



National Library of Canada

Cataloguing Branch  
Canadian Theses Division

Ottawa, Canada  
K1A 0N4

## NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us a poor photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30. Please read the authorization forms which accompany this thesis.

**THIS DISSERTATION  
HAS BEEN MICROFILMED  
EXACTLY AS RECEIVED**

Bibliothèque nationale du Canada

Direction du catalogage  
Division des thèses canadiennes

## AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de mauvaise qualité.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30. Veuillez prendre connaissance des formules d'autorisation qui accompagnent cette thèse.

**LA THÈSE A ÉTÉ  
MICROFILMÉE TELLE QUE  
NOUS L'AVONS REÇUE**

RECREATIONAL ACCESS TO PUBLIC SHORELANDS:  
THE ADMINISTRATION OF PROVINCIAL CROWN LANDS IN ALBERTA

Janice Bloomfield

Thesis presented to the School of Graduate Studies  
in partial fulfilment of the requirements for a  
master's degree of Geography

UNIVERSITY OF OTTAWA,  
OTTAWA, CANADA, 1978.

© J. Bloomfield, Ottawa, Canada, 1978.

## ABSTRACT

Shorelands in Alberta are a limited, but much sought after resource. Pressures for use and development of shorelands, especially those in areas easily accessible from major concentrations of population, have increased steadily over the past few years and are continuing to increase. The fact that only a small portion of this shoreland is Crown land has resulted in problems of public access for recreation.

In 1948, the Alberta Government divided the province into three zones. (i.e. Green, Yellow and White) for the purpose of managing land, water and forest resources more effectively. This thesis is an assessment of the use and administration of Crown shoreland resources in each of the three zones in relation to their accessibility for purposes of recreation. It is also an appraisal, both of the characteristics and patterns of allocation of dispositions found on sample lake shorelands in each of the three management zones, and of how effectively dispositions have been used as planning and management tools. Results revealed that the management objectives of each zone, as stated at their inception in 1948, have basically been achieved. Crown land dispositions, while utilized somewhat to meet these objectives, were used less effectively as planning and management techniques than anticipated.

## RESUME

Le littoral lacustre de l'Alberta est une ressource à la fois très limitée et très fréquentée. On a vu depuis plusieurs années des pressions grandissantes sur l'utilisation et le développement de ces rivages. Ceci est surtout le cas des régions facilement accessibles aux grands centres de population. Très peu de cette ressource est dans le domaine public; ceci occasionne plusieurs problèmes du point de vue de l'accès à la ressource pour les buts récréatifs.

En 1948 le gouvernement de l'Alberta divisait la province en trois zones (zone verte, zone jaune, zone blanche). Chaque zone avait des objectifs spécifiques d'aménagement de la terre, de l'eau et des ressources forestières. Cette thèse est une évaluation de l'utilisation et de l'administration des rivages lacustres (domaine public) en relation avec leur accessibilité pour les buts récréatifs. C'est aussi une évaluation des dispositions faites avec les rivages publics dans un échantillon de lacs et de l'utilisation des dispositions de terrain comme outils d'aménagement et de gestion. Les résultats de l'étude montrent que les objectifs définis en 1948 ont été atteints en général. Mais l'utilisation du processus de disposition des terrains comme outil d'aménagement et de gestion a été moins importante qu'on avait supposé.

# TABLE OF CONTENTS

|                                            | PAGE |
|--------------------------------------------|------|
| ABSTRACT .....                             | ii   |
| TABLE OF CONTENTS .....                    | iii  |
| LIST OF TABLES .....                       | vi   |
| LIST OF FIGURES .....                      | vii  |
| LIST OF MAPS .....                         | viii |
| CHAPTER I INTRODUCTION .....               | 1    |
| Introduction .....                         | 1    |
| The Study .....                            | 4    |
| References .....                           | 7    |
| CHAPTER II STUDY CONTEXT .....             | 8    |
| The National Perspective .....             | 8    |
| The Provincial Perspective .....           | 15   |
| The Role of Crown Lands .....              | 20   |
| References .....                           | 24   |
| CHAPTER III SHORELAND AVAILABILITY .....   | 28   |
| The Canadian Situation .....               | 28   |
| The Canada Land Inventory .....            | 28   |
| Recreation Shoreland Distribution .....    | 30   |
| Per Capita Distribution of Shoreland ..... | 35   |
| Conflicts of Shoreland Uses .....          | 37   |
| The Alberta Situation .....                | 41   |
| Land Management Zones .....                | 42   |
| Recreation Shoreland Distribution .....    | 44   |
| Per Capita Distribution of Shoreland ..... | 53   |
| Summary .....                              | 54   |
| References .....                           | 55   |

|                                                                        |     |
|------------------------------------------------------------------------|-----|
| CHAPTER IV PROVINCIAL CROWN LAND ALLOCATION<br>IN ALBERTA .....        | 59  |
| Zone Characteristics and Allocation Mechanisms ..                      | 64  |
| 1. Green Zone .....                                                    | 64  |
| General Intent .....                                                   | 64  |
| Location and Physical Characteristics ...                              | 64  |
| Crown Shorelands .....                                                 | 65  |
| Kinds of Crown Land Dispositions .....                                 | 66  |
| 2. Yellow Zone .....                                                   | 69  |
| General Intent .....                                                   | 69  |
| Location and Physical Characteristics ...                              | 70  |
| Crown Shorelands .....                                                 | 70  |
| Kinds of Crown Land Dispositions .....                                 | 70  |
| 3. White Zone .....                                                    | 71  |
| General Intent .....                                                   | 71  |
| Location and Physical Characteristics ...                              | 71  |
| Crown Land .....                                                       | 71  |
| Kinds of Crown Land Dispositions .....                                 | 71  |
| Crown Land Reservations .....                                          | 74  |
| Possible Conflicts .....                                               | 75  |
| Green Zone .....                                                       | 75  |
| White and Yellow Zones .....                                           | 79  |
| Role of Government Agencies in the<br>Disposition of Crown Lands ..... | 81  |
| Department of Recreation,<br>Parks and Wildlife .....                  | 81  |
| Department of Energy and<br>Natural Resources .....                    | 84  |
| Department of Transportation .....                                     | 86  |
| Department of the Environment .....                                    | 87  |
| Summary .....                                                          | 88  |
| References .....                                                       | 89  |
| CHAPTER V CROWN SHORELAND DISPOSITION AND ACCESS:<br>AN ANALYSIS ..... | 91  |
| Shoreland Distribution and Characteristics .....                       | 92  |
| Lakeshore Land Ownership .....                                         | 94  |
| Crown Shoreland Dispositions .....                                     | 100 |
| Public Access to Shorelands .....                                      | 108 |
| Summary .....                                                          | 115 |
| References .....                                                       | 117 |

|                                                          | PAGE |
|----------------------------------------------------------|------|
| CHAPTER VI ANALYSIS OF HISTORICAL LAND DISPOSITION ..... | 118  |
| Historical Sequence of Land Dispositions .....           | 118  |
| Distribution by Disposition Type .....                   | 118  |
| Sequence of Distribution by Amount of Access ...         | 121  |
| 1. No Access .....                                       | 123  |
| 2. Possible Access .....                                 | 125  |
| 3. Recreation Access .....                               | 126  |
| Proportionate Allocation of Dispositions .....           | 128  |
| 1. No Access .....                                       | 130  |
| 2. Possible Access .....                                 | 131  |
| 3. Access .....                                          | 132  |
| Subdivision Pressures .....                              | 133  |
| Summary .....                                            | 135  |
| References .....                                         | 137  |
| CHAPTER VII SUMMARY AND CONCLUSIONS .....                | 138  |
| Summary .....                                            | 138  |
| Management Alternatives .....                            | 143  |
| Future Direction .....                                   | 145  |
| References .....                                         | 147  |
| BIBLIOGRAPHY .....                                       | 148  |
| APPENDIX .....                                           | 155  |

# LIST OF TABLES

| <u>TABLE</u> |                                                                                       | <u>PAGE</u> |
|--------------|---------------------------------------------------------------------------------------|-------------|
| III-I        | Per Capita Distribution of<br>Shoreland .....                                         | 36          |
| IV-1         | Alberta Provincial Crown<br>Land Dispositions .....                                   | 60          |
| IV-2         | Crown Land Dispositions By<br>Management Zones .....                                  | 76          |
| V-1          | Distribution of Lakes in Sample<br>By CLI Recreation Capability<br>Class .....        | 95          |
| V-2          | Shoreland Length and Ownership .....                                                  | 97          |
| V-3          | Shoreland Ownership .....                                                             | 98          |
| V-4          | Land Ownership 1/4 Mile Inland .....                                                  | 98          |
| V-5          | Distribution of Dispositions by<br>Management Zone .....                              | 104         |
| V-6          | Distribution of Dispositions By<br>Amount of Access (Number of Lakes) .....           | 111         |
| V-7          | Distribution of Dispositions By<br>Amount of Access (Number of<br>Dispositions) ..... | 111         |
| VI-I         | Historical Disposition By Zone .....                                                  | 119         |
| VI-2         | Historical Disposition By<br>Amount of Access .....                                   | 122         |
| VII-I        | Summary of Analyses .....                                                             | 140         |



## LIST OF FIGURES

| <u>FIGURE</u> |                                                                                                  | <u>PAGE</u> |
|---------------|--------------------------------------------------------------------------------------------------|-------------|
| V-I           | Distribution of Lakes by Disposition .....                                                       | 106         |
| V-2           | Proportion of Dispositions By<br>Management Zone .....                                           | 109         |
| VI-I          | Historical Distribution of First<br>Disposition Not Allowing Access<br>For Recreation .....      | 124         |
| VI-2          | Historical Distribution of First<br>Disposition Allowing Possible<br>Access for Recreation ..... | 124         |
| VI-3          | Historical Distribution of First<br>Disposition Allowing Access for<br>Recreation .....          | 124         |
| VI-4          | Proportion of all Dispositions not<br>Allowing Public Access .....                               | 129         |
| VI-5          | Proportion of all Dispositions<br>Possibly Allowing Public Access .....                          | 129         |
| VI-6          | Proportion of all Dispositions<br>Allowing Public Access .....                                   | 129         |

## LIST OF MAPS

| <u>MAP</u> |                                                                        | <u>PAGE</u> |
|------------|------------------------------------------------------------------------|-------------|
| III-I      | Distribution of Crown Shoreland in<br>Alberta by Management Zone ..... | 43          |
| III-2      | Alberta Regional Planning<br>Commission Boundaries .....               | 47          |
| V-I        | Distribution of Sample Lakes<br>By Management Zone .....               | 93          |

## CHAPTER I

### INTRODUCTION

#### Introduction

Shorelands, the landward lying portions of the land/water interface surrounding freshwater lakes and rivers and saltwater oceans, are one of Canada's most valuable resources. Shorelands in Canada are presently undergoing intense pressures for development of all kinds, including industrial, residential, recreational, and transportation oriented uses. This appears to be especially the case in areas close to major urban centres and in areas that are not well endowed with high quality shoreland. Many of these uses may be considered incompatible, especially when allowed to occur side by side or when one is allowed to the exclusion of the other. In many instances, heavy industrial or commercial uses are allowed to develop in shoreland areas of prime recreational value because they provide direct local employment and other related economic benefits, some of which may be of questionable social value. This may result in the exclusion of public access to shoreland areas for recreational activities such as camping, fishing, boating, swimming, and viewing.

It is felt by politicians, researchers, and the public that the ensuing conflicts are largely the result of inadequate planning and zoning controls and legislation, accompanied by an inadequate supply of the resource and inequitable political and economic considerations.<sup>1</sup>

In decision making attempts utilizing techniques such as cost/benefit analysis, intangible uses, including recreation, wildlife habitat, and wilderness preservation tend to be assigned little or no value since it is difficult to evaluate their economic or social importance. This will likely remain a problem until guidelines for shoreland use and management have been established and enforced.

Much of the freshwater shoreland in Canada is Crown land, owned by either the federal or provincial governments. Some of the federal Crown land is administered as Indian Reservations and National Parks. Provincial Crown land may be administered as Provincial Parks, or leased to private individuals for cottage developments, to farmers for grazing rights, and to large corporations and companies for mining and timber rights, or for transportation rights-of-way. Policies concerning the leasing of Crown lands vary according to the province and the particular situation. In some instances, administration of the resource and use of the land is turned over to the lessee, and in other cases the Crown maintains control. The lengths of leases vary and they may be cancelled at

any renewal period. Problems often arise, however, since it is politically unwise to terminate a lease without strong justification.

The practice of leasing Crown lands for individual development or use has led to numerous conflict situations concerning recreation, such as cottagers versus public access to shorelands, cottagers versus park development, forest or mining companies versus cottagers and public access, and grazing rights versus park development and public access. Wise administration of these Crown shorelands is necessary in order to minimize conflict situations, to allow the best possible use of shorelands, and to maintain adequate public access to land/water resources for the enjoyment of all Canadians.

There is a need at the present time to review the process whereby decisions are being made by government officials concerning the use and administration of shoreland resources in Canada. The effectiveness of existing management techniques and strategies should be studied along with possible alternative mechanisms.

Shoreland management techniques and strategies, like types of dispositions, vary from province to province and even within provinces.

Provincial Crown lands in Alberta, for example, may be leased by individuals or companies for purposes ranging from cottage subdivisions, to recreation resort developments, to timber, mineral, and grazing rights. Each kind of lease or disposition carries with it different

implications concerning rights of use and control of access. The division of Alberta into three zones for land management and administrative purposes (see Chapter IV) adds further complexity to the situation. Types of dispositions found in one portion of the province may not be available in another area. Similarly, shorelands are unevenly distributed throughout Alberta and demands for use of these shorelands vary widely. This results in the use of different management techniques on lakes in different areas of the province.

### The Study

The focus of this thesis is both on assessing the use and administration of Crown shoreland resources in Alberta in relation to their location and accessibility for purposes of recreation, and on determining how effective leasing and disposition of Crown shorelands for various public and private activities has been in meeting stated planning and management objectives.

Massive amounts of literature exist that provide background information concerning research methods and results related to shoreland use and access, land ownership and disposition, and land use planning and management. Review of all the available literature would require several volumes in itself. Consequently, only the highlights of the literature related specifically to research undertaken,

and management problems identified in Canada and the United States are discussed in Chapter II as justification for this thesis.

Chapter III presents an overview of the availability of shorelands throughout Canada, and discusses some of the management alternatives that have been tried in other provinces. Sources of information related to Crown shoreland availability, use, and management in Alberta are also identified.

The division of Alberta into three general zones for land management purposes is discussed in Chapter IV. The various kinds of leases and dispositions available on Provincial Crown land in Alberta and the policies associated with each are reviewed in terms of intent, provision for recreation and public access, and control over management. The departments and agencies involved in the provision of recreation opportunities and facilities are also presented.

Information concerning lake shoreland characteristics and capabilities for recreation, along with their distribution throughout Alberta, is analyzed in Chapter V in terms of the three management zones that exist in Alberta (see Chapter IV). Chapter V also presents an analysis of the intent, distribution, and frequency of occurrence of leases and dispositions on a sample of lake shorelands in Alberta. The historical allocation of dispositions on lake shorelands in the sample is considered in Chapter VI in terms

of their intent and the amount of public access they provide for recreation. Many of the changes evident in the patterns of Crown land allocation are correlated with modifications in the management structure of Alberta.

A summary in chart form of the various tests and analyses undertaken is presented in Chapter VII along with a discussion of the conclusions of this thesis.



## CHAPTER I REFERENCES

1. These views have been expressed in such publications as:  
Technical Committee on Lakes and Lake Shorelands, 1974,  
"Part IV The Management Reports" of Technical Report No.12  
Use of Our Lakes and Lake Shorelands for Alberta Land Use  
Forum; Dalhousie Institute of Public Affairs and Environment  
Canada. Shoreland: Its Use, Ownership, Access, and Management,  
Proceedings of Seminar, March 8-10, 1972. Amherst, N.S. (1972)  
pp. 82; Lewis, G.D. 1974. "An Inventory of Problems Associated  
with the Use and Development of Shoreland Areas in Saskatchewan",  
Saskatchewan Department of the Environment, pp. 48 and Appendices.  
Brooks, L. "Preliminary Report: Shoreline Management in Canada",  
(Ottawa: Unpublished report submitted to Parks Canada, 1975) p.5.

## CHAPTER II

### STUDY CONTEXT

#### The National Perspective

"Protect Our Beaches", "Who Owns Ontario's Beaches?", and "Keep Canadian Shorelands Open for Canadians".<sup>1</sup> Such were the headlines of many Canadian newspapers in the mid 1960s. The increasing number of recreationists and foreign investors buying shoreland property along the Great Lakes and the Atlantic and Pacific coasts caused many Canadians to become both aware of, and concerned about, the decreasing amount of publicly accessible shoreland. In some areas all but the occasional 100 foot section of beach was cut off from public access.

A report by Devos in the Ontario Naturalist in 1966 stated that "the increased presence of privately owned shoreland frontage, coupled with the continual growth of urban centers, has contributed to the lack of sufficient publicly owned and accessible land along the shores of the Great Lakes".<sup>2</sup> Devos went on to recommend that "the Ontario Government acquire suitable available beach frontage and shoreland lots on Lakes Erie and Ontario before the best of such areas are acquired for private and/or commercial development".<sup>3</sup>

In 1966, Brooks informed the Vancouver Board of Trade that "Canada was not as well endowed with shoreland, especially that suitable for recreation, as some may think".<sup>4</sup> There was already, in 1966, a shortage of land for outdoor recreation in the Vancouver area (66 miles of beach were required to meet the recreation needs of the projected population of 4,000,000 and this was not available within the greater Vancouver area).<sup>5</sup>

Redpath, in his 1971 study of recreational use of the Northumberland Strait shoreland, pointed out that

"the lack of policy with respect to shorelands and the failure of different levels of government to initiate a policy aimed at fulfilling their obligations with respect to shoreland has resulted in ... uncontrolled development of the shoreland ... and a lack of access for the general public to the shore".<sup>6</sup>

"Further research into and documentation of problems associated with shoreland recreation at a national scale is urgently needed. Such research would identify areas where the demand on and supply of recreational resources has reached critical proportions ... would also consider what the alternatives are to private cottage development and would give serious consideration to a national policy to preserve key shoreland areas".<sup>7</sup>

The prevailing feeling throughout the 1960's was the need to manage all lands, including shorelands, more effectively for the benefit of all Canadians. Management has been defined by Hill et al as the "act of manipulating natural and human resources to provide for human needs in the most efficient manner".<sup>8</sup> The various techniques

and processes involved in the management of resources cover a wide range, depending upon the nature of the basic resource and the goods or services which are to be realized from its use.

Techniques and processes utilized in the management of shoreland resources vary widely. In some instances, only one use is necessary and there are no resulting use conflicts. In other cases, however, there are several competing demands for use of the resource, such as recreational, urban, and industrial development. Herein lies the problem of shoreland management in Canada. What is the most efficient and effective means of providing for human needs without destroying the resource?

In 1972, in response to the growing concern for Canada's coastal lands as a limited nonrenewable resource, the Federal Department of the Environment and Dalhousie Institute of Public Affairs co-sponsored a seminar on "Shoreland: Its Use, Ownership, Access and Management".<sup>9</sup> The intent of the seminar was to define the issues and concerns, to discuss methods of collection, analysis, dissemination of factual information about shorelands, and possibly most important, to discuss methods and instruments of management and control of shorelands. No definitive answers or solutions were determined at the seminar. Recommendations concerning how to proceed to bring about effective shoreland management included the study and use of existing structures, development of new structures

where acceptable, better coordination and communication between federal and provincial department officials and planners, and public education to encourage positive response to shoreland management.<sup>10</sup> While these directions appear rather nebulous, they were at least a start toward more dialogue within and between government departments and with certain shoreland users.

A further phase in the study of shoreland management in Canada was undertaken in 1975 by Johnston et al, again under the auspices of the federal Department of the Environment and Dalhousie Institute of Public Affairs. A document entitled Coastal Zone Framework for Management in Atlantic Canada outlining in scenario form two possible methods of coastal zone management in Atlantic Canada was the final result.<sup>11</sup> One of the alternatives presented suggests a progression from management at a very local level, to larger local land and sea area management, to a more regional level, and finally, to a regional level (possibly provincial) including all levels of government. The second alternative requires specific areas to be designated for protection under the management of a body of representatives from all levels of government.

The main focus of each alternative is the necessity for cooperative management between all levels of government having jurisdiction over various aspects of the shoreland resource. In order for this to be successful, complete cooperation between all agencies involved

is required, along with agreement as to what management alternatives are acceptable. This kind of cooperation is very difficult to achieve when each agency has a vested, and usually different, interest in the resource.

Throughout the same time period, concern over shoreland conflicts in the United States led to various seminars and workshops such as one in Massachusetts in 1972 which was to identify the critical problems of the coastal zone.<sup>12</sup> Conflicts of use in the coastal zone were found to result from population pressures combined with major and multiple demands upon the coastal zone. Three strategies for management were identified, namely multiple use, exclusive use, and displaceable use. A definitive answer on how best to allocate uses to one of these three categories was not provided.

Also in 1972, the United States Federal Government adopted the Coastal Zone Management Act which was designed to "establish a national policy and develop a national program for the management, beneficial uses, protection and development of the land and water resources of the nation's coastal zone".<sup>13</sup> This initial step was a significant advance over Canada, which to date still does not have a unified mandate or mechanism under which to coordinate shoreland management.

Several initiatives in shoreland management were undertaken by individual states prior to the passing of the Coastal Zone Management Act. California was the first, with the establishment of the San Francisco Bay Conservation and Development Commission (BCDC) in 1965.<sup>14</sup> This Commission was to regulate, through the issuance of permits both to public and private groups, development on, in or near San Francisco Bay. In 1975, Swanson<sup>15</sup> analyzed the San Francisco Bay Conservation and Development Commission and found that the Commission had succeeded, among other things, in reducing the rate of infilling of the Bay, increasing the amount of publicly accessible land, and improving the shoreland quality. It was concluded that the Commission was successful because: (1) its goals and the means to achieve these goals were clearly defined, and (2) the decision making process was a unified one in that there was continual interaction as a group of all members of the Commission with no splitting into subcommittees.<sup>16</sup> As discussed previously, the second alternative suggested by Johnston, et al,<sup>17</sup> of a management option for Atlantic Canada wherein specific shoreland areas would be designated as protection areas where required under a management body comprised of representatives from all government agencies, could be considered closest to this option. The lack of unified national management strategies and policies for all Canadian shoreland areas, however, could be the result unless some universal guidelines and goals were established.



The success of the BCDC led California to approve the California Coastal Zone Conservation Act in 1972,<sup>18</sup> prior to the passing of the Federal Coastal Zone Management Act. This Act established one state-wide and six regional Coastal Commissions comprised of locally elected officials and public members. The goal of these Commissions was "to prepare, in consultation with the public and government, a comprehensive coordinated and enforceable plan for the orderly and long range conservation and management of the natural resource of the California Coastal Zone".<sup>19</sup> The Commission received overwhelming support from the local planners, and a proposed plan was presented to the Legislature less than three years later. Recommendations in the submission included that the local government be used to implement the coastal plan. This would eliminate duplication at the state level, would provide more access to the local citizens, and would best reflect the unique conditions along the coast. All local plans, however, were to be reviewed by both a Regional Commission and a State Coastal Commission. An additional factor was that the State Coastal Commission would maintain jurisdiction over public trust lands and areas seaward of the mean high tide line. Thus, the state could, if it so desired, maintain strict control over uses made of the actual shoreland.

Other similar coastal zone management programs were developed in the early 1970s (Oregon and Maine),<sup>20</sup> and the majority of the remainder of the coastal states in the United States have begun



work on their own management plans as a result of the Federal Coastal Zone Management Act. In the meantime, Canada still has not taken steps to initiate a similar sort of plan that is needed, not only at the salt water and Great Lakes coastal level, but also at the smaller fresh water lakes level.

The dominant theme evident in almost all the reports documenting studies concerning the coastal zone and shoreland use and access, is the need for more coordinated management and administration of the land and existing resources. The basic problem remaining, however, is how best to administer and manage these resources.

#### The Provincial Perspective

Many of the problems evident at the saltwater coastal zone level are also evident, at a somewhat smaller scale, on lake shorelands. Problems of management and administration of all shorelands exists. A brief review of lakeshore management attempts in several Canadian provinces illustrates problems similar to those found in saltwater coastal zone management.

Several provinces have begun to undertake lakeshore land planning and management on an ad hoc basis, but no province has as yet prepared lake planning and management guidelines or legislation for all lakes in the province.

In 1975, Brooks surveyed the Canadian provinces to obtain information concerning shoreland management techniques and practices in each.<sup>21</sup> His results show that, while most provinces were becoming alarmed about the disappearing shoreline resource, few had undertaken major shoreline inventories, developed management plans, or had passed related legislation. The majority of provinces felt that recreational or residential housing development along shorelines was the greatest threat to public access to the beach and water. Subdivision controls and by-laws on an individual basis were being undertaken in new subdivisions in most provinces to ensure that better access was provided, however, little was being done to improve the situation in the many existing subdivisions. Also, little was being done to remove other non-compatible uses from shoreland areas. Similarly, in those provinces still having good quality Crown shorelands available for subdivision, lands were being leased rather than sold in an attempt to maintain more public access to the shore.

The Manitoba Department of Urban Development and Municipal Affairs in 1971, realized that the provincial government policy of delegating long range plans for development of shoreland resources to local governments with no unifying policies to guide decisions was not adequate.<sup>22</sup> The need to "formulate a realistic, long range approach to provide for the present and future outdoor recreation needs of the general public"<sup>23</sup> was identified. The result was a document

outlining principles guiding both environmental and development planning of shoreland areas. While these principles are basically sound, they reflected the philosophy of the department rather than existing policy, of which there was none.

In 1971, the Canada-Ontario-Rideau-Trent-Severn (C.O.R.T.S.) Committee prepared a report on the optimum recreational development of the 425 mile waterway between Ottawa, Lake Ontario, and Georgian Bay.<sup>24</sup> The report contains inventory information, as well as recommends further detailed examination of the recreation potential of lake shorelands in the corridor. The committee felt that there was insufficient information available to adequately plan and manage the area.

The Ontario Ministry of Natural Resources has also undertaken an inventory of shorelands on lakes throughout the province, and have initiated the development of proposed management plans for these lakes. These management plans identify available Crown cottage lots. Their basic intent is to preserve the quality of the natural environment, while at the same time, satisfy public recreation needs.<sup>25</sup> Unfortunately, this program only covers a few of the many lakes in Northern Ontario. While no unified policies or guidelines have as yet been formalized, the Ontario Ministry of Natural Resources is presently developing a strategic Land Use Plan (SLUP) which sets out broad policies for all land use requirements.<sup>26</sup>

In 1974, Lewis outlined some of the problems facing lake shorelands in Saskatchewan, including:

- (1) The diminishing amount of public access to beaches and the corresponding increasing pressure on provincial parks to make up for the lack, thus resulting in impairment of the basic purpose for which parks were established, and
- (2) The poor design and location of cottage subdivisions resulting from a lack of zoning or building by-laws and the lack of maintenance of public reserve land.<sup>27</sup>

Lewis identifies that data concerning lakes is available for only 18 lakes in the province and that more comprehensive inventories are required, along with a regional planning approach to ensure a rational plan for the use and development of lake shorelands. In response to concerns expressed by Lewis and others in Saskatchewan, an interdepartmental Shoreland Development Policy Committee was established to develop a shoreland use and development policy. This committee has since prepared a report on problems concerning shoreland development and use in Saskatchewan, supervised land and water use planning studies on two lakes, and proposed interim development control guidelines and the establishment of a task force to develop a long range shorelands policy. This task force has been approved in principle and will have approximately five years to develop a long range policy for shoreland management in Saskatchewan.<sup>28</sup>

Alberta has possibly some of the most advanced lake management strategies of all the provinces due to the efforts of the Alberta Department of the Environment (1972)<sup>29</sup> and the Alberta Land Use Forum (1974).<sup>30</sup> The Alberta Land Use Forum was established in 1973 to consider various aspects of land use in Alberta. The Technical Committee on Lakes and Lake Shorelands of the Alberta Land Use Forum expanded upon an inventory, prepared by Alberta Environment, of a majority of the lakes in Alberta by region. They also showed by example, how best particular lake management and site specific aspects can be combined as the basis for decision making concerning lake shoreland development. Subsequent to the findings of the Technical Committee, the Conservation and Utilization Committee Task Force on Shorelands of Alberta Environment identified 45 lakes in the province in 1976, which are "currently or could be expected to be subjected to subdivision development pressures".<sup>31</sup> Further studies of the list of lakes has resulted in 14 lakes being identified as having shoreland resources still available and in urgent need of formulation of management plans to guide development. A decision by the Alberta Cabinet in September 1977, resulted in development on these 14 lakes being halted until lake management plans have been prepared.<sup>32</sup> This is a major step forward for Canada, provided development is restricted until the management plans are completed.

This review of shoreland research and management strategies in Canada and the United States covers only the highlights of the available, relevant literature. An annotated bibliography, prepared in 1976 by the author, presents a more detailed overview of the background to this thesis.<sup>33</sup>

### The Role of Crown Lands

One means of ensuring public access to shorelands in Canada is to maintain existing Crown land resources as public reserve lands. Two basic kinds of land exist in Canada for management purposes, namely Crown or government owned land and patented or privately owned land. Use made of patented land can be controlled only to a small degree by government agencies, in that use must conform to any existing legislation, regulations, or zoning bylaws. Use of Crown lands, on the other hand, can be totally controlled by government agencies, if desired, merely by providing for this control when designating the use to be made of the land. This would involve the insertion of clauses imposing conditions concerning management in the terms of the disposition. For instance, clauses stipulating the amount of control to be maintained over the area by the holder of the disposition, other activities that are to be allowed on the land at any given time, and condition in which the land is to be restored to the Crown, particularly if the use is to be extractive in nature, would help to maintain control over

both present and future use of the land in question. The effective use of Crown land dispositions for managing land use and maintaining an adequate supply of publicly accessible shoreland is dependent not only on the terms of the disposition, but also on how closely the disposition is monitored by the responsible government agency.

Types of dispositions vary from province to province. Similarly, the terms and responsibilities of the dispositions vary as well. These differences are presented in a document compiled by the Canadian Council of Resource and Environment Ministers in 1972, which summarizes the policies, types of dispositions, and legislation applicable on Crown lands across the country.<sup>34</sup> This document, although somewhat dated, provides a valuable starting point for any study of Crown land administration in Canada.

Amounts of shoreland owned by the Crown also vary from province to province, as do the statutes governing principles of land ownership and use. The doctrine of riparian rights<sup>35</sup> which was at one time widespread throughout Canada, is no longer predominant. Most provinces now maintain jurisdiction over the bed and shores of both navigable and non-navigable waters. Thus, use of this land is under control of the Crown, if the Crown exercises its mandate to control the use. Adjacent patented land will not be under control of the Crown, however, and this compounds the problem. Brooks

states it quite succinctly in his 1975 review of provincial shoreland management practices: "History has shown that leaseholds tend to take on all the territorial imperatives of private land as the years go by. Leases cannot be a substitute for proper planning and management of the coastal zone".<sup>36</sup>

In 1961, Johnson and Tyrrell identified a problem evident at all levels of Canadian government, namely the lack of effective machinery to identify, manage, and preserve potential parklands from loss to private interests and to unwise development.<sup>37</sup> They further identified that there are only two main means of ensuring publicly accessible land. These include outright purchase of patented land or reservation of Crown land for recreation and conservation purposes. Other alternatives which they felt to be less effective included zoning bylaws, subdivision control, and the use of dispositions other than reservations as a means of managing and controlling land use.

Redpath recommended in 1971 that Crown land no longer be sold outright. Short term leases of no longer than ten years duration with a review of the terms every five years should be implemented on these Crown lands. This would provide the provinces with greater flexibility in terms of being able to adapt to changes in recreational demands.<sup>38</sup>



The overriding theme of the above-mentioned studies is that management of shorelands for public access is difficult unless the Crown owns the land and has direct control over its use and development. Preservation of the vast public domain of shoreland depends upon two things; "the common law rights of the public to the foreshore and safeguarding of sufficient shoreland for public use".<sup>39</sup>

This thesis will study how effectively leases and dispositions on Provincial Crown lands in Alberta have been used, both in the provision of sufficient public access to shorelands and in the achievement of the stated goals and objectives of the three management zones.



## CHAPTER II REFERENCES

1. Winnipeg Free Press, August 5, 1967.
2. Devos, A. "Recreational Values of the Great Lake Shorelines", Ontario Naturalist, Vol. 4, No. 1, 1966, pp. 16-18.
3. Ibid.
4. Brooks, L. "Use of Canada's Shorelines"; (Ottawa: Parks Canada, Paper presented to Civic Affairs Committee of Vancouver Board of Trade, November 10, 1966), p. 2.
5. Ibid, p. 4
6. Redpath, D.K. "Policy Implications for Shoreland Recreation: A Pilot Study in New Brunswick and Nova Scotia" (unpublished Masters Thesis, University of Waterloo, 1971), pp. 184 and 189.
7. Ibid, p. 198.
8. Hills, G. Angus, David V. Love, and Douglas S. Lacate. Developing a Better Environment (Toronto: Ontario Economic Council, 1970), p. 87.
9. Dalhousie Institute of Public Affairs and Lands Directorate, Environment Canada, Shoreland: Its Use, Ownership, Access, and Management (Halifax, N.S.: Dalhousie Institute of Public Affairs, Proceedings of Seminar, Amherst, N.S., March 8-10, 1972) p. 82.
10. Ibid.
11. Johnston, D.M., A.P. Pross, and I. McDougall. Coastal Zone: Framework for Management in Atlantic Canada (Halifax, N.S.: Dalhousie Institute of Public Affairs and Environment Canada, 1975) pp. 163.
12. Ketchum, B.H. (ed). The Water's Edge: Critical Problems of the Coastal Zone, (Cambridge, Mass: MIT Press, Proceedings of Coastal Zone Workshop, Wood's Hole, Mass. 1972) pp. 393.
13. United States Coastal Zone Management Act; US Public Law 92-583, 86 Stat. 1280.

14. San Francisco Bay Conservation and Development Commission Act, Stat. 1965, c. 1162. (West's Ann. Gov. Code, 1966, Title 7.2).
15. Swanson, G.C. "Coastal Zone Management from an Administrative Perspective: A Case Study of the San Francisco Bay Conservation and Development Commission", Coastal Zone Management Journal, Vol. 2, No. 2, 1975, pp. 81-102.
16. Ibid, p. 90.
17. Johnston, D.M. et al, opcit.
18. California Coastal Zone Conservation Act, 1972, S.27200-2.
19. Ibid, 2. 27001(b).
20. Ross, J.F. "Coastal Zone Management: The Oregon Approach" in B. Merselis (ed), Proceedings Coastal Zone Management and the Western States Future, (Newport Beach Calif: Marine Technology Society, 1974) pp. 10.  
United States Department of Commerce, State Coastal Zone Management Activities, (Washington: Office of Coastal Zone Management, 1974), p. 4.  
Proceedings Future Management of the Oregon Coast, (Univ. of Oregon, Law Centre, Sea Grant Symposium), pp. 49.
21. Brooks, L. "Preliminary Report: Shoreline Management in Canada" (Ottawa: Unpublished report submitted to Parks Canada, 1975) pp. 5.
22. Municipal Planning Br. Shoreland Recreation: An Environmental Approach to Development, (Winnipeg: Manitoba Department of Urban Development and Municipal Affairs, 1971) pp. 48.
23. Ibid, p. 6.
24. Canada-Ontario-Rideau-Trent-Severn (CORTS) Committee, Optimum Recreational Development in the Lake Simcoe-Couchiching Area, (Toronto: Ontario Ministry of Natural Resources, 1973) pp. 27.
25. Ward, E. Neville. Land Use Programs in Canada: Ontario, (Ottawa: Environment Canada, 1977) p. 132.
26. Ibid. p.37.

27. Lewis, A.D. "An Inventory of Problems Associated with the Use and Development of Shoreland Areas in Saskatchewan", (unpublished report, Saskatchewan Program Coordination Division, Administration Branch, 1974) pp. 29.
28. Ward, E. Neville. Land Use Programs in Canada: Saskatchewan, (Ottawa: Environment Canada, 1978) p. 34.
29. Alberta Environment, Water Resources Division. Lake Classification, (Edmonton: Alberta Environment, 1972) Appendix A.
30. Technical Committee on Lakes and Lake Shorelands. The Use of Our Lakes and Lake Shorelands, Technical Report No. 12, (Edmonton: Alberta Land Use Forum, 1974) pp. 156.
31. Conservation and Utilization Committee Task Force on Shorelands. Lake Shorelands: Subdivision Development Pressures, (Edmonton: Alberta Environment, 1976) p. 9.
32. Alberta Cabinet Decision, September 1977, and Statement in Edmonton Journal, Sept. 1977.
33. Bloomfield, Janice and Peter Harrison. The Shorezone: An Annotated Bibliography, (Ottawa: Environment Canada, Occasional Paper No. 12, November 1976) pp. 53.
34. Canadian Council of Resource and Environment Ministers (CCREM). The Administration of Crown Lands in Canada, (Montreal, Quebec: CCREM, 1972) pp. 478.
35. According to the doctrine of riparian rights, any landowner adjacent to a non-navigable small lake or river or non-tidal stream owns either the entire bed of the water body if he owns land on both sides of the water course, or the bed to the centre of the water course. This doctrine is no longer widely accepted in Canada.<sup>a</sup> In Prince Edward Island in 1974, the Real Property Act was amended to read that no person who is not a resident of Prince Edward Island shall take, acquire, hold or receive title to any real property in Prince Edward Island, the aggregate total of which exceeds 10 acres or 5 chains of shore frontage.<sup>b</sup> The Ontario Beds of Navigable Waters Act<sup>c</sup> states that any grant of land bordering on a navigable body of water or stream, whether or not it is tidal, does not carry with it title to the bed of such body of water unless so specified. However, rights of ownership of the bed of navigable waters granted prior to March 24, 1911, shall remain in effect. An amendment to the Public Lands Act of Alberta in 1966 states that the titles to the beds and shores of all rivers, streams, watercourses, lakes, and other bodies of water are vested in the Crown in the right of Alberta and no grant or certificate of title made or issued before or after the commencement of the Act shall convey title to such beds or shores unless specifically stated in the grant or determined by a court prior to June 18, 1931.<sup>d</sup>

- (a) G.V. LaForest and Associates. Water Law in Canada - The Atlantic Provinces, (Ottawa: Information Canada, 1973) pp. 241-242.
- (b) RSPEI, 1974, CR-40, s. 3, 4.
- (c) RSO, 1970, c. 41, s. 1, 2.
- (d) RSA, 1970, c. 297, s. 4.
36. Brooks, L. op.cit, 1975, p. 5.
37. Johnson, N., and J. Tyrrell. "Problems and Techniques of Land Acquisition", Resources for Tomorrow Conference, Vol. 2, (Ottawa: Queen's Printer, 1961) pp. 1009-1026.
38. Redpath, D.K. op.cit, p. 196.
39. Johnson, N., and J. Tyrrell. op.cit, p. 1017.

## CHAPTER III

### SHORELAND AVAILABILITY

#### The Canadian Situation

Shoreland beaches of high recreation capability (i.e. large, sandy expanses with adjacent water warm enough and suitable for bathing and other water-oriented activities) are in limited supply throughout Canada.

The majority of these high quality beaches and shorelands are located in the southern, settled portions of Canada. The result has been high competition for such conflicting land uses as urban, cottage, recreational, and industrial development. A means of identifying not only high quality shorelands for recreation purposes, but also high quality agricultural land, forestry resources, and wildlife habitat throughout Canada was required.

#### The Canada Land Inventory

In the 1960's, a method of classifying land in Canada according to its capability for a specific type of land use was conceived. A classification system for various land uses, including recreation,

was applied to the settled portion of Canada to fringe areas, in total covering approximately one million square miles. The Alberta Government extended the coverage of recreation capability to include all of the province.

The "recreation classification system was developed for the purpose of compiling an inventory of natural outdoor recreational resources as part of the Canada Land Inventory".<sup>1</sup> Its intent was to indicate the type of recreation to which land is best suited based on its natural capability for recreation provision. Location, access, and present use (unless firmly committed to an industrial or municipal use) do not influence the classification of any piece of land. The "basis of classification is the quantity of recreation which may be generated and sustained per unit area of land per year under perfect market conditions."<sup>2</sup> There are seven capability classes, ranging from a very high capability (Class 1) "to engender and sustain very high total annual use based on intensive activity", to a very low capability for recreation in Class 7.<sup>3</sup> A second symbol denotes whether the unit of land is upland or shoreland. A unit of land could be further classified into 25 subclasses of recreational features which represent the major uses for recreation as indicated by then popular preferences.<sup>4</sup> Up to three of these subclasses could be assigned to any unit of land. Of the 25 classes, eight are directly related to shoreland areas and are of interest to the present study.

These include the following:

- A - access for angling and viewing fish
- B - beach activity
- C - canoe tripping access
- D - deeper inshore for swimming and boat launch
- K - organized camping
- N - cottaging
- U - yachting or deep water boating
- Y - access for family boating

#### Recreation Shoreland Distribution

A review of the linear distribution of shoreland by Canada Land Inventory Recreation Capability Class for the Atlantic Provinces of Prince Edward Island, Nova Scotia, and New Brunswick reveals that 28 percent, or only about one-quarter of the approximately 4152 miles of coastline in the three provinces has high recreation capability (i.e. Class 1 to 3).<sup>6</sup> The amount of high quality shoreland available in Eastern Canada is therefore relatively small and much of it is not easily accessible for day use from the urban centres of the three provinces.

In a recent survey of the recreation capability of the Ontario shoreline of Lakes Ontario, Erie, St. Claire, and Huron, it was found that less than 4 percent of the 2,380 miles of shoreland



measured is of the recreation capability Class 1.<sup>7</sup> Much of this shoreland, which is in close proximity to the densely populated Toronto-centred region and to the large urban populations of north-central United States, has been developed as individual privately owned cottage lots, or is being utilized for urban, industrial or power production purposes. Less than one percent of all the land in Southern Ontario is Crown land, and very little of this is found along the Great Lakes. The little amount of Crown land that remains is to a large extent either managed as Provincial or National Park land. Ontario is attempting to identify and to acquire parcels of high quality shoreland along the Great Lakes in order to expand its system of parkland. This acquisition program began somewhat belatedly after the recommendation made by Devos in 1966 to the Ontario Government to begin to acquire available shoreland properties. Similarly, a freeze was placed on the sale of Crown land on Lake Nipissing in 1964 when it was found that only 17 percent of the shoreland remained in public control.<sup>8</sup> It has been estimated that approximately 80 percent of the eastern Lake Erie shoreland is owned by Americans, with most of the rest owned by resident Canadians.<sup>9</sup> This situation is typical of much of the Great Lake shoreland.

A study of smaller freshwater lakes in the area directly north of the Ottawa/Hull metropolitan region revealed that less than one percent of the 1,217 miles of shoreland in the study area is Class

1, while only 6 percent is Class 2 and 27 percent is Class 3. Much of this higher capability land is found in the more northerly sections of the study area, and at present, is relatively inaccessible for recreational purposes of a day trip nature from the populated areas of Ottawa/Hull, Maniwaki, and Montreal. Also, many of the Class 1 and 2 beaches are located either on the shores of the Baskatong Reservoir and are therefore subject to widely fluctuating water levels and a reduced recreational experience, or are in areas that are leased and controlled by forest companies. However, in spite of these factors, the study revealed that the amount of shoreland of recreation capability Classes 1 to 3 developed as cottage lots or built-up areas had increased from 35.2 percent in 1966 to 56.6 percent in 1972, reflecting the increasing demand for shoreland properties, regardless of their accessibility.<sup>10</sup>

The amount of small lake freshwater shoreland varies widely throughout Canada. The Canadian Shield portions of Canada are possibly the most well-endowed with lakes. Many of these lakes are located in the more extreme northerly sections of the country and are therefore relatively inaccessible (except for fly-in type recreation) and are of little value for the average day-user type recreationist. The fact that most (75 to 80 percent)<sup>11</sup> of Canada's population is centred in the strip of land 100 miles wide along the southern boundary of the country has created an intense pressure for recreational resources and experiences within close driving range (ie. a

day trip, or a weekend trip) of the population. This, coupled with the fact that most of the smaller freshwater lakes are located farther north, has led to intense pressure for development on those lakes located in close proximity and in easily accessible locations, regardless of their size, quality or recreation capability. Many of these lakes have been completely encircled by individual private cottage developments, and while the lake and beaches to the high-water mark are, in most cases, open to the public, there are few, if any, access points to the lake.

In Ontario in 1972, 100 percent of the 12 percent of land in Ontario located south of the French River in the counties in Southern Ontario, in the District of Manitoulin, and in scattered mining and agricultural districts in the Canadian Shield was patented or privately owned. The remaining 88 percent of the province is mostly Crown land which is administered and controlled by the province.<sup>12</sup> However, this is not to say that large portions of Crown land, especially in shoreland areas, are publicly accessible. Rather, much of the land has been leased to individual cottagers and forest and mining companies on long-term leases. Generally, this indicates that, while the land is still owned by the Crown, the rights to the resource or the buildings on the land are owned by the individual or company. While the lease usually does not extend lakeward beyond the highwater mark, it is often treated by the lessee as if he had exclusive rights to the use of

the land. As a result, he may block others from using "his" lands and from having access to the shore. Thus, while almost 100 percent of the land in northern Ontario is Crown and publicly owned, it is not all publicly accessible.

Quebec has historically allowed huge tracts of Crown shoreland to be leased to private hunting and fishing clubs for their exclusive use. By 1971, private clubs had exclusive use of 80 percent of all public recreation land accessible by road in Quebec, including a total of about 24,000 square miles of the best hunting and fishing regions in the province. In May 1971, the Quebec Ministry of Tourism, Fish and Game announced that the public would be allowed access to all Crown lands in the province, including those which had formerly been exclusively for private use.<sup>13</sup> This reversal of policy represents a major change in attitude by the Quebec Government and opens up large areas of shoreland for public access and use. While this recent change in policy has reduced conflicts occurring between public and private recreationists, it has opened up the Quebec Government to conflicts with other interests such as industry for use of the land. How these potential conflicts will be resolved is not known at the present time.

## Per Capita Distribution of Shoreland

Discussion of the per capita distribution of shorelands throughout Canada is necessary in order to illustrate the magnitude of the problem of public accessibility.

Information compiled from the Canada Land Inventory (CLI) has been entered into the Canadian Geographic Information System operated by Environment Canada. Taylor utilized this information base to calculate the total length of shoreland of CLI Recreation Capability Class 1 to 5, for all shorelands within 121 km (75 miles) of all Census Metropolitan Areas (CMA's) in Canada.<sup>14</sup> The per capita amount of shoreland (i.e. in miles and feet) available within 75 miles of each CMA has been determined using 1971 population data. Table III-I presents this information for 20 Census Metropolitan Areas in Canada.

Analysis of this information indicates that Sudbury, Ontario, was the most well endowed with shoreland in 1971, with 528.9 feet of shoreland per capita. Saint John, New Brunswick, ranked second, with 144.3 feet per capita. Toronto was found to have the lowest ratio of shoreland to people, with 2.8 feet per capita. This low ratio is reflected throughout Southern Ontario. It is compounded by the proximity of several CMA's and the overlapping of the 75 mile zones around each area. Thus, some of the shoreland located within 75 miles of one CMA is also located within 75 miles of

TABLE III-1

## PER CAPITA DISTRIBUTION OF SHORELAND

| CENSUS METROPOLITAN AREA<br>(CMA) | POPULATION<br>1971<br>(1000's) | MILES OF<br>SHORELAND<br>(Class 1-5)<br>Within 75<br>Miles of CMA | MILES OF<br>SHORELAND<br>PER CAPITA | FEET OF<br>SHORELAND<br>PER CAPITA | RANK |
|-----------------------------------|--------------------------------|-------------------------------------------------------------------|-------------------------------------|------------------------------------|------|
| Sudbury                           | 155                            | 15528.1                                                           | 0.10                                | 528.9                              | 1    |
| Saint John                        | 107                            | 2924.7                                                            | 0.027                               | 144.3                              | 2    |
| Thunder Bay                       | 112                            | 1886                                                              | 0.02                                | 88.9                               | 3    |
| Halifax                           | 223                            | 3294.4                                                            | 0.015                               | 78.0                               | 4    |
| Saskatoon                         | 126                            | 1773.6                                                            | 0.014                               | 74.3                               | 5    |
| Ottawa                            | 603                            | 7495.4                                                            | 0.012                               | 65.5                               | 6    |
| Victoria                          | 196                            | 1690                                                              | 0.009                               | 45.5                               | 7    |
| Quebec City                       | 481                            | 3857.5                                                            | 0.008                               | 42.3                               | 8    |
| Edmonton                          | 496                            | 3386                                                              | 0.007                               | 36                                 | 9    |
| Regina                            | 141                            | 754.9                                                             | 0.005                               | 28.3                               | 10   |
| Kitchener                         | 277                            | 935.6                                                             | 0.0034                              | 17.8                               | 11   |
| Vancouver                         | 1082                           | 3604.2                                                            | 0.0033                              | 17.6                               | 12   |
| Calgary                           | 403                            | 1311.5                                                            | 0.0033                              | 17.2                               | 13   |
| London                            | 286                            | 905.8                                                             | 0.0032                              | 16.7                               | 14   |
| Winnipeg                          | 540                            | 1467.3                                                            | 0.0027                              | 14.4                               | 15   |
| St. Catharines                    | 303                            | 649.5                                                             | 0.0021                              | 11.3                               | 16   |
| Hamilton                          | 449                            | 837.5                                                             | 0.0019                              | 9.85                               | 17   |
| Windsor                           | 259                            | 471.7                                                             | 0.0018                              | 9.6                                | 18   |
| Montreal                          | 2743                           | 3543                                                              | 0.0013                              | 6.8                                | 19   |
| Toronto                           | 2628                           | 1387.9                                                            | 0.00053                             | 2.8                                | 20   |

SOURCE: Calculated by author using statistics compiled by M.C.Taylor, in Land Capability for Recreation, Summary Report, CLI Report No. 14, (Ottawa: Lands Directorate, Environment Canada, 1978) pp. 30.

another CMA, actually decreasing the amount of shoreland per capita. Areas involved include Kitchener with 17.8 feet of shoreland per capita, St. Catharines with 11.3 feet per capita, and London with 16.7 feet per capita.

The second lowest ratio of shorelands to population is found in Montreal, with 6.8 feet per capita. Edmonton ranks ninth with 36 feet per capita, while Calgary ranks thirteenth with only 17.2 feet per capita, indicating that the Alberta near-urban shoreland situation is average in relation to the rest of Canada.

It must be noted here, that these figures represent only the total amount of Class 1 to 5 shoreland and do not indicate use, ownership, or accessibility of the shoreland in question. The figures do, however, illustrate the extent of the problem, regardless of ownership and accessibility. In summary, there is generally an inadequate supply of high quality shoreland within a one day trip distance of the majority of Canada's population.

#### Conflicts of Shoreland Uses

The concept of conflict among competing land uses has been defined by Mitchell as:

A range of conditions from mild dissent to major community upheavals (short of violence) which result from the inability of formal decision-making systems to adequately accommodate local interest group viewpoints. Conflict begins when disagreement over a specific decision is translated into action.<sup>15</sup>

Similarly, Boulding defines conflict as a "situation of competition in which the parties are aware of the incompatibility of potential future positions and in which each party wishes to occupy a position that is incompatible with the wishes of the other."<sup>16</sup>

Conflicts concerning access to and use of Crown lands and shorelands occur in varying degrees throughout Canada, depending on such external variables as biophysical land capability and characteristics, distance from population centres, climate, and quantity or availability of alternative sites of equal value. Potential and existing conflict situations occur in areas such as Southern Ontario where very little vacant Crown land exists. The high demand and competition for land for recreation, residential, industrial, agricultural, and transportation uses results in a conflict situation. The lack of adequate early planning for and controls of development, and the failure to reserve tracts of land for public use has resulted in overuse, overdevelopment and overcrowding in many existing recreation areas.

Conflicts of use in saltwater coastal areas are found to occur in Prince Edward Island, the province having the greatest amount of high quality shoreland on the East Coast. During the past few years, Prince Edward Island has experienced intense pressure for the development of its beaches and shoreland areas. Beaches



throughout the province are being developed as individual private cottage lots,<sup>4</sup> and public access to these high quality recreation areas is rapidly being reduced. As of 1972, approximately 10 percent of the Islands' 1,141 miles of coastline was owned by non-residents, resulting in growing concern that the best quality beaches in the province would soon be controlled by "outsiders".<sup>17</sup> Similarly, farmers were found to be subdividing shoreland agricultural properties into smaller cottage lots and selling them to the highest bidder. While in total this accounts for a relatively small amount of agricultural land and beach access, controls are being tightened to minimize land speculation, extensive unplanned subdivisions, and loss of publicly accessible shoreland. Prince Edward Island National Park was created to help protect the Cavendish Beach area of the north shore of Prince Edward Island. However, the park is small (only 7.1 square miles of Crown land), receives extensive use and its regenerative capacity is being impaired. Thus, conflicts concerning what amount of use should be allowed in the park must be resolved.

Other coastal zone use conflicts are also evident in Eastern Canada. Beaches in Nova Scotia having high quality sand and gravel deposits are being exploited to acquire materials for construction purposes, both because they are relatively inexpensive to quarry, and because there are few high quality sand and

gravel deposits elsewhere in the province. Other conflicting pressures, including urban, industrial, and shipping developments are also placed on the coastal areas of Nova Scotia. These demands for shoreland for various uses are intensified by the decreasing amount of available shoreland as a result of private, including non-resident, ownership of land. However, while it is felt by some that land use and not land ownership is possibly the most serious threat to the Nova Scotia shoreline,<sup>18</sup> the amount of coastline owned privately both by residents and non-residents is considerable. This situation greatly reduces the amount of shoreland available for various other uses and for public access.

The lack of public access to Canadian shorelands for recreational purposes may be the result of other competing land uses besides cottage development, especially uses that have a "higher" economic or social value and which are backed by large corporations or businesses which tend to have greater influence on the local decision-making body (i.e. the municipal or regional government agency which distributes building and construction permits and makes zoning changes). These uses quite often may be allowed because they will be an economic asset to the community or region in that they will supply employment and income opportunities. Similarly, their location in coastal areas might be the result of ownership of land, convenience for shipping purposes, or a need for water for cooling processes in certain industries. In most

cases, however, there have been no development plans or zoning by-laws in existence to regulate what uses should be made of the shoreland, where these developments should or should not be located, or what pollution specifications these plants or industries should meet.

### The Alberta Situation

"Alberta comprises 6.6 percent of the total land and freshwater area of Canada, but contains only 2.2 percent of Canada's freshwater areas".<sup>19</sup>

As in the rest of Canada, lakes having shorelands that are of high recreation capability for beach oriented activities are in limited supply, especially in Southern and Central Alberta. The location of the majority of Alberta's population, also in the south, has resulted in numerous conflicts regarding the uses to be made of any available shorelands. The limited supply of shoreland is further compounded by a scarcity of Crown land in southern Alberta (i.e. less than 40 percent of the land is Crown).<sup>20</sup>

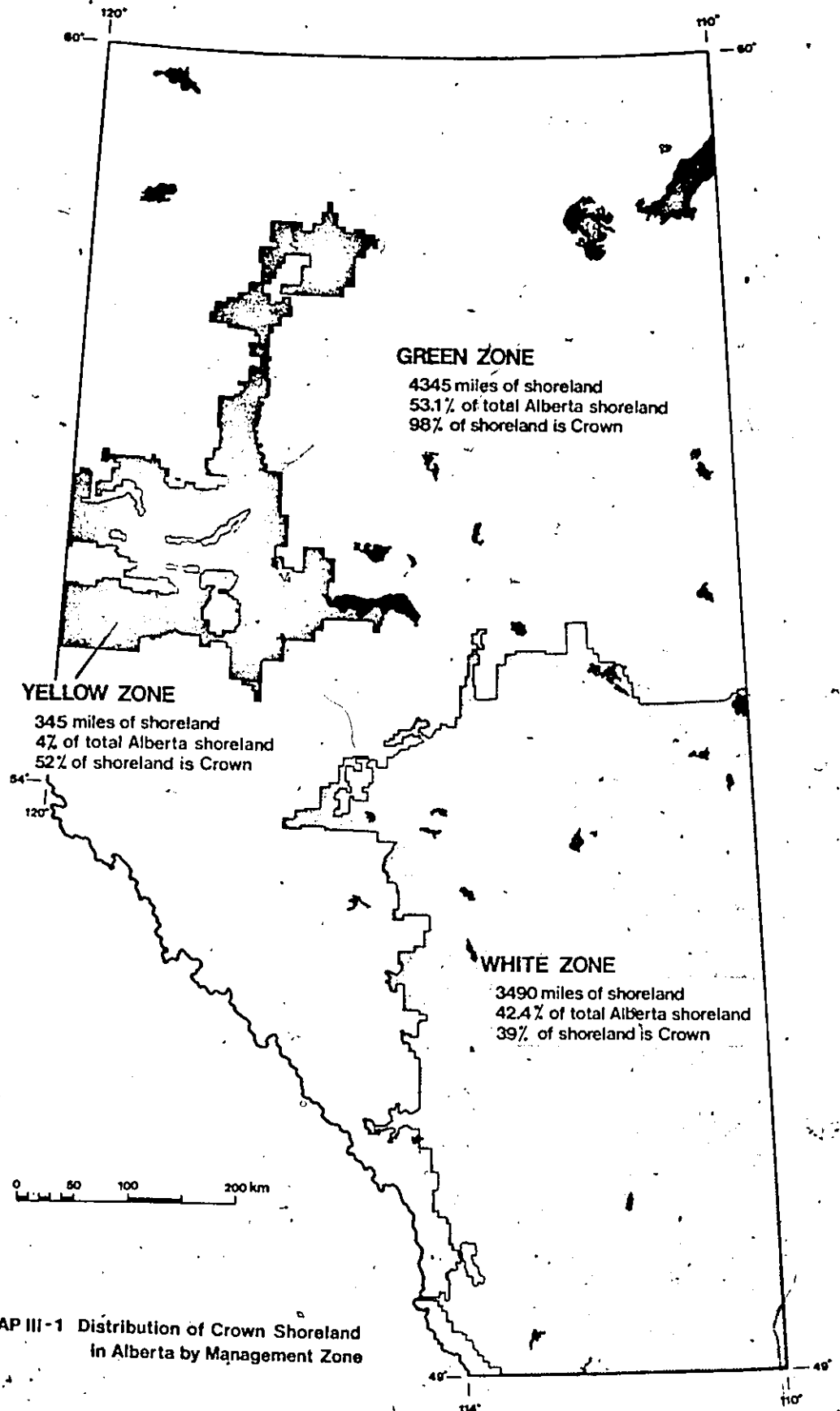
This small amount of Crown land in Southern and Central Alberta has resulted in other conflicts besides lake shoreland management. Use of the land for forestry, agriculture, or settlement has been an issue in Alberta since the early 1900's. The government

realized the need for some form of organized land management, and in 1948, Alberta was divided into three general zones for land management and administrative purposes.

#### Land Management Zones

The division of Alberta into three general zones in 1948 was an attempt to confine settlement to specific suitable areas and to prevent agricultural settlement in forested areas where forest management practices were in force.<sup>21</sup> The resulting zones were the Green Zone or Forestry, Wildlife and Recreation Zone, the Yellow Zone or Peace River/Grande Prairie Agriculture and Settlement Zone and the White Zone or Agriculture and Settlement Zone.<sup>22</sup>

A more detailed breakdown of the characteristics and management intent of each of these three zones can be found in Chapter IV of this thesis. For the present, however, it is sufficient to state that the Green Zone comprises approximately two-thirds of the land area of Alberta and accounts for more than 50 percent of the shoreland identified by Alberta Environment in 1972. Of this, 98 percent is Crown land, as opposed to 57 percent Crown land in the Yellow Zone, and only 40 percent Crown land in the White Zone (see Map III-1).<sup>23</sup>



### Recreation Shoreland Distribution

Lake resources in Alberta are limited and not evenly distributed throughout the province. The majority of lakes having shorelands with a high capability for beach-oriented recreational activities are located in the north, while the south is limited to reservoirs, sloughs, and very few natural water bodies of any size and quality. While the recreating public utilizes to a great extent the existing publicly accessible lakes in the south (be they reservoirs or otherwise), they are competing with agriculture, in particular irrigation, for the water resource.<sup>24</sup> In the drier periods of the year, which correspond to the summer months when there is the greatest demand for water-oriented recreation, the drawdown in the reservoirs for irrigation purposes is considerable, thus leaving several feet of mucky soil, little sand and resultant poor quality beach experiences. Similarly, water withdrawn for irrigation purposes is returned to the lakes, often carrying with it suspended loads of silt. This gives the relatively shallow water in the reservoirs a cloudy, murky appearance, and detracts from the desirability of the area for swimming and other beach activities.<sup>25</sup>

As stated previously, the distribution of Crown land throughout Alberta has resulted in conflicts related to the lack of publicly accessible shoreland, especially in the south. Approximately 33.2 percent of the land in Alberta was privately owned in 1972, 10

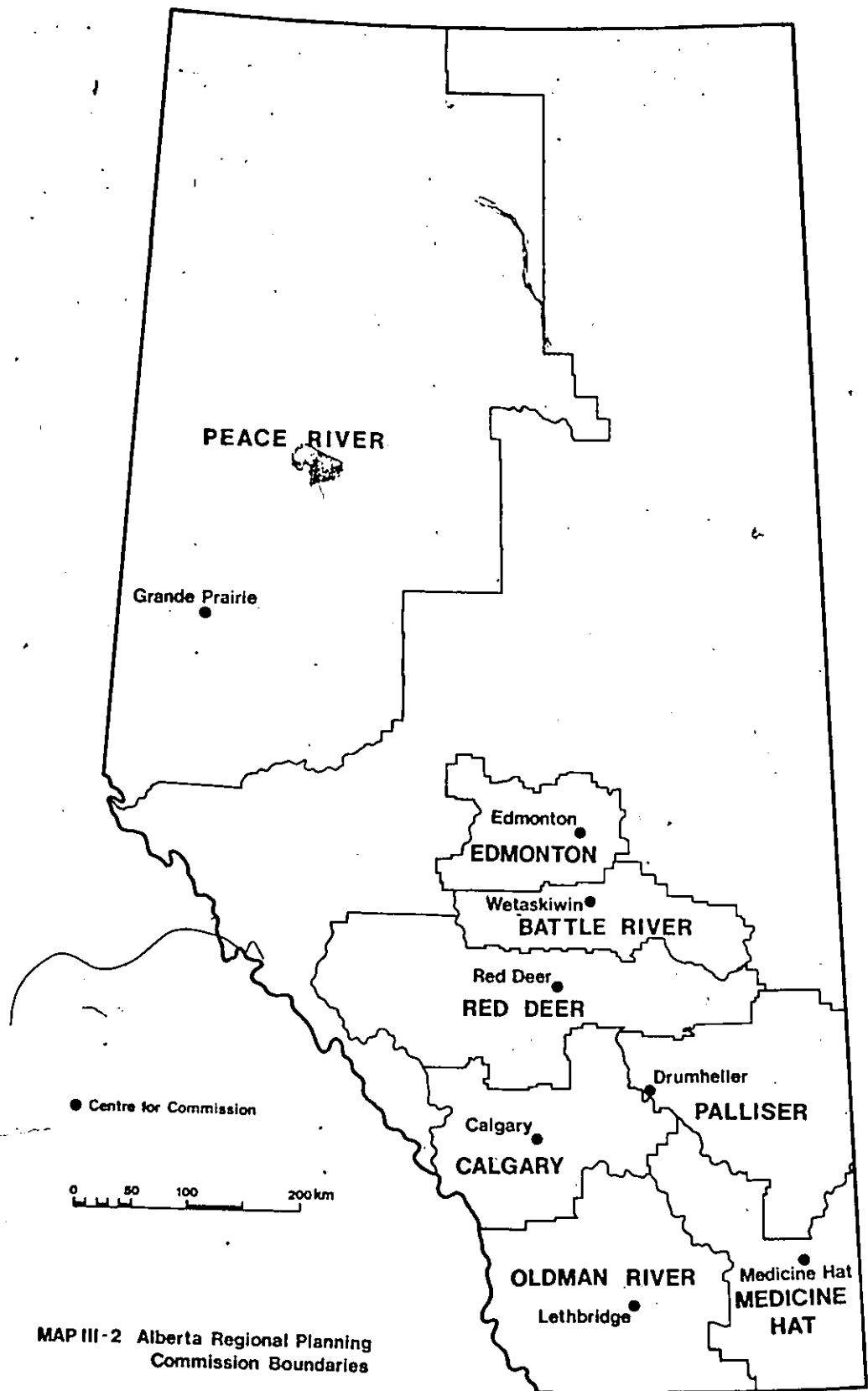
percent was Federal Crown land, and the remaining 57.6 percent was Provincial Crown land.<sup>26</sup> Unfortunately, most of the Crown land and the lakes are located in the northern portion of the province, while the population is in the southern half. The lack of lake shorelands of moderate to high recreation capability located in the south and central portions of Alberta, where less than 40 percent of the land is Crown, produces a situation which has potential for problems of access. These conflicts concerning access are not limited to lake shorelands. All of the major rivers in southern and central Alberta (Bow, Milk, Red Deer, and North Saskatchewan)<sup>27</sup> have been the major factors in disputes concerning accessibility for recreation and for irrigation purposes. The present thesis does not attempt to study the problems related to river access in the province. However, they play an important role in the provision of recreation in Alberta and as such should merit additional study at some future date.

In the Oldman River Regional Planning Commission, located in the southwest corner of Alberta (see Map III-2), a recent study identified only 35 lakes larger than 40 acres in size. Similarly, only 51 lakes over 40 acres in size were identified in the Medicine Hat region.<sup>28</sup> The quality of the lake resource was not considered. The ownership patterns surrounding these lakes were studied, and it was found that the shoreland within one-half mile of 17 of the 35 lakes in the Oldman River area was completely privately owned,

and that only 10 had more than 30 percent of their shoreland that was Crown owned.<sup>29</sup> In the Medicine Hat region, 29 lakes have shoreland that is completely privately owned and only 18 have more than 30 percent Crown owned.<sup>30</sup> Consequently, a relatively small number of areas receive extensive amounts of use, particularly where organized park facilities (Provincial, Municipal, or private) have been provided. The resultant overcrowding of facilities reduces the quality of the recreation experience for many users.

An inventory and study of lakes in the Calgary region (see Map III-2), carried out between 1973 and 1976 by the Calgary Regional Planning Commission, revealed that lakes in the area have a deficiency of high quality recreation shoreland. They do however, possess favourable physical characteristics for such other resource uses as waterfowl and ungulate habitat. A total of 90 stable lakes greater than 40 acres in size were identified within the 10,695 square miles of the Calgary Regional Planning Commission area.<sup>31</sup> The recreational potential of these lakes varies widely as a result of their location. For instance, those lakes located both in the mountain and foothill areas are generally too cold for beach-oriented activities, however, they can sustain cottaging, camping, hiking, and viewing type activities. While lakes located in the prairie area can be either man-made or natural, considerable fluctuation of water levels is present due to drawdown in reservoirs and to the high evapotranspiration rate on the plains.





Fluctuations of water levels and other problems result from the fact that many of the lakes or reservoirs are used for such purposes as irrigation, hydro production, flood control and municipal water supply. Such methods as imposing motor boat regulations or restrictions on those reservoirs used for municipal water supply has attempted to safe guard water quality on the lakes.<sup>32</sup> Also, numerous lakes are only sloughs, many of which are saline due to capillary action of water in combination with high evapotranspiration rates.<sup>33</sup> Of the 90 lakes identified, only 4 were found to have shorelands of excellent recreation quality (CLI Class 1 and 2), 34 of good quality (CLI Class 3 and 4), with the rest Class 5 to 7. Conversely, 46 of these lakes were found to be excellent for agricultural purposes, and 29 for waterfowl habitat.<sup>34</sup>

Of four existing and two proposed Provincial Parks in the region, only one, Kananaskis, is located on a lake. While the Kananaskis Lakes have a shoreline length of some 21.9 miles, a cottage subdivision between the lakes and the park accounts for 9 percent of the shoreline. Four other lakes have cottage subdivisions located on them in the region, with Chestermere Lake to the east of Calgary having the highest percentage (62) of its shoreline taken up by private developments.<sup>35</sup>

Of the 90 lakes in the Calgary study, only 6 have more than 20 percent of the surrounding shoreland in Crown ownership. All of these 6 lakes are located in the Green Zone and are totally publicly owned. Conversely, 74 of the lakes have no Crown land with a resultant lack of publicly accessible land.<sup>36</sup>

The central area of Alberta presents a somewhat different situation. The Red Deer Regional Planning Commission (see Map III-2) lies mostly in the White Zone. A total of 123 lakes were identified within the Commission boundaries. A more detailed study of 20 of the more significant of these lakes indicated that the majority have little or no Crown land within one-half mile of the shoreline (i.e. 10 are completely surrounded by privately owned land, 9 have up to 10 percent Crown owned and only one has up to 20 percent Crown owned).<sup>37</sup>

In the Green Zone area, however, it may be assumed that the shorelands are almost totally owned by the Crown. A report by the Environment Conservation Authority in 1974 indicates that nearly 90 percent of the total land area within the Green Zone in the North Saskatchewan and Red Deer River basins is under some form of disposition to natural resource developers, especially the logging, coal, oil, and gas industries.<sup>38</sup> Thus, while the lake shoreland may be owned by the Crown, it is not necessarily accessible for public recreation purposes. Lakes in the Red Deer area receive intense

pressures for use as a result of their central location and easy access from approximately two-thirds of Alberta's resident population.<sup>39</sup> This, combined with a lack of publicly accessible shorelands, leads to crowded conditions at the existing public recreation facilities provided in the area. This includes five Provincial Parks situated on lakes, along with several transportation, municipal, and private campgrounds and recreation areas. Six of the lakes in the area are subjected to intense cottage development and subdivision pressures.<sup>40</sup> According to the Provincial Planning Act, subdivision must provide a 10 percent public reserve.<sup>41</sup> This has led to conflict situations in that:

- (a) quite often the reserve is land that should be maintained as an ecological or conservation reserve to reduce erosion and maintain wildlife habitat, and
- (b) the cottagers often feel that the reserve is theirs alone and should not be accessible to the general public.

This is often reinforced by the location and size of the reserve (i.e. a narrow strip of land between cottages and the lakeshore), or the misuse of the privilege by the general public with the resultant destruction of the vegetation and wildlife.<sup>42</sup> In addition, the subdivider of property may be required to provide an Environmental Reserve such as a strip of land not less than 20 feet wide, abutting the bed and shore of any lake or river.<sup>43</sup> Again, there is no guarantee that this will be maintained.

A report concerning lakes in the Eastern Aspen Parkland region of East Central Alberta, completed in September 1976, reveals that there are few lakes that have high recreation potential or capability in the area. A total of 178 lakes larger than 80 acres in size were identified for the study. None of these lakes had any Class 1 shoreland and the majority had little, if any, Class 2 or 3 shoreland.<sup>44</sup> Lakes in the area tend to be fairly shallow, and quality of the lakes vary from large and shallow with sandy or gravelly bottoms as a result of wave action, to tiny shallow lakes or sloughs with thick aquatic vegetation covering the bottom.<sup>45</sup> While there has not been intensive pressures for cottage and recreation development in the area, its relatively accessible position in relation to Edmonton and Red Deer, along with increasing demand for development over the last few years, indicate that care must be taken not to over utilize the limited number of lakes having recreation capabilities in the area.

The Edmonton Regional Planning Commission, located in north central Alberta, (see Map III-2) presents a different picture, being well endowed with lakes of various sizes and capabilities. A total of 126 lakes over 80 acres in size were identified for inclusion in a study of lake resources completed in 1974. Of these, 74 were surveyed in further detail. The resulting summary of inventory information reveals that only three of these lakes have recreation capability of Class 1 or 2, and 35 have a capability of Class 3 to

4, accounting for approximately one half of the lakes being studied.<sup>46</sup> Various conflict situations were found to exist in the Edmonton region, including a lack of public access, especially to lakes having intensive cottage development, inefficient patterns of subdivision design (i.e. linear instead of cluster), and flooding and erosion which has developed as a result of poor subdivision standards and a lack of lake management policy.<sup>47</sup>

Alberta Department of the Environment, in 1972, compiled information concerning physical characteristics and land ownership status of 630 lakes in Alberta.<sup>48</sup> As discussed in Chapter II, this information was later used by the Conservation and Utilization Committee Task Force on Shorelands to identify those lakes in the province currently, or expected to be, subjected to subdivision development pressures. A list of 45 lakes was identified in 1976, comprising approximately 1053 miles of shoreland, approximately 11 percent of which has been subdivided for private cottages. Of this 11 per cent, 33 miles or 35 percent was Canada Land Inventory Recreation Capability Class 1 to 3.<sup>49</sup> As a result of these studies, a decision was made in 1977 to halt development on 14 of the identified lakes until lake management plans were prepared. An additional twenty of these lakes have been identified by Provincial Parks in 1978 as being of high priority interest and in need of regulated development.<sup>50</sup>

## Per Capita Distribution of Shoreland

As discussed earlier in this Chapter, Calgary (17.2 feet per capita) and Edmonton (36 feet per capita) are found to rank thirteenth and ninth respectively out of 20 Census Metropolitan Areas (CMA) studied in terms of amount of shoreland available within 121 km (75 miles) of the CMA.<sup>51</sup> Per capita figures were also determined using 1976 population statistics. The results indicate that there was a decrease of three feet of shoreland per capita in Calgary (i.e. 14.7) and 4 feet per capita in Edmonton (i.e. 32.3) in that five year period. Population projections were made to 1984, based on an average increase of 3.13 percent in Calgary and 2.24 percent in Edmonton.<sup>52</sup> The per capita amount of shoreland, in feet per capita, for each of the two CMA's was then calculated. If population continues to increase as at present, by 1984 there will be only 11.6 feet of shoreland per capita in Calgary and 27.2 feet per capita in Edmonton. This represents a decrease of 33 percent in Calgary and 25 percent in Edmonton during the 13 year period from 1971 to 1984. If this trend continues, Calgary will soon reach the same level of shoreland per capita as Toronto and Montreal.

It must also be remembered that these figures are somewhat misrepresentative, in that they reflect all shoreland of CL1 Recreation Capability Class 1 to 5. The actual amount of shoreland that is

Crown or that is publicly accessible is not considered. Thus, the figures for Calgary would be much lower if ownership were taken into consideration (i.e. less than 40 percent of the land is Crown).<sup>53</sup>

### Summary

The preceding discussion has illustrated that high quality shoreland resources are in limited supply throughout Canada. This is found to be especially the case in areas such as southern Alberta where sloughs and irrigation reservoirs are more common than high quality lakes. This minimal supply of recreation shoreland is accentuated by the large amount of privately owned shoreland, along with the location of the majority of the population in southern Canada. Fairly substantial inventories of data concerning shoreland quality, ownership, and use have been compiled for lakes throughout Alberta. This information will be incorporated into the ensuing analysis of the management of Crown shorelands in Alberta.



## CHAPTER III REFERENCES

1. Department of Regional and Economic Expansion. The Canada Land Inventory, Land Capability Classification for Outdoor Recreation, (Ottawa: Canada Dept. Regional and Economic Expansion, 1969) p.3.
2. Ibid, p.7
3. Ibid, p.8.
4. Ibid, p.114.
5. Ibid, p.114.
6. A further breakdown of recreation capability statistics reveals that only 4 percent of the total shoreland is of Class 1 capability, 6 percent is Class 2, 18 percent is Class 3, 22 percent is Class 4, and the remaining 50 percent is Class 5 to 7. This relatively small amount of Class 1 shoreland is not evenly distributed among the three provinces. Prince Edward Island is the most well-endowed having approximately 140 miles of Class 1 shoreland, followed by Nova Scotia with some 25 miles and New Brunswick with only about 9 miles, from Coombs, D.B., "An Appraisal of the Physical Supply of Recreational Lands in the Maritime Coastal Zone" in Coastal Zone Vol. 1, Selected Background Papers, (Ottawa: Environment Canada, 1972) p. 177.
7. Outdoor Recreation - Open Space Division.. Ontario Great Lakes Access Study: CLI Recreation Capability Shoreline Measurements. (Ottawa: Unpublished report Lands Directorate, Environment Canada, 1975). This survey reveals that of the 2380.96 miles of shoreland measured, only 91.1 miles or 3.83 percent is of recreation capability Class 1, 227.01 miles or 9.54 percent is Class 2, 516.01 miles or 21.68 percent is Class 3, 913.28 miles or 38.35 percent is Class 4, and the remaining 633.51 miles or 22.4 percent is Class 5 to 7.
8. Pearson, N. "The Great Lakes as a Human Resource", in The Great Lakes as an Environment, Great Lakes Institute Report PR39, (Toronto: University of Toronto, 1969) pp. 90.
9. Cutler, M. "Are We alienating Too Much Recreation Land and Too Much of Our Best Agriculture Land", in Canadian Geographical Journal, Vol. 90, No. 5, 1975. pp.30.

10. Bloomfield, J. Recreational Land Use Change: A Pilot Study, (Ottawa: Lands Directorate, Environment Canada, unpublished report, 1976) pp. 22.
11. Scott, J.F. "Relationship Between Land and Population: A Note on Canada's Carrying Capacity", Geografisk Annaler, Vol. 57, Vol. 2, 1976, pp. 128.
12. Canadian Council of Resource and Environment Ministers (CCREM). The Administration of Crown Lands in Canada, (Montreal: CCREM, 1972) pp. 12.
13. "From Privileged to Public". The Globe and Mail, Thursday May 13, 1971.
14. Taylor, M.C. Land Capability for Recreation, Summary Report, CL1 Report No. 14 (Ottawa: Environment Canada, 1978) pp.30.
15. Mitchell, J.K. "Community Response To Coastal Erosion", (Chicago: University of Chicago, Department of Geography Research Paper No. 18, 1974) pp. 34.
16. Boulding, K.E. Conflict and Defence: A General Theory, (New York: Harper Torchbooks, The University Library, Harper and Row Publishers, 1963) pp. 5.
17. Report of the Royal Commission on Land Ownership and Land Use, Prince Edward Island, (Charlottetown: Prince Edward Island Government, Chairman, C.W. Raymond, 1973) pp.57.
18. Report to the Nova Scotia House of Assembly of the Select Committee on Non-resident Ownership of Land, (Halifax: Queen's Printer, 1974) pp. 39.

In March 1976, figures stated in the Halifax Chronicle Herald revealed that approximately 25 percent of the entire 4,042 miles of coastline in Nova Scotia were owned and virtually controlled by non-residents. This substantiates figures compiled by K. Antoft of Dalhousie Institute of Public Affairs which indicate that large portions of Cape Breton Island and most of the south-eastern shore of Nova Scotia is owned by non-residents.

19. Technical Committee on Lakes and Lake Shorelands. The Use of Our Lakes and Lake Shorelands, Technical Report No. 12. (Edmonton: Alberta Land Use Forum, 1974) p. II-3.
20. From calculations based on lake shoreland ownership statistics compiled by Alberta Environment, Water Resources Division, Lake Classification, (Edmonton: Alberta Environment, 1972), Appendix A.

21. Alberta Land Use Forum, Report and Recommendations, (Edmonton, Alberta Land Use Forum, 1976) p. 15.
22. Canadian Council of Resource and Environment Ministers (CCREM). The Administration of Crown Lands in Canada, (Montreal, Quebec: CCREM, 1972) p.60.
23. These figures are based on information compiled by the Water Resources Division, Alberta Environment. Lake Classification, (Edmonton: Alberta Environment, 1972) Appendix A.
24. Oldman River Regional Planning Commission. Regional Lakes Perspective Oldman River Region 1: Inventory, (Lethbridge: Oldman River Regional Planning Commission, 1975) p.42; and, Alberta Environment, Environmental Planning Division. Regional Lakes Perspective Medicine Hat Region Inventory, (Medicine Hat: Alberta Environment, 1976) pp.64.
25. Oldman River Regional Planning Commission. Op.cit., p.31, 34, 41-2.
26. CCREM. op.cit., pp.12.
27. Alberta Environment, Red Deer River Today and Tomorrow: A Management Statement, (Edmonton: Alberta Environment, 1971) pp.5.
28. Alberta Environment, Environmental Planning Division. op.cit., p.10.
29. Oldman River Regional Planning Commission. op.cit., p.20.
30. Alberta Environment, Environmental Planning Division. op.cit., p.43.
31. Calgary Regional Planning Commission. Regional Lake Perspective The Calgary Region 1. Inventory, (Calgary: Regional Planning Commission, 1975) p.9.
32. Ibid, p. 35.
33. Ibid, p. 19-20.
34. Ibid, p.30.
35. Ibid, p.33.
36. Ibid, p.36.

37. Red Deer Regional Planning Commission, Regional Lake Perspective Inventory and Policy Directions, (Red Deer: Regional Planning Commission, 1976) p.29.
37. Ibid, p.19.
38. Ibid, p.19.
39. Ibid, p.9.
40. Ibid, p.20.
41. RSA. 1977. c.89, s96.
42. Red Deer Regional Planning Commission. op.cit., p.23.
43. RSA. 1977. c.89, s.95.
44. Alberta Municipal Affairs. 1976. Phase One: Lake and Lake Shoreland Study: Eastern Aspen Parkland Region, (Edmonton: Alberta Department of Municipal Affairs, 1976) pp.21.
45. Ibid, pp.11-12.
46. Edmonton Regional Planning Commission. Lake and Lake Shoreland Capability Study: A Regional Perspective, (Edmonton: Regional Planning Commission, 1974) Appendix.
47. Ibid, p.28-29.
48. Alberta Environment, Water Resources Division, op.cit., Appendix A.
49. Conservation and Utilization Committee on Lakes and Lake Shorelands. Lake Shorelands: Subdivision Development Pressures, (Edmonton: Alberta Environment, 1976) p.5.
50. Memorandum from T.A. Drinkwater, Deputy Minister, Alberta Recreation, Parks and Wildlife to H.W. Thiessen, Assistant Deputy Minister, Alberta Environment, June 2, 1978.
51. Taylor, M.C. op.cit.
52. Alberta Treasury, Bureau of Statistics. Alberta Statistical Review Annual 1976, (Edmonton: Alberta Bureau of Statistics, 1977) p.3.
53. From calculations based on lake shoreland ownership statistics compiled by Alberta Environment, Water Resources Division, Lake Classification, (Edmonton: Alberta Environment, 1972) Appendix A.

## CHAPTER IV

### PROVINCIAL CROWN LAND ALLOCATION IN ALBERTA

Allocation or disposition of Crown Land can be defined as the assignment of Government owned land to a specific purpose under agreed upon terms for purposes of management and administration.

In other words, it is the mechanism involved in transferring either ownership or rights to use of a piece of Crown owned property to another owner or user. Various mechanisms exist which can be used by governments when allocating the use to be made of Crown land under their jurisdiction. These mechanisms include such things as outright sale, homestead sale over a period of years, lease, permit, licence, easement, and reservation. The various types of the above mechanisms are summarized in Table IV-I. This summary includes a list of the types of dispositions available, along with a brief description of their general intent. Other information presented concerning each disposition includes: length of term possible, renewability of term, possibility for purchase of land, provision within the disposition for recreation and public access, amount of direct control over management by holder of disposition, and active resource extraction occurring in the disposition.

TABLE IV-1

## ALBERTA PROVINCIAL CROWN LAND DISPOSITIONS

| DISPOSITION                                           | GENERAL INTENT                                                                                                                                                                                                                                              | TERM LENGTH AND RENEWAL                                                                                       | OPTION FOR PURCHASE                    | PROVISION FOR RECREATION                             | PUBLIC ACCESS                             | DIRECT MANAGEMENT                                                         | ACTIVE RESOURCE EXTRACTION |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------|----------------------------|
| RURAL DEVELOPMENT LEASE                               | Leasing of public lands for agriculture by persons not eligible under existing regulations or where terms of other dispositions might hinder development of the farm unit.                                                                                  | 10 yrs<br>5 yrs<br>no renewal                                                                                 | after 5 yrs if land suitable for title | no                                                   | no -- only at discretion of lessee        | yes -- subject to terms of lease                                          | no                         |
| CULTIVATION LEASE                                     | Up to 320 acres of any available public land where at least the greater of 1/4 or 40 acres of the land is suitable for cultivation.                                                                                                                         | 10 yrs --<br>last issued in Dec 1974 -- renewal as expire if considered appropriate                           | no                                     | no                                                   | no                                        | yes -- subject to terms of lease                                          | cultivation for crops      |
| CULTIVATION PERMIT                                    | Issued to crop areas under cultivation on Crown land -- no new land may be brought under cultivation.                                                                                                                                                       | annual<br>2 yrs if land must be summer fallowed before cropping-- renewal                                     | no                                     | no                                                   | no                                        | no                                                                        | cultivation for crops      |
| GRAZING LEASE<br>Reg. 432/66 *                        | Available on land best suited for grazing purposes. Land cannot hold more than 600 head of stock on a 12 month basis. Where lease borders on a lake or river, the portion bordering the water shall not exceed 1 mile in length for every 4 miles in depth. | 5 yrs<br>10 yrs<br>20 yrs<br>renewal if land used in accordance with lease and is not required for higher use | no                                     | no -- but usually allowed, especially in Prov. Parks | yes to a degree especially in Prov. Parks | Crown directs subject to lease but lessee manages as sees fit             | grazing                    |
| GRAZING PERMIT<br>Reg. 64/70                          | Issued on land which may be under reservation to other agencies or on land for which it is not in the public interest to grant long term leases.                                                                                                            | annual --<br>cancelled on short notice -- may be renewed                                                      | no                                     | no                                                   | yes to a degree                           | no -- subject to terms of permit                                          | grazing                    |
| HEAD TAX GRAZING PERMIT                               | For grazing of sheep, cattle or horses on undeveloped and unsurveyed areas.                                                                                                                                                                                 | monthly --<br>renewal                                                                                         | no                                     | no                                                   | no                                        | no                                                                        | grazing                    |
| HAY PERMITS<br>Reg. 221/76                            | Cutting of wild hay on vacant public land.                                                                                                                                                                                                                  | annual --<br>5 mon. only<br>June to Oct<br>-- reapply each yr                                                 | no                                     | no                                                   | yes to a degree                           | no -- other dispositions may be made at any time                          | cutting of hay             |
| FOREST MANAGEMENT AREA GRAZING LICENCE<br>Reg. 309/71 | Green Zone land only. Grazing shall be coordinated with Forest Management Programs.                                                                                                                                                                         | 10 yrs maximum, annual settlement of head of cattle -- renewal                                                | no                                     | no                                                   | yes to a degree                           | Crown and forest management programs have authority                       | grazing                    |
| COMMUNITY PASTURES<br>a) ASSOCIATION LEASES           | Five or more stockmen can form grazing association and apply for grazing lease. Area not limited in size.                                                                                                                                                   | 5 yrs<br>10 yrs<br>15 yrs<br>renewal if land not needed for higher use                                        | no                                     | no                                                   | yes to a degree                           | association assumes mgmt of fencing, range improvement, water development | grazing                    |
| b) GRAZING RESERVE                                    | To provide pasture facilities for relatively small established livestock operators in areas not suitable for cereal production and that require a degree of investment beyond the means of most individuals or groups.                                      | fee on a per head per month basis -- renewal                                                                  | no                                     | no                                                   | yes to a degree                           | by an elected advisory committee                                          | grazing                    |

\* example: Reg. 432/66 refers to Alberta Government Regulation number 432 filed in the Alberta Gazette in 1966 pursuant to the relevant section of the Public Lands Act.

TABLE IV-1 (CONT'D)  
ALBERTA PROVINCIAL CROWN LAND DISPOSITIONS

| DISPOSITION                          | GENERAL INTENT                                                                                                                                                                                                                                                 | TERM LENGTH AND RENEWAL                                                                                          | OPTION FOR PURCHASE                                 | PROVISION FOR RECREATION                               | PUBLIC ACCESS                                  | DIRECT MANAGEMENT                                                                        | ACTIVE RESOURCE EXTRACTION                |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------|
| MISCELLANEOUS PERMIT<br>Reg. 269/57  | Temporary use or where land cannot be described by a portion of a legal subdivision.                                                                                                                                                                           | annual<br>-- renewal                                                                                             | no                                                  | yes in some instances<br>ie. cottage                   | no                                             | no -- subject to terms of permit                                                         | no                                        |
| MISCELLANEOUS LEASE<br>Reg. 376/61   | For purposes not expressly provided for by the Public Lands Act including residences, cottages, commercial and industrial development, millsites, plant sites, and removal of peat moss. Construction of improvements must be completed within 2 yrs of lease. | 25 yrs or less -- renewal<br>subject to terms of lease                                                           | yes -- in certain instances                         | yes -- in certain instances<br>ie. cottage             | no -- except at invitation of lessee           | no -- subject to Subdivision and Transfer Regulations and any local development controls | no                                        |
| RECREATIONAL LEASE                   | Only available to municipalities and societies incorporated under the Societies Act for recreational or exhibition purposes.                                                                                                                                   | 21 yrs<br>renewal                                                                                                | may purchase improvements or buildings but not land | yes                                                    | yes -- quasi-public<br>ie. an admission charge | use is subject to terms of lease                                                         | no                                        |
| LICENCE OF OCCUPATION<br>Reg. 201/58 | Mainly for access roads, pier sites, ski slopes, airstrips and reservoirs                                                                                                                                                                                      | Indefinite or definite term<br>-- renewal                                                                        | no                                                  | yes in certain instances<br>ie. skiing                 | yes at discretion of licensee                  | no -- may be subject to other disposition                                                | no                                        |
| EASEMENT                             | To utility companies for purpose of construction and maintenance of power lines, etc.                                                                                                                                                                          | unspecified<br>-- renewal                                                                                        | no                                                  | no -- but corridors are used for recreation            | yes -- to a degree                             | subject to terms of agreement                                                            | clearing                                  |
| TIMBER LICENCE                       | To harvest timber by quota system. An operating plan for each year of operation must be submitted for approval.                                                                                                                                                | 1 to 5 yrs<br>-- renewal<br>to end of authorized cut                                                             | no                                                  | no                                                     | no -- not in active cutting area               | subject to operating plan                                                                | timber                                    |
| TIMBER PERMIT                        | To harvest timber in relatively large volumes by persons not engaged to the point of needing a quota, especially for fire damaged or endangered timber. An operating plan must be submitted.                                                                   | 2 to 3 yrs<br>sold by public auction<br>-- no renewal                                                            | no                                                  | no                                                     | no -- not in active cutting area               | subject to operating plan                                                                | timber                                    |
| WATER DEVELOPMENT LICENCE            | Licence for authorizing the diversion, use or storage of water for power purposes.                                                                                                                                                                             | unspecified<br>may be cancelled if not complying with terms of licence<br>-- no date specified for termination   | no                                                  | no -- unless as side benefit of reservoir construction | yes -- in some cases                           | subject to terms of licence                                                              | hydro production and related construction |
| MINERAL SURFACE LEASE                | To mineral producers to acquire surface rights in connection with the removal of minerals. It can be issued for purposes of strip mining, well sites, access roads and flow lines.                                                                             | 25 yrs<br>-- renewal                                                                                             | no                                                  | no                                                     | no                                             | lessee has exclusive rights to use of land                                               | yes minerals                              |
| COAL LEASE                           | Coal rights that are the property of the Crown may be leased.                                                                                                                                                                                                  | annual<br>-- renewal                                                                                             | no                                                  | no                                                     | no                                             | subject to terms of lease                                                                | yes coal                                  |
| PETROLEUM AND NATURAL GAS LEASE      | Lease of petroleum and natural gas rights.                                                                                                                                                                                                                     | 5 yrs if after July 1/76<br>10 yrs if between June 1/62 + June 30/76<br>21 yrs if before June 1/62<br>-- renewal | no                                                  | no                                                     | no                                             | subject to terms of lease                                                                | yes petroleum natural gas                 |

TABLE IV-1 (CONT'D)  
ALBERTA PROVINCIAL CROWN LAND DISPOSITIONS

| DISPOSITION                 | GENERAL INTENT                                                                                                                                                                                                                                                                                                                                                                               | TERM LENGTH<br>AND RENEWAL   | OPTION FOR<br>PURCHASE                                                                   | PROVISION<br>FOR<br>RECREATION                                             | PUBLIC<br>ACCESS | DIRECT<br>MANAGEMENT                                                                       | ACTIVE<br>RESOURCE<br>EXTRACTION    |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------|-------------------------------------|
| PIPELINE AGREEMENT          | To operators for purposes of pipelines and right-of-way installation incidental thereto.                                                                                                                                                                                                                                                                                                     | unspecified<br>-- renewal    | no                                                                                       | no                                                                         | no               | subject to terms of agreement                                                              | clearing                            |
| PIPELINE INSTALLATION LEASE | To pipeline operators for purposes of a surface installation incidental to the operation of the pipeline.                                                                                                                                                                                                                                                                                    | 25 yrs<br>-- renewal         | no                                                                                       | no                                                                         | yes to a degree  | subject to terms of lease                                                                  | pipeline construction and operation |
| EXPLORATION LICENCE         | For the purpose of establishing the presence of or quantity of sand, gravel, clay or silt. An exploration area plan must be submitted and the area must be restored.                                                                                                                                                                                                                         | 1 yr<br>-- renewal           | no                                                                                       | no                                                                         | no               | subject to exploration plan and restoration of surface                                     | exploration and testing             |
| SAND AND GRAVEL LEASE       | To remove sand and gravel in areas less than 40 acres in size. An operating plan must be submitted.                                                                                                                                                                                                                                                                                          | 20 yrs or less<br>-- renewal | no                                                                                       | no                                                                         | no               | subject to operating plan                                                                  | sand and gravel                     |
| SAND AND GRAVEL LICENCE     | To remove sand and gravel from vacant and available public land. An operating plan must be submitted.                                                                                                                                                                                                                                                                                        | 1 yr or less<br>-- renewal   | no                                                                                       | no                                                                         | no               | subject to operating plan                                                                  | sand and gravel                     |
| RESERVATIONS                | Lands affected by major water-courses are generally not sold but are reserved for various requirements such as recreation, fish and wildlife, conservation, and watershed protection. Land may be reserved by other government departments or agencies for specific uses such as fish and wildlife habitat protection, provincial parks, recreation, and future sand and gravel development. | varied<br>-- renewal         | land may be transferred to Dept requesting reservation when it is needed ie. Prov. Parks | yes to a degree although may have temporary permits for other uses on land | yes to a degree  | government controls -- Depts requesting reservation review other applications for land use | no                                  |

SOURCE: Compiled by author from Provincial Acts, Provincial Regulations, pamphlets and brochures published by the Alberta Government.



A more detailed examination of the various mechanisms for Crown land disposition, and how they are being or could be used as administrative tools is presented in the following pages in relation to their distribution within the three administrative zones in the Province (i.e. Green, Yellow, and White Zones). As stated in Chapter III, Alberta was divided into three zones in an attempt to provide for orderly settlement in areas of the province suitable for agriculture and to prevent agricultural settlement in valuable forested areas. A fourth zone was also designated in 1948, namely the Brown Zone or Conservation Zone. This zone did not have specific boundaries and could be found in small areas throughout the province. This zone has since been abandoned in favour of reservations for conservation purposes on Crown land, however, reference can still be found to Brown Zone notations in Land Registry Records.

The boundaries of the three zones have been modified somewhat from the original 1948 boundaries as demand for agricultural land has grown. For the most part, however, the boundaries show only slight differences in 1978. Throughout the following discussion of the zones and the dispositions available in each, it is important to remember that while the zones and dispositions are being considered in terms of public accessibility, this was not one of the stated intentions of the designation of zones in 1948. Rather, it has occurred as a result of increased demand for access to Crown lands throughout Alberta.

## Zone Characteristics and Allocation Mechanisms

### 1. Green Zone

General Intent: -- Land designated as Green Zone land has as its primary intent forestry, watershed protection, recreation, wildlife and fisheries use, and management. Other compatible commercial uses may be allowed with certain restrictions agreed upon by the Alberta Forest Service. Agriculture in the form of grazing livestock is allowed in designated areas.<sup>1</sup> The Green Zone is for the most part open to the public with the exception of those areas where there is active resource extraction.

Location and Physical Characteristics: -- The Green Zone comprises approximately two-thirds of the Province, covering the Eastern Slopes of the Rocky Mountain Foothills and the land north and west of Edmonton with the exception of the Peace River/Grande Prairie District. This land is mostly forest covered with soil and climatic conditions generally unsuitable for agriculture or cultivation.

The Green Zone encompasses the only section of Canadian Shield found in north eastern Alberta. Soil types range from grey-wooded and grey-wooded organic, through brown-wooded and acid brown-wooded soils with some sand dune areas.<sup>2</sup> Vegetation cover includes patches of Muskeg, Alpine Meadow, Aspen Parkland, Lodgepole Pine, and White and Black Spruce.<sup>3</sup> Much of the area, especially in the north, is inaccessible by road at least at the present time.

Crown Shorelands: -- Most of the land in the Green Zone is ~~Crown~~ owned and administered by the Alberta Forest Service of the Department of Energy and Natural Resources. Much of the information used in the present study concerning existing shoreland ownership is taken from the Alberta Environment Lakes Classification Report compiled in 1972.<sup>4</sup> This report identified 279 lakes having a total of approximately 4345 miles of shoreline within the Green Zone. This accounts for more than half (53.1 percent) of the total amount of shoreland in Province (i.e. 8180 miles). Other lakes not included are sloughs, inaccessible lakes, or lakes of little consequence. Of this total figure, some 488 miles or 11.2 percent of shorelands are federal Crown lands, 3768 miles or 86.7 percent are provincial Crown and the remaining 90 miles or 2.1 percent are privately owned. At a distance of one-half mile inland from the high water mark, the statistics are only slightly modified. Here it is seen that 100 miles or 2.3 percent of the shoreland is privately owned and 3758 or 86.5 percent are provincial Crown owned.

The overall picture in the Green Zone is one wherein shoreland is predominantly owned by the Province as Crown land. Very little private ownership occurs. There are, however, numerous dispositions on these Crown lands which in essence, enables the land to be managed as private land.

Kinds of Crown Land Dispositions: -- As stated previously, the primary intent of the Green Zone is forestry and wildlife management. Therefore, the most common kinds of dispositions include Timber Licences and Timber Permits. The Timber Licence represents the system under which the greatest volume of lumber and veneer log material is provided to the forest industry. A quota of timber harvest is set and the licence is the mechanism which provides for the actual harvest, subject to specified conditions of operation and cut programs.<sup>5</sup> Approximately 40 licences are issued each year. Management of the area is subject to an operations plan filed annually. Public access is restricted to areas which are not actively being cut.

Timber Permits are intended to provide relatively large commercial volumes of wood for harvest by persons who are not engaged in the level of forestry operations to the point of requiring a quota. These are generally short term (i.e. two to three years) and are used quite often for rapid utilization of endangered or fire damaged timber. Management is subject to the conditions specified in the permit and cutting is carried out according to an operations plan. Public access to a permit area is generally restricted.<sup>6</sup>

Certain areas of the Green Zone are also suitable for grazing of livestock. To this end, Forest Management Area Grazing Licences may be issued which allow grazing, subject to conditions put forward by forest management programs.<sup>7</sup>

The Green Zone, comprising the eastern slopes of the Rocky Mountains and other areas having significant mineral deposits, may also have dispositions such as Mineral Surface Leases which are given to mineral producers to acquire surface rights in connection with the removal of minerals. The holder of this lease has exclusive rights to the land, and in the interests of safety, no provision is made for recreation and public access. These leases may be granted on suitable Crown land anywhere in the province.<sup>8</sup>

Coal Leases and Petroleum and Natural Gas Leases are two specific kinds of mineral leases that may be granted. Management of the lands covered by these leases is subject to the terms outlined in the lease.<sup>9</sup> Again no provision is made for recreation or public access, and the leases may be granted on any suitable Crown land in the province.

In areas throughout the province where pipelines are to be constructed across Crown land, a Pipeline Agreement which gives the operator of a pipeline the right-of-way for installation of the pipeline and a Pipeline Installation Lease which allows for the construction of surface installations incidental to the operation of the pipeline may be issued.<sup>10</sup> The management of the area in question is subject to the terms of the agreement of the lease and no provision is made for recreation or public access. Generally, however, the cleared right-of-way may be used by the public for access roads through forested areas.

Exploration Licences for the purpose of determining the presence and quantity of sand, gravel, slate or marl may be issued anywhere in the province. Management of these licences is subject to the operating plans submitted by the licensee. Subsequent to the verification of the existence of sand and gravel deposits, short term Sand and Gravel Licences or longer term Sand and Gravel Leases may be granted for extraction purposes. Management of the extraction area is subject to operating plans submitted by the lessee. No provision is made for recreation in any of the three above dispositions and public access is restricted.<sup>11</sup>

Easements may be granted on Crown land anywhere in the province, usually for purposes of utility corridor construction and maintenance.<sup>12</sup> These are managed by the utility company subject to the terms of the agreement, and generally the public is allowed to access these for recreational purposes (i.e. snowmobiling, cross-country skiing, and access to fishing areas).

A Licence of Occupation, again applicable anywhere in the province, is granted for the development of such things as access roads, pier sites, air strips, etc. The control of the land in question is in the hands of the Crown and may be subject to other dispositions.<sup>13</sup> Public access to the area is at the discretion of the licensee.

Miscellaneous Leases or short term Miscellaneous Permits, may be granted on any suitable crown land in the province for purposes not expressly provided for by the Public Lands Act.<sup>14</sup> This includes such uses as residences, recreational cottages, and commercial and industrial developments.

Provision for recreational use and public access is made in certain instances. For example, according to the Subdivision and Transfer Regulations, a public reserve of 10 feet or more must be provided in subdivisions fronting on bodies of water, and an additional 10 percent of the area must be maintained as a public reserve.

Recreation Leases may be granted to municipalities or to recognized societies for the purpose of providing recreation or exhibition facilities such as group camps and community centres.<sup>15</sup> The land in question is quasi-public in that members of the society or the public may use the facilities, either with the permission of the society or for an established fee.

## 2. Yellow Zone

General Intent: -- The Yellow Zone consists of a pocket of land suitable for agriculture and settlement within the larger Green Zone area. Orderly settlement is encouraged on suitable and available Crown land, provided that the land is not required for conservation, recreation, wildlife habitat, or forestry.<sup>16</sup>

Location and Physical Characteristics: -- Located in the Peace River/Grande Prairie district of northwestern Alberta, the Yellow Zone has relatively favourable climatic conditions, and soils which are generally fertile and suitable for cultivation and other agricultural purposes. Soils in the Yellow Zone include dark grey and dark grey-wooded soils with scattered organic solonetzic or saline soils and sand dune areas.<sup>17</sup> Natural vegetation cover in the area is mostly aspen poplar parkland and grasslands.<sup>18</sup>

Crown Land: -- The Yellow Zone accounts for only about 345 miles or 4 percent of the total shoreland resources in the province. Of this minimal amount of shoreland, about 7 miles or 2.1 percent are federal Crown owned, 189 miles or 54.8 percent are provincial Crown owned, and the remaining 149 miles or 43.2 percent are privately owned. These statistics change very little at a distance of one half mile from the high water mark. Provincial crown land is reduced to 186 miles or 53.9 percent and private ownership increases to 152 miles or 44.1 percent. In summary, the situation in the Yellow Zone is one wherein the shoreland is divided fairly evenly between the province and private owners with a slight predominance of provincial Crown land.<sup>19</sup>

Kinds of Crown Land Dispositions: -- The kinds of dispositions found in the Yellow Zone are basically the same as those found in the White Zone and are discussed in that section.



### 3. White Zone

General Intent: -- Land in the White Zone is largely privately owned with very little Crown land still available for leasing or other dispositions. Land in this zone is utilized primarily for settlement and agricultural purposes.

Location and Physical Characteristics: -- Covering the southeastern corner of Alberta, the White Zone comprises approximately one quarter of the province and supports about 89 percent of its population. Soils and climatic conditions are well suited to large scale, extensive cultivation and livestock raising. Soils in this zone include brown, dark brown, and black soils with some solonchetsic or saline soils and sand dune areas.<sup>20</sup> The natural vegetation cover is predominantly prairie grassland and aspen poplar parkland.<sup>21</sup>

Crown Land: -- Crown land in the White Zone is in relatively short supply, especially around lakes. Of the 297 lakes in the White Zone comprising a total of 3490 miles or 42.7 percent of the total shoreland identified in 1972, only approximately 1158 miles or 33.2 percent are provincial Crown owned, 241 miles or 6.9 percent are federal Crown owned and the remaining 2089 miles or 59.9 percent are privately owned. These figures are even less when considering ownership to a distance of one half mile from the high water mark. Here it is seen that in 1972, only 767 miles or 22 percent were

provincial Crown owned and 2583 miles or 74 percent were privately owned. This indicates that in 1972, only about 400 miles of land to a distance of one half mile from the shore was owned by the provincial Crown.<sup>22</sup>

Kinds of Crown Land Dispositions: -- In addition to those dispositions outlined previously which occur in all parts of the province, several others exist which are common only to the Yellow and White Zones. The major purposes of these two zones are agriculture and settlement.

Rural Development Leases are available on public lands for farm development, consolidation and enlargement. These lands are managed by the lessee who generally has the option for purchase of the land. No provision is made for recreation or public access.<sup>23</sup>

Cultivation Leases<sup>24</sup> and Short Term Cultivation Permits<sup>25</sup> are available on suitable Crown lands. In the latter case, no new land may be brought under cultivation. Management of the land is subject to the terms specified in the lease or permit, and no provision is made for recreation or public access.

Hay Permits<sup>26</sup> may be granted for the cutting of hay on vacant public land. The Crown has absolute control over the land and may issue any other disposition as it sees fit. Public access is generally allowed, however, no provision is specifically made for recreation.

Grazing Leases are available on lands best suited for grazing purposes. Management is subject to the terms of the lease, however, the lessee has the authority to manage the land in order to obtain the best possible yield. No provision is made for recreation, however, it should be noted that Grazing Leases may be granted in conjunction with other uses and occur frequently within Alberta's Provincial Parks. Also, if a Grazing Lease borders on a lake or river, the portion bordering the water shall not exceed one mile in length for every four miles in depth.<sup>27</sup>

Short Term Grazing Permits may be issued annually on lands reserved for other purposes. Management of the area is subject to the terms of the permit which may be cancelled at any time.<sup>28</sup>

Head Tax Grazing Permits are issued on a monthly basis for the grazing of livestock in undeveloped and unsurveyed areas. Management of the land is subject to the terms of the permit.<sup>29</sup>

Community Pastures<sup>30</sup> are available in two forms: 1. Association Leases wherein a group of five or more stockmen form a grazing association and apply for a lease. These areas are unlimited in size and are managed by the association. No provision is made for recreation or public access, however, the latter is generally allowed at the discretion of the association, 2. Grazing Reserves are areas set aside to provide pasture facilities for relatively

small established livestock operators in areas that are not suitable for cereal production, and that require a degree of investment beyond the means of most individuals or groups of individuals. The reserve is managed by an elected advisory committee. No provision is made for recreation or public access, however, it is usually allowed at the discretion of the committee.

Crown Land Reservations: -- A further form of administration of Crown lands anywhere in Alberta is the Land Reservation System. This is a process whereby an agency may apply to the Lands Division of the Alberta Department of Energy and Natural Resources to issue a reservation on a specified piece of Crown land in the province. This reservation may restrict the kinds of use and development allowed on the land in question and generally reserves the land for a specific future use. There are basically three kinds of land reservations available in Alberta including:

- 1) the "D" reservation indicating immediate disposition of the land for development,
- 2) the "H" reservation holding land for a specific future use, and
- 3) the "R" reservation restricting land use for a specific reason.

A fourth type, the "N" reservation, is an administrative notation which is usually temporary and indicates an impediment to the disposition of land other than by reservation.<sup>31</sup>

Land reservations are a useful tool in preserving Crown lands and shorelands suitable for recreation and for future use and development. Unfortunately, the records concerning land reservations have been poorly kept. All existing reservations are presently being cancelled, reviewed, and those not considered necessary will not be renewed.

Table IV-2 summarizes the various Crown Land dispositions according to their frequency of occurrence in each of the three management zones. Some dispositions are found only in one zone. Others are found more frequently in one zone, but do occur in the other zones. The dispositions are listed under the zone in which they are more frequently found. An asterisk indicates the other zones in which they also frequently occur.

### Possible Conflicts

#### Green Zone

The preceding review of the types of dispositions that can be found in the Green Zone suggests several possible conflict situations that could arise. In theory, the Green Zone is open to the public except where there is active resource extraction. Resource extractive dispositions, such as Timber Licences and Permits, Forest Management Grazing Licences, Mineral Surface Leases, Coal, Petroleum and Natural Gas Leases, and Sand and Gravel Licences and Leases are all

Table IV-2  
CROWN LAND DISPOSITIONS BY MANAGEMENT ZONES

| GREEN ZONE                        | YELLOW ZONE                   | WHITE ZONE |
|-----------------------------------|-------------------------------|------------|
| Timber Licence                    |                               |            |
| Timber Permit                     |                               |            |
| Forest Management Grazing Licence |                               |            |
| Coal Lease                        | *                             | *          |
| Petroleum and Natural Gas Lease   | *                             | *          |
| Pipeline Agreements               | *                             | *          |
| Pipeline Installation Lease       | *                             | *          |
| Exploration Licence               | *                             | *          |
| Mineral Surface Lease             | *                             | *          |
| Sand and Gravel Licence           | *                             | *          |
| Sand and Gravel Lease             | *                             | *          |
| Easements                         | *                             | *          |
| Licence of Occupation             | *                             | *          |
| Miscellaneous Lease               | *                             | *          |
| Miscellaneous Permit              | *                             | *          |
| Recreation Lease                  | *                             | *          |
|                                   | Development Lease             | *          |
|                                   | Cultivation Lease             | *          |
|                                   | Short Term Cultivation Permit | *          |
|                                   | Hay Permit                    | *          |
|                                   | Grazing Lease                 | *          |
|                                   | Short Term Grazing Permit     | *          |
|                                   | Head Tax Grazing Permit       | *          |
|                                   | Community Pasture             |            |
|                                   | - Association Leases          | *          |
|                                   | - Grazing Reserves            | *          |
|                                   | Reservations                  | *          |

found to restrict public access for recreation or any other purpose. It was stated previously that forestry is one of the primary intents of the Green Zone. Most of the marketable timber resources in the Green Zone have been leased to private companies for harvesting and management. The "Energy Shortage" in recent years has led to increased extraction of coal resources, and increased exploration for, and extraction of, oil and natural gas. Associated with these developments are the creation of new roads and pipeline rights-of-way. While some of these corridors are open to the public, many remain inaccessible due to such dangers as poison gas and the use of roads by large logging trucks and drilling equipment.

The extraction of sand and gravel resources often occurs in shoreland areas, thus limiting access to the shore, increasing noise levels in the area, modifying the shore and natural vegetation, and consequently, disturbing certain kinds of wildlife habitat. This is in direct opposition to the intent of the Green Zone for watershed protection, recreation and wildlife habitat.

Miscellaneous Leases and Permits are generally granted to individuals for cottage developments and residences. These generally occur in shoreland areas. While a public reserve is required in a subdivision under the terms of the Planning Act, this is often land that is of poor quality for public recreation or access, or is inaccessible to the public (i.e. no road access is provided).

No dispositions at all, reservations for recreation, Recreation Leases, Easements, and sometimes Licences of Occupation and Pipeline Agreements are found to be the only types of dispositions occurring in the Green Zone which allow public access on a regular basis.

In summary, in an area as rich in timber, oil, and minerals as are parts of the Green Zone, the possibility for conflicting land uses and requests for conflicting types of dispositions is very high. Use of the land for recreation purposes generally has very low priority, especially in relation to economic demands for resources. The relatively few lakes in the southern portion of the Green Zone (i.e. including the East Slopes Area) are located close to the population of the province, and yet are also located in a natural gas, coal, and timber rich portion of the province. The need is here to wisely manage the resources for the greatest benefit of all concerned.

The provincial government has the authority to regulate the use made of Crown land. The relatively long term of many of the leases available (i.e. 25 years for Miscellaneous Leases and Mineral Surface Leases, 20 years for Sand and Gravel Leases, 21 years for Recreation Leases, and up to 10 years for Petroleum and Natural Gas Leases) indicates that regulations would have to be incorporated slowly over a period of time. Clauses could be



inserted in various leases to ensure public access. Similarly, rights-of-way could be preserved between adjacent dispositions of various kinds to ensure access to shoreland areas for recreation. Extractive operations should be regulated to ensure that they do not take place within a specified distance of lakeshores, such as 25 feet, and to ensure that, for example, large areas of shoreland are not clear-cut by forestry operations.

#### White and Yellow Zones

The types of dispositions found in the Yellow Zone and White Zone tend to be very similar. While very little land in the Green Zone is private, large amounts in the Yellow and White Zones are privately owned. The main intent of both the White and Yellow Zones is agriculture and settlement. Several types of dispositions were found to be common to both zones and rarely, if ever, found in the Green Zone. Most of these dispositions are related to agriculture, and include such ones as Rural Development Leases, Cultivation Leases, Hay Permits, Grazing Leases, Grazing Permits, and Community Pastures. The Alberta Cabinet is presently debating whether or not these dispositions allow public access. It has been generally accepted that access is allowed only at the discretion of the lessee. Often these dispositions may be granted in conjunction with other non-consumptive uses such as the letting of Grazing Leases and Hay Permits in Provincial Parks. This has led to

numerous documented cases of conflicts. The grazing of cattle in some of Alberta's parks including Cypress Hills Provincial Park, Dinosaur Provincial Park, and Waterton Lakes National Park has long been a contentious issue between cattlemen, park officials, and the recreating public. The scarcity of suitable grazing lands on Crown land outside of parks, and the economic value associated with the cattle industry make it difficult for politicians to rule against the multiple use of parklands.

Other kinds of dispositions that occur with some frequency in the White and Yellow Zones include Miscellaneous Leases and Permits, Recreation Leases, Pipeline Agreements, Sand and Gravel Leases, Coal Leases, and Petroleum and Natural Gas Leases. The first four of these allow public access to some degree, but the latter four are again, as in the Green Zone, restrictive. Their proximity to, and accessibility by, most of the population of Alberta creates numerous conflict situations, especially concerning access to lakeshore areas and the modification of wildlife habitat. Again there is a need for changes in regulations to allow access through leased lands or between dispositions of various types. Priorities for types of development in lakeshore areas are also needed.

## Role of Government Agencies in the Disposition of Crown Lands

The preceding section has identified the various kinds of dispositions that are available on Crown Land in Alberta. While it may appear that the administration of the various dispositions should be quite straight forward, it must be pointed out that several agencies have an input into how dispositions are allocated and administered. The following discussion will identify those agencies involved in dispositions related to recreation on, and access to, Crown Lands in Alberta, and outlines their respective roles in the administration of these dispositions.

### Department of Recreation, Parks and Wildlife

The Department of Recreation, Parks and Wildlife is comprised of three Divisions, namely Provincial Parks, Recreation, and Fish and Wildlife. The Provincial Parks Division is responsible for the provision and administration of Provincial Parks and Wilderness Areas in Alberta. These areas are located on Crown Land and are assigned by Order-in-Council. At present, there are 54 Provincial Parks and 3 Wilderness Areas designated throughout the province.<sup>32</sup> Of these, 36 are located on lakes, and use in the areas is restricted to non-consumptive activities.

Provincial Parks were created usually at the demand of the local populace or politicians, by taking areas that were utilized informally for recreation and vesting the title in the right of the Provincial Parks Division. These areas were commonly located on or near bodies of water, and while they may not have been designated as Provincial Parks because of this, they are utilized to a large extent for water oriented activities. Provincial Parks located on lakes usually provide a beach for recreational activities. In some instances, where the shoreline is of poor quality, artificial beaches have been created.

Provincial Parks, while providing public access to shoreline areas, have several areas wherein private holdings of land are maintained within the park area, usually on the lakeshore. Some 14 Provincial Parks have cottage subdivisions located within their boundaries.

In many cases, these cottage areas were in existence prior to the establishment of the park, and the cottages have been allowed to remain. These cottage lots are, for the most part, owned by individuals, unless they are in what is known as a "Crown Subdivision". Here they may have a Miscellaneous Lease on the cottage lot for a period of up to 25 years. Only five of sixteen "Crown Subdivisions" located on lakes do not allow purchase of cottage lots and only one of these occurs within a Provincial Park. Provincial Parks have recently made it a policy that further

leasing of lands for residential purposes, whether for permanent residence or summer cottage use, is not compatible with other park purposes. The removal of existing establishments should be effected wherever possible, in a manner that will inconvenience the users or lessees as little as possible, when the subdivided area becomes necessary for expansion of facilities more compatible to park purposes. It has been further stated, however, that lands will not be expropriated, and that leases will be cancelled only if a favourable outright settlement or relocation can be arrived at, and only in such cases where the acquisition of the land is essential to park purposes.<sup>33</sup> It is an unfortunate fact, for purposes of park administration, that this rarely occurs, since it is not a politically viable alternative. This is one of the most obvious conflict situations occurring on lakeshores in Provincial Parks, namely the provision of general public facilities, along with the development of cottages and the provision of certain services such as garbage collection and improved lakeshore frontage for a limited number of private individuals.

Provincial Parks are open for day use to anyone at no charge, and only in certain instances are quotas of use imposed. A small fee is charged for camping, and in some parks where there are designated stalls, a quota is imposed on the number of units in the campground. For the most part, however, Provincial Parks do not

restrict the number of units in the park and many campgrounds and day-use areas are filled beyond capacity on a regular basis. There is a definite need for restrictions on use in order to reduce the conflict situations arising from overcrowding, and to ensure an adequate recreational experience. Paralleling this is the need for increased opportunities for camping and shoreland recreation to alleviate the overcrowding.

The Recreation Division, while providing consulting services to municipalities involved in establishing recreation facilities, does not administer any Crown Land. The Fish and Wildlife Division, on the other hand, is involved in such recreational management pursuits as the stocking of lakes with fish for recreation purposes, issuing of hunting and fishing licences, and the management of wildlife populations. The Division controls the use of, and access to, various lakes and rivers by enforcing closed seasons on fishing and hunting.

#### Department of Energy and Natural Resources

Three Divisions of the Department of Energy and Natural Resources are responsible for the administration of recreation use on Crown Lands in the province, namely the Public Lands Division, the Minerals Disposition Division and the Alberta Forest Service. The Public Lands Division is the major body involved in land dispositions.

in the province. All reservations on Crown Land are placed on and managed by the Lands Division. These may be placed at the request of another agency, however the responsibility for reserving or removing reservations on Crown land falls under their jurisdiction. Similarly, lands allocated for patent sale, homestead sale, and assignment to such dispositions as Miscellaneous Leases, Miscellaneous Permits, Grazing Leases or Grazing Permits are coordinated by the Lands Division.

The Department of Energy and Natural Resources is also responsible for the administration of Petroleum and Natural Gas Leases. Requests for Petroleum and Natural Gas Leases, Mineral Surface Leases, or Pipeline Agreements are submitted to the Minerals Disposition Division by the company or individual desiring the disposition. These requests are then reviewed, not only by the Minerals Disposition Division, but also by the Lands Division and any other agency having an interest in the area (Alberta Recreation, Parks and Wildlife, Alberta Forest Service and Alberta Environment) before the disposition is assigned.<sup>34</sup>

As discussed previously, the Province is divided into three management zones. Within the Green Zone or Forestry Zone, the Alberta Forest Service has jurisdiction over the uses made of the land, the number and location of Timber Leases and Permits granted, and the provision of recreational facilities. Over 100 Forest Service

Recreation Areas are located throughout the Green Zone. Many of these are located on either rivers or lakes, providing access points for fishing, boating, and other water oriented activity. These recreational areas vary in size and in the amount of facilities developed. The Recreation Areas are very popular and are usually filled to capacity throughout the summer season. Some Recreation Areas have designated camping stalls. However, usually these are not enforced. There are no charges for use and the area is open to all. As in Provincial Parks, conditions are often overcrowded. This results in conflicts between recreationists wanting peaceful type experiences and those wanting more intensive recreation opportunities. Similarly, conflicts develop between users and the environment.

#### Department of Transportation

The Department of Transportation has as its main function the building and maintenance of highways and roads throughout the province. Related to this, it has traditionally constructed overnight stopover campsites along major roads and highways, and on roads that provide access to lakes. These campsites are usually quite small, have only primitive facility development and a fairly short lake frontage. However, they do provide access points to lakes which are quite often entirely surrounded by private or



patented land. Transportation campgrounds, like other provincial campgrounds in Alberta, are normally filled to capacity throughout the camping, hunting, and fishing seasons. The areas are easily accessible and no fees are charged or use quotas enforced. The numbers of units that are often squeezed into the areas creates conflicts between users and the natural environment and results in degradation of the site.

#### Department of the Environment

The Land Assembly Division of the Department of the Environment is responsible for the acquisition of patented land for Crown or Government purposes. If another Department requires a specific piece of property (e.g. The Provincial Parks Division for park expansion or development) a request is put forward to the Land Assembly Division to assess, and then to undertake negotiations to purchase the property in question. The property then becomes Crown land or land revested in the right of the Crown. At this point, the Lands Division may place a reservation on the land reserving it for the use of the agency requesting the acquisition. In the event that the land was purchased as a result of a tax sale or was not requested by a specific department, this may be reserved by any interested agency or dispositions such as Mineral Surface Leases, Miscellaneous Permits, Miscellaneous Leases, Timber Leases, etc., may be placed on the land.

Alberta Environment is also involved in the provision of recreation access to dam and reservoir sites through their Site Beautification Program. Funds available through this program are usually used to provide a small campground or day-use site at a dam built by the department. This is a fairly small program and to date has not been utilized extensively throughout the province.

### Summary

The preceding description of Crown land dispositions available throughout Alberta and the number of agencies responsible for the management of these dispositions indicates that their management and administration is not straight-forward. The number of departments expressing interest in specific parcels of land may result in conflicts concerning allocation of the use of that land. Similarly, the number of departments involved may result in some interest being overlooked in the process of land allocation.

Throughout the remainder of this thesis, the distribution and allocation of the various types of dispositions will be analyzed to determine whether or not their allocation has been effective in achieving management objectives identified by the province.

## CHAPTER IV REFERENCES

1. Canadian Council of Resource and Environment Ministers (CCREM). The Administration of Crown Lands in Canada, (Montreal, Quebec: CCREM, 1972) p.60.
2. Alberta Government. Atlas of Alberta, (Edmonton: Queen's Printer, 1969) p.34-35.
3. Ibid, p.28-29.
4. Water Resources Division, Alberta Environment. Lake Classification, (Edmonton: Alberta Environment, 1972), Appendix A.
5. Alberta Energy and Natural Resources Report No. 16. Dispositions in the Eastern Slopes Area, (Edmonton: Alberta Energy and Natural Resources, 1977) p.5.
6. Ibid, p.5.
7. Alberta Regulation 309/71.
8. Alberta Energy and Natural Resources, Administration of Alberta Public Lands, (pamphlet) p.9.
9. Alberta Energy and Natural Resources Report No.16. Ibid p.1.
10. Alberta Energy and Natural Resources. Administration of Alberta Public Lands, (pamphlet) p.10.
11. Ibid, p.10-11.
12. Ibid, p.10.
13. Ibid, p. 9; Alberta Regulation 201/58.
14. Alberta Regulation 316/61, and Alberta Regulation 269/57.
15. Alberta Energy and Natural Resources. Administration of Alberta Public Lands (pamphlet) p.9.
16. CCREM. The Administration of Crown Lands in Canada, (Montreal: CCREM, 1972) p.60.
17. Alberta Government. Atlas of Alberta, (Edmonton: Queen's Printer, 1969) p.35-35.

18. Ibid, p.28-29.
19. Water Resources Division, Alberta Environment, Lake Classification, (Edmonton: Alberta Environment, 1972) Appendix A.
20. Alberta Government. Atlas of Alberta, (Edmonton: Queen's Printer, 1969) pp.34-35.
21. Ibid, pp.28-29.
22. Water Resources Division, Alberta Environment. Lake Classification, (Edmonton: Alberta Environment, 1972) Appendix A.
23. Alberta Energy and Natural Resources. Administration of Alberta Public Lands (pamphlet) p.5.
24. Ibid, p.6.
25. Ibid, p.6.
26. Alberta Regulation 221/76.
27. Alberta Regulation 64/70.
28. Alberta Regulation 64/70.
29. Alberta Energy and Natural Resource. Administration of Alberta Public Lands, (pamphlet) p.8.
30. Ibid, pp.8-9.
31. Alberta Energy and Natural Resources. Township Register Coding Form, L.A. 64/76.
32. Alberta Department of Recreation, Parks and Wildlife, 1978-79 Provincial Parks Facility Inventory.
33. From "Alberta Provincial Parks Policy Manual", working document compiled by Parks System Planning, October 1978.
34. Discussions with various personnel from Alberta Provincial Parks and Alberta Department of Energy and Natural Resources.

## CHAPTER V

### CROWN SHORELAND DISPOSITION AND ACCESS: AN ANALYSIS

High quality shoreland resources in Alberta are in limited supply. The intent of this thesis, as stated previously, is to examine the use and administration of provincial Crown shoreland resources in Alberta in relation to their location within each of the three management zones, and to determine whether or not the allocation of Crown land dispositions available in each zone has been effective in planning and managing shorelands to achieve the objectives of that Zone.

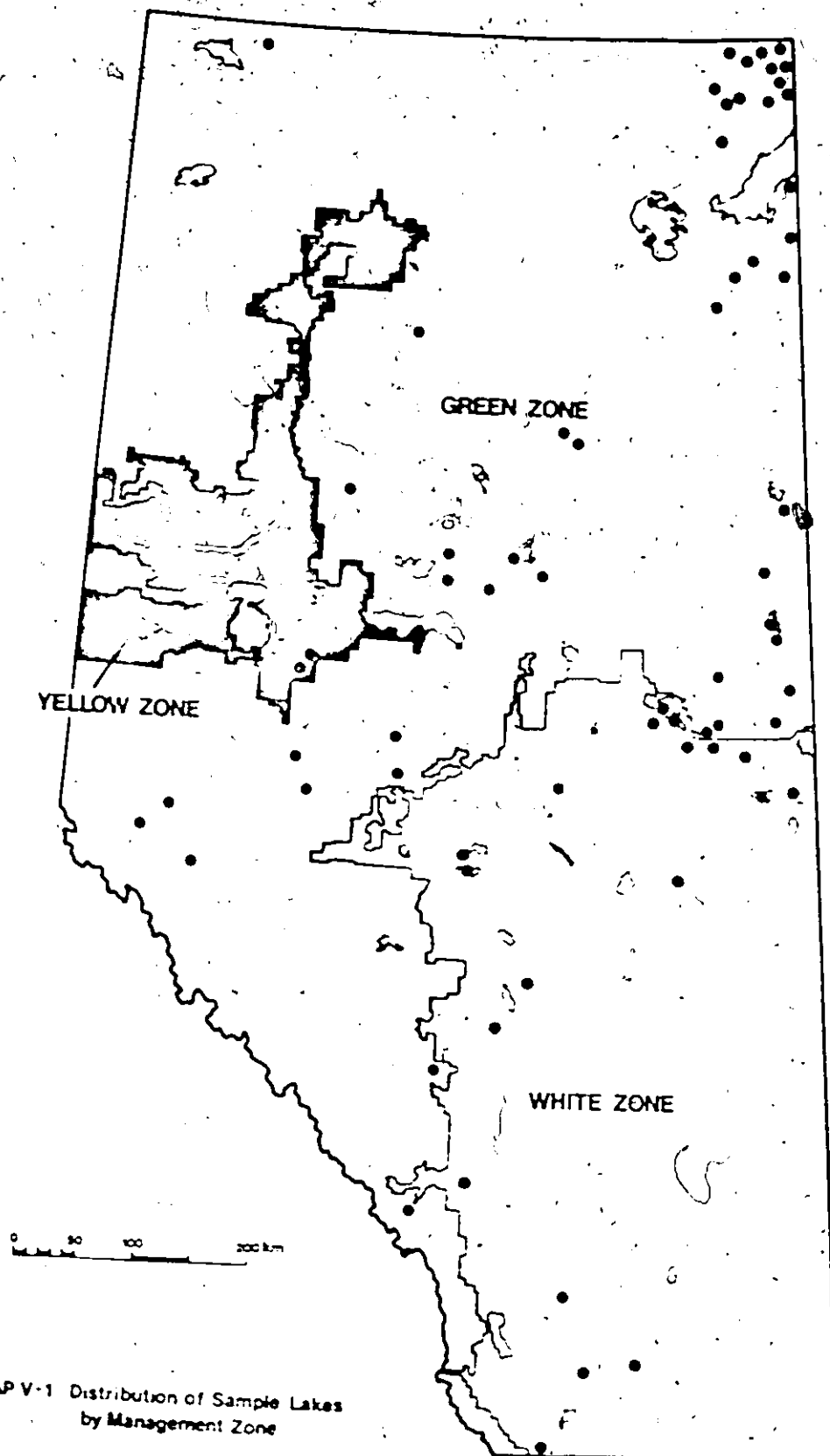
Analysis of the effectiveness of dispositions in managing shoreland resources and in providing for public access and use involved the study of such factors as the kinds of leases and dispositions available within each of the three zones (Chapter IV), the government departments involved in the application of these dispositions (Chapter IV), the kinds of leases and dispositions actually found within each zone and the frequency of their occurrence. The latter two aspects shall be covered in the present chapter.

Analysis of the historical sequence of allocation of dispositions by zone and type of disposition is found in Chapter VI.

Further study of the actual mechanism of allocating dispositions, rather than just analysis of their intent and distribution, is needed to assess how effectively dispositions have been, are being, and could be used in planning and managing shorelands. This aspect is not considered in the present paper, but could be the topic of a subsequent study. The management objectives of each of the three zones, as stated in Chapter IV, are somewhat different. These objectives are based in part on biophysical, soil, and climatic differences between areas of the province. In order to determine if lakes in each of the three zones also exhibited different characteristics, it was necessary to study various aspects of a sample of lakes in each zone. This involved the compilation of data concerning the geographic distribution of lakes, recreation capability of lake shorelands, length of shoreland, and ownership patterns on land surrounding each lake (i.e. percentage of land that is Crown or patented). (These latter characteristics will be discussed first.

#### Shoreland Distribution and Characteristics

The initial step in the analysis was to examine the distribution and use of lakeshorelands in Alberta in relation to their location within the three Management Zones -- Green, Yellow, and White. An overlay showing the boundaries of the three zones was transferred to Canada Land Inventory Recreation Capability maps for Alberta,



MAP V-1 Distribution of Sample Lakes  
by Management Zone

and all lakes having at least some portion of their shoreland in Recreation Capability Class 1 to 4 were noted.<sup>1</sup> The resulting tally of the distribution of lakes having the highest of Classes 1 to 4 for recreation, by management zone, indicated that there are 470 lakes in the Green Zone, 190 in the White Zone, and 10 in the Yellow Zone making a total of 670 lakes. The magnitude of a study required to consider all 670 lakes in detail was beyond the scope of the present thesis. Lack of detailed information concerning such things as the ~~total~~ length of shoreland for the entire population of lakes in Alberta necessitated the selection of an arbitrary sample size. A ten percent sample in both the White and Green Zones, and a 100 percent sample in the Yellow Zone resulted in a total of 76 lakes being studied in detail. The sample lakes were chosen randomly from lists of all lakes of Class 1 to 4 in each zone.<sup>2</sup> The resulting distribution of these lakes is illustrated on Map V-1. A further breakdown by Canada Land Inventory Recreation Capability Class of the lakes in each zone reveals that the sample is comprised of approximately 10 percent of each class, with the White Zone having slightly more lakes in Class 2. This information is displayed in Table V-1.

#### Lakeshore Land Ownership

Information concerning ownership of land in Alberta is available from County/Improvement District/Municipal District Land Ownership Maps which are updated every few years.<sup>3</sup> This information was



TABLE V-I

## DISTRIBUTION OF LAKES IN SAMPLE BY CLASS

| CLASS | ZONE       |        |             |        |            |        |
|-------|------------|--------|-------------|--------|------------|--------|
|       | Green Zone |        | Yellow Zone |        | White Zone |        |
|       | Total      | Sample | Total       | Sample | Total      | Sample |
| 1     | 29         | 4      | 1           | 1      | 11         | 1      |
| 2     | 74         | 7      | -           | -      | 29         | 6      |
| 3     | 132        | 13     | 3           | 3      | 67         | 7      |
| 4     | 235        | 23     | 6           | 6      | 83         | 5      |
| TOTAL | 470        |        | 10          |        | 190        |        |

Percent of

All Lakes

Class 1-4 70.2

1.5

28.4

compiled in 1972 by Alberta Environment for a majority of the lakes in Alberta, both at the high water mark and at a distance of one quarter of a mile inland.<sup>4</sup> Lengths of shoreland of lakes in miles were also calculated.

This data has been utilized in the present study to determine the percentage and the amount of land surrounding each lake that is Crown and privately owned. Table V-2 presents the total lengths of shoreland of sample lakes in each zone. The average amount of Crown and private shoreland has been determined for each zone, both for land abutting the high water mark and for land one quarter of a mile inland. Chi-Square analysis<sup>5</sup> has been used to test the null hypothesis that ownership patterns are similar on shorelands and at one quarter of a mile inland in all zones. Pearson's Coefficient of Contingency "C" was then calculated to determine the strength of the association between the variables in question.<sup>6</sup>

Cross tabulation tables, Chi-Square values, level of significance, and the value for Pearson's C for ownership both of land abutting the lake and land one quarter of a mile inland can be found in Tables V-3 and V-4 respectively. The resulting Chi-Square value reveals that the null hypothesis that ownership patterns are the

TABLE V-2

## SHORELAND LENGTH AND OWNERSHIP

| ZONE   | NUMBER OF<br>LAKES IN<br>SAMPLE | SHORELAND LENGTH<br>(SAMPLE TOTAL)<br>(MILES) | SHORELAND OWNERSHIP           |                                 | LAND OWNERSHIP<br>1/4 MILE INLAND |                                 |
|--------|---------------------------------|-----------------------------------------------|-------------------------------|---------------------------------|-----------------------------------|---------------------------------|
|        |                                 |                                               | CROWN<br>(AVERAGE<br>PERCENT) | PRIVATE<br>(AVERAGE<br>PERCENT) | CROWN<br>(AVERAGE<br>PERCENT)     | PRIVATE<br>(AVERAGE<br>PERCENT) |
| Green  | 47                              | 556.4                                         | 99.6                          | 0.4                             | 98.7                              | 0.3                             |
| Yellow | 10                              | 143.9                                         | 52.0                          | 48.0                            | 51.0                              | 49.0                            |
| White  | 19                              | 312.9                                         | 39.1                          | 60.9                            | 33.4                              | 66.6                            |
| TOTAL  | 76                              | 1013.2                                        |                               |                                 |                                   |                                 |

SOURCE: Compiled by author from Alberta Environment, Lake Classification, 1972.

TABLE V-3  
SHORELAND OWNERSHIP

| OWNERSHIP (SAMPLE LAKES) |       |         |         |         |                |
|--------------------------|-------|---------|---------|---------|----------------|
| ZONE                     | CROWN |         | PRIVATE |         | TOTAL<br>MILES |
|                          | MILES | PERCENT | MILES   | PERCENT |                |
| Green                    | 554.2 | 99.6    | 2.2     | 0.4     | 556.4          |
| Yellow                   | 74.8  | 52.0    | 69.1    | 48.0    | 143.9          |
| White                    | 122.3 | 39.1    | 190.6   | 60.9    | 312.9          |
| TOTAL                    | 751.3 |         | 261.9   |         | 1013.2         |

CHI-SQUARE = 425.6 DF = 2 SIGNIF. LEVEL = 0.001 PEARSON'S C = 0.54

TABLE V-4  
LAND OWNERSHIP  
ONE QUARTER MILE INLAND

| ZONE   | OWNERSHIP (SAMPLE LAKES) |         |         |         |                |
|--------|--------------------------|---------|---------|---------|----------------|
|        | CROWN                    |         | PRIVATE |         | TOTAL<br>MILES |
|        | MILES                    | PERCENT | MILES   | PERCENT |                |
| Green  | 554.7                    | 99.7    | 1.7     | 0.3     | 556.4          |
| Yellow | 73.4                     | 51.0    | 70.5    | 49.0    | 143.9          |
| White  | 104.5                    | 33.4    | 203.4   | 66.6    | 312.9          |
| TOTAL  | 732.6                    |         | 280.6   |         | 1013.2         |

CHI-SQUARE = 477.12 DF = 2 SIGNIF. LEVEL = 0.001 PEARSON'S C = 0.57

same in all zones is unacceptable in both cases at a 0.001 level of significance, with a moderate strength of correlation as revealed by the value of Pearson's C (0.54 and 0.57 respectively). It can thus be inferred that the three samples of lakes are drawn from populations that are not the same. This supports the theory that land ownership patterns on shorelands in the three zones are different and that the intended objectives of the zones are being attained.

Further testing of this null hypothesis was carried out using Chi-Square analysis of the ownership patterns in various combinations of zones, such as Green and Yellow, Yellow and White, and Green and White.<sup>7</sup> Results indicated that the null hypothesis is unacceptable at a 0.001 level of significance for both land abutting the lake and at one quarter of a mile inland, for comparisons of the Green and Yellow Zones and the Green and White Zones. A moderate relationship is also revealed for these Zones from Pearson's C (i.e. 0.54 and 0.57 relationship).

The null hypothesis that there are no differences between ownership patterns on lakes in the Yellow and White Zones was found to be unacceptable, but not as significantly as between the other zones. Ownership patterns of land abutting the lakes are different with a Chi-Square value (6.7) that is significant at a 0.05 level. At one quarter of a mile inland, the difference is greater, with a

Chi-Square value (12.9) that is significant at a 0.01 level. The value for Pearson's C was very low in both instances (i.e. 0.12 and -0.17), indicating a weak relationship. The significance levels of the results, however, still indicate that the samples of lakes are drawn from different populations.

Since the establishment of the three management zones in 1948, several minor changes in the location of zone boundaries have occurred. The present analysis of the existing zones reveals that there are likely significant differences between ownership patterns on lakes within each zone. This may, however, be the result of a management process of eliminating those areas, particularly from the Green Zone, which do not conform to the intended characteristics of the zone. Further study would be needed to determine if this is indeed the case. For the present it is sufficient to say that while the characteristics of the three zones may not have been significantly different in 1948 when they were initially established, they are different in 1978.

#### Crown Shoreland Dispositions

Twenty-seven types of dispositions available on Crown land in Alberta were identified in Chapter IV. Further study of these dispositions indicates that similarities concerning such things as general intent and provision for recreation and public access are

apparent in some dispositions. The result was a consolidation of the list of 27 dispositions into 9 categories. These nine categories and what they comprise are as follows:

- (1) patented land and federal land, including all patented land and such federal lands as Indian Reserves, National Defense lands, and Prairie Farm Rehabilitation Area (PFRA) lands
- (2) Provincial Parks and Wildlife Sanctuaries
- (3) land having dispositions for Recreation Leases, Miscellaneous Leases, Miscellaneous Permits, and Crown subdivisions
- (4) all agricultural leases, permits, and Grazing Reserves
- (5) all mineral oriented dispositions, including Exploration Permits, Rights of Entry, Mineral Surface Leases, and Water Development Licences
- (6) all corridor type dispositions including Rights-of-Way, Pipeline Agreements, Easements, and Licences of Occupation
- (7) all reservations on Crown land for parks, recreation and conservation purposes
- (8) all other reservations on Crown land, and
- (9) Crown lands having no dispositions.

The types and locations of dispositions occurring on Crown land throughout Alberta are available in the Township General Register Files maintained by the Lands Division of the Alberta Department of Energy and Natural Resources. These files were accessed for the present study to determine kinds of dispositions occurring on

lands surrounding the lakes in the sample. This involved identifying all quarter sections of land which were adjacent to, or partially covered by, lakes in the sample. Since specific coordinates of each disposition were not recorded, it was necessary to identify all dispositions occurring in each quarter section along with their date of development. Specific disposition information for individual lakes in the sample is presented in the Appendix of this thesis.

The sample of lakes in the Green Zone indicated a wide variety of dispositions in the quarter sections adjacent to the lakes ranging from a large number of reservations for recreation, parks and other activities, Licences of Occupation, Forest Management Agreement Areas, Roadway Rights-of-Way, to somewhat fewer Mineral Surface Leases, Pipeline Agreements, Water Development Licences, Easements, Miscellaneous Leases, Miscellaneous Permits, and Lakeshore Reservations. Only one lake in the sample was found to have adjacent private or patented land.

Private land was found to occur on all lakes in the Yellow Zone. There was also a predominance of dispositions for agriculture (Agricultural Licences and Permits), reservations for parks and recreation purposes, Provincial Parks and somewhat fewer dispositions for Recreation Leases, Miscellaneous Leases, Miscellaneous Permits, and Pipeline Agreements.



The White Zone also revealed private ownership of shoreland on all but one lake in the sample. The most commonly occurring types of dispositions included reservations for parks, recreation and conservation, Railroad Rights-of-Way, Licences of Occupation, Recreation Leases, Pipeline Agreements, Grazing Leases and Grazing Permits, with somewhat fewer Provincial Parks, Miscellaneous Leases, and Miscellaneous Permits.

This information was then compiled into charts for purposes of analysis, utilizing the nine categories outlined previously to ensure valid Chi-Square analysis. Table V-5 presents the total number of dispositions in each of the first eight categories (category 9 not having any dispositions). Chi-Square analysis indicates that there is a difference, significant at the 0.001 level, between the numbers and types of dispositions occurring in each of the Green, Yellow, and White Zones during the study period. This supports the discussion in Chapter IV that certain types of dispositions are generally found within specific zones.

The number of lakes in each of the three management zones having dispositions in any of the nine categories were then determined. The resulting number of lakes in each category is also presented in Table V-5.

TABLE 7-5

## DISTRIBUTION OF DISPOSITIONS BY MANAGEMENT ZONE

| DISPOSITION TYPE                                                                | NUMBER OF LAKES AND DISPOSITIONS |       |        |       |       |       |       |       |
|---------------------------------------------------------------------------------|----------------------------------|-------|--------|-------|-------|-------|-------|-------|
|                                                                                 | GREEN                            |       | YELLOW |       | WHITE |       | TOTAL |       |
|                                                                                 | LAKES                            | DISPS | LAKES  | DISPS | LAKES | DISPS | LAKES | DISPS |
| 1. patented land, federal land                                                  | 3                                | 5     | 10     | 160   | 18    | 242   | 31    | 407   |
| 2. Provincial Park, wildlife sanctuary                                          | -                                | -     | 4      | 14    | 4     | 15    | 8     | 29    |
| 3. recreation lease, miscellaneous lease or permit, Crown subdivision           | 5                                | 10    | 3      | 17    | 7     | 14    | 15    | 41    |
| 4. agriculture (lease, permit, grazing reserve,                                 | 7                                | 11    | 9      | 18    | 11    | 26    | 27    | 55    |
| 5. minerals (lease, exploration, water development)                             | 6                                | 50    | 2      | 12    | 3     | 10    | 11    | 74    |
| 6. corridor (right-of-way, pipeline agreement, easement, licence of occupation) | 12                               | 57    | 6      | 14    | 14    | 107   | 32    | 178   |
| 7. reservations (parks, recreation, conservation)                               | 19                               | 51    | 7      | 42    | 14    | 42    | 40    | 135   |
| 8. reservations (other)                                                         | 13                               | 12    | 4      | 10    | 11    | 27    | 28    | 51    |
| 9. no dispositions                                                              | 20                               | -     | -      | -     | -     | -     | 20    | -     |
| TOTAL                                                                           | 85                               | 198   | 45     | 287   | 82    | 485   | 212   | 970   |

## LAKES:

Chi-square = 55.4  
 Degrees of Freedom = 2  
 Significance Level = 0.001  
 Pearson's C = 0.46

## DISPOSITIONS:

Chi-square = 286.0  
 Degrees of Freedom = 2  
 Significance Level = 0.001  
 Pearson's C = 0.48

\*Dispositions

The null hypothesis that there are no differences in the types of dispositions occurring in the three zones is found to be unacceptable at a 0.001 level, indicating a significant difference between the kinds of dispositions found in each zone. Calculation of Pearson's  $\chi^2$  indicates a moderately strong correlation (0.48). Chi-Square analysis of differences between the Green and Yellow Zones (33.6) and the Green and White Zones (37.8) indicates that, similar to the distribution of Crown and private land, there are differences between the types of dispositions found in each zone. Differences between the types of dispositions found in the Yellow and White Zone are not as well pronounced (i.e. Chi-Square equals 2.6). In fact, the Chi-Square value indicates that there is a probability of 10 percent that the Yellow and White Zones have a similar distribution of dispositions. This supports the discussion in Chapter IV that the kinds of dispositions found in the Yellow and White Zones are very similar.

Figure V-1 presents the percentage of sample lakes in each zone having dispositions in any of the nine categories. The graph portrays the previous Chi-Square Analysis of the distribution of lakes by disposition. Dispositions in the Yellow and White Zones are found to be distributed in a relatively similar pattern, with the greatest difference occurring in Category 4 (Agricultural Leases and Permits). In this category, the Yellow Zone sample is

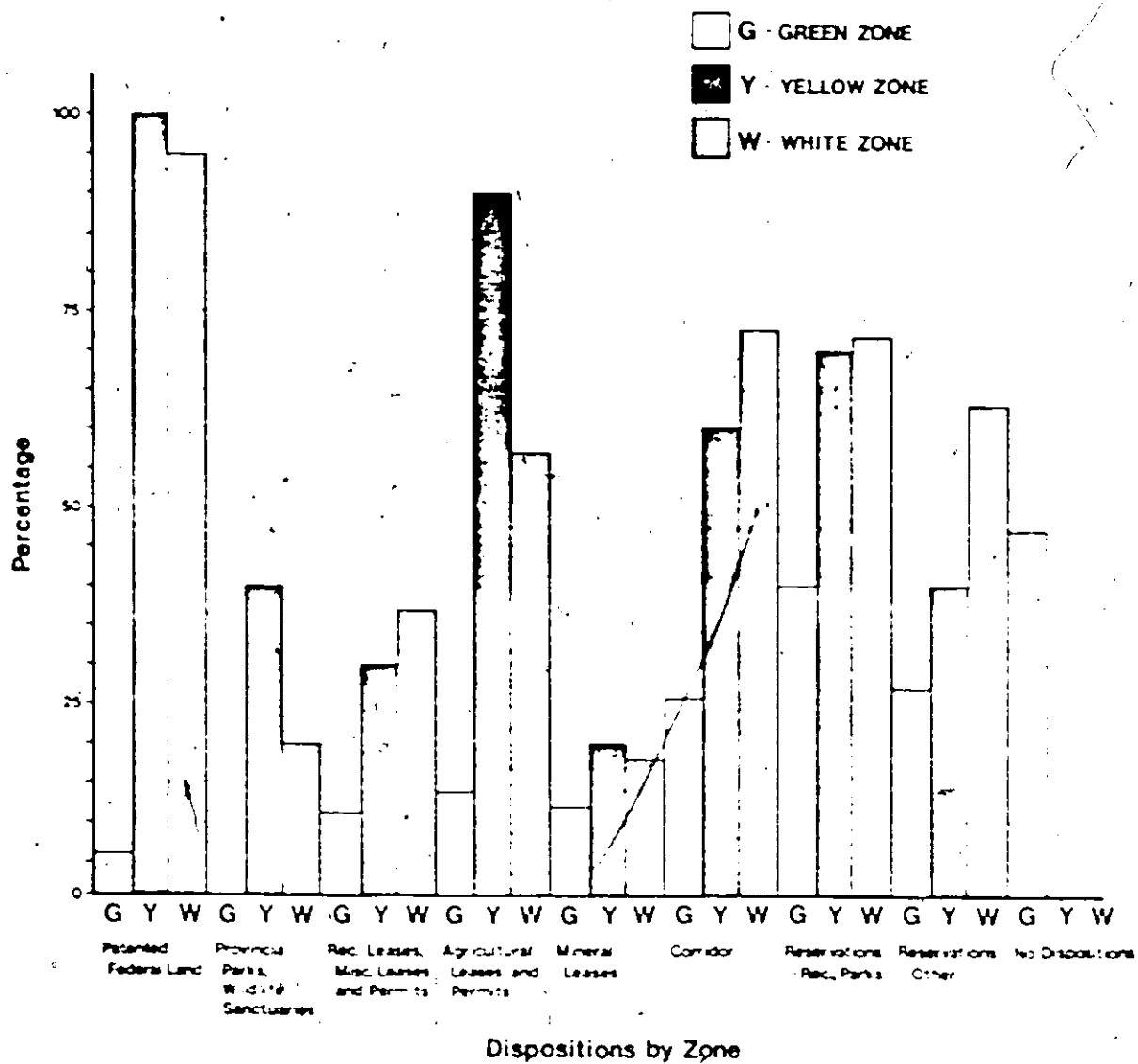


FIGURE V-1 Distribution of Lakes by Disposition

found to have 35 percent more lakes with agricultural dispositions than the White Zone. All other categories reveal less than 20 percent difference between the White and Yellow Zones. The Green Zone, however, shows a significantly different distribution. Major differences include 95 percent fewer lakes having dispositions in Category 1 (Patented Land) and 75 percent fewer in Category 4 (agricultural dispositions). The remaining categories show less distinctive differences with 40 percent fewer lakes in Categories 2 (Provincial Parks) and 9 (no disposition), 35 percent in Category 6 (corridor type), 30 percent in Category 7 (Reservations), 20 percent in Category 3 (Recreation Leases), and only 7 percent in Category 5 (mineral dispositions).

To summarize the graph, the disposition categories in which the Green Zone has a considerably lower percentage of lakes than the Yellow and White Zones are those dispositions which generally do not allow public access (i.e. Patented Land and Agricultural Leases and Permits). This could be representative of the greater amount of Crown or public land to be found in the Green Zone. The category most similar in the Green, Yellow, and White Zones is Category 5 (Mineral Dispositions) indicating that rights to minerals and mineral dispositions are available anywhere in the province where their extraction is viable. This includes Mineral Surface Leases, Coal Leases, and Petroleum and Natural Gas Leases.

Figure V-2 graphs the distribution of dispositions by zone, calculated as the percentage of the total number of dispositions in the sample. The largest proportion of dispositions is in Category 1 (Patented land) with most occurring in the White Zone (24.9 percent) and 16.5 percent in the Yellow Zone. Only 0.5 percent are found in the Green Zone. The next highest Category is 6 (corridor type dispositions) which has 11 percent in the White Zone and 5.9 percent in the Green Zone. The number of mineral dispositions in the Green Zone is very high (5.3 percent) as compared to only 1.2 percent in the Yellow and White Zones. All other dispositions represent very small proportions of the total, with the exception of Reservations for recreation purposes, which account for 5.3 percent in the Green Zone and 4.3 percent in the Yellow and White Zones.

#### Public Access To Shorelands

To determine how effectively shorelands are managed for public access and use, it is necessary to study not only the various dispositions possible in the three zones, but also the terms of the dispositions. Some dispositions provide for public access, others do not. In an attempt to determine the relative distribution of dispositions providing for public access, the long list of 9 categories has been condensed into 3 classes, based on whether or not there is provision for public access.

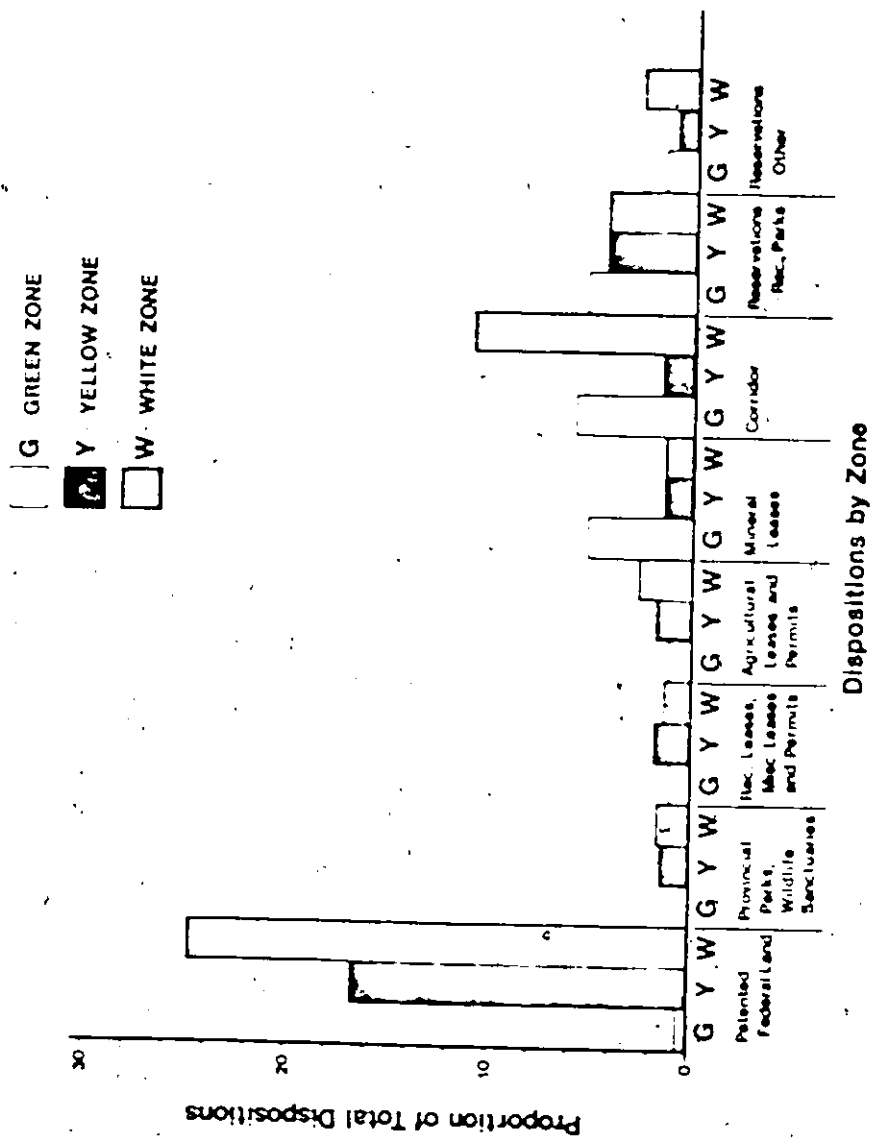


FIGURE V-2 Proportion of Dispositions by Management Zones

These classes are as follows:

- (1) "No Access" or those dispositions that do not allow public access for recreation unless by express permission, including patented, federal, mineral, or agricultural leases (i.e. categories 1, 4, and 5 from the long list).
- (2) "Possible Access" or those dispositions that may allow public access for recreation but are not intended specifically for that purpose, including Licences of Occupation, corridor type dispositions, and Reservations for anything other than parks or recreation purposes (i.e. categories 6 and 8 from the long list).
- (3) "Access" or those dispositions intended for recreation, or which have no clauses denying access, either of a public or semi-public nature (i.e. categories 2, 3, 7, and 9 from the long list).

The distribution of dispositions within each of these classes is presented in Table W-6 in terms of the number of lakes in each zone.

Chi-Square analysis of the number of sample lakes in each zone having either recreation access, possible access, or no access at some point on the lake reveals different amounts of access to



TABLE V-6  
DISTRIBUTION OF DISPOSITIONS ON LAKES BY AMOUNT OF ACCESS  
(NUMBER OF LAKES)

| DISPOSITIONS              | DISPOSITIONS ON LAKES BY ZONE |         |        |         |        |         | TOTAL |
|---------------------------|-------------------------------|---------|--------|---------|--------|---------|-------|
|                           | GREEN                         |         | YELLOW |         | WHITE  |         |       |
|                           | Number                        | Percent | Number | Percent | Number | Percent |       |
| No Access                 | 8                             | 17      | 10     | 100     | 19     | 100     | 37    |
| Possible Access           | 18                            | 38      | 8      | 80      | 17     | 89      | 43    |
| Recreation Access         | 40                            | 83      | 10     | 100     | 16     | 84      | 66    |
| NUMBER OF LAKES IN SAMPLE | 47                            |         | 10     |         | 19     |         |       |

CHI-SQUARE = 14.9    DF = 2    SIGNIF. LEVEL = 0.001    PEARSON'S C = 0.43

TABLE V-7  
DISTRIBUTION OF DISPOSITIONS BY AMOUNT OF ACCESS -  
(NUMBER OF DISPOSITIONS)

| DISPOSITIONS           | NUMBER OF DISPOSITIONS BY ZONE |         |        |         |        |         | TOTAL |
|------------------------|--------------------------------|---------|--------|---------|--------|---------|-------|
|                        | GREEN                          |         | YELLOW |         | WHITE  |         |       |
|                        | Number                         | Percent | Number | Percent | Number | Percent |       |
| No Access              | 66                             | 33.3    | 190    | 65.1    | 280    | 57.7    | 536   |
| Possible Access        | 71                             | 35.8    | 24     | 8.3     | 134    | 26.6    | 229   |
| Recreation Access      | 61                             | 30.8    | 73     | 25.4    | 71     | 15.6    | 205   |
| NUMBER OF DISPOSITIONS | 198                            |         | 287    |         | 485    |         | 970   |

CHI-SQUARE = 89.2    DF = 2    SIGNIF. LEVEL = 0.001    PEARSON'S C = 0.29

lakes in the three zones significant at a 0.001 level. A further breakdown, however, reveals that the differences between lakes in the Yellow and White Zones are not well defined. The Chi-Square value of 0.23 indicates that there is a probability of 70 percent that the amount of access to lakes in the Yellow and White Zones is similar. Differences between lakes in the Green and Yellow Zones and the Green and White Zones are better defined with significance levels of 0.001 (i.e. Chi-Square values are 78.4 and 12.7 respectively). The value of Pearson's C, in all three cases indicates a relatively poor strength of correlation (i.e. 0.05, 0.28, and 0.31 respectively).

The percentage distribution of sample lakes having dispositions in any of the three condensed categories of access are also presented in Table V-6. This table reveals that all of the sample lakes in the White and Yellow Zones have dispositions somewhere on their shoreline that do not allow public access for recreation, whereas only 17 percent of the lakes in the Green Zone sample have similar types of dispositions.

Percentages of sample lakes having dispositions allowing possible access for recreation are similar in the Yellow and White Zones (80 to 89 percent respectively). The Green Zone, however, shows only 38 percent or less than half the percentage of sample lakes

in the other two zones having dispositions allowing possible access.

All three zones show approximately the same percentage of sample lakes with dispositions specifically designating shorelands for recreation use and access. There is, however, a difference in the amount of public access that is available in the three zones. It has been assumed for this thesis that any part of Crown land that does not have a disposition imposed upon it is open to anyone for non-consumptive use. Thus, any lake not having dispositions has been included in the recreation access category. Referring to Table V-5, it can be seen that 20 lakes in the Green Zone, or half of those lakes allowing public access actually do not have any dispositions at all.

These 20 lakes are, therefore, totally accessible and are not subject to conflicts from other competing dispositions on the lake. The remaining 27 lakes in the Green Zone sample all are located on Crown land. Of these, 20 lakes have dispositions allowing public access, and only one of the additional seven does not have any dispositions allowing possible access. This differs from the White and Yellow Zones in that, while most sample lakes in both the White and Yellow Zones have some dispositions allowing public access, all lakes also have some dispositions not allowing

public access. There are no sample lakes in the White or Yellow Zones that are free of dispositions of any sort. This indicates that there is a greater likelihood of shoreland use conflicts occurring on the lakes in the White and Yellow Zones simply because of the greater diversity in the kinds, numbers, and intent of the dispositions occurring.

This potential for conflict is illustrated again in Table V-7 which shows the number of dispositions of each of the three classes occurring in each zone. The greatest number of dispositions is found in the White Zone (485) followed by the Yellow Zone with 287 and the Green Zone with 198. The distribution of dispositions in the Green Zone is fairly uniform with approximately one-third of the dispositions falling into each of the three classes of access. The Yellow Zone shows a predominance of dispositions in the "No Access" category, with almost two-thirds of its dispositions falling into this class, while only 8 percent occur in the "Possible Access" class. Approximately one-quarter of the dispositions, however, do fall into the "Access" class. The distribution in the White Zone is again very different, with over one-half of the dispositions not allowing public access, one-quarter allowing possible access, and only 15 percent allowing access. Chi-Square analysis of the distribution of dispositions allowing access indicates that there are differences between the amounts of access in each of the three zones significant at a 0.001 level. The Green Zone is found to be the most accessible, followed by a close grouping of the White and Yellow Zones.

### Summary

The majority of the lakes identified in Alberta as having some portion of their shoreland of CL1 Recreation Capability Class 1 to 4 are located in the Green Zone. Similarly, it was found that approximately 98 percent of the Green Zone shoreland sample is Crown land, while only 50 percent of the Yellow Zone and 33 percent of the White Zone sample shorelands are Crown. Thus, there are significant differences between shoreland ownership patterns in the three zones. This basically reflects the intent of the zones - namely management of the Green Zone for forestry, recreation and conservation, and management of the Yellow and White Zones for agriculture and settlement with a secondary intent of recreation and conservation.

The types of dispositions allocated in each of the three zones were found to be different with the Yellow and White Zones showing the greatest similarities. This reflects the types of dispositions designated as most likely to occur in each of the three zones (see Table IV-2).

All of the lakes in the White and Yellow Zone samples are found to have dispositions not allowing access for recreation, whereas only 17 percent of the lakes in the Green Zone show similar types of dispositions. Lakes having dispositions allowing possible access

are distributed fairly evenly throughout the province with slightly fewer occurring in the Green Zone. Similarly, numbers of lakes with dispositions allowing access are fairly evenly distributed throughout the province. However, the Green Zone has several lakes that have no dispositions at all regulating the use to be made of the shoreland, thus, allowing open access to the public. The lack of any disposition reduces the potential for conflict between users of the Green Zone lakes.

## CHAPTER V REFERENCES

1. Canada Land Inventory Recreation Capability Maps at both 1:50,000 (manuscript maps) and 1:250,000 for all of Alberta were utilized. The Management Zone boundaries were taken from maps prepared by Alberta Energy and Natural Resources in 1975.
2. The samples were chosen with the assistance of Dr. J.H. Ross, Alberta Department of Recreation, Parks and Wildlife using a computer-generated list of random numbers.
3. Maps identifying land ownership are available for all Counties, Improvement Districts, and Municipal Districts in Alberta. These are updated on a not very regular basis.
4. Alberta Environment. Lake Classification (Edmonton: Alberta Environment, 1972), Appendix A.
5. Moroney, J.F. Facts From Figures (London, Eng: Cox and Wyman Ltd, 1951) pp.249-270.
6. Blalock, H.M. Social Statistics (New York: McGraw-Hill Book Co. Inc., 1960) p.286.
7. Analysis of the combinations of Zones revealed the following:

(a) for land abutting the sample lakes

| <u>Zone</u>      | <u>Chi-Square</u> | <u>Significance Level</u> | <u>Pearson's <math>\chi^2</math></u> |
|------------------|-------------------|---------------------------|--------------------------------------|
| Green and Yellow | 232.6             | 0.001                     | 0.54                                 |
| Yellow and White | 6.7               | 0.01                      | 0.12                                 |
| Green and White  | 424.9             | 0.001                     | 0.60                                 |

(b) for land one quarter of a mile inland

|                  |       |       |      |
|------------------|-------|-------|------|
| Green and Yellow | 293.9 | 0.001 | 0.54 |
| Yellow and White | 12.9  | 0.01  | 0.17 |
| Green and White  | 4.77  | 0.001 | 0.57 |

## CHAPTER VI

### ANALYSIS OF HISTORICAL LAND DISPOSITION

Analysis of the effective use of land dispositions in the planning and management of land would be incomplete without studying the historical distribution of dispositions. As discussed in Chapter IV, Alberta was divided into three management zones in 1948. Any differences noted in the pattern of land disposition, both before and after this time period, will assist in determining how effectively dispositions have been used to fulfill the intent of each zone.

Records of dispositions in Alberta extend as far back as the 1890's, however, some of the very early records are not extremely accurate or complete. Thus, any information prior to about 1930 may be incomplete.

#### Historical Sequence of Land Dispositions

##### Distribution by Disposition Type

Types and dates of issue of dispositions occurring on the sample lakes in each zone were compiled from the Township General Register Files.<sup>1</sup> This information is presented in Table VI-1 in terms of



1341 AB 5,8111,4344,10 to 5,01110015,10 WY10015,10

G - Green Zone  
Y - Yellow Zone  
W - White Zone  
T - Total

**SOURCE:** -Compiled by author from Township General Register Files,  
Alberta Energy and Natural Resources.

the number of each of the eight major types of dispositions (the ninth category "No Disposition" is not included) that were issued over time from 1900 to January 1978. This table indicates that the earliest dispositions on the sample shoreland were issued prior to 1900 in the form of patented land such as homestead sales.

In the period 1901-05, dispositions for agriculture and Rights-of-Way for Railroads were issued. By 1911-15, Miscellaneous Leases were being issued along with Reservations for uses other than recreation. It was 1932 before any Provincial Parks were established in Alberta and 1946-50 before Reservations for recreation purposes were issued. The most recent type of disposition to be issued was for mineral extraction, which did not appear until 1951-55. Since the initial disposition in each category, there has been a relatively steady number of dispositions issued of each type.

The number of dispositions issued for patented land was the greatest between 1915 and 1965 with the majority of the dispositions occurring in the White Zone sample. Miscellaneous Leases and Permits and Recreation Leases have shown an increase in the period 1955 to the present, particularly in the Green and White Zones. While agricultural dispositions have occurred with relative frequency in the White Zone since 1946, they have shown a dramatic increase in the

Green Zone only since 1970. This could represent the increasing demand for grazing land in areas generally not suitable for cultivation and not heavily populated.

Mineral dispositions have been issued most frequently in the Green Zone sample with the heaviest demand occurring in the 1956-70 time period. This coincided with the increasing demand for minerals, coal, oil, and natural gas in Alberta and elsewhere. This trend was also reflected in the Yellow Zone sample. Corridor type dispositions, including Pipeline Agreements, have been issued in large numbers since 1961 throughout the province, reflecting the need to transfer oil and gas resources away from the site of extraction.

Large numbers of reservations for recreational use of the land have been issued in all zones since 1961. This possibly reflects the increasing awareness by park and recreation agencies that high quality shorelands for recreation are relatively scarce, and that it is prudent to reserve lands for potential future recreation use and development.

#### Sequence of Distribution by Amount of Access

Table VI-2 summarizes the above mentioned eight categories into the three classes of access discussed in Chapter V, namely 'No Access', 'Possible Access', and 'Access'. Dispositions not

TABLE VI-2

## HISTORICAL DISPOSITION BY AMOUNT OF ACCESS

| YEAR      | NO ACCESS |        |       |       | POSSIBLE ACCESS |        |       |       | ACCESS |        |       |       |
|-----------|-----------|--------|-------|-------|-----------------|--------|-------|-------|--------|--------|-------|-------|
|           | GREEN     | YELLOW | WHITE | TOTAL | GREEN           | YELLOW | WHITE | TOTAL | GREEN  | YELLOW | WHITE | TOTAL |
| 1900      | -         | -      | 3     | 3     | -               | -      | -     | -     | -      | -      | -     | -     |
| 1901 - 05 | -         | -      | 22    | 22    | -               | -      | 9     | 9     | -      | -      | -     | -     |
| 1906 - 10 | -         | 1      | 49    | 50    | -               | -      | 10    | 10    | -      | -      | -     | -     |
| 1911 - 15 | -         | 31     | 29    | 60    | -               | 1      | 5     | 6     | -      | 10     | -     | 10    |
| 1916 - 20 | -         | 29     | 17    | 46    | -               | -      | 10    | 10    | -      | -      | -     | -     |
| 1921 - 25 | 1         | 20     | 16    | 37    | -               | -      | -     | -     | -      | -      | -     | -     |
| 1926 - 30 | 1         | 14     | 7     | 22    | -               | -      | 1     | 1     | -      | -      | -     | -     |
| 1931 - 35 | -         | 12     | 7     | 19    | -               | -      | -     | -     | -      | 2      | 2     | 4     |
| 1936 - 40 | -         | 13     | 28    | 41    | -               | -      | -     | -     | -      | -      | -     | -     |
| 1941 - 45 | 1         | 14     | 28    | 43    | -               | -      | -     | -     | -      | 1      | -     | 1     |
| 1946 - 50 | -         | 10     | 9     | 19    | 1               | 2      | 1     | 4     | 1      | 3      | 1     | 5     |
| 1951 - 55 | 2         | 10     | 9     | 21    | 1               | 1      | 2     | 4     | 1      | -6     | 4     | 11    |
| 1956 - 60 | 9         | 2      | 21    | 32    | 4               | -      | 11    | 15    | 3      | 4      | 11    | 18    |
| 1961 - 65 | 32        | 15     | 11    | 58    | 23              | 6      | 10    | 39    | 18     | 10     | -     | 35    |
| 1966 - 70 | 6         | 8      | 6     | 20    | 14              | 2      | 22    | 38    | 2      | 13     | 9     | 24    |
| 1971 - 75 | 9         | 6      | 13    | 28    | 19              | 9      | 27    | 55    | 18     | 17     | 28    | 63    |
| 1976 - 78 | 4         | 5      | 5     | 14    | 9               | 3      | 24    | 36    | 19     | 7      | 9     | 35    |
| TOTAL     | 65        | 190    | 280   | 535   | 71              | 24     | 134   | 229   | 62     | 73     | 71    | 206   |
| PERCENT   | 6.7       | 19.6   | 28.9  | 55.2  | 7.3             | 2.4    | 13.8  | 23.6  | 6.4    | 7.5    | 7.3   | 21.2  |

allowing public access have occurred in Alberta since prior to 1900, in the form of patented lands. Dispositions of a nature that could allow for possible access were found in the White Zone sample as early as 1901 to 1920. Few were issued again until 1946, with the greatest number being issued in the period 1956 to 1978. While there were a few dispositions allowing public access in the Yellow Zone as early as 1911-15, it was not until 1946-50 that all three zones began to have dispositions allowing public access. Dispositions of all three general categories may occur on each lake. The more dispositions, especially of varying types, occurring on any lake increases the possibility that shoreland conflicts will occur.

Information from Table VI-2 concerning the time sequence of the development of lakes with dispositions in the three classes of access has been graphed in Figures VI-1, VI-2, and VI-3.

1. No Access: -- Figure VI-1 portrays graphically the time sequence of the development of lakes with dispositions that, as a result of the nature of the activity, do not allow public access. The White Zone was developed initially with three lakes in the sample having some patented land prior to 1900, four between 1901 and 1905, and three between 1906 and 1910. The largest period of development occurred between

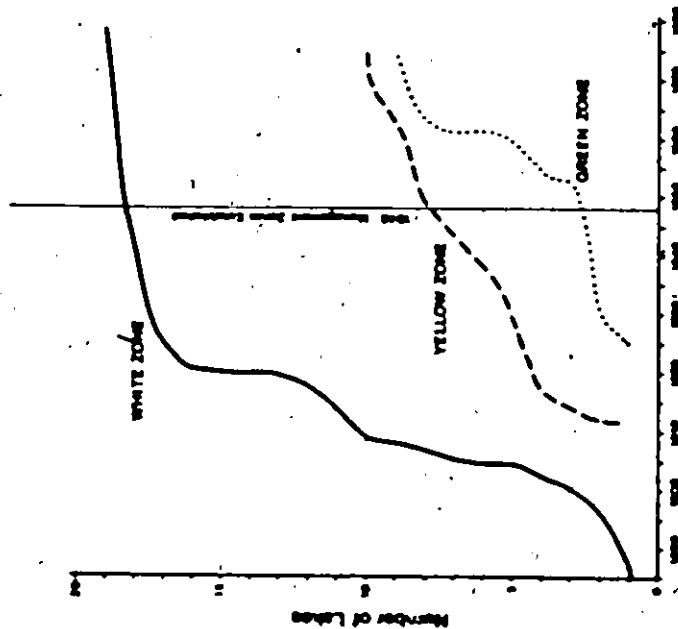


FIGURE VI-1 Historical Distribution of First Disposition Not Allowing Access

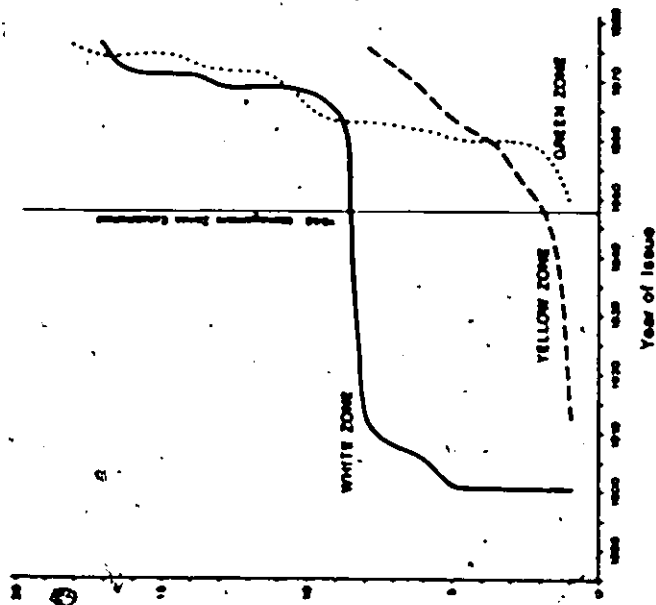


FIGURE VI-2 Historical Distribution of First Disposition Allowing Possible Access

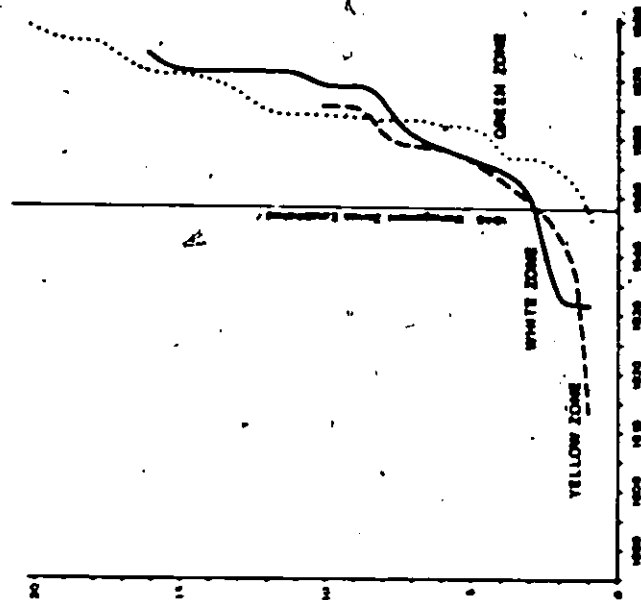


FIGURE VI-3 Historical Distribution of First Disposition Allowing Access

patented land. The most recent lake to be developed was in the early 1970's. The early development of the lakes in the White Zone is probably reflective of their relative accessibility and proximity to the areas of Alberta first settled.

Three lakes in the Yellow Zone were developed with dispositions that restrict access to anyone other than the holder of the disposition in the period 1911 to 1915. The remainder were developed over time with the latest being in the late 1960's.

Only one lake in the Green Zone sample has patented land, and that disposition occurred in the late 1920's prior to the initiation of the three management zones. Since that time, there have been other dispositions that restrict public usage on nine of the sample lakes. The most recent was in 1977, with the issuing of a Mineral Surface Lease on Grew Lake.

Since 1948, the number of lakes having dispositions allocating no public access has increased in the Green Zone and remained fairly steady in the Yellow and White Zones. This likely reflects the increasing demand for mineral and petroleum exploration and extraction.

2. Possible Access: -- The time sequence of development of lakes with dispositions that allow public access under certain conditions is displayed in Figure VI-2. Again, the White

Zone underwent the most development at an early stage. Eight lakes were assigned dispositions possibly allowing public access between the period 1901 and 1912. There was then a large time lapse, followed by dispositions on seven lakes in the period 1965 to 1971.

One lake in the Yellow Zone sample had a disposition allowing possible public access as early as 1912. There were no more dispositions until 1950, followed by a gradual increase from that date until 1976.

The first dispositions possibly allowing public access in the Green Zone sample occurred in 1950. There was then a steady increase with seventeen lakes being assigned dispositions in the period 1958 to 1976.

In general, the number of lakes with dispositions possibly allowing public access has increased sharply in both the Green and White Zones since 1948 while the Yellow Zone has increased at a much slower rate.

3. Recreation Access: - The distribution of lakes with dispositions specifically allowing public access for recreation purposes occurred much more uniformly throughout the three zones (Figure VI-3).
- D



One lake in the Yellow Zone had a disposition for recreation as early as 1912. This was followed after a 30 year time lapse with nine lakes being issued dispositions in the period 1944 to 1965.

Two lakes in the White Zone were opened up by dispositions for purposes of recreation in 1932 with the establishment of two Provincial Parks. This was followed by the opening up, or reserving of, 14 lakes for recreation in the period between 1950 and 1974.

Twenty lakes in the Green Zone had dispositions setting aside parts of their shoreland for recreation purposes in the period between 1945 and 1978. This, along with the 20 lakes discussed earlier as having no dispositions and which are in essence entirely publicly accessible, indicates that 40 or 85 percent of the lakes in the Green Zone sample have some form of public access.

All three zones have shown a marked increase in the number of lakes with dispositions allowing public access since 1948. This could indicate a greater awareness of the need for public land for recreation as a result of the designation of the three management zones.

In summary, all three zones appear to have fairly large numbers of lakes with some public access (i.e. 40 lakes or 85 percent in the Green Zone sample, 16 lakes or 84 percent in the White Zone, and 10 lakes or 100 percent in the Yellow Zone). It must be noted, however, that much of this shoreland, while reserved for recreation and not being used for other purposes, is not developed specifically for recreation. Also, many of the lakes, especially in the Green Zone, are located in the extreme north end of the province and are not presently accessible by road. It must also be pointed out that the actual amount or quality of shoreland set aside for public access and recreation purposes is not considered in the present study. The only measure used is whether or not some portion of the lake has land set aside for public recreation. A lake having some portion of shoreland open to the public may also have other dispositions surrounding it which restrict, totally or partially, any public access.

#### Proportionate Allocation of Dispositions

Figures VI-4, VI-5 and VI-6 are graphs of the proportion of all dispositions issued in each year that were allocated to each zone. The dispositions have again been divided into the three classes of access.

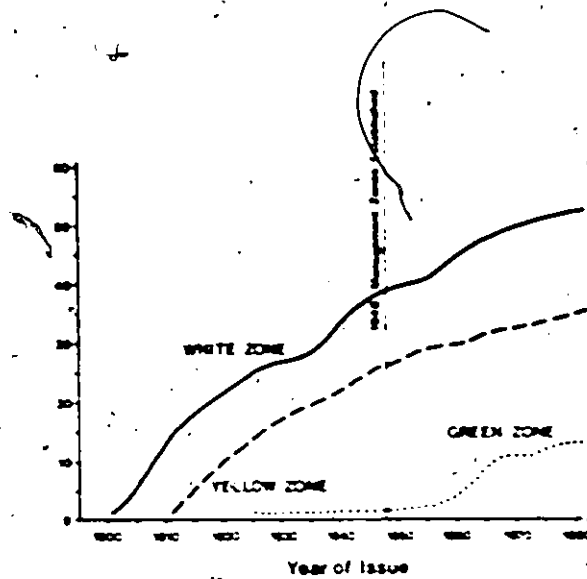


FIGURE VI-4 Proportion of All Dispositions Not Allowing Public Access

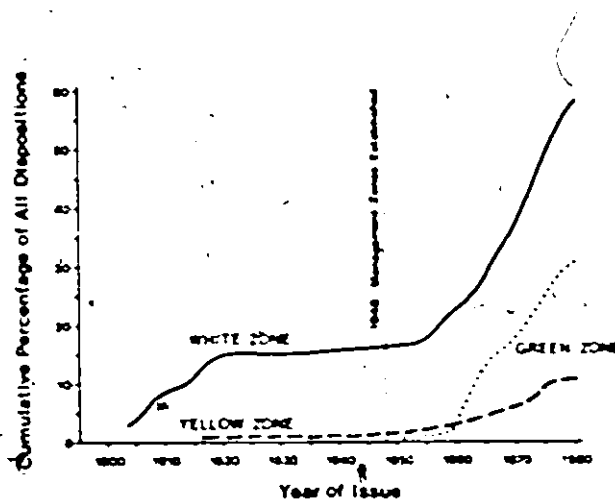


FIGURE VI-5 Proportion of All Dispositions Possibly Allowing Public Access

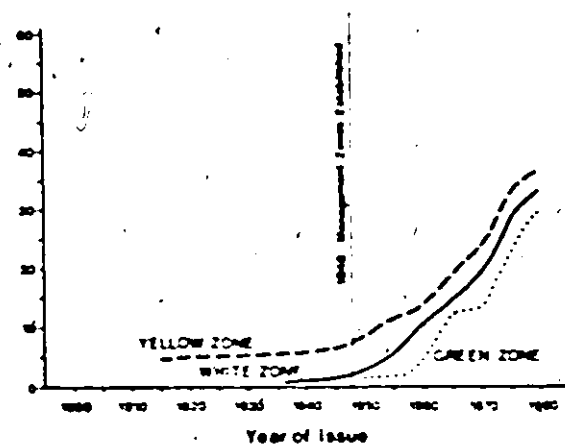


FIGURE VI-6 Proportion of All Dispositions Allowing Public Access

1. No Access: -- Figure VI-4 graphs the proportions of dispositions in the "No Access" category according to their allocation in each of the three zones over time. It can be seen that the largest proportion of dispositions not allowing access for recreation were issued on lakes in the White Zone sample in the period 1905 to 1910. There was then a steady increase until a slow period in the 1930's, coinciding with the Depression Years. The period 1936 to 1945 showed a sharp increase, followed by another slow period from 1946 to 1955. This latter period coincides with the designation of the three management zones. Other fairly steep increases occurred from 1956 to 1960 and from 1971 to 1975, indicating a generally cyclical pattern of allocation.

The Yellow Zone reveals a fairly large allocation of dispositions in 1911 to 1915, followed by a gradual increase to a very low period from 1956 to 1960. This was followed almost immediately by another sharp increase from 1961 to 1965 and a gradual increase to the present time. The proportion of dispositions allocated during the Depression Years remained fairly steady, indicating possibly the relocation of individuals to the Peace River country to attempt homesteading.

Dispositions not allowing access were virtually non-existent on lakes in the Green Zone sample until 1961 to 1965, when there was an extreme increase in the proportion of dispositions not allowing access. Since 1965, the rate of disposition has maintained a fairly steady rate upward. This likely reflects the increase in mineral exploration and oil and gas activity in the province.

In summary, while there have been some extreme highs and lows, the general pattern of dispositions not allowing public access appears to be one of convergence. In the early 1900's such dispositions were very common in the White and Yellow Zones. This pattern then levelled off and presently appears to be decreasing. The pattern in the Green Zone on the other hand, was very low until a brief period of activity in the 1960's. From the early 1970's to the present, all three zones appear to show virtually the same trend toward fewer dispositions not allowing access.

2. Possible Access: -- Figure VI-5 graphs the allocation over time of proportions of dispositions allowing possible access for recreation. Again the White Zone was the earliest to show significant numbers of dispositions allowing possible access, especially in the form of rights-of-way for railroads in the period 1905 to 1920. Few dispositions were allocated

between 1930 and 1955, coinciding with the Depression and World War II years. In the periods 1950 to 1955, however, activity began in all three zones. The White Zone began a gradual climb with a steep increase in 1960 and an all time high from 1971 to 1978. This probably reflects the allocation of lands for Pipeline Agreements and Easements for pipeline construction in response to increased mineral and oil and gas extraction. The Green Zone also underwent a rapid increase in the 1960's and 1970's as did the Yellow Zone, but to a lesser extent. The trend at the present time indicates that the Yellow Zone is levelling off, while the White and Green Zones are continuing at a fairly high rate of allocation of dispositions allowing possible access.

3. Access: -- Figure VI-6 graphs the proportion of dispositions allowing access as they have been allocated over time. Here it is found that the Yellow Zone has the first recorded dispositions allowing access as early as 1915. This was followed by nothing until 1945 when a gradual increase in dispositions led to a sharp increase from 1971 to 1975. This was followed by a gradual increase to the present. The White Zone follows a similar pattern from 1945 to the present, only in a somewhat larger proportion. The trend to 1978 appears to be one of reduced numbers of dispositions allowing access. The Green Zone, on the other hand, has shown wide fluctuations

in the proportion of dispositions allowing access since 1950. The trend appears to be increasing to the present, thus, indicating a wide divergence between the Green Zone increasing and the Yellow and White Zones levelling off.

### Subdivision Pressures

In the study of public access for recreation, the provision of private recreation access cannot be overlooked. This may be in the form of Miscellaneous Leases providing cottage lots, Crown Cottage Subdivisions, or patented land providing privately owned shoreland cottage lots and subdivisions. In any case, the design of the cottage subdivision is extremely important. As discussed in Chapter III, the Alberta Provincial Planning Act now requires that subdivision plans be approved before construction begins and that a 10 percent public reserve be maintained.<sup>2</sup> The location and characteristics of these public reserves are important and should provide public access to the shoreland. If they do not, entire areas of shoreland become private and the general public is not allowed access.

A report prepared in 1975 by Alberta Environment identified 45 lakes with shoreland that is currently experiencing, or will be experiencing, subdivision pressures, including a diminishing amount of public access to the shoreland.<sup>3</sup> Of these lakes, 36 are

in the White Zone, four in the Green Zone, and three in the Yellow Zone. When comparing these 45 lakes with those identified in the samples of the present study, it is found that three are represented in the Yellow Zone sample, six in the White Zone sample, and none in the Green Zone sample. This indicates that none of the lakes in the Green Zone sample were undergoing pressure for subdivision development. This could be indicative of the greater amount of Crown land and the larger number of Crown Cottage Subdivisions that occur in the Green Zone (i.e. of 13 Crown Cottage Subdivisions occurring on lakes in the province, seven are in the Green Zone, four in the White Zone, and two in the Yellow Zone). Crown Cottage Subdivisions allow for greater control over location of cottage lots and provision of public reserve land. The Yellow and White Zones on the other hand, have more patented land in lakeshore areas, along with more private cottage subdivisions closer to the population of Alberta. This, in conjunction with other dispositions not allowing public access, provides more pressure for various uses of lakeshore lands, as illustrated in Table V-7. Further study of the characteristics of Crown cottage subdivisions and the mechanisms and processes involved in their development should be undertaken to determine how effectively the associated shoreland is being planned and managed.



### Summary

Analysis of the patterns of allocation of dispositions in each of the three management zones shows that the Green Zone has undergone the most change since its designation in 1948. While the sample shows marked increases in the number of lakes with dispositions allowing both access and possible access for recreation, it also shows an increase in the number of dispositions not allowing access. These latter dispositions are mostly related to the increased demand for mineral and petroleum exploration and extraction in the resource rich Green Zone area. These demands were not foreseen in 1948, and as such were not taken into consideration. In essence, however, while these uses are extractive in nature, the disturbance can be confined to a relatively small surface area. Thus, in the long term, they may provide additional recreation opportunities via access roads and cleared areas for well-sites. If the dispositions are not closely supervised and controlled, however, there could be a tendency to clearcut areas larger than necessary to reduce costs of access and extraction. This is of particular importance where it is vital to maintain a buffer between extractive dispositions and the shoreline.

Dispositions in the Yellow Zone have shown little change except for a major increase since 1948 in the provision of dispositions allowing public access for recreation. This reflects both the

intent of the Yellow Zone to provide for the "orderly settlement for agriculture except where the land is required for recreation or conservation"<sup>5</sup> and the increasing awareness of the need for shoreland recreation opportunities.

The White Zone shows an increase in numbers of dispositions not allowing access since 1948. This could reflect the increased demand for petroleum and natural gas throughout the province. Related to this is the increased allocation of dispositions allowing possible access, including Pipeline Rights-of-Way and other corridor type developments, throughout the same time period. The trend concerning dispositions allowing public access has reversed, however, with fewer dispositions being allocated in the White Zone since 1948. This could reflect the limited amount of Crown land still available in the White Zone.

The 1975 survey of lakes by Alberta Environment and the resulting decision by the Alberta Cabinet to halt development on 14 lakes that are undergoing development pressures may have an interesting effect on the pattern of disposition allocation. The fact that the majority of the lakes identified by the Environment study are in the White and Yellow Zones, coupled with the location of the majority of Alberta's population, indicates an increasing demand for more publicly accessible shoreland in these two zones. The process of developing lake management plans will likely be subject to intense pressures from politicians, recreationists, interest groups and large corporations for the use of the limited shorelands in the Yellow and White Zones.

## CHAPTER VI REFERENCES

1. Township General Register files are maintained by the Lands Division, Alberta Department of Energy and Natural Resources.
2. Alberta Planning Act, 1977, c.89, s.86, 87, 88, 96.
3. Conservation and Utilization Committee Task Force on Lake Shorelands. Lake Shorelands: Subdivision and Development Pressures, (Edmonton: Alberta Environment, 1976) pp.29.
4. Review of files of Crown Subdivisions, maintained by Lands Division, Alberta Department of Energy and Natural Resources.
5. CCREM, Administration of Crown Lands in Canada, (Montreal: CCREM, 1972) pp.478.

## CHAPTER VII

### SUMMARY AND CONCLUSIONS

#### Summary

The preceding discussion of the various kinds of Crown land dispositions available in Alberta, and the analysis of the actual distribution of dispositions on a sample of lakes, illustrates the increasing pressures for development being placed on Alberta's lakes. The lack of both a single agency responsible for allocating dispositions on shorelands and a detailed set of criteria governing use of Crown shorelands in Alberta is found to make planning and management extremely difficult.

More than half of all lakes having shorelands suitable for beach oriented recreation activities are located in northern Alberta in the management area known as the Green Zone. Almost 99 percent of the land in the Green Zone is Crown land, owned and administered by the Provincial Government. This Crown land may be allocated to individuals, companies, or agencies for various purposes, including mineral extraction, grazing, corridor type developments and reservations for future use. Most dispositions in the Green

Zone have clauses allowing or possibly allowing public access to the land and related shorelands. Very few dispositions clearly specify "no access", except for extractive type activities.

Two other zones exist, the White and Yellow, which cover the southern settled portion of Alberta and the Peace River/Grande Prairie area, respectively. While the majority of the population of Alberta is located in these two zones, they provide less than one half of the total number of lakes with shorelands having high capability for recreation. Dispositions common in these two zones include a large amount of patented land, agricultural dispositions, mineral leases, and corridor type dispositions, almost all of which limit the amount of public access possible.

This thesis has attempted to determine if the kinds of leases or dispositions issued in each management zone were effective, both in achieving the intent of the zone and in planning and managing shorelands for public access and recreation. Table VII-1 summarizes the analyses that have been described in the previous two chapters. In summary, the analyses reveal that the intent of each of the three management zones designated in 1948 has indeed been achieved. The Green Zone was intended to manage forestry, recreation, wildlife, and fisheries, all basically conservation and public ownership oriented.<sup>1</sup> The predominance of "public access" oriented dispositions indicates that this is indeed the

5

# MANAGEMENT ZONES

| TABLE OR FIGURE NUMBER | TABLE OR FIGURE NAME                                                                 | DISCUSSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TABLE 1-1              | DISTRIBUTION OF LAKES BY SIZE IN EACH OF THE MANAGEMENT ZONES                        | There is a total of 1012 lakes in the three zones. The Green Line zone has 43 percent of the total, the Yellow Line zone has 31 percent, and the White Line zone has 26 percent. The total sample for the present study includes 47 lakes from the Green Line zone, 33 from the Yellow Line zone, and 26 from the White Line zone. The distribution of sample lakes in each zone is also approximately 43 percent, 31 percent, and 26 percent, respectively.                                    |
| TABLE 1-2              | SHORELAND LENGTH AND OWNERSHIP                                                       | There is a total of 1012 lakes in the three zones. The Green Line zone has 43 percent of the total, the Yellow Line zone has 31 percent, and the White Line zone has 26 percent. The total sample for the present study includes 47 lakes from the Green Line zone, 33 from the Yellow Line zone, and 26 from the White Line zone. The distribution of sample lakes in each zone is also approximately 43 percent, 31 percent, and 26 percent, respectively.                                    |
| TABLE 1-3              | SHORELAND OWNERSHIP                                                                  | Ownership patterns of the shorelands of the three management zones are significantly different.                                                                                                                                                                                                                                                                                                                                                                                                 |
| TABLE 1-4              | LAKE OWNERSHIP BY MANAGEMENT ZONE                                                    | Ownership patterns of a lake's shoreland in shorelands of the three zones are significantly different and are very similar to those patterns of the actual shoreland.                                                                                                                                                                                                                                                                                                                           |
| TABLE 1-5              | DISTRIBUTION OF DISPOSITIONS BY MANAGEMENT ZONE                                      | There is a significant difference between the numbers and types of dispositions that occur in each zone during the study period. Further analysis revealed that differences between the yellow and white lines were less well defined than between them and the green line.                                                                                                                                                                                                                     |
| FIGURE 1-1             | DISTRIBUTION OF LAKES BY DISPOSITION                                                 | Dispositions in the yellow and white lines are distributed in a similar pattern, with the greatest difference in agricultural dispositions where the yellow line has 35 percent more. The green line shows significant differences in all categories with the least percentage of difference in the general disposition category.                                                                                                                                                               |
| FIGURE 1-2             | PROPORTION OF DISPOSITIONS BY MANAGEMENT ZONE                                        | The largest proportion of dispositions are for patented land, with the white line 24.4 percent and the yellow line 24.1 percent. A similar type disposition in the white line accounts for 17 percent. The yellow line has 14.4 percent in the green line. Dispositions for recreation are high in all zones, with 5.3 percent in the green line and 4.3 in the yellow and white lines.                                                                                                         |
| TABLE 1-6              | DISTRIBUTION OF DISPOSITIONS BY AMOUNT OF ACCESS NUMBER OF LAKES                     | Patterns of access in the yellow and white lines are similar, but patterns in the green line are significantly different. Almost all lakes in the sample have some publicly accessible shoreland, however the green line has 22 lakes with no dispositions whatever, and therefore, these lakes are totally inaccessible. Only 3 lakes in the green line have any dispositions not allowing access. Therefore, shorelands in the green line are almost without any competition from other uses. |
| TABLE 1-7              | DISTRIBUTION OF DISPOSITIONS BY AMOUNT OF ACCESS NUMBER OF DISPOSITIONS              | There is a significant difference between the amount of access in the three zones based on the total number of dispositions in each category of access. The green line has the most access and access.                                                                                                                                                                                                                                                                                          |
| TABLE 1-8              | HISTORICAL DISPOSITION BY ZONE                                                       | The earliest dispositions recorded were for patented land and date to 1900. Most dispositions of any type other than patented land appear to have been issued primarily from 1945 to 1960, the time of the division of Alberta into three management zones.                                                                                                                                                                                                                                     |
| TABLE 1-9              | HISTORICAL DISPOSITION BY AMOUNT OF ACCESS                                           | While dispositions not allowing public access were issued prior to 1900, dispositions actually allowing recreational access did not begin until 1945 to 1960. Dispositions not allowing access were common in all of the yellow and white lines since 1900. However, they were seldom found in the green line until 1960.                                                                                                                                                                       |
| FIGURE 1-10            | HISTORICAL DISTRIBUTION OF FIRST DISPOSITION NOT ALLOWING ACCESS FOR RECREATION      | The white line showed a steady increase in the number of lakes with dispositions not allowing access from 1911 to 1934, followed by a sharp drop between 1937 and 1951. The yellow line reveals a fairly steady, but gradual, increase from 1911 to the present. The green line shows a gradual increase from 1911 to 1960, followed by a sharp increase to the present.                                                                                                                        |
| FIGURE 1-11            | HISTORICAL DISTRIBUTION OF FIRST DISPOSITION ALLOWING POSSIBLE ACCESS FOR RECREATION | The white line shows a steep climb in numbers of lakes having dispositions allowing possible access between 1911 and 1934, and then again from 1945 to the present. The yellow line shows a gradual increase between 1911 and 1951. The green line, on the other hand, reveals dispositions on 15 lakes from 1930 to 1951.                                                                                                                                                                      |
| FIGURE 1-12            | HISTORICAL DISTRIBUTION OF FIRST DISPOSITION ALLOWING ACCESS FOR RECREATION          | All three zones show a steady increase in the numbers of lakes having dispositions allowing public access between 1945 and the present.                                                                                                                                                                                                                                                                                                                                                         |
| FIGURE 1-13            | PROPORTION OF ALL DISPOSITIONS NOT ALLOWING PUBLIC ACCESS                            | The largest number of dispositions not allowing access were issued in the white line between 1945 and 1951. Few dispositions were issued during the 1920's, except in the yellow line, where the number remained fairly steady. Several fluctuations occurred in all zones, with the highest number in the green line between 1940 and 1951. Since 1970, however, all three zones appear to be converging.                                                                                      |
| FIGURE 1-14            | PROPORTION OF ALL DISPOSITIONS POSSIBLY ALLOWING PUBLIC ACCESS                       | The white line revealed significantly higher numbers of dispositions possibly allowing public access in the 1920's and 1930's. There were few dispositions issued in the green until 1945, when they all began to show a marked increase. The recent trend shows that the green and yellow lines seem to be converging, while the white line remains high.                                                                                                                                      |
| FIGURE 1-15            | PROPORTION OF ALL DISPOSITIONS ALLOWING PUBLIC ACCESS                                | The majority of dispositions allowing access occurred since 1945. The general trend of all three zones has been fairly consistent. At present, the yellow and white lines appear to be converging, while the green line is still increasing.                                                                                                                                                                                                                                                    |

case. The increase in "no access" type dispositions for mineral and petroleum extraction is in part fulfilling the intent of resource management in the Green Zone. These activities should pose no long term problems concerning recreation and public access, provided adequate controls are maintained concerning conditions of extraction of resources and restoration of disturbed land.

Similarly, the Yellow and White Zones were intended primarily for settlement and agriculture.<sup>2</sup> This is again illustrated by the many "no access" oriented dispositions allocated in the two zones. The provision of public access for recreation and the conservation of resources are secondary objectives of the latter two zones. The increase in the number of dispositions providing for recreation access in the Yellow Zone since 1948 reflects this secondary intent. The decrease in similar dispositions in the White Zone may represent the decreasing amount of available Crown land.

The effectiveness of the allocation of dispositions as planning and management tools is somewhat harder to assess. In terms of managing to achieve the intent of the zone, they have indeed been effective. In terms of wisely planning and managing shorelands for recreation use and access, however, assessment of effectiveness is much more difficult.

The number of differing kinds of dispositions apparent on individual lakes in the Yellow and White Zones tends to indicate that perhaps they have not been allocated with the intent of providing adequate public access for recreation. In fact, they may have been allocated without any overall plan in mind. Similarly, the increasing number of dispositions not allowing access in the Green Zone suggests that the allocation of dispositions may well reflect economic considerations rather than planning and management guidelines.

The Alberta Government has recently taken steps to control development of lake shorelands in the province by identifying a total of 45 lakes that are, or will soon be, undergoing pressures for subdivision. Development on 14 of these lakes has been frozen until lake management plans have been prepared and approved.<sup>3</sup> Unfortunately, lake management plans cannot be prepared quickly, and it is questionable whether the development restriction will be maintained under increased pressure from the public for development. Of the 45 lakes identified,<sup>4</sup> the majority (38) are in the White Zone, four are in the Green Zone and only three are in the Yellow Zone. This pressure for development is reflected in the disposition data compiled for the White and Yellow Zones for the present study. Most of the population is located in the Yellow and White Zones, along with most of the demand for conflicting types of dispositions in shoreland areas. A solution is required.



The decision to halt development on certain lakes could be the answer, providing the restriction is maintained until a plan is prepared. Depending on the results of this initial development freeze, it may be beneficial to extend the restriction to all 45 lakes on which pressures for development were noted.

#### Management Alternatives

Other alternatives which could be utilized to plan and manage lakeshore lands more effectively include:

- 1) The insertion of a clause into the the terms of all dispositions to the effect that public access to lake shorelands must be ensured by the lessee. This would include access through the lease or disposition, as well as, along the lakefront.
- 2) Dispositions allowing resource extractive activities would include clauses to the effect that a 100 foot wide buffer strip of vegetation is to be maintained in a natural state between the activity and the lakeshore in order to maintain the quality of the beach or lake experience.<sup>5</sup>
- 3) The Planning Act could be revised to enforce the reservation in shoreland subdivisions of a 100 foot wide strip of shoreland for a public reserve, along with a 100 foot wide access right-of-way through the subdivision.<sup>6</sup>

- 4) The existing section of the Planning Act<sup>7</sup> requiring 10 per-cent public reserve land could be strengthened by specifying that the 10 percent reserve be along the shoreline and that access also be provided to this shoreline reserve.
- 5) The Planning Act could be amended to specify that lakeshore cottage subdivisions be of a cluster design rather than linear to ensure less strip development along the shore, to utilize less lake shoreland and to provide access for all subdivision residents and the public to the shore. Similarly, standards limiting the amount of clearing allowed in shoreland subdivisions are necessary to maintain as much of the natural appearance of the shoreland as possible. At present a Sub-division Referral Committee<sup>8</sup> reviews all lakeshore subdivision applications in terms of their location in relation to existing and potential provincial parks, and to Fish and Wildlife and Lands Division concerns. All applications should include an additional review to ensure that such aspects as design, clearing and public reserves are acceptable. Also, stricter requirements concerning private subdivisions and unauthorized subdivisions are needed to ensure that random and unplanned developments do not occur.
- 6) The purchase of cottage lots in Crown cottage subdivisions should not be allowed. All lots should remain as leased lots owned and controlled by the Crown.

- 7) Lakes still having high quality Crown shorelands should be reserved for future recreation or conservation uses by placing reservations on the appropriate lands. Allowable uses on these reserved shorelands should be seriously considered in light of the quality of the resource (i.e. it should not be assumed that grazing will be allowed if the land is to be reserved for provincial parks).

If any or all of these alternatives were implemented, many of the conflicts concerning public access arising on lakeshores could be eliminated.

#### Future Direction

The present study presented information concerning the characteristics of dispositions allocated on sample lake shorelands in each of the three management zones - Green, Yellow, and White. It revealed that the objectives of each zone, as stated at their inception in 1948, have basically been achieved. It also shows that dispositions could be used more effectively to plan and manage shoreland resources. Similar studies of the allocation of Crown land dispositions on river shorelands are needed in Alberta to determine more effective means of managing these important resources, both in terms of public access for recreation and irrigation purposes for agriculture.

The modifications in the management zone boundaries since 1948 should be studied in greater detail to determine the reasons for these changes. Does the elimination of certain areas from the Green Zone reflect that they did not conform to the intent of the zones as stated in 1948 and have since been removed, or do they reflect changing ownership patterns of land and changing purposes of the zones since 1948.

Further study of the actual mechanism of allocating dispositions rather than just the intent and distribution of dispositions is required to determine how effectively dispositions have been, are being, and could be used as planning tools and management alternatives in shoreland areas. Similarly, studies of the characteristics of cottage subdivisions and the processes involved in their approval and development would reveal relevant information concerning management of shorelands to reduce conflicts and to improve public access for recreation.

The entire process of determining the best use of shorelands and allocating portions of shorelands for specific uses is an area requiring considerably more study to ensure that decisions are based on rational judgement rather than personal preference or economic interest. When rational decision making concerning shoreland use and disposition occurs, the planning and management process will have taken a gigantic step forward.

## CHAPTER VII REFERENCES

1. CCREM. The Administration of Crown Lands in Canada. (Montreal: CCREM, 1972) p.60.
2. Ibid, p.60.
3. Alberta Cabinet Decision, September 1977.
4. Conservation and Utilization Committee, Lake Shorelands: Subdivision Development Pressures. (Edmonton: Alberta Environment, 1976) pp.29.
5. A buffer strip of 100 feet is an arbitrary choice and could vary according to the physical conditions.
6. A 100 foot wide strip of shoreland reserve is an arbitrary choice. It would be preferable if this were even wider.
7. Alberta Planning Act, 1977. c.89, s.96.
8. The Crown Subdivision Referral Committee consists of representatives from the Provincial Parks Division, Fish and Wildlife Division, and the Lands Division.

## BIBLIOGRAPHY

- Alberta Energy and Natural Resources, Administration of Alberta Public Lands, (pamphlet), p.9.
- Alberta Energy and Natural Resources Report No. 16, Dispositions in the Eastern Slopes Area, (Edmonton: Alberta Energy and Natural Resources, 1977), pp.5.
- Alberta Energy and Natural Resources, Township Register Coding, Form L.A. 64/76.
- Alberta Environment, Environmental Planning Division. Regional Lakes Perspective Medicine Hat Region Inventory, (Medicine Hat: Alberta Environment, 1976), pp.64.
- Alberta Environment Water Resources Division. Lake Classification, (Edmonton: Alberta Environment, 1972) Appendix A.
- Alberta Environment. Red Deer River Today and Tomorrow: A Management Statement, (Edmonton: Alberta Environment, 1976), pp.5.
- Alberta Federal and Intergovernmental Affairs. Alberta Human Settlement Policies, (Edmonton: Alberta Federal and Intergovernmental Affairs, 1976) pp.31.
- Alberta Government. Atlas of Alberta, (Edmonton: Alberta Government, Queen's Printer, 1969).
- Alberta Land Use Forum. Report and Recommendations, (Edmonton: Land Use Forum, 1976) pp.248.
- Alberta Municipal Affairs. Phase One: Lake and Lake Shoreland Study: Eastern Aspen Parkland Region, (Edmonton: Alberta Department of Municipal Affairs, 1976), pp.21.
- Alberta Recreation, Parks and Wildlife. Provincial Parks Facility Inventory 1978-79, (Edmonton: Alberta Recreation, Parks and Wildlife) p.1.
- Alberta Recreation, Parks and Wildlife. Provincial Parks Policy Manual, (Edmonton: Park Systems Planning Working Document, October 1978) pp.46.
- Alberta Regulation 269/57.
- Alberta Regulation 201/58.

Alberta Regulation 376/61.

Alberta Regulation 432/66.

Alberta Regulation 64/70.

Alberta Regulation 309/71.

Alberta Regulation 221/76.

Antoft, K. Matters Related to Non-Resident Land Ownership in Nova Scotia, (Halifax: Dalhousie Institute of Public Affairs, 1971) pp.19.

Bish, R.L., R. Warren, L.F. Weschler, J.A. Crutchfield, and P. Harrison. Coastal Resource Use: Decisions on Puget Sound, (Seattle: Univ. of Washington Press, 1975) pp.206.

Blalock, H.M. Social Statistics, (New York: McGraw-Hill Book Co. Inc., 1960) pp. 286-289.

Bloomfield, J. Recreational Land Use Change: A Pilot Study, (Ottawa: Unpublished document, Environment Canada, pp.22.

Bloomfield, J. and P. Harrison. The Shorezone: An Annotated Bibliography, (Ottawa: Environment Canada, Occasional Paper No. 12, November 1976) pp.53.

Bosselman, F. and D. Callies. Quiet Revolution in Land Use Control, (Washington: U.S. Govt. Printing Office, 1972) pp.327 App.

Brantz, J.F.P. (ed). Coastal Zone Management: Multiple Use With Conservation, (New York: John Wiley and Sons Inc., 1972) pp.352.

Bryant, R.W.G. Land: Private Property Public Control, (Montreal: Harvest House, 1972) pp.383.

Brooks, L. Preliminary Report: Shoreline Management in Canada (Ottawa: Unpublished report submitted to Parks Canada, 1975) pp.5.

Brooks, L. "Use of Canada's Shorelines", (Ottawa: Parks Canada, Paper presented to Civic Affairs Committee of Vancouver Board of Trade, November 10, 1966) pp.5.

- Boulding, K.E. Conflict and Defense: A General Theory, (New York: Harper Torch books, The University Library, Harper and Row Publishers, 1963) pp.349.
- Calgary Regional Planning Commission. Regional Lake Perspective The Calgary Region I. Inventory, (Calgary: Regional Planning Commission, 1975) pp.44. and App.
- California Coastal Zone Conservation Act. 1972. s. 27200-2.
- Canadian Council of Resource and Environment Ministers (CCREM). The Administration of Crown Lands in Canada, (Montreal: CCREM, 1972) pp.478.
- Canada-Ontario-Rideau-Trent-Severn Committee (CORTS). Optimum Recreational Development in the Lake Simcoe-Couchiching Area, (Toronto: Ontario Ministry of Natural Resources, 1973) pp.27.
- Clawson, M. "Economic and Social Conflicts in Land Use Planning", Natural Resources Journal, Vol. 15, No. 3. pp.473-489.
- Conservation and Utilization Committee Task Force on Shorelands. Lake Shorelands: Subdivision Development Pressures, (Edmonton: Alberta Environment, 1976) pp.29.
- Coombs, D.B. "An Appraisal of the Physical Supply of Recreational Lands in the Maritime Coastal Zone" in Coastal Zone Vol. 1. Selected Background Papers, (Ottawa: Environment Canada, 1972) pp.175-178.
- Cranmer, V. Land Use Planning Programs in Canada: Nova Scotia, (Ottawa: Environment Canada, 1974) pp.38.
- Cranmer, V. Land Use Planning Programs in Canada: Prince Edward Island, (Ottawa: Environment Canada, 1974) pp.37.
- Cutler, M. 1975. "Are We Alienating Too Much Recreation Land and Too Much of Our Best Agricultural Land", in Canadian Geographical Journal, Vol. 90, No. 5, pp.18-33.
- Dalhousie Institute of Public Affairs and Land Directorate, Environment Canada, Shoreland: Its Use, Ownership, Access, and Management, (Halifax, N.S.: Dalhousie Institute of Public Affairs, Proceedings of Seminar, Amherst, N.S., March 8-10, 1972) pp.82.
- Department of Regional and Economic Expansion. The Canada Land Inventory, Land Capability Classification for Outdoor Recreation, (Ottawa: Canada, Dept. Regional and Economic Expansion, 1969) pp.114.



- Devaney, J.W. Economic Factors in the Development of a Coastal Zone, (Cambridge, Mass: Massachusetts Institute of Technology, 1970) pp.123.
- Dewsnup, R.L. Public Access Rights in Waters and Shorelands, (Arlington, Va: National Water Commission, 1971) pp.71.
- Devos, A. "Recreational Values of the Great Lake Shorelines", Ontario Naturalist, Vol. 4, No. 1, 1966, pp.16-18.
- Ducsik, D.W. Shoreline for the Public, (Cambridge, Mass: MIT Press, National Sea Grant Program No. NG-43-72, 1974) pp.257.
- Edmond, D.P. "Emerging Issues in Land Use Planning", Proceedings of Conference on Government Regulation and the Law, (Halifax: Dalhousie University, Faculty of Law, 1975) pp.23-4.
- Edmonton Regional Planning Commission. Lake and Lake Shoreland Capability Study: A Regional Perspective, (Edmonton: Regional Planning Commission, 1974) Appendix.
- Environment Canada, Atlantic Unit, Water Management. Coastal Zone: Proceedings of Seminar at Bedford Institute of Oceanography, Volume 1, Selected Background Papers, (Ottawa: Environment Canada, 1972) pp.205.
- Esau, A.A.J. Land Ownership Rights -- Law and Land: An Overview, (Edmonton: Alberta Land Use Forum, Technical Report No. 9, 1974) pp.195.
- "From Privileged to Public", The Globe and Mail, May 13, 1971.
- Healey, W.R. (ed). New England Coastal Zone Management, (Boston, Mass: New England Council, Proceedings of the Second Conference, 1971) pp.98.
- Hills, C. Angus, David W. Love, and Douglas S. Lacate. Developing a Better Environment, (Toronto: Ontario Economic Council, 1970) pp.87.
- Jaakson, R. "Mosaic Patterns of Balanced Land -- Water Planning for Cottage Development and Lake Planning", Plan Canada, Vol. 14, No. 1, (Toronto: Canadian Institute of Planners) pp.40-45.
- Johnson, N., and J. Tyrrell. "Problems and Techniques of Land Acquisition". Resources for Tomorrow Conference, Vol. 2, (Ottawa: Queen's Printer, 1961) pp.1009-1026.

Johnston, D.M., A.P. Pross, and I. McDougall. Coastal Zone: Framework for Management in Atlantic Canada, (Halifax, N.S.: Dalhousie Institute of Public Affairs and Environment Canada, 1975) pp. 201-App.

Ketchum, B.H. (ed). The Water's Edge: Critical Problems of the Coastal Zone, (Cambridge, Mass: MIT Press, Proceedings of Coastal Zone Workshop, Wood's Hole, Mass., 1972) pp.393.

Knecht, R.W. "Current Federal Coastal Zone Legislation and Activities", in Proceedings Coastal Zone Management and the Western States Future, (Washington, D.C: Marine Technology Society, 1973) pp.1-4.

LaForest, G.V. Natural Resources and Public Property Under the Canadian Constitution, (Toronto: Univ. of Toronto Press, 1969) pp.230.

LaForest, G.V. and Associates. Water Law in Canada - The Atlantic Provinces, (Ottawa: Information Canada, 1973) pp.241-242.

Lewis, A.D. "An Inventory of Problems Associated with the Use and Development of Shoreland Areas in Saskatchewan", (unpublished report, Saskatchewan Program Coordination Division, Administration Branch, 1974) pp.29.

Merselis, Wm. B. (ed). Coastal Zone Management and the Western States Future, (Washington, D.C: Marine Technology Society, Proceedings of Conference, Dec 3-4, 1973) pp.269.

Mitchell, J.K. Community Response to Coastal Erosion, (Chicago: Univ. of Chicago, Dept. of Geography Research Paper No. 18, 1974) pp.209.

Moroney, J.F. Facts From Figures, (London: Cox and Wyman Ltd., 1951) pp. 249-270.

Municipal Planning Br. Shoreland Recreation: An Environmental Approach to Development, (Winnipeg: Manitoba Department of Urban Development and Municipal Affairs, 1971) pp.48.

Oldman River Regional Planning Commission. Regional Lakes Perspective Oldman River Region 1: Inventory, (Lethbridge: Oldman River Regional Planning Commission, 1975) pp.62.

Outdoor Recreation - Open Space Division. Ontario Great Lakes Access Study: CLI Recreation Capability Shoreline Measurements, (Ottawa: Environment Canada, Unpublished Report, 1975) pp.31.

Pearson, M. "The Great Lakes as a Human Resource", in The Great Lakes as an Environment, (Toronto: Univ. of Toronto, Institute Report PR 39, 1969) pp.73-95.

Prince Edward Island Resource Use Planning Unit. Extent and Implications of Non-Resident Ownership in Prince Edward Island, (Charlottetown, P.E.I: PEI Resource Planning Unit, 1971) pp.20.

Proceedings Future Management of the Oregon Coast. (Univ. of Oregon, Law Centre, Sea Grant Symposium) pp.49.

Pross, A.P. "Atlantic Canada: Conditions and Prospects for Coastal Zone Management". Institutional Arrangements for Water Management: Canadian Experiences, B. Mitchell (ed), (Waterloo, Ontario: Univ. of Waterloo, Dept. Geography, Publication Series No. 5, 1975) pp.209-244.

Quinlan, D.W. "Conflicts Arising from the Use of Shore Property on the Great Lakes". Proceedings of the Great Lakes Water Resource Conference, (Toronto: Canadian Dept. Public Works, 1968) pp.145-153.

Red Deer Regional Planning Commission. Regional Lake Perspective Inventory and Policy Directions, (Red Deer: Regional Planning Commission, 1976) pp.85.

Report of the Royal Commission on Land Ownership and Land Use, Prince Edward Island, (Charlottetown: Prince Edward Island Government, Chairman: C.W. Raymond, 1973) pp.98.

Report to the Nova Scotia House of Assembly of the Select Committee on Non-Resident Ownership of Land, (Halifax: Queen's Printer, 1974) pp.39.

Revised Statutes of Alberta, 1970, c.297.

Revised Statutes of Ontario, 1970, c.41.

Revised Statutes of Prince Edward Island, 1974 CR-40.

Redpath, D.K. "Policy Implications for Shoreland Recreation: A Pilot Study in New Brunswick and Nova Scotia" (unpublished Masters Thesis, University of Waterloo, 1971) pp.261.

Ross, J.F. "Coastal Zone Management: The Oregon Approach" in B. Herselis (ed). Proceedings Coastal Zone Management and the Western States Future, (Newport Beach, Calif: Marine Technology Society, 1974) pp.10.

San Francisco Bay Conservation and Development Commission Act, Stat. 1965, c. 1162 (West's Ann. Gov. Code, 1966, Title 7.2).

Scott, J.F. "Relationship Between Land and Population: A Note on Canada's Carrying Capacity", Geografisk Annaler, Vol. 57, Vol. 2, 1976 pp.128.

Sorensen, J.D. A Framework for Identification and Control of Resource Degradation and Conflict in the Multiple Use of the Coastal Zone, (Berkeley, Calif: Dept. Landscape Architecture, Univ. of California, 1971) pp.31.

Swanson G.C. "Coastal Zone Management from an administrative Perspective: A Case Study of the San Francisco Bay Conservation and Development Commission", Coastal Zone Management Journal, Vol. 2, No. 2, 1975 pp.81-102.

Technical Committee on Lakes and Lake Shorelands. The Use of Our Lakes and Lake Shorelands, Technical Report No. 12, (Edmonton: Alberta Land Use Forum, 1974) pp.272.

United States Coastal Zone Management Act, US Public Law 92-583, 86 Stat. 1280.

United States Department of Commerce. State Coastal Zone Management Activities, (Washington: Office of Coastal Zone Management, 1974) pp.4.

Ward, E. Neville. Land Use Programs in Canada: Ontario, (Ottawa: Environment Canada, 1977) pp.132.

Ward E. Neville. Land Use Programs in Canada: Saskatchewan, (Ottawa: Environment Canada, 1978) pp.34.

Winnipeg Free Press, August 5, 1967.

APPENDIX

2025 RELEASE UNDER E.O. 14176

[illegible]

000 = Crown Land  
 001 = Patent on Private Land  
 002 = Not Surveyed  
 003 = No Dispositions

SOURCE: Compiled by author from Township General Register Files, Alberta Department of Energy and Natural Resources, and from Alberta Environment, Water Resources Division, Lake Classification, Edmonton (Alberta Environment, 1972).

POOR COPY

| Lake Name |         | Section |   | Area  |       | Water |       | Land  |     | Total |    | Water |   | Land  |   | Total |   | Water |   | Land  |   | Total |   |
|-----------|---------|---------|---|-------|-------|-------|-------|-------|-----|-------|----|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|
| Name      |         | No.     |   | Acres |       | Acres |       | Acres |     | Acres |    | Acres |   | Acres |   | Acres |   | Acres |   | Acres |   | Acres |   |
| Beaver    | 72-17-4 | 1       | 4 | 12.8  | 1     | 100   | 0     | 100   | 46  | 18    | 44 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Cardinal  | 83-24-5 | 1       | 3 | 19.4  | 1     | 100   | 0     | 100   | 46  | 29    | 40 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Cutbush   | 72-18-4 | 1       | 4 | 13.8  | 0     | 100   | 0     | 100   | 9   | 4     | 6  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Gerry     | 84-2-5  | 1       | 4 | 6.4   | 10    | 10    | 10    | 10    | 10  | 7     | 3  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Sandhill  | 83-4-5  | 1       | 4 | 4.0   | 11    | 11    | 100   | 0     | 100 | 2     | 2  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Saskatoon | 72-18-4 | 1       | 3 | 11.5  | 15    | 81    | 15    | 81    | 57  | 10    | 23 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Shipe     | 71-19-5 | 1       | 4 | 11.0  | 11    | 30    | 11    | 30    | 40  | 25    | 11 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Sturgeon  | 72-23-5 | 1       | 3 | 24.4  | 60    | 40    | 60    | 40    | 53  | 26    | 47 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Swan      | 72-23-5 | 1       | 4 | 1.4   | 100   | 0     | 100   | 0     | 7   | 4     | 4  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Whitman   | 74-26-5 | 1       | 1 | 17.1  | 55    | 15    | 55    | 15    | 54  | 45    | 14 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| TOTAL     |         |         |   | 143.9 | 143.9 | 143.9 | 143.9 | 143.9 | 300 | 135   | 47 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |

| Lake Name      |         | Section |   | Area  |       | Water |       | Land  |     | Total |    | Water |   | Land  |   | Total |   | Water |   | Land  |   | Total |   |
|----------------|---------|---------|---|-------|-------|-------|-------|-------|-----|-------|----|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|
| Name           |         | No.     |   | Acres |       | Acres |       | Acres |     | Acres |    | Acres |   | Acres |   | Acres |   | Acres |   | Acres |   | Acres |   |
| Asas           | 52-13-4 | 1       | 4 | 5.5   | 12    | 13    | 18    | 82    | 16  | 7     | 8  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Angling        | 60-13-4 | 1       | 2 | 5.5   | 0     | 100   | 0     | 100   | 14  | 0     | 13 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Antoine        | 66-14-4 | 1       | 3 | 7.0   | 67    | 33    | 79    | 21    | 14  | 11    | 11 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Beaver         | 66-13-4 | 1       | 2 | 33.0  | 100   | 0     | 88    | 12    | 75  | 25    | 20 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Beaverdam      | 71-27-4 | 1       | 4 | 3.1   | 0     | 100   | 0     | 100   | 7   | 0     | 6  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Bridge         | 60-23-4 | 1       | 4 | 9.5   | 22    | 78    | 16    | 84    | 7   | 6     | 8  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Chin           | 9-18-4  | 1       | 3 | 50.0  | 60    | 40    | 60    | 40    | 52  | 32    | 22 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Cochrane       | 26-4-5  | 1       | 4 | 1.0   | 0     | 100   | 0     | 100   | 4   | 0     | 7  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Frenchman      | 64-10-4 | 1       | 2 | 12.0  | 77    | 23    | 100   | 0     | 16  | 16    | 0  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Huddle         | 64-12-4 | 1       | 4 | 10.0  | 52    | 48    | 63    | 37    | 20  | 16    | 8  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Isle           | 54-5-5  | 1       | 3 | 22.0  | 36    | 4     | 87    | 13    | 49  | 41    | 23 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Kristin        | 66-15-4 | 1       | 1 | 15.0  | 0     | 100   | 0     | 100   | 34  | 16    | 21 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Marathon       | 63-7-4  | 1       | 2 | 6.0   | 9     | 97    | 10    | 100   | 13  | 5     | 10 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Murrel         | 59-5-4  | 1       | 1 | 28.5  | 23    | 67    | 35    | 65    | 55  | 47    | 39 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Park           | 72-22-4 | 1       | 3 | 4.2   | 26    | 74    | 50    | 50    | 6   | 0     | 0  | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Sylvan         | 29-2-5  | 1       | 2 | 22.0  | 0     | 100   | 0     | 100   | 44  | 11    | 23 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Traverses Res. | 75-27-4 | 1       | 3 | 40.0  | 43    | 57    | 100   | 0     | 63  | 57    | 26 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Waldman        | 63-5-5  | 1       | 2 | 29.5  | 21    | 65    | 46    | 54    | 75  | 50    | 72 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| Wizard         | 43-27-4 | 1       | 3 | 9.5   | 0     | 100   | 0     | 100   | 33  | 7     | 13 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |
| TOTAL          |         |         |   | 210.9 | 210.9 | 210.9 | 210.9 | 210.9 | 603 | 327   | 28 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 | 0     | 0 |

000 = Crown Land  
001 = Private or Patented Land

SOURCE: Compiled by author from Township General Register Files, Department of Lands and Natural Resources, and from Alberta Environment, Water Resources Division, Lake Classification - Edmonton, Alberta Environment, 1972.

Poor Copy