.9 Wildlife**

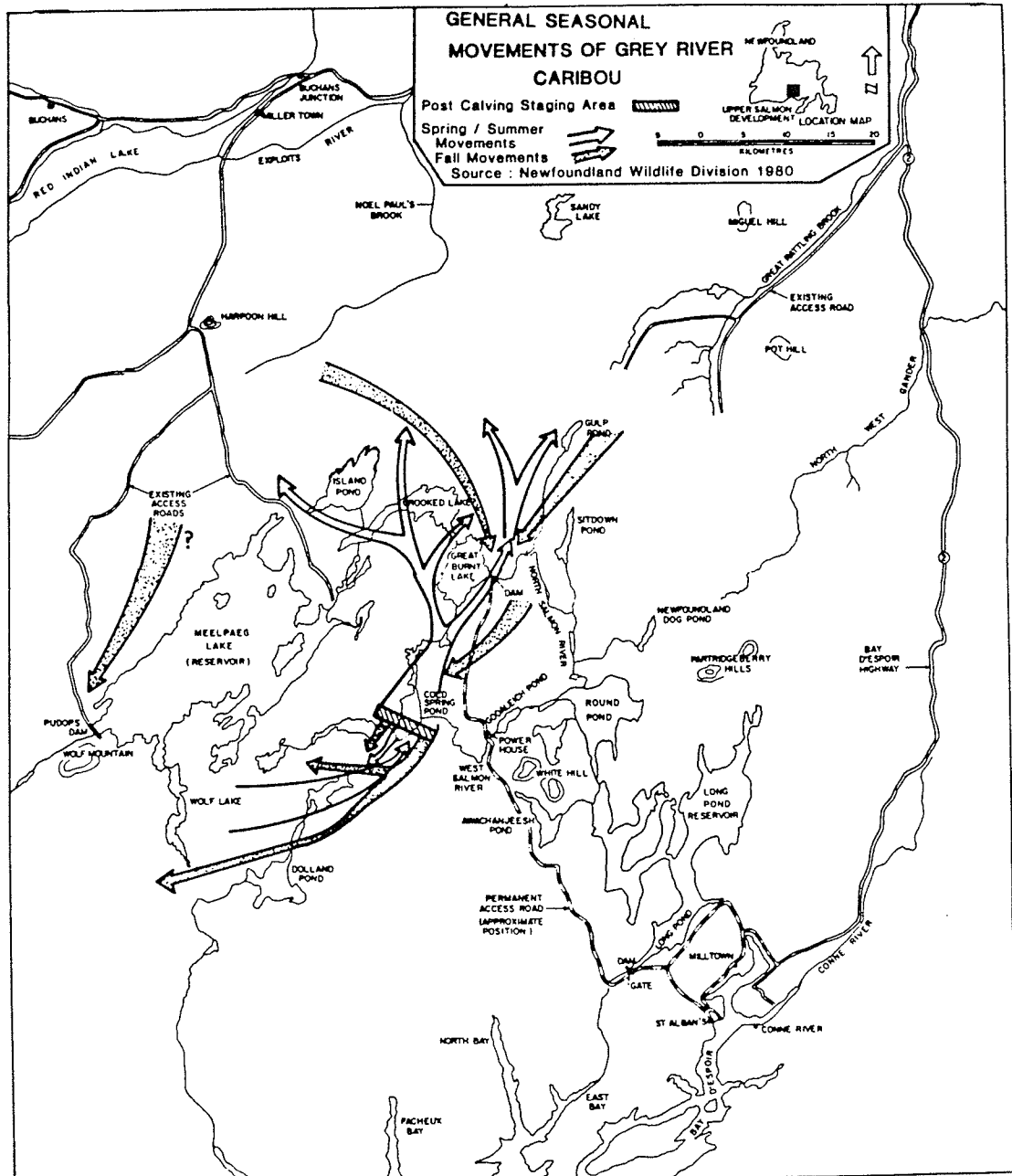
A diversity of wildlife is present in the Upper Salmon area. Birds occur in varying numbers either as residents or during their migration. Loons, Bitterns, Canada geese and eight species of ducks use the area. Various raptors are also present. Upland games birds present include ruffed grouse, rock ptarmigan, willow ptarmigan and spruce grouse. Various passerines also inhabit the area. None of the bird populations are considered plentiful (Newfoundland and Labrador Hydro, 1980). Small mammals include lynx, fox, otter, beaver, snowshoe hare and arctic hare. Larger animals include black bear, moose and caribou. Black bears are common in the area, but moose are not, less than 0.5 moose/km<sup>2</sup> (Hydro, 1980). Caribou is the major wildlife species of the area. There are three herds in the Upper Salmon area. They are the Grey River, Pot Hill and Sandy Lake herds. (MAP 5). The habits of the Grey River Caribou are best known (MAP 6). A more detailed description of the

current information about the caribou is included in Appendix E. The Grey River Caribou are the subject of an intensive biological study and a comprehensive report is forthcoming.





Map 5 - Distribution of caribou herds



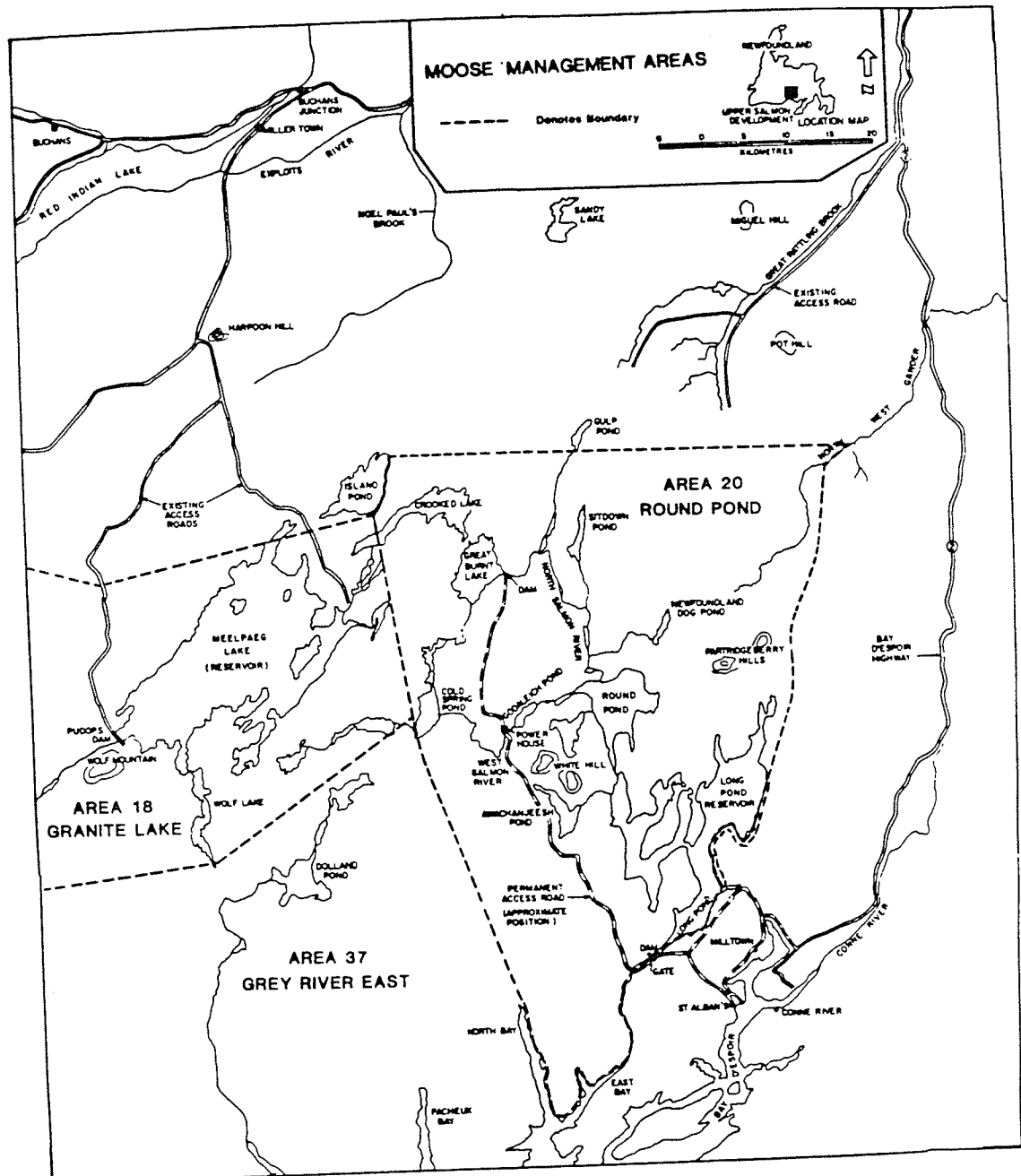
Map 6 - General seasonal movements of Grey River caribou

### 3.3.4 Problems of Public Use of Upper Salmon Access Road

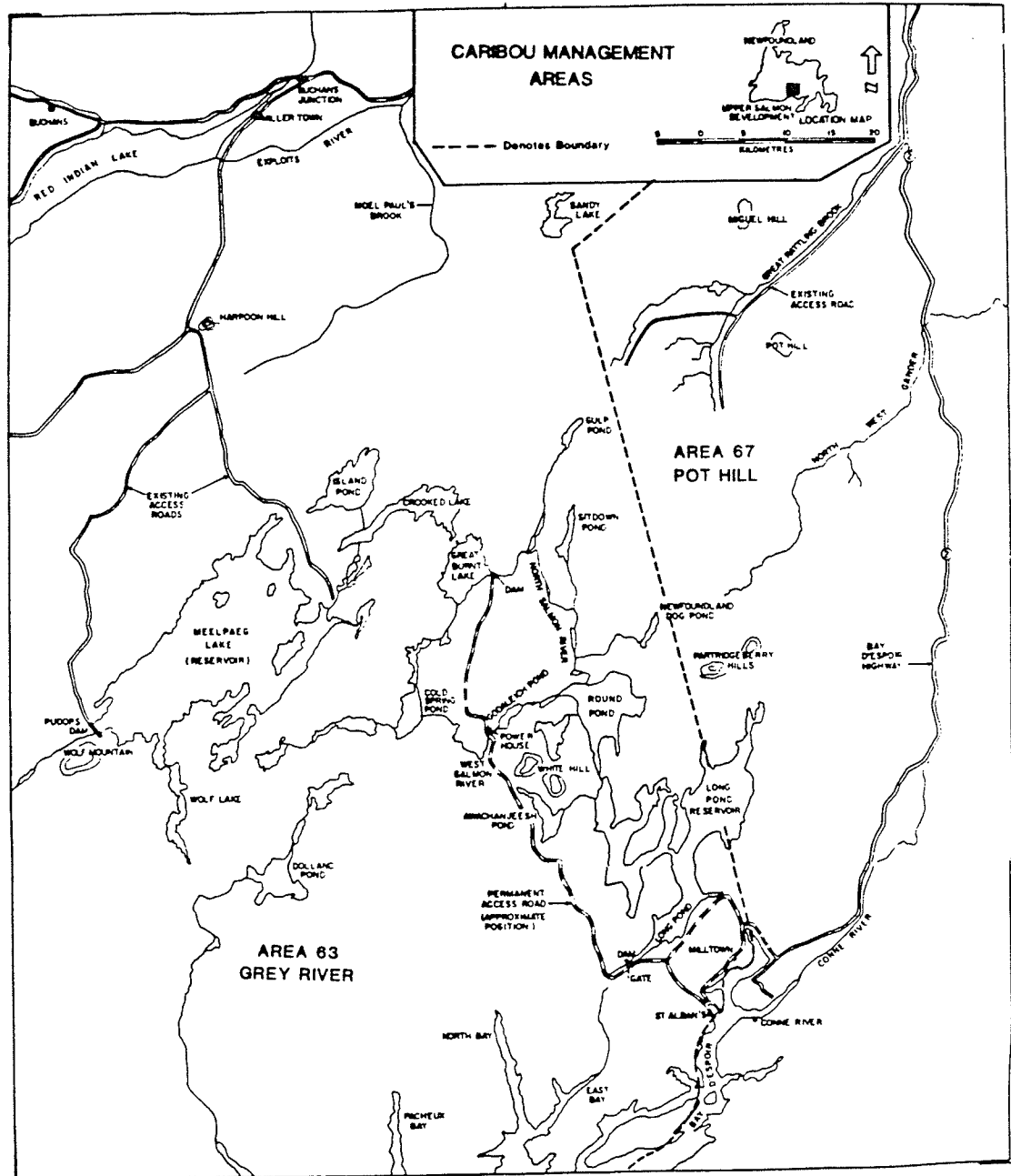
The Upper Salmon access road will attract a great number of users, especially hunters. The road gives direct access to Moose Management Area Number 20 (Round Pond) and to Caribou Management Area Number 63 (Grey River). Two other Moose Management Areas (Grey River East #37 and Granite Lake #18) are also accessible using all terrain vehicles or boats in conjunction with the road (Maps 7, 8). These last two areas and the Grey River Caribou Area are accessible by other roads but the Upper Salmon road is more convenient for hunters from the Bay d'Espoir area. The Round Pond Moose Management Area has no other road access.

The number of big game hunting licenses issued for these management areas in 1982 were: 250 in Area 63; 300 in Area 20; 500 in Area 37; and 420 in Area 18. The possibility of large numbers of hunters using this access road is easily seen.

The immediate effect of this hunter activity will be increased harvest. This may have to be counteracted by issuing fewer licenses. However, less hunters would then enjoy the hunting experience. In 1978 the Grey River Caribou Area had a hunter success rate of 67%, 268 animals for 400 licenses issued. This rate is above the provincial average. It is of note however, that the number of licenses for 1982 was only 250; less than the total kill in 1978.



Map 7 - Moose management areas



Map 8 - Caribou management areas

The adjusted license quota was in response to herd requirements and the possible impact of the project and access road.

The area will also attract hunters and trappers seeking small game and migratory birds. Winter snaring may become popular because the access road is easy to travel. The populations of all wildlife species, with the exception of caribou and snowshoe hare, are low. These populations could be severely reduced or eliminated from the area.

The immediate concern of improved access are a reduction of animal numbers but there can also be more subtle effects on animal populations. The increased road related activity will disrupt the normal behaviour of wildlife populations as the road is in the middle of the caribou migration route. Such disturbance may force the caribou to choose less favourable routes, or to not migrate thereby decreasing their range. The carrying capacity of the existing habitat could be severely altered by increased grazing pressure. Long term effects of such disturbance have not been definitively established but population declines could result.

The road also passes near rutting areas, calving areas and post-calving aggregation areas, such areas can be reached easily by all terrain vehicles. Disturbance in these areas could result in decreased conception and

decreased calf survival; both would eventually lead to herd decline.

Public use could have commulative effects beyond those caused by the project itself. Disturbed animal populations and terrain may not reach a new natural equilibrium if public use is superimposed immediately after project completion. Substantial expenditures have been undertaken to mitigate terrain, vegetation and wildlife disturbance during the project. These could be wasted if public is permitted to use the area before vegetation is reestablished, thereby delaying or negating habitat regrowth.

Fish populations are not likely to be severely affected. Fishing pressure should not reach intense proportions because of the remoteness of the area. Upper Salmon area as a traditional trapping area may cease to exist. Though the project itself will cause most of this disruption, public use will further disturb any adaptation of animal populations to their previous habits in the area.

There are also conflicts which have arisen among the various resource agencies and heated disputes have been exchanged. Resource protection and enforcement staff in the Upper Salmon area will acquire larger areas thereby straining both their own capabilities and those of their budgetary constraints. These concerns were most prominent

for the Wildlife Branch because of the increased need to monitor the Grey River caribou herd. There is also a question of public safety on two accounts. It must be determined who would be liable for public safety on the access road and thus have the responsibility for this road's maintenance - another budgetary concern. No official documents support this responsibility. Responsibility for public safety around the hydro structure because of fluctuating water conditions need also be determined.

The conflicts associated with public use of access roads are difficult to resolve. Firstly, public use occurs before a management plan. Secondly, patterns of public use are difficult to control once they are established. Thirdly, the responsibility of the various resource agencies are not defined with respect to access roads and their use.

#### **3.3.5 Present Management of Public Use on Upper Salmon Access Road**

The public is not permitted to use the Upper Salmon access road for reasons of public safety and as a mitigating factor against environmental impact. This restriction is enforced by security personnel at a gate house near Long Pond Reservoir (Map 3). However, people do circumvent the gate by walking overland and then get rides from workers. This behavior was especially evident during hunting season. In winter the gate is easily circumvented on snowmobiles.



One problem was a temporary trailer camp for workers' families established near West Salmon River. These families are the general public, as were the employees when off duty. Thus, these people had privileged access to the area's resources, a point not well received by general public.

Construction is now complete and the public are still not permitted to use the completed road. Some areas of the road were opened to hunters in 1983. A discussion on the future of the access road and public use of it is expected after several studies on the development and its impacts are complete.

### 3.4 CONCLUSION

Public use of access roads has implications for many resources and their managers. The conflicts of public use are multidimensional, and include (1) perceptions of a decline of areas in their natural state, (2) reduction in economic viability of developed resources, (3) over-exploitation of resources, (4) incompatibility of recreational and commercial activities, (5) public safety and increased economic strains to meet public need for better recreation amenities. These conflicts have broad environmental consequences for habitat and wildlife, soils and water, visual perception, recreation opportunities, cultural and traditional displacement as well as economic overtones. The case study illustrates the concerns and

reinforces ideas - the multiple use versus single use of access roads and the lack of planning and coordination of resource use before construction of access roads. Each resource agency determined its own approach to public use of the road. No responsibilities with respect to public use were defined.

While some effects of public use may be of concern at all times (public safety); others may be of major concern only at certain times, disturbance of caribou during calving and migration. The resolution of these conflicts, while requiring definition and designation of responsibilities, do not lend themselves to single approach as per a single agency or single resource use. Conflict resolution also need not negate the benefits of public use of access roads.

Before final policy development the experience in other jurisdiction needs exploration. This exploration will identify policy options for public use of access roads in Newfoundland. Other Canadian jurisdictions are reviewed in Chapter Four.

## **Chapter IV**

### **REVIEW OF POLICY IN OTHER JURISDICTIONS**

#### **4.1 INTRODUCTION**

Information was received from six provincial and two territorial jurisdictions in sufficient detail to be presented (Appendix B). The correspondence inquired about access roads within the jurisdictions, conflicts which occur and how such conflicts were addressed. Also jurisdictions were asked to identify their policies concerning public use of access roads.

#### **4.2 YUKON AND NORTHWEST TERRITORIES**

Access roads are sponsored by various private and public agencies for the development of natural resources. The public has the right to use all access roads on public lands. Various conflicts are evident. These conflicts include increased hunter access and high kill rates, destruction of sensitive wildlife areas, and increased government costs associated with law enforcement and maintenance.

The resolution of these conflicts is left to the respective agencies and in most cases each conflict requires

individual address. For example, the wildlife staff in N.W.T. have developed legislation to establish no hunting zones within 1 kilometer of access roads in order to reduce the caribou kill. No formal policy exists with respect to public use though the issue is under active discussion in several resource agencies.

#### 4.3 NOVA SCOTIA

Access Roads are under the control of the Department of Lands and Forests or paper companies. The public uses government roads on Crown Lands while paper companies may gate their roads to prevent access under authority of their resource development agreements. Resource conflicts include theft, vandalism, road damage, fire hazard and danger to public and workers. Conflicts are generally addressed by the respective resource agency involved and resolution may include many approaches. Developing new regulations and increased enforcement are widely used. Restricting public use is used at times. Closure of any road for varying periods of time is handled within each forest district at the discretion of the District Manager of the Department of Lands and Forests. Each district has its own operating procedure with respect to closing access roads, and these districts vary in their sensitivity to conflicts. The District Manager receives input from departmental staff and those agencies which may have concern. Criteria to

determine whether a road should be closed are not rigidly defined, but relate generally to staff interpretation of damage costs, wildlife disturbance, and public safety etc. Public sensitivity and pressure, and the opinion of central headquarters, both being of political nature also affect decisions. Political feasibility is a large factor in all road closure decisions and sometimes makes it difficult to close roads. Closure is particularly difficult during hunting seasons. No public notice of closure is required and gates are closed by district staff.

To date no policy exists to manage public use, and though problems exist, there is no concerted effort to formalize policy.

#### 4.4 NEW BRUNSWICK

Access roads are in the domain of the Ministry of Natural Resources which is responsible for access to, and travel on, Crown Lands. Access roads, constructed by government and private companies, are of two designations, under the Crown Lands and Forest Act (S.N.B. Chapter C-38.1) - forest roads and logging roads.

1. A forest road is a road on Crown Land but does not include a highway as defined in the Highway Act or a logging road. Forest roads are primarily for forest extraction but have other uses such as recreation, mineral access, environment protection and forest management.
2. A logging road is a temporary road within a timber harvesting area of Crown Land built solely for the

extraction of timber. These roads are built to standard of the licensee for his use and not other users.

The public has rights to use forest roads by virtue of the roads presence on Crown Lands. Public may also use logging roads if the logging company permits.

Forest roads may be closed by the Minister of Natural Resources to any person for all or any part of the year. The Minister is responsible to post and erect signs and barricades to indicate roads are closed to travel. Such signs state the reasons for and duration of closure. Notice of closure must also be published in newspapers of local circulation. In an emergency (e.g., washout) site notification is adequate. Restricting public is not used often.

There are forest management plans and legislation pertaining to access roads and public use, but no formal policy addresses the public use issue. In general, roads on Crown Lands are open to public use and as such are considered in resource planning, i.e., big game harvest strategies. The extent of consideration depends on the particular department.

#### 4.5 ALBERTA

Access roads are authorized through a License of Occupation issued in favour of the resource firm (Alberta Regulation 448/81). The public has right to use access roads authorized by the license and traditionally has done so. Other commercial users must reach an agreement with the licensee.

Conflicts arising from public use include a disregard for road signs, increased costs for maintenance and recreation facilities, and increased cost to industry to build roads which meet public use standards. Disturbance by humans has moved animals from areas with good habitat. Erosion caused by off-road vehicles, and vandalism to equipment are also common.

The address of the conflicts varies. It is hoped that most conflicts can be resolved before they occur and to this effect a government land approval system evaluates all land use proposals. The land approval system provides a forum for all resource agencies to discuss the effects of land use and then makes recommendations. Other means to resolve conflicts are more specific, for example sanctuaries or designated routes may be established where animals can not be hunted. In some cases, legislation is upgraded to prevent certain land uses. Also used are educational programs to make the public aware of possible conflicts.

Restricting public use of access roads is used, but only in very specific and/or exceptional circumstances where a land use area has natural features in need of protection such as:

- critical wildlife areas
- areas of historical significance
- ecological reserves
- high erosion areas or
- protection of equipment.

While the public restriction of access roads is permitted by the Minister in agreement with License of Occupation holder, the usual method is to issue a Mineral Surface Lease. Such disposition leases include the road area, and put onus on the leasee to keep the public out by using gates and/or guards. Other means to keep public out include ditching, barriers, or other obstacles on the road.

There is no overall policy in Alberta to deal directly with public use, and little authority is being exercised in controlling public use of access roads. Past approaches were poorly organized but the various departments are improving their approach to the public use issue. However, the restriction of public use remains a highly contentious and politically sensitive issue in the Province of Alberta.



#### 4.6 SASKATCHEWAN

Resource access roads are under the jurisdiction of the Department of Tourism and Renewable Resources. The forest regulations state that the public has right to use access roads on Crown Land, even privately constructed roads. Public use of access roads is traditional.

A number of problems arise from public use. A major conflict is the increased hunting pressure, both legal and illegal, on moose populations. Other conflicts include demands for increased services and maintenance, public safety, perceived deterioration in natural resource base and disruption of traditional land uses.

The approach to resolving these conflicts has taken many directions. In some cases specific regulations and enforcement are used. Users are sometimes diverted to less sensitive areas by better maintained roads, and better facilities. Road location guidelines help alleviate future conflicts in sensitive areas. Conflicts are also addressed via discussions in interagency meetings with final decisions left with the Minister of Tourism and Renewable Resources. Education of the public is seen as a priority by wildlife personnel.

Restricting public use is not yet a widely used technique. Private companies can only restrict public use of access roads with consent of the Minister. The Minister

may restrict public use for protection of forest. Various agencies are experimenting with road closures or road removal but this is by no means prevalent. If such experiments reduce conflicts, it may be extended to all government agencies.

However, the problem of public use is an active one in Saskatchewan. It is the intent of government to formalize public use policy.

Specific guidelines are being developed for access roads. Public use of these access roads will generally be unrestricted. However, there is recognition that public use is not always beneficial and as such some roads may need a level of user control. Public use restriction could be used where:

1. emergencies exist or if public safety is in jeopardy
2. such action can be utilized as an effective technique in management and utilization of resources
3. such action can be utilized to maintain a desirable recreational experience
4. existing facilities or resources may deteriorate as a result of unregulated public access and
5. maintenance of future flexibility for resource management is required

Much work to develop any criteria and outline procedures is to be done before policy is implemented. It is recognized that decision making in this policy on public use must be based on integrated management considerations. Such

decisions will occur in a forum having representatives from all resource agencies.

#### 4.7 BRITISH COLUMBIA

This province has an extensive system of access roads built by government and private companies. Both sponsors have developed programs of road identification and designation with respect to public use. The public may use company roads subject to the road's designation; roads may be open all the time, at certain times or not at all. This designation system has authority under the Industrial Transportation Act (R.S.B.C. 1960, C. 192). Access roads on Crown Lands have two designations: Forest Service Roads under the Ministry of Forests and nonstatus roads for which authority has not been clarified. The latter roads are open to public use as specified in their Forest Policy.

Conflicts from public use are addressed according to their nature within the mandate of the respective resource agency. In some cases, specific regulations are developed through the concerned agency (e.g., motorized traffic not permitted for hunting on specified access roads). In other cases enforcement is heightened and occasionally new programs are developed. Restricting public use is also used to alleviate conflicts.

Any company access road may be closed to public use at the discretion of the company's Divisional Woodlands Manager for reasons of safety, or protection of property and resources (Industrial Transportation Act, R.S.B.C., 1960, C.192). Forest service roads may be closed by the Regional or District Manager of the Ministry of Forests where public safety, or the integrity of environment and property is in question, and where planned use of forest and range resources is jeopardized. Authority for this closure is Regulation 278/81 (Forest Act R.S.B.C. 1960, Ch. 153).

Decisions on closure receive input from various branches of the Ministry. The criteria for a decision related to evaluation of ongoing departmental practice. Methods of closure are to gate or to post signs and public notification of the reasons for and extent of closure. Forest service roads may also be closed to public use by agencies other than the Ministry of Forests where another agency can show road closure is required for administration of that agency's resource. These agencies must ensure prior discussion with other user agencies and must assume all related costs.

While non status roads have always been open to public use, a major concern among all government departments is liability for safety and proper maintenance. In light of these concerns access to these roads may be restricted in future.

Managing public use of access roads is well developed in British Columbia through written policy and government regulation. In practice roads are open to the public, subject to restriction under certain circumstances. In some cases permanent removal of road may be used where there is no foreseeable use.

#### 4.8 ONTARIO

Access roads on Crown Lands must be authorized under Public Lands Act (R.S.O. 1980, C 413) and are defined in the Act as three types: private forest road, public forest road, and undesignated roads.

1) A private forest road is a road exclusively occupied under the authority of a document issued under Public Lands Act or its regulations.

2) A public forest road is a road other than a private forest road that is designated by the Minister as a public forest road.

3) An undesignated road or part of a road on public lands but does not include the King's Highway or a secondary highway, a tertiary highway, a resource road or an industrial road designated under the Public Transportation and Highway Improvement Act or a road under a statute labour board or a local roads board.

The public may exercise right of passage on undesignated and public forest roads (Public Lands Act R.S.O. 1980, C. 413, S. 46). The public has no right to use a private forest road except where the Minister has entered into agreement with the occupier of the road under authority of a

document of the Public Lands Act. Such agreements usually exchange a sharing of construction or maintenance costs in return for public use privileges. Other private forest roads may be open to public use as a public relations gesture.

A wide range of conflicts occur in Ontario. These include resource depletion, loss of wilderness, public access reducing economic viability of remote tourist establishments, safety on commercial roads, increased maintenance, problems in apportioning the costs among the costs among various road users and public - commercial traffic conflicts.

The means to address these conflicts range from road planning to decrease conflicts before they start, to road removal after use is completed. Road planning is a component of Land Use Plans which detail how resources are to be developed in specific areas of the Province. Such plans are reviewed by all resource agencies. Other conflicts are addressed by specific regulations such as seasons, bag limits, technology control and ongoing enforcement programs. Education and public participation are also used as methods of reducing conflicts.

Public use may be restricted on access roads. On undesignated road access may be restricted by the District Manager (Public Lands Act, S. 46). The District Manager

can, at his discretion, restrict use of public forest road (Public Land Act S. 49) though their powers are not used widely. A private forest road can only be restricted by the District Manager where that road is allowed to be used by the public or in case of emergency. Private forest roads not under agreement are closed to public use; the responsibility to prevent public use being with the occupier. Authority exists with the District Manager of Natural Resources to restrict public use of access roads but it has not been used widely except for safety and road protection.

The issue of managing use and users, particularly public use, is presently undergoing much study in Ontario. The Ministry of Natural Resources is responsible not only to plan road needs but also to limit use when warranted. To this end a draft report has been developed by Ministry personnel. Several factors are recognized as essential for consideration when planning and managing use:

1. public access requirements
2. all natural resource uses
3. public and user group input
4. environmental concerns
5. maintenance costs
6. intended life span of the road
7. limiting certain user groups

8. temporary closure and
9. permanent removal of road.

Actual restricting use of access roads is considered necessary under a variety of circumstances:

1. dangerous road or weather conditions
2. high maintenance costs
3. roadbed protection
4. road need ceased
5. protect ongoing management program -- research and aerial spraying and,
6. redirecting resource use

To assist Ontario's program for managing use of roads, guidelines and procedures have been developed for restricting use of access road, for issuing approval for access roads and for planning user controls into road plans. In all guidelines public use is considered an important benefit of access roads and public support should be sought. Where restricting use is to occur procedures and a time frame are established. Such restriction requires a proposal stating pros and cons of any alternatives, coordination with Land Use Plans, notification of public, public input and proper signing of roads. These plans also detail methods of closure, enforcement and penalties. In future approval for access roads will stress public right of use and terms under which roads can be restricted but only with approval from District Manager.



While this public use management plan is not fully active as yet, the Ministry has some experience with restricting public use. This experience indicates that enforcement is expensive in staff time, that signs must be highly visible and that public dislikes restriction especially where traditional use has been in effect.

To finalize and issue public use policy, several factors must be recognized: public right to access is a benefit; unrestricted use is not conducive to effective and efficient management of resources; public use policy must be integrated into Land Use Plans and that the public's role must be recognized and supported.

#### 4.9 CONCLUSION

Most jurisdictions surveyed recognize access roads in their legislation either through a road definition system or through documents authorizing the building of the roads. Jurisdiction over access roads is thus established in name of a government department.

All jurisdictions have unrestricted public use of access roads on Crown Lands. This public use is either guaranteed through legislation, in departmental policy or taken as a public right to use public lands. Though this open use policy prevails, resource managers in all jurisdictions recognize that problems can and do exist because of unrestricted use.

Resource managers in the jurisdictions address these problems in a variety of ways. Many of these approaches apply specific techniques for specific conflicts. These specific techniques include legislation or regulation, enforcement and education programs, or using permits for resource use. In some cases the approach to conflicts is to use integrated resource management decisions where various resource agencies coordinate their resource use plans in an attempt to alleviate conflicts prior to implementation of these plans. Restricting public use of access roads is used in some cases. Several jurisdictions have legislative authority to restrict public use. Such restricting authority varies from complete closure to partial or temporary closure. Public use restriction is unpopular and difficult because of public pressure and political overtones. Because of public opinion, limitation to public use is seldom used.

Though public use of access roads is an issue in all jurisdictions, there are varying degrees to which the issue has been addressed in formal policy. In some jurisdictions (e.g., Yukon) there is no policy and resource agencies are left to their own devices to resolve conflicts. Several jurisdictions (e.g. Ontario, Saskatchewan) are presently developing public use policy a component of their integrated resource management plans. This policy format endeavors to establish rationale for public use management, to select

criteria for decision making, and to set procedures and to form guidelines for implementing policy.

Though policy has not been formalized to the implementation stage in any jurisdiction, the review indicates major points which affect policy. Jurisdiction over access roads is established in many jurisdictions, including a road designation system. Public use of access roads is accepted practice which is indicative of the benefits of such use. Conflicts are mostly addressed by the respective resource agency with specific means. Public use restriction, though available by legislation is not widely applied. There is recognition that public use restriction could be used more often within an integrated approach to resource management. There is also strong recognition that public use and the resulting conflicts are best addressed prior to road construction. This point reinforces points made by the Case Study in Chapter 3.

The experience in other jurisdictions can be applied to the Newfoundland situation and help guide policy to meet the needs of the Province. A discussion of policy options is presented in Chapter five.

## Chapter V

### POLICY OPTIONS FOR NEWFOUNDLAND

#### 5.1 INTRODUCTION

The purpose of this chapter is to review selected policy variables. Goals must be defined to establish what is to be accomplished by policy. Evaluation criteria must be established to guide various policy approaches. A range of policy alternatives need be identified. Implementing policy will require definition of who shall be the decision makers for and deliverers of policy. Defining these variables will establish the limits in which policy makers must formulate the policy for public use of access roads. With all choices of alternatives explored the best alternative for Newfoundland can be determined.

#### 5.2 POLICY GOALS

Goals define what is to be accomplished by a policy. Typically the goals of public policy tend to be multiple and vague which is often questioned by the policy players.

Goals may follow directly from a specific problem statement but most often goals are difficult to identify (Edwards and Sharkansky, 1978). Policy makers do not always

agree on goals, or, if there is agreement, the goals may be prioritized differently by each policy maker.

Ideally, goals are expected to be coherent, and with clear priorities because ambiguity provides less guidance as to what specifically is to be done (Ingram & Mann, 1980). Well articulated policy goals provide the necessary framework for designing appropriate and consistent regulations and administrative procedures (Pearce, 1982).

Conversely, using vague goals has its advantages for policy makers. Vague or ambiguous goals decrease the accountability for the results of policy, especially if such results are poor, or discriminate against certain segments of the population. When policy results are unacceptable to the governed, ambiguity of goals permits the easier change of policy at a later time. Vague goals can also decrease opposition to a policy, because the various actors may not see themselves as losers when policy allows them to form their own conception of the goals' intentions (Edwards and Sharkansky, 1978). Public servants may favour general goals because of the flexibility and discretion it allows them in defining policy content. In many programs goals tend to be broad, vague and offer little direction.

Most areas of public policy have common goals, e.g., "for the public good" (Edwards and Sharkansky, 1978). Natural resources policies also show similarities in goal content. The following list of policy goals were considered.

1. **Policy should ensure that resources are used at optimal levels.**

This often quoted goal proposes to use all resources in a manner which maximizes the benefits at given costs, or minimizes the costs of achieving certain objectives. In terms of access roads, there are many resources affected by public use and though there may be detriment there are also benefits of this resource use. In this goal, benefits could be measured as amount of recreation achieved, amount of firewood used, big game success; while costs could include factors such as decrease in wildlife population, cost of road repairs, and forests' value lost by careless use of fire. The key point is to balance the net benefits and costs so that the greatest overall net benefit is achieved.

2. **Policy must encourage resource protection and conservation.**

This is a perpetual goal for policies concerned with renewable resources. The main idea is to encourage use of resources at a level where the resource can replenish itself and permit long term use. This goal should be measured for the specific resource in question, i.e., recruitment to wildlife population, sustainable yield of forest products, or quantity of fish biomass and population - age

structure. The key would be to allow use of the resources so they can be enjoyed yet without the threat of overexploitation.

**3. Policy must encourage Social and Cultural Development.**

Often resource use follows a pattern related to the lifestyle of peoples in a region. A goal of social and cultural development would strive to preserve the pattern of use to which people in the region have become accustomed. Such a goal is difficult to measure and evaluate in terms of its worth to specific peoples, but in terms of access roads it can be said that public use is an established part of Newfoundland recreation and domestic life. An attempt to measure the value of this lifestyle could be to study the uses of the access road and assessing the value of resources harvested, for example, the value of firewood, hunting and trapping. Also because access roads allow for larger harvesting tools the effect of these tools must be measured, for example snowmobiles versus walking, chainsaws versus handsaws.

**4. Policy should increase benefits to citizens.**

This goal strives to maximize the benefits to all citizens. Inherent in this goal is a tradeoff between local, regional benefits and benefit of all citizens as a whole. Measurements of this goal could include savings of tax dollars, increase of recreation opportunities, and increased taxes generated by resource development; all of these benefits are available to all citizens versus those which are regionalized.

**5. Policy should be flexible and adaptable.**

A policy which is flexible and adaptable prepares policy implementors for changing conditions and unforeseen circumstances that may require a different situation. It is also a preventive measure in that it avoids the use of reactive changes that may severely weaken a policy's direction and momentum. Realizing the variety of issues surrounding public use of access roads, a policy shall strive to be applicable to the variety of situations that may arise.

The foregoing list of goals is general and shows the wide range of concerns of public policy. No list is ever exhaustive or appropriate for all resource situations. Indeed such lists may state goals which cannot be fully



achieved e.g., maximizing regional benefits requires costs to other citizens and so brings a conflict of goals. Measuring goals is also difficult e.g., cultural development. In practice the tradeoff between goals is inevitable, not only within the same policy but also across different resource sectors.

While broad goals may be appropriate to all natural resource policy, specific goals are also required if policy is to provide guidance to decision-makers. Choosing specific goals for policy on public use of access roads is difficult. As evidenced in chapters three and four, the nature and source of conflicts encompasses a spectrum of resources and concerns from many interest groups. Policy goals must appreciate this diverse nature.

The foregoing discussion and general list of policy goals are a framework for developing goals for "the public use of access roads" policy. Specific policy goals for policy on public use of access roads are defined in Chapter Six.

### **5.3 EVALUATION CRITERIA**

Criteria are standards on which to evaluate policy options and by which to find the optimal approach to a perceived problem. Some criteria are rather nebulous or are hard to measure, for example, justice and public interest (Edwards & Sharkansky, 1978). Other criteria lead to

different conclusions in different situations. Criteria need not be wholly independent and often interact to give final evaluations (Clawson, 1980). Criteria can also be under constraints of time or limited resources thereby limiting the number of options available for consideration. Different decision makers will weigh each criteria differently.

In the past, a few simple criteria were considered, for example, cost and technical feasibility. Now, there are a wide variety of criteria for consideration and on which to base a decision; physical and economic impacts, timing, politics and public responsiveness are examples. For the case of public use of access roads, the criteria on which to judge the issue will have many origins because of the many resources involved and the range of the implications of public use. To balance the different effects of public use requires valid and workable criteria on which to evaluate policy options.

Marion Clawson (1980) has formalized a five part framework for analyzing natural resource policy which is useful for evaluating the options for the case at hand. Though it is composed of broad concepts the framework includes a range of criteria that are available for consideration. Each component of the framework can be further refined and detailed to fit the particular case of public use of access roads. In this way policy makers can

deal with a narrower range of questions and gather specific information to evaluate the various policy options.

The five components of Clawson's framework for resource policies are listed below:

1. **Policy should be biologically and physically feasible.**

The question is whether it is possible to implement a policy decision, and what are the consequences of such action. In terms of the conflicts from public use of access roads, will policy ensure that the chosen approach addresses the conflicts sufficiently and in an effective manner? For example, can wildlife populations be sufficiently protected under the new policy or does policy outline methods which are too costly to enforce? Can a road bed be protected if a road is allowed to remain open to public use? Can harm to resources be prevented with unrestricted use of access roads?

2. **Policy should be Economically Efficient**

Are the benefits of the policy achieved at lowest cost? Generally, it is preferred to maximize benefits for a given cost, and benefits are expected to outweigh the costs. Benefits and costs should be quantified though this is often difficult. Benefits

from policy for public use of access roads include savings due to less road maintenance costs, increased recreational opportunities, while costs would be related to enforcement, maintenance and lost revenue from resource damage.

**3. Policy should be economically equitable.**

This criteria attempts to evaluate the distribution of the benefits and costs of a policy. It attempts to designate who pays the cost and who receives the benefits. Measurement of this criteria would define which groups are affected by policy on public use of access roads. Policy would differentiate whether it was the local people in the vicinity of access roads or the general public at which are affected. Are hunters or recreationists discriminated against? Do commercial organizations gain control over public activities? Policy must recognize the various groups it will affect.

**4. Policy should be socially and culturally acceptable.**

Policy and its consequences must be accepted by the public and fit into societal patterns. In the case of public use of access roads, this use has an established base of support with the public for many activities both domestic and recreational. Policy

must be conscious of this use and the tradition that has prevailed. While this criteria is difficult to measure it most certainly can be evident when policy produces public outcry. Changes in this traditional use of the land or emphasis on restriction will make policy difficult to accept.

**5. Policy should be operationally and administratively practical.**

This criteria questions whether policy can be put into action and whether infrastructure and administration can be adapted to implement policy. It questions the bureaucratic incentive, political sensitivity and other parameters which produce a favourable environment in which policy is to work. Measuring this criteria would define allocation of resource lines of communication, and enforcement.

Many criteria may be used to evaluate policy and these criteria are not necessarily complementary. Criteria can be difficult to define in precise terms (e.g., recreational value) and criteria may be prioritized differently by the decision makers. Clawson's framework for analyzing natural resource policy will be used for selecting policy for public use of access roads. The description of the recommended policy and its adherence to Clawson's criteria are presented in Chapter Six.

#### 5.4 POLICY OPTIONS

For the immediate case of public use of resource access roads and the conflicts that may arise, there is a continuum of policy choices available ranging from open public use of access roads to complete closure of access roads to public use. Bureaucratic rivalry or parochial thinking produce options that have single minded orientation. Policy players have their own interests, points of view, needs and demands (Edwards and Sharkansky, 1978).

Policy options may be generated from within an organization or be taken from the experience in other jurisdictions. Policy options should provide a range of ideas for consideration. Extreme policy stances may be impractical and therefore represent no choice, however, the development of such options yields useful information for policy makers and lends valuable insight into moderate approaches.

The range of policy options from complete restriction is to unrestricted public use evidenced by the review of policy in other jurisdictions. The Northwest Territories has open public use policy, however Ontario and New Brunswick practice some closure of access roads to public use. In Newfoundland the continuum of options for public use will be divided into four options for convenience of explanation: 1) unrestricted public use or the status quo, 2) enhanced

status quo, (no restriction of access roads), 3) temporary closure, and 4) total closure to public use.

1) Unrestricted Public Use on the Status Quo

The premise here is that access roads be open to public use at all times. This option results from the view that conflicts from public use are acceptable and there is no need to take specific action to resolve conflicts. This option, however, does not negate the fact that these conflicts are being handled. In the present Newfoundland situation there are various methods of addressing conflicts. The most obvious method, of course, is the enforcement of present regulations, e.g., hunting seasons, and wood cutting permits. Also more subtle means of decreasing conflicts apply. For example, letting access roads and bridges deteriorate so they are impassable to most vehicle traffic.

2) Enhanced Status Quo (No Restriction)

This option has a two point premise. First, the public should have unrestricted use of all access roads. Secondly, that the various resource agencies should initiate specific programs to decrease the conflicts of public use that affect their mandate. Thus, various departments should actively increase their present programs or implement new ones to deal with the conflicts.

There is a great range in the types of programs, both direct and indirect, which could be used in the Newfoundland situation. Educational programs could explain the nature of the conflicts of public use of access roads. Staff could be increased to monitor and enforce present regulations. New regulations can be defined, e.g., game preserves, and no cutting zones. New programs can be implemented which relate to access roads themselves, e.g. maintenance of fewer roads or road retirement. All these methods would attempt to decrease conflicts while access roads remained open to public use. This option will likely demand increased resource allocation.

### (3) Temporary Closure

Public use of access roads is again the main thrust of this option, but there is the recognition that conflicts can be alleviated by restricting public use on certain access roads. Closure would be on a temporary basis and could be varied in time and place to produce a flexible program.

Closure is practiced somewhat in other jurisdictions (Ontario) and has statutory authorization. In the Newfoundland situation, however, closure is not yet practiced except in very special cases (e.g., extreme fire hazard). This option would be considered a substantial change from the status quo and would warrant separate attention. The rationale for this option is that the



detriment from the conflicts is great enough to warrant the exclusion of the public from using certain access roads under certain circumstances.

#### (4) Total Closure

This option is extreme and proposes that the public use of access roads not be permitted. This option does not have any precedent in terms of handling all access roads within a jurisdiction but can be applied to specific roads, e.g., a road could be designated as closed to public use at all times. Such closure can also be permanent in that an access road can be eliminated by scarifying and revegetating it.

The four options as they are described do not necessarily represent independent policies. Varying circumstances may require integrating options. Policy for public use of access roads must consider the varying circumstances of use of access roads in Newfoundland.

### 5.5 POLICY IMPLEMENTATION

Policy implementation is translating policy goals into effective action. If policy cannot be implemented effectively, it will be difficult or impossible to accomplish the stated goals.

Three road requirements for effective policy implementation have been identified: communication,

resources, and disposition of the implementors. All three requirements are interrelated and have various aspects within themselves (Edwards and Sharkansky, 1978). Policy direction must be communicated, clearly, accurately, and consistently. Resources include staff of adequate numbers and training, sufficient funds and operational infrastructure. Also needed is information for decision making, and authority to carry out needed actions. Policy implementors must show the incentive and disposition to carry out policy, and possess the skills to do so.

Declaration of policy does not guarantee its implementation. Problems will arise when the three requirements cannot be met. Clarity of policy directions is not always possible when goals are vague. Problems often arise if implementors choose to ignore directions or if they do not agree with the policy; often the implementors feel they know best. There may also be political, social, or other pressures on implementors to depart from stated goals. Other implementing problems will arise if policy requires large changes in the existing conditions or if policy places strain on existing operating procedures and agencies. It is difficult to overcome the organizational inertia that tends to keep things as they are.

Implementation is a multidimensional task even within a single policy area. For public use of access roads the situation is further complicated by the nature of the issue.

Access roads are built by many different agencies, the ownership of access roads is undefined, and public use has implications for resources other than the one for which the particular road was built. These implications affect different resources' personnel and their efforts to manage their resources. This interagency effect of public use of access roads and the general vagueness with respect to access roads in Newfoundland tend to make implementation of policy a complex task.

There are many choices within the various parameters of the implementation task. Two parameters to be discussed here are policy instruments, which are the tools or means of the policy, and decision makers, who will carry out policy. Administrative considerations include lines of communication, resource allocations, performance indicators, control techniques, compliance measures, penalties, and operating procedures. The general thrust of these administrative considerations will vary with the choice of policy instrument and decision makers.

#### **5.5.1 Policy Instruments**

Policy instruments is a term used to refer to the working tools or means of policy and define the orientation or approach the policy will follow. Such instruments have been placed in similar categories by different authors and can be distinguished by the degree of coercion that is applied

(Seitz, 1978; Doern, 1979). A first group of policy instruments which rely on non-coercion are known as the exhortative approach. The exhortative approach depends on voluntary behaviour of the target group. It is hoped that the target group can be persuaded to exhibit or to refrain from certain behaviours. For public use of access roads these instruments would include educational programs about the nature of access road conflicts, advertising programs through the media to reduce public use of access roads during soft road or extreme fire conditions and even public speeches to gain support for particular policy or action.

A second group of instruments are more coercive and directed to generate behaviour change. An economic incentive or expenditure may be used to direct behaviour or encourage changes in behaviour. A user fee would be examples of such an instrument in access road policy.

The third group of policy instruments occupy the opposite end of the spectrum from exhortative approach. They are highly coercive and directed from authority to mandate certain behaviours. These instruments would be typified by governmental statutes and regulations. Closure of access road to the public using authority of government regulation is an example of these instruments applied to the public use of access roads issue.

Policy instruments are really a continuum from non-coercive to coercive. Care must be exercised when choosing instruments to assure that they are sound in theory, that they do what they propose to do and that they do not create further traps, for example, improper delegation of authority.

### 5.5.2 Decision Makers

Decision makers can be distinguished at various levels, political or bureaucratic, centralized or regionalized, and those making unilateral or multilateral decisions. Most of the decision making will occur within the bureaucracy, however, it is not likely that any policy will be entirely free of political activity, either by elected representatives, or within the bureaucracy itself. Whether there should be a mechanism to include the elected political arena is a question of debate. Some feel politics will only complicate the job of hard working civil servants, while others argue that politicians should be visible as they are ultimately accountable for policy and its consequences. In general policy matters, the civil service may remain aloof from the political realm but in the case at hand, policy could affect regular daily activities of many citizens as they enjoy their leisure time. It may be inevitable that politicians will be aware of and play a role in any policy that may affect these activities.

Matters of public policy implementation are usually formalized into routine procedures and are delegated to lower echelons of the bureaucracy and such decisions are for the most part decentralized to various regions or offices. For access roads, different policy directions will demand a choice between central and regional decisions. For example, if enforcement was to be increased this could be best handled at the regional offices where these routines are in place, but if closure was the preferred choice, decision makers may prefer a centralized decision because closure is a large change from the status quo. It may be preferred to have radical decisions handled by those decision makers close to the politicians. Some arguments favor regional decisions because regional personnel know local conditions best. Also coordination problems for central decision-making may be too great because of the greater area and numbers of people involved.

There are various possible alternatives for decision makers in a policy for public use of access roads in Newfoundland. The choice involving politicians is whether to use a single Minister of the Crown as overseer of policy or to use a Committee of elected representatives such as the Resource Policy Committee of Cabinet.

Within the bureaucratic level there are a multiplicity of choices for decision makers. The first of which is a choice whether the policy decision makers should be from a single agency or be acting through a multiple agency unit. Policy

may designate each builder of the access roads to have jurisdiction over the access roads it builds (i.e., Forestry Division responsible for their roads only and have their own policy), or policy may place jurisdiction over all access roads to one agency (i.e., Crown Lands).

If policy were to recommend a multiple agency approach there are various groups available. Existing options include Environmental Impact Assessment Panels, Interdepartmental Land Use Committee or other interagency advisory groups. A choice could be made to develop a new policy agent for management of public use of access roads.

The choice of decision-makers for policy or public use of access roads is important because of the diverse nature of public use itself but also because these decisions makers must accommodate the many viewpoints and be able to effect policy over this vast range of viewpoints.

## **5.6 CONCLUSION**

This chapter presented several parameters of policy. These aspects were policy goals, policy criteria, policy options and policy implementation. Within each parameter, a range of alternatives from which to choose were generated.

Several policy goals were considered. Policy should

1. encourage optimal use of resources

2. encourage resource protection and conservation
3. encourage social and cultural development
4. increase benefits to citizens, and
5. be flexible and adaptable.

Criteria developed by Marion Clawson were used to evaluate policy. These criteria state that policy should be

1. biologically and physically feasible
2. economically efficient
3. economically equitable
4. socially and culturally acceptable, and
5. operationally and administrationally practical.

Options to address the conflicts of public use of access roads are:

1. to maintain the status quo
2. to enhance the status quo without public use restriction
3. to enhance the status quo by temporary restricting public use
4. to completely restrict public use of access roads.

Policy instruments could range from coercive for example statutes or regulations, to noncoercive for example, public education.

Decision making could be either political or bureaucratic, regional or central located or within a single agency or multiple agency forum.



Within each parameter choices must be made. All choices have positive and negative arguments. The final choices will flow from completing the objectives and analyzing the conclusions recorded in this study of the public use issue. These objectives will be reviewed briefly in the next chapter before policy is recommended.

## **Chapter VI**

### **CONCLUSIONS AND RECOMMENDATION**

The specific objectives of this study have been completed and conclusions drawn. The first objective was to review planning, construction, jurisdiction of and responsibilities for access roads in Newfoundland. This review revealed that public use of access roads in Newfoundland provided many recreational and domestic benefits from that use. The situation is however less than ideal. Planning and construction of access roads is done from a single resource need and not from a coordinated approach to all resource use. This single use planning is contrary to the fact that access roads are multiple use roads. Also, jurisdiction over access roads in Newfoundland is unclear and leaves resource agencies with too much discretion as to the amount of responsibility they will accept with respect to the access roads the agency may build or use.

The second objective reviewed the conflicts which arise from public use of access roads and presents a case study of the Upper Salmon hydroelectric development to illustrate those conflicts. It was concluded that the conflicts from public use of access roads are complex issues with implication for all resources, resource agencies and the

public. The variety of these conflicts must be recognized in any policy to manage public use of access roads.

Policies on public use of access roads in other Canadian jurisdictions were reviewed as objective three. Completing this objective showed that public use of access roads, though mostly guaranteed, was an issue in all of the reviewed jurisdictions. Resource managers in these jurisdictions agreed that the issue was in need of resolution. There were many approaches in resolution of the public use of access road conflicts. Most approaches were implemented by the respective resource agency in conflict. Restricting public use was legal by statute and was used as an option, though there were mixed results as to the success of this means. No government policies on public use exist, though several jurisdictions were formalizing their management of public use of access roads. The role of integrated resource decision making was stressed as having an important role in resolution of public use issues.

Objective four was a discussion of policy parameters. The parameters reviewed were, goals, criteria, alternatives, and implementation. The discussion presented a range of options within each parameter. Goals stressed resource protection, societal benefits and flexible policy. Policy criteria stress biophysical feasibility, economic efficiency and equity, societal acceptability and administrative practicality. Policy options ranged from complete closure

to public use to unlimited public use. Implementation parameters stressed choices between coercive and non coercive instruments, and between single or multiple agency decision makers.

The completion of the first four objectives and the synthesis of their conclusions leads to a policy recommendation. Using chapter five as an outline for discussion, the remainder of this sixth chapter will define policy goals, policy criteria and policy statements.

I recommend the following policy for public use of access roads in Newfoundland.

## **6.1 POLICY GOALS**

Goals for natural resource policy were reviewed in the previous chapter. Specific goals for public use of access roads were developed in response to the conclusions of this study, as presented in the previous section of the chapter. There are six goals for this policy.

- 1. The first goal is to ensure least restrictive public use of the resources of the Province.**

There are many benefits from access roads. In addition to the economic benefits; employment, recreational and domestic benefits also accrue to the public from the use of access roads. This public use has become a 'traditional' aspect of life for many of

the Province's citizens. This goal ensures that benefits from access road use shall be available for the continued enjoyment of the Newfoundland public in as least restrictive manner as may be permitted by proper resource management. Only in specifically determined situations, as will be established by a coordinated decision-making body will restriction of public use of access roads be permitted. Such restrictive situations will and must demonstrate that alternative and equitable benefits will be gained by the public. Restriction of public use will be a conscious decision of government and not applied by a single agency.

The measurement of this goal may be inferred by the sampling of already existing statistics to ensure the public maintains a constant and traditional use of the resources. Such statistics would include, for example, requests from the public for hunting licenses, forest cutting permits, or fishing licenses. User surveys would also be applied to determine use patterns in specific areas which the public visits for their recreational and domestic needs. In addition, policy enforcers could also gauge public outcry, or lack of it, as an indicator of whether or not their policy encumbers the traditional public use of resources in the Province.

2. **The second goal is to reduce conflicts associated with public use of access roads.**

A wide spectrum of resource conflicts may arise from public use of access roads. This policy recognizes that there are numerous situations where public use may have a detrimental effect on natural resource management. This policy prescribes a mechanism by which such conflicts may be resolved. The reporting of such conflicts can be the measure of this goal.

3. **The third goal is to provide flexible and adaptable policy application to the varying nature of public use conflicts.**

Conflicts with the public use of access roads are varied in nature. This policy recognizes this variability and provides for alternative means of addressing such situations. Individual resource agencies can evaluate a situation and select a course of action appropriate to their management plans and budget. Coordination with other agencies is also possible. This policy realizes that a broad base of input is necessary for certain decision making situations and policy provides a forum for this input.

The number of programs implemented by each individual agency or by a committee representative of several resource agencies, i.e., Interdepartmental

Land Use Committee, can provide a performance indicator for this goal.

4. **The fourth goal is to designate responsibility for addressing resource conflicts.**

Implementing resource management policy requires that the personnel from each resource agency be aware of the goals of this policy and recognize their responsibility towards the successful implementation of the policy. This policy clarifies who should assess and define the resource conflicts; suggests various courses of action; defines appropriate decision-makers for each action; and assigns who is responsible for proper implementation of those decisions.

The success of this goal can be gauged by the number of occasions the Interdepartmental Land Use Committee meets and the outcome of such meetings.

5. **The fifth goal is to encourage coordinated planning for public use of resource access roads.**

This goal recognizes that public use of access roads is a legitimate concern and there is a need for a coordinated approach by all resource agencies to develop programs to deal with the effects of public use. This policy establishes a foundation for coordinated decisions on public use issues and encourages such decisions to become an integral

aspect of access road planning rather than an afterthought - the present situation. Success could be measured by the development of resource management plans in which consideration of public use is evident.

6. **The sixth goal is to foster protection and management of resources for the increased future benefit of the citizens of the Province.**

Benefits accrue to citizens of the Province through management of natural resources. To ensure these benefits continue, this policy recognizes the demands and conflicts which arise from multiple use of resources. In this sense the policy coordinates existing policy and programs which have been developed for resource management in the Province. It encourages the definition of concerns and development of programs as part of an overall integrated resource management plan. Mandating public use policy within the Interdepartmental Land Use Committee is evidence of this integrated approach. Success of this goal can be gauged by effectiveness of Interdepartmental Land Use Committee and cooperation of all inputting agencies.



## 6.2 POLICY CRITERIA

Five policy criteria developed by Marion Clawson were presented in the previous chapter. These criteria are again presented, but they are further defined with respect to public use of access roads. Clawson's criteria were not used as a rigid test of policy, but rather to direct choice of policy options.

### 1. Assurance of Physical and Biological Feasibility

Natural resource policy must always recognize the limitations of the biophysical environment in which it must operate, and policy makers should choose options which can be pursued under such limitations. This policy provides a range of programs that may be tailored to accommodate these situations. This policy allows for continuance of many of the existing management techniques that are shown to be feasible and which have been tested over time, for example, fishing seasons.

New programs benefitted by professional expertise within and outside resource agencies are also encouraged. Better knowledge and technology (e.g., radio telemetry, helicopters) increase the scope of approaches available to manage resources and reduce ill effects of public use.

## 2. Assurance of Economic Equity

An economically equitable policy attempts to ensure that those user groups who pay the costs of resource policy will also receive the benefits. In dealing with conflicts of public use of access roads, it is paramount that the source of the conflicts and solutions to them should not counteract or lessen the benefits that may accrue to other users. To meet this criteria, policy encourages resource agencies to develop and implement specific programs that address the particular conflict, resource affected and user groups.

Closing a resource access road, however, can affect many user groups. A decision to close a road will have multiagency input and such restrictive proposals will demonstrate the benefits to be gained by public, (e.g., better maintained roads by closure during soft road bed conditions).

In specific application, programs will define who pays the costs and who are the beneficiaries. In the case of fisheries protection it may seem that the taxpayer pays the costs while the fishermen gains the benefits. However, in long range analysis, it may be shown that better managed, fish stocks generate increased revenues to government, and thus would

decrease the tax requirement for the individual taxpayer. Programs must not only defines the payers and receivers, but also quantify the costs and gains to each group.

3. Assurance of Economic Efficiency

Resource policy makers must always be attuned that some costs must be borne in order to achieve desirable results. Given that each resource agency operates within the limitations of a budget there is continual effort to achieve maximum results within these financial and manpower allocations.

This public use policy gives freedom to each resource agency to choose its own means to address public use conflicts. Agencies may choose to deploy their resources in the manner they consider most appropriate to their individual agency needs; presumably they choose to be most economically efficient.

This policy also makes use of present government infrastructure, both for decision making and implementation of policy, thus eliminating further expenditures which may be required in establishing new departments of government or agencies to accept the public use mandate.

This criteria in specific decisions will require the quantifying of costs and benefits, although the benefits of resource policy can be somewhat difficult to measure (for example, the value of scenery). Examples of this criteria used in decision making would be the comparison of maintenance costs and possible savings when deciding whether or not to close an access road. Costs of wildlife and fisheries protection could be compared with the increased revenue generated from recreation.

4. Assurance of Societal or Cultural Acceptability

This criteria indicates the importance of considering people in any policy dealing with public use of access roads. This consideration, of political nature, must be addressed early or the policy is doomed from the start. Particular to this policy, the acceptability of this criteria will hinge greatly on the extent to which traditional access will be limited.

This policy has as a priority the public right to use access roads and as a major goal the continuance of traditional road use. Where conflicts are to be addressed, the policy will encourage direct programs rather than public use restriction. Many existing direct programs are already familiar to the public and are accepted by them (i.e., season limits).

Where public use is restricted, such restrictions will respect the public's influence, will show benefits to the public, and be least disruptive to traditional users.

In specific application such criteria can be gauged by amount of public outcry, and inferred from the sale of licenses, permits, or trends like hunter days.

5. Assurance of Operational and Administration  
Practicality

A natural resource policy, as with other policies, is only valuable if it can meet its goals. This depends on available expertise and information, politics of the local situation and the direction of the incumbent bureaucracy.

This criteria will encourage that the agency involved in the resource conflict be responsible for reducing the conflict, for example, wildlife managers would increase enforcement in response to decreasing caribou populations. In this way such programs can be implemented through an organization which is in place rather than requiring a new agency. Within the established agency are professional staff, familiar with the resource and its management. The staff will develop appropriate programs. Such programs can be

communicated within established lines and evaluated on an ongoing basis.

Restricting public use does present a challenge for effective delivery. This policy prescribes responsibilities and procedures to make it work. Decision making authority is held by the Interdepartmental Land Use Committee, which has multiple input and receives full discussion of positive and negative aspects of such restrictions. This forum lowers the resistance among the various resource agencies by keeping all agencies informed and will lead to a coordinated and mutually agreed upon plan of action. The actual restriction action becomes the responsibility of the proponent agency, thus simplifying its delivery.

Programs under this policy will be continuously evaluated by the respective agency staff. The practicality of the policy can be measured by willingness of the agency's participation and input to the Committee. In a more specific case of public use restriction, measuring the time frame from presentation of proposals to decision time and then to date of restriction start will indicate the ability of policy guidelines to deal with the situation.

### 6.3 ACCESS ROAD JURISDICTION

At present, the operating environment of access roads in Newfoundland is an unstructured one. One aspect of this environment is the vague jurisdiction over access roads on Crown lands. Jurisdiction is hereby defined as a necessary part of this policy. Access roads on Crown Lands will be under the jurisdiction of Crown Lands Act which is administered by Crown Lands Division of the Department of Forest Resources and Lands. The access roads are on Crown Lands and their presence is a land use issue. Also, the Interdepartmental Land Use Committee, decision maker for public use under this policy, is a body established under this Minister. Most roads are already under this Minister's mandate through forestry development. The Crown Lands Act will have ultimate jurisdiction.

The jurisdictional question is, however, complicated in that all resources, which are used because of public use of access roads, do not have the same Minister, for example, a Minister of Natural Resources. Much debate concerns the jurisdiction of access roads and the rights of resource Departments affected by road programs under various Ministers. This diversity of interests demonstrates the need for a reasonable approach to the jurisdiction of access roads with respect to public use. To achieve cooperation among resource agencies, integrated resource decisions are sought rather than use autocratic jurisdictional

implementation by Crown Lands Branch. To program toward this cooperation a road designation system is used.

#### 6.3.1 Designated Resource Access Road (D.R.A.R.)

Access roads in this category are roads in the current inventory of a resource agency, or roads the agency may wish to designate for their mandate. A resource agency which has interest in a particular access road will apply for a Permit to Occupy, to have that road designated in its name by the Crown Lands Branch through Interdepartmental Land Use Committee. Such permits will enable said agency to have direct authority over access roads in their ongoing resource programs. Conditions for such Permits will be determined in conjunction with relevant resource personnel, Crown Lands Branch, and the resource agency in question. Such conditions will consider needs of the designated agency, responsibilities of the agency, standards, availability to other commercial users, road location, etc. Public use of these roads will be guaranteed as a condition of Permit.

This arrangement recognizes the Minister of Forest Resources and Lands as having overall jurisdiction over Crown Land use, yet delegates authority to various agencies which have specific committed interests in roads. Each agency will handle routine matters relating to designated roads as part of their ongoing programs, excepting public use issues. By virtue of the Permit to Occupy, the



permittee shall agree to be liable for the road, to maintain roads and to meet other conditions of the Permit. These responsibilities fit well into the present scheme where resource agencies have maintenance schedules for their roads on a priority basis geared to budgeted resources.

In future, after roads have fulfilled their purpose, they may become undesignated by relinquishing the Permit to Occupy. The conditions for relinquishing the Permit will be determined during the granting mechanism and may, in some cases, include removal of the road.

#### **6.3.2 Undesignated Resource Access Roads (U.R.A.R.)**

This category will include all access roads not authorized by a Permit to Occupy including abandoned roads or roads released from another agency's inventory. Jurisdiction over these roads is to be solely under the Crown Lands Act<sup>2</sup> for the reasons outlined previously.

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<sup>2</sup> By virtue of this jurisdiction, Crown Lands will be responsible for these roads and thus are responsible for maintenance and other duties pertaining to the road. These responsibilities are of concern because, Crown Lands Branch has little experience in access road jurisdiction and will have strains put on their budget to meet this responsibility and maintenance. The many users of these roads pursue resource use outside the mandate of Crown Lands yet this department will have jurisdiction over the means to access these resources. These concerns are especially valid as it will require further expenditures of funds to meet this added mandate. Some means must be established to fund these added responsibilities either through direct department appropriations or through identification and taxing of user groups and their respective resource harvest.

#### 6.4 POLICY STATEMENT

The next nine statements comprise the policy for public use of access roads on Crown Lands in Newfoundland.

**1. The public shall have right to passage on resource access roads on Provincial Crown Lands.**

Public use of access roads in Newfoundland is a traditional right. These roads provide numerous benefits to the public as access roads are used extensively for recreation and domestic needs in all parts of the Province. The open public use of access roads also has political implications, as evidenced by habitual requests for road and bridge maintenance proposed by politicians in response to demands of constituents. These roads are also financed by public funds and are located on Crown Lands, thus giving the public right to use roads.

In recent years government has shown interest toward mitigating environmental damage and protecting natural resources in the Province. This interest is evidenced with legislation such as The Environmental Assessment Act. It must be assumed that these resources were protected in the public interest at some cost thus allowing some availability of these resources to the public. To prevent public access to such resources can only be seen as a grave inconsistency in the objectives of government.

The benefits of public use of access roads and the public right to use access roads to enjoy resources is recognized in other jurisdictions. Several provinces (Ontario, New Brunswick) guarantee public use by legislation, while other jurisdictions (Saskatchewan, Northwest Territories and Yukon Territory) have unwritten policy allowing public use.

Open public use of access roads should be the main policy stance from which government will operate. This policy will apply to both designated and undesignated access roads in Newfoundland.

**2. Public use of access roads can result in conflicts. This policy presents two methods of resolving or reducing conflicts.**

Resource managers recognize conflicts from public use of access roads. These conflicts are evidenced by the Upper Salmon case study and by correspondence with other jurisdictions. Policy makers must recognize three issues when addressing these conflicts. Firstly, the conflicts from public use of access roads are varied due to the vast number of interest groups and resources affected. A singular policy stance cannot address the conflicts with uniformity. Secondly, there are opposing opinions among resource agencies on the causes of conflicts from public use because each agency has a singular approach. Thirdly, there is a question of equity in balancing the benefits and cost, of public use of access roads among the resource agencies.

Two approaches, which can be used together, have been chosen to reduce public use conflicts.

The first approach will be to use resource management techniques (direct programs) which are developed specifically for the conflict under consideration. Conflicts from public use of access roads will be resolved by the agency responsible for the natural resource of concern. The administration of these resource management techniques will be within the agency responsible for the resource in question. To a large extent such techniques are presently in use: Examples are big game harvest quotas, enforcement programs, and area designations such as no fishing beyond a certain point.

The respective resource agency can also develop suitable performance indicators, such as population census, to evaluate these techniques. Compliance measures and penalties will also be designed by the respective resource agency. Other techniques can be developed such as education programs and new regulations. The methods used will be at the discretion and expertise of the respective resource agency. Such an approach maintains availability of the recreation and domestic benefits of public use of access roads.

The second approach recognizes that there are circumstances in which it may be desirable that access roads

be closed to public use. This approach would close access roads to public use when it is determined that such restriction is required for the management of resources. Examples of conflicts which may require closure of an access road to protect the public or natural resources are:

1. public safety due to hazardous road conditions or commercial traffic,
2. destruction of road bed during spring breakup,
3. danger to work crews - during hunting season,
4. disruption of wildlife by public and vehicle traffic,
5. disturbances of resource management projects, such as scientific studies or herbicide spraying.

Closing an access road may also be used to redirect resource use to more favourable areas or in the extreme case to close roads that are no longer required for resource development. In these cases it will be necessary that the public be restricted from using access roads, at least at certain times, in order that the conflict be resolved.

Restricting public use of roads is a tool which can decrease the strain on government financial and human resources, as restricted areas will require less enforcement, maintenance, and public facilities, etc. Such cost savings can be realized as evidenced by private paper companies which have policies to shut down woods operations

and to close roads during spring thaw in order to prevent roadbed damage. Many such companies also close roads to protect workers and equipment. Cost savings generated will allow more flexibility for resource managers to plan and implement other programs using present levels of budgeted resources.

Restricting public use of access roads may take several forms, regular intervals, periodic intervals, and total closure.

1. Closure for regular intervals is closure of an access road during specified times, e.g., daily working hours.
2. Closure during periodic intervals is complete closure of an access road for a continuous period of time, e.g., seasonal closure during spring breakup.
3. Total closure of an access road may have two forms.
  - 1) road closure at all times, e.g., no entrance to private lands or
  - 2) permanent closure by removal of the road.
3. Where direct programs are used to address resource conflicts, the responsibility for all decision making will rest with the agency which develops the program.

Where the address of resource conflicts will include restricting public use, the responsibility for decision making to allow that restriction will rest with the Interdepartmental Land Use Committees (I.L.U.C.).

Direct programs are programs oriented to a single resource or single conflict situation. These programs will arise from the single resource agency which perceives the conflict, and develops and implements the program. The agencies will determine their needs and will select appropriate address. Thus, decision-making will be left to the agency which will plan and implement such programs. Such decision-making will include choice of policy instrument, coercive versus non-coercive, resource allocation, funds, equipment and manpower; performance indicators, compliance measures, lines of communication and procedures. By this approach each resource agency will remain within its mandate.

Decisions with respect to public use restriction of access roads must clarify whether these restrictions should be permitted, and establish the parameters under which such restrictions, if granted, will operate.

Restricting public use will have wide implications for resource, resource agencies, interest groups, government and public itself. Decision making must be in a forum where all interested agencies can have input. Multiple input decision making about public use of access roads is in keeping with several ideas expressed earlier in this study. The review of access roads in Newfoundland (Chapter two) illustrated problems of waste and redundancy in use of resources because of an uncoordinated approach to determining access road

needs. Also, other jurisdictions which are relatively more developed in public use of access roads policy (Saskatchewan, Alberta and Ontario) stress the important role of coordinated decision making in resource management. Furthermore, it is a stated goal of this policy to encourage coordination of planning for public use of access roads.

The newly defined Interdepartmental Land Use Committee (I.L.U.C.) of the Crown Lands Branch of the Department of Forest Resources and Lands is an appropriate entity to mandate decisions for public use restriction. This committee is a redefinition of the former Land Use Management Committee (L.U.M.C.). The L.U.M.C. had little authority, lacked quality leadership and participation, and thus was not effective in its mandate to oversee the use of Crown Lands. To produce a more effective entity the L.U.M.C. was redefined by Order in Council in 1983. At present, the I.L.U.C. is mandated to assess all proposals requiring the use of Crown lands, and to decide whether such proposals should be approved. This Committee will be responsible for assessing the effects of public use of access roads and coordinating proposals to manage public use.

The Interdepartmental Land Use Committee is composed of representatives from many government agencies. These agencies include Lands Branch and Forestry Branch of the Department of Forest Resources and Lands; Provincial



Planning Branch and Development Control Branch of the Department of Municipal Affairs; Wildlife Branch, Parks Branch and Historic Resources Branch of the Department of Culture, Recreation and Youth; as well as representatives from the Departments of Agriculture, Environment, Health, Mines, Fisheries, and Transportation and Communication. Other government branches may be invited as the operation of the Committee develops. Where there is a strong interest and important input to decision making, other agencies may be invited to participate, i.e., Newfoundland and Labrador Hydro, the Newfoundland Petroleum Directorate or the Federal Department of Fisheries and Oceans.

The members of ILUC are at the Director level or higher and are required to represent their agency on any particular issue. This level of representation provides that Committee members can state their agency's position and make decisions with respect to public use restriction. This high level of input shortens the time needed for proposal assessment and implementation.

The terms of reference of the ILUC recognize that conflict is inherent in land use proposals and provides the means to resolve these conflicts. The Committee will work to have recommendations based on general membership consensus, recognizing that opposing viewpoints are valid and should not be overruled. Negotiation may be necessary to attain consensus.

Land Use proposals will be assessed by the Committee and if approved the respective Deputy Minister(s) is notified. Issues, which cannot be satisfactorily resolved by the Committee, are to be conveyed in writing to the appropriate Deputy Minister. The proposal can then be modified and resubmitted for final recommendation.

Recommendations for refusal of projects, noting its positive and negative aspects, are referred to Minister of Forest Resources and Lands for final decision. Should the proponent not be satisfied with the final decision, the proponent can may seek a decision of the Resource Policy Committee of Cabinet. The option to seek a Cabinet decision is available to any proponent Minister who feels that his departments viewpoint is not being given appropriate consideration. However, it is hoped the Committee will resolve all issues in house.

A major aspect of the decision-making process is not dealt with directly, that is, input from the public. In Newfoundland there is little doubt that restricting public use of access roads will be followed by public comment, either directly or through the political level. As such, the decision makers of the I.L.U.C. must represent the public interest. To underestimate the public's role in this issue would be a grave error. In future it may be found that direct public input be required. This input should be the responsibility of the proponent for restricting public use.

In its decision making the Interdepartmental Land Use Committee must consider many factors.

The major factors are

- purposes to be served by the access road,
- secondary use of the road (public and commercial),
- future need for the road,
- maintenance needs and costs,
- available alternate strategies for resource management,
- cost of alternate strategies,
- costs of enforcement,
- maintenance of desirable recreation experience,
- maintenance of future flexibility for resource management,
- need for public use,
- maintenance of traditional land use,
- need for restricting specific uses and users and
- user groups affected.

4. Policy for restricting public use of access roads requires that: the proponent Minister approve the proposal, that the proposal be submitted to the Interdepartmental Land Use Committee (ILUC) and that the responsibilities and costs associated with the proposal and its implications will assumed by the proponent agency(ies).

This policy guideline defines procedures and designates responsibility for public use restrictions, proposals and implementation. The respective Minister may approve proposals for restriction of public use of access roads. Ministerial approval will ensure different Ministers' awareness, input and indirectly the public input to proposals for access road restriction. The Minister's approval also establishes accountability for restriction programs and responsibility for implementation of those programs.

Any agency(ies) wishing to restrict public use of any access road will make proposal to Interdepartmental Land Use Committee (I.L.U.C.). The purpose of this procedure is to establish with the respective agency the responsibility for initiating their proposals for restricting public use. The proposal shall specify the rationale for the sought restriction and supplies evidence to support the rationale. The cost of alternatives, resources allocated, and the benefits which accrue to the public, the agency, and the government shall also be presented. Any compliance measures necessary to enforce the proposed restriction must be stated. Other aspects of the restriction, for example, times of restriction, means of enforcement and other data may be requested by the I.L.U.C. Several agencies may cooperate on a proposal to restrict access. In such a case the proposal shall detail to which agency the respective responsibilities are designated.

If restriction is to be sought for longer than one calender year a single proposal will suffice subject to periodic review. Any changes in the parameters of restriction shall be conveyed immediately to the I.L.U.C. and all affected agencies.

All responsibilities and costs associated with restriction of public use of access roads shall be assumed by the proponent agency(ies). An agency must evaluate its own concerns, management plans and resource allocations to

decide if the agency will pursue the public restriction option. To expect an agency or agencies to share responsibility and costs to manage another's mandate is not desirable.

There should be no barrier to prevent several agencies from cooperating on a restriction proposal. The respective costs and responsibilities must be defined.

**5. The public shall be notified of any restriction to public use of access roads.**

Since the public is the target group of any proposal for restriction of public use, it must be considered a priority that the public be properly informed of any action which restricts their use. Notification of the public will be the responsibility of the proponent agency. The notification will be both at the site of closure and in general distribution (e.g., newspaper, radio). Such notification shall include place, times, rationale and authorization for restriction of public use along with prescribed penalties for non compliance. This procedure is followed in all jurisdictions which practice any level of public use restriction.

**6. Restricting public use of access road does not preclude use for other interests.**

This clause reserves the right for government to allow management and development of resources in restricted public

use areas. The parameters of such resource use (e.g., timing) are to be determined by I.L.U.C., the restricting agency, the resource developer and the Occupier of Designated Access Roads.

Such operations must not violate any of the original grounds for closure of the access road to public which the restrictions were to prevent. Resource operations and their employees must not partake of any privilege which the public is denied by closure (fishing, hunting, camping). Employees shall be issued guidelines of conduct to be followed in their work area. (This last point was controversial during Upper Salmon Hydroelectric Development where employees enjoyed recreation amenities which were denied to the public).

**7. All programs for restricting public use of access roads shall be open to review.**

All programs for the restriction of public use of access roads will be open to review. These reviews shall assess the suitability of a program and shall evaluate its effectiveness. Such reviews may be requested by any resource agency with representation on I.L.U.C.

8. The designation of access roads, the public right to travel access roads, and the right to restrict use where needed for the management of a resource shall have statutory authority.

A statutory approach will provide accountability and legal authority to implement policy. Access roads will be formally designated to establish jurisdiction over them. To legally state public right to use access roads is the verbalization of what is at present, the status quo. To be able to restrict public use of access roads of course will also need legal authority. This upgrading legislation may be added to the Crown Lands Act (R.S.N. 1970, Ch. 71).

## BIBLIOGRAPHY

- Adie, R., and Thomas, P. G. Canadian Public Administration Problematical Perspectives. Scarborough: Prentice-Hall Canada Inc., 1982.
- Alberta. Department of Energy and Natural Resources, Forest Service. Resource Road Planning Guidelines. 1982.
- Alberta. Department of Energy and Natural Resources, Alberta Forest Service, The Resource Handbook, 1979.
- Alberta. Department of Energy and Natural Resources, Public Lands Division. Alberta Public Lands, 1981.
- Alberta. Revised Statutes, The Public Lands Act. Chapter P-30, 1980.
- Alberta. The Public Lands Act, License of Occupation Regulation, 1981.
- Arctic Policy Review. Barrow, Alaska (October 1982).
- Bergerud, A. T. "Access: Greatest Threat to Caribou." Western Guidelines, 2, 1 (1979): 5-9.
- British Columbia. Wildlife Act, Bill 55, 1982.
- British Columbia. Forest Act, Regulation 278/81. 1981.
- British Columbia. Ministry of Forests. Ministry Policy, Forest Service Roads, Vol. II-ENG-002, 1981.
- British Columbia. Ministry of Environment, Fish and Wildlife Branch. Recommendations for Putting Roads to Bed for the Protection of Fish and Wildlife Resources, Fish and Wildlife Branch, (Region V, Caribou). Technical Report-V-8-HP-1.
- Bryce, R. B. "The Essentials of Policy-Making." Policy Options, 2,4 (Sept.-Oct. 1981): 45-47.
- Byrne, K. Engineer, Terratransport. Corner Brook, Newfoundland Personal Communication. 1983.
- Calef, G. W. "Numbers beyond counting, miles beyond measure." Audubon 78(1976): 42-61.



- Clawson, M. "An Eclectic and Inclusive Approach to Resource Policy Analysis." In Resource Policy: International Perspectives, pp. 57-66. Edited by Peter N. Nemetz. Montreal: The Institute for Research on Public Policy, 1980.
- Clawson, M. Forests for Whom and for What? Baltimore: John Hopkins University Press for Resources for the Future, 1975.
- Comfort, L. K. "Goals and means, the Problem of Specification in the Development of Effective Public Policy." Administration and Society. 13(May 1981): 77-108.
- Doern, G. B. "Rationalizing the Regulatory Decision-Making Process. The Prospects for Reform." Working Paper No. 2, Regulation Reference. Ottawa: Economic Council of Canada, 1979.
- Donihee, J., & Gray, P. A. A Review of Road Related Wildlife Problems and the Environmental Management Process in the North. Information Report No. 2 (Department of Renewable Resources). Yellowknife, Northwest Territories, 1982.
- Edwards III, George C., & Sharkansky, I. The Policy Predicament, Making and Implementing Public Policy. San Francisco: W. H. Freeman & Company, 1978.
- Gray, J. A. The Trees behind the Shore: The Forest and Forest Industries of Newfoundland and Labrador. Ottawa: Economic Council of Canada.
- Hardin, G. "The Tragedy of the Commons." Science 162 (1968): 1243-1248.
- Henning, D. H. Environmental Policy and Administration. New York: American Elsevier Publishing Company, Inc., 1974.
- Ingram, H. M., & Mann, D. E. Eds. Why Policies Succeed or Fail. Beverly Hills: SAGE Publications, Inc., 1980.
- Kerr, D. H. "The Logic of 'Policy' and Successful Policies." Policy Sciences 7(1976): 351-363.
- Mann, D. E. ed. Environmental Policy Implementation. Policy Studies Organization Series. Lexington: D.C. Heath & Company 1982.
- Mahoney, S. P. The Grey River Caribou Study. Newfoundland Wildlife Division, St. John's, 1980.

- Mahoney, S. D. The Grey River Caribou Study Report.  
Newfoundland Wildlife Division, St. John, 1981.
- McGregor, E. B. Jr. "ADMINISTRATION'S MANY INSTRUMENTS.  
Mining, Refining, and Applying Charles Lindblom's  
Politics and Markets." Administration and Society, 13, 3  
(November, 1981): 347-375.
- Munro, J. A. "Public Timber Allocation Policy in  
Newfoundland." Ph.D. thesis, University of British  
Columbia, Department of Forestry, 1978.
- Newfoundland and Labrador Hydro. Upper Salmon Hydroelectric  
Development: Environmental Impact Statement. St. John's,  
(1980).
- Newfoundland and Labrador. Report of the Royal Commission  
on Forest Protection and Management, 2 Parts. St.  
John's, November, 1981.
- Newfoundland and Labrador. Statutes. The Newfoundland and  
Labrador Hydro Act. 1975.
- Newfoundland and Labrador. Statutes, The Forest Land  
(Management and Taxation) Act. 1974.
- Newfoundland and Labrador. Statutes. Department of  
Transportation and Communications Act. 1973.
- Newfoundland and Labrador. The Crown Land Act. The Revised  
Statutes of Newfoundland. 1970.
- Newfoundland and Labrador. Statutes. Bowaters Newfoundland  
Act. 1938.
- Newfoundland and Labrador. Statutes. The Pulp and Paper  
Act. 1905.
- New Brunswick. Crown Lands and Forest Act. 1980.
- New Brunswick. Forest Management Manual for Crown Lands.  
Department of Natural Resources, Fredericton, 1982.
- Ontario. Public Lands Act. 1980. Revised Statutes of  
Ontario.
- Ontario. Land Use Plan, Ignace District. Ministry of  
Natural Resources, Ignace, 1982.
- Ontario. Guidelines for Managing Uses of Roads on Crown  
Lands, Draft Paper. Ministry of Natural Resources.  
Timmins, 1982.
- Ontario. User Controls on Roads Located on Crown Lands.  
Ministry of Natural Resources. North Central Region.

- Pearse, P. H. Conflict and Opportunity: Towards a New Policy for Canada's Pacific Fisheries. Government of Canada, Department of Fisheries and Oceans, 1982.
- Perry, C., & Overly, R. Impact of Roads on Big Game Distribution in Portions of the Blue Mountains of Washington. Bulletin No. 11, Washington Game Department. Olympia, Washington, 1977.
- Ream, C. H.  
"Loon Productivity, Human Disturbance, and Pesticide Residues in Northern Minnesota." The Wilson Bulletin, 88,3 (September 1976): 427-432.
- Sabatier, P., & Mazmanian, D. "The Conditions of Effective Implementation: A Guide To Accomplishing Policy Objectives." Policy Analysis, 4, 4(Fall, 1979): 481-504.
- Saskatchewan. Resource Access Roads: Approach to Department Policy and Strategy. Resource Lands Planning, Resource Lands Branch, Department of Tourism and Natural Resources. Prince Albert, 1982.
- Seitz, W. D., & Spitze, R. G. F. "Soil erosion control policies: Institutional Alternatives and costs." Journal of Soil and Water Conservation. (May-June 1978): 118-125.
- Spitze, R. G. F., & Seitz, W. D. "Conceptualizing environmental policies for the development of natural resources." Am. J. Agr. Econ. 53,5(1971): 903.
- Thompson, D. L., ed. Politics, Policy, and Natural Resources. New York: The Free Press, 1972.
- Trebilcock, M. J., Hartle, D., Robert, J., Prichard, S., & Dewees, D. N. The Choice of Governing Instruments: Some Applications. Technical Report No. 12, Ottawa, Economic Council of Canada, 1981.
- VanMeter, D. S., & Van Horn, C. E. "THE POLICY IMPLEMENTATION PROCESS: A Conceptual Framework." Administration and Society (6 February, 1976): 445-486.

**Appendix A**  
**PERSONAL INTERVIEWS**

GOVERNMENT OF NEWFOUNDLAND AND LABRADORDepartment of Culture, Recreation and Youth

## Wildlife Branch

James Hancock - Environmental Biologist

Shane Mahoney - Habitat Biologist

A. O. McPhee - Chief Protection Officer

## Parks Branch

Glen Ryan - Chief, Planning and Development

Department of Environment

## Environmental Assessment Division

David Barnes - Director

Norman Williams-Biologist

Department of Rural, Agriculture and Northern Development

## Agriculture Branch

Dale Sudom - Director, Soils and Lands Management

Department of Forest Resources and Lands

## Forestry Branch

Gerald Flemming - Director, Forest Access Roads

Robert Mercer - Director, Forest Management

Robert Pelley - Director, Forest Products Development

## Lands Branch

John Power - Director, Crown Lands Administration

Robert Warren - Director, Land Management

Department of Transportation

Martin Balodis - Property Engineer

Thomas Beckett - Director, Planning and Research

Arthur George - Maintenance Engineer, Highway and  
Maintenance Division

Roger Pottle - Environment Planner

GOVERNMENT OF CANADA

Department of Fisheries and Oceans

Hugh Bain - Biologist, Inland Fisheries and Habitat  
Management

Department of Environment - Canadian Forestry Service

Dr. J. Hudak - Program Manager - Forest Protection

CROWN CORPORATIONS

Newfoundland and Labrador Hydro

David Keill - Manager - Environmental Services

Ed Hill - Biologist

PRIVATE COMPANIES

Abitibi Price Pulp & Paper Co. Ltd.

Bert Frampton - Logging Superintendent

**Appendix B**  
**CORRESPONDENTS IN OTHER JURISDICTIONS**

Alberta

Harvey M. Alton      Deputy Minister  
Department of Transportation  
Edmonton.

J. E. Benson      Director  
Energy and Natural Resources  
Edmonton

B. Stubbs      Section Head  
Protection and Evaluation  
Habitat Protection Branch  
Fish and Wildlife Division  
Energy and Natural Resources  
Edmonton.

M. G. Turnbull      Director  
Land Management and Development  
Energy and Natural Resources  
Edmonton.

British Columbia

John Brenner      Roads Supervisor  
Ministry of Energy, Mines and  
Petroleum Resources  
Victoria.

G. H. Browne      Management Engineer  
Roads Surveys and Construction  
Engineering Branch  
Ministry of Forests  
Victoria.

New Brunswick

David Davies      Supervisor, Harvesting and  
Utilization  
Forestry Branch  
Department of Natural Resources  
Fredericton.

Nova Scotia

Glen Brathwaite      Survey Engineer  
Department of Lands and Forests  
Truro.



Ontario

E. F. Andrews            Director  
Land Management Branch  
Ministry of Natural Resources  
Toronto.

R. A. Baxter            Regional Director  
Ministry of Natural Resources  
North-Central Region  
Thunder Bay.

G. P. Elliott           Regional Director  
Ministry of Natural Resources  
North-Central Region  
Timmins.

L. P. Shorr            Access Roads Manager  
Ministry of Transportation and  
Communications  
Thunder Bay.

Saskatchewan

A. G. Appleby           Senior Lands Administrator  
Lands Branch  
Department of Tourism and Renewable  
Resources  
Prince Albert.

W. S. Bailey           Director  
Forest Management  
Tourism and Renewable Resources  
Prince Albert.

R. P. Couturier        Director of Planning  
Department of Highways and  
Transportation  
Regina.

P. C. Naftel           Chief, Fisheries Operations  
Fisheries Branch  
Tourism and Renewable Resources  
Regina.

G. W. Pepper           Chief, Program Development and  
Special Projects  
Wildlife Branch  
Tourism and Renewable Resources  
Regina.

Northwest Territories

Paul A. Gray                      Supervisor  
                                    Habitat Management  
                                    Wildlife Service  
                                    Department of Renewable Resources  
                                    Yellowknife.

Yukon Territory

Joe Kuhn                              Land Use Specialist  
                                    Research and Planning Division  
                                    Department of Renewable Resources  
                                    Whitehorse.

**Appendix C**

**MAP OF LAND TENURES IN NEWFOUNDLAND**

Map in Pocket on Back Cover

**Appendix D**  
**FREEHOLD REID GRANT**

COPY

NEWFOUNDLAND

No. 133R

Edward VII., by the Grace of GOD,  
of the United Kingdom of Great  
Britain and Ireland, and of the  
British Dominions beyond the Seas,  
King, Defender of the Faith, Emp-  
peror of India, &c.

*To all to whom these Presents  
shall come, Greeting:*

WHEREAS it has been established to Our satisfaction that, under the provisions of Agreements made and entered into between the Governor of the Island of Newfoundland and its Dependencies, of the first part, and ROBERT GILLESPIE REID, of Montreal, in the Dominion of Canada, of the second part, confirmed by Acts of the Legislature of Newfoundland, the Reid Newfoundland Company is entitled to a Grant in fee simple of the lands hereinafter described;

*Now know ye*, that in consideration of the premises and in part fulfilment of the covenants on the part of the Government of Newfoundland in the said Agreements contained, and under and by virtue of the said Acts of the Legislature of Newfoundland, We do hereby grant, convey and assure unto the said Reid Newfoundland Company and its assigns, all and singular those certain parcels of land and premises set out in the Schedule hereto attached, (which Schedule with a plan thereto attached shall be and be taken to be part and portion of this Grant), together with all and singular the woods, ways, water-courses, mines, ores and minerals of every kind, including precious metals, and all easements, profits and appurtenances whatsoever to the said parcels or tracts of land and premises or any of them belonging or in anywise appertaining, or which can be therewith used or enjoyed, and taken as part or parcel thereof, or as belonging thereto or to any part thereof, and the reversion or reversions, the remainder, and remainders, rents, assigns, revenues and profits thereof, and all of Our estate, right, title, interest, trust, claim, property and demand, both in law and in equity, of, in, to or out of the said land and premises, and every part thereof: *To have and to hold* the same unto and to the said Reid Newfoundland Company and its assigns to their own use forever.

Given under the Great Seal of Our aforesaid Island of Newfoundland, at St. John's, in Our said Island, this sixth day of May in the year of Our Lord One Thousand Nine Hundred and four, and in the Fourth year of Our Reign.

*Witness* Our trusty and well-beloved Sir Cavendish Boyle, Knight  
Commander of the Most Distinguished Order of St. Michael and  
St. George, Governor and Commander-in-Chief in and over Our  
said Island of Newfoundland and its Dependencies.

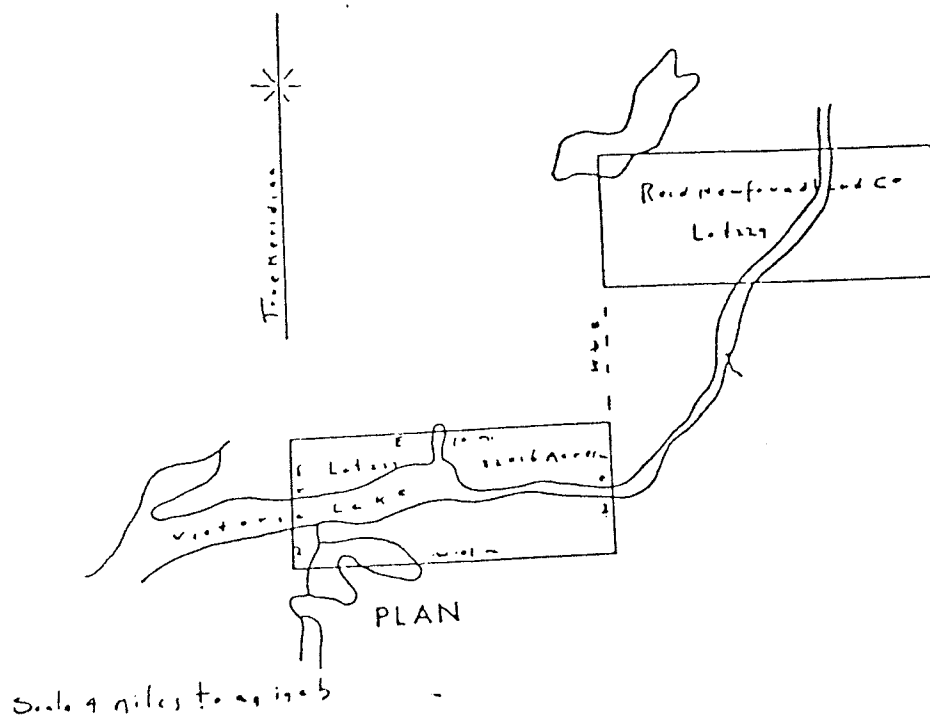
By His Excellency's Command,

Colonial Secretary

## SCHEDULE

Referred to in, and forming part of, Grant No. 133R

The following are the Description and Plan of the land and premises referred to in the foregoing Grant:- all that piece and parcel of land abutted and bounded as follows that is to say by a line commencing at a point four miles due South of the south West angle of Lot 229 granted to the within named grantee, running thence South four miles, West ten miles, North to the shore of Victoria Lake, thence around the shore at the East end of said Lake to a point intersected by the extension Northerly of the portion of the west boundary of this lot which is described as running North, thence North to a point four miles North of the west extremity of the South boundary of this lot and thence east to the place of commencement. Containing twenty two thousand and sixteen acres more or less. Bearings from True meridian.



**Appendix E**

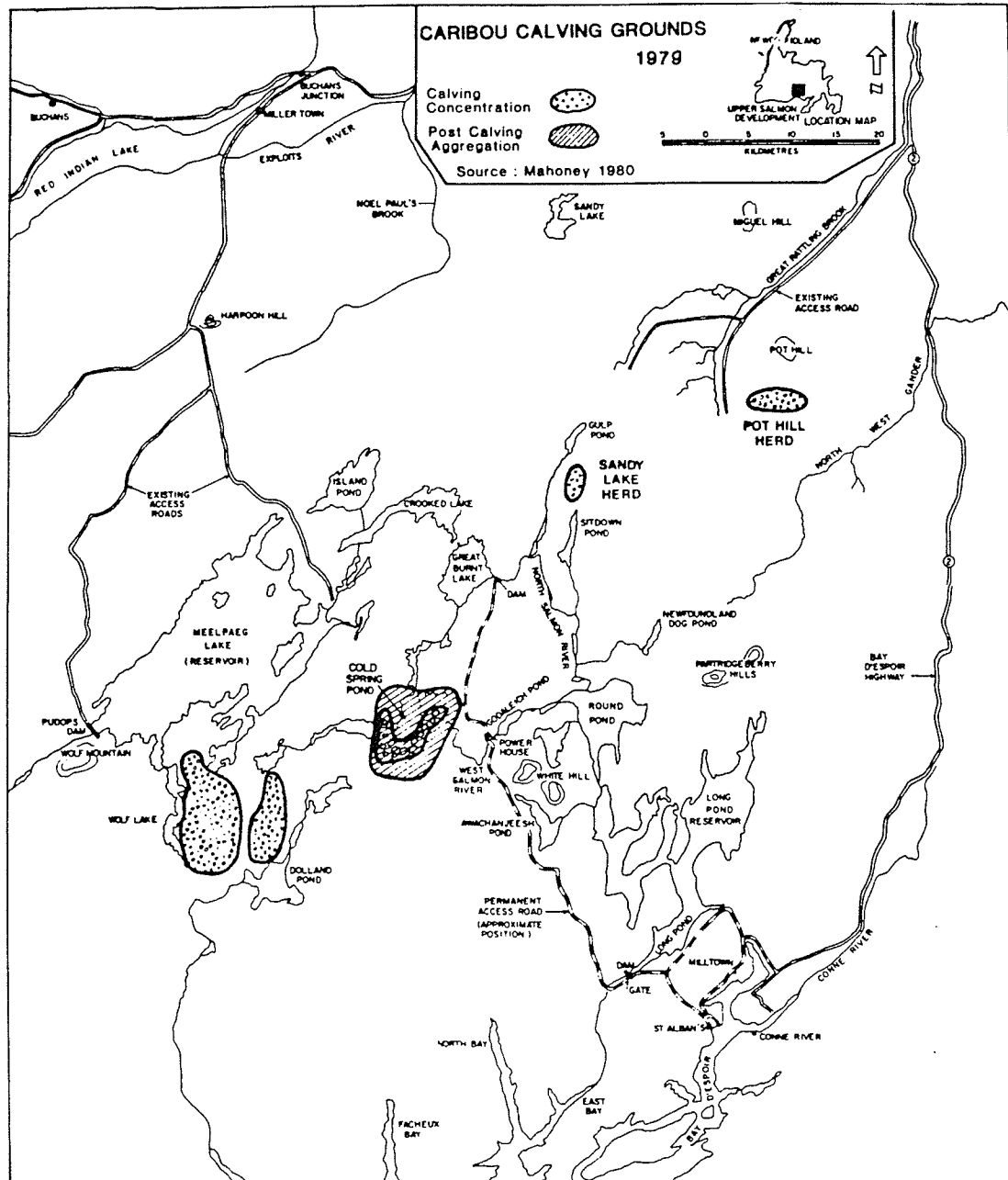
**DESCRIPTION OF GREY RIVER CARIBOU HERD**



The caribou using the Upper Salmon area are from three subpopulations (herds): The Grey River, Pot Hill and Sandy Lake Herds. Another group inhabits the Partridgeberry Hills area in winter but their origin and habits are not known (Map 5). There is interchange between the herds. The seasonal distribution of the Grey River caribou is best known (Map 6), but this herd has shown variations in recent years. Normally these variations are a response to environmental conditions (weather, snow cover, flies, etc.) and lately possibly due to increased human activity.

In winter the Grey River caribou congregate very close to the south coast. During May and June caribou move to the calving grounds near Wolf Lake, Dollard Pond and Cold Spring Pond (Map 9). There has been a shift in calving area since early 1970's. Calving now occurs further east of Wolf Lake; previously it was both west and east of Wolf Lake. Wildlife biologists believe that the original Bay d'Espoir development at Meelpaeg Reservoir and Pudops Dam contributed to the shift.

Following calving, the female caribou, calves and some yearlings form a close group (post-calving aggregation) around Cold Spring Pond for several weeks (Map 9). During this time the stags and remaining yearlings are more widely distributed over the range.

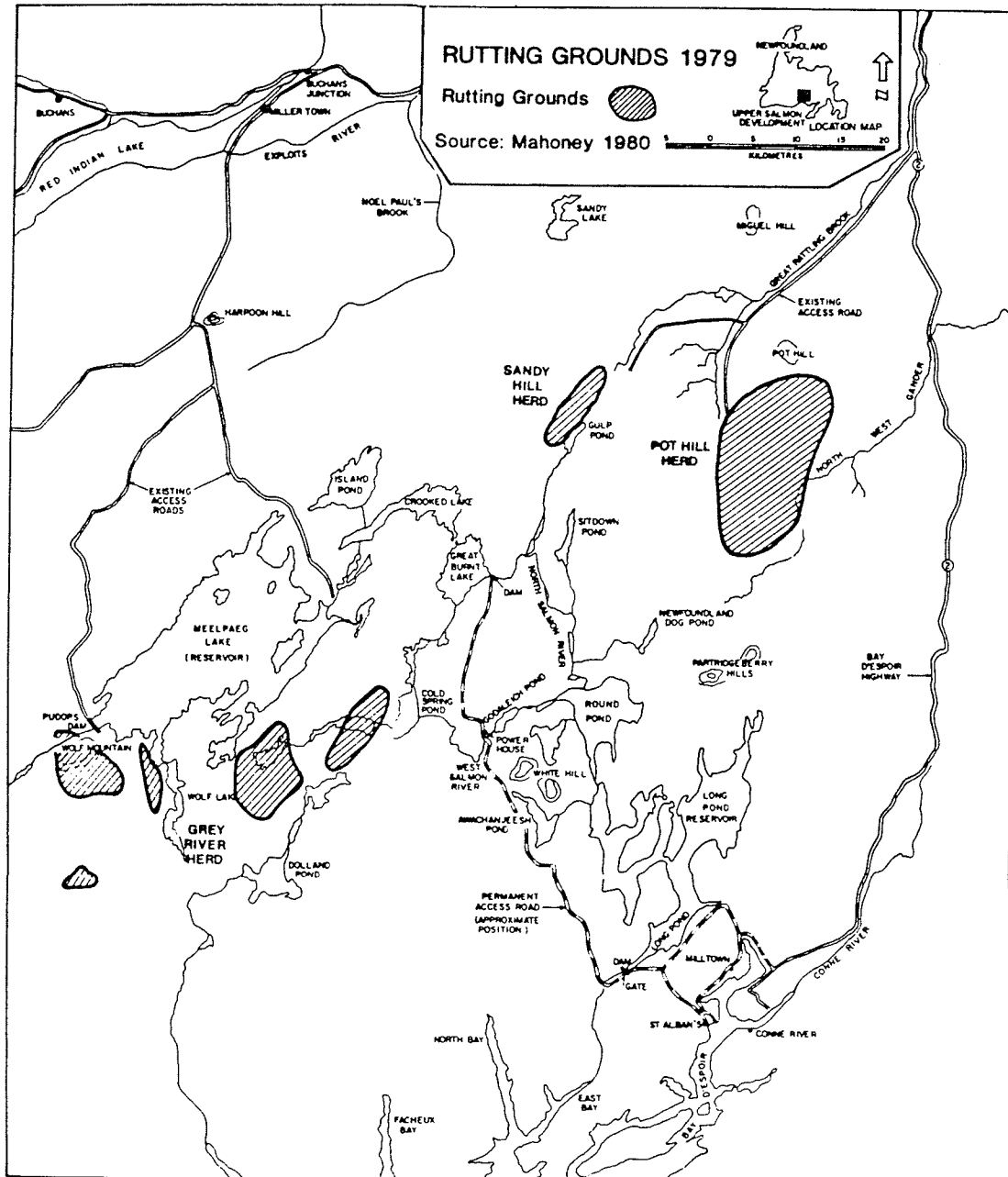


Map 9 - Caribou calving grounds - 1979

In early June caribou move away from the post-calving area. This movement in 1979 proceeded along two fronts. The larger group moved north and northeast along the east side of Cold Spring Pond and up both sides of Great Burnt Lake and into the Crooked Lake-Island Lake area (Map 6, page 41). The other group moved south and southwest into Dollard Pond-Wolf Lake area. The factors responsible for this movement are related to insects, predation and seasonal availability of food. Large numbers of caribou inhabit the Cold Spring Pond Great Burnt Lake area in July. Toward the end of July caribou move from the open country to become widely dispersed and occupy forested areas.

The caribou move back into the open country during September and large numbers are present in the upper Salmon development area. The movement from summer habitat towards the rutting grounds is mainly along the east side of Cold Spring Pond. The rutting grounds, defined on Map 10, page 137, are not definite. Constant movement and exchange of animals between rutting group occurs. Calving activity of Grey River caribou is predominantly west of Cold Spring Pond but animals moving through the development area also exhibit reproductive behavior.

Following rutting activity and with the onset of snow and cold temperatures in late fall and early winter the caribou proceed to the south coast in search of more favourable winter climate and habitat. In February, caribou are

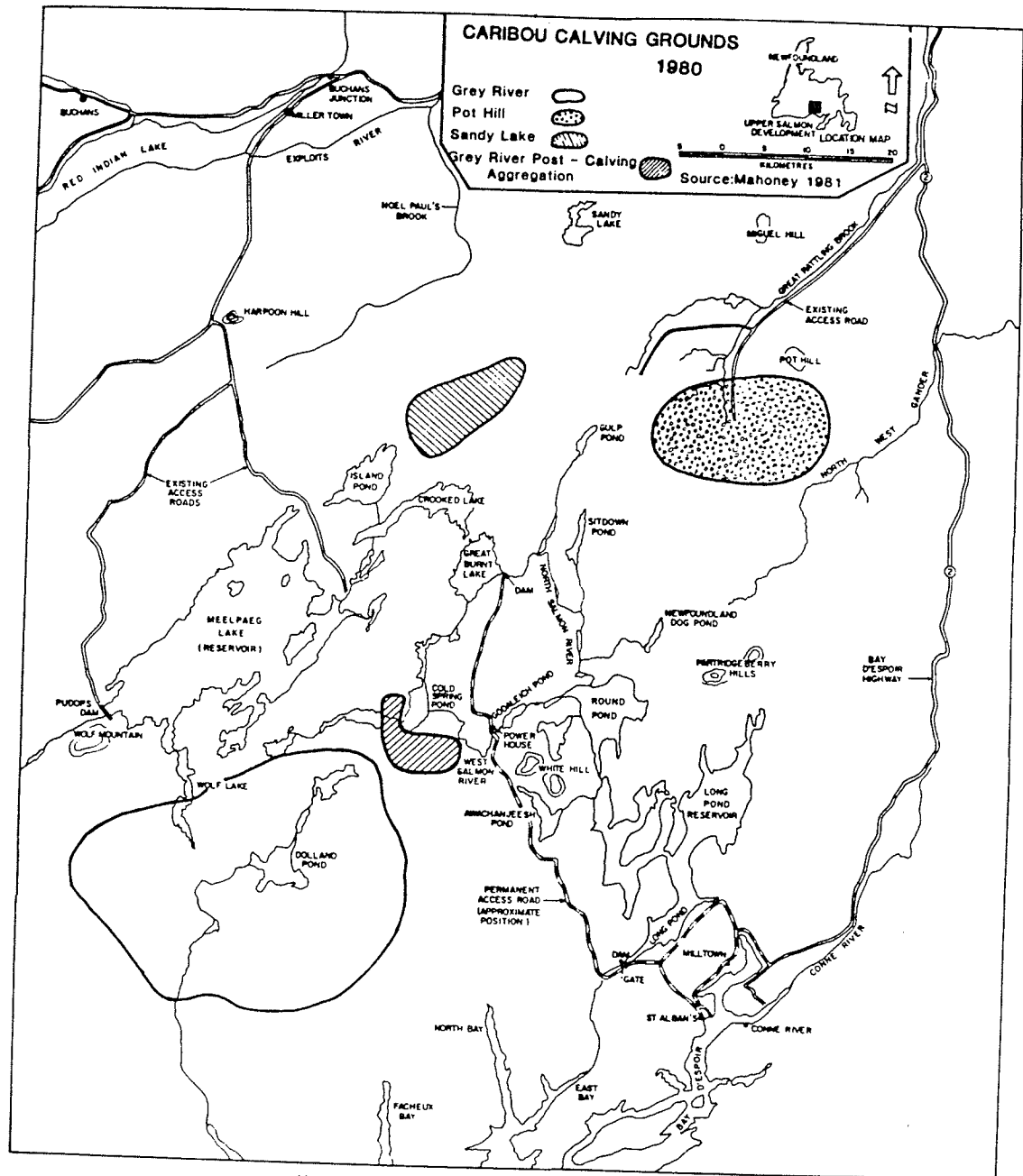


Map 10 - Rutting grounds - 1979

generally south of the Upper Salmon development area but some may occupy areas where they would encounter the access road and human activity. This distance, however, is not far from the major congregation. Through March and April, caribou are mainly around the calving grounds and the Upper Salmon area but some are also far northeast in the Pot Hill area.

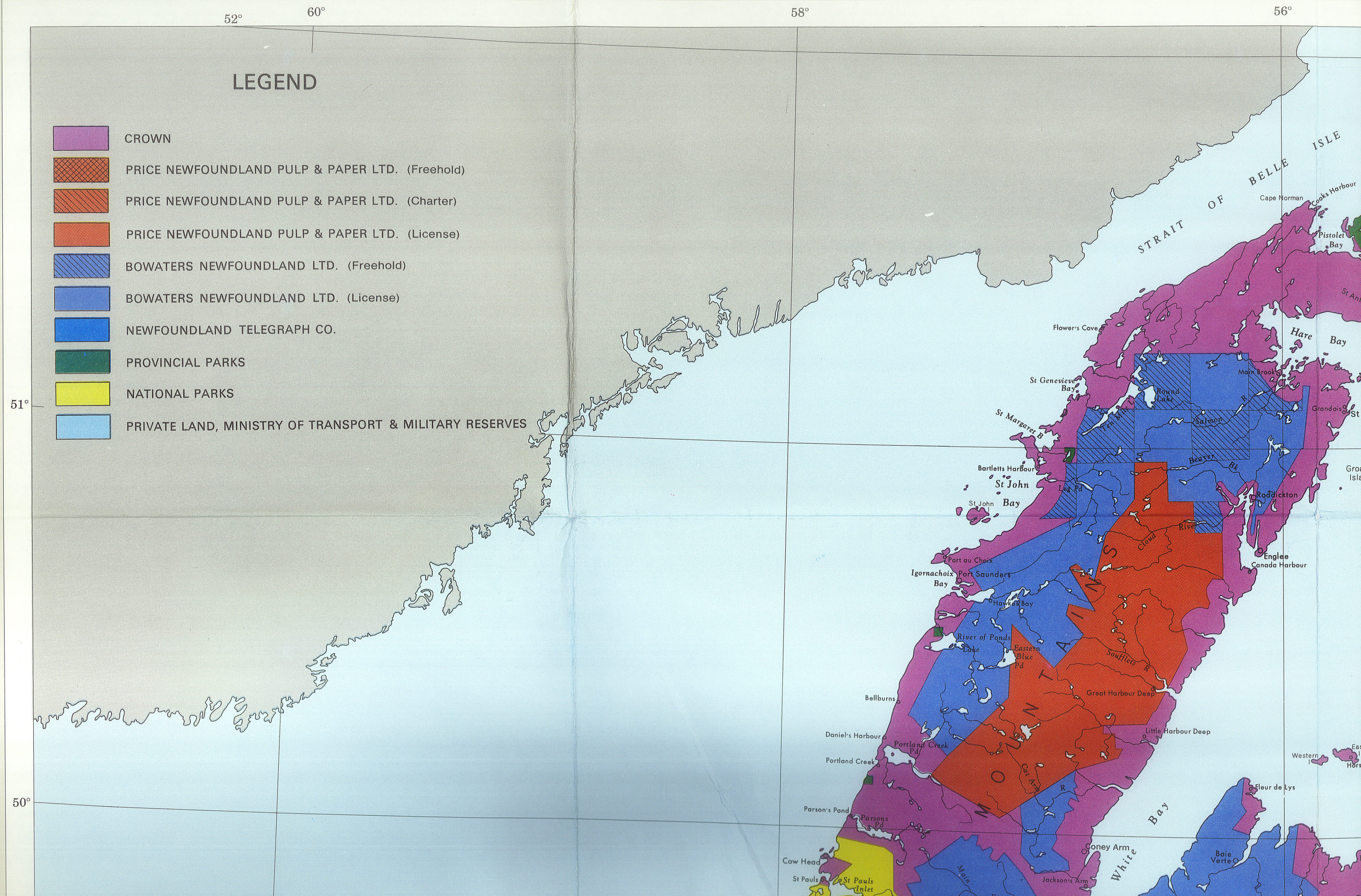
In 1980 several changes occurred in the general patterns. The Grey River calving grounds were southwest of the 1979 position. Postcalving aggregation was south and west of the previous years position (Compare Maps 9 and 11). There were two major differences between rutting distribution as well. There was an absence of rut behavior west of Wolf Lake, and there was heavy use of habitat in north Sandy country by rutting caribou. The southward migration was initiated later by the first major snowfall in November 1980. Also during the winter months, February to April, a significant number of caribou were found widely dispersed northeast of the development area.

In general the pattern of distribution was similar for both years except in the months of June, September and April. No explanations have been presented for the observations in these two years. The Grey River Caribou Herd is the subject of an ongoing study and data analysis is presently underway.



Map 11 - Caribou calving grounds - 1980









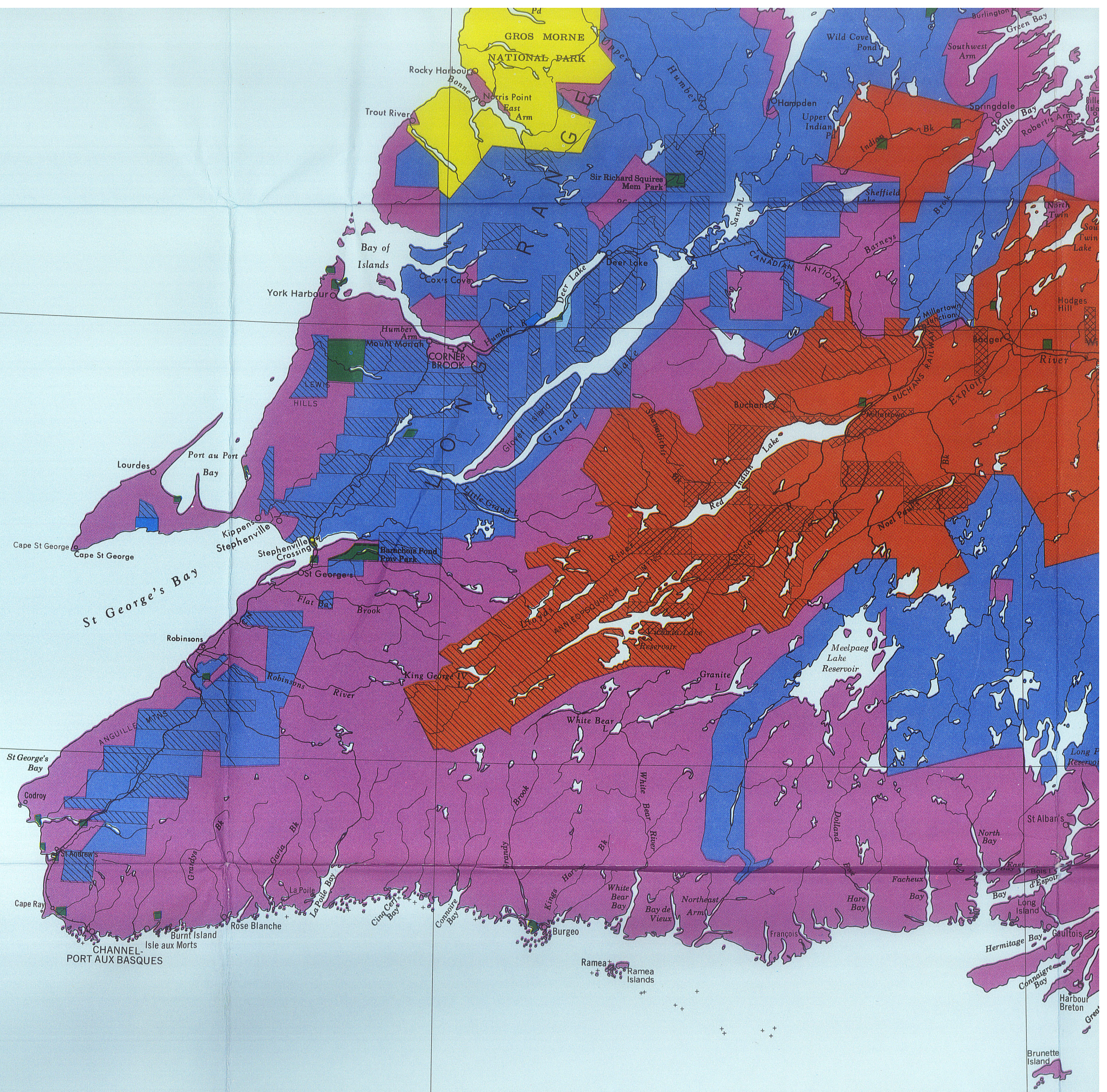


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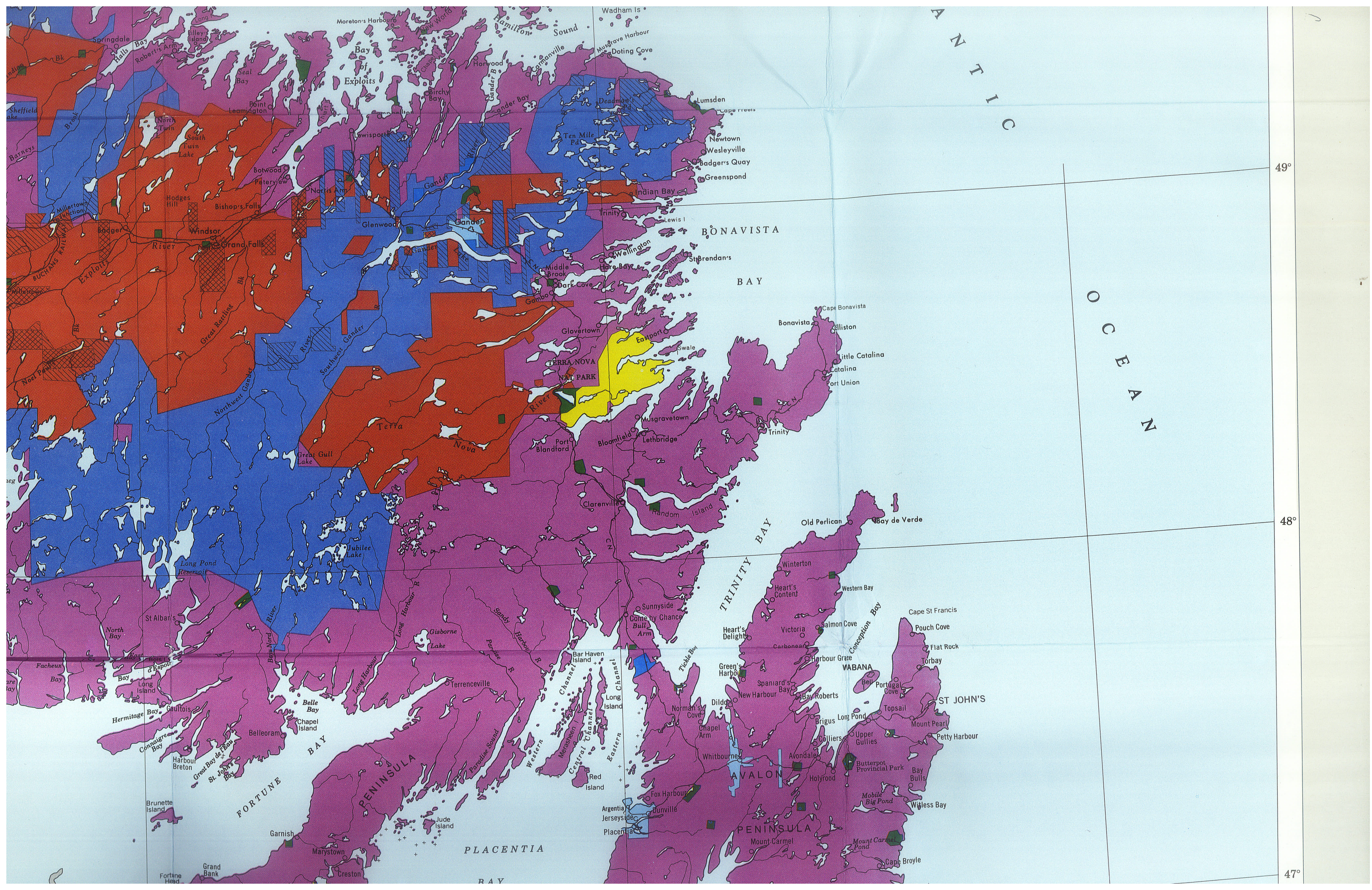
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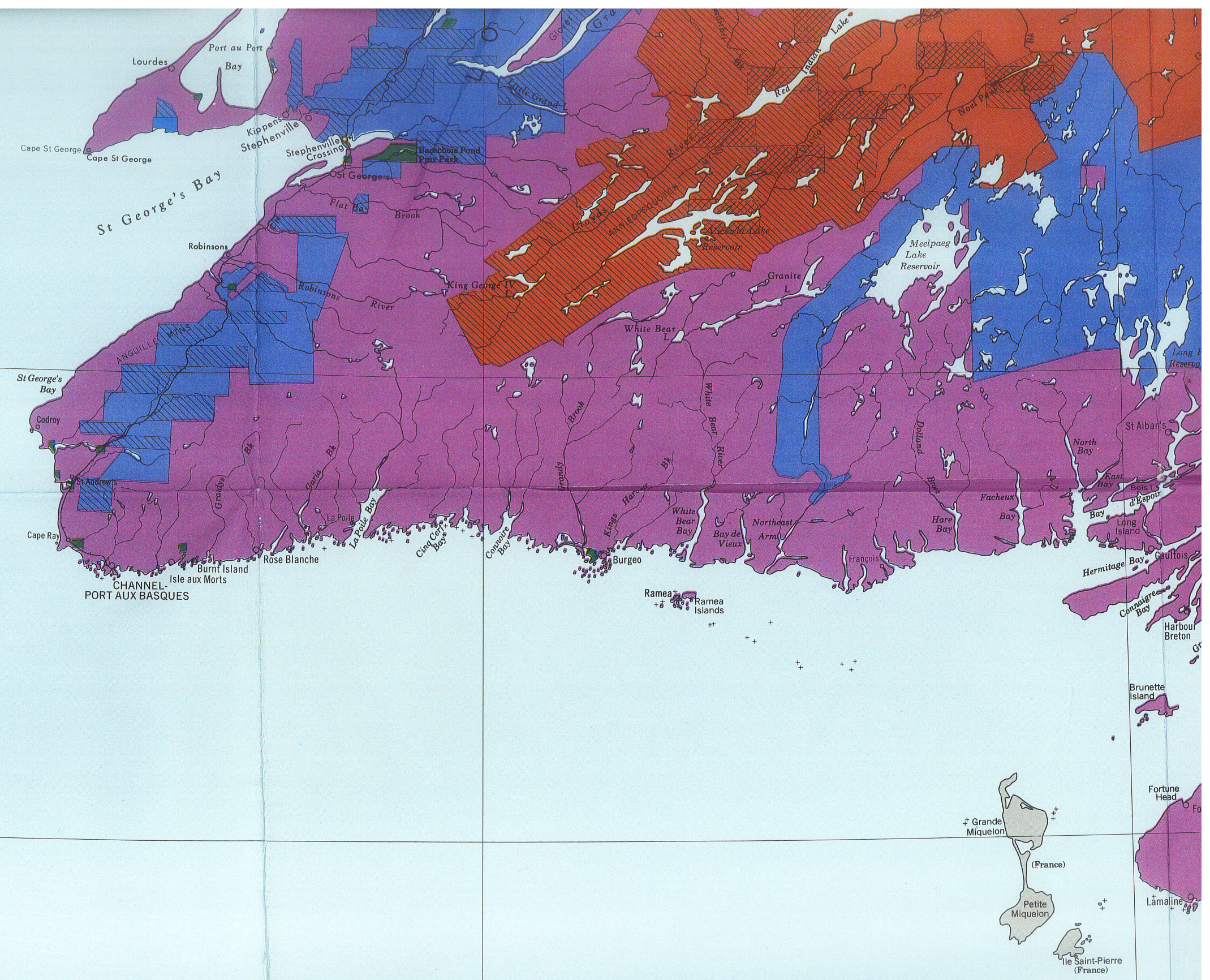
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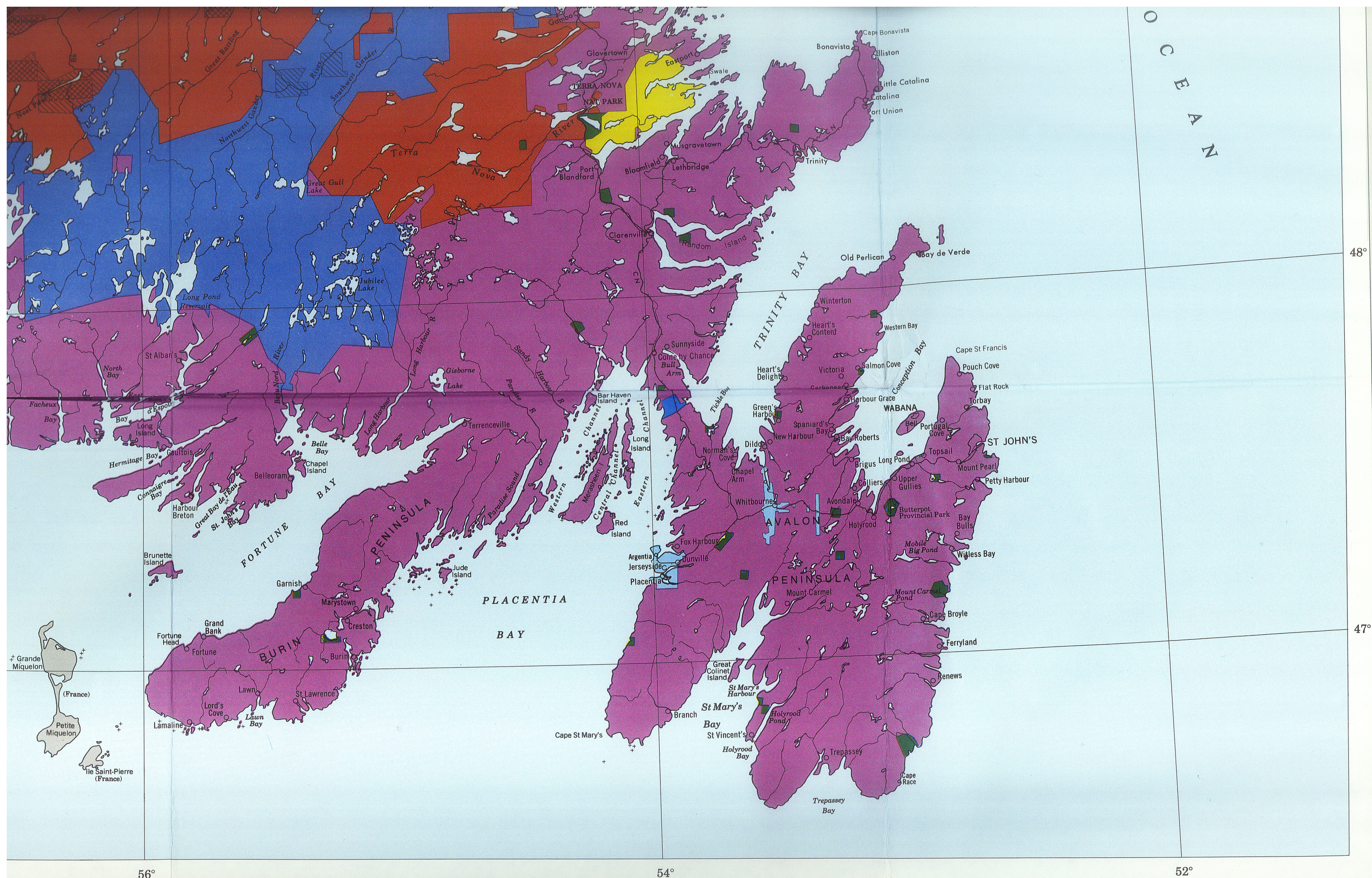
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48°

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54°

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