

PUBLIC RESPONSE TO A NEW RECREATION AREA:
THE EXAMPLE OF LAKE DIEFENBAKER, SASKATCHEWAN

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by
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ABSTRACT

In 1967, the South Saskatchewan River Project was completed and the Lake Diefenbaker reservoir was created. This large reservoir, situated in the semi-arid region of southern Saskatchewan, was expected to provide a source of recreational water to a large percentage of Saskatchewan's population.

Based upon early forecasts of use, the reservoir has not met the recreational expectations. This thesis discusses several reasons why use has been minimal including competitive factors, minimal development, and lack of landscape diversity. With results obtained from a questionnaire distributed to the cities of Regina, Saskatoon, Swift Current and Moose Jaw, it is illustrated that a particularly important reason for low use is the inadequate level of public awareness with respect to the reservoir's recreational attributes.

The study concludes that present use is ten years behind early forecasts but with promotional campaigns and facility development, the Lake Diefenbaker recreation area will develop as an important focus of recreational activity in southern Saskatchewan.

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CHAPTER I

INTRODUCTION

This thesis examines the public response to, and the apparently minimal use of, the recreational attributes of Lake Diefenbaker, a large reservoir located in southern Saskatchewan. Little more than a decade ago, the residents of the southwestern, semi-arid grasslands lacked ready access to any large body of water, but in 1967, the South Saskatchewan River Project was completed and Lake Diefenbaker was created.

Although primarily intended for irrigation purposes in this often drought-stricken agricultural region, early recreation planners envisioned a rapid growth in use of the water body. The combination of a large lake and the accompanying recreation facilities would seem to make the whole complex attractive to the population of southcentral and southwestern Saskatchewan.

Unlike the situation in the United States, reservoirs in Saskatchewan are a relatively new phenomenon although Lake Diefenbaker's planning history began in the mid-1800's. Early geographical explorations of the western interior of Canada were conducted by Captain John Palliser and Henry Youle Hind in 1857 and 1858, respectively. Both men, upon reaching the "elbow" of the South Saskatchewan River, remarked at the possibility of creating a dam to connect the river with the Qu'Appelle Valley, creating a transportation route from

the Rocky Mountains to Manitoba (Spence 1967). As early settlers moved into this arid region - often called "Palliser's Triangle" - the need for water, both for agriculture and the developing of cities of Regina and Moose Jaw, became evident.

Investigations of possible dam locations on the South Saskatchewan River were conducted in the early 1900s, although World War I brought a halt to these plans. Following a series of severe droughts in the 1920s and 1930s, the "big dam" concept was again mentioned. The enactment of the Prairie Farm Rehabilitation Act (1935) - to "provide emergency action against soil erosion and local water shortages that accompanied the drought of the period" - was the beginning of the Lake Diefenbaker development (Royal Commission Report 1952 p. 137). In 1947, PFRA determined that the best site for a dam was located on the South Saskatchewan River near Coteau Creek. In August 1951, a Royal Commission was appointed to investigate and report on the feasibility of the proposed development. Reporting the findings of 1952, it was stated that:

The commission finds that at present the economic returns to the Canadian people on the investment in the proposed South Saskatchewan River Project (Central Saskatchewan Development) are not commensurate with the cost thereof; although the project would yield social returns which, while they cannot be measured for the purpose of this report, would be of great value to the region in which it is situated.

(Royal Commission 1952)

The federal election of 1957 saw John Diefenbaker become Prime Minister. Being from Saskatchewan, he understandably favoured a large scale development and therefore approved the South Saskatchewan River Project in 1958 - even though the Royal Commission had advised against the project.

Although off to a seemingly shaky beginning, progress went quickly. The project was multi-purpose in nature, including irrigation, hydro-electric power generation, flood control and recreation. Recreational use had been considered early in the project planning and as stated in the Royal Commission report:

The recreation value of the South Saskatchewan Project is unique even in a country as liberally supplied as Canada in facilities for the enjoyment of healthful leisure . . . It would create new facilities for hunting, fishing, swimming, boating, picnicking, camping and summer cottage life on a scale that is not readily available to a majority of the people of the dry plains.

(Royal Commission 1952 p.37)

The report further states:

The South Saskatchewan River Project is unique in the magnitude of the recreation benefits to be expected. It not only will provide a reservoir with a shoreline of almost 500 miles in length, but as well will restore Last Mountain and Little Manitou Lakes and stabilize the lakes in the Qu'Appelle Valley. As a result, at least two thirds of the people of the province will be within a two-hour auto journey of a large body of water created or improved by this project. For the first time for many people, there will be an opportunity to enjoy outdoor recreation on a grand scale, and for everyone there will be new facilities for hunting, fishing, swimming, boating, picnicking and camping. . . . Not only would the project increase the tourist trade, it would add qualitatively to living in an area almost devoid of natural trees, lakes and streams and good sites for parks. In providing basic facilities

for outdoor recreation and countless human benefits that are possible include much better health, educational and aesthetic opportunities, and countless factors needed for better and fuller living.

(Royal Commission 1952 p. 253)

With two thirds of Saskatchewan's population living within a two hour driving distance of some benefit of the proposed project, it was optimistically expected that the project would indeed play a major role in the future recreation of Saskatchewan residents.

Work began on the recreational development soon after project approval in 1958. The 1958-1960 progress report of the newly established South Saskatchewan River Development Commission (SSRC) stated that the recreation resources promised to the "big bonus" of the project. The Commission did foresee problems however, including water level fluctuations of the lake, shoreline erosion along much of the reservoir, and the possible sedimentation common to reservoirs developed in areas of similar geology. The Commission realized that "with proper foresight, planning and time, the reservoir can be made into a choice recreation asset" (SSRC 1960 p.VIII).

In 1959, W. M. Baker, a recreation consultant, was contracted by the Department of Natural Resources to study and report on the recreational potential of the reservoir and formulate a master plan of development.

Baker's report emphasized the great potential of the reservoir to be situated in an area where recreationally,

an "unfortunate imbalance currently exists" (Baker 1960 p.1). He envisioned the reservoir becoming "the principal outdoor recreation resource for a very large part of the province by virtue of the fact that there are no other rival areas with comparable opportunities" (p. 2). He stated that an unsatisfied demand for outdoor recreation would be fulfilled and that upon completion, growth of recreational use at the reservoir would be "explosive".

Baker prepared a development plan which provided for provincial and regional parks, cottage subdivisions, boat launching sites and a reforestation program.* In locating the parks, Baker considered several factors including:

- . the existing environment including topography, vegetation and such things as ease of irrigation of the reforested sites;
- . the locations of existing and proposed access routes to the proposed reservoir; and
- . the existing rural population concentrations and the urban centres surrounding the lake.

Expanding upon his vision of explosive growth, Baker forecast that the reservoir would have 269,000 recreation visits by 1965 and 467,000 visits by the year 2000. These projections were based upon the 82,000 sightseeing visitors to the construction site in 1960. He also predicted that by 1975 or 1980, demand for cottage lots would exceed 3,000 sites.

*Based on this preliminary plan, the Department of Natural Resources created a Master Plan which led to the reservoir's present development (Map 1).

As the foregoing discussion indicates, the multi-purpose reservoir was expected to become an important focus of recreational activity for its anticipated constituency. This thesis examines the actual public response to the reservoir, more than a decade after completion.

CHAPTER II

RECREATION AND RESERVOIRS

The Role of Reservoirs

There has been a tremendous increase in demand for developed outdoor recreation areas and facilities throughout North America in the past two or three decades. This growth in demand is a result of several factors variously identified by recreation researchers including Clawson and Knetsch 1966, Taylor 1966, Cicchetti et al 1969 and Carlson et al 1979. These factors include:

1. Increased amount of leisure time

The shortened work week typical of developed countries has resulted in many hours and days throughout the year which are "free" or unnecessary in terms of normal income support.

2. Changing life styles

The home no longer provides sufficient quantities of recreational opportunities for the increased amount of available time. Individuals and families must seek these opportunities elsewhere.

3. Increased income

Higher salaries have created a greater disposable income or money which is not needed for day-to-day survival.

4. Education

A generally higher level of education has created ideas about and attitudes to both the use of leisure and interest in the outdoor life.

5. Increased mobility

Better roads, coupled with the common use of the automobile have allowed families to travel farther, faster and cheaper than ever before. Aircraft have also added to both the accessibility and choice of recreation destinations.

6. Urbanization and population pressures

The shift to a city environment with a rapidly expanding population has created pressures which must be alleviated. This pressure has increased the demand for parks and quiet places both within the city and without.

7. The search for the good life

Today's society is highly manipulated by advertising and as people learn about new places and new experiences, they too want part of what they think is the normal societal participation in a "good life".

This recreation demand of recent years is often satisfied by water-based recreation facilities and several researchers have identified the importance of lakes and multi-purpose reservoirs in supplying the necessary water (Clawson 1963, Boad 1969, Pankey and Johnston 1969, Kavanagh 1970, Saskatchewan-Nelson Basin Board 1972 and Parkes 1973).

As Kavanagh states:

The focal point of much outdoor recreation is water. Rivers and lakes provide not only the fresh water for camping and picnics, but also the surface and element for sailing, rowing, skin-diving, boating, swimming, fishing and water-skiing. They form scenery and habitat for aquatic plants, animals and birds.

(Kavanagh 1970 p. 81)

Reservoirs, in particular, are important for they offer the possibility of enlarging the recreational resource of an area, especially near urban centers and areas of high population density (Boan 1969). There is a great demand for recreation space within a two-hour drive (160 kilometres) of these urban centers (Clawson & Knetsch 1966, Benfield 1975) in what Clawson and Knetsch call the intermediate-use recreation area. These authors have also classified two other general recreation areas: the user-oriented and the resource-based.

User-oriented areas include parks or playgrounds close to the user's home. Use of these areas is associated with daily free time and include activities such as golf, tennis or a visit to a zoo.

Resource-based areas are used for longer, vacation-length periods and are usually characterized by outstanding physical features or resources. These areas may be at various distances from the user and are often national, provincial or state parks.

The intermediate-use area fulfills recreation demand not satisfied by the other types. These intermediate areas primarily serve the day or weekend user with popular activities including picnicking, swimming, boating or camping. Local provincial and state parks, as well as reservoirs, are common intermediate-use areas.

The importance of reservoirs for recreational activity is evident from United States examples. During the 1950s (when Lake Diefenbaker was being planned), reservoirs in the United States were enjoying a tremendous increase in use, particularly in comparison with other recreation areas. During the period 1946-58, TVA reservoirs and Corps of Engineers reservoirs had increases in use of 15% and 28%, respectively (ORRRC, 1962; Clawson and Knetsch, 1966). This is compared to an increase in National Park and State Park use of only 10% during the same time period.

Recreational use of reservoirs was growing so rapidly that the Federal Water Project Act of 1965 established recreation as a factor in investigating and planning federal water resource projects (U.S. Water Resources Council, 1978). The popular use of reservoirs is still apparent in the United States for in 1977, 596 hydroelectric reservoirs, with a combined water surface area of two million acres, provided 77 million recreation days of public recreation use (Federal Energy Regulatory Commission, 1978).

Recent studies have determined that in the United States, a recreation water deficit of 3.3 million acres (based on present recreation requirements) will occur by the year 2000 (U.S. Water Resources Council, 1978). Although certain areas (i.e. Great Lakes region, Missouri River and Colorado River watersheds) will have a surplus, those areas with a deficit will depend in large part upon an even greater

use of reservoirs in supplying this needed recreational water.

Problems Associated with Reservoirs

Certain problems are inherent to man-made lakes which may potentially interfere with recreational activity. Several authors (Benfield 1975, Boan 1969, Jackson 1970 and 1975) have discussed various problems, the primary one being water drawdown. This continual withdrawal and replacement of water, inherent to multi-purpose reservoirs, alternately exposes and covers beaches and shorelines, leading to erosion and beach instability; while the provision of facilities and buildings along the shoreline becomes difficult or impossible.

Water drawdown problems have been experienced at several reservoirs. As an example, the Stephenfield Reservoir near Carman, Manitoba has a potentially high recreational demand as it is situated in a highly populated area lacking water-based recreation facilities. However, the frequency of water level fluctuations and the shoreline erosion greatly inhibits both cottage and recreational facility development (Saskatchewan-Nelson Basin Board 1972).

This problem of fluctuating water levels may be partially alleviated with a seasonal schedule of water drawdown, whereby the water level is maintained relatively constant throughout the recreation season.

With relatively small drawdowns, recreation use may be minimally affected. Benfield states that for reservoirs in Alberta there is no statistically significant relationship between water level and recreation attendance with fluctuations of three to ten feet.*

Jaakson (1973) studied water drawdown problem on the Trent Canal reservoir system in Ontario and, through interviews with cottagers, determined that only in extreme drawdowns during infrequent dry years would there be a serious imposition on recreational use. The inconvenience does not generally reduce the quality of recreational use of the lake and he therefore concludes that cottage users, and others, have learned to adapt successfully to water level fluctuation.

The Outdoor Recreation Resources Review Commission (ORRRC Report #10 1962) views the water level problem pragmatically. They write:

The recreationist, if he is to enjoy the benefits offered by the reservoir, must be willing to accept a situation that is often less than ideal. In many areas he has no choice. There are no constant level lakes available in the water scarce areas where most of the largest reservoirs have been built. (1962 p. 56)

* Lake Diefenbaker's fluctuations total thirty feet, the maximum drawdown however, does not occur in the recreation season but in the late winter and early spring.

Although, as these authors have stated, the quantity of recreation may not be significantly reduced, in certain cases the quality of the experience may be impaired as a result of the "unnatural" shoreline created by the water level fluctuations (Litton et al 1974).

Other problems are associated with reservoirs although these are only important locally. These include some destruction of fish and wildlife habitat, often a result of the initial flooding or clearing of the flooded land and, sedimentation and eventual infilling of the lake. These problems are not as potentially significant to recreation as those associated with water drawdown, for with proper construction methods and management, impacts may be reduced with, for example, trees being planted providing new wildlife habitat. Also, more water often provides increased habitat for waterfowl and fish.

Finally, it must be recognized that the local environment associated with a new reservoir may be slow to recover from construction activities. Several years may also be required for the development of recreation facilities and often several more before their acceptance and use. Often, because of these reasons, recreation planners have great difficulty in predicting future use of a new reservoir in the near future or short run (Day 1977). Further, Emmetl (1970)

has stated:

. . . in the short run, supply does not necessarily create demand. It is possible to provide facilities at no direct charge to the public and find that no one uses them. The values which are currently held intervene, and it takes even longer to change values than it does to build swimming pools. (p. 70)

The Lake Diefenbaker Example

The foregoing discussion outlines the very significant role reservoirs play in providing recreational water to highly populated areas. These man-made features increase the recreational resource base and may even reduce overuse of other lakes in the region. Although problems may be associated with the multi-purpose operation of the reservoir, these lakes are essential in many regions of North America as a recreational water body serving the day and weekend user.

Lake Diefenbaker, like most multi-purpose reservoirs, has been developed as a recreation attraction serving the local population. In this case the local population includes four major Saskatchewan cities - Regina, Saskatoon, Moose Jaw and Swift Current - which all lie within a two-hour drive of the reservoir (Map 1). As Chapter I discusses, it was believed that the reservoir would serve the recreational needs of this population on a great scale. Present

use, however, does not appear to be significant in comparison to other recreation areas (i.e. provincial parks) in the province (Appendix C). Moreover, W. M. Baker had predicted 269,000 visitors at the reservoir by 1965. In reality, however, this figure was not reached until 1976, eleven years later (276,612 visitors). Baker had also predicted 3,000 cottage lots in use by 1975 or 1980. As discussed in Chapter IV, actual cottage use is far less than this figure.

Several reasons might be suggested for this apparently low amount of recreational use:

1. The reservoir and its provincial parks are new to Saskatchewan and face stiff competition from older, more established sites including provincial parks at Buffalo Pound Lake, Echo Lake, Katepwa Lake, Cypress Hills, Pike Lake, Last Mountain Lake and the more distant Moose Mountain Lake.
2. Saskatchewan consists of three broad landscape regions, the plains, the parkland and the boreal forest (Richards and McKay 1969). Scattered throughout these regions are more scenic and diverse uplands where several parks have been established (Cypress Hills, Moose Mountain and Duck Mountain for example). The Lake Diefenbaker reservoir, however, is situated on a broad plain with little diversity or scenic attraction in which to attract the recreationist.

3. Access to the reservoir and the recreation site may not be sufficient or appropriate for attracting visitors.

4. Early visions of recreational use at the reservoir were overly optimistic. The lake is situated in a semi-arid region where other large lakes are scarce. Also, a large percentage of Saskatchewan's population live within a short distance of the lake. However, Saskatchewan's total population is small and therefore recreational use of a reservoir the size of Lake Diefenbaker cannot compare to reservoirs in more densely populated regions of North America.

The purpose of this study is to examine the public response to the Lake Diefenbaker recreation area and to examine the foregoing premises and their influence on recreation activity at the reservoir.

CHAPTER III

THE LAKE DIEFENBAKER STUDY AREARegional Setting of Lake Diefenbaker

Lake Diefenbaker is located on the South Saskatchewan River. This river is one of two branches of the sprawling Saskatchewan River system, stretching across three prairie provinces, from the Rocky Mountains to Lake Winnipeg. In its winding course, the South Saskatchewan River flows through southwest and southcentral Saskatchewan before it unites with the North branch of the river. It is in the semi-arid, southwestern - southcentral region of the province that the Lake Diefenbaker reservoir is located.

Terrain

The terrain of the region is representative of two physiographic provinces - the Central Lowland Province (represented by the Saskatchewan Plains Region) and the Great Plains Province (represented by the Alberta Plateau Region) (Richards 1969).

The Saskatchewan Plains are of gentle relief, with elevations ranging from 300 metres to 730 metres above sea level. The plain is an extensive glacio-lacustrine tract in which lake deposits and ground moraine are occasionally traversed by deep glacial spillways.

The Saskatchewan Plain is separated from the Alberta Plateau by a broken, rolling scarp rising 50 to 150 metres above the Plain. This east facing escarpment, termed the Missouri Coteau (Coteau de Missouri), trends southeast - northwest with moraine deposits adding a hummocky appearance to the top. Spillways and gullies dissect it so that the Coteau occurs as a rough, hilly and broken band which sweeps across the study area (Richards 1975).

The Alberta Plateau (elevations greater than 800 metres above sea level), lying west of the Coteau, is a moderately rolling landscape in comparison to the flatter plains to the east. Glacial spillways, such as presently occupied by the South Saskatchewan River, are deep with "walls" up to one hundred metres high. In these spillways the underlying shales and sandstones of the Upper Cretaceous Bearpaw Formation are commonly exposed. This formation underlies the study area as well as much of southwestern Saskatchewan.

Climate of the Region

Saskatchewan has a continental climate which is designated as a BSK or cold steppe climate according to the Koppen Classification System (Chakravarti 1969). Characteristic of this region are the large seasonal and daily temperature variations. The July mean temperature is 18°C while the January mean is -16°C. The frost free period extends from early June to early September.

The semi-arid study area receives an average of only 329.4 mm of precipitation per year, much of this falling in summer, mainly a result of convectional thunderstorms (Chakravarti 1969). Snowfall is in the order of 75 to 90 cm with blizzards and strong winds often blowing the snow into hard packed drifts along fence lines and treed areas.

Strong winds occur throughout the year, predominantly from the NW-WNW direction (Rasid 1974, Chakravarti 1969). Mean yearly wind velocities for the grassland region are between 20 and 24 kilometres per hour although winds of 50 to 100 kilometres per hour often occur.

The Biotic Environment

The study area extends into both the short grass and mid grass prairie sections of Saskatchewan. Typical grass species of the western portion include wheat grass and June grass. To the east, species present include spear grass, wheat grass, blue gramma grass and often fescue species on the north facing slopes (Baker 1960, Coupland and Rowe 1969). The grassland formation has been highly modified by grain farming and ranching, hence, natural grassland communities are predominant only on the slopes of river valleys and gullies where agriculture has not been active (Blood and Anweiler 1979).

Tree and shrub species including trembling aspen, cottonwood, Manitoba maple, willow, chokecherry and Saskatoon

berry are associated with the moister conditions of the river valleys, gullies and potholes (Baker 1960).

The vegetation, being rather restricted in diversity, also restricts the wildlife diversity. Common grassland and upland species include horned larks, gray partridge, Swainson's hawk, Richardson's ground squirrel, jack rabbit, red fox and badger. The treed areas provide habitat for the redtailed hawk, Cooper's hawk, various woodpeckers, black-capped chickadee, ruffed grouse, red-backed vole, coyote, snowshoe hare, Franklin Ground squirrel, sharp-tailed grouse, mule deer and white-tailed deer (Blood 1976, Baker 1960, Maher 1969).

Waterfowl, marsh birds and shorebirds are common both to Lake Diefenbaker and the sloughs of the region. Aquatic mammals present include beaver and muskrat, together with water-associated species such as mink, raccoon and weasel.

The South Saskatchewan Valley and Lake Setting

The South Saskatchewan River Valley is a trenched, glacial spillway set deep in the generally low relief landscape of southern Saskatchewan. In the western section, the valley may be 100-150 metres deep but in the lower Saskatchewan Plain, the walls are much less prominent.

The river valley proper displays a youthful character,

with sharp, steep banks and no floodplain. The river is generally shallow, with its greatest flow occurring in June, following snowmelt on the eastern slopes of the Rocky Mountains. Much of the steep spillway walls exhibit slumping, both old and recent, and in these sections, native grasses are common. Trees occur where more moisture is available; in some gullies and parts of the main valley.

Characteristics of Lake Diefenbaker

The flooded portion of the South Saskatchewan River valley, a result of the rolled earth Gardiner Dam and Qu'Appelle Arm Dam, forms a reservoir 225 kilometres long with a shoreline of 800 kilometres and a maximum water depth of 58.5 metres at the Gardiner Dam (Department of Regional Economic Expansion, 1975).

At full supply level the lake is 556.9 metres above sea level while at maximum drawdown, this elevation is nine metres less. Full supply level is usually reached in July while maximum drawdown occurs in March or April (Saskatchewan Environment, 1973) (see Figure 3.1). Yearly temperature and precipitation differences also effect this schedule of water level change for in dry years, full supply level may not be reached as occurred in 1977.

The reservoir is T-shaped and is oriented in both a

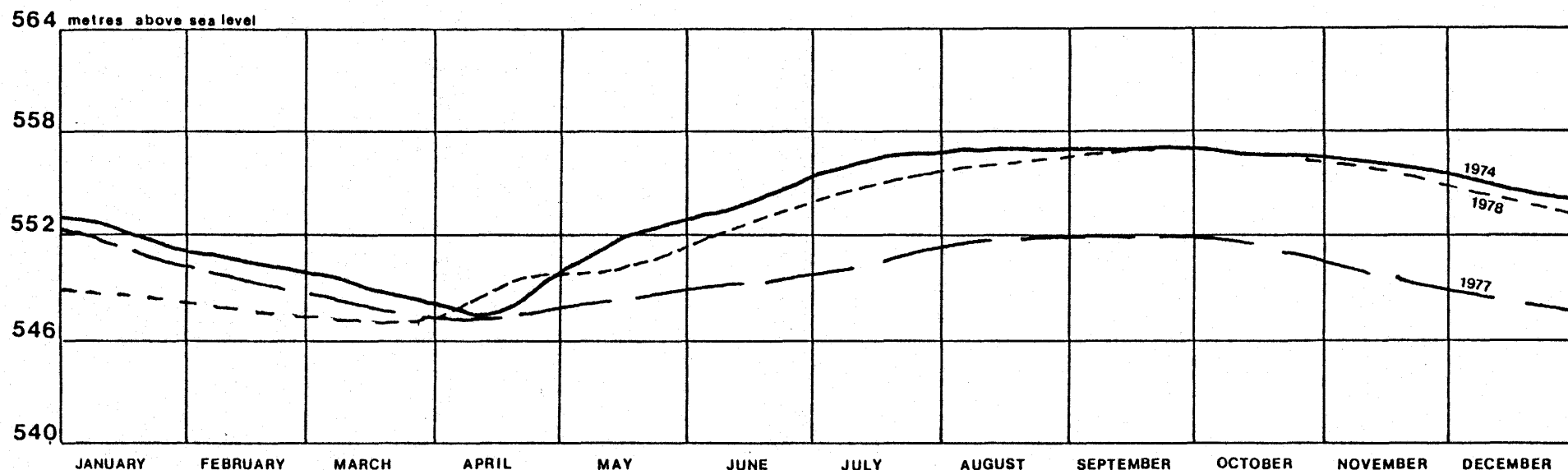


Figure 3.1 Water Level Fluctuation at Lake Diefenbaker

The water levels indicated for 1974 and 1978 represent years when run-off is relatively normal. During 1977, spring run-off was below normal for the first time since reservoir operation began and as a result releases from Gardiner Dam were held to the minimum of 43 cubic metres per second throughout the summer. A similar problem occurred during the summer of 1979 when full supply level was not reached during the recreation season. This summer was the year which research for this study was conducted although no person commented on the water level being a problem.

source: Saskatchewan Environment Annual Report
various years

north-south and east-west direction. Several gullies were flooded as the reservoir was formed; these now form bays or small inlets along the lake edge (e.g. the Elbow Harbour and park are situated along two such flooded gullies). Along many of these inlets, sandy beaches are developing as the reservoir matures.

The surrounding terrain was influential in creating differences between the western and eastern stretches of the reservoir. The western, or upper reach of the reservoir, is enclosed by high valley walls often reaching 100 metres above the water with the lake often less than one half a kilometre wide. The Missouri Coteau is encountered near the town of Riverhurst. East of this location - in the Saskatchewan Plain Region - the valley walls are not as high and the lake is up to two kilometres wide. Slumping is characteristic of the valley walls along the entire length, although more common in the steeper walled western section.

Sandhills occur in the Qu'Appelle Dam arm of the lake. The sand was deposited during the Wisconsin glaciation, where the South Saskatchewan River emptied into Glacial Lake Regina. These stabilized sandhills, and the accompanying vegetation, form what Blood (1976) terms a "pocket wilderness". The vegetation and animal communities found here are unique in comparison with the uniform environment characteristic of the majority of the study area. A natural aspen forest

is found, together with plant species common to open sand dunes, stabilized dunes, freshwater seepage areas and saline seepage areas (Blood 1976).

In the vicinity of the Gardiner Dam, another aspen woodland is found. This however, is a recent addition to the landscape, a result of reforestation at a designated provincial park.

Land Use Surrounding Lake Diefenbaker

The predominant land use in the region is agriculture, either grain farming or ranching. Four community pastures border the lake and cover approximately 138,000 acres. Several small hamlets, villages and towns serve the area (see Map 1).

Uses associated directly with the lake are related to the multi-purpose functions of the reservoir. These uses, other than recreation, include hydro-electric power production at the Coteau Creek station at the Gardiner Dam; water control into the Qu'Appelle Valley, regulated by the Qu'Appelle Arm Dam; the use of water for irrigation purposes, primarily to the north and east of the reservoir; and the provision of water for the Saskatoon Southwest Water Supply Project. The hydro-electric power production, operated by the Saskatchewan Power Corporation, is responsible for the major water drawdown experienced at the reservoir. Water releases

are based on power demands and the maintenance of an appropriate lake level and downstream flow, with demands occurring mainly in winter (Saskatchewan Environment, 1974).

Water releases are decided bi-monthly by the Prairie Provinces Water Board. This board, a result of an agreement between Alberta, Manitoba, Saskatchewan and Canada, oversees and apportions waters flowing from one province into another. The agreement "ensures one-half of the natural eastward flow of water rising in or flowing through Alberta for Saskatchewan, and one-half the eastward flow arising in or flowing through Saskatchewan for Manitoba" (Ward 1978 p.210). In meeting these requirements it has been determined that water flow through Gardiner Dam be regulated when needed with the flow preferably not falling below 1500 cubic feet per second. This minimum flow was maintained through much of the summer of 1977 as spring run-off had been much less than normal, hence full supply level was never reached.

Irrigation use plays a very minimal role in determining the water level of the lake. Indeed, summer drawdown for irrigation is small considering that this use was the primary intent of the reservoir project. Only 32,000 acres of land were developed for irrigation with the Saskatchewan Department of Agriculture controlling the amount of water used.

Irrigation use diverts approximately 43,000 acre-feet of the reservoir's total 3.2 million acre-feet available for

flow regulation. At full supply level, the reservoir contains 7.6 million acre-feet of water (Department of Agriculture Annual Report 1978-79; Environment Saskatchewan, 1974).

Land use and reservoir operation is co-ordinated by Saskatchewan Environment with authority derived from the Water Resources Management Act of 1972 (Ward 1978). Control is imposed with a system of three zones set around the shoreline termed the Reservoir Development Area (Jaakson 1975). The outermost boundary varies from 5 to 24 kilometres from the shoreline and, including the water surface area (440 kilometres²), covers 5,626 kilometres². Controls within this boundary include restricted building area zones and a building elevation zone.

The purpose of the Reservoir Development Area is three-fold (Jaakson 1975). First, development and use should not suffer from flooding, slumping, water action or sedimentation. Second, the relationships between the various land and water uses should be compatible and, last, the zoning ensures that shoreline uses do not interfere with the operation of the reservoir in providing water for irrigation or hydro-electric power.

Recreational Facilities at Lake Diefenbaker

The large size of Lake Diefenbaker allows several recreation areas to co-exist on the same body of water

(Map 1), including provincial and regional parks, cottage subdivisions and others.

The three provincial parks include Danielson (established in 1971, 7200 acres), located at the Gardiner Dam; Douglas (established in 1973, 19,956 acres), located within the aspen forest-sandhill region adjacent to the Qu'Appelle Arm Dam; and Saskatchewan Landing (established in 1973, 13,830 acres), located north of Swift Current on Highway 4 (Map 1 and 2). Appendix A illustrates the park's facilities and programs, as well as presenting a comparison with other Saskatchewan provincial parks.

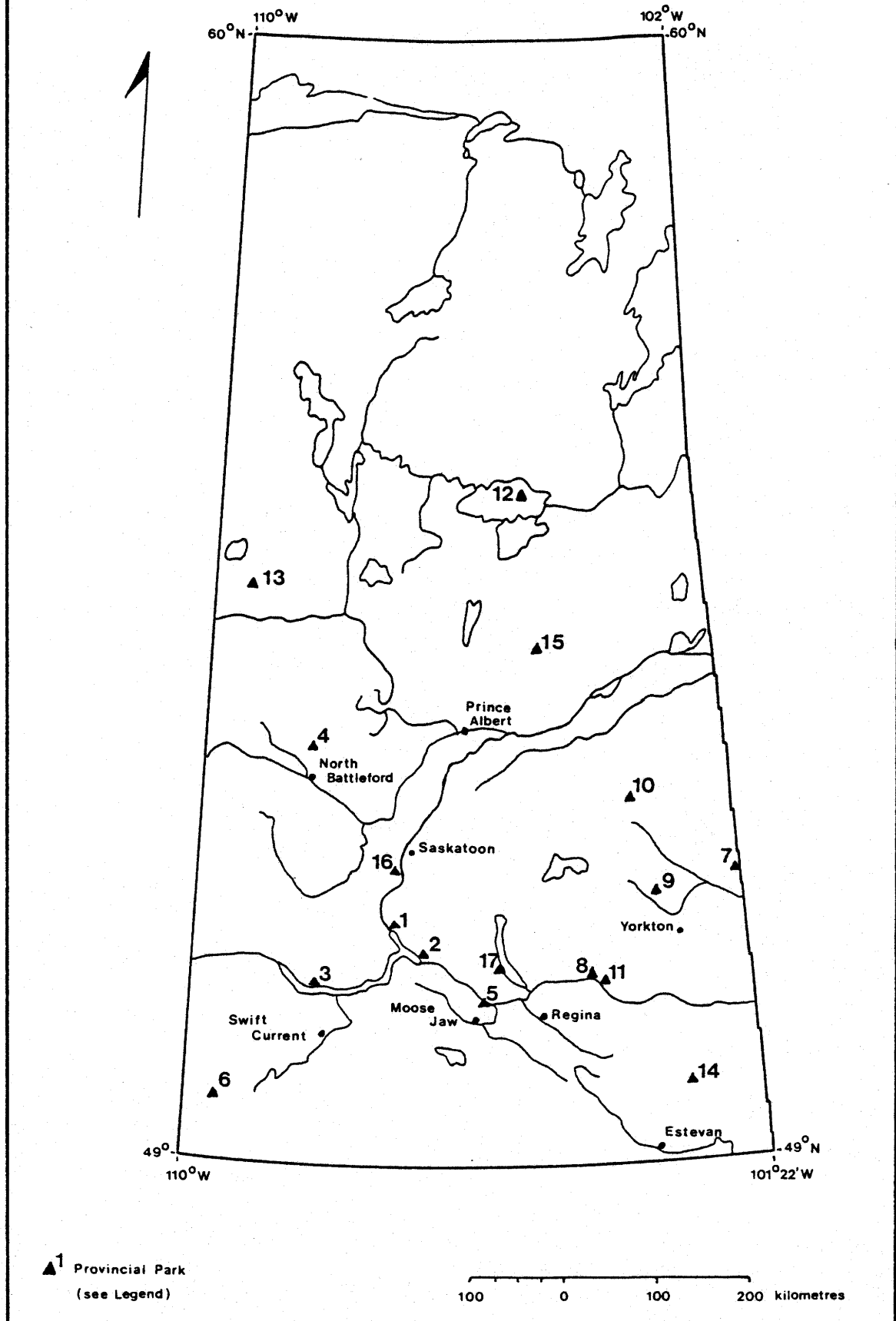
Many older or larger parks in Saskatchewan provide a wide range of amenities including golf courses, boat rentals, rental accommodations and stores, in addition to the usual picnic sites, campgrounds and beaches. Lake Diefenbaker's parks have minimal development in comparison, for they provide only campsites, beaches, picnic sites, boat launches and - at Douglas and Saskatchewan Landing - nature trails. No attraction features such as golf courses or rental cabins presently exist. Also, no store facilities are available within the parks, although a cafeteria is present at the visitor centre at Danielson Park.

MAP 2 LEGEND

SASKATCHEWAN PROVINCIAL PARKS

| <u>Number on map</u> | <u>Park name</u> |
|----------------------|----------------------|
| 1. | Danielson |
| 2. | Douglas |
| 3. | Saskatchewan Landing |
| 4. | Battlefords |
| 5. | Buffalo Pound |
| 6. | Cypress Hills |
| 7. | Duck Mountain |
| 8. | Echo Valley |
| 9. | Goodspirit Lake |
| 10. | Greenwater |
| 11. | Katepwa |
| 12. | Lac La Ronge |
| 13. | Meadow Lake |
| 14. | Moose Mountain |
| 15. | Nipawin |
| 16. | Pike Lake |
| 17. | Rowan's Ravine |

MAP 2 PROVINCIAL PARKS



Two regional parks have been developed; Palliser, near the town of Riverhurst and Herbert Ferry, near the town of Herbert. A town park has also been established near Elbow. These three parks are very similar, providing picnic areas, beaches and camping sites to the local population. All are very small in size although well used.

Near the Elbow town park is situated the Elbow harbour, originally a gulley that was flooded with the creation of the reservoir. The developed harbour now forms a popular focus of activity for the many sailors using the reservoir.

Four cottage subdivisions have been developed along the shoreland; three of these planned and managed by the Saskatchewan Department of Tourism and Renewable Resources (DTRR). These include Mistusinne, Goodwin and Hitchcock Bay. The fourth, the Coteau Beach subdivision, is managed by a cottage owner's association. At present, only three subdivisions are in operation with no cottages developed at Hitchcock Bay. Other recreation developments include two institutional camps, Camp Raynor and a Provincial Girl Guide Camp, both located at Hitchcock Bay. Several boat launches have been established at various locations around the reservoir, providing lake access for the local population.

CHAPTER IV

ANALYSIS OF THE PUBLIC RESPONSE TO THE LAKE DIEFENBAKER RECREATION AREA

Introduction

Two major sources of data have been employed in an examination of the public response to the Lake Diefenbaker recreation area. The first consists of a questionnaire designed to sample the urban population surrounding the reservoir. (Appendix B) Results from this questionnaire illustrate the general public's knowledge, awareness and attitudes to the Lake Diefenbaker reservoir.

The second set of data provides a more site-specific view of the patterns of use and the response to the lake. These data are derived from annual user statistics and user surveys compiled by the Department of Tourism and Renewable Resources, from consultant's reports and from personal fieldwork.

The Questionnaire

Sixty percent of Saskatchewan's population live within 160 kilometres of Lake Diefenbaker (Saskatchewan Environment 1980). This population was sampled to determine their response to Lake Diefenbaker. For ease of sampling, the four urban centres surrounding the reservoir were chosen

as a sample population, these being Regina, Saskatoon, Moose Jaw and Swift Current. From this population, a sample of 400 households were randomly chosen for each city using the 1979 Sask Tel telephone directory for each centre.*

The short, one page questionnaire was distributed with a "Mail out - Mail back" procedure and was kept short in hope of obtaining the greatest possible response. The actual response was very successful with a total return of 34.6% (553/1600), representing 140 replies from Regina, 129 from Saskatoon, 160 from Swift Current and 124 replies from Moose Jaw. An example of the questionnaire and the covering letter is presented in Appendix B.

Eleven questions were used although some were of relatively minor concern to the actual intent of the study. Questions One to Three determine the respondents' awareness of the reservoir, their knowledge of the recreation facilities and their frequency of use of these areas.

Question Four was originally designed as a test question - a question determining if the respondent actually knew of the location of the reservoir with respect to his home. This question however, is considered unsuccessful, for although many people responded with reasonable travel times, the majority either did not respond to the question or they indicated that their trip to the reservoir was part of a day-long outing involving several hours of driving. This latter point is an interesting observation for it indicates a popular recreational activity - driving for pleasure.

*Four hundred households from each city represents a statistically valid sample size (greater than 95% confidence) with an anticipated return of 15%. In this case, the actual return was 34.6%.

Question Five is used to determine the length of stay of visitors to the lake. Question Six asked for the respondents favourite outdoor activities. Question Six would have been more useful if subdivided into two categories; one dealing with activities engaged in while visiting Lake Diefenbaker and another dealing with the respondents general outdoor recreation at all locations throughout the year. Some bias may also have been present as the question presented only six choices. Although a short list was designed to save space, results may have been more interesting and informative if a wider choice of activities were listed.

Response to Questions Seven and Eight indicate the respondents favourite recreation areas and their frequency of use of these sites. In the majority of instances, these two questions posed no problem in answering.

Questions Nine and Ten determine public attitudes toward the recreation facilities at Lake Diefenbaker. Problems with the intent of this question emerged and might best be expressed by the comments received from respondents, the two major ones being:

- . have not been at Lake Diefenbaker enough to comment; and
- . cannot compare the facilities at Lake Diefenbaker with other areas due to the tremendous differences in attraction features (i.e. cannot compare Lake Diefenbaker to the Rocky Mountains, the ocean or the forest.)

The success of the two questions may have been improved if the respondent was asked to compare Lake Diefenbaker to other recreation sites within a similar driving distance.

The final question asks for the date of the respondent's most recent visit to the reservoir. This data is useful when considering the answers and comments given by the respondent.

In keeping the questionnaire length to one page and because of cost restrictions prohibiting a pre-test, several shortcomings in the questionnaire became evident. There is, however, no detracting from the primary focus of the study, that of determining the public's knowledge of, and response to, the recreational attributes of Lake Diefenbaker.

Analysis of the Questionnaire Results

The nature of the replies allow the results to be examined in two forms. Data from questions 1, 2, 3, 5, 7 and 8 have been examined with a written discussion and presented with the use of tables or figures. Also, each city may be examined independently for these questions. The results for Question Six are represented in table form with no individual city representation. Responses to the remaining questions are not conducive to a quantitative presentation but do provide a useful insight into the sample population's knowledge of the reservoir.

1. Knowledge of the existence of the reservoir.

The public awareness of the reservoir is very high with 92.9% of the 553 responses demonstrating a knowledge of the reservoir's existence. Variation among cities is very small as indicated in Table 4.1.

Table 4.1

Question One: Knowledge of Lake Diefenbaker's Existence

| <u>City</u> | <u>Yes</u> | <u>No</u> |
|---------------|------------|-----------|
| Regina | 90.0% | 10.0% |
| Saskatoon | 92.2 | 7.8 |
| Swift Current | 97.5 | 2.5 |
| Moose Jaw | 91.9 | 8.1 |
| Average | 92.9 | 7.1 |

2. Knowledge of the recreation facilities.

Of the total replies, only 60.6% know that recreation facilities exist around the lake. Swift Current residents display the greatest knowledge with 80.0% of the replies indicating YES to Question Two (Table 4.2). Regina residents display the least knowledge with half of the respondents (50.1%) not knowing that any recreation facility exists. This indicates that perhaps the distance from the reservoir

is an important factor in dictating the present level of knowledge of the Lake Diefenbaker recreation area. Swift Current lies 50 kilometres from the lake and the nearest recreation site, while Regina, the most distant city, is a distance of 160 kilometres. Also, Regina has more intervening opportunities (e.g. the Qu'Appelle Valley or Last Mountain Lake) which attract recreationists. These areas have been popular for several years and therefore Regina residents have less of a need to seek other local recreation areas (see Map 2).

Table 4.2

Question Two: Knowledge of existence of Recreation Facilities

| <u>City</u> | <u>Yes</u> | <u>No</u> |
|---------------|------------|-----------|
| Regina | 49.3% | 50.7% |
| Saskatoon | 58.1 | 41.9 |
| Swift Current | 80.0 | 20.0 |
| Moose Jaw | 54.8 | 45.2 |
| Average | 60.6 | 39.4 |

3. Knowledge of the recreation facilities by name.

Several respondents know that Lake Diefenbaker supports recreation areas but, when asked to name these facilities, a large majority lack the ability. As represented in Table 4.3, only 218 people or 39.4% name one or more recreation sites. Although less than half of the respondents

can name facilities, obvious patterns of knowledge are evident. For Swift Current, 58.5% (94/160) respondents know of at least one facility (usually Saskatchewan Landing Park) while the three other centres display much less ability with responses varying from 28.6% for Regina (40/140) to 34.7% (43/124) for Moose Jaw. Furthermore, a strong local or regional pattern of knowledge is demonstrated and is indicated in Table 4.4. This table lists the name of each facility identified and the number of replies (as a percentage) from each city for each particular location. Swift Current residents, for example, name Saskatchewan Landing Park the most often (90.4%) compared to the all-city average of 39.1% for this park. Of Saskatoon responses, 65.9% name Danielson Park the most, compared to the all-city average of 38.7%. In these and other instances, respondents most frequently name recreation sites which are nearest their home and display much less knowledge of facilities elsewhere on the lake.

Table 4.3

Question Two: Number of Respondents Knowing Recreation
Facility Names

| <u>City</u> | <u>Number of Responses</u> | <u>Percent of total number of respondents/city</u> |
|---------------|--------------------------------|--|
| Regina | 40 | 28.6% |
| Saskatoon | 41 | 31.8 |
| Swift Current | 94 | 58.8 |
| Moose Jaw | 43 | 34.7 |
| Total | 218 | Average 39.4 |

Table 4.4

Question Two: Knowledge of Recreation Facility Names

| <u>Facility Named</u> | <u>City</u> | | | | <u>Total</u> |
|------------------------------|-------------|----------|----------|----------|--------------|
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | |
| Douglas Park | 57.5% | 39.0% | 19.1% | 67.4% | 45.8% |
| Danielson Park | 40.0 | 65.9 | 23.4 | 25.6 | 38.7 |
| Saskatchewan Landing Park | 27.5 | 24.4 | 90.4 | 14.0 | 39.1 |
| Elbow Park | 5.0 | 7.3 | 3.2 | 7.0 | 5.6 |
| Palliser Regional Park | 12.5 | 12.2 | 12.8 | 20.9 | 14.6 |
| Herbert Ferry Park | 2.5 | 0.0 | 19.1 | 0.0 | 5.4 |
| Cottage Subdivisions | 5.0 | 4.9 | 8.5 | 0.0 | 4.6 |
| Camp Rayner | 12.5 | 14.6 | 3.2 | 4.7 | 8.8 |

- A - Regina (40/140 replies)
 B - Saskatoon (41/129 replies)
 C - Swift Current (94/160 replies)
 D - Moose Jaw (43/124 replies)

4. Use of Lake Diefenbaker's recreational sites.

One half of all respondents (49.1%) have never pursued the recreational opportunities at the lake although variation between cities is great (Table 4.5). For Regina, 74.3% of the sample have never used the lake for recreational activities while for Swift Current, only 23.8% have responded NO to the same question. Swift Current also showed a very high participation rate for the "over six times" visit category (41.9%). Replies to this particular category for the other centres vary from 2.9% for Regina to 7.8% for Saskatoon. Again, the proximity of Swift Current to the reservoir likely accounts for the great difference.

Table 4.5

Question Three: Use of Recreation Facilities

| | <u>never</u> | <u>1-3 times</u> | <u>4-6 times</u> | <u>over six times</u> |
|---------------|--------------|------------------|------------------|-----------------------|
| Regina | 74.3% | 20.0% | 2.9% | 2.9% |
| Saskatoon | 47. 3 | 40.3 | 4.7 | 7.8 |
| Swift Current | 23.8 | 23.8 | 10.6 | 41.9 |
| Moose Jaw | 50.8 | 40.3 | 4.8 | 4.0 |
| totals | 49.1 | 31.1 | 5.8 | 14.2 |

5. Length of stay at the reservoir.

Length of stay at the reservoir also varies between cities as indicated in Table 4.6. In most cases, the majority of users (64.2%) stay only a few hours while 29.2% remain for one or two days and only 6.6% remain for several days. Moose Jaw, however, displays a peculiar pattern with 41.6% of the respondents staying one to two days compared to the all-city average of 29.2%. This may indicate a relationship between the city of Moose Jaw and Douglas Provincial Park.

Again, Swift Current residents demonstrate a greater use of Lake Diefenbaker (Saskatchewan Landing Park) with 10.9% of the respondents staying at the reservoir for several days.

Table 4.6

| <u>Question Five: Length of Stay</u> | | | |
|--------------------------------------|--------------------|-----------------|---------------------|
| | <u>a few hours</u> | <u>1-2 days</u> | <u>several days</u> |
| Regina | 72.1% | 24.6% | 3.3% |
| Saskatoon | 73.3 | 22.2 | 4.4 |
| Swift Current | 60.6 | 28.5 | 10.9 |
| Moose Jaw | 50.6 | 41.6 | 7.8 |
| totals | 64.2 | 29.2 | 6.6 |

6. Recreational activities enjoyed by the respondents.

Although not examined in detail, Table 4.7 indicates the tremendous variety of recreational activities participated in by the sample population. As previously mentioned, greater emphasis was perhaps unduly placed on the five categories listed in the question, however, a total of 34 different activities were indicated by the respondents, most of which could be enjoyed at Lake Diefenbaker or in southern Saskatchewan. Further research and analysis of recreational activities, specifically relating to Lake Diefenbaker and other southern Saskatchewan areas, would be beneficial to the future development and promotion of the reservoir.

Table 4.7

Question Six: Recreation Activities

| | <u>number of replies</u> | <u>Percent of Respondents</u> |
|----------------------------|--------------------------|-------------------------------|
| 1. swimming | 299 | 21.1 |
| 2. camping | 289 | 20.4 |
| 3. fishing | 245 | 17.3 |
| 4. boating | 227 | 16.0 |
| 5. nature study | 147 | 10.4 |
| 6. sightseeing | 29 | 2.0 |
| 7. picnicking | 28 | 1.9 |
| 8. hiking & walking | 23 | 1.6 |
| 9. alpine skiing | 18 | 1.3 |
| 10. water skiing | 15 | 1.1 |
| 11. relaxing | 13 | .9 |
| 12. golf | 10 | .7 |
| 13. cross-country skiing | 10 | .7 |
| 14. photography | 8 | .6 |
| 15. canoeing | 8 | .6 |
| 16. hunting | 7 | .5 |
| 17. driving for pleasure | 5 | .3 |
| 18. sailing | 4 | .3 |
| 19. scuba diving | 3 | .2 |
| 20. rockhounding | 3 | .2 |
| 21. horseback riding | 3 | .2 |
| 22. archaeology | 3 | .2 |
| 23. berry picking | 2 | <.1 |
| 24. cycling | 2 | <.1 |
| 25. tennis | 2 | <.1 |
| 26. trailbiking | 2 | <.1 |
| 27. organized sport | 2 | <.1 |
| 28. sunbathing | 2 | <.1 |
| 29. historical exploration | 1 | <.1 |
| 30. birding | 1 | <.1 |
| 31. plant collecting | 1 | <.1 |
| 32. tobogganning | 1 | <.1 |
| 33. jogging | 1 | <.1 |
| 34. mountain climbing | 1 | <.1 |

7. Frequency of vacation trips.

Table 4.8 reveals that in general, vacation trip frequency between all four urban centres is similar. This demonstrates that although residents of particular cities know more, or less, about Lake Diefenbaker than other cities, the total population has a similar participation rate with regard to vacation trips.

Table 4.8

| <u>Question Eight: Number of Vacation Trips per Year</u> | | | | |
|--|-------------|------------|------------|--------------------|
| | <u>once</u> | <u>2-4</u> | <u>5-7</u> | <u>more than 7</u> |
| Regina (134)* | 50.0% | 32.1% | 6.0% | 11.9% |
| Saskatoon (117) | 40.2 | 39.3 | 10.3 | 10.3 |
| Swift Current (150) | 49.3 | 33.3 | 7.3 | 10.0 |
| Moose Jaw (111) | 50.5 | 31.5 | 7.2 | 10.8 |
| totals | 47.5 | 34.1 | 7.7 | 10.8 |

*bracketed number indicates number of replies to this question.

8. Major provincial destinations for vacation trips.

Responses to Question Seven provide an opportunity for an examination of Saskatchewan resident travel patterns, particularly within the province. Numerous destinations have been indicated for out-of-province vacation trips with the great majority being the expectedly popular areas of Alberta

(specifically the National Parks), British Columbia and the northern United States (also California and Las Vegas). Very few people identify destinations in eastern Canada or overseas.

Interesting to this study are the many destinations within Saskatchewan. For each city, the fifteen most named, and therefore assumed to be most popular destinations, have been located on maps (Figures 4.1 - 4.4) and listed in table form (Table 4.9). Based on the assumption that the more often a site was named, the greater its popularity, frequencies of identification have been calculated so as to rank the popularity of destinations for each city. An examination of the maps showing the recreation destinations indicate that the very popular sites are either very close to the city in question or are located in the northern, forested regions of the province. Plotting frequency of identification against distance for each recreation area and city (Figures 4.5 - 4.8) and fitting a line using linear regression, illustrates that site popularity is not strongly influenced by distance from user origin. This tends to indicate that for Saskatchewan, consumers vacation where they want to in the province with travel distance not being a major consideration.

It is interesting to note that in all cases, less than 50% of the popular destinations are within a one hour drive from the respective city. Moreover, for Saskatoon, only

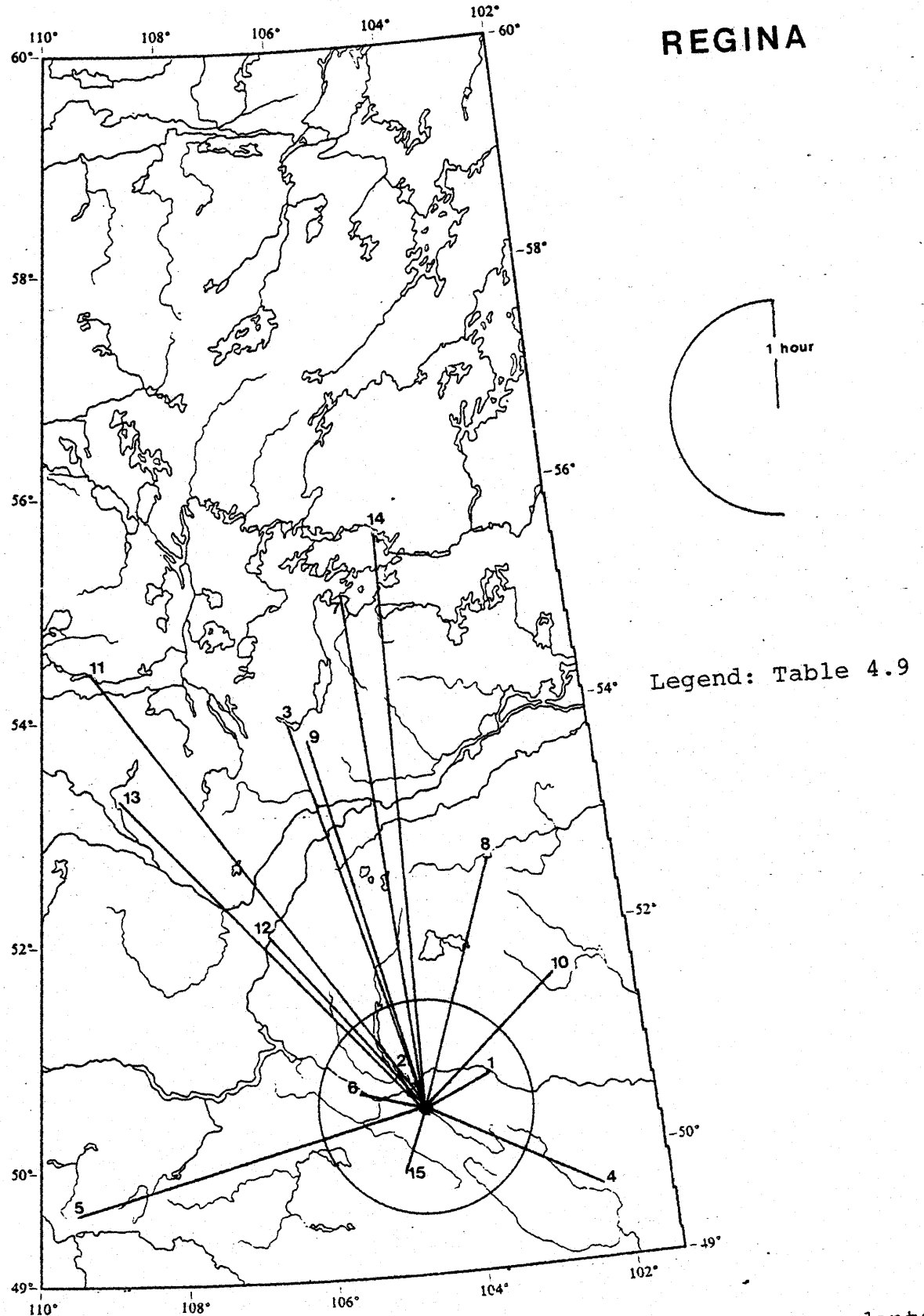


Figure 4.1 Popular Recreation Destinations - Regina Respondents

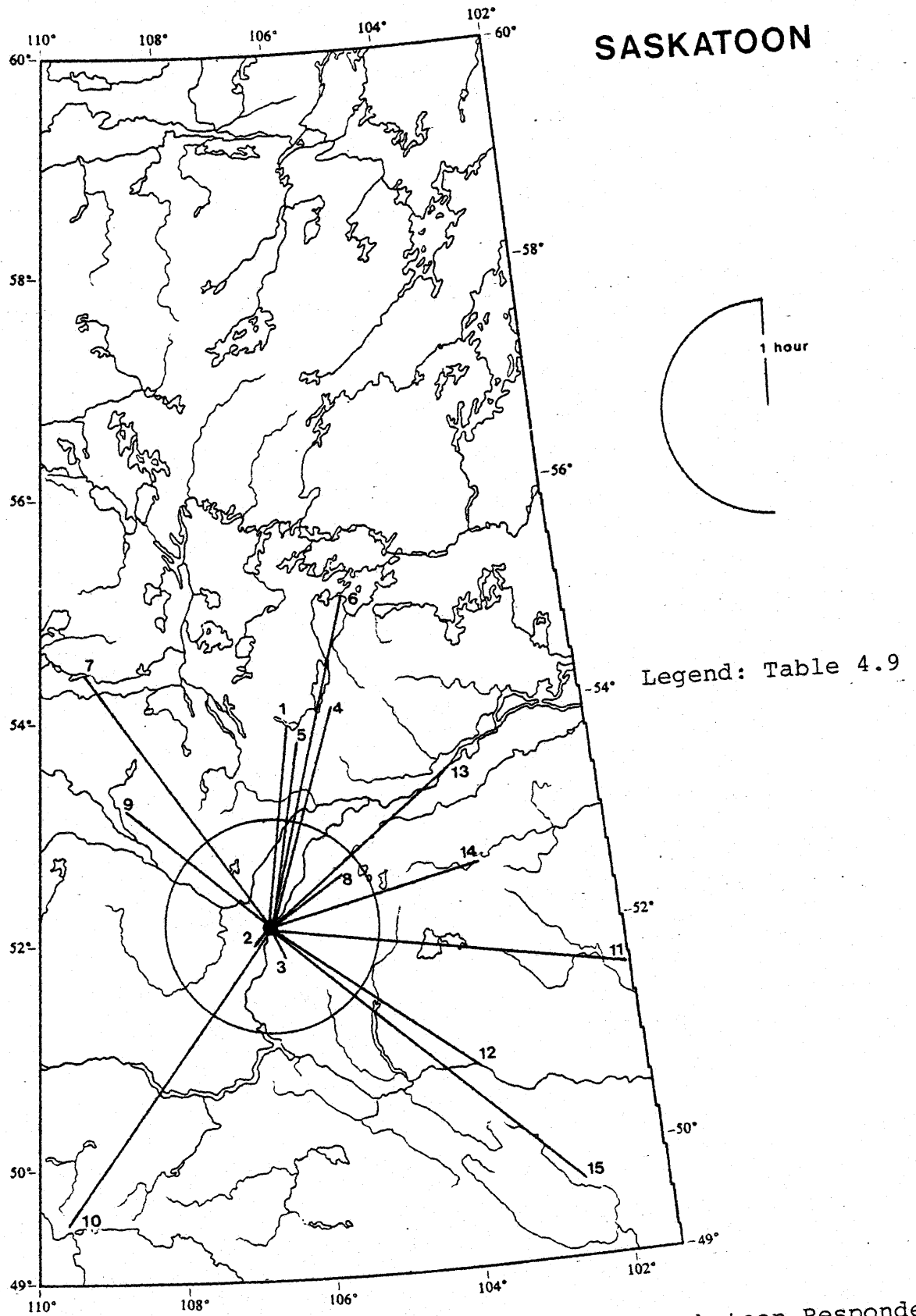


Figure 4.2 Popular Recreation Destinations - Saskatoon Respondents

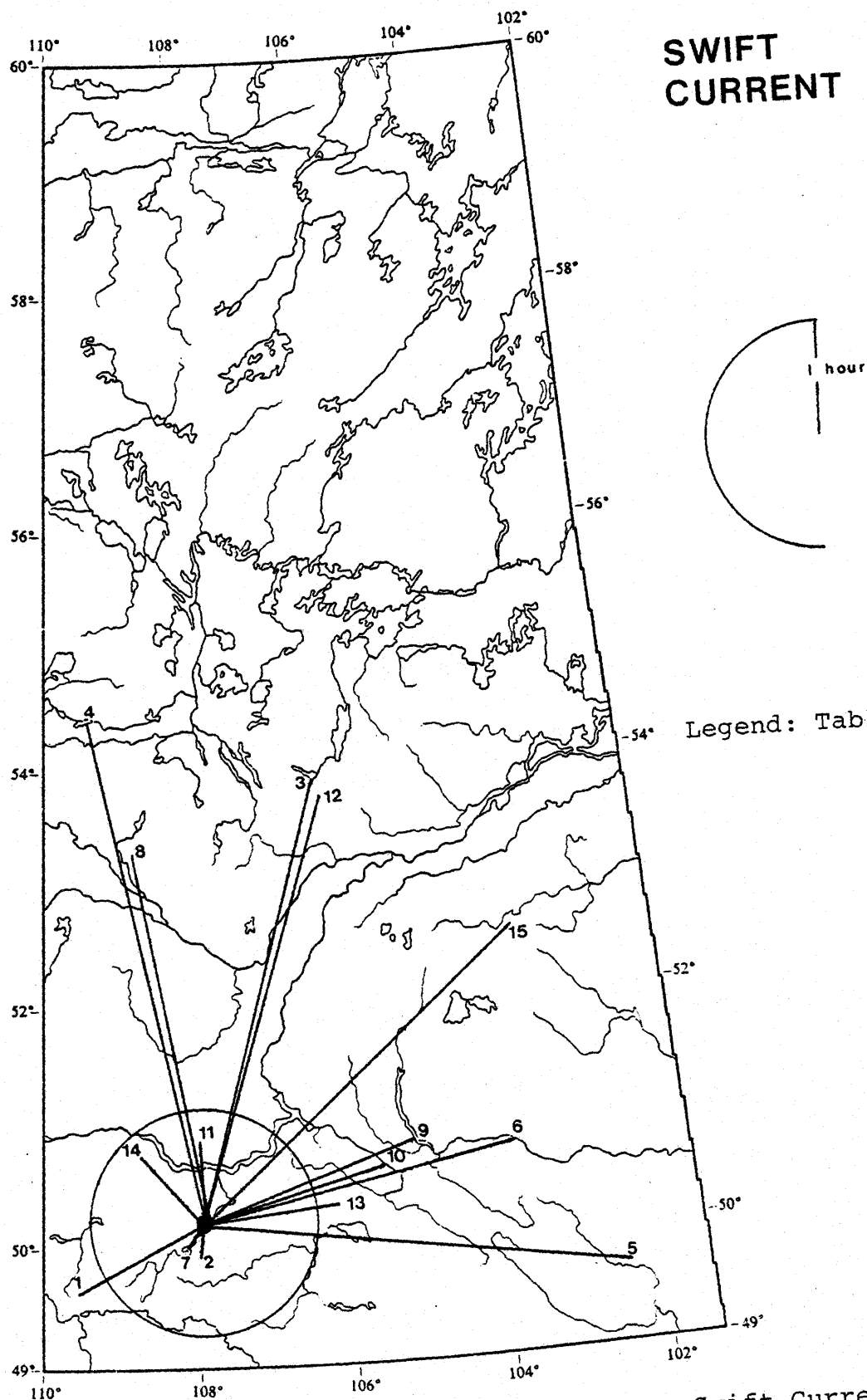


Figure 4.3 Popular Recreation Destinations - Swift Current Respondents

MOOSE JAW

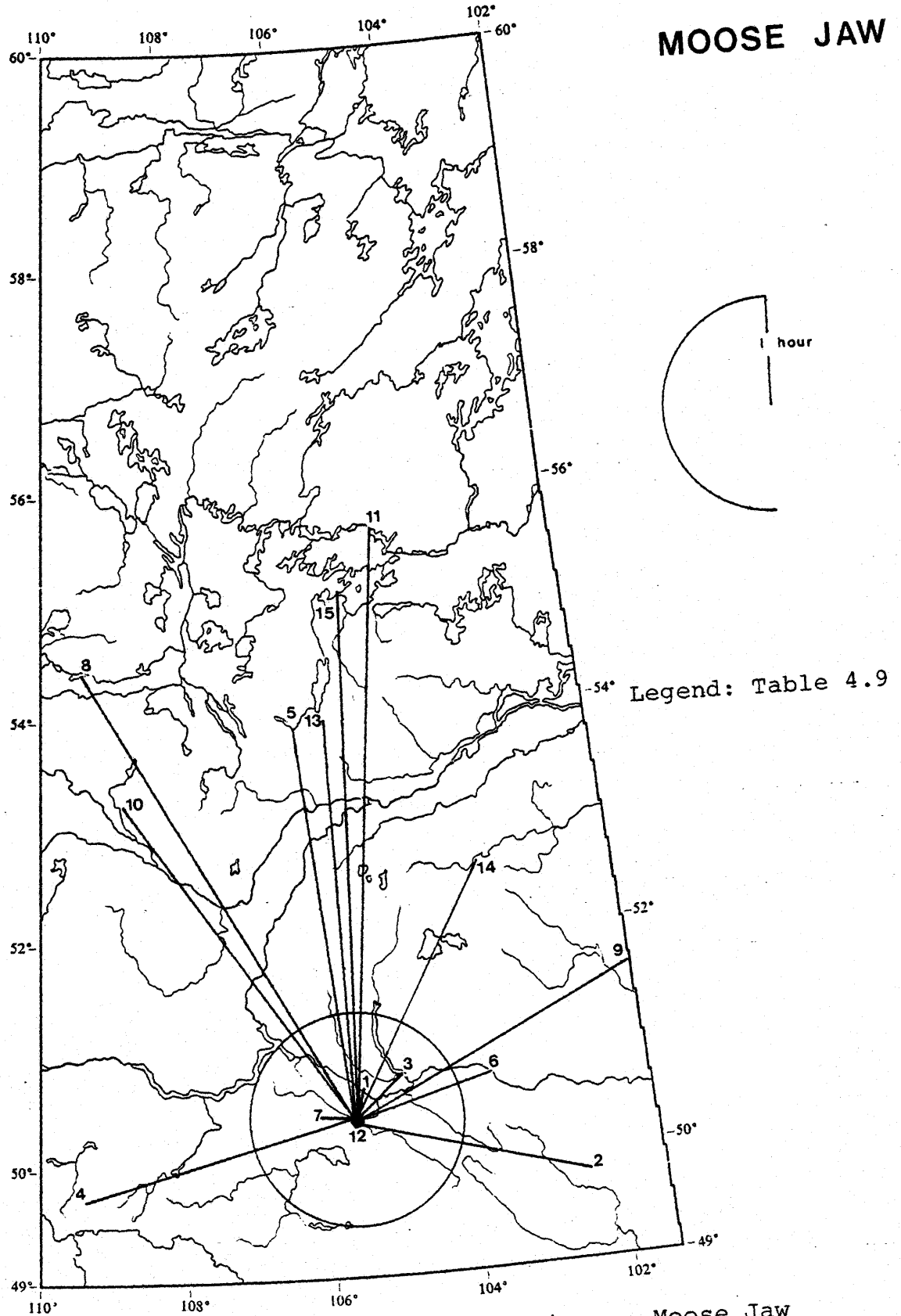


Figure 4.4 Popular Recreation Destinations - Moose Jaw Respondents

Table 4.9

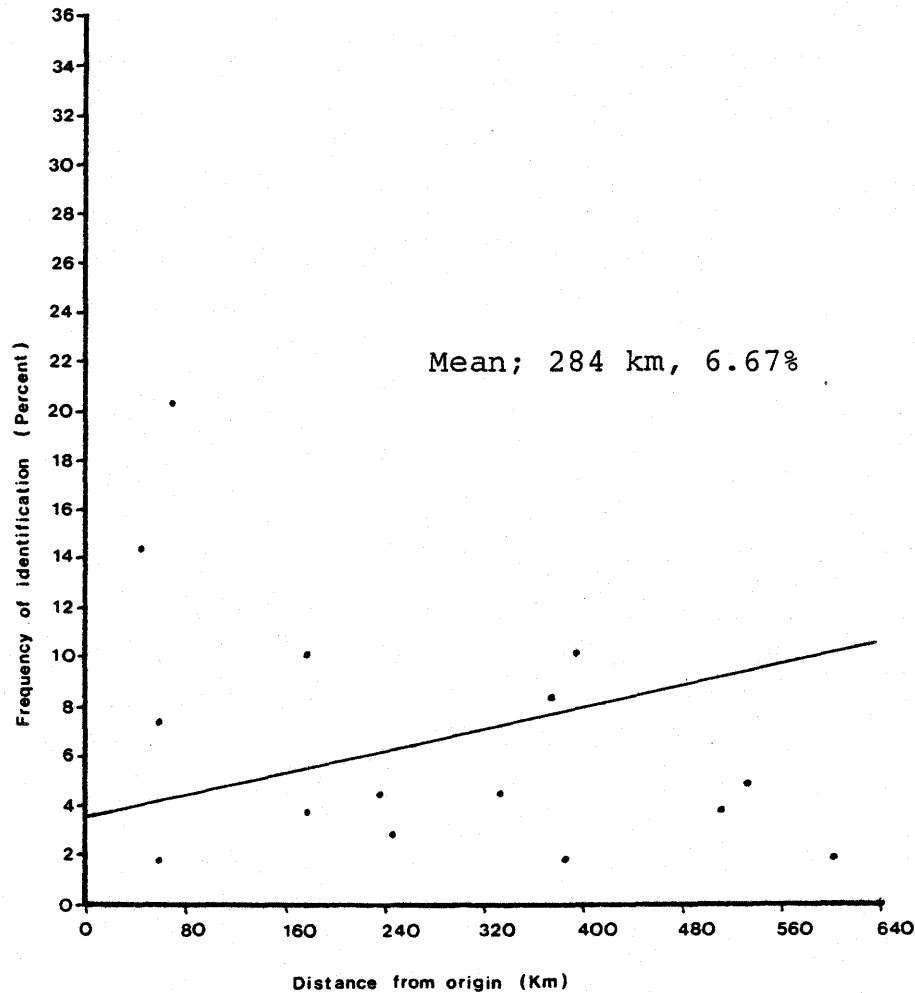
Question Seven: Recreation Destinations within Saskatchewan

| Regina | frequency of identification (percent) |
|------------------------------------|---------------------------------------|
| 1. Fishing Lakes (Qu'Appelle) | 20.4 |
| 2. Last Mountain Lake | 14.6 |
| 3. Prince Albert National Park | 10.2 |
| 4. Moose Mountain Park | 10.2 |
| 5. Cypress Hills | 8.3 |
| 6. Buffalo Pound | 7.3 |
| 7. La Ronge | 4.9 |
| 8. Greenwater Provincial Park | 4.4 |
| 9. Emma Lake | 4.4 |
| 10. Good Spirit Lake | 3.9 |
| 11. Meadow Lake Provincial Park | 3.9 |
| 12. Saskatoon | 2.9 |
| 13. Battlefords Provincial Park | 1.9 |
| 14. Churchill River | 1.5 |
| 15. Dunnet Regional Park | 1.5 |
| and thirty-nine other destinations | |
| Saskatoon | |
| 1. Prince Albert National Park | 20.4 |
| 2. Pike Lake | 12.5 |
| 3. Blackstrap Lake | 7.2 |
| 4. Candle Lake | 7.2 |
| 5. Emma Lake | 7.2 |
| 6. La Ronge | 7.2 |
| 7. Meadow Lake | 6.6 |
| 8. Waka Lake | 4.8 |
| 9. Battlefords Provincial Park | 4.8 |
| 10. Cypress Hills | 4.8 |
| 11. Duck Mountain Provincial Park | 4.2 |
| 12. Fishing Lakes (Qu'Appelle) | 4.2 |
| 13. Tobin Lake | 3.0 |
| 14. Greenwater Provincial Park | 3.0 |
| 15. Moose Mountain Provincial Park | 3.0 |
| and sixty other destinations | |

Table 4.9 continued

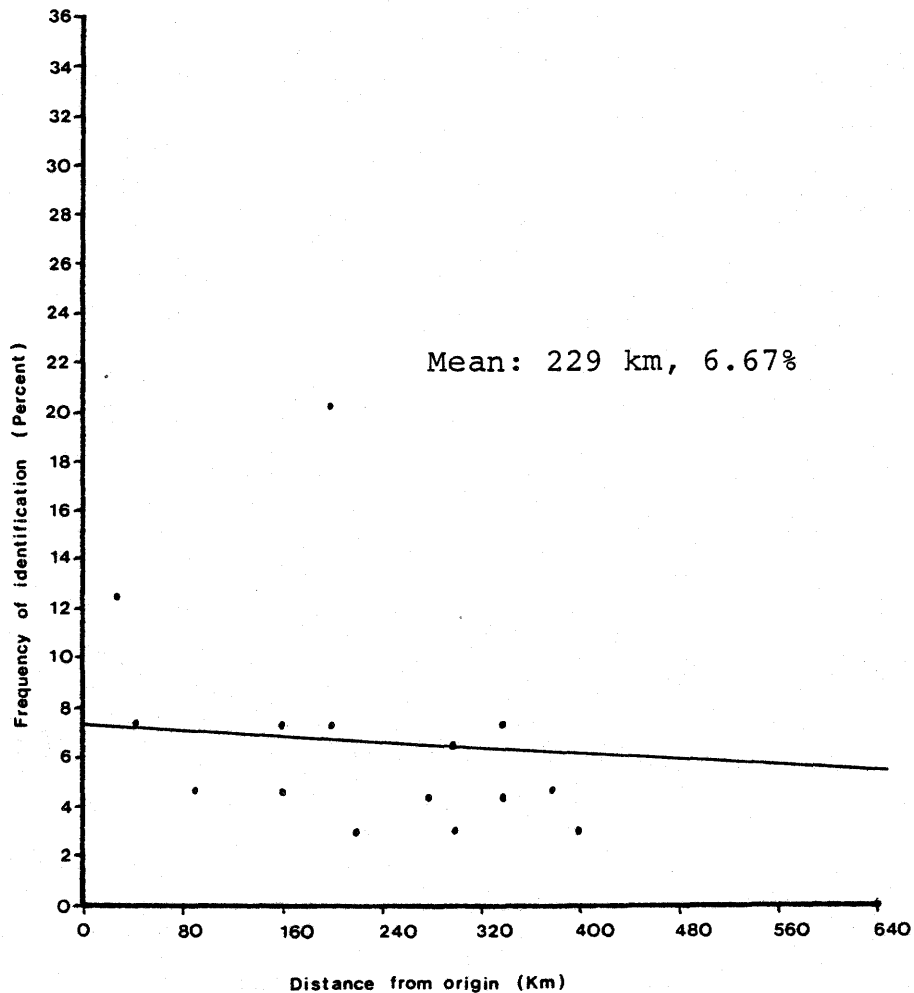
| | <u>frequency of identification (percent)</u> |
|------------------------------------|--|
| Swift Current | |
| 1. Cypress Hills Provincial Park | 34.2 |
| 2. Lac Pelletier | 18.8 |
| 3. Prince Albert National Park | 9.4 |
| 4. Meadow Lake Provincial Park | 5.1 |
| 5. Moose Mountain Provincial Park | 4.7 |
| 6. Fishing Lakes (Qu'Appelle) | 3.9 |
| 7. Duncairn Dam | 3.4 |
| 8. Battlefords Provincial Park | 3.4 |
| 9. Last Mountain Lake | 3.4 |
| 10. Buffalo Pound Lake | 3.0 |
| 11. Clearwater Lake | 3.0 |
| 12. Emma Lake | 2.6 |
| 13. Besant | 1.7 |
| 14. Great Sandhills | 1.7 |
| 15. Greenwater Provincial Park | 1.7 |
| and twenty-four other destinations | |
| Moose Jaw | |
| 1. Buffalo Pound | 33.9 |
| 2. Moose Mountain Provincial Park | 8.7 |
| 3. Last Mountain Lake | 8.7 |
| 4. Cypress Hills | 7.2 |
| 5. Prince Albert National Park | 7.2 |
| 6. Fishing Lake (Qu'Appelle) | 6.2 |
| 7. Besant | 5.6 |
| 8. Meadow Lake Provincial Park | 4.1 |
| 9. Duck Mountain Provincial Park | 3.6 |
| 10. Battlefords Provincial Park | 3.1 |
| 11. Churchill River | 3.1 |
| 12. Moose Jaw Park | 2.6 |
| 13. Candle Lake | 2.1 |
| 14. Greenwater Provincial Park | 2.1 |
| 15. La Ronge | 2.1 |
| and thirty-four other destinations | |

Figure 4.5 Recreation Destinations:
Frequency of Identification vs Distance
Regina



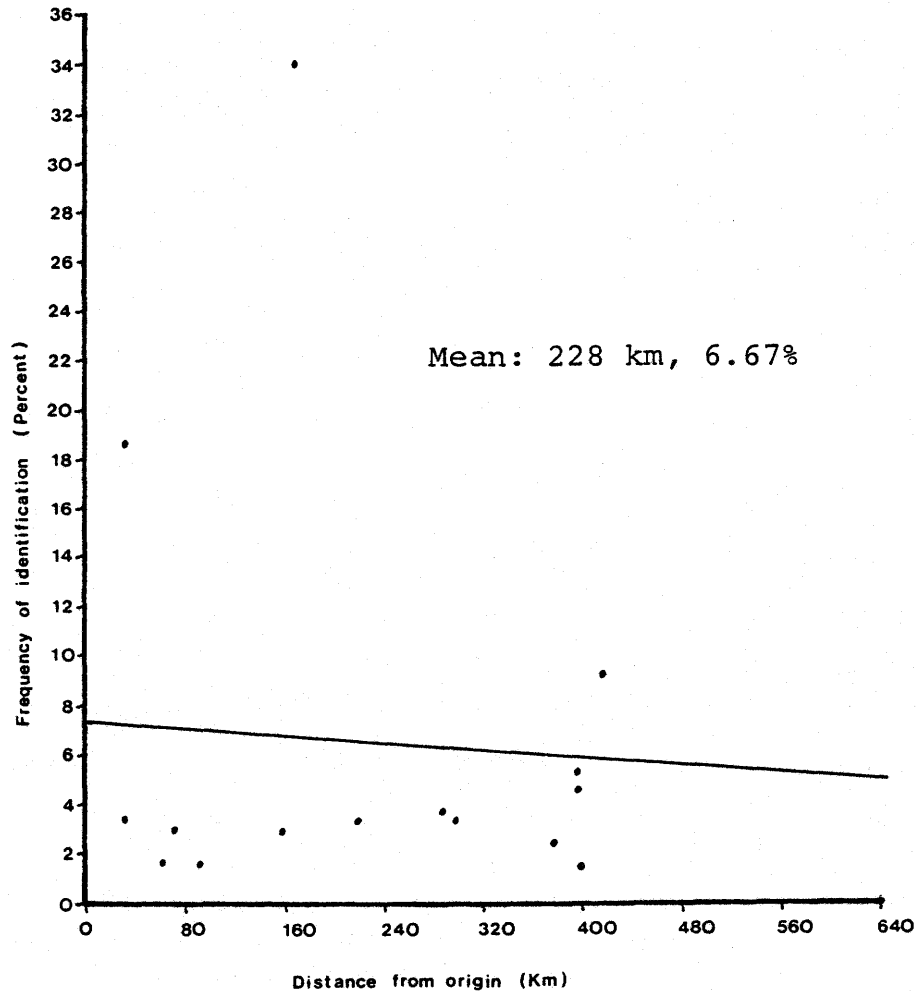
This graph indicates that, for Regina, vacationers are not inhibited by the travel distance to favourite recreation and vacation sites. Indeed, the most popular recreation sites for Regina residents are at a relatively long distance from the city. This might be explained by the fact that those recreation areas close to the city (e.g. Qu'Appelle Valley) are presently overcrowded and not as pleasant to visit as those areas at a greater distance.

Figure 4.6 Recreation Destinations:
Frequency of Identification vs Distance
Saskatoon



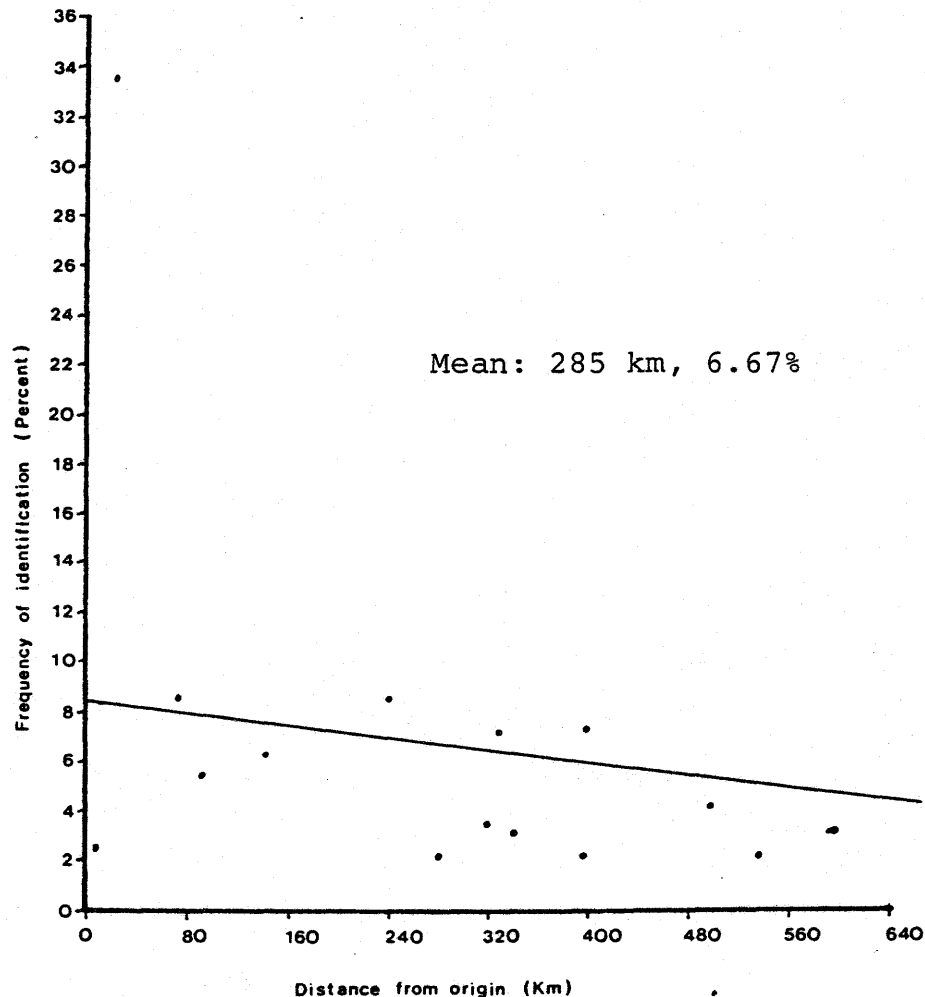
This graph illustrates that recreation area popularity is not influenced to any great extent by distance from the city of origin. The flat slope of the linear regression line indicates that many sites are popular no matter what distance they lie away from Saskatoon.

Figure 4.7 Recreation Destinations:
Frequency of Identification vs Distance
Swift Current



Swift Current residents are minimally influenced by the travel distance to their favourite recreation area. The very shallow slope of the line indicates that distance is only very slightly important.

Figure 4.8 Recreation Destinations:
Frequency of Identification vs Distance
Moose Jaw



The graph appears to indicate that Moose Jaw residents are slightly influenced by distance in their choice of recreation area. The slope of the line is influenced, however, by the tremendous popularity of Buffalo Pound Park which is situated close to the city.

The average distance from origin for Moose Jaw recreation choices is 285 km, a very similar result to Regina.

36.5% (by frequency of identification) of the locations are even within a two hour drive. This indicates Saskatoon's unfortunate position of being poorly located with respect to good recreation shorelands (Environment Canada, 1978).

The foregoing travel patterns are to be expected for today's ease of personal transportation and ample leisure time allow a more discretionary choice of destination. These influences are effective to a certain degree only. Longer distances (e.g. out of province or country) still influence the amount of money and time spent on vacation travel. Time and distance are also critical for weekend and day trips, therefore, the above Saskatchewan travel patterns can apply only to general longer term vacation trips taken by many Saskatchewanians within the province.

9. Other Comments.

Many respondents have expressed their opinions of Lake Diefenbaker and its recreation development, but, as these were often made in a very general fashion (often not in response to a question), they are best discussed in summary form as follows:

- . Lake Diefenbaker cannot be compared to other areas in Canada because of its lack of trees and mountains. Yet, because it is a large lake with several pleasing features, it is enjoyable for day and weekend use. This general comment was expressed by respondents who had used the reservoir for recreational purposes;
- . The provincial parks are quiet and pleasant to visit but the lack of grocery facilities does not permit long term visits;

- . The beaches are located too far away from the campgrounds;
- . There are not enough trees present in the parks; and
- . The provincial government should undertake active advertising of the parks and recreation areas at Lake Diefenbaker and the other locations in the province. Suggestions included use of the media, particularly television or more brochures available on all recreation sites. Whether the questionnaire itself prompted these responses is unknown.

Other comments range from complaints of "no fish in the lake" to page-long praise of the reservoir. One individual enclosed a copy of a letter sent to the Provincial Minister of Tourism and Renewable Resources, indicating his delight with the reservoir. The individual had expressed concern that the lake was underpromoted and as he had just returned from a cross-Canada vacation trip, he believed the reservoir was as good as any facility in the country. However, he also stated that unfortunately, he did not know of the reservoir's existence until after his cross-Canada trip.

Negative comments most often include complaints of no trees at the reservoir. Based upon answers to Question Eleven, it is noted that complaints usually come from people who last visited the lake in the late 1969s or early 1970s. The more recent visitors usually have more positive comments, perhaps because reforested areas are now a visible part of much of the local recreational environment.

Finally, water level fluctuation problems common to other reservoirs, may not be particularly important to users of Lake Diefenbaker. Of the 553 responses to the questionnaire, only one person had a negative comment concerning water quality; this related to the "messy" shoreline at certain locations and times of the year*.

Recreational Visits To, and Use Of, Lake Diefenbaker

Provincial Park Visits

From mid-May to early September, the Department of Tourism and Renewable Resources record "vehicles entering" and number of "camping permits issued" for each provincial park in the province. Appendix C indicates the number of vehicles entering all provincial parks in the province. These data are further examined in Figure 4.9. This graph illustrates the "all-park" visitor traffic from 1970 to 1979, as well as the traffic to

*Informal interviews with several recreationists at Douglas and Danielson Parks also indicate that water level fluctuations are not detrimental to recreational activity. However, the waterfront staff on Douglas Park did complain that the beach "disappearance" throughout the summer bothered them. This may be the result of the staff being present on a continual basis, hence noticing the water level change much more than a periodic weekend visitor would. As A. Richards (1977) stated, from a recreational perspective, water level fluctuations are a minimal problem at Lake Diefenbaker, although at certain times the attractiveness of the area will be lessened.

Douglas, Danielson and Saskatchewan Landing Parks. As illustrated, numbers of visitors to Danielson and Saskatchewan Landing have followed the pattern of increasing use evident from the "all-park" graph. However, visits to Douglas Park have remained very constant throughout the same time period.

Further examination of DTRR statistics show peculiar patterns of use. Figure 4.10 illustrates the number of camping permits issued at each park. In this case, Douglas Park shows a disproportionately high number of camping permits issued. Over several years, this park has had either more, or approximately the same number of permits as issued at Danielson Park, yet, over this same time, many more visitors entered Danielson Park. A variety of reasons may be responsible for the patterns of use at these parks and include the following:

1. Existing access routes

Saskatchewan Landing is situated on a major highway only 50 kilometres from Swift Current. Danielson Park is situated at a highway intersection receiving traffic from both Saskatoon and east-west travelling motorists. Douglas Park, although situated on Highway 19, is not on a major travel route from any urban centre which may account for less vehicles entering the park.

2. Competition from other recreation areas - intervening opportunities.

As Douglas Park is nearest Regina and Moose Jaw, it is

Figure 4.9

Number of Visitors Entering Provincial Parks: 1970-1979

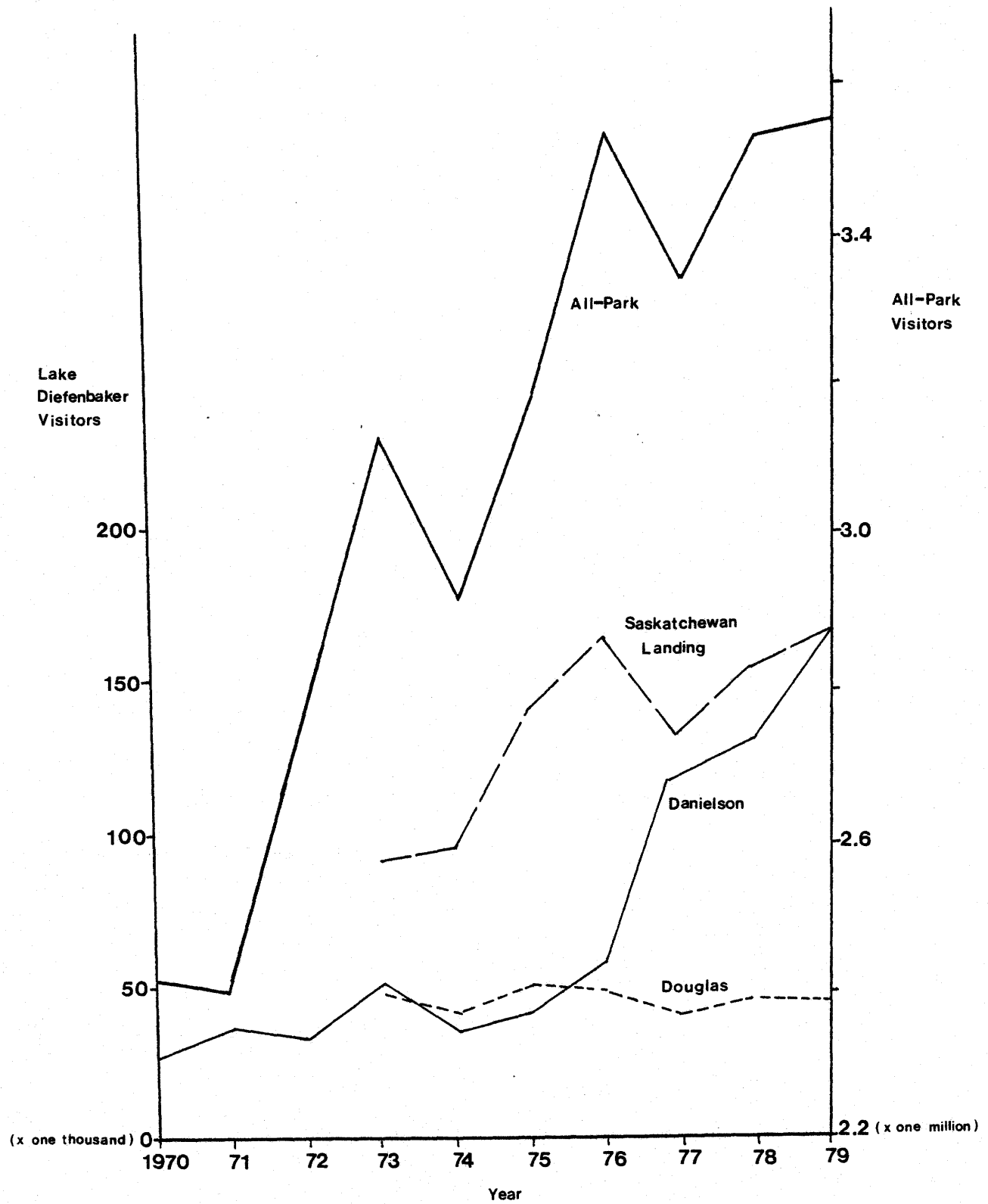
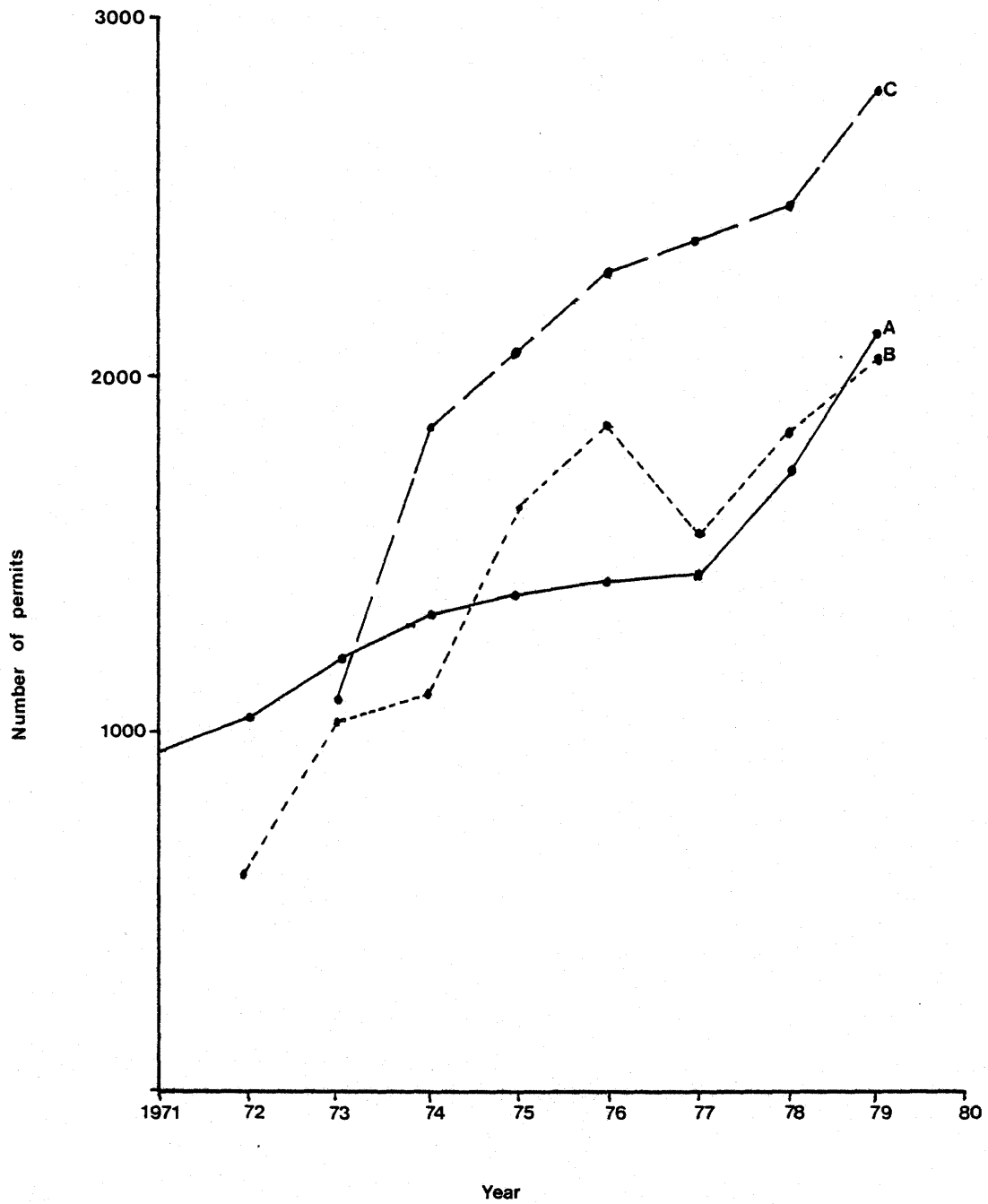


Figure 4.10

Number of Camping Permits Issued: 1971-1979



- A. Danielson Park
- B. Douglas Park
- C. Saskatchewan Landing Park

anticipated that recreationists from these centres would be the major users of the park (other than very local people). Also, the questionnaire results determined that residents of these two cities more frequently identified Douglas Park than any other recreation area on the reservoir (Table 4.4). However, near both cities are older, well established recreation areas such as Buffalo Pound, Last Mountain Lake and the Qu'Appelle Valley (see Map 2). All of these are closer to the potential user than Douglas Park, hence the presence of these intervening opportunities likely prevents potential visitors from travelling to Douglas Park.

Saskatchewan Landing and Danielson do not face such stiff competition. Saskatchewan Landing is the closest major park to Swift Current and Danielson is in a similar situation with respect to Saskatoon. Few recreational areas are in close proximity to Saskatoon, the only major ones being the small parks at Pike Lake and Blackstrap Lake.

3. Special Environment of Douglas Park.

As previously mentioned, Douglas Park has a high number of camping permits issued in relation to total visitors. This is perhaps related to the "pocket wilderness" character of the park, as described by Blood (1976). The aspen forest-sandhill complex of the park provides the most "natural" landscape of any park on the reservoir.

Blood determined that recreationists at Douglas Park were predominately of local origin and it therefore may be

assumed that these local users appreciate this environment and continue returning to the park more often than visitors to the other parks. As one park employee stated, campers at Douglas Park were considered as "regular customers", illustrating the relatively high proportion of returnees.

Characteristics of Use

Campground use extends from the Victoria Day weekend in May to the Labour Day weekend in September. Personal visits to all parks from June to September, 1979 led to conclusions substantiating those of Blood (1976).

During the week, campgrounds and beaches are often empty, whereas on warm weekends in July, campgrounds are often filled to capacity. Blood observed the same pattern of use at Douglas Park with use heavily concentrated on the weekends of June, July and August with a peak being reached in July. He also observed that the weekend peaks were predominantly a result of visitors originating from the local area.

To further evaluate recreational use of the reservoir, vehicles were recorded by their province of origin. This personal fieldwork was conducted during the summer of 1979 on both weekends and weekdays. Sampling was on an irregular basis from June 30 to September 3, with four samples taken at each provincial park. Danielson and Douglas Parks were sampled on June 30, July 15, August 11 and August 18. Saskatchewan Landing was visited on July 8, July 14, August 4 and September 1, 1979. Licence counts represent a total count taken from both campgrounds and beach parking lots and are presented in Table 4.10.

Table 4.10

Origins and Numbers of Vehicles:* recorded
from periodic sampling, July - September, 1979

| Origin | Douglas | Danielson | Saskatchewan Landing |
|------------------|---------|-----------|-------------------------|
| Saskatchewan | 199 | 228 | 160 |
| Alberta | 5 | 18 | 10 |
| Manitoba | 1 | 9 | 1 |
| British Columbia | 1 | 5 | 1 |
| Ontario | - | 6 | 1 |
| Quebec | - | 1 | - |
| United States | 1 | 3 | - |

* personal fieldwork

Data listed in Table 4.1 indicate that the parks are primarily used by residents of Saskatchewan with Danielson Park having a slightly higher use by out-of-province visitors.

An unpublished DTRR Recreation Area Use study for all provincial parks in Saskatchewan (1978), further indicates characteristics of use at Lake Diefenbaker. In this study, respondents were asked whether the park in which they were questioned was the main destination of a vacation trip; 70.1 percent replied YES. Douglas and Saskatchewan Landing generally conformed to this provincial average with responses of 79.9% and 66.5% respectively. Danielson Park visitors replied YES only 39.5% of the time to the same question.

Further results from this study show that visitors to Danielson Park come only once, whereas those visiting Douglas Park averaged twice a season and those at Saskatchewan Landing, 2.3 times per year. The "all-park" average was two times a year.

These results indicate that perhaps Danielson Park is used for a different purpose than other parks. This park is the site of the large earth filled Gardiner Dam and the attraction provided by this feature draws curious visitors to the park, but only on a short term basis. Indeed, the DTRR survey indicated that the most popular activity at Danielson was watching films at the visitor centre. These films illustrate the construction of the Gardiner Dam, one of the largest earth-filled dams in North America. The attraction provided by this structure is again apparent when examining the guest book at the Coteau Creek hydro-electric station located at the base of the dam. Visitors from all over North America come to this site each year.

Cottage Use at the Reservoir

Yearly growth at Lake Diefenbaker's three operating cottage subdivisions is represented in Table 4.11

Table 4.11

Yearly Growth of the Subdivisions

| Year | Mistusinne | | Goodwin | | Coteau Beach | |
|-------|------------|------|---------|------|--------------|------|
| | L.L.* | L.A. | L.L. | L.A. | L.L. | L.A. |
| 1970 | - | 238 | - | 168 | 10 | 105 |
| 1971 | 4 | 234 | 8 | 160 | 10 | 95 |
| 1972 | 1 | 233 | 2 | 158 | 6 | 89 |
| 1973 | 1 | 232 | 1 | 157 | 4 | 85 |
| 1974 | 1 | 231 | - | 157 | 10 | 75 |
| 1975 | 5 | 226 | - | 157 | 2 | 73 |
| 1976 | 20 | 206 | 2 | 155 | 3 | 70 |
| 1977 | 36 | 170 | 2 | 153 | 6 | 64 |
| 1978 | 38 | 132 | 6 | 147 | 14 | 50 |
| 1979 | 62 | 70 | 23 | 124 | 8 | 42 |
| Total | 168 | | 44 | | 73 | |

* L.L. lots leased per year

L.A. total lots available per year

This table indicates that number of lots leased each year as well as the number of lots remaining. The number of cottages present at each subdivision does not necessarily represent the number of leased lots for a lot leasee has two years to erect a structure on a lot and, as such a large number of lots have been only recently leased, cottage construction has lagged behind. In 1979 for example, 75 cottages were present at Mistusinne, 27 at Goodwin and 71 at Coteau Beach, although as indicated in the table, the number of leased lots was much greater at Mistusinne and Goodwin.

Leasees are predominantly of Saskatchewan origin and are urban dwellers. Ownership data supplied by the Department of Tourism and Renewable Resources is available for the two

provincial subdivisions and show that at Goodwin, 35 of the 44 lots are leased by Swift Current residents. At Mistusinne, 54 lots are leased by Saskatoon residents, 47 from Regina and 22 by Moose Jaw residents. The remaining lots at both locations are primarily leased by people residing near the lake or within southern Saskatchewan. Residents of the provinces of Ontario, Manitoba, Alberta and British Columbia also lease lots. Several of these out-of-province leasees are related to Saskatchewan residents who have lots within the same subdivision.

Growth of the subdivisions has been rapid since 1976 (see Table 4.11). This increasing interest is to be expected, for with time, the subdivision becomes a more visible and well established unit. As one cottage owner stated, the recent growth has created a more pleasant and economically safe location in which to own a cottage. Indeed, a point has been reached where these subdivisions have become active communities during the summer months. Coteau Beach, for example, has many popular events held throughout the summer, including a golf tournament and weekly bingo games and the Association has recently constructed a tennis court. Residents of the Mistusinne subdivision are also becoming more community oriented as they are now in the process of incorporation as a resort village.

Future growth of Lake Diefenbaker's subdivisions is ensured by the special characteristics associated with both the subdivisions and the lake. The subdivisions are planned

developments with linear development prohibited; all cottagers have equal access to the lake. Other cottagers in southern Saskatchewan have been plagued with poor beach access, overcrowding and poor water quality. These problems are commonplace in the majority of lake developments in the south (e.g. Qu'Appelle Valley lakes). At Lake Diefenbaker, however, the water quality, the excellent newly formed beaches and the size of the lake are perhaps the main recreational attractions of the reservoir (A. Richards 1977). The excellent water quality, combined with several suitable sites for cottage development, is also expected to attract cottagers away from the overcrowded and polluted lakes common to southern Saskatchewan (Rump and Harper 1980).

Conclusion

This chapter examines the public response to the Lake Diefenbaker recreation area. With the use of a questionnaire, the general public was sampled in an effort to determine their knowledge of the reservoir and their attitudes toward the recreational facilities. Results from this study indicate that the residents of the urban centres surrounding the lake are not adequately informed with respect to the reservoir's recreational attributes. Attitudes toward the area are extremely variable with the regular users being relatively pleased with the lake, while early visitors were disappointed.

The latter part of this chapter has examined use at the provincial parks and cottage subdivisions primarily from an historical perspective. This analysis has shown that in general, use of these facilities has increased at relatively the same rate as other locations within the province. Cottage subdivision use however, has been subject to a rapid increase which has been explained by the poor conditions present elsewhere in southern Saskatchewan.

CHAPTER V

SUMMARY AND CONCLUSIONSSummary

The development of the South Saskatchewan River and the creation of the Lake Diefenbaker Reservoir has provided a large body of water suitable for various recreational uses. The significance of this is two-fold. First, the region previously lacked any water body which could support such a diverse and large amount of recreational use. Second, the concept of large, multi-purpose reservoirs has been common for many years throughout much of North America, although for Saskatchewan it is a very new idea. Recreationists in this province have traditionally used the few natural lakes in the south such as those in the Qu'Appelle Valley or they have travelled north to the many lakes of the boreal forest.

During Lake Diefenbaker's early planning stages, recreational use of established reservoirs in the United States was growing at a tremendous rate and recreation planners and government agencies were predicting a continued growth trend. The recreational use of reservoirs in the United States undoubtedly influenced Saskatchewan planners of the 1950's and 1960s for consultants such as W. M. Baker promised an explosive growth in recreational use of the Lake Diefenbaker reservoir. Baker, and others, believed an unsatisfied demand existed which would be satisfied with the river development.

Although recreational use of the reservoir has steadily

increased with time, there appears to be at least a ten year discrepancy with respect to Baker's early forecasts and the actual visits to the reservoir.

Several reasons for this apparently slow growth in use of the reservoir were developed in Chapter II. These include:

- . effects of competition from other parks;
- . the lack of scenic diversity in the region of the reservoir;
- . poor access to the recreation sites; and
- . a deficient level of public knowledge with regard to the recreational attributes of the reservoir.

In addition, an important point to consider:

- . the misleading, over-optimistic statements and projections made by planners during the reservoir's early development.

This study does not prove which reasons are responsible for the level of recreational activity at Lake Diefenbaker. It does, however, indicate that certain ones are more significant than others. With the use of a questionnaire distributed to the urban population surrounding the lake, and through an analysis of published user statistics, certain conclusions may be drawn.

Conclusions

1. Deficient Knowledge

The major reason for recreational use not meeting early expectations is the deficient level of public knowledge and awareness of the reservoir's recreational attributes. This conclusion is based upon data from the questionnaire results (particularly Questions One and Two) which strongly suggest that while the majority of the urban population surrounding Lake Diefenbaker know of the reservoir, many know little or nothing of its recreation facilities. Also, the present level

of knowledge is very local or regional in nature, with respondents only knowing of those recreation sites (on the reservoir) which are closest to home. These same recreationists however, know and use a wide variety of popular, well known recreation sites throughout the province (see Table 4.9 and Figures 4.1 - 4.4).

This conclusion is supported by Mercer's (1974 p. 60) hypotheses and beliefs on the spatial behaviour of recreationists. These are:

- a. Individuals located closest to a reward (recreational opportunity) are most likely to choose that opportunity.
- b. Individuals farther away from recreational attractions are most likely to exhibit multiple response patterns.
- c. Individuals some distance from the recreational opportunities may take longer to form a stereotyped response because of the need to cultivate a larger perceptual horizon.

Although these hypotheses have not been tested, Mercer believes that the closer the recreation site the more the individual will use it, while individuals farther away know and use several sites, with less specific knowledge about any particular one.

Mercer also states that the information available and used by a recreationist is critical to the resulting behaviour; although "very little research has been carried out on the important question of the information recreationists have at

their disposal concerning particular recreation sites, the accuracy of that information or the way they acquired it."

Mercer's hypotheses and discussion direct attention to two variables important to the amount of recreational use a site receives; the user's knowledge of the site and the user's distance from that site. As Lake Diefenbaker is close to four major urban centres, the question arises: Is distance from the recreation site as important as the level of knowledge of the site?

Continuing, Mercer (p. 56) sees the decision making process of a recreationist involving six steps:

1. problem recognition;
2. goal specification;
3. procedure selection;
4. information gathering;
5. evaluation and choice; and
6. implementation.

This process takes place within the context of a particular physical, social and economic environment which constrains the individual in various ways.

Assuming the individual's goal is to maximize his enjoyment and that he knows the type of activities in which he wishes to participate, then, the completion of the process depends upon the amount and quality of information available so that a final choice might be made. The availability of the information and the existing level of knowledge of the participant are extremely important components of the decision-making process. Mercer illustrates this by citing research completed by P.E. Murphy in

a study of visitors to Victoria, British Columbia. In the study, control groups were provided with different levels of information relating to particular sites and it was demonstrated that those tourists presented with a large amount of accurate information about a particular location showed a greater tendency to visit that location. Mercer makes the conclusion that:

. . . since the recreation useage made of an area is in large part a function of the information the visitor possesses about the region, this information can be at least partially controlled by recreation management agencies in many different ways to influence choice of recreational area. (p. 64)

Moreover, psychologically designed advertising campaigns have become an important part of international travel promotion in many countries. For example, while visits from American residents were decreasing in all other provinces in Canada in 1976, British Columbia implemented a promotional and awareness program which resulted in a small increase in use by American visitors (Bailie 1980). Bailie concludes that the selling of the holiday experience itself and not the destination is the more important factor in creating more participation. Although Bailie is dealing on an international scale, his ideas, and Mercer's, have significance in understanding the Lake Diefenbaker case.

2. Overoptimistic Planners

A second major reason explaining the apparent problem of minimal use at the reservoir concerns the misleading, over-optimistic statements made by early planners.

As mentioned in Chapter I, Baker had forecast that 3,000 cottages would be on the shoreland by 1980. In reality, less than 10% of this forecast has been achieved although cottage use does appear to be rapidly expanding.

Perhaps early evaluations and projects were based on examples where local populations were greater or competitive effects less pronounced. Moreover, the desire to have a development of this scale in Saskatchewan likely influenced the painting of a bright future with little fact to support it.

The Saskatchewan example, however, does not compare with other areas. This province has a very small population, particularly when compared to the number of lakes within the entire province. Therefore, use of Lake Diefenbaker, or any similar reservoir, would naturally be small unless the area offered something unique to the anticipated user.

Another factor possibly overlooked by the planners is the length of time a reservoir needs to recover from the construction activity and modification of the landscape; this may require several years before it is acceptable to the recreationist who is expected to use the reservoir. The questionnaire results indicate that the regular users are beginning to accept the reservoir. Only those visitors of ten years ago expressed very negative comments.

3. Competition

Several parks exist in Saskatchewan which are older and better established than those at Lake Diefenbaker. These

other parks, in addition to golf courses and larger campgrounds, usually have shower facilities and small stores. These two features, although seemingly minor in significance, are lacking at the reservoir and do limit the users' length of stay at Lake Diefenbaker. Small factors such as this may often weigh in favour of the competition during a decision-making process regarding recreation destination. As evident in the questionnaire responses, Saskatchewanians travel throughout the province in search of recreation facilities. Many areas compete with Lake Diefenbaker, and for the reservoir to be competitive in return it must supply the recreationist with certain basic needs. With these needs supplied, use will likely increase for as Mathias (1967) determined, people will not go past a park to get to another that has similar facilities. For the cottager, the reservoir does supply many of the needs and desires such as clean water and uncrowded subdivisions, hence the rapid growth in cottage development.

4. Scenic Diversity

Finally, as anticipated, the scenic diversity of Lake Diefenbaker is not sufficient to attract long term visitors. It is adequate, however, in serving the needs of many local people. Responses to the questionnaire, informal interviews and other data sources have shown that the use of Lake Diefenbaker is dominated by local residents, many who are regular customers. The landscape and the reservoir provide

an area where many people may enjoy a day or weekend outing in the summer months.

5. Access

Access as a reason of low use does not appear to be of significance to Lake Diefenbaker. There are certain disadvantages, particularly for Douglas Park; however, these would not explain the total amount of use at the lake.

In summary, the mere fact of having a large body of water situated in a semi-arid landscape does not guarantee an immediate and large amount of recreation use. Several factors are involved which determine the lake's attractiveness, its acceptance and its use by the public. These include:

- . water quality;
- . access to the water body for boating, fishing and swimming;
- . scenic attractiveness;
- . user attraction facilities including golf courses, rental cabins, stores and others;
- . promotional and awareness programs and the time required for their effectiveness; and
- . the necessary time required for the local environment to rebound from construction activity and to adapt to the reservoir operation.

Further Research

This study has only addressed a few of the factors influencing recreational use at Lake Diefenbaker. Further

studies might examine several more concerns, including:

1. How important is the scenic attractiveness of Lake Diefenbaker, and other southern prairie recreation areas, when a family is deciding on a day or weekend of boating and camping? Can scenic attractiveness be conclusively determined?
2. Would new highway linkages in southern Saskatchewan - taking advantage of the recreation sites of the Qu'Appelle Valley and Lake Diefenbaker - alter present patterns of recreational activity?
3. Increasing fuel and travel costs may begin to restrict vacation trips to more distant sites. Will these costs be reflected in a significantly increased use of Lake Diefenbaker by Saskatchewan's urban population?

Recommendations

This study has identified several factors influencing Lake Diefenbaker's recreational use; two important ones being the need for an increased level of public awareness, and the need for further recreation development. With the proper steps taken, future use of the reservoir as a major focus of recreational activity will be ensured.

At present, advertising of the provincial parks and recreation sites in Saskatchewan is meagre. In 1979, park information was essentially restricted to a brochure which briefly described all recreation facilities, hotels, museums, historic sites and similar developments in the province. The tremendous number of tourist facilities presented in this manner allowed very little space for any one site. In 1980,

the Department of Tourism and Renewable Resources supplemented this general tourist guide with the production of one page brochures describing individual parks and recreation sites in the province.

This study recommends that the next step be an intensification of the advertising program, making greater use of television and the media for the promotion of the province's various recreation areas. This campaign should not only be produced for the out-of-province public but for Saskatchewan residents as well.

Finally, for Lake Diefenbaker (or any new recreation area) to be competitive, certain amenities must be provided. In this case, these might include rental accommodations, stores, showers and golf courses. Developments such as these, in conjunction with an intensified promotional campaign, will undoubtedly benefit Lake Diefenbaker in the years to come. As fuel and travel costs rise, the Lake Diefenbaker recreation area will become very popular if it is further developed and promoted as an intermediate-use area comparable to other such areas in southern Saskatchewan.

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APPENDIX A

SASKATCHEWAN PROVINCIAL PARKS:
RECREATION FACILITIES

APPENDIX A

SASKATCHEWAN PROVINCIAL PARKS:
RECREATION FACILITIES

| Provincial Parks | Trails | | | Nature Course | Recreation | | Bouyed Swimming Area | Swim- ming Pool | Tennis Courts | Golf Course | | Recreation Leaders | | |
|-------------------------|--------|---------|-----------------|------------------|------------|---------|----------------------------|-----------------------|------------------|-------------|-------------|--------------------|------------------|---------------|
| | Nature | Bicycle | Eques- trian | | Hall | Shelter | | | | 9- Hole | 18- Hole | Aqua- tic | Inter- preive | Pro- grams |
| Danielson | | | | | | | ● | | | | | ● | | |
| Douglas | ● | | | ● | | | ● | | | | | ● | ● | |
| Saskatchewan Landing | ● | | | | | | ● | | | | | ● | | |
| | | | | | | | | | | | | | | |
| Battlefords | ● | | | | ● | | ● | | | | ● | ● | | ● |
| Buffalo Pound | ● | | ● | | | ● | ● | ● | ● | | | ● | | |
| Cypress Hills | ● | | ● | ● | ● | | ● | ● | ● | ● | | ● | ● | ● |
| Duck Mountain | ● | ● | ● | ● | ● | | ● | | ● | | ● | ● | ● | ● |
| Echo Valley | ● | | | ● | | ● | ● | | | ● | | ● | ● | ● |
| Goodspirit | ● | ● | | | ● | | ● | | ● | | | ● | | ● |
| Greenwater | ● | | | ● | ● | | ● | | ● | ● | | ● | ● | |
| Katepwa | | | | | | ● | ● | | | | | ● | | |
| Lac La Ronge | ● | | | | | | ● | | | ● | | | | |
| Meadow Lake | ● | | | ● | | ● | ● | | | | | ● | ● | |
| Moose Mountain | ● | ● | ● | ● | ● | | ● | | ● | | ● | ● | ● | ● |
| Nipawin | ● | ● | ● | | | | ● | | | | | | | |
| Pike Lake | ● | | | ● | ● | | ● | | ● | ● | | ● | ● | |
| Rowan's Ravine | | | | | ● | | ● | | | | | ● | | ● |

Source: Saskatchewan Tourism and Renewable Resources

APPENDIX B

THE QUESTIONNAIRE



UNIVERSITY OF SASKATCHEWAN

DEPARTMENT OF GEOGRAPHY

SASKATOON, CANADA
S7N 0W0

Dear Sir or Madam:

I am a graduate student at the University of Saskatchewan. As part of my research on the recreational use of Lake Diefenbaker, I have prepared the enclosed questionnaire. The information collected will be used to determine people's awareness and opinions of the recreational facilities at this reservoir.

Your co-operation in completing the questionnaire will be greatly appreciated. Any additional comments may be written on the back of the sheet.

Please return the completed questionnaire as soon as possible in the enclosed self-addressed, postage paid envelope.

Thank you very much for your patience and co-operation.

Yours truly,

Peter Goode

1. Did you know that the Gardiner Dam on the South Saskatchewan River has created a reservoir 225 km (140 mi) long called Lake Diefenbaker?
Yes _____ No _____.
 2. Do you know what recreational areas and facilities are located around this Lake?
Yes _____ No _____ if YES, please list the ones you know

 3. How many times have you used these facilities for your vacation, weekend or day trips?
Never____; 1-3____; 4-6____; over six times____?
 4. If you have visited Lake Diefenbaker, how long did the one way drive take? _____
 5. What is your average length of stay at these recreational sites?
a few hours____; 1-2 days____; several days____?
 6. In what activities do you enjoy participating?
swimming____; boating____; fishing____; camping____;
nature study____; other (please specify) _____

 7. What other locations do you visit or have visited for holidays and recreation in the past two years? Please list places.
 - a) within Saskatchewan _____
 - b) within Canada _____
 - c) within the United States _____
 - d) Overseas _____
 8. How often do you visit these other areas per year?
Once____? 2-4____? 5-7____? more than Seven____?
 - 9.a) In column 1 please list your usual vacation areas.
b) In the other columns, indicate with a (x) how you compare the recreation/vacation attraction of Lake Diefenbaker with the areas named in column 1.
- | column 1 | poor | good | very good | excellent |
|----------|------|------|-----------|-----------|
| a. _____ | | | | |
| b. _____ | | | | |
| c. _____ | | | | |
| d. _____ | | | | |
| e. _____ | | | | |
| f. _____ | | | | |
10. Do you think improvements are needed at Lake Diefenbaker?
Yes _____ No _____ If YES, what would you like to see?

 11. When was the last time you visited Lake Diefenbaker?

Thank you for your help

APPENDIX C

VISITORS ENTERING PROVINCIAL PARKS:
1970-1979

*Visitors Entering Provincial Parks: 1970-1979

| Park | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Danielson | 27,044 | 37,012 | 34,788 | 51,388 | 36,112 | 41,712 | 58,268 | 117,700 | 129,608 | 161,944 |
| Douglas | - | - | - | 48,492 | 43,632 | 51,772 | 49,372 | 43,472 | 48,016 | 49,600 |
| Saskatchewan Landing | - | - | - | 91,320 | 97,320 | 143,588 | 164,972 | 131,196 | 154,352 | 166,316 |
| The Battlefords | 136,680 | 149,376 | 160,400 | 178,296 | 179,708 | 181,524 | 220,648 | 238,000 | 255,772 | 279,560 |
| Buffalo Pound | 98,468 | 109,504 | 158,076 | 202,796 | 170,840 | 154,340 | 181,000 | 164,096 | 192,664 | 166,024 |
| Cypress Hills | 161,648 | 169,428 | 225,588 | 242,660 | 228,584 | 240,552 | 241,500 | 255,148 | 222,256 | 226,552 |
| Duck Mountain | 325,828 | 332,756 | 327,700 | 309,296 | 347,200 | 377,044 | 393,388 | 368,860 | 384,300 | 463,716 |
| Echo Valley | 351,160 | 374,532 | 464,488 | 427,440 | 310,552 | 430,204 | 369,356 | 318,940 | 333,472 | 408,668 |
| Good Spirit Lake | 145,456 | 82,484 | 71,840 | 79,832 | 91,220 | 95,964 | 117,664 | 103,900 | 141,264 | 188,588 |
| Katepwa Point | 143,296 | 146,660 | 143,692 | 142,400 | 157,852 | 175,368 | 193,420 | 154,636 | 158,192 | 163,440 |
| Meadow Lake | 213,940 | 226,648 | 306,644 | 387,844 | 331,116 | 286,968 | 361,496 | 389,384 | 356,344 | 300,548 |
| Moose Mountain | 503,232 | 460,212 | 525,532 | 529,448 | 586,900 | 590,232 | 674,988 | 629,560 | 639,116 | 583,724 |
| Nipawin | 35,612 | 29,840 | 43,128 | 53,764 | 38,892 | 40,184 | 70,928 | 22,744 | 63,920 | 48,092 |
| Pike Lake | 200,404 | 194,744 | 180,996 | 270,320 | 187,372 | 227,224 | 236,592 | 184,352 | 226,024 | 164,628 |
| Rowan's Ravine | 61,288 | 85,600 | 118,956 | 124,108 | 97,280 | 119,256 | 137,424 | 161,396 | 172,196 | 111,676 |

Source: Department of Tourism and Renewable Resources 1979 Visitation Report

*Number of visitors is calculated by multiplying number of vehicles by four.