Conflicts Between Recreationists at Elk/Beaver Lake, Saanich, B.C.: A Study in Attitudes and Awareness To Lake Use and Management.

by

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B.A., University of Victoria, 1993

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

MASTER OF ARTS

in the Department of Geography

We accept this thesis as conforming to the required standard

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Abstract

This study examined the issue of conflicts between recreationists on British Columbia's urban lakes. The focus of the study was Elk/Beaver Lake, Saanich, B.C., which provided an appropriate context to examine the management of a range of recreational activities in an intensively used, multiple use area.

Bryan's (1977) concept of 'recreation specialization' provided a theoretical framework for examining user groups' attitudes and awareness towards lake use and management and a foundation for determining management strategies for minimizing lake use conflicts. He hypothesized that recreationists can be arranged along a continuum of recreation behaviour that extends from the generalist to the specialist and is reflected in the skills, equipment and activity setting required for the activity. More specialized users are more likely to experience conflict with other user groups who interfere with their recreational goals.

Observations of behaviour were systematically recorded to acquire a spatial sense of problem areas. A questionnaire determined user groups' attitudes and awareness towards lake use and management. Interviews with managers determined their understanding and attitudes to lake use and management alternatives. Results were analyzed using non-parametric statistics to determine strength in direction of response and degree of association between groups.

A continuum of recreation specialization of the user groups at Elk/Beaver Lake was developed. Management alternatives suggested by the research were discussed, and recommendations for minimizing recreation conflicts and suggestions for further research were offered.

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Acknowledgments

Throughout the process of writing this thesis, I have met many people who have been instrumental in assisting me along the way. First, I would like to acknowledge my graduate supervisor, Dr. Colin Wood. His willingness to listen to my ideas, provide thoughtful suggestions and support my extracurricular activities made the past three years the most enjoyable portion of my academic life. I will miss discussing the world in general in his office. Second, I would like to thank my other committee members, Drs. Dave Duffus and Norman Ruff for their critical suggestions and support for such a fun thesis topic. I also would like to thank Dave Duffus for believing in my ability to undertake graduate research, and for recommending me to Colin Wood. Third, I would like to acknowledge the Corporate Policy Branch of the Ministry of Environment, Lands and Parks for granting me a BC Environmental Research Scholarship, and for providing me with the opportunity to engage in fantastic work experience. Fourth, thanks go to the managers and recreationists who offered their thoughtful ideas about lake management; in this regard, I especially would like to thank Jeff Ward at CRD Parks for providing background materials and offering focused suggestions, especially in the formative stages of the study. Fifth, I would like to

thank Dr. Phil Dearden, for allowing me to use his unpublished survey data in 'whatever way I saw fit'. Finally, I acknowledge Brian Dunkley, whose unfailing belief in my abilities is the very reason I have completed this project. His humor, critical feedback and encouragement were present every day of this undertaking, and for that, and many other reasons, I can not thank him enough.

Chapter 1

Introduction and Framework of the Study

1.0 Introduction

Throughout the province of British Columbia, freshwater lakes provide the population with a number of environmental, recreational, social, economic and other benefits. While managing the ecological impacts of activities on the aquatic environment frequently proves difficult for resource managers, decisions regarding the human component of lake use and management are at times even more difficult. Several factors make the management of lakes, especially those that provide multiple recreation opportunities and are located near urban areas, equivocal, time consuming and complex. Briefly, these factors are the:

- increasing population (and recreational) pressures near urban areas,
- advent of different types of recreational activities,
- disparate attitudes and awareness towards lake management and use,
- institutional arrangements governing recreation on lakes in the province, and
- management arrangements that are outdated for current needs.

This study examines the non-consumptive use of water resources and the specific issue of conflicts between recreationists on British Columbia's urban lakes. It focuses on the attitudes and awareness of user groups who

recreate on freshwater lakes and resource managers who oversee recreation activities on lakes. A theoretical framework from the recreation conflict literature provides insight into user groups' and managers' attitudes and awareness and establishes the foundation on which to make recommendations for minimizing recreation conflicts and managing lake use in urban areas.

This chapter will introduce the reader to the topic area by first describing the primary management regime for managing urban lakes in BC. Second, the particular recreation conflict situation that is the focus of this thesis will be outlined. Third, the theoretical framework for studying recreation behaviour will be described. Fourth, the objectives and structure of the research design will be provided. Finally, the structure of the thesis will be presented.

1.1 Water-based Recreation in the Federal and Provincial Context

Canadian regulations and policies relating to water and its use are piecemeal, ambiguous and complicated, especially in regards to non-consumptive water uses such as recreation (Pearse *et al.*, 1985). Because of the division of jurisdictional powers between the federal and provincial

governments in the *Constitution Act*, 1867, federal jurisdiction over navigable waters (which includes small streams and relates to all boating craft, including recreational craft) is paramount. In reality, this jurisdiction over navigable waters has resulted in various agencies comprising different levels of government being responsible for managing different aspects of lakes. These include the Canadian Coast Guard, the Royal Canadian Mounted Police (or the local law enforcement agency), the Provincial Ministry of Environment, Lands and Parks, Provincial Ministry of Forests, Regional Districts, Municipalities and others. This constitutional division of responsibilities, means there is no one agency which is responsible for coordinating activities (for recreation) on lakes[1]; consequently, one of the more common approaches to lake use issues has been *ad hoc* planning and reactive management.

The roles and responsibilities of agencies responsible for lake management are complex and difficult to define. In an attempt to clarify the roles and responsibilities of the various levels of government, relevant sections of the Canadian *Constitution Act* relating lake management are discussed.

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[1] A related similar problem is seen on navigable rivers, where the formulation of special task forces (e.g., Fraser River Action Plan) have been struck in order to deal with issues arising from multiple use.

While the provinces have wide powers over water they are nevertheless restricted in terms of federal jurisdiction over specific water related activities. The provincial ownership of water rights is assigned under s. 109 of the *Constitution Act*, which provides that:

> ...[a]ll Lands, Mines, Minerals, and Royalties belonging to the several Provinces...at the Union...shall belong to the several Provinces... in which the same are situate.

Although water is not mentioned explicitly in the Constitution, water was traditionally thought of as a property right; therefore, Crown ownership of public lands vests ownership of water rights to the owner of the public lands. It is on the basis of this property right that the provinces have a large role in water management.

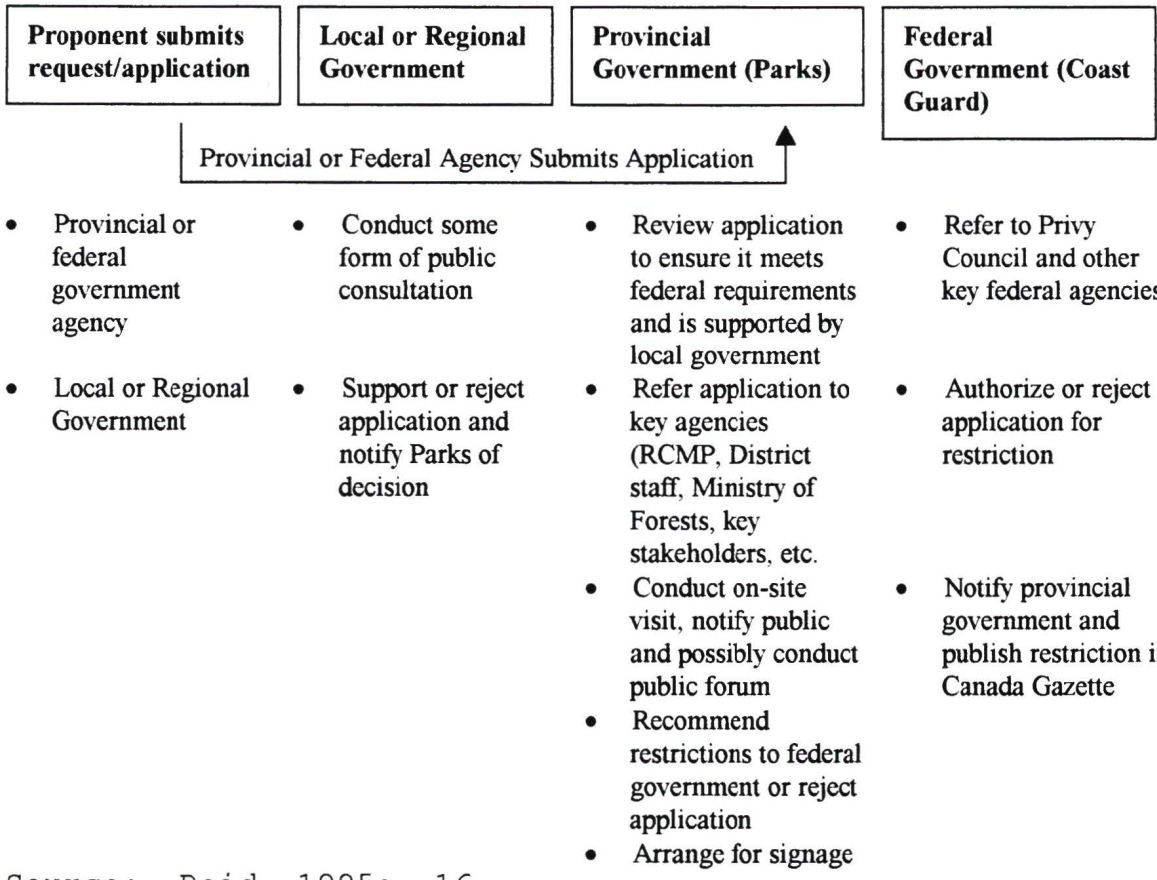
Federal jurisdiction over navigation and shipping (s. 91 (10)) has far reaching implications in terms of water-based recreation. This section effectively endows federal jurisdiction over all navigable waters, and includes laws regarding rules of navigation. The definition of navigability is broad, and all Canadian waterways are subject to the "uniform legal regime" of Canadian maritime law (Hogg, 1992: 22.11(a)). The regime applies to all vessels, including pleasure boats. Thus, boating

regulations, whether on small municipal lakes, large rivers or city harbours are the responsibility of the federal government.

In 1972 the federal government created the Boating Restriction Regulations under the *Canada Shipping Act*. These regulations attempt to control the operation of recreational powerboats under 15 tons, with the objectives of "…enhancing public safety and reducing potential conflicts between groups using a waterbody" (Reid, 1995: 2). In British Columbia, the Ministry of Environment, Lands and Parks assists the federal government (Canada Coast Guard) with administering the regulations and processing requests for amendments. Enforcement of the regulations is assigned to the Royal Canadian Mounted Police (RCMP) or local police force (Figure 1).

Because of the jurisdictional arrangements, there is no government agency that is responsible for coordinating recreational activities or for managing recreation use on fresh water lakes. For recreationists, determining which agency to approach for information about the various aspects of lake management can be daunting; many managers who are

Figure 1 Overview of Boating Restriction Application Process



Source: Reid, 1995: 16.

responsible for lake management are unsure themselves as to the exact parameters of lake jurisdiction. Information regarding lake management arrangements is often difficult to obtain and interpret. Additionally, budgetary and political constraints affect the ability of agencies to manage their portion of the lake effectively and efficiently. Users often become frustrated with the multiple levels of government and ambiguous lake use planning and conflict

management strategies. The lack of a strong lead agency does not lend itself to clearly defined and timely management schemes; as such, lake management strategies tend to be reactive rather than proactive; annoyances between users tend to escalate into conflicts, and interest groups tend to compete for the use of finite lake resources.

1.2 The Case Study

The focus of the case study is Elk/Beaver Lake (hereafter called 'Elk Lake'), Saanich, BC (Figure 2). One of the most intensively used lakes on Vancouver Island, it is also the most heavily used lake in the Capital Regional District (CRD) with over 750, 000 annual visitors engaging in recreational pursuits such as water-skiing, fishing, canoeing, recreational and competitive rowing, beach use, swimming and trail use. (CRD Parks, 1995).

Various federal, provincial, regional and local governments are responsible for managing different activities on the lake (Table 1). Although the CRD has the authority to operate Elk/Beaver Lake Park, federal and provincial jurisdiction over certain matters are paramount. Under the present system, the CRD has jurisdiction over the park land surrounding the lake, but has none for the lake itself.

Figure 2 Elk/Beaver Lake Park, Saanich, BC.

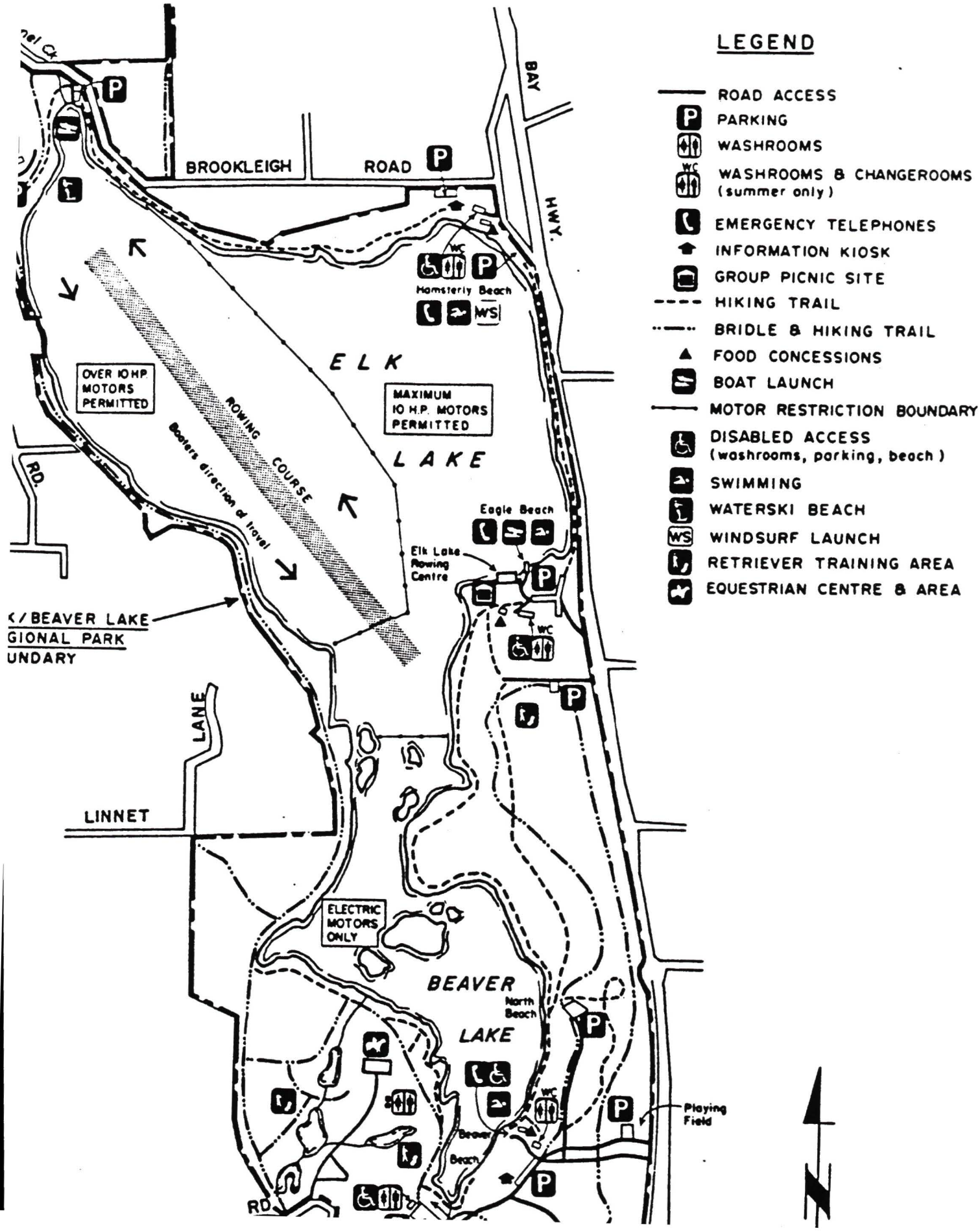


Table 1: Jurisdictional Responsibilities for Elk Lake	
Activity	**Agency Responsible**
Designation of boating restrictions, safety issues	Canadian Coast Guard
Enforcement of boating restrictions, safety issues	RCMP or local police force (Saanich Police)
Fishing	Ministry of Environment, Lands and Parks
Activities effecting the environment such as migratory birds and water quality issues	Environment Canada; Ministry of Environment, Lands and Parks
Land use zoning, nuisance and noise issues	Municipalities, local governments (Saanich)
Activities in regional park surrounding the lake	CRD Parks
Coordination of recreation activities on water surface	*None*

Elk Lake was chosen for its history of conflicts between users and for the diverse range of user skill levels and activities that occur. Frequent coverage of conflicts between users at this lake has appeared in the local media for the past several years. Furthermore, the presence of Canada's national rowing team provides a level of athletic experience that may not be present at other BC lakes. National coverage of rowing activities on the lake and the international stature of the Canadian rowing team provide the lake and some of its users with a notoriety that might not otherwise occur.

Awareness of conflicts at this lake appear to follow the pattern hypothesized by Downs' (1972) 'issue attention cycle', whereby discovery and awareness of conflict situations eventually lead to a gradual decline of interest,

until another conflict situation brings the issue to the forefront of public attention. During the past decade, reports of conflicts between groups such as recreational and professional rowers, fly fishers, fishers that cast from shore, water skiers, personal water-craft, swimmers, beach users and trail users have been reported frequently. Currently, lake use conflicts appear to be less severe than in previous years; however, the presence of the national rowing team, accidents involving powered and non powered motor boaters and the increasing popularity of personal watercraft on the lake may indeed bring lake use issues to the forefront of the media and public's attention again. Through attempting to understand the basis of the conflicts at Elk Lake, strategies specifically targeted for preventing and/or minimizing problems and conflicts will be recommended. Recommendations will include strategies for minimizing conflicts on Elk Lake, in addition to 'generic' strategies that may be applied to other multiple use lakes in BC.

1.3 Theoretical Framework

The focus of this study, recreation conflicts, is nested within an overall framework for managing natural resources. In multiple use areas, especially those involving common property resources, managing use often becomes a matter of

reconciling an increasing demand on the resource with a diminishing supply. However, although the resource management literature provides insights into conflicts involving multiple use resources where 'instream' or non-consumptive uses such as recreation activities on lakes are concerned, it was necessary to develop a theoretical framework for studying conflicts from several social conflict and recreation conflict research sources. In this way, although the general overall framework of the study adheres to many of the principles inherent in natural resources management, the theoretical framework enables a more detailed focus on the particular issues outlined in the social and recreational conflict literature.

On urban lakes, the space required to attain one's recreation goal is at a premium; often, a number of users engaging in very different recreational pursuits must attempt to recreate in close proximity to each other. It is generally accepted in the recreation literature that people recreate in order to attain specific goals or outcomes from their recreational activity (Gramann and Burdge, 1981). Jacob and Schreyer defined recreation conflicts as the interference of a recreational 'goal' that is attributed to another person's behaviour (1980). Lakes where diverse recreational opportunities are offered have experienced

conflicts between users engaging in activities that interfere with the goal attainment of other recreationists.

Bryan's (1977) concept of 'recreation specialization' provides an appropriate theoretical framework for examining the array of user groups' attitudes and awareness towards lake use and management and a foundation for determining appropriate management strategies for minimizing lake use conflicts. He hypothesized that recreationists can be arranged along a continuum of recreation behaviour that extends from the generalist (novice) to the specialist (particular) and is reflected in the skills, equipment and activity setting required for the activity. The more specialist a recreationist is, the more likely they are to experience conflict with other user groups who interfere with their recreational goals. By using the concept of recreation specialization as a framework to examine the problems of recreational conflicts and the levels or range of recreation specialization at Elk Lake, it is hoped that divergent and convergent results may enable a greater understanding of key management issues and the identification of appropriate management alternatives.

It should follow that lake use plans and management strategies attempting to minimize potential

incompatibilities and conflicts between lake users must consider the range of user groups' level of specialization and their awareness and attitudes towards lake use and management, while working within the prescribed institutional arrangements. Attempting to gain an understanding of how people recreate at lakes, determining their attitudes towards lake recreation activities and management and determining their approximate recreation specialization level may therefore assist in identifying appropriate management strategies that will realistically meet the needs and requirements of the lake users; minimize incompatibilities and conflicts between lake user groups; and therefore maximize resource use efficiently.

Recreation conflicts are thought to be the result of complex social, behavioural and situational variables. The theoretical framework may therefore not provide full definitive explanations for user group's recreation behaviour; however, it may provide considerable insight into important group characteristics that may influence user group's attitudes and awareness towards lake management. Additionally, the theory provides a solid basis on which to examine the appropriateness of management alternatives and recommendations.

1.4 Goal, Objectives of the Study and Research Design

The goal of this study is to develop recommendations for managing multiple-use urban lakes in BC that will improve the recreation experience for the user groups by attempting to minimize recreation conflicts.

The objectives are to:

- determine user groups' attitudes and awareness towards lake recreation activities and management,
- determine managers' attitudes and awareness to lake management issues (including user groups' behaviour),
- provide information appropriate for management and planning, and
- provide further analysis and understanding of the concept of recreation specialization within the context of water-based recreation on urban lakes.

Specifically, these objectives will be met by five main components in the research design (Figure 3).

Figure 3 Research Design

Initially, a review of the literature regarding recreation conflicts will provide a theoretical framework for comprehending the problem and a fundamental testing ground for the type of data to be collected.

Observations of recreation behaviour will be systematically recorded in order to acquire a basic spatial sense of potential problem areas and the nature of the recreational activities. Prior to data collection, an *a priori* division of user groups based on readily identifiable activities and behaviour will be made. This division will serve as the foundation upon which to test the concepts identified in the theoretical framework.

A stratified random sampling design and questionnaire will determine user groups' attitudes and awareness towards lake recreation activities and management and whether significant inter-group differences exist.

Structured interviews with managers will determine their understanding of users' attitudes and awareness and their attitudes to management constraints and alternatives

Questionnaire and interview results will be analyzed using non-parametric statistics to determine users' and managers' attitudes and awareness in terms of strength in direction in response. Results will be discussed in terms of agreement or variance with the concept of recreation specialization. Potential management strategies will be identified and recommendations for lake management based on the results will be given. The theoretical framework will be examined for its usefulness to the study.

1.5 Applicability of the Study

It is hoped that many of the findings will be applicable to other jurisdictions. Specifically, in British Columbia the primary management agencies and structures (excluding the regional districts and municipalities) are the same throughout the province. Any change in federal or provincial lake use policy will affect all regions in BC.

Nationally, all provinces are bound by the boating restrictions imposed by the federal government, and any change to the management structure or the restrictions themselves affect users throughout Canada.

By attempting to understand basic behaviour and attitudes of the users it is hoped that results will correspond with patterns of recreation behaviour in the research literature. Additionally, the research will be applicable to the management of other water bodies, especially those located near urban centers with a number of recreationists pursuing disparate recreational goals and having different specialization levels. While the interest group requirements and conflicts will be different at every water body and in many situations, similar conflict situations and management difficulties may occur when multiple user groups attempt to meet their diverse recreational goals in close proximity. Strategies designed to reconcile conflicts over a diminishing resource supply transcend situational differences.

1.6 Limitations of the Study

Although it is interesting and important to examine how and in what ways the federal and provincial governments designate and plan boating restrictions and lake management

strategies, this research will focus on how these jurisdictional arrangements affect the user groups, not the relationships and arrangements between government departments. This limitation is imposed for three reasons. First, examining the jurisdictional arrangements from either an institutional analysis or political science point of view is beyond the scope of this study. Second, the Ministry of Environment, Lands and Parks is already reviewing the relationships between the federal, provincial and municipal governments.

Third, by focusing the study on the particular difficulties experienced from the recreationists' perspective it is hoped that realistic management strategies that are likely to meet the requirements of the users will be generated. Determining public awareness requirements for lake use issues will thus assist in developing information about aquatic and shoreline recreation that will be relevant to the recreationist and to the manager, in terms of ensuring a quality recreational experience.

1.7 Structure of the Thesis

Chapter One provides an introduction to the problem of recreation conflicts on freshwater lakes in BC. The theoretical framework and context of the study are

described, as is the research design and data collection methods.

Chapter Two provides the theoretical framework of the study, by discussing the relevant social conflict and recreation conflict management literature, focusing on recreation specialization literature. A typology of user group characteristics in terms of sensitivity to other user groups and likelihood of experiencing conflict is presented and an overall framework for this study is given.

Chapter Three describes the methodology for the study and the data collection methods that were utilized. The 'triangulation' approach to the case study is also described.

Chapters Four and Five present the results of the personal observations, questionnaires and interviews. Non-parametric statistics, other descriptive statistics and anecdotal information are used to analyze and present the results.

Chapter Six discusses the results in the context of the theoretical framework. Methodological issues and problems are described, as are alternative explanations of non-significant results.

Finally, Chapter Seven presents the conclusions of the study. Recommendations for further action are also stated.

Chapter 2

Theoretical Framework: A Review of Recreation Conflict Research

2.0 Introduction

As recreation and leisure time have become more prevalent and sophisticated, there has been an increase in conflicts over recreation use. This increase fostered the development of research on recreational conflict issues, focusing on descriptions of conflicts between different types of recreationists (Watson, *et al*, 1994). Preliminary attempts looked at the causes and sources of recreation conflicts (e.g., Jacob and Schreyer, 1980; Devall and Harry, 1981; Hammitt, *et al*, 1984; Ivy, *et al*, 1992). One important factor thought to contribute to the potential for recreation conflict is the *specialization level* of the individual, which is influenced by the level of experience, type of equipment used and activity setting requirements. To provide the basis for an analytical framework, this chapter will review some of the main theories of recreational conflicts, relevant to recreation specialization. First, recreation conflicts will be defined, by drawing on key concepts from the field of social conflict research. Second, various aspects of the concept of recreation specialization will be discussed. Third, different cases of recreation conflicts that illustrate aspects of the

recreation specialization concept will be examined. Finally, an analytical framework for studying recreational conflicts will be outlined.

2.1 Defining Conflicts

Within the recreation conflict literature, researchers appear unable to agree upon a definitive concept of conflict. This inability is not unique, as many of the early researchers studying social conflicts had difficulty operationalizing a concept of conflict, with much of the research related to this difficulty (Coser, 1957; Mack & Snyder, 1957; Scmid, 1968). Even so, it is important at least, to attempt to synthesize and develop existing knowledge into a manageable framework that can be used to study and perhaps provide answers for the management of recreation conflicts. Although the theoretical concepts of conflict vary, premises can be derived from this review of the social and recreational conflict literature. This section will review the primary similarities and differences between various definitions and conceptualizations of conflict, which will form the basis of the analytical framework.

In one of the most widely adopted definitions of social conflict, Coser identified it to mean "...a struggle over

values and claims to scarce status, power and resources in which the aims of the opponents are to neutralize, injure or eliminate their rivals" (1957: 8). In contrast to Coser's definition where the emphasis is coercion and struggles over values, other researchers defined conflict in terms of incompatibility. For example, Boulding (1963) stated that the existence of competition and incompatibility were integral to conflict, where "...the parties are *aware* of the incompatibility of potential future positions and in which each party *wishes* to occupy a position that is incompatible with the wishes of the other" (in Bergstrom, 1970: 199). Similarly, Bercovitch discussed perceptions and the potential for incompatibility, when he differentiated between 'subjective' and 'objective' approaches to conflict. The former are about values, which "...are ultimately dependent upon perceptions", and the latter "...exist whenever there are incompatible interests, irrespective of whether or not the actors are aware of these interests" (1984: 5).

2.2 Recreation Conflict Defined

The basic premises of conflict over values and perceptions of the actors, scarce resources and incompatibility found in many social conflict researchers' definitions and conceptualizations (e.g., Galtung, 1967; Deutsch, 1973;

Crowfoot and Wondolleck, 1990; Duryea, 1992) are also found within several interpretations of recreation conflict definitions.

Typically, recreation research papers allude to Jacob and Schreyer's definition when addressing recreation conflicts (1980). As their definition and conceptualization is the most widely adopted, aspects of it will be discussed, followed by alternative definitions of recreation conflict found in the literature.

Jacob and Schreyer defined conflicts (for an individual) as goal interference which is attributed to another person's behavior (1980). This definition assumes that the purpose of recreation is the achievement of certain goals or outcomes, which may be defined as "...any preferred social, psychological or physical outcome of behavior that provides incentives for that behavior" (Gramann and Burdge, 1981:17). In this definition, conflict is thus equated with 'user dissatisfaction' where an individual's or group's behavior is identified as causing someone else's dissatisfaction.

Elaborating on conflict as "goal interference", Jacob and Schreyer stated that the interference of goals does not necessarily indicate that goals are incompatible; specific

behaviours must exist for a conflict to occur. For instance, people with the same goal may conflict over the means for reaching the goal (two fishers may each use a differently powered vessel to obtain their 'compatible' goal of catching fish); additionally, there may also be limited opportunities to reach the goal (a lottery system may permit only a certain number of recreationists access to a resource; while their goal may be interfered with, they may not be in conflict with other recreationists who were granted access). These examples reveal that goal interference is complex, involving specific situational and behavioural requirements.

Recreation behaviours were discussed by Jacob and Schreyer when they differentiated between conflict and competition. They stated that conflict does not necessarily occur when users compete for scarce resources. The dissatisfied user (one who is experiencing conflict) must be able to determine the source of the goal interference, or 'attribute' the dissatisfaction to another person's behavior. Thus, the dissatisfied user must blame someone else for the goal interference (Ivy *et al*, 1992). This is illustrated by the example of a person who finds park facilities filled to capacity. The person does not necessarily experience a

conflict; instead, bad luck, inadequate knowledge of conditions and a plethora of other reasons may be blamed.

In accordance with Bercovitch's (1984) 'subjective' and 'objective' definitions, Jacob and Schreyer state that conflict (goal interference) is subjective; it must be understood in terms of a person's "...interpretation and evaluation of past and future social contacts", which are defined as "...knowledge of another person's behavior" (1980:369). Contact may be direct (two fishers meeting face to face) or indirect (a non powered boater seeing a large powered vessel across a lake).

Bury *et al* (1983) described the effects of incompatible activities more simplistically than Jacob and Schreyer. While their definition of conflict at the individual level concurs with Jacob and Schreyer's idea of goal interference, they stated that on an operational level, conflict exists "...*whenever* incompatible activities occur" (emphasis added) (1983: 401). Incompatible activities require a situation where one activity adversely affects another activity. This definition does not require the individual's knowledge of a conflict situation, an aspect which is present in most recreation conflict conceptualizations.

Gramann and Burdge (1981) examined conflict perception between water skiers and fishermen, testing the notion that "goal interference" was the primary cause of recreational conflict. They found weak support for the goal interference model and suggested alternative explanations for recreation conflict. One of these explanations was the idea that "...conflict is not conflict at all, but *competition*" (1981: 25). The reasoning is that competition is usually defined similarly to conflict, and to understand the dynamics in recreation conflict situations, perhaps more important information might be knowledge of how the behaviour of one group affects the ability of another group to use the same resource. In accordance with previous definitions, information regarding resource competition may not constitute information about the interfering behaviour, but it may prove more useful in terms of providing explanations about the conflictual situation.

Maiolo discussed the need for social contact and the idea of competition in conflict (1981). He stated that goal interference had to reach a magnitude where persons were willing to exclude others from participating in the resource or activity, in addition to social contact in order for conflict to exist (1981, in Ivy *et al*, 1992). The critical point appears to be when exclusionary measures are

considered: prior to this point competition occurs, after exclusionary measures are considered or undertaken, conflict occurs. In contrast to the distinctive conflict situation set out by Maiolo, Ivy *et al* observed that the potential for conflict is present at any level of goal interference (1992).

Buchanan and Buchanan provided an over view of recreation conflict research. They discussed the fact that most of the research was based on the concept that conflict would arise "...in *any* situation where the behaviour of one outdoor recreation user interferes with the achievement of satisfactions desired by another outdoor recreation user" (emphasis added) (1980-1: 37).

Elaborating on the idea of "goal interference" as recreation conflict, Ruddell and Gramann examined the relation of goal orientation to variation in conflict perception (1994). Goal orientations, which are "...the types of goals that are considered most important by individual recreationists" may differ for each individual and these differences may affect the extent to which other behaviours are evaluated as obtrusive or causing user dissatisfaction (1994: 94). In addition to the premises put forth by Jacob and Schreyer (1980), Ruddell and Gramann stated that recreation conflicts

may be due in part to differences in the goal orientations of recreation participants. Support for this relationship is found in recreation specialization studies.

From the few definitions reviewed, it is evident that conflicts are the result of complex social behaviour, interactions and situational variables. With the exception perhaps of Bercovitch's (1984) 'objective' definition, a common theme throughout the various definitions is the requirement of at least one party's perception that the attainment of their goal (recreational or otherwise) has not been realized, due to the behaviour of another individual or group who interferes with this goal. Examining the perceptions and behaviours of the individuals involved in recreation situations is therefore the key component to understanding and therefore preventing and resolving conflict situations.

At this time, accepted methods of measuring recreational conflict have yet to emerge, and many aspects of conflict defined by Jacob and Schreyer (1980) have not been affirmed or tested (Watson *et al*, 1994; Ivy *et al*, 1994). Discussing the implications of Jacob and Schreyer's (1980) paper and subsequent conflict research, Watson *et al* identified four major factors influencing recreation

conflict (1994). Briefly, these factors are: definition of place, focus of trip/expectations, lifestyle tolerance and the specialization level. One of these factors, the level of recreation specialization, is the focus of this study. This concept will be examined in greater detail in the following section.

2.3 Recreation Specialization

Several recreation studies have examined the notion that conflict arises from the varying goals of different recreation groups (Peterson, 1974; Bryan, 1977; Gramann and Burdge, 1981; Donnelly *et al*, 1986). To gain a greater insight into the factors influencing goal interference, recreation researchers have attempted to understand differences in perceptions, attitudes and behaviour between individuals engaging in recreation activities. These differences are thought to be derived to some extent from an individual's level of experience, expertise, equipment and importance of the recreation activity and activity setting, known as "recreation specialization".

In the first paper to discuss recreation specialization, Bryan (1977) proposed the idea that different preferences and behaviour for fishers can be positioned along different sections of a continuum of recreation behaviour that

indicated commitment to the sport and experience. He developed the concept that recreation behaviour ranges from the general (novice) to the particular (specialist) and is reflected in the skills, equipment and activity setting required for the activity. Novices have limited interests in the activity, may not require special equipment and may obtain their recreation goal in a range of settings; specialists, on the other end of the continuum, have a high level of skill, require specialized equipment and demand a specific recreation setting in order to obtain their recreation goal. An individual's degree of involvement in an activity will determine what values they place on different activities and resources (Bryan, 1980). While his study focused on the behaviours and attitudes of fishers, he offered propositions to extend the fisher typology into a conceptual framework (Figure 4).

Figure 4 A Conceptualization of Recreation Specialization

1. In addition to more specialized recreationists tending to have a great amount of knowledge and skill commitment, an ever-increasing commitment to the sport in general is found,

2. the most specialized recreationists hold similar attitudes, beliefs, ideologies and identification, and engage in similar behaviour,

3. as specialization increases, attitudes and values about the activity change, focusing on the nature and activity setting,

4. values in specialization are integral to the properties of the resource on which the activity occurs, as specialization increases, resource dependency increases

(Adapted from Bryan, 1977: 185-187).

This conceptualization is interesting because it reveals the complexity of managing resources that must be dealt with when determining and allocating 'appropriate' types of recreational activities in parks and other natural settings. This complexity is especially relevant in areas of multiple use of resources, where several types of recreational activities may take place in close proximity, most of that have many individuals who fall on varying sections of the continuum.

Studies show that the level of specialization relates to important individual and group characteristics (Bryan, 1977; Devall and Harry, 1981; Robertson and Burdge, 1993). By knowing these characteristics and an individual's position on the specialization continuum, the value of a recreational activity and resource setting to that individual can be appraised (Bryan, 1980). This appraisal is important in terms of understanding and managing conflicts between recreation groups and individuals. In order to examine adequately the role of specialization in recreation conflicts, theoretical concepts of specialization advanced by Bury *et al* (1983) and Jacob and Schreyer (1980) will be reviewed first.

Bury *et al* (1983) defined conflict in terms of incompatible activities, where one recreation activity adversely affects another person's recreation goal. They described three characteristics of activities that affect the degree of conflict between recreation activities:

- the spatial or temporal proximity of the activities;
- the degree of environmental dominance inherent in each activity; and,
- the extent of participants' dependence on technological products (1983: 401).

In conjunction with the three characteristics, they offered an interesting conceptual model of recreational conflict that attempted to present a basic understanding of some of the key factors affecting conflict. The degree of conflict is influenced by the relationship between technological dependence and dominance over the environment. The model assumes that two or more activities occur at the same time in close proximity (and that without temporal and spatial proximity, conflict is unlikely). The model assumes a linear relationship between the amount of technological dependence and dominance over the environment and level of conflict.

The model is simplistic in assuming homogeneity within groups. Bryan criticized this assumption, stating that a major weakness in recreation efforts had been the unexplored variations among individuals within groups (1977). However,

in its simplicity, the model reveals the potential for understanding incompatibility between the different activities. It is apparent that the goals of some activities have a high potential for incompatibility and contradiction (e.g., dominance over the environment versus studying the environment). It is also evident that activities may require different skills and the technology involved may influence the skill level. The model's categorization of various activities into different relationships and conflict potential illustrates the complexity and variability of recreation conflicts, especially for multiple use areas. It also illustrates the potential usefulness of the specialization approach for understanding some aspects of recreation conflicts.

Jacob and Schreyer (1980) derived and described in detail four classes of factors that contribute to recreation conflicts (Figure 5). They focused more on the individual's requirements for goal attainment than group behaviour. Any of the factors they outline may have the potential to influence where certain individuals and groups fall on the specialization continuum.

Figure 5 Major Contributing Factors to Recreation Conflicts

1. Activity Style - the various personal meanings assigned to an activity.

2. Resource Specificity - the significance attached to using a specific recreation resource for a given recreation experience.

3. Mode of Experience - the varying expectations of how the natural environment will be perceived.

4. Lifestyle Tolerance - the tendency to accept or reject lifestyles different from one's own.

(1980: 370).

For the purposes of this discussion, the four factors will be described in terms of their relation to goal attainment and the specialization concept.

The first two, 'activity style' and 'resource specificity', were related to three main concepts. To begin with, when a recreational activity is a central life interest, it provides a major source of personal rewards and is the preferred behaviour and setting for an individual. Secondly, the status an individual places on an activity is important in terms of constructing an image of self and sense of individuality, the recreation activity represents one's values and lifestyle choice to others. Lastly, evaluations of quality are important, as they set the standards for high quality recreation experiences and define requirements for goal attainment. These three characteristics influence the importance of an activity to

an individual, as well as the degree to which the attainment of the recreation goal can be interfered with.

The third factor contributing to recreation conflicts, 'the mode of experience', refers to the recreation setting which is required for the recreation goal to be obtained. Goal achievement can require a very specific recreation setting; some activities are more prone to interference than others, and some activities are more prone to interfere with others. Jacob and Schreyer portray the setting requirements on a continuum (similar to Bryan's (1977) specialization continuum), where an 'unfocused' mode of experience deals with generalities, details in the environment are not required for the experience and the possibility of interference with goal attainment is slight. The 'focused' mode falls on the other end of the continuum, requiring specific entities in the environment, complex details are required for the experience and the possibility for interference is great. The gap between recreationists on the continuum widens or decreases the potential for conflict.

The fourth contributing factor, 'tolerance for lifestyle diversity', relates to group differences, and the degree to which other recreation activities concur with the goals or

recreation behaviour norms of the individual. Unwillingness to share recreation resources with other groups magnifies the potential for conflict, as projected in Maiolo's (1980) requirement that excludability measures be considered before conflict occurs.

Researchers have contemplated the specialization concept in terms of level of experience and expertise. The study conducted by Schreyer *et al* (1984) on "Experience Use History" (EUH) which is the amount and extent of participation in recreational pursuits by an individual, supported the idea that recreation specialization determines to some extent the perceptions and behaviour of the recreating individual. Attempts were made to understand the links between previously acquired information and "1) present behaviour, 2)subjective interpretations of the recreation experience, and 3)psychological rewards derived from that participation" (1984: 35). It was thought that these links affect the responses an individual has available to them in a recreational situation. Schreyer *et al* discovered river floaters with different EUH's differed in terms of their behaviours, participation motives, attitudes towards management of the resource and perceptions of conflict. They cautioned that EUH should not be thought of as a causal variable in itself, but as a possible indicator

of the attitudes and motives of recreation behaviour. It is evident that the information gained from understanding an individual's EUH would prove extremely important in understanding conflict behaviour.

A study conducted by Hammitt and McDonald (1983) examined the influence of the amount of past experience on recreation behaviour and perception. Surveying river recreationists, they found that the level of past floating experience contributed to the perception of river disturbance. More experienced or specialized users were more aware of, and susceptible and sensitive to site disturbances and resource management. Hammitt and McDonald concluded that a higher level of experience enhanced recreationists' "perceptual sensitivity" and "specificity", which may represent an increased awareness to differing attributes of the activity setting (1983: 266). Thus, a high level of experience may have a "specialization" effect on recreationists' perception of the attributes and management of recreation settings.

A major focus of research on recreation specialization has been the effects of different types of equipment and technology on group differences in attitudes and perceptions of conflict. In accordance with Bryan's (1977) theory that the type of equipment and level of expertise influence an

individual's placement on the recreation specialization continuum, empirical studies have shown a large potential for conflict when motorized and non motorized recreation activities take place in close proximity (Shelby, 1980; Devall and Harry, 1981; Gramann and Burdge, 1981; Jackson and Wong, 1982; Donnelly *et al*, 1986). Some of these studies will be considered.

2.4 Asymmetrical and Symmetrical Conflicts

Devall and Harry (1981) hypothesized that relationships between recreation users are influenced by the type of technologies used and that more obtrusive technologies are resented by users of less obtrusive technologies, but not the reverse. Support for this hypothesis was found in previous studies by Peterson (1974) and Shelby (1980). These studies found that people recreating with less obtrusive technologies were more likely to experience conflict than users of more obtrusive technologies. The relationship between users of different levels and types of technologies is described in the literature as 'asymmetrical' (Devall and Harry, 1981; Jackson and Wong, 1982). In comparison, Ruddell and Gramann referred to asymmetrical conflict as "...aversion that is perceived by one party to an interaction, but not by the other", removing the premise that technology or equipment is the cause of

obtrusive behaviour; "socially" obtrusive behaviours can also cause asymmetrical interference (1994: 103). For the purposes of this discussion, both concepts of asymmetrical conflict will be accepted.

Devall and Harry surveyed a number of different groups of recreation users and revealed that recreationists tended to participate in activities that were technologically similar. They also found that resentment between users of different recreation technologies exists, although they did not find support for the hypothesis of asymmetrical conflicts; instead, users of both less and more obtrusive technologies were resented, although a greater number of more obtrusive recreationists were resented than non obtrusive. Because unobtrusive and obtrusive users of technologies found each other mutually objectionable, Devall and Harry rejected their asymmetrical hypothesis for a 'symmetrical' conflict hypothesis.

Devall and Harry acknowledged their study had failed to anticipate positive reactions to obtrusive technologies, and so they did not test for this type of reaction. However, they were able to derive three main types of recreationists, based on recreationists' perceptions of obtrusive technology (Figure 6).

Figure 6 Types of Recreation Users

1. Physically unobtrusive recreations - sailing, canoeing, nature students,
2. Physically obtrusive recreations - water-skiing, motorboating
3. Mixed activities - participants find few other activities either objectionable or inoffensive (1981: 413).

Although the first two types of recreationists are portrayed in the literature (Jacob and Schreyer, 1980; Bury *et al*, 1983; Jackson and Wong, 1982), the third type of participant, 'mixed activities' is underrepresented in most recreational studies. Perhaps this type of recreationist has not been accounted for because they may seek out both obtrusive and unobtrusive recreation activities and are therefore underrepresented in surveys; they are not vocal about the effects of other groups; or because the results of studies that tested negative for conflicts have frequently not been reported. It would seem that the examination of this type of recreationist would provide at least partial clues to the behaviours and perceptions of conflict of other 'types' of recreationists. As Ruddell and Gramann (1994) stated, absence of a conflict relationship signifies that groups are similar in their goal orientations and should not perceive conflict with the other groups; a finding which is consistent with Jacob and Schreyer's conception.

Jackson and Wong examined the idea of asymmetrical conflict when they studied conflicts between cross-country skiers and snowmobilers (1982). Their data support the premise of asymmetrical conflict for on-site interactions; snowmobilers were not sensitive to or affected by the activities of cross country skiers, but the latter were. Evidence suggested that mechanized recreationists interfered with the goals of non mechanized recreationists. They found that conflicts were not simply a conflict between choices of activities, but stemmed "...from a fundamental orientation of recreational preference, expressed conceptually in terms of participation in other activities, and motivations for participation", lending support to Ruddell and Gramann's (1994) notion that goal orientations of recreationists play a key role in determining conflict perceptions (1982: 59).

Jackson and Wong's study confirmed aspects of Bryan's (1977) specialization continuum. The cross country skiers (specialists) choose their recreational goal and activity setting for the reasons that make it susceptible to interference (e.g., quiet, solitude). Contrarily, the snowmobilers' (generalists) goals and activities settings are more prone to interfering with other recreationists' goal attainments by the nature of their activity, which requires noise, speed and companionship.

Jackson and Wong also found that the conflict was more symmetrical in terms of general and pervasive attitudes between the two groups. Off site confrontations between groups had led to a political struggle and the formation of interest group bargaining. Although the skiers did not interfere with snowmobilers' on site enjoyment, skiers' negative attitudes towards snowmobilers was cited as the major reason for resentment and perception of conflict by snowmobilers. This finding supports the definition of conflict by Ivy *et al* (1992) and Buchanan and Buchanan (1980-1) who stated that the potential for conflict is 'present at any level of goal interference'. It is evident from this study that direct contact between all recreationists involved is not a requirement for conflict to occur.

Donnelly *et al* (1986) extended the specialization concept to specialization within group activities when they examined the orientations and skills of individuals involved in different sub-categories of boating activities. They found some support for the specialization concept, where "sailboaters were statistically more specialized that motorboaters", although the other types of boaters studied did not differ statistically from each other (1986: 92).

Their paper suggests that an individual's level of specialization is complex, involving a number of influences. Overall, their data supports the specialization concept that activities can be classified in terms of a hierarchy of specialization and that individuals can be compared between different activities and sub-activities.

From the studies discussed thus far, there is general agreement that an individual's level of recreation specialization influences to some degree the perceptions of recreation conflict and goal interference. More pragmatic aspects of recreation specialization will be discussed in the following section of the paper.

2.5 Evidence of Recreation Specialization

The studies examined and tested for specific aspects of recreation specialization. Analysis of additional recreation conflict research found that elements of the recreation specialization concept may influence the potential for and the culmination of recreation conflicts. Selected case studies of recreation conflicts are presented in Table 2.

Table 2 Review and Analysis of Relevant Case Studies

Article and Types of Recreation Activities	Evidence of Goal Interference	Evidence of Asymmetrical and Symmetrical Conflicts	Level of Specialization (Equipment, expertise, setting)
Naeser and Smith, 1995 Irrigators, anglers, white water boaters	Varying degrees of goal interference for all groups.	Anglers more affected than other groups (asymmetrical). All groups affected by legislation (symmetrical).	Differing levels of specialization for all categories and in all groups, although the potential for goal interference by anglers is the greatest, due to less obtrusive technology, level of importance and specific activity setting required.
Penning-Rowsell, 1994 Fishers, canoeists, land owners and motor boaters	Goal interference felt by all groups, except motorboaters.	Fishers are impacted more than any other group, especially by the canoeists (asymmetrical). Canoeists somewhat affected by other groups (symmetrical). Motorboaters resented by all other groups (asymmetrical).	Fishers have the longest standing use of the resource, highest level of experience and importance placed on the setting. Canoeists have a shorter use tradition, and varying levels of expertise and experience. Motorboaters have shortest use history, smallest level of experience and expertise.
Watson *et al*, 1994 Hikers, recreational stock users	Explicit goal interference not mentioned, but a general attitude of resentment exists for both groups.	More hikers impacted by the behaviours of stock users than the reverse, although the difference is slight (asymmetrical).	Level of specialization not indicated, but level of obtrusiveness (horse) is obviously higher for stock users.
Ruddell and Gramann, 1994 Windsurfers, winter RV campers (noisy or quiet)	A general human behaviour (noise) affects goal interference, not activity types.	Recreationists seeking quiet were more likely to be affected by noise than those seeking obtrusive, noisy setting	Type of recreation activity unimportant, level of importance placed on activity setting essential factor in experiencing conflict.
Robertson and Burdge, 1993 Commercial/industrial activities and fishers, motorboaters, campers, hikers	Potential for goal interference very high for all groups, excluding commercial/industrial activities.	Fishers affected most by the impact of commercial activities, motorboaters are the least affected water-based activity (asymmetrical). Water-enhanced activities affected much less than water-	Non motorized water-based activities most sensitive to interference, due to specific activity setting required. Water-based activities sensitive to changes in activity setting. Water-enhanced activities have lower level of expertise, and general requirements for activity

Table 2 Review and Analysis of Relevant Case Studies

Article and Types of Recreation Activities	Evidence of Goal Interference	Evidence of Asymmetrical and Symmetrical Conflicts	Level of Specialization (Equipment, expertise, setting)
		based activities (asymmetrical).	setting.
Ivy *et al*, 1992 Motorboaters, canoeists	In addition to direct contact and goal interference, general attitudes of resentment (indirect contact) exist.	Both canoeists and motorboaters experienced conflict, but canoeists experienced a much greater share of conflict than motorboaters (asymmetrical).	Level of tolerance towards the other group and expectations for encountering the other group was tested. Canoeists have a lower tolerance for encounters than motorboaters which may reflect importance of the activity and setting requirements.
Jaakson, 1989 Different types of boats (canoes, sailboards, motorboats, canal traffic	Potentially high level of goal interference, not directly discussed.	Non motorized vessels appear to be affected by motorized vessels, not the reverse (asymmetrical). Novices or boat renters interfere with activity needs and constraints of other boats more than experienced users do (asymmetrical).	Users with more obtrusive equipment (motorized) appear to interfere with users of less obtrusive equipment (muscle-powered). Lower levels of experience (novice, equipment renters) increase the conflict potential.
Jim, 1989 Urban recreationists, seeking different experiences (urban recreation experience versus wilderness experience	Potentially high level of goal interference, not directly studied.	Not yet experienced. Large potential for asymmetrical conflict when the supply of 'urban' recreation activity areas decreases.	High potential for goal interference exists for 'wilderness' recreation seekers, as activity setting, importance of the recreation and level of expertise are sensitive to other users behaviours, versus 'urban' recreationists, who may be satisfied in a number of different settings.
Heatwole and West, 1982 Sailboaters, motorboaters, commercial vessels	Potential for goal interference high, as goals for recreation and commercial vessels completely different. Not directly studied.	Not directly studied. Potential for conflict with non motorized vessels higher because of decreased maneuverability	Potential for conflict largely due to level of technology (maneuverability and speed), and regulations regarding traffic patterns. Commercial vessels have the strictest activity setting requirements, but experience less conflict.

Key aspects of the studies related to goal interference, evidence of asymmetrical and symmetrical conflicts, and the influence of specialization level are represented for each study.

What is interesting is that for every study presented, evidence for some degree of asymmetrical conflict exists (with the exception of Jim's (1989) study, which has a high potential). In all cases, the activities most likely to experience asymmetrical conflict are the more 'unobtrusive' types of activities, for example, fishing, hiking and muscle-powered boating, lending support for several components of the 'recreation specialization' concept. This support is especially relevant to Bryan's (1977) and Jackson and Wong's (1982) theory that the very reasons why 'unobtrusive' recreationists choose their recreation goal and activity setting (e.g., quiet, solitude, pristine natural environment) make them most susceptible to goal interference. Similarly, elements necessary for more 'obtrusive' recreation goals (e.g., speed, noise, density) make the activity more prone to interference with the goals of others.

Additionally, the case studies reveal that users with a longer period of tradition and experience tend to have a

higher potential for conflict than users with a relatively short amount of experience. This may be due to the amount of importance an individual places on an activity, for example, whether it is an individual's 'central life interest' or a casual weekend activity. The importance an individual and groups place on an activity also seems to be tied to the history of past use. Political struggles over historical uses of an area or activity appear to reaffirm the will to protect the importance of activity and its setting.

From these case studies, it appears that one of the most important contributing factors is the activity setting. Although generalists may be able to obtain their recreation goal in a number of settings, diminishing resources may preclude even this type of user from reaching his or her goal attainment. In addition, aside from the most generalist type of recreationists, most types of users appear to require fairly specific types of activity settings to obtain their recreation goal. Even 'obtrusive' activities such as motor boating require a certain amount of space and water surface area to realize recreation goals. For recreationists who are specialists that require more 'focused' and detailed environments, the potential for goal interference is great.

Short of allocating every user his or her own recreation setting, managers have had to deal with different activity requirements. Although it is not represented in Table 2, one of the most widely adopted strategies for dealing with the specific requirements of various recreationists appears to be temporal and spatial zonation and separation. Recalling that one of the key components of Jacob and Schreyer's (1980) conflict theory was the requirement that the dissatisfied user had to be able to attribute dissatisfaction to another person's behaviour, the removal of the interfering behaviour would seem to have the effect of eliminating the more obvious factors contributing to the potential for conflict. This is something that appears to be much easier than determining the underlying behavioural and social components of conflict situations.

2.6 Key Elements of the Literature

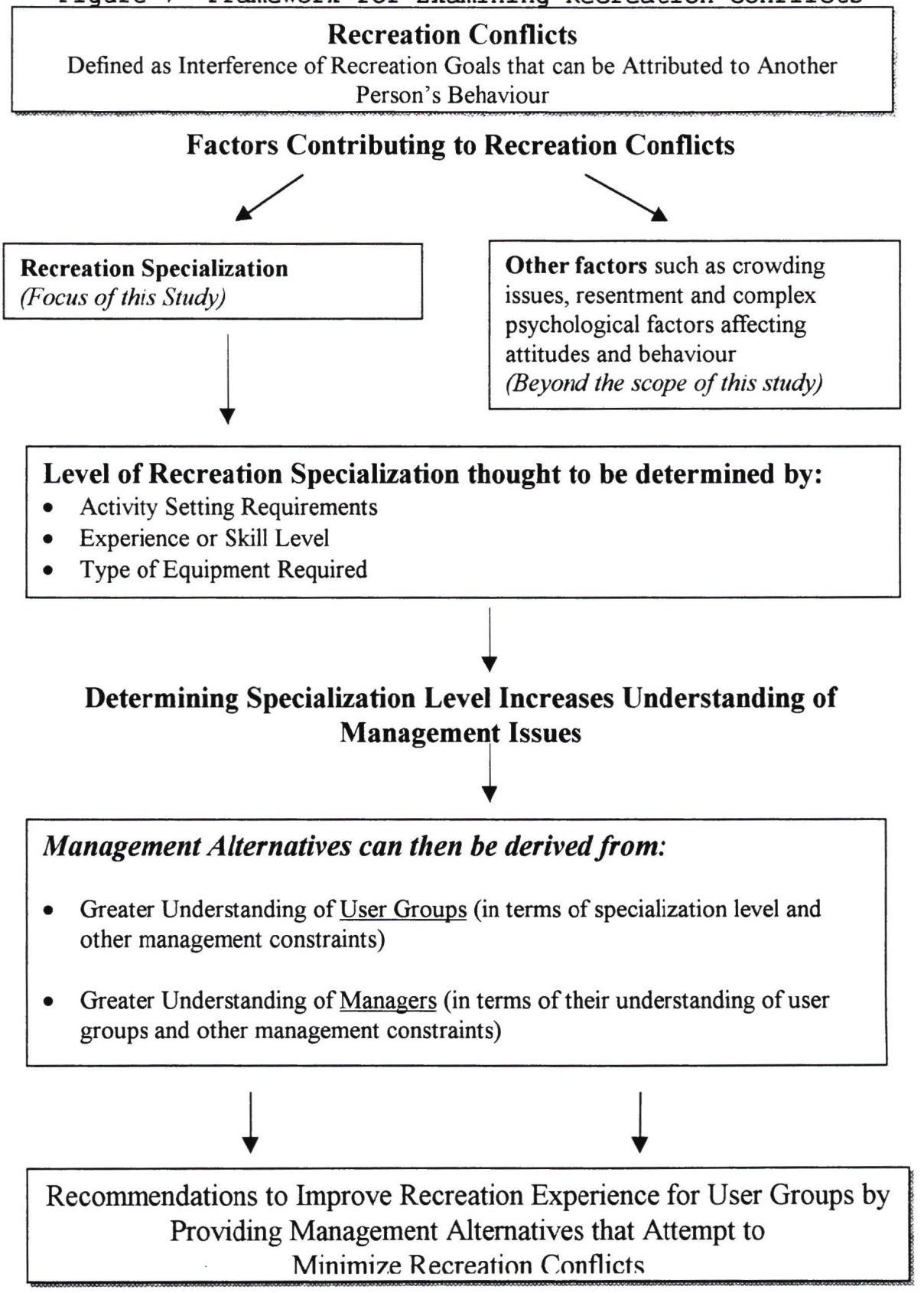
Efforts to conceptualize social and recreation conflicts have proven difficult for researchers, although most agree that recreational conflict is to some extent the interference of recreation goal attainment. Attempts to produce adequate management and resolution strategies have been even more difficult. One of the reasons may be the complex and ambiguous nature of human social behaviour. A

major factor thought to contribute to goal interference is recreation specialization. Preliminary studies reveal that specialization relates to the perceptions and behaviour of a recreating individual. Analysis of several case studies illustrated the pervasiveness of the effects of specialization in recreation conflicts. This chapter has revealed the usefulness of examining the specialization concept to understand the factors contributing to recreation conflicts. Several components of the recreation specialization continuum remain to be tested and studied. Further research in this area appears to be prosperous in terms of revealing management and resolution strategies that address the requirements and behaviours of various types of recreationists. How this will be attempted in this study is set out in the final section.

2.7 Model For Recreation Conflict Analysis

The review of social and recreation conflict literature provides the foundation that is necessary for examining the conflicts at Elk Lake. Figure 7 presents the framework that has been developed for examining recreation conflicts of this study within the theoretical context. A description of its elements is offered.

Figure 7 Framework for Examining Recreation Conflicts



The literature defines recreation conflicts as 'goal interference' that is attributed to another person's behaviour (Jacob and Schreyer, 1980). Although various versions of this definition have been postured, Jacob and Schreyer's definition is the most accepted in the recreation conflict literature and will be the definition used for this study.

Although several factors are thought to contribute to recreational conflicts, one of these factors, the 'recreation specialization' level, is the focus of this study. Three primary components determine the level of recreation specialization for an individual; these are the activity setting requirements, experience or skill level and type of equipment required. This study examines the three components, in an attempt to determine an approximate level of recreation specialization of the various user groups at Elk Lake.

By determining the range of specialization levels at Elk Lake, it is hoped that results will be congruent with the general patterns of recreation behaviour found in similar recreation conflict research studies. Divergent and convergent results may enable a greater understanding of

some of the important management issues and alternatives identified by the literature.

In the course of determining the approximate level of recreation specialization of the user groups, it is hoped that a greater understanding of the particular requirements of user groups and managers will emerge. Based on this understanding, management alternatives targeted specifically to the issues identified in the study will be derived. These alternatives will form the basis of recommendations for improving the recreational experience for user groups, by attempting to minimize the likelihood of recreation conflicts.

Chapter 3

Methodology and Data collection

3.0 Introduction

The general information collection framework and the various methods that were utilized for data collection are the focus of this chapter. Specifically, the case study approach is discussed and the rationale for using the 'triangulation' or multiple method approach to data collection is outlined. The various data collection methods that were employed are discussed in the latter section of the chapter. The review of relevant recreation and resource management literature provided a framework for examining previous work, an overall direction for this research and linkages to determine the information collection methods for the case study. The primary information collection methods included:

- personal observations of behaviour at the lake;
- questionnaires administered to lake users and managers, and;
- 'in depth' interviews conducted with managers.

3.1 Case Study Approach

This study uses the 'case study' to examine the problem of recreation conflicts. Case studies have been variously called a research method, an approach and a strategy (e.g., Yin, 1981; Eisenhardt, 1989). Indeed, recreation conflict

is ideally suited to this treatment, which is generally defined as an inquiry that:

> -Investigates a contemporary phenomenon within its real-life context; when
> -the boundaries between phenomenon and context are not clearly evident; and in which
> -multiple sources of evidence are used
> (Yin, 1992:123).

Thus, the case study allows for the examination of conflicts and behaviours between recreations within the geographical context in which they occur, at Elk Lake. A field study design helps determine whether the Elk Lake conflicts (or phenomenon) are a symptom of an increased demand for finite resources; a unique function of that particular water body (the context); or are generally representative of all recreation groups. In order to render a comprehensive, plausible and generalizable interpretation of the facts, multiple sources of data evidence will be used.

The case study has been criticized for its potential for bias and its lack of generalizability (Miles, 1979, Stoecker, 1991). Advocates have countered these criticisms in two primary ways. First, the advantages of the case study in comparison to other research strategies are often discussed. For example, Yin (1992) compared the case study with four other evaluation methods, and discussed the

differences of each method in terms of designing and conducting evaluations.

Advocates have also developed various techniques that strengthen case study results. For example, some researchers promote the use of cross case comparison or case surveys to increase the generalizability of the results and thus increase external validity (Yin, 1981; Seashore Louis, 1982). The use of 'triangulation' is often espoused as a method with which to strengthen the results of the case study. Triangulation, also called 'multimethod' and 'convergent validation', is one of the most common techniques used in case studies, as its use enables the researcher to view qualitative and quantitative methods as complementary, not contrasting methods (Jick, 1979: 602).

3.2 Triangulation

First introduced in the social sciences by Campbell and Fiske (1959), 'triangulation' generally refers to the use of multiple measures which are combined to test hypotheses (in Fielding and Fielding, 1986). The idea of triangulation is derived from navigational or military strategies or surveying, where multiple viewpoints can be utilized to locate an exact position, allowing for greater accuracy, a process commonly used by geographers (Jick, 1979: 602). In

case studies, the use of triangulation is used when "...multiple sources are intended to be used in a converging fashion, so that data should triangulate over the "facts" of a case" (Yin, 1992: 131). Essentially, the rationale for using triangulation is the fallibility of relying upon one measure to represent social phenomena (Fielding and Fielding, 1986: 29). By using multiple measures, the weaknesses inherent in every single measure are compensated by the strengths of the other measures (Eisenhardt, 1989).

Measures used in triangulation include: investigating a situation at different times for temporal variability; examining a situation using contrasting theories; and using multiple researchers for data collection. Some of the more prevalent measures include using various techniques within the same method both to collect and analyze data (within-method) and applying different methods to the same subject (between-method) (Jick, 1979; Fielding and Fielding, 1982; Eisenhardt, 1989; Yin, 1992).

This study primarily employed between-method measures. Lake use was examined through a number of methods, in the hopes that the data collected would yield convergent results, lending confidence to the results and external validity to the study. However, divergent results may also emerge with

the use of multiple methods and may uncover variances that may not have been illuminated under a single method approach. As Jick states, "...where divergent results emerge, alternative, and likely more complex, explanations are generated" (1979: 608). Although it is hoped that the results from the various methods will 'converge' or 'triangulate' over the facts, both convergent and divergent results will be examined and alternative explanations will be sought.

3.3 Case study Approach and Research Design

McCormick (1996) outlined four 'lessons' that could be learned from a single case study. These lessons are:

1. the development of a solid empirical basis for specific concepts and generalizations, by placing the foundation of social processes in context;
2. the possibility of presenting complex social phenomena holistically, by pursuing multiple lines of action and meaning in conclusions;
3. the development of a sense of time and history through the in-depth examination of patterns and influences which change over time, and;
4. the illustration of both confirming and disconfirming concepts and theories, which can be examined and scrutinized at the level of experience (1996: 367).

For this study, the single case study of Elk Lake provides an appropriate context in which to examine the complex social phenomena of recreation conflicts. Data collected through multiple lines of inquiry will enable a greater

understanding of the situation over time, allowing for the development of insight into patterns of recreation behaviour. The case study approach will also enable the examination and testing of the concepts identified in the theoretical framework.

Ideally, this study would have proceeded with a research team conducting at least three longitudinal case studies of recreation conflicts on comparable lakes. However, the need to complete the study in a timely manner, limited funding and the scope of conflict present at Elk Lake necessitated the completion of one case study over approximately one year of information collection[1]. Early in the research it was recognized that it would be impossible to conduct several longitudinal studies; as such, the research was designed to be completed in three major phases, utilizing between-method triangulation. First, user groups' lake use were examined through the summer, fall and winter of 1995. Second, interviews with resource managers to determine their awareness and attitudes occurred in the spring of 1996. Finally, local media reports on related lake use issues were reviewed throughout the data gathering phase. The various

[1] After data collection was completed, the author became aware of an unpublished study that examined recreation use at Elk Lake in 1985. Unfortunately, although the results of the study cannot be compared statistically to this study, the summary results provide some interesting comparisons (see Chapter 5). The author is grateful to Dr. P. Dearden for the use of the unpublished study in this regard.

data collection methods that were employed in each phase are discussed in the following section.

3.4 Data Collection Methods

Several data collection methods were used in each phase of the study. In order to develop a sense of the topic area in the community context, local media reports on lake related issues were examined prior to the field work. The Victoria *Times Colonist* newspaper from 1985 onwards was reviewed for articles regarding boating issues, either on Elk Lake, or on other water-bodies in this region. Local television reports on boating issues that broadcast during the data collection phases were also reviewed.

These reviews of local media reports served several functions. To begin with, they helped familiarize the author with basic lake use and management issues and illuminated the main conflicts that have occurred and in some cases are ongoing at the lake. The opportunity to gain a basic understanding of infrequent users' awareness of lake use issues was also obtained (it was believed that infrequent users might have become aware of lake use issues from local media reports, not through direct experience). Letters to the editor served as a window through which various viewpoints of lake use and management could be

observed. General patterns of certain types of situations and conflicts that were reported on (e.g., interesting to the public and therefore newsworthy) emerged.

The second phase of data collection entailed personal observations of lake user behaviour and questionnaires administered to lake users. Through knowledge gained via the media reports and through preliminary personal observations of lake activity, categories of user groups who frequented the lake were compiled. Basic patterns of activities and behaviour were observed and areas of the study area (Elk Lake) frequented by users were noted. To reduce bias in data collection, noted frequented areas of the park (e.g., main entrances and frequented beach and shoreline areas) were divided into strata and a stratified random sampling design was developed. A stratified random sample is one in which points to be sampled within each strata are chosen randomly (Weisberg *et al*, 1989). In this study, points within each strata (area) were chosen randomly, although a concerted effort was made to sample at all strata locations.

An observation sheet was developed so that personal observations at the lake could be recorded methodically (Appendix A). Behaviour at the lake was systematically

observed and recorded according to the observation sheet categories and a basic spatial sense of potential problem areas and recreation behaviour was acquired.

It is important to note that early in the data collection phase the author became aware that the location of some of the strata in the study site were potentially unsafe. As such, some of the strata were not sampled as frequently as they could have been if research assistants were available during data collection. Some strata are therefore under-represented in the early portions of the research phase and over-represented in the latter portions of the research phase when the author acquired assistance with data collection.

Basic knowledge of user groups' issues gained through preliminary observations and through the review of local media reports provided the necessary background to generate a questionnaire which was pre-tested with members of the public and lake users in the first two weeks of August, 1995. Based on feedback from individuals participating in the pretest, changes were made to the questionnaire. Sampling began August 19, 1995 and was completed on December 12, 1995. The questionnaire queried user groups about their lake use activities and their awareness and attitudes

towards lake use and management[2]. It comprised both open and closed questions, many of which were developed according to 'Likert-type' attitude scaling techniques (Appendix B). User groups were sampled according to the observation sampling design. The focus questions were therefore:

- basic information on patterns of recreation use,
- users attitudes towards lake activities
- information suitable for examining the concept of recreation specialization.

The third phase of data collection consisted of interviews with persons responsible for managing various aspects of the lake (managers). Preliminary examination of the user group questionnaire data provided a basis for ascertaining managers' knowledge of user group awareness and attitudes. A series of open and closed-ended questions were developed which tested manager's knowledge of user groups (Appendix C). Managers were also asked their opinions and insight regarding the constraints affecting lake management and the feasibility of management alternatives. In total, six managers agreed to be interviewed; only one agency declined and is therefore not represented in the data. For

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[2] Ajzen and Fishbein define 'attitude' as a person's "...evaluation of any psychological object" (1980: 27). Causal relationships between attitudes and behaviour are difficult to measure and the difficulties inherent in studying attitudes as indicators of behaviour have been the subject of much research (Wilkerson, 1992). However, a consistent link between attitudes and behaviour has been generally accepted in the psychology literature (Dawes, 1972). Some researchers take the position that only the overall pattern of behaviour can be predicted by attitudes towards an object (Ajzen and Fishbein, 1980). Further analysis of the merits of studying attitudes as a methodological approach are beyond the scope of this study. As such, this study does not regard the measurement of attitudes as an indicator and predictor of behaviour; rather, it regards the measurement of attitudes as providing insight into *general* patterns of recreation behaviour..

comparison purposes, managers were also asked to complete a questionnaire that contained many of the same questions that appeared on the user group questionnaire (Appendix D). Interviews were taped and later transcribed verbatim.

An effort was made to obtain information on management constraints and alternatives from resource managers in other regional districts. A letter was sent to all regional district parks and recreation coordinators in the province, requesting any information on lake management plans, recreation conflicts on lakes and management constraints. Information gained from the review of the responses assisted with the development of management alternatives and recommendations.

Information was also gathered on lake management strategies in other provinces and states in North America. Reviewing these alternate management schemes broadened the understanding of the problem and enhanced the development of management alternatives.

3.5 Summary and Overview

By using the case study strategy, it is hoped that this study will reveal those elements of the conflicts at Elk Lake which are context specific and those of greater

generality exhibiting generic characteristics being indicative of other recreation conflicts which occur on multiple use lakes in British Columbia. An attempt to counteract elements of bias from the researcher and potential shortcomings of the methods themselves was made through the use of multiple methods of data collection. The use of quantitative and qualitative data collection methods enabled the data to be analyzed according to descriptive statistics and general patterns; the outcomes of both forms of analysis will provide the basis for a general description of the conflicts and alternatives and recommendations for lake management within the context of the theoretical framework.

Chapter 4

User Group Attitudes: A Description and Analysis

4.0 Introduction

The data collected through questionnaires, interviews and field observations provides descriptive information about lake user groups and managers, insights into their attitudes and awareness about lake use and information of interest to the study of recreation behaviour in general and recreation management at Elk Lake in particular. This chapter describes the general patterns of lake use and examines users' responses to questions about:

- frequency of use,
- importance of lake features,
- effects of different recreational activities,
- conflict avoidance behaviours,
- opinions towards management alternatives, and
- knowledge of management responsibilities.

This data will be analyzed using non-parametric statistics, with some results compared to qualitative information gained through the interviews with managers and field observations. Field observations about frequencies and patterns of use will be briefly described to illustrate some of the temporal and spatial distributions of lake use. Additionally, results from questionnaires completed by managers will be compared to user groups' responses to applicable questions. As well, the results will be compared to relevant summary

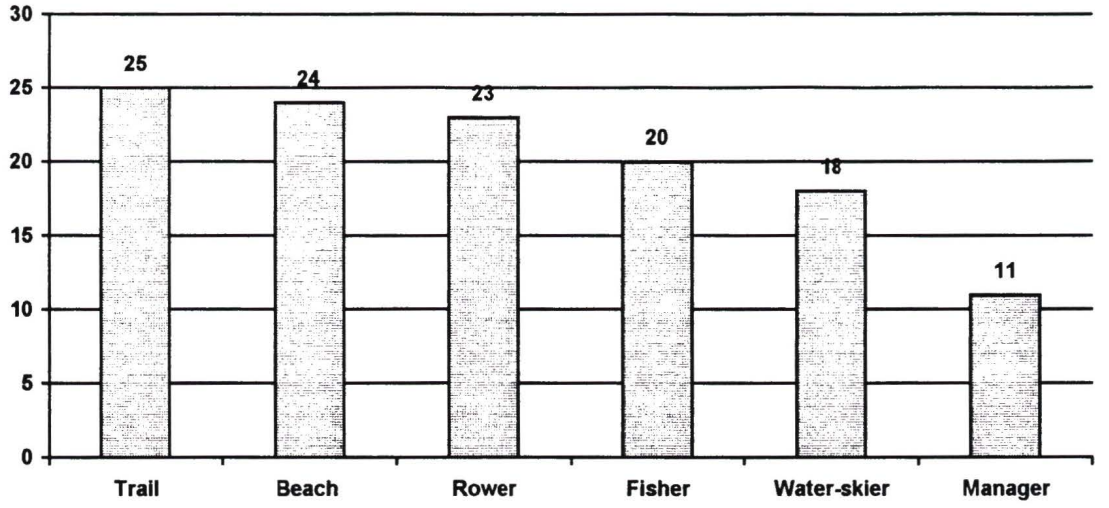
results from an unpublished survey of recreation use at Elk Lake by Dearden (1985) to determine if (and in what way) general trends in recreation use at the lake have emerged over the past decade. The statistical and qualitative results of this chapter will provide a foundation for Chapter 5, which presents results from interviews with managers from a detailed, qualitative perspective. These two chapters will form the basis for Chapter 6, which provides an analysis and discussion of the results, with particular reference to the concepts identified and discussed in the review of the research literature and the relevant application for general urban lake management and for Elk Lake.

4.1 Sampling Distribution of User Groups

A summary of the main user groups that were sampled is presented in Figure 8[1]. A total of 121 people were sampled over approximately four months. Logistical difficulties relating to user's willingness to be surveyed while completing certain recreational activities (e.g., setting up boats in a queue of boat trailers or recreating in the

[1] The managers interviewed for this study (see Chapter 5) were federal, provincial and regional government managers who are primarily responsible for decision making for lake use and management. However, five additional managers responsible for day to day administrative duties answered the questionnaire while performing work duties at the lake, thus 11 managers in total answered questionnaires.

Figure 8 Groups Sampled



middle of the lake) made it difficult to obtain minimum numbers of surveys from some user groups. As such, some of the small user groups responses have been combined into similar recreation groups, rather than containing their responses in a distinct category. For example, non-power boaters (e.g., canoeists, wind surfers) often entered the lake quickly, and were usually wet, making it awkward for them to complete the survey. This group was often unwilling to complete the survey and the results of their surveys, comprising five individuals, are found within the fisher category. Additionally, one user group (personal water-craft users or 'jet skiers') did not wish to participate in the study. Only one jet skier agreed to answer the

questionnaire, and the results are contained in the water skiers' response categories.

An attempt was made to sample equal numbers of fishers, water skiers and rowers, as media reports had represented these three groups as being in conflict with each other. However, fishers and water skiers tend to enter the lake in secluded areas and because of personal safety reasons, these locations are under-represented in the first three months of data collection, until suitable measures were obtained[2].

4.2 Temporal variations in use

Although user group sample sizes are comparable, it should be noted that use of the lake fluctuates, depending on the time of the day and the particular season. Observations indicate that some groups have a heavy presence at the lake during the summer (e.g., beach users and water skiers), but their numbers are almost negligible during the fall and winter months. Other groups appear to increase their use of

[2] In initial stages of data collection, it was recognized that it would be unsafe for the author to collect data in various sections of the park on an individual basis. As such, two research assistants were hired to assist with obtaining survey responses and field observation data. From October 15 until December 15, a 'buddy' system was utilized, whereby the assistants would accompany the author to the park, assist with noting field observations, and at times, obtain questionnaire responses. Although the research assistants may have introduced a bias in the results (as the first half of the questionnaires were filled out by the author only), it is felt that the potential bias was minimal, due to the fact that the author was always present at the lake during data collection and nearby while the assistants collected the survey response. While the need for research assistants may have compromised the validity of the data in a minimal way, it is felt that personal safety was paramount.

the lake during winter months (e.g., rowers and fishers), and decrease during summer. When the fluctuations in seasonal use are examined together with variations in time of day, it becomes evident that some user groups may be more likely to come into direct contact with other user groups on a more regular basis.

4.3 Summary of Frequency of Use

Overall, most users frequent the lake on a regular basis. More than 61 percent (61.7) of users visit the lake once per week or more, ten percent visit the lake monthly and only five percent visit once per year. Dearden (1985) found similar participation frequencies. Over 63 percent of the recreationists questioned in the 1985 study visited the lake once per week or more.

Users participate in a number of recreational activities on both the water surface and the shoreline and land surrounding the lake (Table 3).

Table 3 - Summary of Frequency of Users' Participation in Recreational Activities					
Activity	**3 or more times/week**	**Weekly**	**Monthly**	**Yearly**	**Never**
Trail Use	13.8% (15)	22.0% (24)	16.5% (18)	15.6% (17)	32.1% (35)
Beach Use	2.8% (3)	14.7% (16)	13.8% (15)	18.3% (20)	50.5% (55)
Swimming	3.7% (4)	13.9% (15)	8.3% (9)	17.6% (19)	56.5% (61)
Power boating	0.0% (0)	10.1% (11)	4.6% (5)	8.3% (9)	77.1% (84)
Non-power boating	1.8% (2)	6.4% (7)	10.0% (11)	10.0% (11)	71.8% (79)
Water skiing	0.9% (1)	7.3% (8)	5.5% (6)	5.5% (6)	80.7% (88)
Rowing	15.6% (17)	3.7% (4)	2.8% (3)	0.9% (1)	77.1 (84)
Fishing	3.6% (4)	7.3% (8)	6.4% (7)	4.5% (5)	78.2 (86)
Average Visits Per Frequency Type	30.3% (33)	31.2% (34)	10.1% (11)	22.7% (25)	5.5% (6)

While Tables 4 through 8 describe specific variations in the frequency of use between user groups, Table 3 summarizes the responses of all users. It is worthwhile noting that some users reported participating in several recreational activities. To describe lake use accurately, it is thus necessary to examine participation in additional recreational activities. For example, a user may participate in recreational rowing on a regular basis, in addition to using the trails three or more times per week; however, for many users, there is clearly a case of frequency and loyalty to participation in certain park activities.

Users participated in trail use more frequently than any other activity (35.8 percent participated once per week or more in this activity); further, only 32.1 percent of users have never participated in trail use at the lake. Although users participated in beach use and swimming in varying frequencies, 50.5 and 56.5 percent have never participated in these activities at the lake.

Over 80 percent of users have never participated in water skiing at the lake, which is the highest percentage of non involvement in any activity. Users who participate in water skiing tend to participate in this activity on a weekly (7.3 percent), monthly (5.5 percent) or yearly (5.5 percent) basis. While most park users have never participated in rowing (77.1 percent), the majority of rowers do so three times per week (15.6 percent). Similarly, 78.5 percent of users never fish at the lake, but 9.9 percent of those who do so, fish once per week or more. Except for the group of users who frequently participate in these activities, the majority of lake visitors rarely, if at all, participate in these activities.

4.4 Frequency of Use by User Group

This section describes the frequency in which the user groups participate in various recreational activities at the

lake. The significance of user groups' departure from a theoretical distribution of equal distribution among frequency categories was tested using chi-square. In this way, chi-square analysis was used to determine the strength in direction of user groups' responses. In tables, each user groups' participation frequencies are summarized and chi-square values for each activity are reported, along with the associated level of probability for significance. General patterns of frequency that emerge are also discussed.

4.4.1 Participation by Trail Users

The majority of trail users participated in their activity on a regular basis; 44 percent weekly, and 28 percent three or more times per week (Table 4).

TABLE 4 - TRAIL USERS' PARTICIPATION IN RECREATIONAL ACTIVITIES

(x) x = actual number of observations for each category, n=25

ACTIVITY	3+/WEEK	WEEKLY	MONTHLY	YEARLY	NEVER	CHI-SQUARE VALUE (df=4)
Trail use	28.0% (7)	44.0% (11)	12.0% (3)	12.0% (3)	4.0% (1)	12.8 $p \leq .05$
Swimming	4.0% (1)	4.0% (1)	12.0% (3)	20.0% (5)	60.0% (15)	27.2 $p \leq .001$
Beach use	4.0% (1)	0.0% (0)	8.0% (2)	12.0% (3)	76.0% (19)	50.0 $p \leq .001$
Non-power boating	0.0% (0)	4.0% (1)	12.0% (3)	8.0% (2)	76.0% (19)	50.0 $p \leq .001$
Power boating	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (25)	100.0 $p \leq .001$
Water skiing	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (25)	100.0 $p \leq .001$
Rowing	4.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	96.0% (24)	90.4 $p \leq .001$
Fishing	0.0% (0)	4.0% (1)	0.0% (0)	0.0% (0)	96.0% (24)	90.4 $p \leq .001$

Trail user's participation in other recreational activities was minimal; 40 percent participated in swimming activities, but only 8 percent participated in swimming once per week or more. Additionally, 76 percent of trail users have never participated in beach use or non-power boating; 96 percent have never participated in rowing or fishing and none of those surveyed have participated in power boating or water skiing at the lake. The strength of direction towards non-involvement in these activities was significant at $p \leq$

.001. The small percentage of trail users that rowed or fished (4 percent respectively), participated in the activities once per week or more.

4.4.2 Participation by Beach Users

Over 37 percent of beach users reported participating in beach use on a weekly basis, with 8.3 percent participating in the activity three times per week or more (Table 5).

TABLE 5 - BEACH USERS' PARTICIPATION IN RECREATIONAL ACTIVITIES

(x) x = actual number of observations for each category, n=24

ACTIVITY	3+/WEEK	WEEKLY	MONTHLY	YEARLY	NEVER	CHI-SQUARE VALUE (df=4)
Trail use	8.3% (2)	8.3% (2)	12.5% (3)	20.8% (5)	50.0% (12)	14.2 p ≤ .01
Swimming	12.5% (3)	33.3% (8)	12.5% (3)	12.5% (3)	29.2% (7)	5.0 p <.05
Beach use	8.3% (2)	37.5% (9)	25.0% (6)	25.0% (6)	4.2% (1)	8.6 p <.05
Non-power boating	4.2% (1)	0.0% (0)	12.5% (3)	8.3% (2)	75.0% (18)	44.6 p ≤ .001
Power boating	0.0% (0)	4.2% (1)	0.0% (0)	4.2% (1)	91.7% (22)	74.2 p ≤ .001
Water skiing	0.0% (0)	4.2% (1)	0.0% (0)	0.0% (0)	95.8% (23)	83.0 p ≤ .001
Rowing	0.0% (0)	0.0% (0)	4.2% (1)	0.0% (0)	95.8% (23)	83.0 p ≤ .001
Fishing	0.0% (0)	0.0% (0)	0.0% (0)	4.2% (1)	95.8% (23)	83.0 p ≤ .001

Beach users frequently participated in swimming; 45.8 percent swam once per week or more. The value of chi-square for these activities was not significant at $p < .05$; the beach users therefore appear to reflect a homogeneous population of equal distribution of frequencies in these activities.

The majority in this group do not participate in other recreational activities; 50 percent of beach users participated in trail use, and over 20 percent of those who participated in trail use do so on a yearly basis. The strength of direction for minimal involvement in this activity was significant at $p \leq .01$. Participation in non-power boating and power boating was minimal (75 and 91.7 percent respectively), and over 95 percent of beach users never participated in water skiing, rowing or fishing at the lake. The strength in direction of non-involvement in these activities was significant at $p \leq .001$.

4.4.3 Participation by Fishers

Fishers participated in a number of activities on an infrequent basis (Table 6).

TABLE 6 - FISHERS' PARTICIPATION IN RECREATIONAL ACTIVITIES (x) x = actual number of observations for each category, n=20						
ACTIVITY	**3+/WEEK**	**WEEKLY**	**MONTHLY**	**YEARLY**	**NEVER**	**CHI-SQUARE VALUE (df=4)**
Trail use	5.0% (1)	15.0% (3)	25.0% (5)	5.0% (1)	50.0% (10)	14.0 $p \leq .01$
Swimming	0.0% (0)	0.0% (0)	10.0% (2)	5.0% (1)	85.0% (17)	47.25 $p \leq .001$
Beach use	0.0% (0)	0.0% (0)	10.0% (2)	10.0% (2)	80.0% (16)	46.0 $p \leq .001$
Non-power boating	0.0% (0)	20.0% (4)	10.0% (2)	5.0% (1)	65.0% (13)	27.5 $p \leq .001$
Power boating	0.0% (0)	10.0% (2)	10.0% (2)	10.0% (2)	70.0% (14)	32.0 $p \leq .001$
Water skiing	0.0% (0)	0.0% (0)	5.0% (1)	5.0% (1)	90.0% (18)	61.5 $p \leq .001$
Rowing	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (20)	80.0 $p \leq .001$
Fishing	20.0% (4)	35.0% (7)	35.0% (7)	5.0% (1)	5.0% (1)	9.0 $p < .05$

The majority of fishers (55 percent) participated in fishing once per week or more, and 35 percent participated in this activity on a monthly basis. Testing of this groups' participation frequencies in fishing activities to the equally distributed theoretical distribution was not significant at $p < .05$; the fishers therefore appear to reflect a homogeneous population of equal distribution in fishing participation frequencies.

Besides fishing activities, fishers participated most frequently in non-power boating, where 20 percent participated weekly, and trail use, where 20 percent participated once per week or more and 25 percent participated on a monthly basis.

None of the fishers surveyed participated in rowing at the lake. Fishers participated infrequently in other activities; only 10 percent participated in water skiing, 15.8 percent participated in swimming and 20 percent in beach use. The strength of direction for all activities except fishing was towards non-involvement; this direction was significant at $p \leq .001$ for all activities except trail use, which was significant at $p \leq .01$.

4.4.4 Participation by Water Skiers

Water skiers participated in their activity, swimming and beach use in varying frequencies (Table 7).

TABLE 7 - WATER SKIERS' PARTICIPATION IN RECREATIONAL ACTIVITIES

(x) x = actual number of observations for each category, n=18

ACTIVITY	3+/WEEK	WEEKLY	MONTHLY	YEARLY	NEVER	CHI-SQUARE VALUE (df=4)
Trail use	5.5% (1)	5.5% (1)	11.1% (2)	38.9% (7)	38.9% (7)	10.0 p ≤ .05
Swimming	0.0% (0)	33.3% (6)	5.5% (1)	27.8% (5)	33.3% (6)	8.5 p <.05
Beach use	0.0% (0)	33.3% (6)	22.2% (4)	22.2% (4)	22.2% (4)	5.0 p <.05
Non-power boating	0.0% (0)	0.0% (0)	5.9% (1)	16.7% (3)	77.8% (14)	35.5 p ≤ .001
Power boating	0.0% (0)	44.4% (8)	11.1% (2)	27.8% (5)	16.7% (3)	9.5 p ≤ .05
Water skiing	5.5% (1)	38.9% (7)	22.2% (4)	27.8% (5)	5.5% (1)	7.0 p <.05
Rowing	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (18)	65.0 p ≤ .001
Fishing	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (18)	65.0 p ≤ .001

The chi-square value of these frequencies was not significant at $p < .05$. The water skiers surveyed thus reflect an equally distributed population for these activities.

Weekly, water skiers participated in power boating (47.1 percent), swimming and beach use (35.3 percent respectively). The only activities that water skiers

participated in three or more times per week were water skiing and trail use (5.9 percent each).

None of the water skiers surveyed participated in rowing or fishing at the lake, and 77.8 percent of this group have never participated in non-power boating. The strength of direction towards non-involvement in these activities was significant at $p \leq .001$.

4.4.5 Participation by Rowers

Of all user groups, rowers had the highest level of non-involvement in other activities (Table 8).

TABLE 8 - ROWERS' PARTICIPATION IN RECREATIONAL ACTIVITIES
(x) = actual number of observations for each category

ACTIVITY	3+/WEEK	WEEKLY	MONTHLY	YEARLY	NEVER	CHI-SQUARE VALUE (df=4)
Trail use	17.4% (4)	30.4% (7)	21.7% (5)	4.3% (1)	26.1% (6)	4.4 p <.05
Swimming	0.0% (0)	0.0% (0)	0.0% (0)	21.7% (5)	78.3% (18)	48.8 p ≤ .001
Beach use	0.0% (0)	4.3% (1)	4.3% (1)	21.7% (5)	69.6% (16)	35.6 p ≤ .001
Non-power boating	4.3% (1)	8.7% (2)	8.7% (2)	13.0% (3)	65.2% (15)	27.6 p ≤ .001
Power boating	0.0% (0)	0.0% (0)	4.3% (1)	4.3% (1)	91.3% (21)	67.6 p ≤ .001
Water skiing	0.0% (0)	0.0% (0)	4.3% (1)	4.3% (1)	91.3% (21)	67.6 p ≤ .001
Rowing	69.6% (16)	17.4% (4)	8.7% (2)	4.3% (1)	0.0% (0)	31.2 p ≤ .001
Fishing	0.0 (0)	0.0% (0)	0.0% (0)	13.0% (3)	87.0% (20)	60.8 p ≤ .001

The majority of rowers (91.3 percent) have never participated in water skiing or power boating, and 87 percent have never fished at the lake. As well, only 30.4 percent have participated in beach use and 34 percent have participated in non-power boating. The strength of direction towards non-involvement in these activities was significant at $p \leq .001$.

Of all the user groups, rowers most frequently participated in their activity once per week or more. The majority of rowers (69.6 percent) participated in rowing three times per week or more, and 17.4 percent of rowers participated in rowing weekly. The strength of direction towards participation once per week or more was significant at $p \leq .001$.

Excluding rowing activities, rowers participated most frequently in trail use (17.4 percent participate three times per week or more and 30.4 percent participate in trail use weekly). Moreover, participation in this activity is not significant at $p < .05$, and it is concluded that participation in trail use reflects an evenly distributed population. The only other activity rowers participate once per week or more was non-power boating (13 percent).

4.5 Summary of Importance of Lake Features

Users were asked how important various lake features were in terms of choosing the lake as their recreation destination. Chi-square values are described in summary and individual group responses on the importance of lake features to determine if there was any strength of direction in response, or if the user groups' responses reflected an evenly distributed population. A summary of responses to this survey question is contained in Table 9[3].

Table 9 - SUMMARY OF IMPORTANCE OF CERTAIN LAKE FEATURES
(x) x = actual number of observations for each category

FEATURE	IMPORTANT (%)	NEUTRAL (%)	UNIMPORTANT (%)	CHI-SQUARE VALUE (df=2)
Location N=103	93.2% (96)	4.9% (5)	1.9% (2)	168.27 $p \leq .001$
Uncrowded space N=102	82.4% (84)	14.7% (15)	2.9% (3)	112.41 $p \leq .001$
Ample parking space N=101	71.3% (72)	19.8% (20)	8.9% (9)	66.62 $p \leq .001$
Good water quality N=102	82.4% (84)	15.7% (16)	2.0% (2)	113.18 $p \leq .001$
Clean environment N=103	92.2% (95)	7.8% (8)	0.0% (0)	163.32 $p \leq .001$
Presence of wildlife N=103	71.8% (74)	18.4% (19)	9.7% (10)	70.62 $p \leq .001$

[3] After several questionnaires were completed, it was noted that some users had difficulty answering this question, because the wording of the features were presented them positively. For example, some respondents stated that while water quality was very important to them in terms of attracting them to a lake, they felt that Elk/Beaver Lake had very poor water quality. Likewise, some users discussed the fact that while an 'uncrowded space' in which to recreate was very important to them, their experience at Elk/Beaver Lake had been anything but uncrowded. While it is acknowledged that this question has some biases, the results are useful in that there appears to be a strong direction in responses in terms of the overall importance of the various lake features, especially those related to clean environment and location.

Users responded most frequently that location (93.2 percent) and the presence of a clean environment (92.2 percent) were important. The most unimportant feature was the presence of wildlife (9.7 percent), followed by ample parking space (8.9 percent). The overall strength of direction by recreationists was towards important at $p \leq .001$.

Dearden (1985) found similar results. Recreationists in the 1985 study reported that location, water conditions, and aesthetics (such as a clean environment) were most important 'attractive' features of the park, while parking space and crowding were the least important park features (although all features were significantly important).

4.6 Importance of Lake Features by User Group

Although the user groups generally had similar responses in terms of the importance of certain lake features to their recreation experience, there are some interesting inter-group variations in answers. This section describes the importance of lake features according to user group. Chi-

square was used to determine strength of direction for user group responses for comparison purposes[4].

4.6.1 Location Importance

All of the user groups placed a high importance on location (Table 10).

TABLE 10 - IMPORTANCE OF LOCATION
(x) x = actual number of observations for each category

USER GROUP	IMPORTANT	NEUTRAL	UNIMPORTANT	CHI-SQUARE VALUE (df=2)
Beach User (n=23)	82.6% (19)	13.0% (3)	4.3% (1)	24.38 p ≤ .001
Trail User (n=25)	96.0% (24)	4.0% (1)	0.0% (0)	46.13 p ≤ .001
Fisher (n=19)	100.0% (19)	0.0% (0)	0.0% (0)	40.17 p ≤ .001
Water skier (n=17)	94.1% (16)	5.9% (1)	0.0% (0)	26.83 p ≤ .001
Rower (n=19)	94.7% (18)	0.0% (0)	5.3% (1)	34.17 p ≤ .001
Column Total (n=103)	93.2% (96)	4.9(5)	1.9% (2)	167.92 p ≤ .001

As a group, fishers placed the highest importance on location setting (100 percent), followed by trail users (96 percent). Although over 94 percent of rowers reported that location of the lake was important to their lake experience, they also had the highest percent of users who reported the location was unimportant (5.3 percent). Beach users (4.3

[4] After analyzing the questionnaires, a few non-responses to the importance of lake features were noted. As such, the population sizes for each of the user groups may differ for this section of the questionnaire only. The population size for each user group is therefore listed for each question in this section.

percent) were the only other group which reported that location was unimportant; they also had the highest number of neutral responses. Nevertheless, the direction of all user group responses towards the importance of location was significant at $p \leq .001$.

4.6.2 Importance of Uncrowded Space

The majority of all users stated that uncrowded space was important to their choosing the lake as their recreation destination (Table 11).

TABLE 11 - IMPORTANCE OF UNCROWDED SPACE
(x) x = actual number of observations for each category

USER GROUP	IMPORTANT	NEUTRAL	UNIMPORTANT	CHI-SQUARE VALUE (df=2)
Beach User (n=22)	81.8% (18)	13.6% (3)	4.5% (1)	24.72 p ≤ .001
Trail User (n=25)	92.0% (23)	8.0% (2)	0.0% (0)	40.63 p ≤ .001
Fisher (n=19)	73.7% (14)	15.8% (3)	10.5% (2)	14.83 p ≤ .001
Water skier (n=17)	76.5% (13)	23.5% (4)	0.0% (0)	14.83 p ≤ .001
Rower (n=19)	84.2% (16)	15.8% (3)	0.0% (0)	24.17 p ≤ .001
Column Total (n=102)	82.4% (84)	14.7% (15)	2.9% (3)	112.41 p ≤ .001

Although all of the user groups placed a high importance on uncrowded space, the trail users most often reported its

importance, at 92 percent[5]. Uncrowded space is least important to fishers, who had the highest percent of users reporting that uncrowded space was unimportant (10.5 percent) and the lowest percent of users who reported that uncrowded space was important (73.7 percent). Water skiers had the highest percentage of neutral responses. As with the importance of location, the direction of all user groups' responses to this question towards the importance of uncrowded space was significant at $p \leq .001$.

4.6.3 Importance of Ample Parking Space

Users were queried about the importance of ample parking space to their choosing the lake as their recreation destination (Table 12).

TABLE 12 - IMPORTANCE OF AMPLE PARKING SPACE (x) x = actual number of observations for each category

USER GROUP	IMPORTANT	NEUTRAL	UNIMPORTANT	CHI-SQUARE VALUE (df=2)
Beach User (n=23)	69.6% (16)	13.0% (3)	17.4% (4)	13.13 p ≤ .01
Trail User (n=23)	78.3% (18)	13.0% (3)	8.7% (2)	20.13 p ≤ .001
Fisher (n=19)	78.9% (15)	21.1% (4)	0.0% (0)	20.17 p ≤ .001
Water skier (n=17)	70.6% (12)	23.5% (4)	5.9% (1)	10.83 p ≤ .01
Rower (n=19)	57.9% (11)	31.6% (6)	10.5% (2)	6.83 p ≤ .05
Column Total (n=101)	71.3% (72)	19.8% (20)	8.9% (9)	66.62 p ≤ .001

[5] It is unclear whether trail users thought that uncrowded space was important in terms of water surface, space on land (e.g., trails and lake shoreline), or both.

Ample parking space was most important to fishers (78.9 percent) and trail users (78.3 percent); the strength of direction of parking space importance to this group was significant at $p \leq .001$. Beach users (17.4 percent) had the highest percent of users who reported that ample parking space was unimportant to them, although the direction of their response towards the importance of this feature was significant at $p \leq .01$. Rowers had the second highest percentage of users who reported parking space was unimportant (10.5 percent); they were also the least likely of the groups to report ample parking space was important (57.9 percent). For this feature, the strength of direction of the importance of parking space for this group was the least significant, at $p \leq .05$.

4.6.4 Importance of Good Water Quality

Good water quality at the lake is most important to trail users (91.3 percent) and beach users (87 percent) (Table 13).

TABLE 13 - IMPORTANCE OF GOOD WATER QUALITY (x) x = actual number of observations for each category				
USER GROUP	**IMPORTANT**	**NEUTRAL**	**UNIMPORTANT**	**CHI-SQUARE VALUE (df=2)**
Beach User (n=23)	87.0% (20)	13.0% (3)	0.0% (0)	29.13 p ≤ .001
Trail User (n=23)	91.3% (21)	8.7% (2)	0.0% (0)	33.63 p ≤ .001
Fisher (n=19)	78.9% (15)	15.8% (3)	5.3% (1)	19.17 p ≤ .001
Water skier (n=18)	72.2% (13)	27.8% (5)	0.0% (0)	14.33 p ≤ .001
Rower (n=19)	78.9% (15)	15.8% (3)	5.3% (1)	19.17 p ≤ .001
Column Total (n=102)	82.4% (84)	15.7% (16)	2.0% (2)	113.18 p ≤ .001

Only users from rowing and fishing user groups reported that good water quality was unimportant (5.3 percent). A large percentage of water skiers (27.8 percent) were neutral about the importance of good water quality. The strength of direction towards the importance of good water quality was significant at $p \leq .001$ for all user groups.

4.6.5 Importance of Clean Environment

All of the beach and trail users stated that the presence of a clean environment was important (Table 14).

TABLE 14 - IMPORTANCE OF CLEAN ENVIRONMENT (x) x = actual number of observations for each category				
USER GROUP	**IMPORTANT**	**NEUTRAL**	**UNIMPORTANT**	**CHI-SQUARE VALUE (df=2)**
Beach User (n=23)	100.0% (23)	0.0% (0)	0.0% (0)	44.13 p ≤ .001
Trail User (n=24)	100.0% (24)	0.0% (0)	0.0% (0)	48.0 p ≤ .001
Fisher (n=19)	94.7% (18)	5.3% (1)	0.0% (0)	34.17 p ≤ .001
Water skier (n=18)	66.7% (12)	33.3% (6)	0.0% (0)	12.0 p ≤ .01
Rower (n=19)	94.7% (18)	5.3% (5.3)	0.0% (0)	34.17 p ≤ .001
Column Total (n=103)	92.2% (95)	7.8% (8)	0.0% (0)	163.32 p ≤ .001

Water skiers had the highest percent of neutral responses to this question (33.3 percent). They also had the lowest percent of users who reported that a clean environment was important (66.7 percent), although the strength of direction towards the importance of this feature was significant at p ≤ .01. No users reported that the presence of a clean environment was unimportant; further, the strength of direction towards the importance of this feature for all user groups except water skiers was significant at p ≤ .001.

4.6.6 Importance of Wildlife Presence

All of the fishers surveyed reported that the presence of wildlife was important for their choice of recreation destination (Table 15).

TABLE 15 - IMPORTANCE OF WILDLIFE PRESENCE
(x) x = actual number of observations for each category

USER GROUP	IMPORTANT	NEUTRAL	UNIMPORTANT	CHI-SQUARE VALUE (df=2)
Beach User (n=23)	34.8% (8)	34.8% (8)	30.4% (7)	0.13 p <.05
Trail User (n=24)	95.8% (23)	4.2% (1)	0.0% (0)	34.25 p ≤ .001
Fisher (n=19)	100.0% (19)	0.0% (0)	0.0% (0)	40.17 p ≤ .001
Water skier (n=18)	44.4% (8)	38.9% (7)	16.7% (3)	2.33 p <.05
Rower (n=19)	84.2% (16)	15.8% (3)	0.0% (0)	24.17 p ≤ .001
Column Total (n=103)	71.8% (74)	18.4% (19)	9.7% (10)	70.62 p ≤ .001

Presence of wildlife was also important to trail users (95.8 percent), and rowers (84.2 percent). The strength of direction towards the importance of wildlife for these groups was significant at $p \leq .001$. Beach users and water skiers were the least likely to report that the presence of wildlife was important to their choice of recreation destination. Further, 30.4 percent of beach users and 16.7 percent of water skiers reported that the presence of wildlife was unimportant to them. Chi-square analysis of beach users' and water skiers' responses were not

significant at $p < .05$. As such, it appears as if these two groups reflected a homogeneous population with fairly evenly distributed responses. This feature was the only one in which there was a non-significant response.

4.7 Summary of the Effects of Other Users on the Recreational Experience

Users were asked about the effects of other types of user groups on their recreational experience (Table 16).

TABLE 16 - SUMMARY OF THE EFFECTS OF ALL TYPES OF USER GROUPS ON THE RECREATION EXPERIENCE

(x) x = actual number of observations for each category

ATTITUDES TO OTHER USERS	ANNOYING	NEUTRAL	ENJOYABLE	CHI-SQUARE VALUE (df=2, n=110)
Trail Users	2.7% (3)	39.1% (43)	58.2% (64)	51.92 $p \leq .001$
Swimmers	6.4% (7)	44.5% (49)	49.1% (54)	36.03 $p \leq .001$
Beach Users	2.7% (3)	46.4% (51)	50.9% (56)	46.30 $p \leq .001$
Power Boaters	54.5% (60)	23.6% (26)	21.8% (24)	22.14 $p \leq .001$
Water Skiers	50.9% (56)	28.2% (31)	20.9% (23)	16.03 $p \leq .001$
Non-power Boaters	11.8% (13)	43.6% (48)	44.5% (49)	22.73 $p \leq .001$
Rowers	16.4% (18)	30.9% (34)	52.7% (58)	21.92 $p \leq .001$
Fishers	14.5% (16)	43.6% (48)	41.8% (46)	17.38 $p \leq .001$

Chi-square analysis was used to determine the degree to which recreationists found other user groups to be annoying, neutral or enjoyable. As such, user group responses to the questionnaire were compared to a theoretical, evenly distributed population to determine strength of direction. The overall strength of direction towards annoying for the effects of power boaters and water skiers was significant at $p \leq .001$. Although 16.4 percent of users found rowers and 14.5 percent found fishers annoying, the strength of direction towards enjoyable for the effects of these groups was significant at $p \leq .001$. Similarly, the strength of direction towards enjoyable for all other groups was significant at $p \leq .001$.

Dearden (1985) asked users to rank various lake activities in terms of their 'importance in the enjoyment of Elk Lake'. He found that swimmers, non-power boaters and beach users consistently ranked as the most important in terms of adding to the enjoyment at the lake. Rowers, fishers, water skiers and power boaters were similarly in the middle to lower rankings in importance in terms of adding to the enjoyment of the lake.

4.8 Effects of Other Users on the Recreational Experience by User Group

User groups had differing opinions about the effects of other user groups on their recreational experience. Differences in opinions also existed within the user groups. This section describes the opinions of the lake user groups concerning the effects of other recreational activities. As with the summary table above, chi-square was used to determine the significance of strength of direction in response for each user group towards the effects of the various recreation activities which occur at the lake.

4.8.1 Attitudes Towards Trail Users

Only a slight percentage of all users (2.7 percent) found trail users annoying to their recreational experience (Table 17).

TABLE 17 - EFFECTS OF TRAIL USERS
(x) x = actual number of observations for each category

USER GROUP	ANNOYING	NEUTRAL	ENJOYABLE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	4.2% (1)	45.8% (11)	50.0% (12)	9.25 p ≤ .01
TRAIL USER (n=25)	8.0% (2)	28.0% (7)	64.0% (16)	12.63 p ≤ .01
FISHER (n=20)	0.0% (0)	30.0% (6)	70.0% (14)	14.14 p ≤ .001
WATER SKIER (n=18)	0.0% (0)	50.0% (9)	50.0% (9)	9.0 p ≤ 05
ROWER (n=23)	0.0% (0)	43.5% (10)	56.5% (13)	11.63 p ≤ .01
COLUMN TOTAL (n=110)	2.7% (3)	39.1% (43)	58.2% (64)	51.91 p ≤ .001

The user group who found trail users most annoying was trail users themselves (8 percent). The only other group that found trail users annoying was beach users (4.2 percent). The strength of direction of the effects of trail users towards enjoyable for trail users and beach users was significant at $p \leq .01$. Of all the user groups, fishers found trail users most enjoyable (70 percent), followed by other trail users (64 percent) and rowers (56.5 percent). The strength of direction towards the enjoyment of trail users was significant at $p \leq .001$ for fishers. A high percentage of users were neutral about the effects of this group (39.1 percent); the strength of direction towards the enjoyment of trail users was significant at $p \leq .01$ for rowers and water skiers.

4.8.2 Attitudes Towards Swimmers

User groups had varying responses about the effects of swimmers (Table 18).

TABLE 18 - EFFECTS OF SWIMMERS (x) x = actual number of observations for each category				
USER GROUP	**ANNOYING**	**NEUTRAL**	**ENJOYABLE**	**CHI-SQUARE VALUE (df=2)**
BEACH USER (n=24)	4.2% (1)	20.8% (5)	75.0% (19)	19.75 p ≤ .001
TRAIL USER (n=25)	0.0% (0)	64.0% (16)	36.0% (9)	16.125 p ≤ .001
FISHER (n=20)	0.0% (0)	45.0% (9)	55.0% (11)	9.86 p ≤ .01
WATER SKIER (n=18)	5.6% (1)	55.6% (10)	38.9% (7)	7.0 p ≤ .05
ROWER (n=23)	21.7% (5)	39.1% (9)	39.1% (9)	3.25 p <.05
COLUMN TOTAL (n=110)	6.4% (7)	44.5% (49)	49.1% (54)	36.02 p ≤ .001

Beach users (75 percent) and fishers (55 percent) found swimmers most enjoyable, although the strength of direction towards the enjoyment of swimmers was significant at $p \leq .001$ for beach users and $p \leq .01$ for fishers (most likely due to the large percent of neutral responses to this question[6]). Rowers had the highest percentage of users who found swimmers annoying (21.7 percent), but were the only group whose direction of response to this question was not significant at $p < .05$. Water skiers (5.6 percent) and beach users (4.2 percent) were the only other groups who found the effects of swimmers to be annoying. The direction

[6] Although it appears as if this groups' responses reflects a bi-modal distribution, a more sophisticated survey would have enabled further analysis of this distribution.

of response to this question for water skiers was towards neutral and was significant at $p \leq .05$; for beach users the direction was towards enjoyable at $p \leq .001$. The majority of trail users were neutral about the effects of swimmers (64 percent), and the strength of direction towards neutral for this group was significant at $p \leq .001$.

4.8.3 Attitudes Towards Beach Users

Over 50 percent of users found beach users enjoyable (Table 19).

TABLE 19 - EFFECTS OF BEACH USERS
(x) x = actual number of observations for each category

USER GROUP	ANNOYING	NEUTRAL	ENJOYABLE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	4.2% (1)	29.2% (7)	66.7% (16)	14.25 $p \leq .001$
TRAIL USER (n=25)	4.0% (1)	64.0% (16)	32.0% (8)	14.13 $p \leq .001$
FISHER (n=20)	0.0% (0)	45.0% (9)	55.0% (11)	9.86 $p \leq .01$
WATER SKIER (n=18)	5.6% (1)	44.4% (8)	50.0% (9)	6.33 $p \leq .05$
ROWER (n=23)	0.0% (0)	47.8% (11)	52.2% (12)	11.13 $p \leq .01$
COLUMN TOTAL (n=110)	2.7% (3)	46.4% (51)	50.9% (56)	46.29 $p \leq .001$

A slight percentage of water skiers (5.6 percent) found beach users annoying; the strength of direction towards neutral to enjoyable was significant at $p \leq .05$ for this group. Beach users (66.7 percent), fishers (55 percent) and

rowers (52.2 percent) found beach users to be enjoyable. The strength of direction towards the enjoyment of this group was significant at $p \leq .001$ for beach users and $p \leq .01$ for fishers and rowers. Only 32 percent of trail users found beach users enjoyable, and 64 percent of this group were neutral about their effects. The strength of direction of trail users' response towards neutral was significant at $p \leq .001$.

4.8.4 Attitudes Towards Power Boaters

Power boaters appeared to annoy other user groups more than any other recreational activity (Table 20).

TABLE 20 - EFFECTS OF POWER BOATERS
(x) x = actual number of observations for each category

USER GROUP	ANNOYING	NEUTRAL	ENJOYABLE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	58.3% (14)	25.0% (6)	16.7% (4)	7.0 p ≤ .05
TRAIL USER (n=25)	68.0% (17)	28.0% (7)	4.0% (1)	16.38 p ≤ .001
FISHER (n=20)	60.0% (12)	20.0% (4)	20.0% (4)	6.14 p ≤ .05
WATER SKIER (n=18)	5.6% (1)	38.9% (7)	55.6% (10)	7.0 p ≤ .05
ROWER (n=23)	69.6% (16)	8.7% (2)	21.7% (5)	13.63 p ≤ .01
COLUMN TOTAL (n=110)	54.5% (60)	23.6% (26)	21.8% (24)	22.14 p ≤ .001

Rowers were most annoyed by power boaters (69.6 percent), followed by trail users (68 percent) fishers (60 percent) and beach users (58.3 percent). The strength of direction towards the annoyance of power boaters was significant at $p \leq .01$ for rowers, $p \leq .001$ for trail users and $p \leq .05$ for fishers and beach users. Water skiers had the highest percentage of users who found the effects of power boating enjoyable; only 5.6 percent of water skiers reported that power boaters annoyed them. The strength of direction in their response towards the enjoyment of power boaters was significant at $p \leq .05$. Overall, trail users were least likely to find power boaters enjoyable (4 percent).

4.8.5 Attitudes Towards Water Skiers

Rowers (87 percent), fishers (70 percent) and trail users (52 percent) had the highest percentage of users who reported that water skiers annoyed them (Table 21).

TABLE 21 - EFFECTS OF WATER SKIERS (x) x = actual number of observations for each category				
USER GROUP	**ANNOYING**	**NEUTRAL**	**ENJOYABLE**	**CHI-SQUARE VALUE (df=2)**
BEACH USER (n=24)	37.5% (9)	33.3% (8)	29.2% (7)	0.25 p <.05
TRAIL USER (n=25)	52.0% (13)	40.0% (10)	8.0% (2)	8.13 p ≤ .05
FISHER (n=20)	70.0% (14)	15.0% (3)	15.0% (3)	11.57 p ≤ .01
WATER SKIER (n=18)	0.0% (0)	38.9% (7)	61.1% (11)	10.33 p ≤ .01
ROWER (n=23)	87.0% (20)	13.0% (3)	0.0% (0)	29.13 p ≤ .001
COLUMN TOTAL (n=110)	50.9% (56)	28.2% (31)	20.9% (23)	16.03 p ≤ .001

The strength of direction of response towards the annoyance of water skiers was significant at $p \leq .001$ for rowers, $p \leq .01$ for fishers and $p \leq .05$ for trail users. No water skiers found other water skiers annoying, and in fact, water skiers were most likely to find the effects of water skiing enjoyable (61.1 percent). The strength of direction of water skiers' response towards enjoyment was significant at $p \leq .01$. The strength of direction in response for beach users was not significant at $p < .05$. It therefore appears as if this group reflects a homogeneous population with evenly distributed responses.

4.8.6 Attitudes Towards Non-power Boaters

The majority of users found the effects of non-power boaters to be enjoyable (Table 22).

TABLE 22 - EFFECTS OF NON-POWER BOATERS
(x) x = actual number of observations for each category

USER GROUP	ANNOYING	NEUTRAL	ENJOYABLE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	8.3% (2)	29.2% (7)	62.5% (15)	10.75 p ≤ .01
TRAIL USER (n=25)	4.0% (1)	48.0% (12)	48.0% (12)	10.13 p ≤ .01
FISHER (n=20)	5.0% (1)	40.0% (8)	55.0% (11)	7.57 p ≤ .05
WATER SKIER (n=18)	11.1% (2)	66.7% (12)	22.2% (4)	9.33 p ≤ .01
ROWER (n=23)	30.4% (7)	39.1% (9)	30.4% (7)	.38 p <.05
COLUMN TOTAL (n=110)	11.8% (13)	43.6% (48)	44.5% (49)	22.73 p ≤ .001

Rowers (30.4 percent) and water skiers (11.1 percent) found non-power boaters most annoying, although the strength of direction in responses was not significant at $p < .05$ for rowers, and towards neutral at $p \leq .01$ for water skiers. Beach users (62.5 percent)and fishers (55 percent) found the effects of non-power boating most enjoyable. The strength of direction in response towards the enjoyment of non-power boaters was significant at $p \leq .01$ for beach users and $p \leq .05$ for fishers. The strength of direction about the

effects of non-power boaters towards neutral for water skiers and trail users was significant at $p \leq .01$.

4.8.7 Attitudes Towards Rowers

User groups reported varying attitudes towards the effects of rowers on their recreation experience (Table 23)

TABLE 23 - EFFECTS OF ROWERS
(x) x = actual number of observations for each category

USER GROUP	ANNOYING	NEUTRAL	ENJOYABLE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	4.2% (1)	25.0% (6)	70.8% (17)	16.75 $p \leq .001$
TRAIL USER (n=25)	4.0% (1)	44.0% (11)	52.0% (13)	10.38 $p \leq .01$
FISHER (n=20)	40.0% (8)	30.0% (6)	30.0% (6)	0.43 $p < .05$
WATER SKIER (n=18)	44.4% (8)	55.6% (10)	0.0% (0)	9.33 $p \leq .01$
ROWER (n=23)	0.0% (0)	4.3% (1)	95.7% (22)	38.63 $p \leq .001$
COLUMN TOTAL (n=110)	16.4% (18)	30.9% (34)	52.7% (58)	21.92 $p \leq .001$

Both water skiers and fishers had a large percentage of users who found the effects of rowers annoying to their recreation experience (44 and 40 percent, respectively). As well, water skiers had the highest percent of neutral responses to this group's effects (55.6 percent). The strength in direction of response for water skiers was towards neutral to annoying and was significant at $p \leq .01$. The strength of direction for fishers was not significant at

$p < .05$. As such, it appears as if the responses of this group reflect those of a homogeneous population with evenly distributed responses. Rowers overwhelmingly reported that other rowers were enjoyable (95.7 percent). Beach users (70.8 percent) and trail users (52 percent) reported that the effects of rowers were enjoyable. The strength of direction in response towards the enjoyment of rowers was significant at $p \leq .001$ for rowers and beach users and $p \leq .01$ for trail users.

4.8.8 Attitudes Towards Fishers

Overall, user groups found the effects of fishers to be neutral to enjoyable (Table 24).

TABLE 24 - EFFECTS OF FISHERS
(x) x = actual number of observations for each category

USER GROUP	ANNOYING	NEUTRAL	ENJOYABLE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	12.5% (3)	41.7% (10)	45.8% (11)	4.75 $p < .05$
TRAIL USER (n=25)	0.0% (0)	56.0% (14)	44.0% (11)	13.63 $p \leq .01$
FISHER (n=20)	0.0% (0)	35.0% (7)	65.0% (13)	12.14 $p \leq .01$
WATER SKIER (n=18)	22.2% (4)	66.7% (12)	11.1% (2)	9.33 $p \leq .01$
ROWER (n=23)	39.1% (9)	21.7% (5)	39.1% (9)	1.38 $p < .05$
COLUMN TOTAL (n=110)	14.5% (16)	43.6% (48)	41.8% (46)	17.38 $p \leq .001$

Rowers (39.1 percent), water skiers (22.2 percent) and beach users (12.5 percent) found the effects of fishers most annoying. However, the responses of rowers and beach users were not significant at $p < .05$. It appears as if the responses of these groups reflect that of an evenly distributed homogeneous population. As water skiers had the highest percentages of neutral responses (66.7 percent), the strength of direction for this group was towards neutrality and was significant at $p \leq .01$. The strength of direction for trail users was also towards neutral to enjoyable and was significant at $p \leq .01$. Fishers were the only group whose strength of direction towards enjoyable was significant, at $p \leq .01$.

4.9 Conflict Avoidance: Summary of How Users Deal With Annoying Behaviour

Users were asked how they would deal with annoying behaviour at the lake (Table 25).

TABLE 25 - SUMMARY OF USERS' RESPONSES TO HOW THEY WOULD DEAL WITH ANNOYING BEHAVIOUR AT THE LAKE

(x) x = actual number of observations for each category, n=110

BEHAVIOUR	YES	NO	UNCERTAIN
Ignore the activities	60.9% (67)	23.6% (26)	15.5% (17)
Avoid lake altogether	19.1% (21)	68.2% (75)	12.7% (14)
Avoid lake sections	59.1% (65)	27.3% (30)	13.6% (15)
Avoid lake at certain times	54.1% (59)	28.4% (31)	17.4% (19)
Complain to authority	35.5% (39)	46.4% (51)	18.2% (20)
Write to local paper	13.6% (15)	67.3% (74)	19.1% (21)
Protest at city hall	10.9% (12)	68.2% (75)	20.9% (23)
Complain to annoyers	44.9% (48)	35.5% (38)	19.6% (21)

If faced with annoying behaviour at the lake, users most often reported that they would ignore the activities (60.9 percent), avoid lake sections (59.1 percent) or avoid the lake at certain times (54.1 percent). The least popular way to deal with annoying behaviour was avoid the lake altogether (68.2 percent), protest at city hall (68.2 percent), and write to the local paper (67.3 percent).

In interviews, resource managers were asked how users would deal with annoying behaviour at the lake. The managers were given the same closed ended answer choices as the user group respondents. The resource manager's responses to the various answer choices were ranked in terms of frequency in response and then compared to those answer choices most frequently cited by user groups (Table 26).

Table 26 MANAGERS' RESPONSES COMPARED TO USERS' RESPONSES TO CONFLICT AVOIDANCE BEHAVIOUR

Answer choices ranked by frequency in response

Resource Manager Responses	User Group Responses
1. Complain to an authority	1. Ignore the activities
2. Complain to the annoyers	2. Avoid lake sections
3. Ignore the activities	3. Avoid lake at certain times
4. Avoid lake sections	4. Complain to the annoyers
5. Avoid the lake altogether	5. Complain to an authority
6. Write to the local paper	6. Avoid lake altogether
7. Avoid lake at certain times	7. Write to the local paper

Spearman's *Rho* correlation test was used to determine if there was any relationship between the resource managers' and user groups' responses about conflict avoidance

behaviour and if there was a relationship, to determine the degree of correlation between the responses. From the results of the correlation carried out on the frequency of citing the various behaviours, it was found that there did not appear to be a significant association between the two group's responses (*rho* = +0.1875, N=7 for a two-tailed test). The null hypothesis, that there was no relationship between resource managers' and user groups' citing of certain conflict avoidance behaviours is therefore accepted and it is concluded that resource managers and user groups had differing opinions about how user groups would deal with annoying behaviour at the lake.

4.10 Conflict Avoidance: Dealing With Annoying Behaviour by User Group

This section will describe the behaviours that the various user groups stated they would engage in, if they had to deal with annoying behaviour at the lake. The significance of user groups' departure from a theoretical distribution of equal distribution among answer categories was tested using chi-square analysis to determine the strength in direction of user groups' responses.

4.10.1 Ignoring the Activities

All user groups except trail users would likely ignore annoying activities (Table 27).

TABLE 27 - IGNORE THE ACTIVITIES
(x) x = actual number of observations for each category

USER GROUP	YES	NO	UNCERTAIN	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	66.7% (16)	4.2% (1)	29.2% (7)	14.25 p ≤ .001
TRAIL USER (n=25)	40.0% (10)	44.0% (11)	16.0% (4)	3.63 p <.05
FISHER (n=20)	70.0% (14)	25.0% (5)	5.0% (1)	12.71 p ≤ .01
WATER SKIER (n=18)	72.2% (13)	11.1% (2)	16.7% (3)	12.33 p ≤ .01
ROWER (n=23)	60.9% (14)	30.4% (7)	8.7% (2)	9.13 p ≤ .05
COLUMN TOTAL (n=110)	60.9% (67)	23.6% (26)	15.5% (17)	38.41 p ≤ .001

Water skiers (72.2 percent), fishers (70 percent) and beach users (66.7 percent) had the highest frequency of users who reported they would ignore the activities. The strength of direction in response to this question towards ignoring the activities is significant at $p \leq .01$ for water skiers and fishers. Although over 29 percent of beach users were uncertain as to whether they would ignore the activities, the strength in direction of their response towards ignoring the activities is significant at $p \leq .001$. High percentages of trail users (44 percent) reported they would not ignore

the activities and they would ignore the activities (40 percent), perhaps reflecting a bi-modal distribution. The strength of direction for this groups' response was not significant at $p < .05$; it therefore appears as if trail users' responses approximate those of an evenly distributed population. Although approximately one third of rowers reported they would not ignore annoying activities (30.4 percent), 60.9 percent stated they would ignore the activities; the strength in direction of their response towards ignoring the activities was significant at $p \leq .05$.

4.10.2 Avoiding the Lake Altogether

User groups were asked whether they would avoid the lake altogether, if they were met with annoying behaviour (Table 28).

TABLE 28 - AVOID LAKE ALTOGETHER
(x) x = actual number of observations for each category

USER GROUP	YES	NO	UNCERTAIN	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	25.0% (6)	41.7% (10)	33.3% (8)	1.0 p <.05
TRAIL USER (n=25)	16.0% (4)	72.0% (18)	12.0% (3)	17.63 p ≤ .001
FISHER (n=20)	25.0% (5)	75.0% (15)	0.0% (0)	16.71 p ≤ .001
WATER SKIER (n=18)	16.7% (3)	72.2% (13)	11.1% (2)	12.33 p ≤ .01
ROWER (n=23)	13.0% (3)	82.6% (19)	4.3% (1)	24.38 p ≤ .001
COLUMN TOTAL (n=110)	19.1% (21)	68.2% (75)	12.7% (14)	60.24 p ≤ .001

The majority of users from rowing (82.6 percent), fishing (75 percent), water skiing (72.2 percent) and trail use (72 percent) were least likely to avoid the lake altogether if faced with annoying behaviour. The strength in direction of response towards avoiding the lake was significant at $p \leq .001$ for rowers, fishers and trail users, and significant at $p \leq .01$ for water skiers. Over 33 percent of beach users were uncertain as to whether they would avoid the lake altogether and 25 percent would avoid the lake altogether making them the group with the highest percentage of recreationists who were uncertain or who would avoid the lake. The strength of direction in their response to this question was not significant at $p < .05$; it appears as if this group's response approximates that of an evenly distributed, homogeneous population.

4.10.3 Avoiding Lake Sections

Rowers (87 percent), beach users (58.3 percent) and water skiers (55.6 percent) had the highest percentages of users who reported they would avoid lake sections (Table 29).

TABLE 29 - AVOID LAKE SECTIONS (x) x = actual number of observations for each category				
USER GROUP	**YES**	**NO**	**UNCERTAIN**	**CHI-SQUARE VALUE (df=2)**
BEACH USER (n=24)	58.3% (14)	12.5% (3)	29.2% (7)	7.75 $p \leq .05$
TRAIL USER (n=25)	44.0% (11)	44.0% (11)	12.0% (3)	5.38 $p < .05$
FISHER (n=20)	50.0% (10)	45.0% (9)	5.0% (1)	7.0 $p \leq .05$
WATER SKIER (n=18)	55.6% (10)	27.8% (5)	16.7% (3)	4.33 $p < .05$
ROWER (n=23)	87.0% (20)	8.7% (2)	4.3% (1)	28.63 $p \leq .001$
COLUMN TOTAL (n=110)	59.1% (65)	27.3% (30)	13.6% (15)	35.59 $p \leq .001$

The strength of direction of response towards avoiding lake sections was significant at $p \leq .001$ for rowers. Although beach users had the highest percentage of users who were uncertain whether they would avoid lake sections, the strength of direction towards avoiding lake sections was significant at $p \leq .05$. The response of water skiers was not significant at $p < .05$, as such, this group's responses thus appears to approximate responses which would be expected of an evenly distributed homogeneous population. Fishers (45 percent) and trail users (44 percent) reported they would not avoid lake sections if faced with annoying lake behaviour. Although fishers had the highest percentage of users who would not avoid lake sections, 50 percent of

fishers reported they would avoid them; the strength of direction towards avoiding lake sections was significant at $p \leq .05$. The response of trail users was not significant at $p < .05$; this group thus approximates an evenly distributed population.

4.10.4 Avoiding the Lake at Certain Times

The majority of rowers (87 percent) would avoid the lake at certain times, if met with annoying behaviour at the lake (Table 30).

TABLE 30 - AVOID LAKE AT CERTAIN TIMES
(x) x = actual number of observations for each category

USER GROUP	YES	NO	UNCERTAIN	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	34.8% (8)	26.1% (6)	39.1% (9)	0.63 p <.05
TRAIL USER (n=25)	44.0% (11)	40.0% (10)	16.0% (4)	3.63 p <.05
FISHER (n=20)	55.0% (11)	35.0% (7)	10.0% (2)	5.86 p <.05
WATER SKIER (n=18)	50.0% (9)	33.3% (6)	16.7% (3)	3.0 p <.05
ROWER (n=23)	87.0% (20)	8.7% (2)	4.3% (1)	28.63 p ≤ .001
COLUMN TOTAL (n=110)	54.1% (59)	28.4% (31)	17.4% (19)	22.81 p ≤ .001

This group's response towards avoiding the lake at certain times was the only response that was significant at $p \leq .001$. Fishers (55 percent) and water skiers (50 percent) also reported that they were likely to avoid the lake at

certain times; however, a large percentage of these groups also reported they would not avoid the lake at certain times (35 and 33.3 percent, respectively). The responses of fishers and water skiers were not significant at $p < .05$, their responses approximate an evenly distributed, homogeneous population. Trail users (40 percent) were least likely to avoid the lake at certain times. Beach users (39.1 percent) had the highest percent of users who were uncertain about whether they would avoid the lake. The responses of trail users and beach users were not significant at $p < .05$; their responses approximate those which would be expected of an evenly distributed population.

4.10.5 Complaining to an Authority

Trail users (56 percent) had the highest percentage of users who reported they would to complain to an authority if met with annoying lake behaviour (Table 31).

TABLE 31 - COMPLAIN TO AN AUTHORITY (x) x = actual number of observations for each category				
USER GROUP	**YES**	**NO**	**UNCERTAIN**	**CHI-SQUARE VALUE (df=2)**
BEACH USER (n=24)	20.8% (5)	41.7% (10)	37.5% (9)	1.75 p <.05
TRAIL USER (n=25)	56.0% (14)	36.0% (9)	8.0% (2)	9.13 p ≤ .05
FISHER (n=20)	35.0% (7)	65.0% (13)	0.0% (0)	12.14 p ≤ .01
WATER SKIER (n=18)	16.7% (3)	44.4% (8)	38.9% (7)	2.33 p <.05
ROWER (n=23)	43.5% (10)	47.8% (11)	8.7% (2)	6.13 p ≤ .05
COLUMN TOTAL (n=110)	35.5% (39)	46.4% (51)	18.2% (20)	13.22 p ≤ .01

Trail users were also the only group whose response towards complaining to an authority was significant at $p \leq .05$. Fishers (65 percent) and rowers (47.8 percent) were the least likely to complain to an authority. The strength in direction of their response towards not complaining was significant at $p \leq .01$ for fishers and $p \leq .05$ for rowers. Water skiers (38.9 percent) and beach users (37.5 percent) had the highest percentage of users who were uncertain about whether they would complain to an authority. These groups' responses were not significant at $p < .05$; it appears as if their responses approximate those of an evenly distributed, homogeneous population.

4.10.6 Writing to the Local Paper

The majority of users in every user group reported they would not write to the local paper if met with annoying lake behaviour (Table 33).

TABLE 33 - WRITE TO THE LOCAL PAPER
(x) x = actual number of observations for each category

USER GROUP	YES	NO	UNCERTAIN	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	4.2% (1)	62.5% (15)	33.3% (8)	12.25 p ≤ .01
TRAIL USER (n=25)	20.0% (5)	64.0% (16)	16.0% (4)	11.13 p ≤ .01
FISHER (n=20)	5.0% (1)	90.0% (18)	5.0% (1)	27.57 p ≤ .001
WATER SKIER (n=18)	11.1% (2)	66.7% (12)	22.2% (4)	9.33 p ≤ .01
ROWER (n=23)	26.1% (6)	56.5% (13)	17.4% (4)	5.63 p <.05
COLUMN TOTAL (n=110)	13.6% (15)	67.3% (74)	19.1% (21)	57.0 p ≤ .001

Fishers had the highest percentage of users who reported they would not write to the local paper (90 percent), followed by water skiers (66.7 percent), trail users (64 percent) and beach users (62.5 percent). The strength of direction in their response towards not writing to the local paper was significant at $p \leq .001$ for fishers and $p \leq .01$ for water skiers, trail users and beach users. Rowers (26.1 percent) and trail users (20 percent) were the most likely to write to the local paper if met with annoying lake

behaviour. The direction of response for rowers was not significant at $p < .05$, this group's response thus approximates that of an evenly distributed population.

4.10.7 Protesting at City Hall

The majority of users would not protest at city hall, if met with annoying behaviour (Table 33).

TABLE 33 - PROTEST AT CITY HALL
(x) x = actual number of observations for each category

USER GROUP	YES	NO	UNCERTAIN	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	8.3% (2)	54.2% (13)	37.5% (9)	7.75 $p \leq .05$
TRAIL USER (n=25)	20.0% (5)	64.0% (16)	16.0% (4)	11.13 $p \leq .01$
FISHER (n=20)	10.0% (2)	85.0% (17)	5.0% (1)	23.0 $p \leq .001$
WATER SKIER (n=18)	0.0% (0)	72.2% (13)	27.8% (5)	14.33 $p \leq .001$
ROWER (n=23)	13.0% (3)	69.6% (16)	17.4% (4)	13.13 $p \leq .01$
COLUMN TOTAL (n=110)	10.9% (12)	68.2% (75)	20.9% (23)	61.22 $p \leq .001$

Fishers (85 percent) and water skiers (72.2 percent) reported they would not protest. None of the water skiers reported they would protest at city hall. The strength of direction of fishers' and water skiers' response towards not protesting was significant at $p \leq .001$. Trail users (20 percent) and rowers (13 percent) had the highest percentage of user who would protest. These groups also had a high

percentage who would not protest, as such the strength of direction of their response towards not protesting was significant at $p \leq .01$. Beach users had the highest percentage of users who were uncertain as to whether they would protest at city hall if met with annoying behaviour at the lake. The strength of direction towards not protesting and to being uncertain they would protest was significant at $p \leq .05$.

4.10.8 Complaining to the Annoyers

Rowers were most likely to complain to the annoyers (60.9 percent) (Table 34).

TABLE 34 - COMPLAIN TO THE ANNOYERS
(x) x = actual number of observations for each category

USER GROUP	YES	NO	UNCERTAIN	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	30.4% (7)	30.4% (7)	39.1% (9)	0.38 p <.05
TRAIL USER (n=25)	43.5% (10)	47.8% (11)	8.7% (2)	6.13 p ≤ .05
FISHER (n=20)	55.0% (11)	40.0% (8)	5.0% (1)	7.57 p ≤ .05
WATER SKIER (n=18)	33.3% (6)	33.3% (6)	33.3% (6)	0.0 p <.05
ROWER (n=23)	60.9% (14)	26.1% (6)	13.0% (3)	8.13 p ≤ .05
COLUMN TOTAL (n=110)	44.9% (48)	35.5% (38)	19.6% (21)	10.22 p ≤ .01

The strength of direction towards complaining to the annoyers was significant at $p \leq .05$. Trail users had the

highest percentage of users who would not complain to the annoyers (47.8 percent) The strength of direction for trail users towards not complaining was significant at $p \leq .05$. Although 55 percent of fishers reported they would complain to the annoyers, another 40 percent claimed they would not complain to the annoyers. However, the strength of direction towards complaining was significant at $p \leq .05$. Beach users (39.1 percent) and water skiers (33.3 percent) had the highest percentage of users who were uncertain about whether they would complain to the annoyers. The responses of these two groups were not significant at $p < .05$; as such, it appears as if these group's responses approximate those of an evenly distributed population.

4.11 Summary of Attitudes Towards Management Alternatives for Lake Use

What were the responses of recreationists towards management alternatives? Chi-square analyses showed the degree of departure of summary results from a theoretical distribution of equal frequency among answer categories and the strength in direction (Table 35).

TABLE 35 - SUMMARY OF ATTITUDES TOWARDS MANAGEMENT ALTERNATIVES (x) x = actual number of observations for each category				
ALTERNATIVE	**AGREE**	**NEUTRAL**	**DISAGREE**	**CHI-SQUARE VALUE (df=2, n=110)**
Tougher enforcement	50.9% (56)	40.0% (44)	9.1% (10)	30.78 $p \leq .001$
Schedule different activity times	43.6% (48)	30.9% (34)	25.5% (28)	5.70 $p < .05$
Allocate lake sections	52.7% (58)	27.3% (30)	20.0% (22)	19.32 $p \leq .001$
User fees	17.3% (19)	25.5% (28)	57.3% (63)	29.22 $p \leq .001$
Better public education and awareness	71.8% (79)	21.8% (24)	6.4% (7)	76.57 $p \leq .001$
User group self regulation	56.4% (62)	27.3% (30)	16.4% (18)	27.97 $p \leq .001$
Banning certain activities	46.4% (51)	26.4% (29)	27.3% (30)	8.35 $p \leq .05$

In general, the majority of users agreed with the various management alternatives, with the exception of introducing user fees to parks (only 17.3 percent agreed with this alternative). The strength of direction towards disagreeing with user fees was significant at $p \leq .001$.

Users agreed most strongly with the alternatives of better public education and awareness (71.8 percent), user group self regulation (56.4 percent), allocating lake sections for the various activities (52.7 percent) and tougher enforcement (50.9 percent). The strength of direction

towards agreeing with these alternatives was significant at $p \leq .001$.

A large percent of users agreed with the banning of certain activities (46.4 percent), although a number of users also disagreed with this alternative (27.3 percent). The strength of direction towards agreeing with banning activities was significant at $p \leq .05$. Some users indicated jet skiing, water skiing and rowing as activities that should be banned from the lake.

The only alternative which was not significant at $p < .05$ was scheduling different activity times. It appears as if the responses to this question approximate an evenly distributed response.

Managers were queried on their opinions towards management alternatives, and were able to respond to this question with the same closed-ended answer choices given user groups. Resource manager's and user group's level of agreement with the various alternatives were ranked (Table 36).

Table 36 COMPARISON OF MANAGERS' AND USERS' LEVEL OF AGREEMENT WITH MANAGEMENT ALTERNATIVES Answer choices ranked by frequency in response	
Resource Manager Responses	**User Group Responses**
1. Better public education and awareness	1. Better public education and awareness
2. Allocate different lake sections	2. User group self regulation
3. Tougher enforcement	3. Allocate lake sections
4. User group self regulation	4. Tougher enforcement
5. Schedule different times	5. Banning certain activities
6. Banning certain activities	6. Schedule different activity
7. User fees	7. User fees

Spearman's *rho* correlation test was used to determine if there was any relationship between the two group's level of agreement with the alternatives and if there was a relationship, the degree of association between responses. From the results of the correlation carried out on the level of agreement with management alternatives, it was found that there was a significant association between the two group's responses at $p \leq .05$ (*rho* = +0.8572, N=7 for a two-tailed test). The null hypothesis, that there was no relationship between resource managers' and recreationists' level of agreement with management alternatives is therefore rejected and it is concluded that managers and user groups have similar opinions about their agreement with management alternatives for activities at Elk Lake.

Users from Dearden's (1985) study stated that increased enforcement with the addition of a boat patrol was the

primary facility change they would most recommend. They also recommended that the beaches and boat launch be improved and use zones be designated for user groups. When queried on their opinions towards banning activities, over 74 percent stated they did not agree with banning some activities. Users that agreed with banning stated that power boating, water skiing and windsurfing were the activities they wished to see banned.

4.12 Attitudes To Management Alternatives For Lake Use by User Group

This section examines the responses of user groups to management alternatives for managing the lake. Chi-square analysis was used to determine the strength of direction of user groups' responses and the significance of user groups' departure from a theoretical distribution of equal distribution among answer categories.

4.12.1 Tougher Enforcement

When asked whether they agreed or disagreed with tougher enforcement at the lake, over 50 percent of users agreed with enforcement as an alternative (Table 37).

TABLE 37 - TOUGHER ENFORCEMENT (x) x = actual number of observations for each category				
USER GROUP	**AGREE**	**NEUTRAL**	**DISAGREE**	**CHI-SQUARE VALUE (df=2)**
BEACH USER (n=24)	33.3% (8)	54.2% (13)	12.5% (3)	6.25 $p \leq .05$
TRAIL USER (n=25)	52.0% (13)	32.0% (8)	16.0% (4)	5.13 $p < .05$
FISHER (n=20)	60.0% (12)	30.0% (6)	10.0% (2)	7.29 $p \leq .05$
WATER SKIER (n=18)	27.8% (5)	66.7% (12)	5.6% (1)	10.33 $p \leq .01$
ROWER (n=23)	78.3% (18)	21.7% (5)	0.0% (0)	21.63 $p \leq .001$
COLUMN TOTAL (n=110)	50.9% (56)	40.0% (44)	9.1% (10)	30.78 $p \leq .001$

Rowers (78.3 percent) and fishers (60 percent) had the highest percentage of users who agreed with tougher enforcement. The strength in direction in response towards agreeing with tougher enforcement was significant at $p \leq .001$ for rowers and $p \leq .05$ for fishers. The majority of trail users (52 percent) agreed with increased enforcement, although this group had the highest percentage of users who disagreed with tougher enforcement (16 percent). The response of this group was not significant at $p < .05$, as such, it appears as if the response of this group approximates an evenly distributed, homogeneous population. The majority of water-skiers (66.7 percent) were neutral about tougher enforcement as an alternative, as were beach

users (54.2 percent). The strength of direction towards neutrality was significant at $p \leq .01$ for water skiers and $p \leq .05$ for beach users.

4.12.2 Scheduling Different Activity Times

Users were queried as to whether they thought scheduling different times for activities was a viable alternative (Table 38).

TABLE 38 - SCHEDULE DIFFERENT ACTIVITY TIMES
(x) x = actual number of observations for each category

USER GROUP	AGREE	NEUTRAL	DISAGREE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	29.2% (7)	54.2% (13)	16.7% (4)	5.25 p <.05
TRAIL USER (n=25)	44.0% (11)	24.0% (6)	32.0% (8)	1.63 p <.05
FISHER (n=20)	35.0% (7)	15.0% (3)	50.0% (10)	3.57 p <.05
WATER SKIER (n=18)	38.9% (7)	38.9% (7)	22.2% (4)	1.0 p <.05
ROWER (n=23)	69.6% (16)	21.7% (5)	8.7% (2)	13.63 p ≤ .01
COLUMN TOTAL (n=110)	43.6% (48)	30.9% (34)	25.5% (28)	5.7 p <.05

Rowers (69.6 percent) were the only user group who had a majority of users who agreed with scheduling different activity times; 8.7 percent of rowers disagreed with scheduling different activity times. The strength of

direction in response towards agreeing with scheduling different times was significant at $p \leq .01$ for this group. The strength in direction of response for water skiers, trail users, fishers and beach users was not significant at $p < .05$. As such, it appears as if the responses of these groups approximate those of a homogeneous, evenly distributed population response.

4.12.3 Allocating Different Lake Sections

Only one user group had a statistically significant level of agreement with allocating different lake section (Table 39).

TABLE 39 - ALLOCATE DIFFERENT LAKE SECTIONS
(x) x = actual number of observations for each category

USER GROUP	AGREE	NEUTRAL	DISAGREE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	41.7% (10)	45.8% (11)	12.5% (3)	4.75 p <.05
TRAIL USER (n=25)	48.0% (12)	36.0% (9)	16.0% (4)	4.13 p <.05
FISHER (n=20)	55.0% (11)	10.0% (2)	35.0% (7)	5.86 p <.05
WATER SKIER (n=18)	55.6% (10)	33.3% (6)	11.1% (2)	5.33 p <.05
ROWER (n=23)	65.2% (15)	8.7% (2)	26.1% (6)	11.13 p ≤ .01
COLUMN TOTAL (n=110)	52.7% (58)	27.3% (30)	20.0% (22)	19.32 p ≤ .001

The strength of direction towards agreement with this alternative for rowers was significant at $p \leq .01$. The strength of direction for all other groups (water skiers,

fishers, beach users and trail users) was not significant at $p < .05$. These groups' responses thus approximate a homogeneous population with evenly distributed responses.

4.12.4 User Fees

The majority of users disagreed with user fees as a management alternative (Table 40).

TABLE 40 - USER FEES
(x) x = actual number of observations for each category

USER GROUP	AGREE	NEUTRAL	DISAGREE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	12.5% (3)	41.7% (10)	45.8% (11)	4.75 p <.05
TRAIL USER (n=25)	20.0% (5)	20.0% (5)	60.0% (15)	8.38 p ≤ .05
FISHER (n=20)	30.0% (6)	5.0% (1)	65.0% (13)	10.30 p ≤ .01
WATER SKIER (n=18)	16.7% (3)	27.8% (5)	55.6% (10)	4.33 p <.05
ROWER (n=23)	8.7% (2)	30.4% (7)	60.9% (14)	9.13 p ≤ .05
COLUMN TOTAL (n=110)	17.3% (19)	25.5% (28)	57.3% (63)	34.84 p ≤ .001

The majority of fishers (65 percent), rowers (60.9 percent) and trail users (60 percent) disagreed with user fees. Concomitantly, fishers (30 percent) and trail users (20 percent) also had the highest percent of users who agreed with user fees. Despite the percentage of users in these groups who agreed with this alternative, the strength of

direction in response towards disagreeing with this alternative was significant at $p \leq .01$ for fishers and $p \leq .05$ for rowers and trail users. Beach users had the highest percentage of users who were neutral about user fees (41.7 percent. The strength in direction for this group, and for water skiers was not significant at $p < .05$. The responses of these two groups thus mirror those of a fairly evenly distributed population response.

4.12.5 Public Education and Awareness

The majority of all users agreed with better public education and awareness as management alternatives[7] (Table 41).

TABLE 41 - BETTER PUBLIC EDUCATION AND AWARENESS
(x) x = actual number of observations for each category

USER GROUP	AGREE	NEUTRAL	DISAGREE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	62.5% (15)	29.2% (7)	8.3% (2)	10.75 p ≤ .01
TRAIL USER (n=25)	60.0% (15)	24.0% (6)	16.0% (4)	8.63 p ≤ .05
FISHER (n=20)	90.0% (18)	10.0% (2)	0.0% (0)	27.86 p ≤ .001
WATER SKIER (n=18)	66.7% (12)	27.8% (5)	5.6% (1)	10.33 p ≤ .01
ROWER (n=23)	82.6% (19)	17.4% (4)	0.0% (0)	25.13 p ≤ .001
COLUMN TOTAL (n=110)	71.8% (79)	21.8% (24)	6.4% (7)	76.57 p ≤ .001

[7] Unfortunately, this question did not test for specific issues that required further communication efforts (e.g., boating safety, park rules).

Fishers (90 percent), rowers (82.6 percent) and water-skiers (66.7 percent) had the highest percentage of users who agreed with this alternative. The strength in direction of response towards agreeing with this alternative was significant at $p \leq .001$ for fishers and rowers and $p \leq .01$ for water skiers. Trail users most strongly disagreed with better education and awareness as an alternative (16 percent). However, the strength of direction towards agreeing with this alternative was significant at $p \leq .05$. The strength of direction in response towards agreeing with this alternative was significant at $p \leq .01$ for beach users.

4.12.6 User Group Self Regulation

User group responses to user group self regulation were comparable (Table 42).

TABLE 42 - USER GROUP SELF REGULATION
(x) x = actual number of observations for each category

USER GROUP	AGREE	NEUTRAL	DISAGREE	CHI-SQUARE VALUE (df=2)
BEACH USER (n=24)	41.7% (10)	45.8% (11)	12.5% (3)	4.75 p <.05
TRAIL USER (n=25)	64.0% (16)	24.0% (6)	12.0% (3)	11.63 p ≤ .01
FISHER (n=20)	65.0% (13)	15.0% (3)	20.0% (4)	8.72 p ≤ .05
WATER SKIER (n=18)	44.4% (8)	44.4% (8)	11.1% (2)	4.0 p <.05
ROWER (n=23)	65.2% (15)	8.7% (2)	26.1% (6)	11.13 p ≤ .01
COLUMN TOTAL (n=110)	56.4% (62)	27.3% (30)	16.4% (18)	27.97 p ≤ .001

The responses of rowers, fishers and trail users similarly reflected their agreement with this alternative (65.2, 65, and 64 percent, respectively). Rowers (26.1 percent) and fishers (20 percent) also had the highest percentage of users who disagreed with user group self regulation. The strength of direction in response towards agreeing with this alternative was significant at $p \leq .01$ for rowers and trail users and $p \leq .05$ for fishers. The responses of water skiers and beach users were not significant at $p < .05$. The responses of these two groups thus approximate those of a homogeneous, evenly distributed population response.

4.12.7 Banning Certain Activities

Rowers (65.2 percent) and trail users (60 percent) most strongly agreed with banning certain activities in parks (Table 43).

TABLE 43 - BANNING CERTAIN ACTIVITIES IN PARKS (x) x = actual number of observations for each category				
USER GROUP	**AGREE**	**NEUTRAL**	**DISAGREE**	**CHI-SQUARE VALUE (df=2)**
BEACH USER (n=24)	37.5% (9)	37.5% (9)	25.0% (6)	0.75 p <.05
TRAIL USER (n=25)	60.0% (15)	16.0% (4)	24.0% (6)	8.63 p ≤ .05
FISHER (n=20)	35.0% (7)	20.0% (4)	45.0% (9)	1.86 p <.05
WATER SKIER (n=18)	27.8% (5)	38.9% (7)	33.3% (6)	0.33 p <.05
ROWER (n=23)	65.2% (15)	21.7% (5)	13.0% (3)	10.38 p ≤ .01
COLUMN TOTAL (n=110)	46.4% (51)	26.4% (29)	27.3% (30)	8.35 p ≤ .05

The strength of direction in response towards agreeing with banning certain activities was significant at $p \leq .01$ for rowers and $p \leq .05$ for trail users. Fishers (45 percent) and water skiers (33.3 percent) most strongly disagreed with banning activities. The responses of fishers, water skiers and beach users were not significant at $p < .05$. The results of their responses thus approximate those from a fairly evenly distributed population.

In interviews, resource managers were asked whether they thought user groups supported the banning of activities. All of the managers responded that users would not support the banning of activities in a general sense. Rather, user

groups would state they only supported the banning of the specific user groups that annoyed them.

4.13 Summary of Knowledge about Management Responsibilities

Users were asked to comment on what agencies they thought had responsibilities for managing the lake (Table 44).

TABLE 44 - SUMMARY OF USERS' RESPONSES ABOUT THEIR KNOWLEDGE OF AGENCY RESPONSIBILITIES TOWARDS LAKE USE

(x) x = actual number of observations for each category

AGENCY	MAJOR	AVERAGE	MINOR	NONE
BC Ministry of Health N=103	24.3% (25)	21.4% (22)	27.2% (28)	27.2% (28)
Saanich Police N=105	26.7% (28)	38.1% (40)	24.8% (26)	10.5% (11)
City of Victoria N=99	16.2% (16)	19.2% (19)	23.2% (23)	41.4% (41)
Canadian Coast Guard N=102	20.6% (21)	15.7% (16)	24.5% (25)	39.2% (40)
CRD Parks N=103	80.6% (83)	16.5% (17)	2.9% (3)	0.0% (0)
Municipality of Saanich N=103	44.7% (46)	28.2% (29)	15.5% (16)	11.7% (12)
Ministry of Environment, Lands and Parks N=103	40.8% (42)	29.1% (30)	16.5% (17)	13.6% (14)
Elk, Beaver Lake Recreation Use Advisory Group N=99	55.6% (55)	17.2% (17)	12.1% (12)	15.2% (15)
RCMP N=102	10.8% (11)	13.7% (14)	34.3% (35)	41.2% (42)
Provincial Government N=85	22.4% (19)	20.0% (17)	35.3% (30)	22.4% (19)

In an attempt to counteract biases in the question, some agencies were listed which do not have any jurisdiction on the lake itself. These agencies are CRD Parks, the

Elk/Beaver Lake Recreation Use Advisory Group and the City of Victoria. The majority of users responded that CRD Parks (80.6 percent) and the Elk/Beaver Lake Recreation Use Advisory Group (55.6 percent) had a major amount of responsibility for the lake. While the primary jurisdiction for lake use falls to the Canadian Coast Guard and the Saanich Police, only a relatively small percentage of users thought these agencies had a major amount of responsibility (20.6 and 26.7 percent respectively).

Spearman's *rho* correlation test was used to determine if there was any relationship between recreationists' awareness of major management responsibilities and the actual level of responsibilities. From the results of the correlation carried out, it was found that there did not appear to be a significant association between user groups' awareness of agencies with a major amount of responsibility and the actual level of responsibility (*rho* = +0.2849, N=10 for a two-tailed test). The null hypothesis, that there was no relationship between user groups' awareness of agencies with major responsibility and the actual level of responsibility is therefore accepted and it is concluded that user groups were relatively unaware of the agencies tasked with a major amount of management responsibility on the lake.

4.15 Summary of Results

Results of field observations and user groups' and managers' responses to questionnaires provide considerable insight into the nature of recreational activities at Elk Lake, users' attitudes towards recreational activities and lake management, and managers' awareness of user groups' attitudes. The framework for this study (Figure 7) outlines the model in which the findings of this chapter and the results of interviews with managers (Chapter 5) are analyzed and interpreted; the discussion of the analysis is the focus of Chapter 6.

Chapter 5

Lake Use and Management from the Managers' Perspective

5.0 Introduction

The managers representing various agencies responsible for lake management were interviewed on their opinions and attitudes towards lake use in general and at Elk Lake, and the current lake management arrangements[1]. In accordance with the theoretical framework discussed in Chapter 2, the purpose of the interviews was to determine managers' attitudes and awareness to lake management issues, including user groups' recreation requirements. In this way, the data collected could be analyzed according to level of agreement, and variance with the concept of recreation specialization.

Some results of the interviews are comparable to results from user group questionnaires, and these are noted in Chapter 4 where applicable. However, the open-ended questions often yielded detailed, carefully constructed, thoughtful answers. For this reason, many of the interview results will be better served by describing both details and

[1] In total, six managers were interviewed (additionally, one manager had five of his staff available for questions and comments during the interview). Although this is a small sample size as compared to the user groups, these managers represent the agencies responsible for managing the various portions of the lake, and most are integrally involved in the decision making process and lake management. Only one agency declined to be interviewed for this project. As the managers were guaranteed anonymity in the interviews, names of managers and specific agencies' responses will not be noted.

summaries of answers, rather than following a table format as was utilized for the questionnaire results. This chapter therefore presents the results of the interviews with managers, and is organized according to the question framework utilized in the interviews (see Appendix C). First, resource managers' attitudes and awareness about lake use in general will be described, followed by a discussion of lake use at Elk Lake. Finally, management arrangements, both generally, and specific to Elk Lake will be described. For clarity of results, section headings will follow the question format used in the interviews.

5.1 General Lake Use

5.1.1 Recreational Activities That Urban Lakes Should Provide

Managers were asked to discuss what recreational activities they thought urban lakes should provide, and list activities that they thought were appropriate and inappropriate for urban lake activities. All had difficulty with listing inappropriate and appropriate activities; rather, they discussed circumstances in which activities in general might be inappropriate. The only specific activity mentioned was the use of jet skis that were felt to be inappropriate as they were thought to be a potential safety concern.

One manager stated that the appropriateness of activities was largely dependent on the size of the lake, the location of the lake in the province and the lake's proximity to other uses and users. Another manager stated that a combination of activities that maximize user requirements and that are compatible are the most appropriate. One respondent stated that safety is a primary concern when determining appropriate activities, while another stated that not one usage is inappropriate in and of itself.

5.1.2 Attitudes to Banning Lake Activities

Managers were asked how they felt about the banning of lake activities, and to elaborate on which ones they would ban, and why. One respondent stated that banning should be done as a last resort; it should only be considered after restricting the activity has not been successful in mitigating problems. This respondent also stated that banning any activity should only be done with the support of the general public.

A manager stated that he did not necessarily like to restrict activities, although it might be necessary for the safe enjoyment of the lake. Moreover, he stated that

restricting should only be done when other options (e.g., a compromise) have been exhausted.

Another manager reiterated the primary role of safety in banning activities; that the rationale for restricting and banning centres on the ability of adequate enforcement. He continued to say that if regulations were designed to restrict an activity and the managers did not have the support of the public and are unenforceable, then they are not an appropriate management alternative.

5.2 Lake Use at Elk Lake

5.2.1 Managers' ideas about the 'Typical' lake User

Managers were asked to respond to a series of closed ended questions about various characteristics that might be attributed to the 'typical' lake user at Elk Lake (Table 45).

Table 45 - Managers' Responses About the 'Typical' Lake User (by counts, n=6)					
1. Frequency	*More than once/week*	*Weekly*	*Monthly*	*Seasonally*	*Total*
	2	1	1	2	6
2. Familiarity with rules & regulations	*Unaware*	*User specific rules*	*Aware*		
	3	3	0		6
3. Sport/recreation skill level	*Basic skill level*	*Medium skill level*	*High skill level*		
	1	4	1		6
4. Equipment required	*Basic*	*Slightly technical*	*Highly technical*	*Elite*	
	0	2	3	1	6
5. Location/setting importance	*Unimportant*	*Somewhat important*	*Specific or unique*		
	0	1	5		6

5.2.2 Awareness of User Groups Annoyed by Other User Groups

When asked the question, "Are users annoyed by other users?" managers responded by discussing some of the main problems and conflicts at the lake. All managers perceived user group annoyances slightly differently. For example, one person stated they thought the only annoying user group that significantly impacted on others were the jet skiers, while another person listed several groups that were annoying to other groups. All managers were able to list several groups in conflict with each other, when prompted to elaborate on their response.

5.2.3 Annoyance Reaching the Stage Of Conflict

Managers were queried on whether they thought annoyances at the lake had developed into conflicts and asked to elaborate upon how the annoyances (if any) had developed into a conflict. All managers felt the annoyances had developed into some form of conflict between the user groups. A popular response was that '95 percent of the users get along most of the time, and that it is usually the five percent who create and antagonize conflict situations for everyone else'.

One manager stated that conflicts developed because no concessions were given between groups on other groups' recreation requirements. Another manager stated the annoyances had developed into conflicts because of the increased use of activities and the fact that activities were located in close proximity to each other, or were in the same area.

5.2.4 Awareness of User Group Behaviours at the Lake

When asked how they became familiar with users' behaviour at the lake, most managers replied that it was a combination of observing the activities, discussions with colleagues and complaints from the public. Only one manager seemed intimately familiar with user group and management issues

and had to deal personally with these issues on a daily basis.

5.2.5 User Groups Awareness of Other User Group's Recreational Requirements

When asked whether they thought user groups were aware of other user group requirements, two managers stated user groups were unaware of other users' requirements. Three managers stated users were aware of other users' requirements if the other users' activities impacted on their recreation experience. Only one manager stated he thought users were aware of other user group requirements. When asked if they thought user groups cared about other user groups' requirements, two managers stated they thought users did not care about others, while three managers stated a small percentage of users cared about other user groups.

5.2.6 How Awareness of Other User Group Requirements Could Be Improved

The opinions of the managers were sought on how awareness of other user group requirements could be improved. Three managers suggested that increased, and more effective use of a public advisory board would most improve users' awareness of other groups. Two managers emphasized that it was important for those serving on the advisory board to bring

their knowledge about lake issues to their user groups on a regular basis.

Many of the suggestions for improvement centred on improved and continued communication efforts. One manager noted that there might be opportunities to increase familiarity through increased education about Coast Guard rules and regulations. Another noted that an increased use of brochures, large signs and public announcements in the local paper would increase awareness. He elaborated by stating that if an activity is in conflict with other activities, and the safe enjoyment of an activity is threatened, then people generally wish to come to some sort of agreement about the conflict, and so might be more willing to read information. One manager stated that user groups need to communicate with each other more effectively, and explain their activity to other groups which may not participate in that activity and do not know the user requirements of their activity.

Finally, one manager stated he did not think awareness between user groups is a problem generally. However, he thought that education about the safe use of watercraft is important, and that user groups should be made aware of watercraft safety issues.

5.2.7 Managers' Familiarity With Rules and Regulations

When asked to name some of the rules and regulations at the lake, three managers had extensive knowledge about them. One manager was familiar with boating safety requirements in general. Finally, another manager was unsure of the rules and regulations and offered to obtain a list of the rules for the author and himself to review in the interview.

5.2.8 User Groups' Familiarity with Rules and Regulations

Managers were queried about which users (if any) had an understanding of the rules and regulations. Four managers stated that users that use the lake intensively or on a regular basis were aware of the rules that applied to their user group. Another manager stated that users that were on the advisory board were likely to be more aware of the rules than those who were not.

One manager stated that those users that have a bigger stake in the resource are more aware; however, he thought that most users plead ignorance if they are queried on the regulations or if they are caught breaking the rules. Another manager could not name specific groups that might be aware of the rules and regulation, but stated there is a great need to inform people on the rules and regulations at

the lake and the importance of sharing the resource collectively.

Finally, one manager was able to cite specific user groups who might be more aware than others of the rules and regulations. Rowers, fishers and new users were cited as more aware of lake rules and regulations as they frequent the lake more than other groups. Moreover, the manager thought that new users would be more aware as they would be learning a new sport, and rules and regulations are often part of the learning process.

5.2.9 How Users' Understanding of the Rules and Regulations Could Be Improved

The managers were asked to elaborate on the previous question, and discuss their opinions about how users' understanding of the rules and regulations could be improved. Four of the managers stressed the need for increased education through media releases, new signs, information brochures and newsletters. Moreover, two managers stated that the advisory group would be the best means to communicate with other users about the rules and regulations.

One manager stated that there needs to be more explanation for the rules and regulations, as they don't have much of an impact if people are unaware of why they are needed. Other suggestions included increased enforcement of existing rules and regulations, sending information brochures home with school children, and contacting user groups directly.

5.2.10 How Enforcement of Rules and Regulations Could Be Improved

Opinions of the managers were sought on how to improve the enforcement of regulations. Two managers spoke of the need for a heightened presence of enforcement, so that when conflicts occurred, there might be a real person for users to contact to deal with conflicts as they happen. All managers spoke of the need for the police to have an increased presence on the lake; however, limited budgets to perform boating patrols and the current trends in downsizing government services were mentioned by all managers as factors constraining the police to increase their enforcement presence. A suggestion made was for other agencies to pay for an increased overtime budget for police to perform enforcement duties on the lake. A program similar to the Insurance Corporation of British Columbia's (ICBC) program of paying police departments overtime to

perform sobriety tests on drinking drivers was cited as one possibility.

Another suggestion was to decrease the amount of work required by police to ticket someone for a boating offence; currently the process for ticketing is very elaborate and time consuming. Finally, a suggestion of increased responsibilities for other groups that could perform enforcement, such as CRD Bylaw Enforcement Officers, CRD Parks staff and others was made.

5.2.11 Rules or Regulations Managers Would Like Changed or Implemented

Managers were asked which existing rules and regulations they would like to see changed, and although only one specific regulation was mentioned, the managers discussed interesting problems with the current framework for lake management arrangements.

One manager stated their agency would like the power to deal with water-craft issues, and have increased power within the boating restrictions themselves. In this way, they could then have the flexibility of setting restrictions that would only allow a certain number of boats on the lake at any one time.

A suggestion was made to streamline lake management plans, and determine what uses are acceptable on Elk/Beaver lake. Further, one manager stated that the province needs to decide who the principal users are, and then user groups need to be aware of what lake they can use. The current situation, where agencies are trying to accommodate everyone is not adequate, and eventually the situation will get to a point where some restrictions will have to take place.

One manager noted the regulations are currently sufficient, and that future regulations that may have to be changed are the horsepower size limits on motors. A specific regulation that should be implemented was the need for electric motors only in the channel area.

5.3 Management Arrangements

Managers were asked a series of questions about lake management in general, and were queried on their opinions towards the specific management situation at Elk/Beaver Lake.

5.3.1 Agency's Mandate Towards Urban Lake Management

Managers explained their agency's mandate towards urban lake management, to what extent they worked with other agencies

and which agencies they worked with. All managers were able to discuss the responsibility of their agency towards lake management, and some elaborated upon the work they actually complete (as compared to their imposed mandate). All of the agencies work to some extent with other agencies, although all work with the police with enforcement issues.

5.3.2 Management Strategies for Minimizing Lake Use Incompatibilities and Conflicts

Managers were asked what they thought were the most important management strategies or measures that could minimize lake use incompatibilities and conflicts. Three managers discussed the need for the advisory group to continue to maintain a dialogue between management and users and include users in decision making about lake use. Another suggestions was to increase the distribution of appropriate information (e.g., signage, brochures, staff presence).

One manager stated simply that a clear decisive plan was needed. Further, another manager stated that acceptable activities needed to be determined prior to the lake being used, and then a clear, focused plan could be derived.

Another suggestion centred on the need to try and accommodate all users, and pass only enforceable laws. Finally, a specific suggestion was to limit the amount of water skiers and rowers on the lake at one time through scheduling, reducing the over all numbers of water skiers and restrict jet skiers.

5.3.3 Frequency and Nature of Public Inquiries About Lake Use

When asked how often the public approached their agency about lake management, two managers stated they were approached on a daily basis, and one manager was approached weekly. Another manager deals with the public on a reactive basis whenever there is a complaint at the lake. Similarly, one manager stated that he is only approached when working in the field, when people personally approach him about specific by-laws and regulations.

Managers were asked to estimate the percentage of inquiries they receive about the lake relate to their jurisdiction, and the percentage of inquiries they send to other agencies or departments. Only one manager stated that the majority of inquiries he receives (80 - 90 percent) are regarding the jurisdiction of his agency. Three managers stated that less than 10 percent related to their jurisdiction, while another

manager is not approached by the public; rather, he deals with emergencies or crises on an ad hoc or reactive basis.

Interestingly, all managers except one deal with the inquiries, even if they do not relate to their jurisdiction. One manager elaborated that the reason he deals with inquiries is because that most users do not know about jurisdiction and do not care what agency is responsible for the lake, they simply want to see action being taken to rectify the situation.

5.3.4 Users' Awareness of Lake Jurisdiction Arrangements

Managers replied that very few users are aware of the lake jurisdiction arrangements. Two managers stated that they themselves were unclear and confused about the management arrangements. One manager stated that only organized groups that participate on the advisory board understand the jurisdictional responsibilities. Another manager stated that 20 to 25 percent of the users at Elk/Beaver Lake were aware of the jurisdictional arrangements, while provincially only approximately five percent of users are aware. One manager stated he did not think the user groups cared whose jurisdiction it is.

Managers were asked if they thought some user groups were more aware of lake jurisdiction than others. Some responses specified rowers, fishers, the jet ski rental company, water skiers and organized groups as being more aware than other users. Two managers stated that special interest groups and those groups that have a large stake in the resource will ensure they are aware.

When asked how users' awareness and understanding of jurisdiction could be improved, suggestions centred on improved communication efforts. One manager stated that the advisory board could take information about jurisdiction to the users. Another suggested posting clear signs with the regulations and agencies involved. The media was cited as an effective communication tool for educating the public on the jurisdiction, and it was stated that having only one central government agency with jurisdiction and authority would further clarify users' awareness.

Finally, one manager stated he did not want users to be more aware of the jurisdictional arrangements, as he would be overwhelmed with users trying to contact him. Furthermore, given current and future budgetary constraints, he stated that the program he administers is not one his agency would

like to see advertised; they would like to keep the low profile the program currently enjoys.

Managers were asked if public awareness and understanding about lake management was a priority for their agency. All managers except one, stated that it was a priority. Another stated that his agency's ultimate goal was to enable people to enjoy themselves. Another stated that public awareness was important to his agency and they were trying to become more proactive, rather than reactive.

5.3.5 How Agencies Attempt to Minimize Recreational Conflicts

Managers were asked how their agency attempted to minimize recreation conflicts and control competing or potentially incompatible lake uses. Again, answers centred on effective communication efforts. Two managers cited their involvement with the advisory board as their main effort to control lake conflicts. One manager stated they were trying to become more proactive in terms of their educational role in boating safety. Another discussed the fact that they try to give all sides accurate information and attempt to clarify jurisdiction for users and for the government agencies responsible for lake use.

One agency attempts to ensure reasonable public process and does not put forth recommendations that do not have the support of the general public. Finally, one agency attempts to minimize conflicts by enforcing existing by-laws.

Managers were asked about the constraints which affected the ability of their agency to prevent and/or minimize lake use conflicts. Lack of jurisdictional responsibility was cited by three managers as constraints to their management role. Other factors affecting agencies' conflict minimizing and prevention roles were lack of staff and resources and lack of enforcement capabilities.

One manager stated that because his agency only facilitates the coordination of lake management and use, it was not actively involved in managing activities or minimizes conflicts. This manager also stated that the federal government either needs to become more proactive in management, or facilitate the process so that their role is largely to approve recommendations forwarded to them by local and/or provincial agencies.

When asked how the role of their agency could be improved in managing or preventing lake conflicts, managers cited several different solutions. One manager stated that taking

a lead facilitative role and obtaining more funding would assist them in managing conflicts. Another manager cited the need for an overtime budget to employ more staff in lake management capabilities.

One suggestion was to direct the local and regional governments to have responsibility for the public process side, while enabling the coordination of the various lead agencies in the lake management process to take place on a provincial scale. Another manager stated that focused plans for each region need to be made. For example, the province needs to decide who the principal users are for each lake, and the user groups need to be clear about which lake they can use for various recreational activities.

5.3.6 Improvements for Current Jurisdictional Arrangements

Managers were asked if and how the current jurisdictional frameworks for lake management could be improved. Two managers stated that if jurisdictional control and subsequent responsibilities could be downloaded onto regional governments, then lake management would be a lot easier and streamlined. However, one manager emphasized the need for provincial coordination, so that provincial consistency in boating regulations occurs. One manager

stated that his agency should be given a broader scope of responsibilities in order to serve the public better. Another stated that because his agency is only responsible for one level of management, improving the jurisdictional arrangements would not affect the way his agency currently manages its portion of the resource.

Managers suggested ideas about restructuring the current management arrangements. Two managers discussed the MELP review of boating restrictions programs. One suggestion was to reduce the number of separate agencies, departments and administrative functions to deal with lake management issues.

One manager stated that because management and enforcement are specific to recreation users, then users should pay for the management, or funding should be allocated out of regional government budgets as a specific budget item. Further, when criminal code violations are likely to occur, Saanich Police should be paid for overtime on weekend hours to conduct boat patrols. Another suggestion centred on allocating a portion of funds derived from Coast Guard licensing schemes into enforcement programs, as the agencies that currently conduct enforcement efforts on behalf of the Coast Guard receive no compensation for these efforts.

Further, the agency that is responsible for actually dealing with lake management should get the funding. For example, if there is a certain number of users in a certain size of park, then a formula should be set so that the primary management agency receive funding in proportion to the management arrangement and the number of users.

Consistency of agency presence, in terms of agency type, time of day and location was also mentioned as one method in which to restructure management arrangements and reduce conflicts. Finally, one manager stated the CRD should look after all aspects of lake management, because the problems are regional in nature.

5.3.7 Priority of Lake Management Issues

Managers were asked to comment on whether issues such as lake management and user conflicts were a priority for their agency, in relation to other problems and issues they had to deal with. All managers had varying responses in terms of the level of priority their agency places on lake management issues. Two managers stated these issues are a priority, and one of these stated that a large portion of his program's budget is allocated to issues at Elk/Beaver Lake. Another manager stated that these issues are a priority in the summer months only. One manager stated that management

is handled adequately by other agencies very effectively, and that their agency chooses to focus on education, which is not actually a requirement or responsibility of theirs. Finally, one manager stated that these issues are not a priority for them, and that the need for their involvement is directly determined by the number of accidents at the lake.

5.3.8 How Incompatibilities and Conflicts Can Be Reconciled

When asked how potential incompatibilities or conflicts could be realistically reconciled, various suggestions were made. One centred on the fact that lake management is a continual process and that managers and agencies need to continue to be involved and flexible with new types of users. Similarly, one manager stated that the agencies involved need to make a management decision as to what activities will be acceptable on the water way before it can develop into a conflict. If there already is a conflict, then there is a need to work through the conflict with the working group, ensure that the public has input and be willing to review the plan every five years as required to make changes as technology and user attitudes change.

Another suggestion was to keep the regulations clear and simple; further, the need to have one primary group or agency responsible for management was also suggested. One manager stated that as the population increases, the only way to have any complete resolution of conflicts between user groups is to ban certain activities on the lake. Further, the advisory board is the best method in which to solve the problems.

5.4 Summary

Managers identified three elements that are important for lake management and for minimizing recreation conflicts. They are:

- effective public education and awareness;
- enforcement presence; and
- appropriate management arrangements.

Overall, managers stated that recreation conflicts were a concern for their agency, although the priority of recreation issues varied. Adequate funding was cited by all as a key factor for proper management, and several suggestions for increased funding mechanisms were given.

The managers' perspective is important for the development of management alternatives, as they must make decisions

regarding the restriction of lake activities and the enforcement of regulations. Their knowledge about the user groups' is therefore a key element to devising management alternatives that suit the specific recreational requirements of the user groups within the recreation specialization continuum. Chapter 6 thus provides an interpretation and analysis of the results of the observations, questionnaires and interviews, with the goal of developing recommendations for lake use and management, as described in Figure 7.

Chapter 6

Discussion: An Interpretation of the Results

6.0 Introduction

This chapter discusses the results of the study within the theoretical framework described in Chapter Two. First, to assist the reader, the objectives of the study and the theoretical framework will be briefly reprised. Second, results that appear to substantiate the concept of 'recreation specialization' will be discussed in terms of the relevant research literature. Results that do not will be discussed and alternative explanations sought. From this information, a typology of user groups that recreate at the lake will be offered. Third, based on the level of specialization, certain group characteristics relating to goal interference and avoidance behaviours will be examined and where variations with the literature occur, alternative explanations and further research considerations will be discussed. Fourth, the primary management issues and constraints highlighted by user groups and managers will be discussed. Further, alternative management frameworks highlighted by these groups will be considered within the current management framework. Finally, some of the methodological limitations of the study will be noted. The results of this chapter will then provide the foundation for

recommendations specifically for Elk Lake and water based recreation in general, the subject of Chapter 7.

6.1 Goal and Objectives

The goal is to develop recommendations for improving the recreational experience for user groups by providing management alternatives that attempt to minimize recreation conflicts. To achieve this goal, the objectives are to:

- review the literature regarding recreation conflict management,
- determine user groups' attitudes and awareness of lake recreation activities and management,
- determine managers' attitudes and awareness to lake management issues (including user groups' recreation behaviour),
- provide information appropriate for management and planning, and
- provide further analysis and understanding of the concept of recreation specialization within the context of water-based recreation on urban lakes.

6.2 The Theoretical Framework

Recreation conflicts are generally defined as 'goal interference attributed to another person's behaviour' (Jacob and Schreyer, 1980). Although the sources and causes of conflicts are the result of complex social behaviour, interaction and situational variables, one factor thought to contribute to recreation conflict is the *recreation*

specialization level of an individual (Bury, 1983; Donnelly *et al*, 1986).

Bryan (1977) developed the idea of a continuum from generalist (novice) to the specialist (particular) recreationist (for fishers), where the location of an individual on the continuum (or level of recreation specialization) is reflected in the skills, equipment and activity setting requirements of the individual. It is thought that specialists are more vulnerable than generalists in their ability to reach their recreation goals. An important characteristic of specialists, therefore, is that they are more likely to experience conflict with other recreationists who interfere with their goal attainment (Ivy *et al*, 1992; Ruddell and Gramann, 1994).

Empirical studies have shown the potential for conflict when different types of equipment and technology or unobtrusive and obtrusive activities (e.g., motorized and non-motorized pursuits) take place in close proximity (Shelby, 1980; Jackson and Wong, 1982). Asymmetrical conflict refers to goal interference which is felt by one party in an interaction but not the other, and usually involves users with different specialization levels or different types of

technologies (Ruddell and Gramann, 1994: 103). Generally, users engaged in less obtrusive activities are affected by users engaged in more obtrusive activities but not the reverse (Devall and Harry, 1981).

Support has also been found for the notion of 'symmetrical' conflict, where recreationists involved in obtrusive and unobtrusive activities find each other mutually objectionable. This often occurs when interest group bargaining and political power struggles create negative attitudes between groups, regardless of whether they are in direct physical contact with each other.

Although many factors contribute to recreation conflicts, it appears that the level of recreation specialization influences to some degree important group characteristics such as the perception of goal interference and likelihood of experiencing conflict with other user groups. Attempting to determine the level of specialization for user groups may thus assist in identifying some alternatives for managing user groups who recreate in close proximity on urban lakes.

In this study, a nominal *a priori* division of readily identified user groups was developed after initial observations of recreation behaviour at Elk Lake. The

division served as a foundation to test concepts identified in the theoretical framework. The data collected provides a fundamental testing ground for many components of recreation specialization, in addition to an exploration of alternative explanations of recreation conflict. This data also enables the development of an approximate continuum of recreation specialization levels of the user groups at Elk Lake, which in turn allows for the examination of group characteristics such as interference with goal attainment, evidence of asymmetrical and symmetrical conflicts and conflict avoidance behaviours.

6.3 Evidence of Recreation Specialization at Elk Lake

What evidence is there to reaffirm the concept of recreation specialization and insights into conflict behaviour? This section discusses the results in terms of their congruence with the concept of recreation specialization. Results are examined in terms of the three components of the recreation specialization framework (experience and skill level, activity setting requirements and type of equipment). Based on the level of congruence with these components, approximate recreation specialization levels are developed and a continuum of recreation specialization for Elk Lake is offered.

6.3.1 Frequency of Use as Experience or Skill Level

Determining the frequency of user group participation in activities provides insight into the experience and skill level. It is hypothesized that user groups which frequent the lake on a regular basis engage in their activity more often than user groups who participate less frequently, and thus:

- have a higher level of experience with the activity,
- have a higher skill level,
- are more familiar with the activity setting, and
- place more importance on the particular activity setting.

User groups that participate more frequently might have a higher experience and skill level and, correspondingly, are located towards the specialist end of the recreation specialization continuum.

Overall participation frequencies revealed that all users participated in trail use more than any other activity, while water skiing activities drew the least number of users, followed by rowing and fishing. Except for actual participants in water skiing, rowing and fishing activities, the majority of lake visitors rarely, if at all, engaged in these activities. It is interesting to note that these user groups (water skiers, rowers and fishers) are those that the media, managers and the majority of recreationists report

are in conflict. They also appear to be involved with or cause the majority of complaints from all user groups.

The type and rate of participation frequencies by specific user groups were analyzed. For all user groups, there were high degrees of non-involvement in other activities. Rowers and trail users were the only user groups that participated in their own activity regularly. Rowers had the highest degree of non-involvement in other activities. They also participated most frequently in their own activity. Beach users', fishers' and water skiers' participation in their own activities reflected an evenly distributed, homogeneous population.

The lack of non-involvement in other activities might reflect a lack of knowledge of other user group requirements. The degree of non-involvement might also have implications in terms of user groups' familiarity with the lake features and the level of attachment to the lake in terms of its activity setting requirements. Managers' attitudes towards user groups' awareness of other user group's recreation requirements and the activity setting provides some support for the notion that participation frequencies may contribute to user group's experience and skill level; their familiarization with the activity

setting; and the importance of the activity setting to their recreational experience. For example, managers stated that user groups were generally only aware of their own requirements and the rules and regulations that impacted them. However, they also stated that groups that frequented the lake on a regular basis would be more familiar with lake features, and would have a 'larger stake in the resource' and thus place a higher importance on the particular setting.

The lack of involvement in *other* user group activities seems to increase the validity of the managers' sentiment in this regard. Rowers and trail users (groups with the highest participation frequencies) were more likely to state their concern over changes in the resource, and were more likely to be able to state the rules and regulations that affected them.

In this study, it was evident that participation frequencies alone did not contribute to the first component of a user groups' level of specialization. Managers often make management decisions based on initial observations of recreation behaviour. Field observations in this study found that easily identified recreation behaviours contributed to knowledge about user group's experience and

skill level. Divisions of experience and skill levels emerged through systematic observations of lake behaviour over the data collection period. On the basis of the observations, the following range of experience and skill levels is offered[1].

Rowers have the highest experience and skill level, followed by fishers and water skiers (who have approximately the same skill level). It is thought that these groups are specialized, in terms of the skills and experience required to participate in these activities. Trail users and beach users have lower skills and experience levels. The skills required to participate in these activities are minimal - participating in these activities does not require training or experience. Some trail users, however, do have specific skills in terms of nature appreciation, and native plant and wildlife identification. The skills required for this activity are therefore higher than for beach user's activities.

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[1] It should be cautioned that the division of user groups in this regard is the result of thorough, yet subjective observations over the course of data collection. Although it is fairly obvious that Canadian National Team rowers will have a higher skill level than beach users, it is difficult to definitively state the exact differences between fishers and water skiers; the divisions between these two groups should therefore be viewed as approximate. This division considers variances within groups – an 'average' experience level was thus approximated for each group. The author is aware that certain users within the groups may have more or less experience or skill levels.

On the basis of the first component of Bryan's (1977) recreation specialization continuum, the level of experience component was tested using the participation frequencies of user groups in addition to observed experience and skill levels. On the basis of these elements alone, it is conjectured that rowers[2] are the most specialized user group for the first component of recreation specialization. This group frequented the park on a more regular basis than did other user groups and had the highest observed skill level.

Trail users appear to be located near the middle of the continuum. Although their observed activities appear to be generalist, they do have one of the highest participation frequencies of the user groups. The extent to which these factors contribute to the level of specialization in this regard is unclear; however, without further study, the approximate level of specialization is offered for this component with caution.

Water skiers appear to be located in the middle of the continuum. Although they rarely participated in some

[2] It is important to note that rowers are the only group whose interest and level of experience in their activity exceeds that of a purely 'recreational interest'; for many rowers, the activity represents a 'central life interest'. While rowers do engage in their sport for recreational benefits, many of the rowers also have economic motivations – rowing at the university and Canadian National Team level represents a concrete employment opportunity. As such, these recreationists are more organized, and appear to have a higher stake in the use of resource, as compared to other user groups who do not use the resource for its employment and economic benefits.

activities (rowing and fishing) they participated in their own activity and beach and trail use equally. Additionally, their observed skill level is average, compared to the other user groups.

Based on their participation frequencies in their own activities and in others, and their observed skill level, fishers appear to be near the middle of the continuum (although they are slightly closer to the generalists end of the continuum than are trail users and water skiers). Further analysis of other contributing factors for this group's skill and experience level is warranted, in order to treat adequately the several factors that comprise and contribute to this component of the recreation specialization continuum. Based on the information obtained from this study, this group is located 'near the middle' of the continuum, between the generalist and specialist.

The low level of observed skill and the seasonal participation frequencies of beach users contribute to this group's recreation specialization level. The results from this component of the concept place this group at the generalist end of the continuum.

6.3.2 Importance of Lake Features as Activity Setting Requirements

How important are various lake features in terms of users choosing the lake as their recreation destination? One might expect more specialized user groups to place a higher importance on certain activity setting requirements that would enhance or assist them in achieving their recreational goal, which is the second component of Bryan's (1977) concept of recreation specialization.

Overall, user groups responded that location and the presence of a clean environment were the most important features. Although all of the user groups responded that lake features were important to them, there are some interesting variations in response.

Trail users, followed by fishers, most often reported that the various features were important to them. Trail users had the highest number of respondents who reported that uncrowded space, good water quality and a clean environment were important, while fishers had the highest number of respondents who stated that location, ample parking space and the presence of wildlife were important. Rowers were the third likely group to report the importance of lake

features. Water skiers were the least likely to report the importance of features, followed by beach users.

It is interesting that trail users, who actively participate on the shore of the lake, most often reported the importance of uncrowded space[3] and good water quality. Superficially, it might appear as if trail users do not require these features to attain their recreational goal. However, in discussions with this group, there appeared to be much concern with the level of activity on the lake and related noise levels and a general concern with the environment. Unlike the experience or skill level of trail users, which was near the middle of the continuum, the response of trail users for this component of the continuum appears to indicate they are a specialized user group.

It is not surprising that fishers reported the importance of the presence of wildlife, as the presence of fish would seem to be the very reason why this group recreates at the lake (although there are sure to be other reasons such as proximity to home, good scenery, etc.). Contrary to the level of specialization for their experience and skill level (first component of specialization continuum), fishers

[3] As stated earlier, it is unclear whether trail users reported the importance of this feature in terms of uncrowded water surface, or land space.

appear to be the second most specialized in terms of their activity setting requirements.

One might expect that rowers would have a stronger response in terms of the importance of lake features, especially those regarding the state of the water surface. This group often reported that an uncrowded calm water surface was required to attain their recreational goal. However, perhaps other features at the lake, such as its ice-free surface and the length of its 'natural' rowing course are relatively more important to this group. As one national team rower stated, "I would go wherever the most appropriate lake for rowing was located - it so happens that at this time the most appropriate lake is Elk Lake. The other features (other answer choices) are unimportant to me". From the questionnaire results for this component of the recreation specialization continuum, however, the rowing user group appears to be located between the generalist and the specialist.

The lack of a strong response from beach users and water skiers, in comparison to the other user groups, appear to place them near the generalist end of the continuum. However, it should be cautioned that the responses of these

two groups were statistically significant in terms of the importance of the features.

6.3.3 Type of Equipment

The third component in Bryan's (1977) recreation specialization concept is the type of equipment required for the activity. More specialized users tend to engage in activities which require more complex, expensive and specialized technologies to attain recreational goals. Based on field observations of user groups' behaviours and the type of equipment required to participate in the activities, the following specialization levels of the user groups is offered[4].

Rowers use the most technical equipment. Many of the rowing sculls represent leading technology within the competition rowing realm in terms of materials, sophistication and expense. As with the experience and skill level, this group is the most specialized.

It is difficult to state whether water skiers or fishers have more technologically sophisticated equipment. While water skiing equipment is certainly more expensive (e.g.,

[4] As with the experience and skill levels, it is acknowledged that a range of equipment is used by the user groups. As such, an 'average' type of equipment required was postulated for the user groups.

the cost of power boats), fly fishers' equipment is technologically sophisticated. Similarly, it is difficult to state the differences between families using basic motorboats for 'tubing' and weekend fishers who cast from shore. As such, it is postured for this component of the recreation specialization concept, that the type of equipment for water skiers and fishers is approximately the same level in terms of specialization. Both groups are located after rowers on the continuum.

It is felt that trail users are the third specialized group in terms of this component of the recreation specialization continuum. While only basic equipment is required for their activity, many trail users utilize equipment such as binoculars and field guides that are technologically sophisticated within the activity.

Finally, beach users are thought to be the most generalized of the user groups for this component of the recreation specialization concept. Very basic, inexpensive (if any) equipment is required to participate in this activity.

6.3.4 Typology of User Groups

Bryan's (1977) concept of recreation specialized provided the framework in which to examine certain factors relating

to user group's recreational activities. Based on the association between the results of this study and the three main components of recreation specialization (experience/skill level, activity setting requirements and type of equipment) continuum, an approximate level of recreation specialization is offered for the main user groups[5] (Table 45).

Table 45 - User Group Specialization Levels for Elk Lake
(Levels range from 1 to 5; 1 = specialist, 5 = generalist)

User Group	Experience & Skill Level by participation frequency	Experience & Skill Level by Observation	Activity Setting Importance	Equipment Type	*User Specialization Level*
Trail User	2	3	1	4	**2.5**
Beach User	5	5	4	5	**4.75**
Fisher	4	2	2	2	**2.5**
Water skier	3	2	5	2	**3**
Rower	1	1	3	1	**1.5**

The user group skill levels appear to coincide with managers' awareness of the 'typical lake user' (Table 44). Except for the importance of setting and location, managers' responses approximated those of Table 45.

[5] A scale was developed to correspond to an approximate level of specialization for each of the components of the recreation specialization concept (1 = most specialized, 5 = most generalized). Based on the results for each component, an approximate level of recreation specialization was derived for each of the user groups. The level of each component was averaged to obtain an overall approximate level of specialization. Because the levels were approximated, it should be cautioned that the recreation specialization level offered is an estimated level only.

From the results thus far, a continuum of recreation use at Elk Lake is derived (Figure 9).

Figure 9 - Continuum of Specialization for Elk Lake

Clearly, this continuum will assist in understanding user group recreation requirements and developing management alternatives designed to minimize recreation conflicts from the recreationists' perspective.

6.3.3 Effects of Other Users as Asymmetrical or Symmetrical Conflict

User groups were queried about the effects of other types of user groups on their recreation experience. As stated in the theory of recreation specialization, user groups which are more specialized tend to be more susceptible to conflicts than generalized groups. As well, user groups with different recreational goals and using different technologies tend to conflict with each other, as compared to groups with similar recreation goals and technologies.

Most user groups reported that power boaters and water skiers were the most annoying. However, rowers and fishers were also reported as annoying. Users most often reported that trail users were enjoyable. Summary results appeared to concur with the notion of asymmetrical and symmetrical conflicts. Physically more obtrusive activities such as motorized vessels appeared to annoy more people than unobtrusive activities such as trail use. However, the fact that user groups also found rowers and fishers annoying might reflect the fact that off-site issues contributed to symmetrical conflicts. Discussions with user groups indicated resentment towards groups such as the rowers and to a smaller extent, fishers because they are thought to have received preferential treatment from management agencies.

Specific user group responses to the effects of other recreationists are interesting. Rowers appeared to be most affected by other user groups. More than any other user group, they were affected by swimmers, power boaters, water skiers, non-power boaters and fishers. It appears as if this characteristic is in congruence with the recreation specialization concept, where it is expected that more specialized groups would be most affected by other groups' activities. Water skiers were the second most affected

group; they were affected by beach users and rowers more than any other group. After rowers, water skiers were most affected by non-power boaters and fishers.

Although trail users and fishers are more specialized than water skiers, water skiers appear to be more affected by other user groups. It is difficult to state definitively why the results of this question do not concur with the concept; however, a few alternatives are suggested. First, other factors such as symmetrical conflicts may be contributing to their higher level of susceptibility for goal interference - resentment towards other groups may be influencing the degree to which this group is able to attain their recreational goals in the presence or absence of other user groups. Second, it is evident that other factors contribute to the level of recreation specialization of a group. As such, the closeness of the user groups position on the recreation specialization continuum should be regarded as an approximate position, in relation to other user groups and based on the factors tested. Other variables that were not tested probably contribute to the position of this group.

Beach users were the least affected user group; they reported most often that swimmers, beach users and non-power

boaters were enjoyable to them and were the second most likely to report that rowers were enjoyable (after rowers). This is in congruence with their position as generalist on the continuum.

Fishers reported most often that trail users were enjoyable and were the second most likely group to report that swimmers, beach users, power boaters and non-power boaters were enjoyable. Trail users reported they were neutral or enjoyed activities, except for power boating (which they reported was annoying). It appears that trail users may be experiencing asymmetrical conflicts with power boaters. In general though, these results vary with what one would expect from specialized groups. It is unclear why this typical characteristic of specialized user groups does not concur with the results from fishers and trail user groups.

Some conflicts within user groups themselves seem to have occurred. For example, the group that found trail users most annoying was trail users themselves. A small percentage of beach users found other beach users annoying (4.2 percent). Interestingly, a small percentage of water skiers found power boaters to be annoying (5.6 percent) but none of the water skiers reported that other water skiers were annoying. This response might indicate water skiers'

annoyance with jet skiers and other power boaters. None of the other user groups reported members of their group annoying.

There appears to be evidence of an asymmetrical conflict between water skiers and fishers. Water skiers reported they were neutral about the effects of fishers, but fishers found water skiers to be annoying to their recreational experience. While some fishers do use motorized vessels for fishing, many of them fish from shore, or in personal floating tubes. Water skiers may thus be more obtrusive to fishers in terms of motorized technology. Although there appears to be evidence of asymmetrical conflict, it is difficult to state definitively which factor (e.g., skill level, equipment, noise) affects fishers, but not water skiers.

There also appears to be evidence of symmetrical conflicts with rowers and other groups. None of the rowers or water skiers found each other enjoyable to their recreation experience. Although a higher percentage of rowers found water skiers annoying, the strength of direction in responses towards annoying were significant for both groups. Further, the responses of rowers and fishers were not significant in terms of the effects of the other on their

recreational experience; their responses approximated those of an evenly distributed homogeneous population. It therefore appears as if fishers and rowers found each other similarly annoying and enjoyable.

It is interesting that rowers appeared to be engaged in symmetrical conflicts, rather than asymmetrical conflicts. Although this group might initially appear to be unobtrusive in terms of being non-motorized, discussions with user groups, including rowers, and personal observations of lake use indicated that this group is obtrusive in its own way. While rowers engage in their recreational activity, they often require large amounts of space in order to meet their recreational goal of rowing in a certain course and several rowing sculls often row abreast of each other from one end of the lake to another. Coupled with their motorized coaching vessel, this group 'consumes' approximately the same amount of space and is often as noisy as activities involving motorized vessels such as water skiers. And so, while rowers have been traditionally thought of as a group with little impact on other groups, they may in fact be just as obtrusive, but with a higher skill and experience level and a corresponding high recreation specialization level than more visibly obtrusive activities such as water skiing. In this way, it is clearer why this group experienced

symmetrical, as opposed to asymmetrical conflicts with the other obtrusive activities.

An alternative explanation might be the fact that interest group bargaining on behalf of the rowers, fishers and water skiers has taken place for the past few years. User groups might therefore feel resentment towards other groups, whom they think are attempting to decrease their traditional use of the lake. For example, several water skiers reported they had not had any direct contact with the rowers themselves, but were angry with the rowers because they thought the rowers were trying to get water skiing banned from the lake. Similarly, several jet skiers refused to answer questionnaires for this study, because they were suspicious that their questionnaire results would be reported to CRD Parks and then their use of the lake would be subsequently restricted.

6.4 Management Issues and Constraints

From the questionnaire results from user groups and interview results from resource managers, attitudes and awareness towards current management strategies were obtained. Additionally, attitudes towards management alternatives, including several issues and constraints were identified. With the continuum of recreation specialization

as the foundation, this section will discuss some of the primary management issues at the Elk Lake.

6.4.1 Conflict Avoidance Behaviour

User groups were asked what behaviours they engaged in when they had to deal with annoying activities at the lake. The results reveal that many recreationists already engage in behaviours that probably minimize recreation conflicts. For example, users most often reported that they ignore annoying activities, avoid lake sections where the annoying activities occur and avoid the lake at certain times when they think annoying activities might be occurring[6].

The fact that user groups may already be engaging in behaviours that minimize conflicts has implications in terms of suitability of management alternatives. Managers' awareness of user groups' avoidance behaviour is a key to developing focused management strategies that user groups of varying specialization levels are likely to adhere to, making enforcement easier, while minimizing the likelihood of conflicts.

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[6] It is also important to note that by surveying individuals already at the lake, the study may have excluded some experienced users who avoid the lake altogether because of the severity of the conflicts. Ramthun (1995) discussed the notion of displacement – where only experienced users with a high level of tolerance stay at a setting where it is difficult for them to attain their recreational goal. Of course, if there is only one suitable activity setting for a user group, they might decide that it is worth tolerating the annoying behaviour, in order to obtain their recreational goal.

In interviews, managers were asked to rank which behaviours they thought user groups would most likely engage in when met with annoying behaviour. No relationship was found between the managers' ranking of avoidance behaviour and user groups' responses to how they would behave; managers and user groups therefore *have differing opinions about how user groups deal with annoying behaviour.* Because of the lack of association between responses, it is important that managers attempt to understand better and determine the behaviours that user groups exhibit to deal with annoying activities. In this way, the development of alternatives can be better targeted towards the users who are likely to adhere to the alternative.

Ignoring the annoying activities was the most popular response to annoying behaviour; in fact, the responses of water skiers, fishers, beach users and rowers were all statistically significant in this regard. Trail users were the only group that did not have a majority that would ignore the activities.

All user groups except for beach users responded they would not avoid the lake altogether. Beach users had a large percentage of uncertain users. In terms of the recreation specialization continuum, beach users are the only

generalists. Perhaps the other groups stated they would not avoid the lake because they have more of an interest in the activity setting and the level of goal attainment they can achieve in that setting. Similarly, the generalist beach user may be able to reach his or her recreational goal in a number of activity settings, because the activity setting requirements are not as important for attaining recreational goals.

It is significant that rowers and beach users were the most likely to state they would avoid certain lake sections. The other groups that use the lake - fishers, trail users and water skiers stated they would not avoid lake sections or they had an evenly distributed population. Out of the main groups that use the water surface rigorously (rowers, fishers and water skiers) only rowers attempt to avoid sections of the lake where annoying behaviour takes place[7]. This is interesting in terms of the fact that one of the most popular management strategies for minimizing conflicts on Elk Lake (and in the recreation conflict literature) is the physical separation and zoning of water surfaces (in order to separate users from diverse specialization levels). While rowers are currently not limited in their use of lake sections, beach users are limited in their ability to use sections of the lake because of the nature and extent of

[7] It is unclear why this group avoids sections of the lake, although some rowers stated they avoided lake

their activity and because of the location of the facilities available for their activity. Significantly, only water skiers' and power boaters' activities are actually 'regulated' in terms of lake sections. The Elk/Beaver Lake Management Plan (1995) designates certain areas of the lake as 'over 10 h.p.' and 'under 10 h.p.'. Additionally, water skiers are not allowed to participate in their activity prior to 11:00 am. The fact that only two user groups stated they would practice this behaviour has significant implications in terms of the suitability of zoning on the lake.

Rowers were the only group that would avoid the lake at certain times; trail users were least likely to avoid the lake at certain times. Fishers and water skiers reported an evenly distributed response. Beach users had the highest percentage of uncertain users. The current management plan only regulates water skiing activities in terms of temporal use; these activities are not allowed on the lake prior to 11:00 am. The fact that the only user group who voluntarily engages in this behaviour (rowers) is not regulated, while the user group who does not voluntarily engage in this behaviour (water skiers) is regulated is interesting. Perhaps restrictions in use and time would be better

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sections because of the 'length of the rowing course' and the 'presence of other user groups' affecting the

targeted towards those groups that appear to be more receptive to the restriction and would demonstrate equity in access rights.

Although managers stated that user groups would most likely complain to an authority, this behaviour is not a particularly popular alternative with the user groups. Only trail users had a statistically significant response in terms of complaining to an authority. Fishers and rowers were the least likely to complain, which is interesting in terms of the similar level of annoyance they reported with each other. As with avoiding the lake at certain times, beach users had a majority of user groups who were uncertain.

Rowers and trail users were the groups most likely to write to the local paper and to protest at city hall, but the strength of their response was not significant. Although fishers were the least likely to write to the local paper and to protest, this group is frequently quoted in the paper and has had some high profile disagreements with the governing management agencies. In contrast, trail users are rarely in the local paper and do not appear to protest publicly on a regular basis. As such, there does not appear

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height of waves on the water surface.

to be a large association between user groups' response and their actual behaviour. Beach users and water skiers had a high percentage of uncertain users.

Finally, rowers were the most likely to complain to other recreationists about their annoying behaviour, while trail users were the least likely to complain. Beach users and water skiers were largely uncertain. Although the fishers' response to this question approximated a bi-modal distribution between complaining and not complaining to the annoyers, the strength in direction of response towards complaining was significant.

Some general patterns of conflict behaviour have emerged from the results of this question. First, it appears as if rowers are most likely to practice conflict avoidance behaviour - often they were the only group that reported they would engage in certain behaviours when faced with annoying behaviour at the lake. Together with the high level of specialization for this group, it is apparent that their lake use should be scrutinized further in terms of determining which management alternatives would be suitable for their specific recreational requirements. Also, due to the fact that they are a highly organized group, the conflict avoidance behaviours that they voluntarily engage

in should be examined further, as these activities might provide the avenue to reduce the level of conflict they experience and thus increase the likelihood of attaining their recreational goal, while decreasing their impact on other user groups.

Second, trail users appear to be the least likely group to engage in some avoidance behaviours, and the second most likely group after rowers to engage in some avoidance behaviours. Often their response towards not engaging in the behaviours is the strongest of the user groups. Their responses to their avoidance behaviour are quite specific; the way in which they deal with annoying behaviour should be examined further, as insights into particular management strategies might be gained from such an inquiry.

Beach users and water skiers appear to be the most uncertain groups. This is congruent with the beach users' generalist position on the recreation specialization continuum (Figure 9) but does not appear to be congruent with the water skiers' more specialist level (although this group is the most generalized, after beach users). Further, the level of recreation specialization for fishers was near the specialist end of the continuum, but their responses to conflict avoidance behaviours represent an evenly

distributed population. Further studies should be undertaken to provide alternative explanations for these groups' behaviour.

6.4.2 Management Alternatives

User groups and managers were asked their attitudes towards alternatives for managing the lake. Responses revealed both interesting group variations and general patterns in terms of key management alternatives.

Overall, user groups and managers most agreed with 'better public education and awareness' as key management strategies. While user groups generally disagreed with user fees, some managers felt user fees were a necessary and inevitable component of future lake management. Similarly, although most user groups agreed with the banning of certain activities, the managers stated that the banning of activities should only be used as a final measure.

In assessing the degree of association between managers' and user groups' attitudes towards management alternatives, a significant relationship between the two groups' responses was found. Overall, it appears that managers and user groups have *similar attitudes about the merit of the various alternatives for management*. This association would appear

to be useful in terms of identifying and developing a mutually satisfying management framework.

'Enforcement' was cited by managers as one of the key issues for managing the lake. The lack of current enforcement capabilities by most of the affected agencies and the costs of enforcement make this issue one of the most difficult problems managers have to deal with. In contrast, only rowers and fishers strongly agreed with tougher enforcement as an alternative. Trail users' responses reflected an evenly distributed population, while water skiers and beach users were neutral. The strength in response for rowers and fishers may be because it is only on the water surface of the lake that enforcement becomes difficult. Given the jurisdictional responsibilities, only the local police force (e.g., Saanich Police) is able, legally, to enforce the boating restrictions. On the lake shoreline, other authorities such as CRD by-law officers can enforce regulations controlling certain activities.

Rather than discuss specific instances of temporally and spatially segregating user groups, managers highlighted the need for simple management plans that are easy to understand and enforce. However, user groups' were asked their attitudes towards specific segregation alternatives and

interesting responses, especially in terms of their specialization level, emerged.

Rowers were the only group that strongly agreed with scheduling different times for activities. All of the other user groups' responses approximated an evenly distributed population (e.g., not significantly different from a random distribution). Perhaps the rowers agree with this alternative because they already avoid the lake at certain times. They require specific water conditions to attain their recreational goal and these water conditions are largely present in the early morning. In contrast, other groups may be able to attain their goal at several times during the day. Restricting their use at the lake during certain times might therefore be unsuitable to them in terms of achieving their recreation goals. Scheduling different times for some activities, however, might decrease the effects of other types of users on the recreational experience, and increase the likelihood of attaining their recreational goal. Care must be taken when scheduling different times for activities that the scheduling does not encroach on traditional times of use.

Only rowers agreed with allocating different lake sections for activities; the other groups' responses approximated an

evenly distributed population. Rowers were also the most likely to state they avoided lake sections already, when dealing with annoying behaviour. It is interesting that the other groups do not strongly agree with this alternative, because their access to certain sections of the lake is restricted already. For example, water skiers are restricted to the over 10 h.p. lake sections and beach users are restricted to certain lake sections by the nature of the park developments and beaches and by the safety requirements in the swimming area. Fishers are restricted in terms of the location of adequate and abundant fishing 'sections' of the lake, while trail users are restricted in terms of the physical nature of the built trails. However, although they are not restricted in their access to many lake areas, rowers often follow a set flow pattern at the lake. Often, when they follow their rowing course, they cross several lake sections where other users engage in certain activities such as fly fishing and swimming. In fact, other user groups tend to complain that rowers cross into their 'section' of the lake and interfere with their recreation goals. Several water skiers and fishers stated, "We don't know why they [rowers] have to turn around where we are recreating when they can go into any section of the lake with no restrictions". It is unclear whether the strong response from rowers indicates they would be willing to

restrict their activity, or if they feel other activities such as water skiing should be further restricted. As with the previous alternative, this management alternative most appeals to the most specialized user group, rowers.

None of the user groups agreed with user fees - fishers and rowers most disagreed with user fees. This is interesting in that these two groups already pay user fees for using the park in terms of fishing licenses and related rowing program expenses. User groups who do not currently pay for the benefits they receive at the lake do not feel as strongly about paying user fees as those who already pay.

'Increased public awareness about lake issues' was cited by the managers as the most important element for minimizing recreation conflicts. Several managers discussed the merits of the public advisory board and called for an increase in its use in terms of increasing awareness of other user group requirements. Fishers, rowers and water skiers most agreed with better public education and awareness. As these groups are sometimes in conflict with each other, they would probably benefit most from an increased education and awareness program in terms of other groups becoming aware of their requirements and from becoming educated themselves in terms of their impact on other users. Trail users and beach

users did not respond as strongly to this alternative. This is perhaps because much of the existing signage and many of the rules and regulations are targeted towards their activities.

Responses to self regulation varied. Although a high percentage of rowers and fishers agreed with this alternative, they also had a high percentage who disagreed with this alternative. Water skiers and beach users' responses reflected an evenly distributed population. The lack of enthusiasm for this alternative by all groups probably indicates user groups' attitude that this alternative would be not very effective. The fact that greater enforcement had a much stronger response may indicate that user groups prefer this alternative.

Although managers generally disagreed with banning certain activities, many users agreed with this alternative. Rowers and trail users most agreed with this alternative, while fishers and water skiers most disagreed with it. The responses to this question might indicate the presence of a symmetrical conflict at the lake. Media reports and discussions with user groups indicate that many fishers and water skiers are sensitive about their use of the lake because they feel their traditional use might be threatened

by groups that want to see them banned (such as rowers and trail users). On the other hand, rowers and trail users appear to enjoy a relatively 'safe' existence at the lake, as many user groups point to the enjoyment these activities provide to the general public. It should be noted that most respondents who agreed with this alternative cited powered vessels (and, to a lesser extent, rowers) as groups they wanted to see banned.

In summary, several management alternatives supported by user groups were also identified by managers. Although there were variations in agreement with the various alternatives, three central management issues emerged from the results. These are the:

- importance of public education and awareness,
- need for a clear, easily understandable management plan that deals with issues such as temporal and spatial segregation, and
- importance of enforcement issues.

Determining the priorities and central issues for management enables a greater understanding of the concerns of user groups and managers. This in turn, assists in the development of recommendations that targets specific user group requirements based on the particular specialization level and on the issues of particular concern to the user groups and managers.

6.4.3 Awareness and Attitudes to Management Arrangements

Any recommendations for lake management must be set within the current management framework. To determine awareness of the jurisdictional arrangements, user groups and resource managers were asked about their knowledge of the management framework. Managers were also queried on their opinions of the current structure and many elaborated on alternatives that would assist in minimizing lake conflicts and clarifying lake management arrangements. This section describes the level of awareness of management arrangements and summarizes alternatives for clarifying the arrangements.

Some of the managers interviewed had extensive knowledge of the rules and regulations for Elk Lake and the division of jurisdictional responsibilities for lake management. In contrast, other managers had great difficulty relaying the rules and regulations and management structure. In fact, one manager stated the agency he worked for had only recently determined the extent of its jurisdiction and that they had yet to receive clarification of their legal obligations towards lake use.

The level of awareness about user groups' knowledge of lake management responsibilities provoked interesting responses

from managers. Two managers stated they were still confused about the management arrangements and that some of the user groups, especially those involved in the advisory group, would probably be more familiar. In general, managers noted that very few recreationists are aware of the jurisdictional arrangements.

User groups had great difficulty listing the agencies that had a major amount of responsibility for lake management. Overall, users responded most frequently that CRD Parks and the Elk/Beaver Lake Recreation Use Advisory Group had the most amount of responsibility, when in fact, these groups have no jurisdiction for managing lake use at all. And while the major amount of responsibility for recreational activities (e.g., boating restrictions) rests with the Canadian Coast Guard, most users tasked this group with minor or no amount of responsibility.

Due to the division of responsibilities structured in the Canadian Constitution, there is no strong lead agency that is able to respond to lake management issues. Coupled with the lack of user group and manager awareness of which agencies are responsible for lake management, it is not surprising that seemingly minor problems between user groups tend to escalate into conflicts. Discussions with user

groups revealed that users were generally frustrated with the lack of immediate response to lake use problems. Often users did not know which agency to approach for the various problems that occur and were surprised to learn that CRD Parks was not responsible for managing the use of the lake. Interestingly, many users simply did not care what agency was responsible for managing the lake; when issues arise they just want something to be done about them. Given users lack of interest in the management regime, it is not clear whether public awareness of the various jurisdictional arrangements should be a focus of education efforts. Perhaps efforts in this regard would be better spent with the agencies clarifying their respective roles, while working to develop a more streamlined process for delivering lake management.

It is clear that issues regarding lake use and management are more of a priority for some agencies than others. In fact, some of the primary management agencies would prefer *not* to deal with lake issues, as other issues are often more of a priority for their agency. As one manager stated, "I would rather the public not become aware of my agency's responsibility towards lake management, because then my job would become even more busy". Similarly, another manager noted he was involved with other issues and found it

acceptable that agencies with no jurisdictional responsibility were fulfilling his management role. Contrarily, these issues are integral to other agencies' mandates and goals. For example, one manager noted that the purpose of his position was to ensure that people were able to meet their recreational goals.

In times of fiscal constraint, the divided responsibilities seem to exacerbate the inability of agencies to manage lake use, especially when issues are outside of their jurisdiction. The underlying social and political trend of downsizing government agencies dealing with public policy issues such as lake management is a disturbing trend, especially in terms of 'hazy' jurisdictional responsibilities. Safety concerns are sure to arise when lake management issues and conflicts are not adequately dealt with, especially on multiple use lakes near urban areas. Clearly, for some agencies, being able to take a proactive role in management would assist them in reducing conflicts and in turn, reducing staff time required to deal with issues after they become conflicts. Lack of jurisdictional responsibility was the primary management constraint identified by managers. However, because of the way management arrangements are structured under the Canadian Constitution, it is not likely that a major

restructuring of arrangements will occur in the near future. Difficulties inherent in constitutional amendments and the fact that management of aquatic based recreational activities do not appear to be a priority in the context of the national agenda, means that clarification of management roles will probably take place on an informal basis only.

Although many specific strategies for improving lake management were cited (see Chapter 5), clarification of management roles, increased funding for enforcement capabilities and increased funding for improved communication efforts were some of the key options suggested. Recommendations for management alternatives should consider these options, within the context of specific requirements and issues identified by user groups as warranting attention.

Additionally, managers mentioned the notions of adaptability and flexibility as possible guiding principals for managing recreation use of resources. There is a great need for clear plans that have the ability to adapt to changing conditions and new technologies and are readily understandable and enforceable. A flexible plan that could adapt to local conditions would likely assist in managing the range of specialization levels at the lake, while at the

same time working within the concrete jurisdictional framework.

6.4.4 Methodological Issues of the Study

In the course of completing the study, some methodological issues that merit attention arose. First, it is apparent that many users may already be avoiding the lake because they are unable to attain their recreational goals. For instance, discussions with triatheletes revealed they no longer trained for swimming events at Elk Lake because of concerns with safety (e.g., getting run over by boats) and water quality. Unfortunately, the users who avoid the lake due to the severity of the conflicts are not represented in the study. Further research into the 'non-captured' users is warranted, as determining what factors led them to leave the resource (as a form of avoidance behaviour) might provide further insight into the sources of conflicts and alternatives for management. Determining the alternative resources they chose to recreate in would also be interesting to managers who manage an array of recreation resources within a particular geographical area.

Second, the attitudes and awareness of one user group that appeared to have had a significant impact on other user groups was not obtained in this study. Only one jet skier agreed to answer the questionnaire survey; all other jet

skiers that were approached declined to participate. Most users from this group refused to speak to the author. Several users were skeptical that the surveyed was not commissioned by a special interest group or government agency and were worried about the manner in which the results would be reported. One jet skier stated, "If I answer this questionnaire, you will use the results to get jet skis banned from the lake. This survey is *creating conflicts* by making people discuss problems that aren't occurring at the lake. When the CRD obtains your results we will be banned from Elk Lake".

It is unfortunate that jet skiers did not participate in this study, because other user groups identified this group as the most annoying to their recreation experience, and the group they would most like to see banned from the lake. As well, field observations indicated that this group was the most likely to engage actively in their activity in the under 10 h.p. sections of the lake and close to swimming and fishing areas. It would have been interesting to determine the level of recreation specialization for jet skiers and their user group requirements, in order to sense better management alternatives that would reduce their impact on other users, and increase the likelihood of their recreational goal attainment.

Third, although the questionnaire attempted to test for users' attitudes towards the level of crowding, the structure of the question made it difficult to interpret and analyze. As such, an important contributing factor in the source of conflicts may have been ignored. However, although this factor deserves further attention, field observations and questionnaire results revealed that although crowding probably plays a role in the conflicts, other factors such as the level of specialization may be more important. Evidence of symmetrical conflict and feelings of resentment towards other user groups on uncrowded days revealed that off site confrontations and interest group bargaining contribute to the conflicts.

Additionally, the majority of trail users agreed with banning activities on the lake, often because they felt the lake was too crowded; however, their user group does not recreate on the lake itself. Although the majority of rowers stated they wanted motorized activities such as water skiers banned from the lake, it is often rowers themselves who are crowding the lake, as few motorized activities use the lake when the rowers are on the water. And so, while crowding issues certainly deserve more attention, other factors should also be sought as alternative explanations.

Fourth, due to the limits of the study, only one member of the Elk/Beaver Lake Recreation Use Advisory Board was surveyed. Interviews with managers revealed the extent to which they rely upon the Advisory Group to minimize conflict situations, build common interests and relay that information to their 'constituents' or user groups. Although the focus of the study was on users and not on dispute resolution techniques, further study into the dynamics of the Advisory Group should provide additional insight into lake management alternatives. However, it is not clear whether the Advisory Group represents the 'typical recreationist' at the lake. Because this study focused on providing recommendations for improving the recreational experience for all user groups, the extent of the value of focusing on the Advisory Group is unclear.

Fifth, because of the limits of the study, an in depth comparative analysis of lake management in other jurisdictions was not undertaken. This analysis may have revealed some innovative management strategies. Although an effort was made to contact all regional districts in BC, some of the key regional districts in urban areas did not respond to information requests. However, because the primary managers responsible for managing lake use in BC

were interviewed, it is felt that the lack of information in this regard does not unduly deter from the results.

A limited review of other jurisdictions (e.g., some states in the US) revealed they operate under very different jurisdictional arrangements so that the validity of their management schemes for BC is questionable. An examination of the literature and discussions with managers and users from other jurisdictions revealed that many of the issues highlighted in the theory of recreation specialization played a key role in situations of conflict in other jurisdictions. Basic strategies for lake management (e.g., temporal and spatial segregation) are used in most jurisdictions where user groups with varying specialization levels recreate in close proximity.

Sixth, personal safety issues arose during the course of field observations and obtaining questionnaire results. Because of the nature of some of the recreational activities, and the natural (and secluded) park setting, it was felt to be potentially unsafe for the author to singularly solicit responses from individuals, especially on such an 'emotionally charged' topic area. Because of these issues, it is felt that some user groups' responses may have benefited from further research and field observations, if

safety issues were not a concern. This issue brings to light the usefulness of utilizing multiple methods of inquiry to learn about the context of a topic area. Because the analysis was not based solely on the questionnaire results, bias resulting from certain areas of the park not being sampled as frequently as other, safer and more crowded areas, was felt to have been minimized.

6.4.5 Summary Comments

Several aspects of the results appear to support the theory of recreation specialization. It is apparent that the theory does not provide full definitive explanations for the conflicts; however, the theoretical framework provides some insight into user groups' attitudes and awareness towards lake use and management. Further, the theory lends credence to recommendations for lake management. This discussion thus provides the basis for recommendations for managing lake use, which is the subject of Chapter 7.

Chapter 7

Conclusions and Recommendations

7.0 Introduction

This study examined some of the recreational requirements of user groups, their attitudes and awareness towards lake management issues, and management constraints identified by resource managers. By analyzing these elements within the context of the literature, recommendations for managing urban lakes are derived. This chapter provides conclusions about the study; general recommendations for managing urban lakes in BC; and specific options for managing issues at Elk Lake.

7.1 Conclusions

It is evident from this study that the concept of recreation specialization contributes to a greater understanding of the recreational requirements of user groups. Clearly, awareness of user groups' specialization levels increases the ability of managers to develop and target suitable management alternatives for minimizing recreation conflicts. Awareness of recreation specialization levels should be part of an overall strategy to create management arrangements

that are appropriate to the resource and to the array of recreational activities that occur. Other factors such as crowding and the environmental impacts of activities are also important in the development of a clear, easily enforceable and adaptable management plan.

Previous studies have focused on the differences between polarized user groups (e.g., water skiers and canoeists), or the range of specialization within a particular user group (e.g., backcountry users). This study is unique in its attempt to study several user groups who compete for recreation resources within a multiple use area. Initial observations of recreating behaviour provided the necessary background to identify users in terms of readily recognizable recreation activities. This *a priori* division provided the fundamental testing ground for several components of the recreation specialization concept and the development of a continuum of recreation specialization for several different types of recreational activities for a particular resource.

Further research into the specialization levels that exist within user groups would provide important information for

the analysis of the full range of specialization levels. Indeed, it might be possible to develop a scale of different magnitudes of recreation specialization, both between and within user groups. This would enable further study into the extent to which a user group's specialization level contributes to the level of conflict they are likely to experience and the appropriateness of management alternatives.

Although many managers may not have the opportunity to conduct a thorough study to determine the levels of recreation specialization that are present at a particular lake, attempting to gain at least a basic insight into the nature of user groups' use of the resource may assist in the development of appropriate management strategies. In some cases, managers may already be aware of specific elements of user groups' recreation behaviour; indeed, they probably already make decisions based on initial observations and personal knowledge of users' behaviour. Additionally, parks and recreation staff may be able to provide information based on their observations, so that management alternatives can be developed with the important knowledge of user group requirements.

However, even armed with knowledge of user group's level of recreation specialization, it will be difficult to recommend management alternatives that will suit the full range of specialization levels at a multiple use lake. In the course of researching the issue of recreation conflicts, it became apparent that no one theory is appropriate for explaining the unpredictable nature of human behaviour. Multiple sources of data, and alternative theories for explaining complex phenomena are required when attempting to determine the nature of a complex problem such as recreation conflicts.

It was found that the case study approach to the complex problem of human behaviour was ideally suited to this topic area. The use of 'triangulation' for data collection enabled the author to obtain information on the problem from a variety of sources. The theoretical framework enabled the examination of the phenomena in its 'real life' context. Data from a previous study allowed for a confirmation of the 'facts' of the particular situation, and an examination of the issues over time. Thus, the case study approach enabled an examination of variations within the results, including

alternative sources of explanation that did not fit into the theoretical framework.

Utilizing the case study approach made it apparent that no one theory adequately explains the complex nature of a problem such as recreation conflicts. Managers should therefore use caution when examining the recreation specialization level of a particular group in terms of identifying appropriate management alternatives, and seek alternative sources of explanations where possible. In this way a fuller explanation of the particular elements which may influence the conflict situation can be identified.

In reality, many managers may opt for maintaining the *status quo* and continue to practice reactive management and *ad hoc* planning. The presence of conflicts at lakes certainly does not appear to reduce the numbers of recreationists who visit them. In 1985 Dearden reported that:

> People appear prepared to put up with the crowds, poor parking facilities, and some conflict with motor boats for the close proximity, good quality, and range of recreation opportunities at Elk Lake.

Today at Elk Lake, the number of recreationists pursuing their recreational activities continues to increase, despite the conflicts that occur. With an increasing population

near urban areas and a subsequent increase in people engaging in recreational activities (including new technologies such as personal watercraft), it appears as if recreationists will continue to 'put up with conflicts' in order to attain their recreational goals. This may be especially true if the only opportunities to attain recreational goals are in close proximity to urban areas. While continuing to practice reactive management may appear to be the most feasible option for managing recreation use in the short term (e.g., does not require additional resources), the advent of different types of recreational activities coupled with an increase in the use of finite resources (such as lakes), may prove difficult for minimizing conflicts in the long term. The increase in use may also mean that user groups will find it increasingly difficult to attain their recreational goals at certain lakes, and may have to seek other finite resources to recreate in. Therefore, some general recommendations for urban lakes in BC and specific recommendations for the particular situation at Elk Lake are offered.

7.2. Recommendations for Lake Management on BC's Urban Lakes

Recommendations for lake management on urban lakes in BC focus on three components:

- Awareness and education,
- enforcement, and
- general recommendations for lake management.

This section will examine each of these components in turn.

7.2.1 Awareness and Education

It is essential that managers become aware of the recreation specialization level of the user groups they are managing. By knowing the recreation requirements of their clients in terms of user groups' history of use, activity setting requirements, approximate skill level and type of equipment, managers will be better able to make management decisions that will assist user groups in obtaining their recreational goals. If they are unaware of user group requirements, managers risk devising management strategies that will accomplish little in improving the recreational experience[1]. For instance, strategies such as physically separating user groups will have little or no effect if it is the noise of

some user groups that affects others, or if the user groups already practice conflict avoidance by separating themselves. Although managers and user groups at Elk Lake had similar attitudes towards management alternatives, managers were unaware of the conflict avoidance behaviours user groups engaged in. Attempting to gain a greater understanding of how user groups recreate and deal with annoying behaviour at Elk Lake (and other lakes in BC) might enhance managers' abilities to devise strategies that consider the particular requirements and conflict avoidance behaviours of the user groups.

By knowing the specialization levels of the user groups, strategies designed to spatially and temporally separate user groups may be more successful. Targeting user groups that already separate themselves from other user groups may increase the likelihood that formal restrictions on their lake use will be adhered to. As well, by becoming aware of where and at what times user groups recreate at the lake, zoning of lake uses can encompass traditional areas that users recreate in, rather than arbitrarily designating zones of use.

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[1] Although several factors will influence the appropriateness of management alternatives, managers' awareness of recreation specialization will increase the likelihood that management alternatives will suit the

At Elk Lake, the most viable solution for managing the diverse recreational activities may be to further separate user groups both temporally and spatially. It is evident that the very reason why some user groups choose their recreational activity (e.g., motoring or rowing fast, testing their skills against the equipment) make them annoying to other groups. Similarly, some user groups are more prone to experience conflicts with other groups because of the nature of their activity (e.g., wanting to pursue their activity in solitude with little distractions). Although some of the user groups disagreed with allocating lake sections and scheduling different times for activities as management alternatives, separating the users who are particularly susceptible to other users' activities may be the only viable strategy, as the number of recreationists who recreate and use the finite lake resources increases.

If the managers at Elk Lake were to determine the specific recreation requirements of the user groups, they could devise a zoning scheme that considers some of the requirements and traditional areas of use. As well, they

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particular needs of the user groups .

might be able to convince some of the user groups to voluntarily restrict their use of Elk Lake to certain times of the day or to certain portions of the lake. If user groups that are prone to conflict with each other (such as the rowers and the water skiers) voluntarily recreated at the lake at different times and in different areas, then formal restrictions may not be required and many of the on-site conflicts could be minimized. Voluntarily practicing temporal and spatial zoning may be particularly successful at Elk Lake, because some of the groups already practice conflict avoidance behaviours such as avoiding the lake at certain times and avoiding certain sections of the lake.

Depending on the specialization level, some user groups will be more likely to experience conflicts with other user groups of both similar and dissimilar specialization levels. Management strategies designed to reduce conflicts for specialized users, for example, may not be the most appropriate measure. A specialized group will probably require very specific activity setting requirements in order to attain their recreational goal. They will most likely not be satisfied unless they are able to recreate in the activity setting with little or no distractions from other

users. Even if they are physically separated from other users, they will likely continue to experience conflicts.

In contrast, if management strategies are designed for generalist user groups with less specific user requirements, they will probably be willing to accept a broader range of management strategies and will be more likely to attain their recreational goal. Their recreational goals, which are not entirely dependent on specific activity setting requirements, the behaviours of other user groups and the type of equipment, may be met in a broader range of settings, in a variety of situations. Targeting management strategies towards a number of generalist users, therefore, may produce a greater number of satisfied user groups than targeting a few specialized groups.

This recommendation is particularly relevant to Elk Lake, where a number of the primary user groups are specialized. Currently, it appears as if management strategies are designed to improve the recreational experience for some of the most specialized user groups (rowers, fishers and water skiers). An interesting question though, is whether these are the most appropriate groups to target. Specialized user

groups might not be satisfied with management alternatives unless they are able to recreate with little or no distractions (e.g., other user groups). Management strategies should also be targeted towards the groups that are likely to respond to alternative measures, such as the beach users and trail users.

Devising strategies for only the generalist user groups, however, does not consider the fact that more specialized groups are the groups most likely to be in conflict and the least likely to attain their recreational goals. This is a difficulty with the concept of recreation specialization. As previous studies tended to examine the polarized viewpoints of two diverse groups or within group variations, the most appropriate management strategies for a broad range of user groups who recreate in a multiple use area or for several specialized groups who recreate in close proximity remain to be tested. Two suggestions in this regard are offered.

Perhaps the key to management in these situations is to examine the needs of both types of user groups (both generalist and specialist). Obtaining information about

both types of user groups would appear to enable managers to devise strategies specifically focused on the requirements of the various specialized and generalized user groups. If managers were aware of the recreational requirements of the full range of user group's specialization levels, they might be in a better position to manage the activities of the generalists that most annoy the specialists. At the same time, this awareness might also enable them to manage the activities of the specialized user groups that annoy generalized, and other specialized user groups.

Determining the range of user group's specialization levels (and resource requirements) should also take place on a regional scale or within a particular geographical area. For example, if managers were aware of the specialization levels at Elk Lake within the context of the range of specialization levels in the CRD Parks system, the management of the range of user group's requirements could occur regionally, rather than a 'lake by lake' approach. In this way, the particular resource requirements of the generalists users would be easier to fulfill. As these types of users are able to attain their recreational goal in

a number of settings, increasing the options for activity settings may increase the likelihood of goal attainment. Additionally, specialized users could be separated into distinct geographical areas more readily, if a number of activity setting options were available. For example, within a geographical area, one lake could emphasize power boating activities, while another could emphasize rowing activities. Of course, in order for this management scheme to be successful, the particular area would have to have a range of options to offer. It is evident that further research into the problem of determining the specialization level most appropriate for management alternatives is warranted.

Awareness of user groups' specialization levels will also enable managers to develop appropriate education efforts for user groups. If user groups are more aware of the array of recreation requirements at a particular lake, they might practice conflict avoidance behaviours by choosing alternate spaces and times to recreate. As well, they might better understand the behaviours users engage in when pursuing their recreational goals, and not attribute this behaviour as being antagonistic. For example, if users are aware that

a particular user group requires a large portion of the water surface in order to attain their recreational goal, they might better understand the reasons why the user group recreates in several areas of lake; as such, they may not attribute that user groups' behaviour as provoking conflicts, but rather, as essential for that users' recreational experience.

Education efforts could be made in a number of formats. Increased signage, brochures, work shops, presentations to the media and local community groups are all viable options for teaching user groups about other user group requirements. Increased use of citizen and interest group advisory boards may also increase levels of understanding between the user groups themselves and between user groups and resource managers.

At Elk Lake, increased and more explicit signage is recommended. Often, signs regarding recreation use are unclear and provide little information about the activities that occur on the lake. As an example, one of the most common complaints by rowers was that other user groups consistently recreated in front of their flow pattern.

However, the only sign that depicts the rowing flow pattern is posted on the wall of the rowers' boat house; none of the main entry points onto the water surface (e.g., boat launches) contain information about the rowers' flow pattern. Unless other user groups make a point of visiting the rowers' boat house, they are unaware of this requirement of the rowers. As such, increased signage in appropriate areas such as the boat launches, water ski beach, rowers' boat house and fishing dock, would greatly assist other user groups including infrequent users, to understand the particular requirements of the other user groups. The signs could explain where and when users are likely to encounter other user groups, recreational goals of the user groups and activity setting requirements.

A greater effort should be made by the primary management agencies to educate user groups about the appropriate agency they can contact about recreation and lake management issues. When conflicts arise, user groups should be able to determine the appropriate agency easily, with limited response time. In this way, issues may be dealt with before conflicts reach the point of impasse between user groups and

before off-site confrontations and symmetrical conflicts develop.

At Elk Lake, most user groups think CRD Parks is the agency they should approach for lake management issues. Although CRD Parks often attempts to minimize conflicts directly, when more serious conflicts occur, user groups must wait for the appropriate agencies to respond to the situation. If user groups were aware, for example, that the appropriate contact for incidents involving wildlife was the Ministry of Environment, Lands and Parks, they could contact this agency directly with their concerns. As such, the time required for the appropriate agency to respond to their requests would be minimal and the conflict would be dealt with more efficiently. It might also be more likely to dissipate, rather than increase in severity.

Education efforts designed to increase user awareness of other user group requirements may also be used to fulfill the dual function of increasing awareness about appropriate management agencies. This effort may include advertising an information telephone number or internet address on signs or in brochures, or delegating an agency to staff personnel for

referring individuals to appropriate agencies. If the primary management agencies are not interested in increasing their role in promoting awareness of lake management issues, increased funding should be provided to agencies that are currently performing these functions with little or no jurisdictional responsibility and funding.

Signs and brochures at Elk Lake could be used to educate users about safety requirements, in addition to the array of recreational uses on the lake and the activity requirements. Information sources for emergencies and lake management issues might assist in further reducing the likelihood of conflicts. Ensuring that the Elk/Beaver Lake Recreation Use Advisory Board contributes to and concurs with the information would ensure that the information reflected accurately the user group requirements.

7.2.2 Enforcement

Strategies for minimizing lake conflicts will not be successful unless they are easily and readily enforced. On multiple use lakes near urban areas, a greater enforcement presence may be required for safety reasons and for the increased enjoyment of recreational activities on lakes.

However, given the fact that enforcement on water surfaces is restricted to the local police force, increased enforcement will be costly in terms of allocating funding and resources that could otherwise be used to reduce criminal activities. It is therefore recommended that an analysis of the temporal and spatial use of recreational activities at the lake be undertaken prior to an increase in enforcement efforts. In this way, efforts to enforce lake use may be focused on a particular lake when it is most required. Field observations and discussions with managers indicate that special events, weekends and holidays, especially in the summer months, are the most frequented time for lake use activities. Determining the specific variations in use for various lakes will better enable managers to target their efforts (and funding) when and where they are most required. Based on observations of use, it is recommended that increased enforcement efforts on Elk Lake occur in August and September, during the hours of 10:00 a.m. and 7:00 p.m. on weekends and holidays and on weekdays with especially warm weather.

As with education efforts, the primary management agencies should provide some support for other agencies that are

currently enforcing rules and regulations in an *ad hoc* manner. Funding for overtime work provided by the local law enforcement agency may increase the enforcement presence on lakes and decrease the amount of time and effort other agencies spend dealing with complaints. Although it would undoubtedly be seen as an unpopular measure, increased taxes from municipalities in the CRD could be collected in order to fund overtime requirements. As well, revenue generators such as tax deductible cash donations, pay parking and increased fees for special event licenses are other possibilities.

Enforcement efforts should also increase along the shoreline and adjacent property surrounding lakes. Imposing restrictions and fees for boat launching, or restricting noisy activities through noise bylaws, for example, may increase the enforcement presence at the lake. As many recreation activities occur near the shoreline of the lake and in close proximity to other user groups, efforts which enforce land based recreational activities may also minimize conflicts in this heavily used area of the lake. CRD bylaw enforcement officers, life guards and volunteer park wardens already perform this function at Elk Lake, although these

groups are unable to enforce criminal code violations. Additionally, due to budgetary constraints, the funding of bylaw officers and life guards were recently reduced. However, a more visible presence of volunteer wardens and naturalists might provide an unthreatening enforcement and education presence at entrances to the lake such as the boat launches and in swimming areas.

7.2.3 General Recommendations for Urban Lake Management and Specific Recommendations for Elk Lake

Above all, a management strategy that clearly indicates what agencies are involved in managing specific sections of the lake resource is essential. The management strategy itself should be readily understandable, have basic, easily enforced restrictions and be agreeable to many of the users of the lake resource. The ability to adapt to changing local conditions, to the introduction of non-traditional activities and to changes in the various specialization levels of the user groups are also important. Managers would also benefit from a readily understandable management plan; the development of such a plan would require an increased knowledge about their client. Management agencies which are essentially 'removed' from the day to day decision

making aspects of lake management would also benefit from an increased awareness of the issues they administer.

As the most specialized group at Elk Lake, rowers' recreational activities should be examined further. This group is most likely to practice conflict avoidance behaviours, yet they are the most likely to experience conflicts with other user groups. They are also the least likely to attain their recreational goal, due to the activities of the other user groups. Specifically, their spatial and temporal use of the lake should be determined and their activities should be voluntarily scheduled to occur when few other groups recreate at the lake. Although many rowers participate in their activity when the lake is not intensively used, it appears that some rowers participate in their activity during times when the lake is used more intensively by other users. If it is difficult for rowers to attain their recreational goals when other activities are present, their use could be restricted to occur when the lake is not as busy, such as prior to 11:00 a.m. and on weekdays only.

Given the time required to enact boating restrictions, a first step should be for the appropriate management agency to discuss the issue of voluntary restrictions with the main rowing club organizers. Because rowers appear to be one of the most organized groups, it might be easier to apply voluntary restrictions on rowing activities than other, more disparate user groups.

Although trail users do not use the water surface of Elk Lake, they are affected by several activities on the lake. As well, they are the least likely to practice conflict avoidance behaviours and are a vocal, visible presence that has a long history of use. Education efforts specifically focused on this group may be beneficial in terms of minimizing the level of conflict they experience. Many trail users complained about the level of noise of other recreationists. Educating this group about the several options that are available for their recreational experience such as other non-intensively used parks and green spaces, would perhaps better communicate the image of Elk Lake as a multiple use lake. Additionally, increased signage along the trails surrounding the lake would assist in communicating key elements of the management strategy.

Beach users at Elk Lake are the group most likely to frequent the lake on a seasonal basis. Raising the awareness of this group about other user groups' requirements, safety issues and the range of location options may provide this group with additional information that will assist them in enjoying their recreational experience. Education efforts specifically targeted towards school children before the summer break, handouts to beach users at the lake itself and to groups that provide educational information about safe boating practices will assist in 'spreading the word' about the various issues at Elk Lake.

Similar to Bryan's initial (1977) study, this study found that fishers appear to represent a heterogeneous population. As such, education and enforcement efforts specifically targeted to their use will be difficult. Both generalist and specialist users are in this user group, and management strategies focused on the generalist, may inappropriate for the specialist. Further examination into this user group's activities is essential for devising management alternatives for their use. However, this study does provide an initial

examination into their user group requirements and attitudes towards management alternatives.

The use of motorized vessels (including water skiing activities) at Elk Lake will, at some point, reach a level of use that is inappropriate for safety reasons. Many of the water skiers discussed their concern over their 'image' as reckless boaters and recreationists. They were also worried that an increase in personal watercraft use on the lake would affect their current use. Currently, many of the water skiers practice self regulation. However, as their use increases, alternatives such as boat launching fees (to provide revenue for enforcement), a lottery system or a licensing system will be required in order to reduce the number of water skiers using the surface of the lake at any one time.

Water skiers would especially benefit from increased and appropriately situated signage. During summer months the 'water ski beach' where water skiers are dropped off and picked up in the water gets extremely busy. Unfortunately, the sign that suggests the beach area is unsafe when boats are present is small, unclear and inappropriately placed.

More explicit signage that presents the impacts of water skiers on other activities (such as fishers) and safety concerns might assist in minimizing the impact of this group on the other user groups.

As discussed, jet skiers did not agree to participate in this study. However, field observations of their use and discussions with user groups and resource managers about the impacts of their activities have raised some interesting questions about the suitability of their use on Elk Lake. Jet skiers were the group most likely to participate in their activity in the under 10 h.p. area, in close proximity to other user groups and were most likely to be mentioned as creating conflicts. This group is also most cited as one which user groups wish to see banned from the lake. Although it is difficult to speculate about their recreational requirements as they were not surveyed, the great impact they have on other user groups warrants further study. Field observations into their behaviour and patterns of use, and surveys to determine their awareness and attitudes towards their activity, other user groups' activities and management alternatives should be undertaken. Additionally, as the use of jet skis continues to increase,

the federal and provincial governments should re-visit the notion of banning their use from certain sizes of water-bodies. In close proximity to other users, concerns for the safety of recreationists would appear to take precedence over the desire to attain a certain recreational goal, to the detriment of other recreational activities.

Finally, both managers and user groups should attempt to devise creative strategies for minimizing conflicts and optimizing the likelihood of recreation satisfaction by all user groups. Corporate donations, private partnerships and citizen involvement in decision making appear to be viable options in terms of assisting managers with providing user groups with quality recreational experiences. With the current trend in government downsizing, it will become increasingly important for managers to be aware of the recreational requirements and recreation specialization levels of user groups. In this way, management strategies can be targeted appropriately, instead of generically applying management in an *ad hoc* and reactive manner for all types of resources.

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Appendix A

Observation Sheet

Date:

Access point/where enter lake:

Time of day:

Weather conditions:

Impression of crowding: 0-5, 5-10, 11-20, 20-30, 30+

Number of people:

Number of boats:

Number of non-power boaters:

Number of power boaters:

Number of cars in parking lot:

Manager's enforcement officials present: yes/no, who present

Signage visible: yes/no, what signage

Activity numbers: 0-5, 5-10, 11-20, 20-30, 30+
Where located (zone):

Beach users:

Swimmers:

Fishers:

Non-power boaters:

Power boaters:

Water skiers:

Rowers:

Trail users:

Other:

Regulations broken:

User group interactions:

0-5, 5-10, 11-20, 20-30, 30+

Impression of situation:

Appendix B

Questionnaire for User Groups

LAKE MANAGEMENT IN URBAN AREAS

A SURVEY OF RECREATION USERS' OPINIONS TOWARDS LAKE USE AND MANAGEMENT

AT

ELK/BEAVER LAKE PARK

The information from this study will hopefully assist in the preservation and enhancement of one of the Victoria region's greatest recreation resources. This information will also form the basis of a Master of Arts Graduate Degree in Geography from the University of Victoria.

CONSENT TO PARTICIPATE:
I understand my participation is completely voluntary, and that any data collected will remain confidential; results will be kept in a locked room.

I also understand that my name will not be attached to any results from this study, published or otherwise, and that my anonymity will be protected by using code numbers to identify the results. I also understand that individual responses will be destroyed upon completion of the research, and only summarized tabulated information will be reported in any results made available to any persons other than the interviewer.

I understand that whether I participate or choose not to participate will have no bearing to me whatsoever, and that I can withdraw at any time, without explanation.

Date: _____
Signature: _____

In this section, we would like to know some general information about your visits to Elk/Beaver Lake Park (hereafter called "the Lake").

1. When was the *last time* you visited this Lake?

Month _____ Year _____

2. On average, how *often* do you visit this Lake? Place a mark beside one choice.

( ) 3 or more times per week ( ) Weekly ( ) Monthly ( ) Seasonally ( ) Once per year

3. In 1995, how *OFTEN* have you participated in the following activities at this Lake? Choose one answer for each activity.

ACTIVITIES	FREQUENCY				
	3 or more times a week	Weekly	Monthly	Yearly	Never
• Trail use					
• Swimming					
• Beach use					
• Non power boating					
• Power boating (over 10 hp)					
• Water skiing					
• Rowing					
• Fishing					
• Organized group activities (Specify) _____					
• Others (Specify) _____					

Any other comments?

_____

4. How *IMPORTANT* are the following features for choosing this Lake as your recreation destination? Choose one answer for each feature.

FEATURE	IMPORTANCE				
	Very	Fairly	Neutral	Not Very	Not at all
Location					
Uncrowded space					
Ample parking space					
Good water quality					
Clean environment					
Presence of wildlife					
Other (Specify) _____					

We would now like to ask your opinions about the different activities that occur at the Lake.

5. When *OTHER PEOPLE* engage in the activities listed below, how do they affect YOUR recreation experience at this Lake? Choose one answer for each activity.

ACTIVITY	RECREATION EXPERIENCE				
	Very annoying	Annoying	Neutral	Enjoyable	Very enjoyable
• Trail use					
• Swimming					
• Beach use					
• Power boating					
• Water skiing					
• Non power boating					
• Rowing					
• Fishing					
• Organized group activities (Specify) _____					
• Others (Specify) _____					

Any other comments?

_____

_____

6. How might you deal with annoying behavior at the Lake? Choose one action for each behavior.

BEHAVIORS	CHOICE OF ACTION				
	Definitely yes	Probably yes	Probably no	Definitely no	Uncertain

- Try to ignore the activities
- Avoid the Lake altogether
- Avoid certain sections of the lake
- Avoid the lake at certain times
- Complain to an authority
- Write to the local paper
- Protest at city hall
- Complain to the persons engaging in the bothersome activity
- Other (Specify) _____

In this section of the survey we would like to find out about any potential problems that may occur at the lake.

7. Are you aware of any problems or conflicts between different types of activities that occur at the Lake? (Please place a mark beside one choice only.)

No ( ) Unsure ( ) Yes ( )

8.(a) If you answered *no or unsure* to Question 8, please move on to Question 10. If you answered *yes* to Question 8, please list below which activities are in conflict with each other and answer Question 9 (b).

_____

_____

_____

9.(b) How did you find out about these conflicts? (Please place a mark beside any applicable reasons).

( ) Personally involved with the conflicts
( ) Discussions with acquaintances
( ) Reports from the media
( ) Personal observations
( ) Other (Specify)_____

10. Please circle one number on the scale below which indicates the level of crowding you have experienced at the Lake today.

1	2	3	4	5	6	7	8	9
	Not at all crowded		Slightly crowded		Moderately crowded		Extremely crowded	

11. (a) Would you go to another lake if you felt the level of crowding was increasing? (Please place a mark beside one choice only.)

( ) Definitely yes ( ) Probably yes ( ) Probably no ( ) Definitely no ( ) Unsure

(b) If you answered *YES* to Question 11. (a), which lake would you go to?

_____

In this section we would like to find out about the management of the lake.

12. To the best of your knowledge, *WHAT* agencies have some responsibility for this Lake? Choose the level of responsibility that you think each agency has. For example, if you think the Saanich Police have little to do with Lake management, place a mark in the category labeled 'minor'.

AGENCY	LEVEL OF RESPONSIBILITY			
	Major	Average	Minor	None
• BC Ministry of Health				
• Saanich Police				
• City of Victoria				
• Canadian Coast Guard (Federal Government)				
• Capital Regional District (CRD) Parks				
• Municipality of Saanich				
• BC Ministry of Environment, Lands and Parks				
• Elk/Beaver Lake Recreational Use Advisory Group				
• Royal Canadian Mounted Police (RCMP)				
• Provincial Government				
• Other (Specify) _____				

13. If you had a problem with any activity, which of the above agencies listed in Question 13 would you call?

_____

14. Can you name any rules or regulations for recreational use on the Lake?

15. How strongly do you AGREE or DISAGREE with the following possible management alternatives? Choose one answer for each alternative.

ALTERNATIVE	ALTERNATIVE CHOICE				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(1) Tougher enforcement of existing regulations					
(2) Schedule different times for activities					
(3) Allocate activities in different lake sections.					
(4) User fees for different activities.					
(5) Better public education and awareness					
(6) User group self regulation					
(7) Banning certain activities in parks (please SPECIFY) _____					
(8) Other (Specify) _____					
(9) Other (Specify) _____)					

16. Are you aware of any problems that happen at other lakes on Vancouver Island? (Please list these conflicts and the lake they occur in the space below.)

Finally, we would like to ask some questions about you to help interpret the results of this survey.

17. How many people are with you at the Lake today?

18. Where do you live?

( ) North Saanich
( ) Sidney
( ) Central Saanich
( ) Saanich
( ) Victoria
( ) Oak Bay
( ) Esquimalt
( ) Western Communities (View Royal, Colwood, Langford)
( ) Other (Specify)

- **Please write any additional concerns about the management and use of the Lake on the back of this survey.**

Thank you for taking the time to participate in this study. Your input is very valuable.

If you have any questions or concerns about this questionnaire or study, please contact Dr. C. Wood, Department of Geography, University of Victoria at 721-7336.

Appendix C

Interview Questions for Managers

Interview Questions for Managers

1. Lake use - general background

1.Please tell me what recreational activities you think urban lakes should provide?

2.Are there any recreational activities that are inappropriate for urban lakes?

3.How do you feel about restricting certain lake activities?

4.How do you feel about banning activities? Which ones? Why?

5.Do you think user groups generally support the banning of activities?

2. Lake use - Elk Lake

1.How would you describe the typical lake user?
frequency of use, - once/week or more, monthly, seasonally

familiarity with rules and regulations - unaware, user specific rules, all rules

sport/recreation skill - basic , medium skill level, highly skilled 'elite'

equipment required- basic (recreation clothing), slightly technical (old boat, bicycle), highly technical (water-ski equipment, light-weight rowing sculls, fly-fishing rods)

recreation/environment setting importance - general (unimportant), somewhat important, specific/particular (unique)

2.Do you know if any lake user groups are annoyed by other user groups? (which ones, why are they annoyed?)

3.Are any of the annoyed groups actually in conflict? How did it develop into a conflict?

4.How do most people deal with annoying behaviour at the lake? I'd like to know the top three behaviours:
1., try to ignore the activities;

2., avoid the lake altogether;
3., avoid certain sections of the lake;
4., avoid the lake at certain times;
5., complain to an authority;
6., write to the local paper;
7., complain to the persons engaging in the bothersome activity;
8. other

5.How did you find out about lake behaviour , for example, have you seen it happen or did your hear about it?)

6.Are lake user groups generally aware of other user group requirements?

7.Do user groups care about others?

8.How could awareness of other user group requirements be improved?

9.Would it be possible for you to list a few of the main lake use rules and regulations ?

10.Do you think that users have an understanding of the rules and regulations? Are there any groups that have a greater understanding than others?

11.How could understanding of regulations be improved? (generally and targeting particular user groups)

12.How could enforcement of regulations be improved?

13.What existing rules or regulation would you like to see changed?

14.What new rules or regulations would you like to see implemented?

3. Management arrangements

1.What is your agency's mandate towards urban lake management?

2.To what extent do you work with other agencies? Which ones do you work with and what is their management role?

3.What are the three most important management strategies or measures that could minimize lake use incompatibilities and conflicts?

4.Does the public approach your agency about lake management? How often?

5.How many queries actually relate to your jurisdiction (rough percentage)?

6.What percentage of queries do you send to other departments?

7.What percentage of users are aware of the lake jurisdiction arrangements?

8.Are there any user groups that are more aware of lake jurisdiction than others?

9.How could the awareness and understanding of jurisdiction be improved?

10.Is public awareness a priority for your agency?

11.How does your agency attempt to minimize recreation conflicts and control competing or potentially incompatible lake uses?

12.What constraints affect the ability of your agency to prevent and/or minimize lake use conflicts?

13.How might the role of your agency in this aspect be improved?

14.Can the current jurisdictional frameworks for lake management be improved?

15.Has the idea of restructuring the current management arrangements been brought up previously? What was the outcome?

16.In reference to the questionnaire question that dealt with the fact that there is no agency responsible for coordinating recreation on lakes, --Ideally, how would the responsibilities be funded?

17. In relation to other problems, are lake management issues such as these a priority for your agency?

18. How do you see potential incompatibilities/ conflicts realistically reconciled?

Appendix D

Questionnaire for Managers

LAKE MANAGEMENT IN URBAN AREAS

A SURVEY OF RECREATION USERS' OPINIONS TOWARDS LAKE USE AND MANAGEMENT

AT

ELK/BEAVER LAKE PARK

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I understand my participation is completely voluntary, and that any data collected will remain confidential; results will be kept in a locked room.

I also understand that my name will not be attached to any results from this study, published or otherwise, and that my anonymity will be protected by using code numbers to identify the results. I also understand that individual responses will be destroyed upon completion of the research, and only summarized tabulated information will be reported in any results made available to any persons other than the interviewer.

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Date: _____

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In this section, we would like to know some general information about your visits to Elk/Beaver Lake Park (hereafter called "the Lake").

1. When was the *last time* you visited this Lake?

Month _____ Year _____

2. On average, how *often* do you visit this Lake? Place a mark beside one choice.

( ) 3 or more times per week ( ) Weekly ( ) Monthly ( ) Seasonally ( ) Once per year

3. In 1995, how *OFTEN* have you participated in the following activities at this Lake? Choose one answer for each activity.

ACTIVITIES	FREQUENCY				
	3 or more times a week	Weekly	Monthly	Yearly	Never
• Work related					
• Trail use					
• Swimming					
• Beach use					
• Non power boating					
• Power boating (over 10 hp)					
• Water skiing					
• Rowing					
• Fishing					
• Organized group activities (Specify) _____					
• Others (Specify) _____					

Any other comments?

_____

4. How *IMPORTANT* are the following features for choosing this Lake as your recreation destination? Choose one answer for each feature.

FEATURE	IMPORTANCE				
	Very	Fairly	Neutral	Not Very	Not at all
Location					
Uncrowded space					
Ample parking space					
Good water quality					
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Other (Specify) _____					

We would now like to ask your opinions about the different activities that occur at the Lake.

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• Water skiing					
• Non power boating					
• Rowing					
• Fishing					
• Organized group activities (Specify) _____					
• Others (Specify) _____					

Any other comments?

_____

_____

6. How might you deal with annoying behavior at the Lake? Choose one action for each behavior.

BEHAVIORS	CHOICE OF ACTION				
	Definitely yes	Probably yes	Probably no	Definitely no	Uncertain
• Try to ignore the activities					
• Avoid the Lake altogether					
• Avoid certain sections of the lake					
• Avoid the lake at certain times					
• Complain to an authority					
• Write to the local paper					
• Protest at city hall					
• Complain to the persons engaging in the bothersome activity					
• Other (Specify) _____					

In this section of the survey we would like to find out about any potential problems that may occur at the lake.

7. How strongly do you AGREE or DISAGREE with the following possible management alternatives? Choose one answer for each alternative.

ALTERNATIVE	ALTERNATIVE CHOICE				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
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(7) Schedule different times for activities					
(8) Allocate activities in different lake sections.					
(9) User fees for different activities.					
(10) Better public education and awareness					
(6) User group self regulation					
(8) Banning certain activities in parks					
(please SPECIFY) _____					
(8) Other (Specify) _____					
(9) Other (Specify) _____)					

8. Are you aware of any problems that happen at other lakes on Vancouver Island? (Please list these conflicts and the lake they occur in the space below.)

- Please write any additional concerns about the management and use of the Lake on the back of this survey.

Thank you for taking the time to participate in this study. Your input is very valuable.

If you have any questions or concerns about this questionnaire or study, please contact Dr. C. Wood, Department of Geography, University of Victoria at 721-7336.

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Title of Thesis:

Conflicts Between Recreationists at Elk/Beaver Lake, Saanich, BC.: A Study in Awareness and Attitudes To Lake Use and Management.

Author [redacted]

Michelle Lee Carr
August 27, 1997