NOTE TO USERS

Recreation Specialization, Place Attachment, and Site Attribute Preferences of River Paddlers in Canadian Mountain National Parks

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ABSTRACT

To plan and direct use on a river that balances the ecological integrity and the quality of the recreational experience, it is necessary to know how different users relate to an area and what features of that area they consider to be important. The purpose of this study is to explore the relationship among recreation specialization, place attachment, and site specific river characteristics important to river users. Interviews with paddlers, both canoeists and kayakers, were used to develop a map of use in the study area and a list of important river characteristics. From the use map, sites on each river were selected for on-site contact with paddlers. On-site contacts were then asked to a) complete a short one-page survey; and b) to participate in a more detailed mail-out survey on their level of specialization, their degree of place attachment, and to indicate their sites/routes on a map and rank the importance of various attributes when they chose that particular location.

Results indicate that a) the level of place identity, place commitment, and place lifestyle differ with recreation specialization level; b) the importance of route specific characteristics such as route length and gradient, differ with recreation specialization level; and c) the trends between place attachment and river characteristics must be examined on a factor-by-factor basis, as should recreation specialization.

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1.0 INTRODUCTION

1.1 Overview

In the late 1980's and early 1990's, Parks Canada recognized that many of the problems influencing the ecological integrity of national parks originated from increasing human use, as well as a growing diversity of visitor activities and supporting services and facilities (Nilsen, 2003). This problem persists and the recent Report of the Panel on Ecological Integrity (Parks Canada Agency, 2000) indicated the need to improve the data, information, and knowledge of human use management science in order to more effectively manage visitors and their use than current information databases allow. Human use management encompasses the direction and guidance of visitors, their numbers, behaviours, permissible activities, and the necessary supporting infrastructure. Strategy 2 in the Strategic Plan for Human Use Science in Parks Canada indicated that it is the responsibility of the field unit to collect data that will improve Parks Canada's understanding of the use and participants/visitors within the field unit (Payne & Nilsen, 2000). This includes information on the home-base and travel information, socio-demographic, economic characteristics of visitors themselves, as well as information on where, when, and how visitor activities occur (Payne & Nilsen, 2000). This information allows managers to better understand visitors and how they interact with the environment. However, for many areas very little information on visitor activities is available, even in popular parks such as the Rocky Mountain National Parks.

1.1.2 Visitor Numbers for the Rocky Mountain National Parks

It is known that visitor activities on the rivers of Alberta and British Columbia's Rocky Mountain National Parks have been popular since the creation of the Parks (Wright & Clarkson, 1994) with Banff, Kootenay, and Yoho National Parks being among the country's most popular visitor destinations.

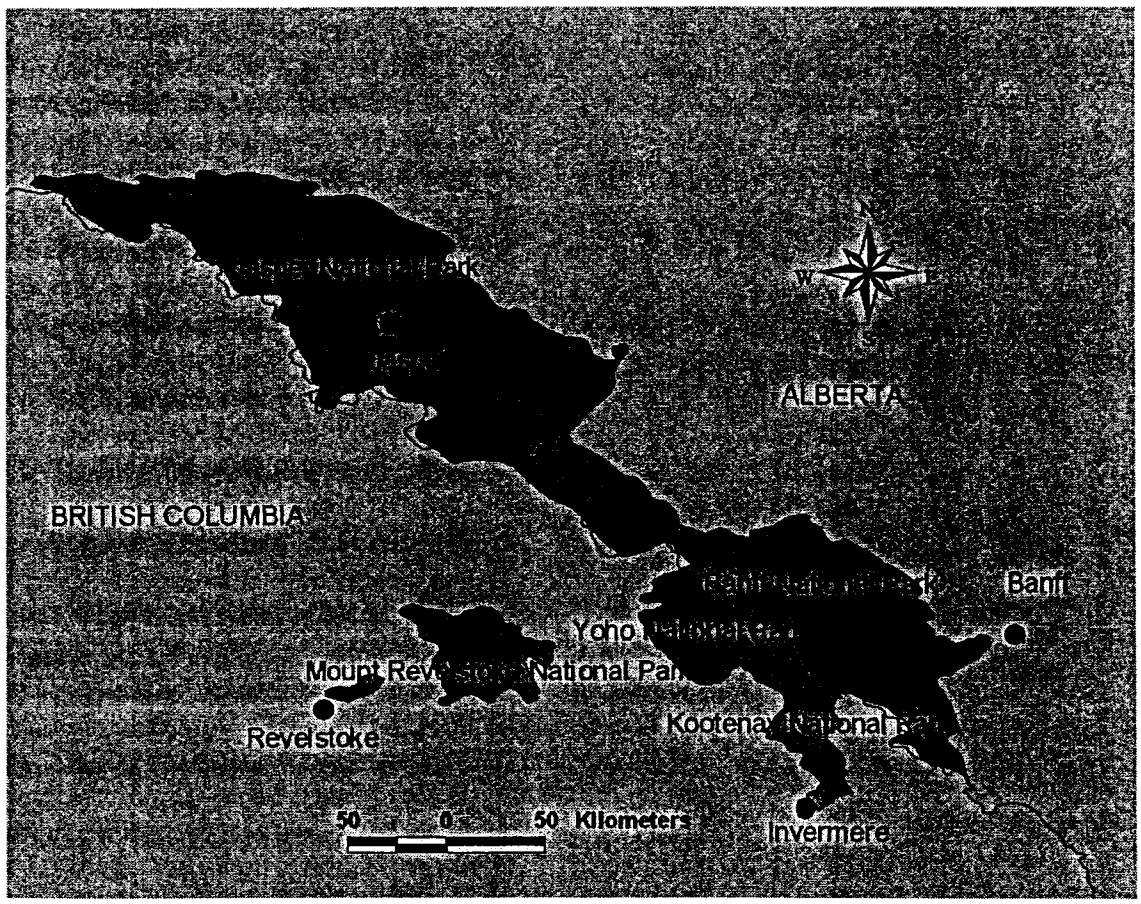

Figure 1.1: *Map of Five of the Rocky Mountain National Parks*

The number of visitors to Banff National Park tripled over the period 1970 to 1996. Between April 1995 and March 1996, approximately four million people visited Banff National Park. At the same time, an estimated four million people passed through the park on their way to another destination (Parks Canada Agency, 2004). By 2003, over six million visitors from Canada, the United States, and overseas were traveling to Banff,

Kootenay, and Yoho each year, spending hundreds of millions of dollars in the hotels, restaurants, and stores (McVetty, 2003). Much of this increased activity is focused on the rivers and lakes in the Rocky Mountain National Parks including commercial rafting, private boating, fishing, and riverbank uses, such as wildlife viewing and hiking (Wright & Clarkson, 1994). Management must respond to this increase of use and manage it in such a way as to maintain the ecological integrity of the parks, while ensuring a high quality of experience for the user. Understanding the needs and wants of the user enables management to create this balance (Parks Canada Agency, 2000).

1.2 The Problem

To help Parks Canada managers effectively plan and direct use on the North Saskatchewan, Mistaya, Pipestone, Yoho, Kootenay, Kicking Horse, Vermilion, and Kootenay rivers, it is necessary to know how the rivers' users distribute themselves and what attributes are valued by them. To clarify, 'attribute' is a characteristic of a landscape, for example easy access to the water or the level and difficulty of the rapids. This knowledge allows managers to maintain and enhance valued aspects of currently used areas, as well as to develop marketing to direct use.

Typically, studies on users have grouped them based on activity, such as canoeists, kayakers, or anglers. For example, studies on what users believe to be important attributes typically segment the users into classes based on various observable characteristics such as activity type, age, gender, or nationality. But these forms of classification are limited in their ability to provide information on the diversity of needs and wants of activity groups. For instance, not all canoeists want or need the same things from the experience or the site. Consequently, it is now more common to classify users

based on other, less easily observable characteristic variables, such as recreation specialization or place attachment. Through an understanding of recreation specialization, researchers have been able to begin to understand setting preferences associated with particular recreation activity groups (McFarlane, 2004). Place attachment provides insight into the meaning individuals assign to outdoor settings, which is critical to any natural resource planning process (Bricker & Kerstetter, 2000). It is necessary to know where users currently go and what characteristics or attributes of the locations used are important to manage use appropriately.

1.3 Purpose and Objectives of the Study

The purpose of this study was to explore place attachment, recreation specialization, enduring involvement, and the importance of various site attributes for paddlers in the study area. Basically, how does the degree of place attachment and the importance that is placed on specific site attributes by paddlers in the LLKY FU differ with the level of recreation specialization and the level of enduring involvement?

There are two main objectives for this study. Objective 1 is to provide baseline information on the numbers and a spatial distribution of paddlers. The second objective is to explore the relationships between recreation specialization, place attachment, and the importance of various site attributes for paddlers on the major rivers in Banff, Yoho, and Kootenay National Parks.

1.4 Importance of the Study

The practical outcome of this research will be a database of user information that will help managers in the Lake Louise, Kootenay, Yoho Field Unit plan for canoe and kayak use on the rivers involved in this study. Managers will have a broad idea on the amount of use including information on what basic attributes of a site are important. Although the results are relatively specific to the study area, the research process can be applied to other rivers in the management area and beyond. This study will also aid in targeting ecological impact studies to determine the level of impact on popular sites, which will in turn help managers protect the ecological integrity of the rivers.

This study applies to a new site and extends on Bricker's (1998), and Bricker and Kerstetter's (2000) studies on recreation specialization and place attachment for whitewater recreationists. The study discussed in this thesis will result in an expanded theoretical understanding of how both place attachment to and the relative importance of various attributes of wild rivers in the Canadian Rockies national parks differs with recreation specialization.

1.5 Definition of Terms

Place Attachment: the emotional tie felt by an individual for a specific place, and is comprised of place identity and place dependence (Bricker & Kerstetter, 2000).

Place Dependence: functional place attachment; the level to which individuals perceive themselves as functionally associated with places or groups of places; how well a setting compares with alternative settings in satisfying the needs of the individual (Williams, Patterson, Roggenbuck, & Watson, 1992).

Place Identity: emotional/symbolic; a fundamental sub-concept of self-identity; the combination of attitudes, values, thoughts, beliefs, meanings, and behavioural tendencies, reaching far beyond emotional attachment and belonging to particular places (Proshansky, Fabian, & Kaminoff, 1983).

Recreation Specialization: a multidimensional construct, a progression or continuum in behaviours, skills, and commitment. In this study, it is comprised of two major dimensions, behavioural and psychological (Scott & Shafer, 2001).

Behavioural Measures: a component of recreation specialization, combining Behaviour and Skill Level (Scott & Shafer, 2001), here comprised of Level of Experience, Skill Level and Ability, Equipment and Investment, and Formal Membership.

Psychological Measures: a component of recreation specialization, referred to as Enduring Involvement (Scott & Shafer, 2001).

Enduring Involvement: a component of recreation specialization, comprised of importance, enjoyment, self-expression, and centrality (McIntyre & Pigram, 1992).

Site/Route Attributes: those characteristics of the physical setting that describe a specific geographical location. In this study, it refers to those physical characteristics of the river itself and the immediate shoreline (Lee & Scott, 2004).

2.0 LITERATURE REVIEW

2.1 Overview

Recreational pursuits within public lands are not only increasing but they are becoming more diverse and highly specialized within certain activity groups. With this diversity comes an increased challenge for managers to meet the demands and needs of a varied and complex population while still maintaining the integrity of the natural resources outdoor recreation depends upon (Bricker & Kerstetter, 2000). A management system, like the ecosystem-based management system adopted by Parks Canada, recognizes the importance of people's values and behaviours, requiring these values and behaviours to be integrated into the decision-making process (Parks Canada Agency, 2004). Land managers and planners need to understand the users: how and where they recreate, their needs and wants from the environment, and how they are emotionally connected to the landscape (Clark & Stein, 2003).

An individual's relationship with his/her surroundings is often characterized as his/her place attachment or the emotional ties he/she has to outdoor settings (Bricker & Kerstetter, 2000). These ties, or personal attachments, provide insight into the meaning individuals assign to outdoor settings, information that is critical to any natural resource planning process (Virden & Schreyer, 1988). People's emotional attachments to specific places have been considered to be a major underlying factor in many of the conflicts and controversies in planning processes and why these clashes become so contentious (Kruger & Jakes, 2003; Schroeder, 1996). Determining how stakeholders identify with their natural landscape offers public land managers a better understanding of the role the

areas they manage play in stakeholders' daily lives, and how to best communicate with those stakeholders (Clark & Stein, 2003).

Many researchers have shown that past on-site experience and personal involvement have an impact on individuals' attachment to place (Hammitt & McDonald, 1983; Moore & Graefe, 1994). Hammitt, Backlund, and Bixler (2004), looked at place bonding with trout anglers and found that their five-factor model of place bonding was confirmed. They noted that these anglers felt a fairly strong bond to the river and that higher levels of direct experience lead to higher levels of place attachment (Hammitt *et al.*, 2004). Others have suggested that the emotional bond people have with a setting may be tied to their level of place attachment (Warzecha, Lime, & Thompson, 2000). One concept that has been effective in examining these impact variables (e.g., past experience, involvement) is recreation specialization (Bricker & Kerstetter, 2000). The utility maximizing hypothesis suggests that an individual should select a recreation site from a set of sites that provides him or her with the greatest utility or satisfaction (Hunt, Boots, & Kanaroglou, 2004). The concept of recreation specialization recognizes that people with different levels of needs require different things from their experience, thus suggesting that people with differing needs will select different sites. If an individual chooses the same site often enough, he/she will develop an attachment to that site. To fully understand values associated with outdoor recreation places, managers need an understanding of how different types of "specialists" are attached to outdoor recreation places (Bricker & Kerstetter, 2000).

2.2 Recreation Specialization

2.2.1 Development of Theory

Recreation specialization has been conceptualized as a multidimensional construct (Bricker & Kerstetter, 2000). The term recreation specialization was first developed by Bryan in 1977 and defined "a continuum (progression) of behaviour from the general to the particular, reflected by equipment and skills used in the sport and activity setting preferences" (Bryan, 1979, p.29). He believed that it was possible to begin to understand the within-group variability in attitudes and behaviours associated with particular recreation groups through understanding their degree of recreation specialization. His original conceptualization suggested three basic themes or dimensions: the amount of participation, the type of technique used, and setting preference (Bryan, 1977). Specialization has both behavioural and attitudinal components that affect dependent variables such as equipment and skills used, preferences for certain settings, etc. (Bryan, 2000). For example, Ewert and Hollenhorst's (1994) study on rock climbers and white-water boaters found that as specialization increased, so did the levels of activity involvement and the importance of certain equipment. In addition, as participants became more involved and experienced, they sought out more difficult and risky endeavours and developed preferences for specific types of site attributes that met their changing needs.

McIntyre and Pigram (1992) expanded Bryan's original concept to include a measure of the level and type of affective attachment that an individual has developed based on the specialization loop of Little (1976). McIntyre and Pigram expanded on Little's work in specialization and adapted it to leisure/recreation contexts. Little envisioned

specialization as a continuous loop, which he called the personal system, comprised of three interacting dimensions: cognitive, behavioural, and affective. The system was seen as iterative, and each of the three systems were mutually reinforcing, whereby development in one increases the likelihood of growth in the others (Figure 2.1) (McIntyre & Pigram, 1992).

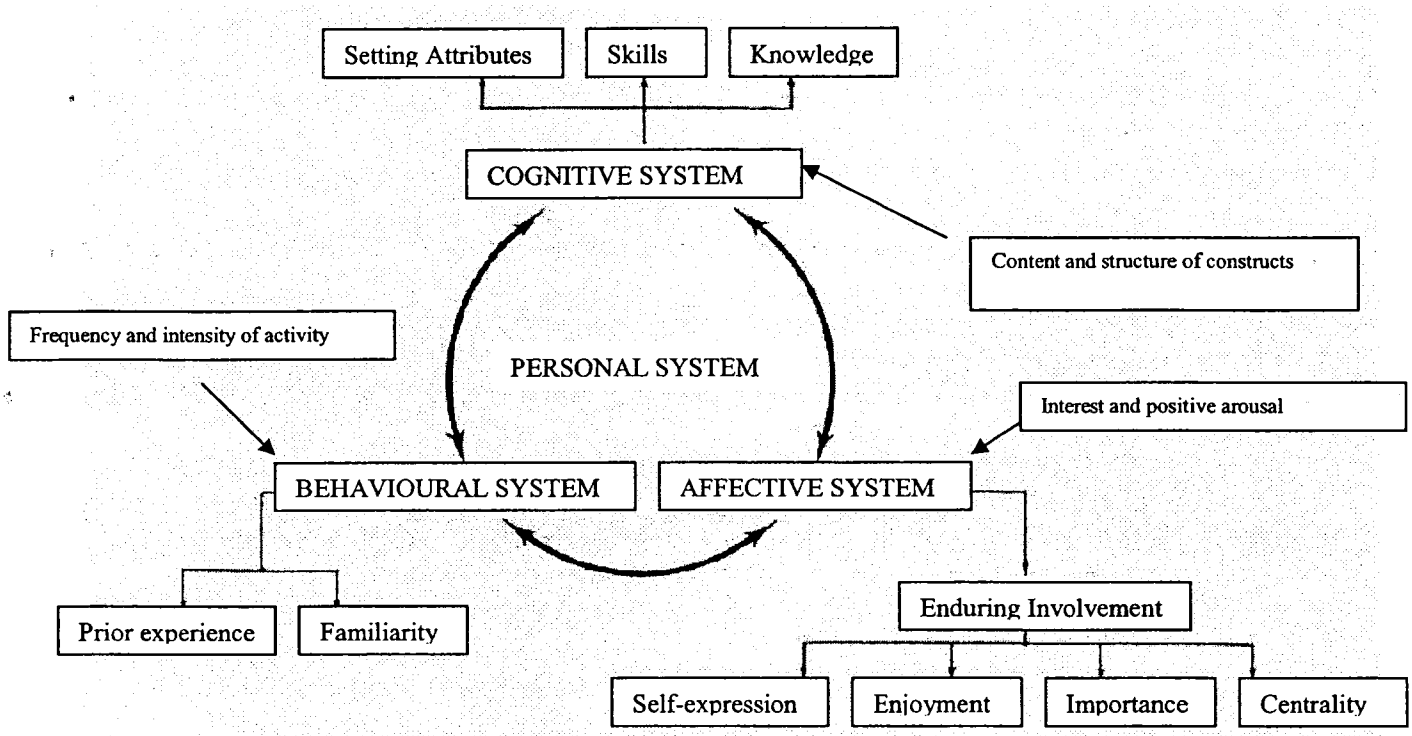

Figure 2.1: *The Basic Components of a Specialization Loop (McIntyre & Pigram 1992, pg 5)*

The *Cognitive* system includes setting attributes, skills, and knowledge while the *Behavioural* system includes prior experience and familiarity. McIntyre and Pigram (1992) re-named Little's *Affective* system as Enduring Involvement and expanded it to include the sub-sets of importance, enjoyment, self-expression, and centrality. On the basis of a factor analytic study, McIntyre & Pirgram, (1992) argued that importance and enjoyment in a leisure context were best combined into one variable they named 'attraction.' Self-expression refers to self-representation, or the impression of one's self

that a person wishes to convey to others. Centrality is a measure of the role of an activity in an individual's overall lifestyle (Kyle, Bricker, Graefe, & Wickham, 2004a).

Scott and Shafer's (2001) modified McIntyre and Pigram's (1992) loop. They proposed that the progression of specialization could be best understood in terms of *Behaviour, Skills and Knowledge*, and *Commitment* (Figure 2.2).

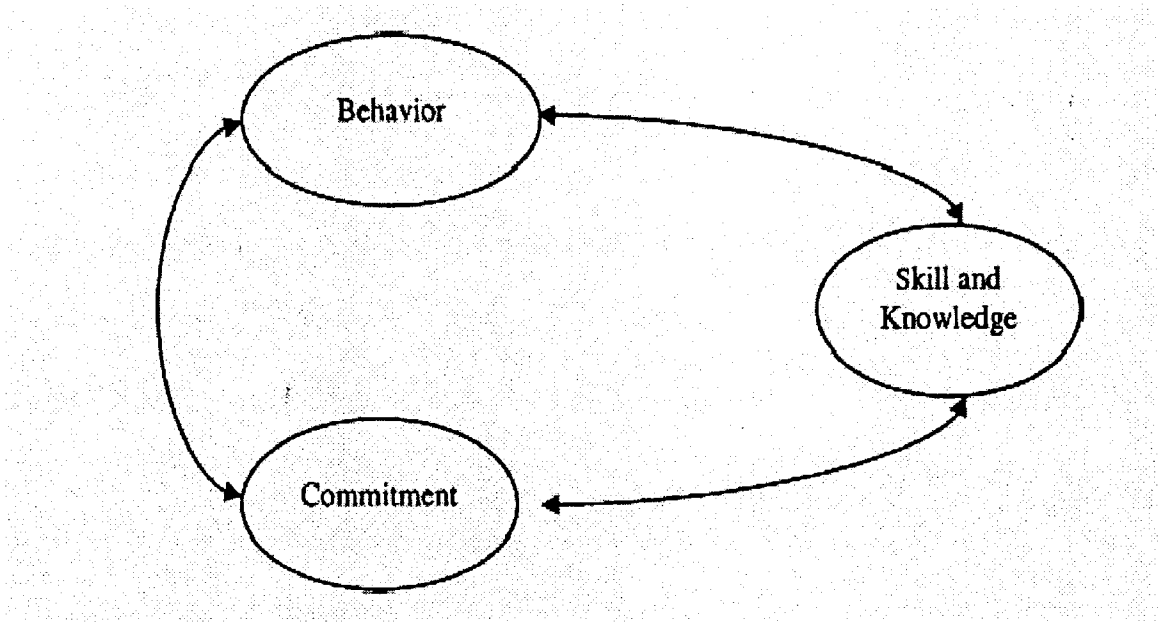

Figure 2.2: *Hypothetical Measurement Model of Recreation Specialization (Scott & Shafer, 2001)*

The behaviour dimensions related to a focusing of behaviour; that is, participating in an activity to the exclusion of others. Skill development and knowledge involves the acquiring of skills and knowledge related to the activity. Commitment was considered to be a combination of personal commitment and behavioural commitment. Personal commitment involves the development of a self-identity whereby individuals start to define themselves in terms of the recreational activity. Behavioural commitment, also known as side bets (Ditton, Loomis, & Choi, 1992), refers to investments made into that activity, such as financial and emotional resources, that would be lost should participation in that activity cease.

From his work with anglers, Bryan (1977, 1979) saw specialization as a progression through three stages of involvement in a particular activity, in this case fishing. People started at one end as novices/beginners, with infrequent participation and the intent on getting results, any result. Next, they worked their way through the establishment stage where they developed a level of competence and validate their skills through greater challenges. Finally, at the expert/specialized level, recreationists show a high degree of commitment, activity–related knowledge, and a focus in behaviour.

But there is some debate as to whether or not this is true. Specialization is primarily used to explore variation among the participants of an activity in terms of preferences, motivations, attitudes, etc. Little research has been done to test the extent to which recreationists progress to more advanced levels of involvement over time (Scott & Shafer, 2001). Progression is multi-dimensional and people's involvement can be expected to change in a variety of ways. Kuentzel and McDonald (1992) observed that experience, commitment, and lifestyle choices of canoeists and kayakers do not increase in a linear fashion over time. They found that many paddlers reach a plateau in terms of how far they progress along the specialization continuum. It has been noted that the traditional approach to recreational specialization research too narrowly focuses on a single activity. People might specialize in outdoor recreation generally, or in a group of activities (e.g., whitewater recreation as opposed to canoeing, kayaking, or rafting specifically) (Williams & Huffman, 1986). Thus, as stated before, recreation specialization should be measured in comparison to all other activities in which an individual participates.

The two models presented by McIntyre and Pigram (1992) and Scott and Shaffer (2001) consider the dimensions to be interacting, but believe that each dimension can be studied individually. However, studies have varied considerably in terms of their inclusion of behavioural and attitudinal measures. Some studies have followed Bryan's lead and characterized recreational specialization solely in terms of behaviour (e.g., Ditton *et al.* 1994; Donnelly, Vaske, & Garefe, 1986; Williams, Schreyer, & Knopf, 1990), while in a few cases, researchers have measured specialization exclusively in terms of attitudes and values (e.g., Shafer & Hammitt, 1995). Most studies have employed both measures, although there has been a tendency to favour behavioural over attitudinal (e.g., Bricker & Kerstetter, 2000; Kuentzel & Herberlein, 1997; Lee & Scott, 2004; McFarlane, 1994). Some researchers have created an additive index of recreational specialization (Donnelly *et al.,* 1986), and some have used cluster analysis (McFarlane, 1994, 1996; McIntyre & Pigram, 1992; Scott & Thipgen, 2003). Some have treated each dimension separately and tested the separate effect of each dimension on the others (Bricker & Kerstetter, 2000; Kuentzel & McDonald, 1992 Lee & Scott, 2004). Although the additive index approach has been widely used, several researchers have pointed out that it ignores the likely possibility that different measures of recreation specialization are likely to vary in their relationship to other facets of involvement (Lee & Scott, 2004; Scott & Shafer, 2001). These researchers suggest that future studies need to explore the distinct impact of each dimension of specialization, rather than using additive indices, on various dependent variables (Lee & Scott, 2004).

Lee and Scott (2004) conducted one of the first studies that compared a three-dimensional measurement model and an additive model to see which fit the data best.

Their three-dimensional model considered two behavioural components, behaviour and skill and knowledge, and a psychological component, commitment. They found that, in terms of birding specialization, the three-dimensional model fit better than the traditional additive model and revealed that behaviour, skill and knowledge, and commitment were moderately related but did not always iterate and mutually reinforce. For example, some individuals participated in birdwatching on a regular basis but demonstrate little skill or knowledge, while others may participate infrequently but have high skill and knowledge. This suggests that researchers and practitioners should collect information on all the dimensions and their components of recreation specialization.

2.2.2 Recreation Specialization: Variables

Many researchers have argued that additional variables beyond Bryan's original three - the amount of participation, the type of technique used, and setting preference, be included as measures of recreation specialization, though there is little consensus as to exactly how to characterize and measure the construct (Scott & Thigpen, 2003). Bricker and Kerstetter (2000) considered four components of the behavioural dimension (level of experience, skill level and ability, formal membership, and equipment and investment) and the psychological dimension (enduring involvement) with several indicator questions for each dimension. Lee and Scott (2004) used Scott and Shaffer's (2001) dimensions with 2 – 4 questions for each dimension. The lack of conceptual clarity is aggravated by uncertainty among researchers about whether or not a specific measure is an indicator of one dimension of specialization or another (Kuentzel & McDonald, 1992).

(a) *Behavioural Measures (Behavioural System)*

A variety of indicators have been used to measure the focusing of behaviour. Examples include:

- years of experience,
- frequency of participation,
- the number of sites visited,
- the types of equipment used,
- amount of equipment purchased and owned,
- the number of activity-related books and magazines purchased and owned, monetary investments, and

These indicators can be used simply as measures of behaviour, or combined to measure specific aspects of behavior. For example, Bricker and Kerstetter considered behaviour to be comprised of three measures. "Equipment and Investment" was comprised of the type of equipment and the amount owned. "Experience" was comprised of years of experience, frequency of participation, and the number of rivers paddled. Lastly, "Formal Membership" was comprised of the number of books and other publications on paddling that were owned and membership with a paddling club or association (2000).

Researchers agree that none of the indicators are perfect measures of progression in and of themselves and therefore several indicators must be used in conjunction with each other (Scott & Shafer, 2001). However, which indicators are selected is not standard and few studies use them all. This can create issues with comparing the effectiveness of measures of the behavioural dimension from one study to another.

Scott and Shaffer (2001) believed that it was a focusing of behaviour that was an indicator of recreation specialization. Therefore, behaviour could only truly be measured as a comparison between all the recreational activities in which a person participated and a "specialist" label given to those who devote themselves to a single activity, such as paddling.

(b) *Skill development and knowledge acquisition (Cognitive System)*

Many researchers have recognized that the types of skills, knowledge, and information recreationists possess are related to past experience. This idea implies that individuals naturally acquire knowledge and skills the longer they participate in an activity. This brings about a debate on whether or not people naturally acquire knowledge and skill. Some researchers believe that some individuals may participate in activities on a regular basis but demonstrate little skill or knowledge of advanced techniques, and vice versa. Scott and Shafer (2001) believe that it is important to think of skill development and knowledge as being a unique and conceptually distinct from past use history.

(c) *Psychological (Enduring Involvement or Commitment) (Affective System)*

McIntyre and Pigram's (1992) conceptualization of enduring involvement has been used extensively for measuring the psychological dimension of recreation specialization, though there is some variation in the components of enduring involvement. Some researchers use three components – attraction, centrality, and self-expression (Kyle *et al.* 2004a; Kyle, Graefe, Manning, & Bacon, 2003b, 2004b). Others use the original four from McIntyre and Pigram's (1992) article - importance, enjoyment, centrality, and self-expression (Bricker, 1998; Bricker & Kersetter, 2000). However, many researchers use

some other means of measuring the psychological involvement (Lee & Scott, 2004; Scott & Thigpen, 2003)

However, later researchers have tried combining enduring involvement and a concept of centrality to lifestyle to form a dimension they call 'commitment'. But there is no agreement in the literature as to the nature of the relationship between the concepts of involvement and commitment (Kim, Scott, & Crompton, 1997). McIntyre (1989) regarded commitment and involvement as essentially the same, and that centrality was a dimension of involvement. Other researchers have tended to treat commitment and centrality as distinct dimensions of specialization. In these cases, commitment has most often been measured in terms of expenditures and the amount of equipment owned, while centrality has been measured in terms of importance of the activity compared with other leisure pursuits, number of magazine subscriptions and books owned, club memberships, the percent of one's leisure time devoted to the activity, and the desire to develop one's skills and abilities (Bricker & Kerstetter, 2000; Kuentzel & McDonald, 1992; McFarlane, 1994, 1996; Virden & Schreyer, 1988).

Scott and Shafer (2001) use commitment as an umbrella term for characterizing the types of personal and behavioural investments that recreationists may develop over time. Personal commitment entails the development of a self-identity whereby individuals begin to define themselves in terms of the leisure activity (e.g., referring to themselves as kayakers, divers, skiers, etc.). This entails a strong affective attachment and inner conviction that the activity is worth doing for its own sake. It also includes a belief in the values and norms of the social world to which an individual belongs (Scott & Shafer, 2001). Measures of enduring involvement are largely standardized, and are based on

McIntyre and Pigram (1992). But there is little consistency in measures of commitment, so many researchers are still utilizing McIntyre and Pigram's system (Bricker & Kerstetter 2000; Kyle *et al.*, 2004a; Kyle *et al.*, 2003b, 2004b; McFarlane, 2004),

2.2.3 Current Applications

Despite confusion in determining the dimensions and indicators, recreation specialization has been utilized to segment users in groups to theoretically enhance the effective and efficient management of outdoor areas. Whitewater activities (Bricker & Kerstetter, 2000; Ewert & Hollenhorst, 1994; Kuentzel & McDonald, 1992), hiking and backpacing (Shafer & Hammitt, 1995; Virden & Schreyer, 1988), angling (Bryan, 1979; Salz, Loomis, & Finn, 2001), boating and sailing (Donnelly *et al.,* 1986), camping (McIntyre, 1989; McIntyre & Pigram, 1992), hunters (Kuentzel & Herberlein, 1997), and rock climbing (Ewert & Hollenhorst, 1994), are just a few examples of activities where recreation specialization has been used to segment users.

In 1983, Hammitt and McDonald noted that the level of experience was significantly related to user perceptions and expectations toward managing river recreation resources. They noted that floaters with more experience appeared to be more sensitive to disturbances and were more supportive of non-regulatory controls of their behaviour to control those disturbances. Hammitt, McDonald, and Noe (1984) theorized that different variables come into play to explain perceived crowding depending on the environmental situation (front vs. backcountry), the specific activity (floating vs. kayaking), the level of user commitment and specialization (high vs. low), and the types of normative behaviours associated with the activity. In 1989, Hammitt, Knauf, and Noe noted that the more experience a horseback rider was, the weaker the preference for facilities, services,

and programs. So, by developing and promoting services based on some aggregation or idea of homogeneity in a particular group, such as anglers, or between all groups using an area, such as anglers and paddlers, managers may ignore the interests of many other users. Managers may then be accused of bias or unfairness, where some users perceive that resources are allocated unfairly (Saltz *et al.*, 2001).

A recent example of an area where recreation specialization has been utilized is with birdwatchers. A study of birdwatcher behavioural involvement and setting preferences in Texas found that the vast majority of birders at the Hummer/Bird Celebration were casual and interested birders and thus had certain setting preferences that were different than more serious birders (Scott & Thigpen, 2003). This and other studies, such as Hvenegaard (2002) and Scott, Baker, and Kim (1999) in birder motivations can be used to help community leaders and event organizers to develop targeted programs, amenities, and promotional materials to distinct segments of the birdwatching community, especially in areas where birdwatching is being considered as an economic strategy.

Members of social sub-worlds or levels of specialization will chose different settings in which to participate and propagate their group culture and identity (Ditton *et al.*, 1992). Although evidence has been found to support the hypothesis that the stated preferences for physical, management, and social settings differ among levels of specialization, there is less evidence to support the idea that people always choose recreation settings consistent with their level of specialization (McFarlane, 2004). This may relate the social group they are with at the time. For example, you may find a specialist in a novice area if the specialist is with family or friends who are just beginning to participate in that activity.

Level of specialization plays an important role in helping understand recreation behaviour. From an applied perspective, managers can target their planning, efforts on the basis of an accurate assessment and segmentation of the populations they serve (Bricker & Kerstetter, 2000).

Recent studies are incorporating measures of recreation specialization within the behavioural, cognitive, and affective systems. The differences are in the specific measures that are used for each of these systems. There has also been a strong push to treat these systems as connected and interacting, but not completely dependent on each other – in other words, each system should be measured and treated independently. In terms of consistency between studies, McIntyre and Pigram's (1992) model of enduring involvement, skill level and abilities, and the level of experience are relatively standard measures in studies on recreation specialization. Equipment and Investment and the idea of Formal Membership are also becoming very common measures in recent studies. This consistency between studies allows for better comparisons between studies.

2.3 Place Attachment

2.3.1 Development of Theory

Place attachment has been recognized in disciplines and fields of study such as geography, environmental psychology, urban and regional planning, recreation, and architecture, since the early 1970s (Clark & Stein, 2003; Warzecha *et al.*, 2000). In the last decade or so, place attachment has gained increasing scientific interest in the field of resource management (Moore & Graefe, 1994; Mitchell, Force, Carroll, & McLaughlin, 1993; Williams & Stewart, 1998).

Space is transformed into place when people assign some sort of value to it. Social and political processes, social and cultural meanings, and biophysical attributes and processes intersect forming place (Cheng, Kruger, & Daniel, 2003). Through personal attachments to places, people acquire a sense of belonging that gives meaning to their lives. This sense of belonging is a function of the degree to which activities that are important in a person's life are centered in and on a geographic location (Proshansky *et al.*, 1983). Place attachment values are important components of the way people appreciate, enjoy, and value the environment (Kruger & Jakes, 2003).

Place attachment is the emotional bond between an individual and a specific place. This attachment is expressed through emotional and behavioural actions (Bricker & Kerstetter, 2000), and produces a state of psychological well-being experienced by a person as a result of the mere presence, vicinity, or accessibility of the place as well as the area's ability to facilitate social interactions. Attachments can form to places where a person may never actually go, as long as that person believes that they have a

chance/choice to go to that area. Areas that remain unchanged or have an element of relative physical constancy are more likely to foster attachments (Sharpe & Ewert, 2000).

This bond may vary in its intensity, ranging from a short-term sensory pleasure to a long-term, deep-rooted attachment to a specific place (Clark & Stein, 2003). Regardless of the strength of the bond, or its duration, it has been suggested that the most important aspect of a place being special is its holistic characteristics that involve an individual's past experiences with that location and any social and cultural meanings identified with that place which create an appreciation and attachment beyond the observable features of the landscape (Kruger & Jakes, 2003).

2.3.2 Place Attachment: Dependence and Identity

Place attachment can be broken into two components: place dependence and place identity. *Place dependence*, or functional place attachment, is the level to which individuals perceive themselves as functionally associated with places or groups of places. Basically, it is how well a setting compares with alternative settings in satisfying the needs of the individual (Williams *et al.*, 1992). A person will be more likely to develop a dependency on an area if it meets a number of his/her needs and there are few alternative locations available that can match or exceed the number of needs met. *Place identity*, or emotional/symbolic place attachment, was discussed by Proshansky, Fabian, and Kaminoff (1983) as a fundamental sub-concept of self-identity. It is defined as "the combination of attitudes, values, thoughts, beliefs meanings, and behaviour tendencies, reaching far beyond emotional attachment and belonging to particular places" (p. 60). Place identity suggests that the physical landscape or place is one of many variables that contribute to a person's self-identity (Warzecha & Lime, 2001).

According to Moore and Graefe (1994), place identity in recreational settings develops over a long period of time and is associated with emotional and symbolic meanings. They found that, for trail users, the length of association contributed to the formation of place identity. This relationship between a person's experience with places and place attachment has been noted by other researchers (Kyle *et al.*, 2004a; Williams *et al.*, 1992) indicating that experience and familiarity with a setting may be an important part of developing place identity. But attachments can be formed for places that a person has never, and possible will never, actually go (Clark & Stein, 2003). These are different forms of attachement: symbolic or conceptual instead of behavioural or action-based.

Additional place attachment dimensions have been suggested. *Place indifference* includes items that made negative appraisals of the setting (Kyle *et al.*, 2003b). Bricker and Kerstetter (2000) found a dimension, which they called *Lifestyle*, which related to the integration of the site into a person's life and is very similar to the commitment/centrality theme in recreation specialization that is developed later in this paper. Hammitt *et al.*, (2004) proposed that place attachment had three other dimensions beyond Proshansky's (1983) original two: *place familiarity, place belongingness,* and *place rootedness*. Place familiarity involves place recognition that develops through experiences in/with the place, involving a sense of knowing and cognition associated with recreation place. Place belongingness entails a feeling of membership to/with a place. This dimension may include personal buy-in to the place or community and altruistic feelings and actions to the area, as if they hold 'membership' and are a part of a resource place. Place rootedness is a rare form of place bonding, referring to the idea of being completely at home, or secure and comfortable in a particular location.

Figure 2.3 is the hypothesized model developed by Kyle, Bricker, Graefe, and Wickham (2004a) for place attachment. They believed that place attachment is based on place identity (PI1 etc.) and place dependence (PD1 etc.), each of which are predicted by three dimensions of involvement – attraction (A1 etc.), self expression (SE1 etc.) and centrality (C1 etc.), as developed by McIntyre and Pigram (1992). These dimensions represent conceptually separate and distinct aspects of leisure involvement that make up an involvement profile related to an individual's participation in a particular leisure activity (Kyle *et al.*, 2004a).

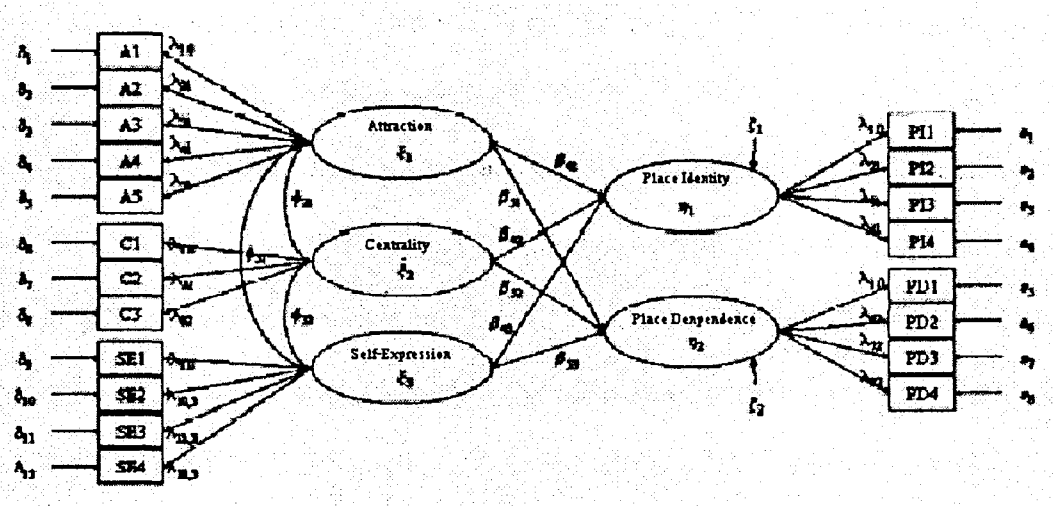

Figure 2.3: *Hypothesized Measurement Model of Place Attachment (Kyle et. al., 2004a)*

The relationships between the various variables are not well understood. Kyle *et al.*, (2004a) found that the model changed for each of the three groups studied (hikers, boaters, and anglers) indicating that the effect of involvement on place attachment differed among these groups of recreationists. It is proposed that this model which links both the concepts of 'place' and 'specialization' can provide a basis for conceptualization of the variables in this study.

Previous research has indicated that recreationists' level and type of attachment (as measured by a place attachment scale) to specific recreation settings impacts both their

leisure behaviour and the way in which settings are managed. Warzecha *et al.* (2000) used place attachment in Canyonlands National Park, Utah, and determined that river users who demonstrated differing levels of agreement concerning place attachment responded differently to questions about trip motives and potential management actions. The relationship between place attachment and preferences for various management actions has been noted by other researchers. Kyle, Absher, and Graefe, (2003a) found that place identity was a significant moderator between recreationists' attitudes towards a fee program and visitor support for spending revenue generated by fees. Stein, Anderson, and Kelly (1999) found that rural and urban Red River Basin stakeholders did not support the creation of more government programs that may prevent harm to the environment although both groups placed a high value on landscape opportunities related to the quality of the environment and the quality of their lives. Hammitt *et al.* (2004) looked at area substitution among trout anglers and determined that the degree and types of experience use history and place bonding are related to resource substitution and other practical aspects of recreation resource management.

When a setting remains in the same state or condition as when the attachment was formed, it continues to serve as an anchor for self-identity and life experiences: any changes to the site affect the individual's sense of self. This can often lead to conflict over natural resource management options (Cheng *et al.*, 2003) People with high levels of place attachment also have specific needs when it comes to enjoying their selected leisure experiences and have been found to be more sensitive to ecological impacts at the site, as well as to intrusions of sight, sound, and other recreationists (Sharpe & Ewert, 2000; Williams *et al.*, 1992). This demonstrates the importance of understanding

sentiments and emotional bonds between people and the environments they live in or visit.

2.2.3 Current Applications

Academic and agency researchers and resource managers are using a variety of methods to explore the meanings, experiences, and actions that allow us to understand people-place relationships. The usefulness of these concepts is apparent in the frameworks and tools developed by agencies such as the USDA Forest Service (Fight *et al.* 2000) and the Environmental Protection Agency (Environmental Protection Agency, 2002). Public land managers are undertaking place attachment studies with regards to understanding attachments to communities and local public areas (Clark & Stein, 2003), resource conflict (Warzecha & Lime, 2001; Yung, Freimund, & Belsky, 2003), and the acceptability of various management preferences (Eisenhauer, Krannich, & Blahna, 2000; Kyle *et al.*, 2003a). The journal, *Forest Science,* published a special section in 2003 (vol. 49, no. 6) on place-related papers presented at the 2000 International Symposium on Society and Resource Management (ISSRM) in Bellingham, Washington (Society of American Foresters, 2004). The sheer quantity of papers related to place at the 2000 symposium demonstrates the high degree of interest and attention that this topic is receiving (Kruger & Jakes, 2003).

2.3 Recreation Specialization and Place Attachment

Recreation specialization is an effective tool for identifying the types of users and association between feelings about particular activities or places (Kuentzel & McDonald, 1992; McIntyre & Pigram, 1992). Research identifying the association between places and level of specialization, however, has primarily focused on experience level or

involvement (Kyle *et al.*, 2004a), rather than on all the dimensions of specialization. Involvement and place attachment have been studied, and the results indicate that involvement was a positive predictor for place attachment in recreational campers (Cavin, Cavin, Kyle, & Absher, 2004). Other studies (e.g., Kyle *et al.*, 2004a) have confirmed that involvement's influence on place attachment differs based on activity and setting type. As well, the concept of place attachment and a full measure of level of specialization have rarely been linked in outdoor recreation research (Bricker & Kerstetter, 2000). Bricker and Kerstetter (2000) sought to examine the nature of the relationship between specialization and place attachment for whitewater recreationists on the South Fork of the American River. Results indicated differences in response to each of the dimensions of place attachment depending on the level of specialization, though in some cases, there is not a direct linear relationship between place attachment and specialization. However, they did note that specialized recreationists generally have more specific setting preferences than less-specialized recreationists.

In 2004, Lee and Scott indicated that future studies need to explore how three dimensions of recreation specialization, behaviour, skill and knowledge, and commitment, are individually related to other facets of involvement, including preferences for physical and social settings, attitudes toward resource management and development, etc. This may provide managers with information that will assist them in dealing with management or planning issues as they will be able to tailor their programs and services to the most important dimension. For example, if skill and knowledge are found to be the most important dimension in determining physical and social setting

preferences, then settings and services will need to be created to accommodate varying levels of skill (Lee & Scott, 2004).

Understanding the range of place-related experiences of an area's users helps managers develop a more complete, more sensitive understanding of the management challenges in providing quality recreation to a diverse market. Through an analysis of place attachments to natural resources and the level of specialization dimensions of the recreationists using them, managers and planners can get a sense of the differences in how the resource is defined and valued by those who use it (Bricker & Kerstetter, 2000).

2.4 Research Questions and Hypotheses

From the study of the literature, the following research questions are proposed for paddlers in the Rocky Mountain national parks in Canada.

Question 1: How does place attachment vary with:

a) level of recreation specialization (behavioural and cognitive).

I. Experience
II. Equipment and Investment
III. Formal Membership
IV. Skill and ability

b) enduring involvement (affective).

I. Enjoyment
II. Importance
III. Self-Expression
IV. Centrality

Question 2: How does the importance of site attributes vary with:

a) level of recreation specialization (behavioural and cognitive)

I. Experience
II. Equipment and Investment
III. Formal Membership
IV. Skill and ability

b) enduring involvement (affective).

I. Enjoyment
II. Importance
III. Self-Expression
IV. Centrality

Question 3: How does the relative importance of site attribute vary with place attachment?

3.0 METHODOLOGY

3.1 The Study Area

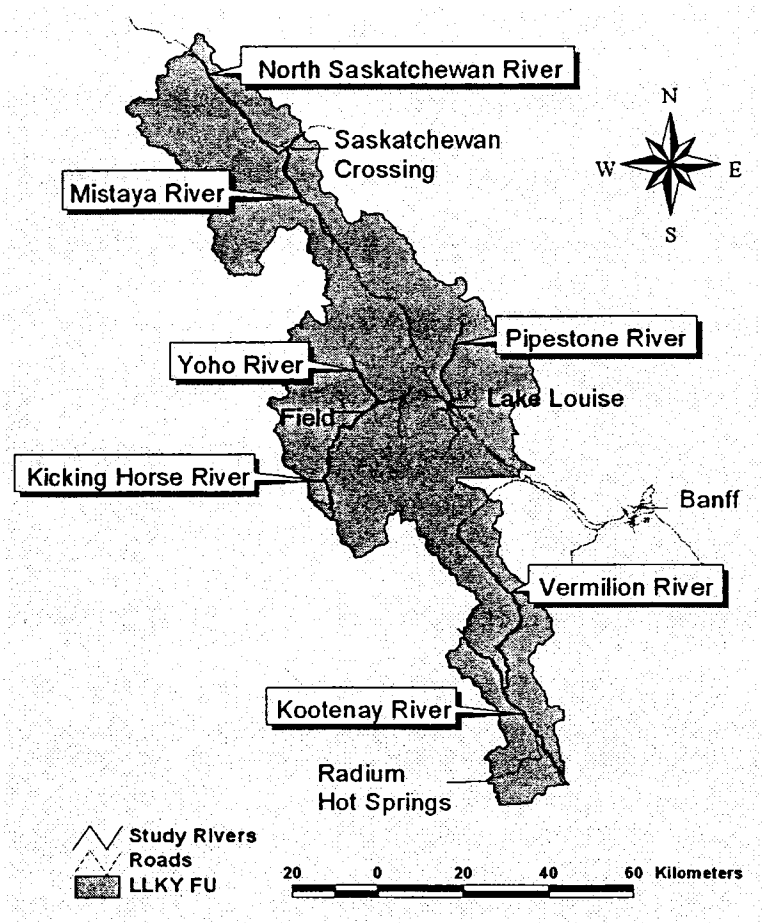

Figure 3.1: *Map of the Study Area*

Approximately 557,170 meters (557 km) of the North Saskatchewan, Mistaya, Pipestone, Yoho, Kicking Horse, Vermilion, and Kootenay Rivers are within the Lake Louise, Kootenay, and Yoho Field Unit (LLKY FU) of Parks Canada (see figure 3.1). Only the North Saskatchewan has its headwaters outside of the FU, and only the North Saskatchewan, Kicking Horse, and Kootenay continue outside the boundaries of the three Parks. Sections of the North Saskatchewan and the Kicking Horse, all within the FU, have been designated National Heritage Rivers, recognizing their major role in exploration, trade, and settlement in early Canadian history.

There is limited information about paddling routes on these rivers available to the public. Most of the time, people obtain information about these routes via word-of-mouth, which can cause some problems, especially for people who are new to the area. However, the two primary printed sources of information are two river guides, both written by Stuart Smith in the mid-nineties: *Canadian Rockies Whitewater: The Central Rockies*; and *Canadian Rockies Whitewater: The Southern Rockies*. Unfortunately, they are no longer being published and are becoming very difficult to obtain. These guides provide a great deal of information about various routes, such as grade, classification, flow, length, put-in/take-out points, gradient, elevations, seasons for reasonable flow, and a brief description of the overall run.

Within the FU, these rivers have a wide range of grades, which can vary somewhat depending on the water flow. The North Saskatchewan is generally a I to II class river, with an exception of a 3km stretch known as the Upper Canyon, which has a II+ to III+ grading. The Mistaya is classed as a II to III+ river. Both the Kootenay and the Vermilion Rivers have a II to II+ grading. The Pipestone is graded a III to III+ river. The Yoho River has the highest grading, at IV+ to V+. The flow on these rivers is generally considered to be uncontrolled; fed by snowmelt, glacial runoff, and/or precipitation.

Precipitation was a major issue during the 2005 summer season. In Lake Louise, Environment Canada recorded 240.9mm of rain between the beginning of May and the end of August. This was almost 70mm more rainfall than during the same period the previous year, and about 30mm more precipitation than the average for the area. In June 2005, total precipitation was almost double the monthly average. As a result of the

higher amounts of rainfall, discharge levels were higher for the summer months. At Kootenay Crossing, B.C., the Kootenay River measured up to $5m^3/s$ higher discharges than the average for May, June and July. May and June discharge levels were also much higher for the Kicking Horse River in Golden, B.C., $10m^3/s$ in May and near $35m^3/s$ in June (Water Survey Canada, 2006). Because of the higher water levels, the rivers had more obstacles (i.e., jog jams, strainers, sweepers, and floating debris) which may have caused some people to go elsewhere. In addition, while rain doesn't really adversely affect kayakers, most canoeists, especially on day or half-day trips do not like to paddle in the rain. Driving conditions were also difficult due to the rain. For instance, flooding occurred in many occasions throughout South-Central Alberta, such as June 20th, 2005, when sections of the TransCanada near Calgary were flooded. As many of the people identified in the study came from Calgary, which is about 2.5 to 3 hours away from the study area, they may have chosen to paddle closer to home to avoid driving in the rain. So it is possible that the number of canoeists and kayakers were lower than in previous years.

3.2 Method Design

The 2004 Banff Management Plan specifically states under Section 3.9: Aquatic Ecosystems, that a key action in human use management to maintain water quality is the documentation of recreation use on major rivers and lakes. Banff, Kootenay, and Yoho National Parks do not have this information (Parks Canada Agency, 2004), which is why this setting was selected. Managers require human dimensions information on users to better manage an area. In addition, management also needs to know the relative attraction of the various rivers to paddlers. Some anecdotal information is available that

indicates that paddling activities are a major attraction for visitors. Good management requires that managers understand where these users are going and what characteristics of the sites are important to them. This allows monitoring programs for stressors caused by human use, such as water quality studies to be targeted to recreation areas where use is significant.

All the paddlers that utilize the study area in the summer of 2005 were defined as the population, or the 'users'. The universe this population belongs to can be considered all paddlers on all the rivers and lakes in the Rocky Mountain national parks. While the specific results of this study are only applicable to the population of paddlers in the study area, the methodology itself may be applied to other water-based users on similar landscapes in the National Parks system. At this point, there was no available baseline information on paddlers to compare to this broader population.

A mixed method approach was chosen for this study. The specific version of this approach was comprised of a sequential qualitative/quantitative design (Creswell, 2003) incorporating an initial qualitative interview phases followed by two targeted surveys (Figure 3.2). Ellipses indicate the use of a qualitative method and rectangles indicate quantitative methods.

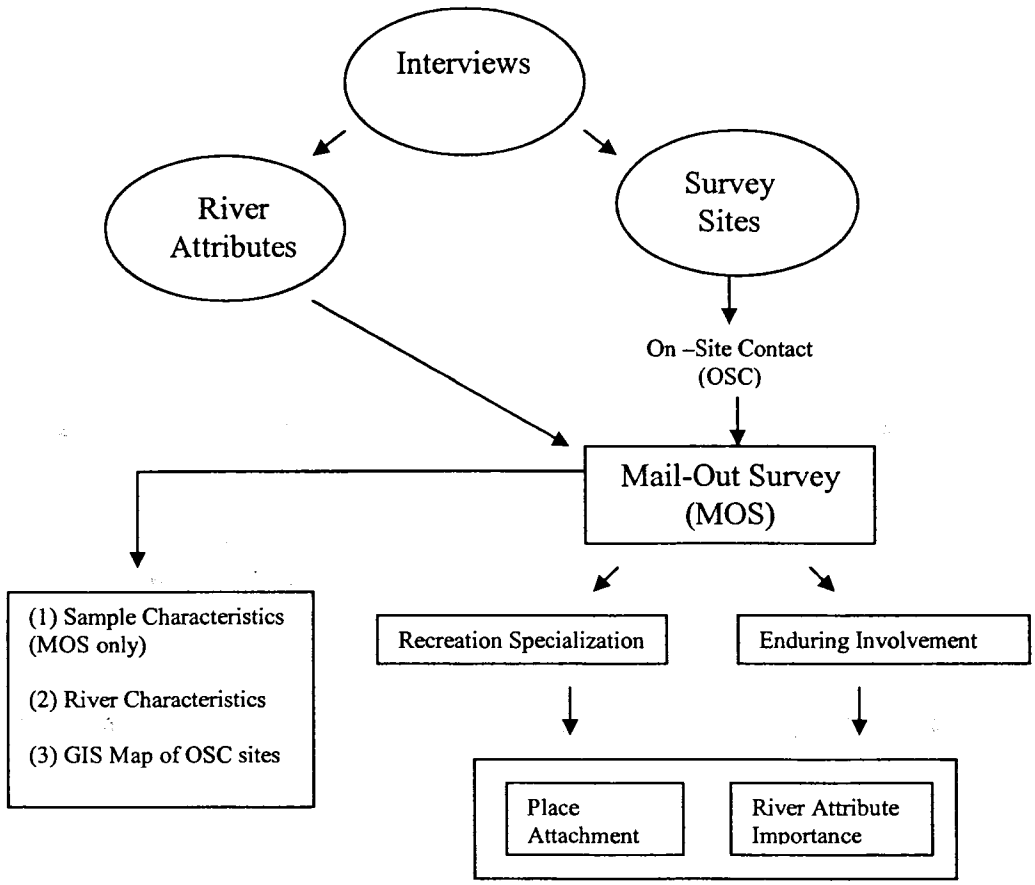

Figure 3.2*: Three-Stage Sequential Mixed Method Design for this Study*

The interviews focused on identifying the locations paddlers use within the study area and exploring the site attributes of those locations. Location information from the interviews was used to select the locations for the on-site contacts (OSC), which were used to recruit participants for the mail-out survey (MOS). Attributes from the interviews were incorporated into the mail-out survey.

3.2.1 Interviews

A semi-structured interview was used to explore where paddlers go within the study area and what characteristics of the site/routes were important in the decision to use that particular site. All interviews were audio-recorded with permission of the participants.

Interviews were conducted during the months of April and May, 2005 and utilized a snowball sample of canoe/kayak club members and outfitters and guides who paddle within the study area, and Parks Canada staff who are familiar with paddling and/or paddling locations. The researcher attempted to interview people with a broad range of experience levels to better capture the range of important site attributes. Interviews (n=20) were conducted until redundancy was achieved and no additional sites, routes, or site characteristics were being identified.

Participants were asked: a) to identify paddling sites/routes in the study area, sites used for specific activities (put-ins/take-outs, rest stops, play areas, etc.): b) to provide a generalized view on the amount of use (high use/low use); and c) about the river features they considered when they were selecting a place to paddle. These data was used to build a spatial picture of use of the area using ArcView, to assist in the choice of sampling sites for the OCS and to develop site attributes used in the MOS.survey.

3.2.2 On-Site Contact (OSC –Appendix 7 & 8)

A quantitative survey was used to collect general user characteristics for the paddlers in the study area. The researcher was at each of the selected sites twice in a two-week period, once on a weekday and once on a weekend day, between the May long weekend and the Labour Day weekend.

Beginning in July, five survey boxes were set up, one at each site, to increase the initial contacts data, as the amount/frequency of contact on each river was very low using the face-to face contact method. Additional usable OSC surveys (n=27) were collected by this method.

The OSC sites were selected based on information on put-in and take-out locations collected in the interviews. All paddlers who utilized the OSC sites between May 20th and Sept 5th were asked to complete the OSC survey and if they were willing to receive the MOS survey (n=132).

The total number of canoeists and kayakers that passed by or utilized the site as a put-in/take-out were noted on a tally form, including the type of paddling (canoe/kayak/raft), the number of males and females, and the time and date of each meeting. Each paddler was approached and asked to complete a short two minute questionnaire consisting of socio-demographic and some experience questions (see Appendix 7 and 8 for OSC surveys). Each OSC form was given a unique identifier number to manage the MOS distribution.

The OSC survey data were recorded in two separate password-protected SPSS (survey data), Excel (mail-out respondents) and an ArcView file. The SPSS file consisted of responses to the interview questions and the location and time of contact. The Excel database comprised the names and addresses of those individuals who were willing to participate in the mail-out survey. The ArcView layer consisted of point information, and the corresponding attribute table included all the information collected on that individual with the exception of the name and mailing address.

3.2.3 Mail-Out Survey (MOS- Appendix 9)

The purpose of the MOS was to provide information about how paddlers' levels of recreation specialization and enduring involvement related to place attachment and the importance of site characteristics.

Mail-out surveys are a practical method of reaching a larger percentage of the population in that they allow for data collection from a large group in a relatively short period of time and at a low cost (Kraus & Allen, 1998). The mail-out option was chosen because of the complexity of the survey.

Data on five information categories relative to this study were collected: socio-demographic and use characteristics, spatial distribution of use, important attributes of sites/routes used, and responses to a series of recreation specialization, enduring involvement and place attachment measures The measures used in this study were based largely on Bricker's (1998) study on whitewater recreationists. Bricker's original recreation specialization questions were used, – past experience, skill level, economic and equipment investment, and integration of the activity into a person's life. Bricker's (1998) modification included McIntyre and Pigram's (1992) conceptualization of enduring involvement. This study expands on Bricker's work by incorporating four questions from Lee and Scott (2004) to include Scott and Shaffer's (2001) aspect of commitment, which compares an individual's commitment to paddling to all other recreational activities. The place attachment scale (Bricker, 1998) was used to understand paddlers' emotional and utilitarian attachment to the sites they utilize. A map of the various rivers was included on which respondents were asked to mark their route,

and indicate put-in and take-out locations, along with any other activities they participated in while on the paddling trip, such as camping, hiking, or swimming.

The final sample size for the MOS (n=110) was derived from the OCS. The mail-out surveys were sent out within one week of the on-site contact, and completed surveys were accepted until October 31st, 2006.

MOS survey administration followed the integrated mail-out approach (Creswell, 2003), First, the complete package, consisting of the survey, cover letter, consent form and post-paid return envelope, was mailed to the individual within one week of the on-site contact. Each survey had an identifying number written inside the envelope that linked the survey to the individual's contact information and to their OSC form. If the completed survey was not received within two weeks, a postcard reminder was sent. A second complete package was then sent out within two weeks of the postcard reminder if the completed survey had not been received.

On receipt, each returned survey was cross-referenced with the contact information using the identifier number and that individual was noted as having responded. The survey data were then entered into a password-protected SPSS file. The spatial information was compiled in ArcView 3.2. The GIS attribute table included the unique identifier number and was joined to the final sorted SPSS file of the non-spatial survey information.

3.3 Data Anonymity and Confidentiality

The interview audio recordings were stored on a password-protected file. Consent forms, and the completed OSC and MOS surveys were stored in secure storage equipment at the Lake Louise, Kootenay, Yoho field unit office. The unique identifier number given to

each OSC survey linked all the information in files, Excel, SPSS and ArcView. Only the researcher had access to the names and address Excel file, which was erased upon the completion of the project. All reported data exists in statistical form and can not be assigned to any individual participant.

4.0 RESULTS

4.1 Mail-Out Survey (MOS)

Of the 132 on-site contacts, 110 people were willing to receive the MOS. Of the 22 people who refused to agree to respond to the MOS, most (57%) were canoeists, 57% of which were members of a British Army adventure training group. The remainder refused for a variety of other reasons.

Of those willing to respond to the MOS, 81 completed and returned the survey, for a response rate of 74 percent. Non-respondents were generally canoeists (45%), intermediate (39%), and male (74%). Only one survey was returned from outside Canada and it was excluded from the sample.

4.1.1 Mail-Out Survey Sample Characteristics

Table 4.1 is a summary of the demographics for the MOS respondents. Respondent totals vary due to missing data on some questions.

Table 4.1: *Summary of Characteristics for Mail-Out Survey Respondents (MOS)*

	Overall % (81)
Percentage of Contacts (number)	
Canoeists	56.8 (46)
Kayakers	34.6 (28)
Other (Rafters and those with Multiple Primary Paddling Types)	8.6 (7)
Skill Level	
Novice/Intermediate (%)	41.6
Advanced/Expert (%)	58.4
Modal Lifetime Period of Paddling	10+ years (50.6%)
Average Lifetime Number of Trips to the Parks	52
Average Lifetime Number of Rivers Paddled	23
Average Number of Trips to the Parks in the Last 5 years	17
Modal Age Group	25 – 34
Gender	
Male (%)	60.5
Female (%)	39.5
Home city (over 10%)	Calgary (29.6%) Canmore (19.8%) Edmonton (14.8%)
Education	
High school (%)	7.4
Trade/Journeyman (%)	6.2
Some university (%)	6.2
College or Technical (%)	18.5
Undergraduate (%)	40.7
Master's\PhD (%)	17.3
Modal Income	Over $100,000 (~30%)

Canoeists comprised over half of the MOS sample and one-third of the sample were kayakers. Approximately half of the respondents had 10 or more years of paddling experience. The lifetime number of trips to the Parks to paddle averaged 52, and the average number of trips in the last five years was 17. The number of rivers paddled, both within and outside the Parks averaged 23. Most respondents were advanced/experienced paddlers (58.4%), generally between 25 – 34 years of age, and the majority were male

(60.5%). Most (76.5%) had completed post-secondary education and approximately 30 per cent of respondents had an income of over $100,000.

4.2 River Use

Interviews with canoeists and kayakers, outfitters, and Parks Canada staff in the initial stage of the study indicated that use on the study area's rivers is relatively low and, on some rivers, very dependent on water levels. For example, the Pipestone is primarily fed by snow run-off, so by the end of July, the water levels are too low for most paddlers. On the other hand, the Yoho is a glacier fed river and because of its inherent technical difficulty, most paddlers wait till after the snow run-off when water levels are lower. (See Appendix 10 – 12 for maps indicating the put-in and take-out locations identified through the interviews, the OSC locations, and the MOS routes).

Canoeists and kayakers who responded to the MOS differed in their use of the various rivers (Figure 4.2). Kayakers dominate use on the Mistaya (56%), Kicking Horse (49%), Pipestone (42%). Use on the Bow (63%), North Saskatchewan (53%), Vermilion (26%) and Kootenay (52%) is primarily canoeing. Only kayakers paddle the Yoho. This means that, for some rivers, the specific important site/route characteristics that canoeists and kayakers consider important overlap and both types of paddling can occur. On others, they differ and typically only one type paddles that river. For example, the higher classification of the water and the technical difficulty of the Yoho likely 'discourages' canoeists from paddling that river, whereas the lower classification and the shallower gradient of the Kootenay make it more attractive to canoeists.

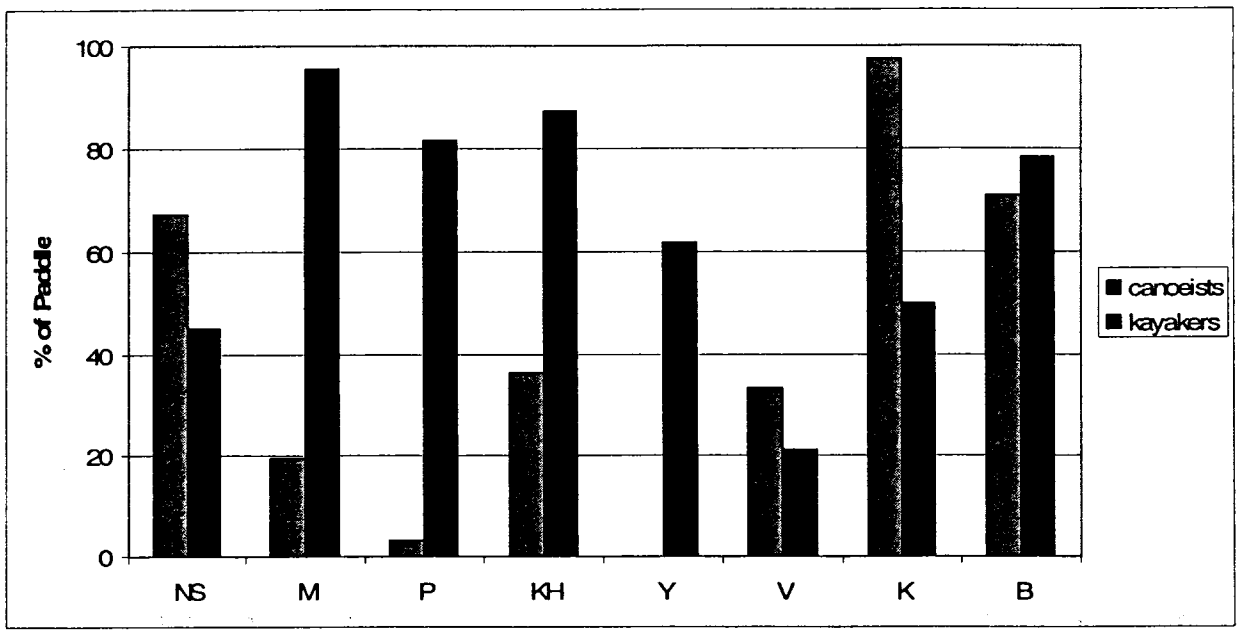

Figure 4.1*: Percent Use by MOS Canoeists and Kayakers for Each River.*

Overall use of each river by MOS respondents is variable over the paddling season from April to October. When use per month is graphed based on the classification of the river (low grade– North Saskatchewan, Lower Kicking Horse, Vermilion, and Kootenay, medium grade - Pipestone or Mistaya, or high grade – Upper Kicking Horse and Yoho), a pattern of a gradual rise to a peak or plateau and then dropping off to the end of the season. Medium graded rivers have a relatively sharp peak in July, whereas low classed rivers plateau between July and August. High graded rivers have a sharp rise between July and August, then plateau between August and September.

In the study area, high grade rivers are not able to be paddled till June-July, depending on the water levels. Medium grade rivers are able to be paddled earlier in the season and the higher springtime water levels generally are what allow them to be paddled, such as on the Pipestone. Low grade rivers are typically more consistent in their water levels, and as the medium grade water becomes too shallow, people move to the

lower or higher grades depending on their skill and comfort levels (Figure 4.3 for paddling per month based on river grading).

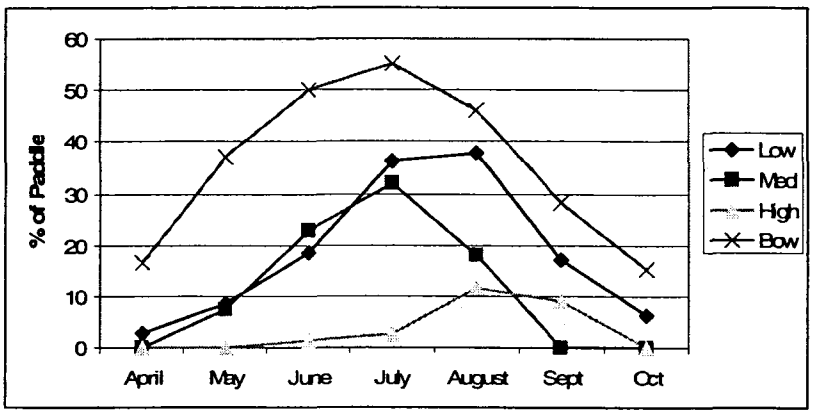

Figure 4.2: *Percent of Paddlers on "Low", "Medium" and "High" Classification of Rivers*

4.3 Development of Specialization, Place Attachment and Site Attribute Measures

4.3.1 Specialization Measures

Two specialization measures were developed a) a behavioural measure (recreation specialization) and b) an affective measure (enduring involvement). Individual levels of recreation specialization were assessed on the basis of the following behavioural dimensions (Bricker, 1998): level of experience; skill and ability in paddling; equipment and economic investment, and centrality to lifestyle (Membership & Publications). Enduring involvement was measured using a psychological scale comprised of 17 items (Bricker, 1998; Lee & Scott, 2004; McIntyre & Pigram, 1992). Prior studies indicated that in both these measures a multidimensional approach provided better predictive ability than the additive model (Kuentzel & McDonald, 1992; Lee & Scott, 2004). Thus each dimension of recreation specialization and enduring involvement was treated as an independent variable.

4.3.2 Recreation Specialization

Respondents to the MOS were asked a series of questions to assess their level on each of the behavioural dimensions of specialization. These questions were taken from Bricker's (1998) study on the level of specialization and place attachment of whitewater recreationists on the South Fork of the American River. For each of the four dimensions, three questions requested ordinal or nominal-type data (e.g., Do you own any paddling books? If so, how many?) (Refer to Appendix 9: MOS Survey).

These responses were then sorted into 'low', 'medium', or 'high' classifications for each variable. Medium was the area plus and minus the standard deviation about the mean. The overall value for the dimension was calculated by adding the assigned value for each variable within the dimension. The lowest two values had an overall assigned recreation specialization level of 'low', the highest two values 'high', and all middle values 'medium' (Table 4.2). This method was taken from Bricker and Kerstetter (2000).

Table 4.2: *Measurement of Behavioural Dimensions*

Level of Experience

Lifetime Number of Trips in Area	Ave Trips/yr in the Past 5 Years in Area	Lifetime Number of Trips	Assigned Specialization Level	Assigned Value
0 – 4	0 - 2	0 – 6	Low	1
5 – 19	0 - 14	5 – 30	Medium	2
20+	15+	31+	High	3

Skill Level and Ability

Self-reported Skill Level	Rating of Water Class	Number of Rivers Paddled	Assigned Specialization Level	Assigned Value
novice/intermediate	low	0 - 6	low	1
	medium	7 - 30	medium	2
advanced/expert*	high	31+	high	3(2*)

*the advanced/expert level was assigned a value of 2

Equipment and Investment

Overall Investment	Overall Related Expenses	Number of Items Owned	Assigned Specialization Level	Assigned Value
< $99	< $99	<7	low	1
$100 - 1999	$100 - 999	7 – 14	medium	2
$2000+	$1000+	>14	high	3

Centrality to Lifestyle - Membership & Publications

Membership to Club	Magazine Subscription	Books Owned	Assigned Specialization Level	Assigned Value
no	no	no	low	1
combinations of yes and no			medium	2
yes	yes	yes	high	3

4.3.3 Enduring Involvement

To measure the psychological dimension of specialization, respondents were asked to rate their agreement with a series of 17 statements measuring enduring involvement taken from Bricker (1998) and Lee & Scott (2004) on a seven-point rating scale, where 7 was strongly agree.

Factor analysis of the responses revealed three factors with eigenvalues greater than 1.00 similar to previous research (Bricker & Kerstetter, 2000; Kyle *et al.* 2004a; McIntyre & Pigram 1992; McFarlane, 2004). Approximately 63 per cent of the variance was explained by these four factors. Items were assigned on the basis of a factor loading of at least 0.45. Only the highest loading for each item is shown in Table 4.3.

Table 4.3: *Factor Analysis Results for Involvement Measure*

	Attraction	Centrality	Self-Expression
Paddling says a lot about who I am.	.808		
I enjoy discussing paddling with my friends.	.699		
When I am paddling, I can really be myself.	.686		
Paddling is one of the most enjoyable things I do.	.642		
Paddling is one of the most satisfying things I do.	.637		
Paddling offers me relaxation when life's pressures build up.	.607		
Paddling is very important to me.	.590		
If I stopped paddling, I would probably lose touch with a lot of my friends.		.818	
If I couldn't go paddling, I am not sure what I would do.		.771	
I find that a lot of my life is organized around paddling.		.747	
I would rather go paddling than do most anything else.		.684	
Other leisure activities don't interest me as much as paddling.		.578	
When I am paddling, other see me the way I want them to see me.			.811
You can tell a lot about a person when you see them paddling.			.716
Most of my friends are in some way connected with paddling.			.575
Eigenvalues	7.88	1.63	1.22
Explained Variance (%)	46.4	9.6	7.2
Cumulative Variance (%)	46.4	56.0	63.2
Cronbach Alpha	0.90	0.87	0.72

The 'Attraction' factor refers to the activity's ability to provide enjoyment and satisfaction to people. It had the highest eigenvalue (7.88) and explained over 46 per cent of the variance. The second factor, 'Centrality' refers to the role paddling plays in the organization of a person's lifestyle and friendship base. It had an eigenvalue of 1.63, explained about 10 per cent of the variance. The last factor was 'Self-Expression' and refers to paddling's ability to help a person see or be seen in a particular way. It had an

eigenvalue of 1.22 and explaining about 7% of the variance. The Cronbach alpha measures (> 0.7) indicate the individual scales have high levels of internal consistency.

The MOS respondents indicated the highest levels and most consistent agreement with the 'Attraction' factor. 'Self-expression' and 'Centrality' were rated lowest and had relatively high standard deviations, indicating less consistency in responses to the statements comprising those two factors (see Table 4.4).

Table 4.4: *Means and Std. Deviations for Enduring Involvement Factors*

	Mean	Std. Deviation
Attraction	5.82	1.01
Self-Expression	4.73	1.29
Centrality	3.96	1.59

Measures of Enduring Involvement factors were developed by calculating individual mean scores on each of the four factors. On this basis, individuals were classified as having low, medium, or high levels for each factor. The ranges for low, medium and high were calculated from their respective frequency distributions where low range (1) was less than and high (3) was greater than one standard deviation beyond the mean, and medium (2) was the range between (Table 4.5).

Table 4.5: *Measurement of Enduring Involvement Factors*

Attraction	Centrality	Self-Expression	Assigned Specialization Level	Assigned Value
0 – 4.8	0 - 2.4	0 - 3.4	low	1
4.9 - 6.8	2.5 – 5.6	3.5 - 6.0	medium	2
6.9+	5.7+	6.1+	high	3

4.3.4 Place Attachment

To measure the level of place attachment, MOS participants were asked to indicate their agreement with 16 statements using a seven-point rating scale, where 1 was strongly disagree and 7 was strongly agree. These statements were taken directly from Bricker's (1998) study. The only modification to the statements was that they were made site/route specific as opposed to 'river', as used by Bricker (1998).

Factor analysis resulted in four factors with eigenvalues greater than 1.00, rather than the three factors recognized by Bricker and Kerstetter (2000) and the original two utilized by many researchers (Kyle *et al.*, 2003b; Moore & Graefe, 1994; Warzecha & Lime, 2001; Williams *et al.*, 1992). These four factors explained about 70 per cent of the total variance. Items were assigned on the basis of a factor loading of at least 0.45. The results of the loadings for each place attachment statement are shown in Table 4.6. As with the recreation specialization dimensions and factors, the place attachment factors were kept independent of each other.

Table 4.6: *Rotated Component Matrix of Place Attachment Measurement Statements*

	Place Dependence	Lifestyle	Place Identity	Place Commitment
I get more satisfaction out of visiting this site/route than from visiting any other site/route.	.853			
Paddling here is more important than paddling in any other place.	.825			
I enjoy paddling here more than at any other site/route.	.802			
This site/route is the best place for the kind of river recreation I like to do.	.489			
One of the major reasons I now live where I do is that this site/route is nearby.		.891		
I find that a lot of my life is organized around this site/route.		.796		
No other site/route can compare to this one.		.703		
The site/route means a lot to me.			.709	
I am very attached to this site/route.			.709	
I would prefer to spend more time at this site/route if I could.			.660	
I identify strongly with this site/route.			.607	
Paddling here in the Park is always a memorable experience.				.631
I feel no commitment to this site/route. *				.617
The time I spend at this site/route could just as easily be spent somewhere else. *				.604
I would enjoy paddling at another site/route just as much as I enjoy paddling here. *				.455
Eigenvalues	6.184	1.74	1.24	1.03
Percent of Variance (%)	41.2	11.6	8.2	6.9
Cumulative Percent (%)	41.2	52.8	61.1	67.9
Cronbach Alpha	0.87	0.78	0.80	0.515

* For analysis, these items were reverse coded.

The 'Place Dependence' factor referred to the importance of the site/route and its ability to satisfy paddling needs. It had the highest eigenvalue (6.2) and explained over 40 per cent of the variance. The second factor, 'Lifestyle' indicated how central the site/route was in influencing choice of residence and leisure lifestyle. Just over 11 per cent of the variance was explained by this factor. Approximately 8 per cent of the variance was explained by the factor 'Place Identity' which referred to the personal meaning and attachment associated with the site/route. The last factor 'Place Commitment' explained just approximately 7 per cent of the variance. Place Commitment refers to the individual's inability to substitute this particular site/route for a different site/route and still have a similar experience. The Cronbach's Alpha for Place Commitment indicates that there isn't a high level of consistency within this factor. However, the other three factors have Cronbach alpha measures greater than 0.7 indicating the individual scales have high levels of internal consistency.

The MOS respondents indicated the highest levels and most consistent agreement with the 'Place Identity' and 'Place Commitment' factors. 'Place dependence' and 'Lifestyle' were rated relatively lower and represented much less consistency in response (Table 4.7).

Table 4.7: *Mean Scores and Standard Deviations for Place Attachment Factors*

	Mean	Std. Deviation
Place Identity	5.15	0.98
Place Commitment	4.49	0.93
Place Dependence	4.18	1.20
Lifestyle	2.93	1.47

Measures of the place attachment factors were developed by calculating individual mean scores for each factor. On this basis, individuals were classified as having low, medium, or high levels for each of the four factors of place attachment. The ranges for low, medium and high for were calculated from their respective frequency distributions where low range (1) was less than and high (3) was greater than one standard deviation beyond the mean, and medium (2) was the range between (Table 4.8). This classification method was used only for comparing the place attachment values between rivers. Analysis of relationships between place attachment and recreation specialization dimensions and EI used the individual mean scores of place attachment as the dependent variable.

Table 4.8: *Measures of Place Attachment Factors*

Place Dependence	Lifestyle	Place Identity	Place Commitment	Assigned Attachment Level	Assigned Value
< 2.9	< 1.5	<4.2	<3.6	Low	1
3.0 – 5.4	1.6 – 4.4	4.3 – 6.1	3.7 – 5.4	Medium	2
>5.4	>4.4	>6.1	>5.4	High	3

4.3.5 Site/Route Characteristics

The interviews with paddlers, both canoeists and kayakers in the initial stages of the study were used to collect information on the site/route attributes considered important in paddling on the studied rivers. From this list, site/route attributes were selected for use in the MOS survey based on how frequently they were mentioned by canoeists and kayakers in the interviews. For the MOS survey, both general, and canoe or kayak specific, site attributes were selected. Table 4.9 shows those site attributes that were identified as important in an analysis of the interview transcripts conducted by the researcher. Italics indicate those river characteristics that were selected for the survey.

Table 4.9: *Important River Attributes Identified from Interviews*

Canoeists	**Kayakers**
Easy Access	*Runnable Flow – water levels*
Available Parking (i.e. ticket for dash to allow parking off the parkway?)	*River characteristics (boulders, ledges, falls, and other river geomorphology features)*
Toilets – issue of additional use – along the road	*Gradient (grade)*
Signage for rapids (pull-outs)(side of the river)	*Access (easy access, trails, roads) –*
Slow water	*Proximity to where I live/work.*
Fast water	*Length of the run*
Portages (maintained)	*Consistency of the whitewater*
No roads visible from the water	*First Descent*
No vehicles audible from the water	*Availability of other information.*
High chance of viewing wildlife	*Amount of debris (logs)*
Safety of portages (e.g., steps for steep areas)	*Facilities/Amenities (toilets)*
Campsites	*Weather*
Remote Access	*Shoreline/riparian – healthy*
No amenities	*Wildlife*
Class of water	*Scenery*
Flow of water (water levels)	*Water quality*
Scenery – overall and site specific	*Easy access*
Safety	*Remote access*
Maintain access (e.g. Malinge)	
Lack of Debris - natural and man-made	
Lack of commercial use	
Length of run	
Emergency take-out	
Weather	
Availability of route/site information (e.g., location of rapids, water levels, rapid classification)	

MOS participants were asked to rate the importance of the site/route attributes on a seven-point importance scale with 1 being most important. For ease of comparison and consistency with other data, results were reverse coded (i.e., 7 = most important).

Factor analysis resulted in four factors with eigenvalues greater than 1.00 which explained about 67 per cent of the total variance. Items were assigned based on a factor loading of at least 0.45, and are shown in Table 4.10, with eigenvalues, percentages of variance, and cumulative variance.

Table 4.10: *Factor Analysis of Site/Route Characteristics*

	Scenery	Route Characteristics	Safety	Difficulty
water quality	.803			
presence of wildlife	.783			
scenery	.767			
health of riparian vegetation	.690			
weather	.622			
easy access	.497			
gradient		.813		
water levels		.784		
river characteristics		.759		
consistency of run		.721		
proximity to residence		.639		
length of run		.575		
condition of portages			.897	
emergency take-out			.874	
signage at portages			.851	
parking			.584	
class of water				.742
availability of route information				.731
amount of natural debris				.632
Eigenvalue	8.06	2.89	2.02	1.79
Percent of Variance (%)	36.7	13.2	9.2	8.1
Cumulative Variance (%)	36.7	49.8	59.0	67.2
Cronbach's Alpha	0.84	0.83	0.87	0.71

The 'Scenery' factor refers to the aspects of the route that are 'additional' characteristics, such as the quality of the water or the health of the riparian vegetation. It had the highest eigenvalue (8.06) and about 37 per cent of the variation. 'Route Characteristics' refers the characteristics specific to the route itself, such as the gradient or the water levels. It had an eigenvalue of 2.89 and explained about 13 per cent of the variance. 'Safety' includes those characteristics that relate to the added safety of the route (e.g., the condition of portages and emergency take-outs), and had an eigenvalue is 2.02 and explained about 9 per cent of the variance. 'Difficulty' refers to how hard the route is (class of water, amount of natural debris) and the availability of route information. This factor had an eigenvalue of 1.79 and explained about 8.9 per cent of the variance. Cronbach alpha measures indicate generally acceptable levels of internal consistency.

Route Characteristics had the highest mean and lowest standard deviation, indicating that it is the most important and individuals were consistent with their responses. Difficulty and Scenery had the next highest means and had very similar standard deviations. Safety had a mean of about 4 and a relatively high standard deviation (see Table 4.11).

Table 4.11: *Mean Scores and Standard Deviation for River Characteristics Factors*

	Mean	Std. Deviation
Route Characteristics	5.68	0.88
Difficulty	5.61	1.10
Scenery	5.29	1.11
Safety	4.11	1.56

4.4 Recreation Specialization and Place Attachment

One-way ANOVA tests (SPSS 12.0) were used to examine the differences between recreation specialization and place attachment (Research Question 1a). Only three of sixteen tests showed significant differences ($p < 0.05$) between the place attachment factor means and the high, medium and low specialization values (see Table 4.12 and 4.13). All of these were between the Lifestyle dimension of place attachment. Scheffe post-hoc indicated that the higher the recreation specialization value, the greater the mean difference rating in the place attachment factor.

Table 4.12*: Behavioural Dimensions and Place Attachment Factors.*

Behavioural Recreation Specialization Dimensions	Place Attachment Factor	High Specialization Value n=24	Medium Specialization Value n=33	Low Specialization Value n=16	F Value	Sig.
Level of Experience	Place Dependence	4.21	3.98	4.46	1.049	0.357
	Lifestyle	**3.78[a]**	**2.77**	**2.56[b]**	**4.341**	**0.018**
	Place Identity	5.47	5.03	4.67	1.458	0.241
	Place Commitment	4.78	4.47	4.31	1.155	0.322
Skill Level and Ability	Place Dependence	2.4	3.89	4.34	1.412	0.250
	Lifestyle	**3.89[a]**	**2.77[b]**	**2.77[b]**	**3.94**	**0.024**
	Place Identity	5.51	5.17	5.03	1.255	0.291
	Place Commitment	4.7	4.44	4.42	0.480	0.621
Formal Membership	Place Dependence	4.38	3.92	4.7	2.401	0.098
	Lifestyle	**3.47[a]**	**2.84**	**2.1[b]**	**3.444**	**0.037**
	Place Identity	5.56	4.98	4.98	2.971	0.057
	Place Commitment	4.83	4.37	4.18	2.543	0.085
Equipment and Investment	Place Dependence	4.12	4.17	4.65	0.423	0.657
	Lifestyle	3.25	2.69	2.2	2.048	0.136
	Place Identity	5.26	5.05	4.97	0.506	0.605
	Place Commitment	4.62	4.42	4	1.169	0.316

* Note: Bolded values were significant at 0.05. Please see text for discussion.

Overall, a majority of the recreation specialization dimensions demonstrate a direct, though non-significant, differential effect between Recreation Specialization measures and Place Attachment factors. This is generally in accord with the predicted relationships in the literature in that as people become more specialized so their place attachment would be expected to increase. A notable exception is Place Dependence which demonstrates a consistently lower value for high specialized than low specialized participants (non-significant) on all the Recreation Specialization measures. This may be due to the fact that people with low specialization values have little experience, lower skill levels, and fewer resources to draw upon, and so are more comfortable with those few rivers that they have paddled successfully,

4.5 Place Attachment and Enduring Involvement

One-way ANOVA tests (SPSS 12.0) were used to examine the how type of place attachment varies with enduring involvement (Research Question 1b). There is a great deal more variability between psychological EI dimensions and Place Attachment and an overall pattern is difficult to determine. There is only one significant difference between levels of Self-expression and Place Identity. Here, medium has the highest mean, then high, then low. Some trends are noticeable within each EI factor (Table 4.13).

Table 4.13*: Psychological Dimension (EI factors) and Place Attachment Factors.*

EI Factors	Place Attachment Factor	High EI Value n=14	Medium EI Value n=36	Low EI Value n=22	F Value	Sig.
EI - Attraction	Place Dependence	4.39	4.04	4.35	0.519	0.597
	Lifestyle	4.1	2.76	2.72	3.045	0.054
	Place Identity	5.46	5.14	4.68	1.618	0.206
	Place Commitment	4.71	4.46	4.35	0.317	0.729
EI – Centrality	Place Dependence	4.21	4.12	4.15	0.027	0.973
	Lifestyle	3.33	2.86	2.63	0.855	0.429
	Place Identity	5.56	5.15	4.83	2.000	0.143
	Place Commitment	4.8	4.47	4.29	1.023	0.364
EI – Self-expression	Place Dependence	3.44	4.35	3.84	3.029	0.054
	Lifestyle	3.41	2.86	2.6	0.938	0.396
	Place Identity	**5.14**	**5.31**	**4.54**	**4.175**	**0.019**
	Place Commitment	4.36	4.54	4.33	0.408	0.666

* Note: Bolded values were significant at 0.05. Please see text for discussion.

Only 1 of the 12 tests indicated statistically significant differences. There is no difference in the mean ratings of EI and how attached people are to the rivers. This suggests that place attachment does not vary with the level of EI.

4.6 Recreation Specialization and Site/Route Attributes

One-way ANOVA tests (SPSS 12.0) between recreation specialization and the site attribute factors (Research Question 2a) indicated that there were three significant differences between the means for the route attributes factors and High, Medium, and Low Recreation Specialization. See Tables 4.14 for ANOVA test results.

Table 4.14: *Behavioural Dimensions and River Characteristics Factors.*

Behavioural Recreation Specialization Dimensions	Route Attribute Factor	High Specialization Value n=24	Medium Specialization Value n=33	Low Specialization Value n=16	F Value	Sig.
Level of Experience	Scenery	5.19	5.31	5.68	0.894	0.415
	Route Characteristics	5.83	5.58	5.8	0.659	0.521
	Safety	3.85	4.27	4.4	0.611	0.547
	Difficulty	**5.04**	**5.92**	**5.64**	**3.406**	**0.040**
Skill Level and Ability	Scenery	5.16	5.17	5.48	0.700	0.500
	Route Characteristics	5.96	5.64	5.63	0.936	0.397
	Safety	3.53	4.03	4.35	1.385	0.257
	Difficulty	5.33	5.57	5.75	0.270	0.764
Formal Membership	Scenery	5.04	5.35	5.54	0.846	0.434
	Route Characteristics	5.95	5.59	5.5	1.481	0.234
	Safety	**4.1a**	**3.79a**	**5.5b**	**4.856**	**0.011**
	Difficulty	6.06	5.41	5.69	2.624	0.079
Equipment and Investment	Scenery	5.13	5.39	5.9	1.314	0.275
	Route Characteristics	5.61	5.66	6.37	1.715	0.187
	Safety	**3.86a**	**4.12a**	**6.1b**	**5.058**	**0.009**
	Difficulty	5.42	5.74	6.27	1.766	0.178

* Note: Bolded values were significant at 0.05. Please see text for discussion.

Significant differences were noted between a) Level of Experience and Difficulty; and levels of both b) Formal Membership and c) Equipment and Investment were significantly different for Safety. The significant result in (a) suggests that people with the most experience view the 'difficulty' of the river as less important than those of lower skill (both low and medium). In the case of 'safety', the highest mean importance ratings were for those least specialized in both Formal Membership and Equipment and Investment, and may well reflect the fact that if you are the member of a group, 'safety' may be of less concern. Generally, it seems reasonable that safety would be of highest importance to least specialized people, and this is perhaps more so with those who do not belong to a paddling organization or who do not have 'appropriate' equipment. These patterns are reflected throughout the other dimensions of recreation specialization (non-significant in Skills and Experience) and may thus represent general site preferences of low specialized paddlers in this context.

4.7 Enduring Involvement and Site/Route Attributes

One-way ANOVA tests (SPSS 12.0) between enduring involvement and the site attribute factors indicated that there were only two significant differences between the means for the site attributes factors and high, medium, and low Recreation Specialization (Research Question 2b). See Tables 4.15 for ANOVA test results.

Table 4.15: *Psychological Dimension (EI Factors) and Route Attribute Factors*

EI Factors	Route Attribute Factor	High EI Value n=14	Medium EI Value n=36	Low EI Value n=22	F Value	Sig.
EI - Attraction	Scenery	5.28	5.28	5.7	0.804	0.452
	Route characteristics	6.26	5.59	5.74	2.142	0.125
	Safety	4.32	3.92	5.05	2.398	0.098
	Difficulty	6.19	5.12	5.97	2.438	0.095
EI - Centrality	Scenery	5.43	5.13	5.82	3.056	0.053
	Route characteristics	5.9	5.59	5.71	0.605	0.549
	Safety	4.27	3.89	4.7	1.807	0.171
	Difficulty	6.03	5.41	5.81	1.915	0.155
EI – Self-expression	**Scenery**	**5.9**	**5.13**	**5.67**	**3.335**	**0.041**
	Route characteristics	5.47	5.75	5.47	0.871	0.423
	Safety	4	4.14	4.14	0.03	0.97
	Difficulty	5.44	5.66	5.4	0.407	0.667

* Note: Bolded values were significant at 0.05. Please see text for discussion.

The only significant difference was noted between Self-Expression and Scenery where High and Low specializations indicated a higher importance on scenery than Medium specializations. Overall, the importance placed on site attributes does not vary with the level of EI.

4.8 Place Attachment and Site/Route Attributes

One-way ANOVA tests (SPSS 12.0) between Place Attachment and the site attribute factors (Research Question 3) indicated that there was only one significant difference between the means (See Tables 4.16) which indicates that site/routes attributes do not vary with place attachment.

Table 4.16: *Place Attachment Factors and Route Attribute Factors*

Place Attachment Factors	Route Attribute Factor	High Attachment Value n=12	Medium Attachment Value n=55	Low Attachment Value n=14	F Value	Sig.
Place Dependence	Scenery	5.50	5.33	4.96	0.569	0.570
	Route characteristics	5.62	5.68	5.56	0.071	0.931
	Safety	4.33	4.37	3.56	1.064	0.352
	Difficulty	5.81	5.49	5.74	0.452	0.639
Lifestyle	**Scenery**	**6.02[b]**	**5.38**	**4.98[a]**	**3.935**	**0.026**
	Route characteristics	6.00	5.60	5.56	0.708	0.497
	Safety	4.59	4.37	3.65	1.340	0.271
	Difficulty	5.88	5.42	5.90	1.188	0.313
Place Identity	Scenery	5.61	5.17	5.69	0.980	0.382
	Route characteristics	6.19	5.50	5.75	2.580	0.085
	Safety	4.28	4.21	4.29	0.013	0.987
	Difficulty	6.10	5.42	5.89	1.767	0.181
Place Commitment	Scenery	5.42	5.39	4.81	0.870	0.425
	Route characteristics	5.87	5.62	5.60	0.239	0.789
	Safety	4.24	4.38	3.49	1.141	0.327
	Difficulty	6.48	5.44	5.63	2.794	0.070

* Note: Bolded values were significant at 0.05. Please see text for discussion.

5.0 DISCUSSION

Overall use of the rivers for paddling was much lower than had been estimated. The response rate to the mail-out survey (MOS) was relatively high at 74 percent, indicating that the majority of paddlers reflecting a high level of interest in the rivers. Over half of the respondents were canoeists (56.8%), almost 60 per cent were advanced/expert paddlers, and half had modal lifetime period of paddling of 10+ years. Few novice paddlers were identified (less than 20 per cent of the OSC) and most of them were on a training exercise for the British Army (~63%), and only 6 novices completed the MOS. This resulted in a skew towards more experienced paddlers and narrowed the range of specialization and involvement within the sample. There are two possible interpretations for the low number of novice paddlers. One is that this is an artifact of the sampling or the rivers sampled. The second is that perhaps this is a reflection of the 'real world' in that maybe not many novices use these rivers.

The lack of published information on the rivers in terms of paddling and the difficulty in acquiring that information is probably one of the major factors contributing to low numbers of novice and lower intermediate paddlers using the rivers. The rivers themselves range in difficulty, but they are all still dangerous, even to people who paddle them regularly and have a high skill level, so the lack of accessible route information outside of word-of-mouth and formal clubs may also contribute to the low number of less specialized paddlers. Almost 50 per cent of MOS respondents were from within 3 hrs of the Parks, which is a reasonable driving distance for all-day paddling trips and 5 of the 7 rivers in question can be done in a day or less.

5.1 The Measures of Enduring Involvement and Place Attachment

The factor analysis and the resulting structure of the enduring involvement and place attachment measures differed from those predicted by previous literature.

The model of enduring involvement illustrated in McIntyre and Pigram's (1992) article had three components or factors - attraction, self-expression, and centrality. The measures of enduring involvement used for this study were based on Bricker and Kerstetter (2000), who considered enduring involvement to be composed of four factors, dividing McIntyre and Pigram's attraction into importance and enjoyment. Factor analysis in this study similarly identified three similar factors, though not exactly the same as Bricker and Kerstetter. The Attraction factor identified here combines the Enjoyment and Importance factors used by Bricker and Kerstetter, confirming the factor structure found by McIntyre and Pigram (1992) and McFarlane (2004). Both the literature's and the study's Self-expression are also very similar. Centrality includes four new indicator statements developed by Lee and Scott (2004), so it is slightly different than in the literature, but it still refers to the role the activity plays in the overall lifestyle.

Place attachment has generally been conceptualized as being comprised of two parts: place identity and place dependence (Proshansky *et al.*, 1983; Williams *et al.*, 1992). A study by Bricker and Kerstetter (2000) indicated that another dimension, which they called Lifestyle, also existed, and this dimension included statements that emphasized the place as being integrated in a person's life. Hammitt *et al,* (2004) proposed that place attachment had three other dimensions beyond Proshansky's (1983) original two: *place familiarity, place belongingness,* and *place rootedness.*

Factor analysis in this study revealed four factors, three of which were those identified by Bricker and Kerstetter (2000) – place identity, place dependence, and lifestyle. The fourth factor found in this study was called Place Commitment as it related to the inability to substitute this particular site/route for a different site/route and still have a similar experience. The fact that a fourth dimension of place attachment has been noted would indicate that the overall concept of place attachment, and the various components that interact to form the concept, need to be further explored.

5.2 Recreation Specialization, Enduring Involvement, and Place Attachment

Recreation Specialization consisted of the behavioural measures including: Level of Experience; Skill Level and Ability; Equipment and Investment; and Formal Membership. In the study by Bricker and Kerstetter (2000), the indicators Formal Membership and Enduring Involvement were combined in an additive index, which they named Centrality. Here 'Formal Membership' and 'Enduring Involvement' were kept as separate constructs.

Recreation specialization, enduring involvement, and place attachment were treated as multidimensional rather than unidimensional constructs. Paddlers' responses to each of the components (level of experience, skill level and ability, formal membership, and equipment and investment, and the factors of enduring involvement) varied. For example, some individuals had high levels of experience but were low for formal membership while other individuals with high levels of experience had high formal membership values. This suggests that individuals possess a range of specializations within each of the behavioural, cognitive, and affective systems (Bricker & Kerstetter, 2000).

5.2.1 Recreation Specialization and Place Attachment

In broad terms, the literature suggests that there is a relationship between leisure activity involvement and place attachment. Research has noted a direct link between experience and place attachment (Kyle *et al.*, 2004b; Williams *et al.*, 1992). In addition, Bricker and Kerstetter (2000) were able to identify differences in responses to each of their dimensions of place attachment depending on level of specialization.

The results of this study indicated there were few differences (3 of 16) in the mean place attachment factor scores between different specialization levels. The overall trend identified is that high specialization values have the highest attachment values, except for 'place dependence'. In this case, low specialization paddlers had a higher mean value for place dependence than those with high specializations. This observation could be explained by the fact that people with higher specializations are not as limited in their paddling options either through a greater awareness of possible routes or a higher confidence in their ability to safely paddle other routes, and thus may mean that they are physically less dependent on a particular route.

Compared to Bricker and Kerstetter (2000), the overall pattern in the differences between the behavioural measures of recreation specialization and place attachment found in this study was similar, especially with the place attachment factors place identity and lifestyle. Slight differences were noted with the place dependence factor.

Despite these similarities in trends, there were fewer statistically significant differences between factors than noted by Bricker and Kerstetter (2000). This is probably due to the fact that Bricker and Kerstetter had a much larger sample and greater internal variation, especially within the experience and skill level measures.

5.2.2 Enduring Involvement and Place Attachment

Most of the research between activity involvement and place attachment has actually been between enduring involvement and place attachment, which has lead to some evidence to suggest that there are differential affects between EI factors and place attachment factors and that the pattern of differences (direct or inverse) depends on the factors involved (Kyle *et al.* 2004a; Kyle *et al.*, 2003b, 2004b). Bricker and Kerstetter (2000) found that people with low EI values were least likely to have high place identity and lifestyle attachments and were more likely to have high place dependence values.

A comparison of results for strictly EI and place attachment is difficult due the differences between those developed by the factor analysis in this study and those used in previous research. Bricker and Kerstetter (2000) incorporated EI with what was defined in this study as Formal Membership, and did not directly test the relationships between EI and place attachment. Kyle *et. al.*, (2003b) did look at EI and place attachment, and some of their interpretations of trends in their results do support the findings in this study. They found that people with higher self-expression and attraction values had higher place identity scores, which was also seen in this study though the differences did not attain statistical significance. Self-expression and Place Identity demonstrated the only statistically significant differences with place attachment in this study. Despite this, overall the results indicate no differences etc?

5.3 Recreation Specialization, Enduring Involvement, and Site/Route Attributes

Recreation specialization theory predicts that people with different levels of specialization will vary in their preferences for physical, management, and setting attributes (Bryan, 1979; Ditton *et al.* 1992; McIntyre & Pigram, 1992; Scott & Schafer,

2001). In terms of site choice, people with different specialization levels might be expected to seek out environments and settings that are compatible with the needs of that particular level. Although the dimensions of recreation specialization are recognized as working together within the construct, only a few studies have looked at all of them simultaneously in terms of their influence on recreation choice behaviour. These studies have had a range of results. This may be a result of the inconsistency in the conceptualization and measurement of recreation specialization (McFarlane, 2004) as well as the types of measures used for setting and site choice/preferences.

5.3.1 Recreation Specialization and Site/Route Attributes

The results only partially substantiated previous research in that paddlers with different levels of specialization varied in their preferences for site/route attributes (5 of 24). People with low values for three specialization components placed greater importance on Safety and Scenery. These trends are plausible as people with higher skill levels and greater experience do not require the presence of those safety features as they are more confident in their abilities as paddlers to accurately judge what they are capable of paddling. The aspect of being in a club or having access to literature about paddling may also increase a person's confidence in their abilities. People with low equipment and investment values place higher importance of most of the route attributes than did people with higher equipment and investment values. This is also understandable as these individuals have less gear and money invested in equipment and paddling-related expenditures, so they are more concerned with features like safety and route characteristics because they are more concerned with matching their limited equipment with the right river.

For comparison purposes, this study is limited. Many studies, even relatively recent ones, which compare different levels of specialization and site attribute preferences for a variety of activities, used an additive index of specialization (e.g., Scott & Thigpen, 2003), and the type of attributes considered varies greatly. However, some comparisons can be made. Scott and Thigpen noted that a significantly greater importance was placed on 'scenic beauty' by less specialized birders than by more specialized birders, which was also noted in the case of the paddlers in this study. McFarlane (2004) noted that as experience with different levels of campground development increases, the probability of camping at an undeveloped site increases. This was also noted in this study as those with higher levels of experience in paddling considered Facilities to be less important. Both this study and Kauffman and Graefe (1984) found that as a person's specialization increased, the importance of the difficulty and the route characteristics of the river increased. Williams and Huffman (1986) found that less experienced backpackers prefer areas that were more accessible and had fewer risks or dangers.

5.3.2. Enduring Involvement and Route Attributes

The results of this study differed from previous research in that paddlers with different levels of EI did not vary significantly in their preferences for site/route attributes. Only 3 of 24 tests showed a statistically significant difference. This difference is probably due to the fact that the sample was skewed towards more specialized paddlers as few novices were intercepted and even fewer completed the MOS. The Low values identified in the study are 'low' but within a more intermediate and advanced sample.

5.4 Place Attachment and Site Attributes

There has not been a comparison of place attachment factors and site attributes such as was done in this study. This severely limits this analysis as it cannot be supported by previous findings. But the lack of other studies does indicate that there may be a gap in the literature which needs to be filled.

This study found that place attachment does not affect the importance of the route attributes, as only one test was statistically significant.

5.5 Summary

The results comparing recreation specialization and route attributes did provide some support for Bryan's (1977) hypothesis and previous studies (e.g., McFarlane, 2004; Scott & Thigpen, 2003), that higher specialized individuals seek settings to test their skills. While there were few statistically significant differences in means, the patterns of differences can provide some clues as to the likely patterns between recreation specialization and route attributes. People with more experience, skills, and equipment view the 'difficulty' of the river as less important than those with lower experience and skills, though people with high equipment and investment specializations consider route characteristics less important than those with low specializations. Safety and Scenery are generally more important to those with low specializations. However, the results of comparisons between EI and route attributes did not support previous research.

The results comparing recreation specialization, EI, and place attachment did not really support previous studies (Bricker & Kerstetter, 2000; Kyle *et al.* 2004a) in that there are relationships (trends) between recreations specialization and EI, and place attachment. Both this and Bricker and Kerstetter studies noted that people with low EI

values have high place dependence values and low place identity and lifestyle values compared to people with medium or high specialization. But in this study the results were indicative rather than significant.

This study did note that there were basically no differences between the importance of route attributes and the measures of place attachment factors. This is likely a result of the narrow range of specialization and EI in the study sample.

5.6 Limitations

The generalisability or the ability of these results to be applied to the paddling population of the Rocky Mountains National Park Rivers is limited by the partial sampling, lack of representation and small sample size. The focus on sampling a broad range of rivers compromised the ability to collect a sufficiently large sample that may have better represented the overall visitors. Future studies should either focus on one or two rivers with specific characteristics (e.g., high use, difficulty) or a self-monitoring program could be instituted to provide a more comprehensive assessment (e.g., log books).

The sample itself is skewed in terms of experience. There were very few people who identified themselves as novices, and many of them did not complete the mail-out survey. Whether this is representative of the entire paddling community utilizing these rivers is unclear. But it does present a degree of uncertainty in terms of the analysis as groups which perhaps should have been considered separate needed to be combined with others for analysis, thus creating differences where none might have actually existed.

The study methods were designed for a much larger sample with greater internal diversity. Because of the sample size and the size of the various specialization levels,

some analyses could not be done as they had been intended when the survey was originally designed, specifically the tests between levels of specialization and levels of place attachment. Originally, the intention had been to isolate each river and compare the specialization and place attachment of users of each river, so respondents were asked to consider only the river they had been paddling when contacted when they answered the place attachment questions. However, there were insufficient numbers for this approach and there is some concern about how this 'clumping' of all rivers might affect the results, especially in terms of place attachment.

6.0 CONCLUSIONS

There were few statistically significant differences between the mean scores for each of the place attachment factors for high, medium, and low specialization values. With three of the four significant results, Lifestyle appears to be really the only place attachment factor that truly differs depending on the level of specialization, and then only with the behavioural dimension.

The route attributes that paddlers consider vary somewhat depending on the level of specialization, though the variation is generally not significant.

This information can be used to help managers as they can develop broad marketing programs, knowing that for this area, most of the people that paddle here are considering similar site and route attributes. In addition, most of the paddlers in the Parks are experienced paddlers and are probably more discerning in terms of the quality of the routes they paddle. So managers must work to protect those features of the river that paddlers consider to be important if they are to keep a high degree of quality in the paddling experience.

7.0 RECOMMENDATIONS

7.1 Monitoring

Because of the 'hopscotch' nature of routes within the study area, future monitoring must be planned carefully to maximize the number of paddlers captured in the program. Ground-based trail counters can be utilized for the Pipestone (on the trail from the gate to the put-in), the Mistaya (portage trail around Mistaya Canyon), and on the Kicking Horse (on the closed road from the Natural Bridge). However, most put-in and take-out locations on the other rivers are relatively large and there is no single trail. There has been research in developing a river counter that would be able to count paddlers, but access to these counters is limited and in many cases, the rivers in the study area are relatively wide with many areas of braided channels. MOS respondents were asked if they would log their trips, and most indicated that they would be willing to sign log books at certain locations or through a club or online program.

7.2 Future Theoretical Research

This study has demonstrated that more research is needed in identifying and developing the dimensions of enduring involvement and place attachment as the dimensions of both differed between the results of this study and previous literature. There also needs to be 'standardization' in the measurements of recreation specialization and place attachment in terms of what is and how it is actually being measured.

This study noted a relatively low place attachment towards the study area's rivers. However, it was noted that there is a wide range of options available to paddlers. It would be worth comparing levels of place attachment to the individual's awareness of other options in terms of a particular activity.

One thing this study was unable to do was differentiate between different paddling types and then test the differences between specialization levels and place attachment and route attribute factor means. Future research could look at how these comparisons change between different activities that utilize the same physical setting. Exploring differences in the overall importance of route attributes between canoeists and kayakers would be beneficial for managers as they could better target programs for those specific attributes.

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Appendix 1: Phase 1 Cover Letter

Hello:

I am conducting a study of canoeists and kayakers on their use of those sections of the North Saskatchewan, Mistaya, Pipestone, Yoho, Kicking Horse, Vermilion, and Kootenay rivers within Banff, Kootenay, and Yoho National Parks. Very little is known about where canoeists and kayakers go on these rivers, what characteristics of sites/routes on these rivers that paddlers consider important, and characteristics of the paddlers themselves.

The intent of this research project is (a) develop a spatial distribution map of canoe and kayak use within these parks, and (b) what characteristics of sites/routes on these rivers that paddlers consider important and how different population variables affect the importance of specific site characteristics. To accomplish this goal, I would like you to participate in an interview to develop a list of site characteristics that are important to canoeists and kayakers utilizing the study area. In addition, your experience on the proposed study rivers will be important for the identification of popular areas for on-site recruitment of potential participants. This interview will occur at a place of your convenience and will take about 25-30 minutes.

Your name will be replaced by a colour or number for the written transcripts, analysis, and reports developed from this project. Only I will know your identity.

All the information you provide will be securely stored at the Parks Canada Lake Louise, Kootenay, Yoho Field Unit office in Radium Hot Springs, B.C. for a period of seven years. However, the findings of this project will be made available to you at your request upon the completion of the project. Please feel free to contact me at **(current e-mail)** if you have any questions or concerns about this project.

Thank you for your cooperation.

Sincerely,

_____

Jennifer Bond

Appendix 2: Phase 2 Cover Letter

Hello

I am conducting a study of canoeists and kayakers on their use of those sections of the North Saskatchewan, Mistaya, Pipestone, Yoho, Kicking Horse, Vermilion, and Kootenay rivers within Banff, Kootenay, and Yoho National Parks. Very little is known about where canoeists and kayakers go on these rivers, what characteristics of sites/routes on these rivers that paddlers consider important, and characteristics of the paddlers themselves. This information will allow Park managers and planners to better understand and provide for the needs and wants of the paddling community within the parks.

The intent of this research project is (a) develop a spatial distribution map of canoe and kayak use within these parks, and (b) what characteristics of sites/routes on these rivers that paddlers consider important and how different population variables affect the importance of specific site characteristics. To accomplish this goal, I would like you to take part in a quick two minute survey to provide me with some background information on the paddlers in this area.

You can withdraw from this study at anytime without penalty, and there is no risk of psychological or physical harm from participating in this study.

All the information you provide will be securely stored at the Parks Canada Lake Louise, Kootenay, Yoho Field Unit office in Radium Hot Springs, B.C. and at Lakehead University for a period of seven years. However, the findings of this project will be made available to you at your request upon the completion of the project.

Please fell free to contact me at **(email address)** or call **(current phone number)** if you have any questions or concerns about this project.

Thank you for your co-operation.

Sincerely,

_____

Jennifer Bond

Appendix 3: Phase 3 Cover Letter

Hello _____.

I am conducting a study of canoeists and kayakers on their use of those sections of the North Saskatchewan, Mistaya, Pipestone, Yoho, Kicking Horse, Vermilion, and Kootenay rivers within Banff, Kootenay, and Yoho National Parks. Very little is known about where canoeists and kayakers go on these rivers, what characteristics of sites/routes on these rivers that paddlers consider important, and characteristics of the paddlers themselves. This information will allow Park managers and planners to better understand and provide for the needs and wants of the paddling community within the parks.

The intent of this research project is (a) develop a spatial distribution map of canoe and kayak use within these parks, and (b) what characteristics of sites/routes on these rivers that paddlers consider important and how different population variables affect the importance of specific site characteristics. To accomplish this goal, I would like you to fill in a questionnaire concerning your experiences with (canoeing and/or kayaking) and the rivers of this study and specifically with your kayaking trip on the **(name of river)** on **(date)**. The questionnaire will take about 20-25 minutes. Please mail the completed survey and the signed consent form in the stamped self-addressed envelope.

You can withdraw from this study at anytime without penalty, and there is no risk of psychological or physical harm from participating in this study.

All the information you provide will be securely stored at the Parks Canada Lake Louise, Kootenay, Yoho Field Unit office in Radium Hot Springs, B.C. and at Lakehead University for a period of seven years. However, the findings of this project will be made available to you at your request upon the completion of the project.

When you return the completed survey, you will be placed in a draw for 1 of 4 $100 MEC gift certificates and 1 $250 MEC gift certificate.

Please feel free to contact me at **(email address)** or call **(current phone number)** if you have any questions or concerns about this project.

Thank you for your co-operation.

Sincerely,

_____

Jennifer Bond

Appendix 4: Phase 1 and 2 Consent Form

I, (print name) _____, have read and understood the covering letter of the study by Jennifer Bond on *The Relationship Between Recreation Specialization, Place Attachment, and Important Site Attributes for Canoeists and Kayakers in Banff, Kootenay, and Yoho National Parks.* I agree to participate in this study by taking part in an interview. It also indicates that I understand the following:

1. I am a volunteer and can withdraw at any time from the study.
2. There is no apparent risk of physical or psychological harm.
3. The data I provide will be confidential. Individuals will be assigned a colour or number for the written transcripts and analysis. Only the researcher, Jennifer Bond, will know the true identity of each of the participants.
4. I will receive a summary of the project, upon request, following the completion of the project.

I have received explanations about the nature of the study, its purpose, and procedures.

Signature of Participant Date (dd/mm/yyyy)

Appendix 5: Phase 3 Consent Form

I, (print name) _____, have read and understood the covering letter of the study by Jennifer Bond on *The Relationship Between Recreation Specialization, Place Attachment, and Important Site Attributes for Canoeists and Kayakers in Banff, Kootenay, and Yoho National Parks*. I agree to participate in this study by completing a survey instrument. It also indicates that I understand the following:

5. I am a volunteer and can withdraw at any time from the study.
6. There is no apparent risk of physical or psychological harm.
7. The data I provide will be confidential.
8. I will receive a summary of the project, upon request, following the completion of the project.

I have received explanations about the nature of the study, its purpose, and procedures.

Signature of Participant Date (dd/mm/yyyy)

Appendix 6: Phase 2 Interview Script

"Hello. I am Jennifer Bond and I am doing a research project on canoeists and kayakers in Banff, Kootenay, and Yoho National Parks with emphasis on the North Saskatchewan, Kootenay, Kicking Horse, Yoho, and Pipestone river systems. Do you paddle on these systems?

- if no, "Thank you and Goodbye"
- if yes, "I was wondering if I could have about 30 minutes of your time to discuss with you why you choose the sites you paddle in and where you actually go".
    - if no, "Thank you and Goodbye".
    - if yes, explain the purpose of the study "I am working with Parks Canada to create a spatial distribution map of use on these rivers. Parks Canada is interested in known where people paddle, what characteristics of the site people think are important, and understanding the paddlers themselves. This information will help them protect the quality of the paddling experience while still maintaining the ecological integrity."
    - Start location discussion with "Please indicate on the map where you paddle and any sites where you take part in specific activities, such as play areas or popular lunch/break sites"
        - Return to sites and ask about the types of people that use those sites (canoe/kayak, club/outfitted/tour/independent)
    - Start attribute discussion with "describe the physical setting of your favourite sites on these (refer to map) rivers". Let this section flow naturally, but bring then back to this description if they start to digress

Try to keep the interview to around 30 minutes if possible.

- Wrap up: "Thank you for your time and if you have any questions, please contact me at....."

Appendix 7: Phase 2 OSCS Form – In Person

To Be Completed By the Researcher:

1. Date:_____(dd/mm/yyyy)
2. Time:_____
3. Location:_____
4. Identifier #:_____

To Be Completed By the Participant:

1. During this trip, are you:
   □ canoeing □ kayaking □ rafting

2. How do you rate your canoe/kayak skill and ability?_____
   □ novice □ intermediate □ advanced □ expert

3. How long is/was your trip:
   □ half-day □ full-day □ overnight □ multi-day

4. Including yourself, how many people are in your group?_____

5. What was your primary reason to come to this Park _____

6. What else will you do or have done on **this paddling** trip in the Park?_____
   ☐ hiking ☐ camping ☐ fishing ☐ picnicking ☐ swimming
   ☐ other_____

7. In your lifetime, approximately how many times have you come to the National Parks **to paddle**? _____

8. In the last five years, how often did you come to the National Parks **to paddle**? _____/year

9. Approximately how often do you paddle elsewhere in a typical year?_____

10. What is your age?
    □ 18 – 24 □ 35 – 44 □ 55 – 64 □ 75 or over
    □ 25 – 34 □ 45 – 54 □ 65 – 74

11. Please indicate your gender. □ Male □ Female

12. What is Your Postal Code/Zip Code: _____
    a. If you are from outside North America, indicate the country in which you are currently living
       _____

13. If you are willing to be involved in the second stage of this study by completing a mail-out survey about your paddling then please provide your full name and mailing address below. All information you provide will be confidential and will not be attributed to you personally. When you return the completed mail-out survey your name will be entered in a draw for 1 of 4 ***$100 MEC gift certificate*** and a summer draw for a ***$250 MEC gift certificate.***

    Name:_____

    Address: _____

Appendix 8: Phase 2 OSCS Form – Survey Box

Date:_____ (dd/mm/yyyy) Time:_____

1. What river did you paddle?_____

   Put-in Location_____ Take-out Location_____

2. During this trip, are you:
   □ canoeing □ kayaking □ rafting

3. How do you rate your canoe/kayak skill and ability?_____
   □ novice □ intermediate □ advanced □ expert

4. How long is/was your trip:
   □ half-day □ full-day □ overnight □ multi-day

5. Including yourself, how many people are in your group?_____

6. What was your primary reason to come to this Park? _____

7. What else will you do or have done on **this paddling trip** in the Park?_____
   □ hiking □ camping □ fishing □ picnicking □ swimming
   □ other_____

8. In your lifetime, approximately how many times have you come to the National Parks **to paddle**? _____

9. In the last five years, how often did you come to the National Parks **to paddle**? _____/year

10. Approximately how often do you paddle **elsewhere** in a typical year?_____

11. What is your age?
    □ 18 – 24 □ 35 – 44 □ 55 – 64 □ 75 or over
    □ 25 – 34 □ 45 – 54 □ 65 – 74

12. Please indicate your gender. □ Male □ Female

13. What is Your Postal Code/Zip Code: _____
    If you are from outside North America, indicate the country in which you are currently living
    _____

13. If you are willing to be involved in the second stage of this study by completing a mail-out survey about your paddling then please provide your full name and mailing address below. All information you provide will be confidential and will not be attributed to you personally. When you return the completed mail-out survey your name will be entered in a draw for ***1 of 4 $100 MEC gift certificate*** and a summer draw for a ***$250 MEC gift certificate***

    Name:_____

    Address: _____

    _____

    _____

Appendix 9: Survey Instrument

Things to note on the survey instrument:

- The survey was designed to be printed double-sided and then folded in half.
- The internal map changed based on the river the person was contacted on. The image was taken from orthophotos of the area and cropped to the specific river. The survey instrument included is the one regarding the Kootenay River.
- The question regarding whether or not people would log their trips was made river specific

Comments here please: _____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your participation in making Banff, Kootenay, and Yoho National Parks a better paddling experience.

This Study is Officially Supported by:

Canada Parks Canada Parcs Canada

Lakehead UNIVERSITY

Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada

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Social Sciences and Humanities Research Council of Canada
350 Albert Street
P.O. Box 1610
Ottawa, Ontario
K9P 6G4

Please complete the form below to be entered into 1 of 4 draws for a $100 MEC gift certificates and 1 $250 MEC gift certificate.

----------✂----------

Name:_____ Phone #:_____
Address:_____
_____

This entry form will be removed from the survey so your name will not be identified with your responses.

A Study of Canoeing, Kayaking, and Rafting on the North Saskatchewan, Kicking Horse, Kootenay, Pipestone, and Yoho Rivers in Banff, Kootenay, and Yoho National Parks

This survey seeks information about your canoeing/kayaking/rafting activities in Banff, Kootenay, and Yoho National Parks.

Lakehead University and Parks Canada are collecting this information to help guide recreation and ecological monitoring of the North Saskatchewan, Kicking Horse, Kootenay, Pipestone, and Yoho Rivers within Banff, Kootenay, and Yoho National Parks. Your participation in this survey is voluntary and all responses will remain confidential and not be traceable back you, the participant.

As an incentive, everyone who returns a completed survey will be entered into 1 of 4 draws for a $100 MEC gift certificate. In addition, all participants will be included in a final draw for a $250 MEC gift certificate

Part F) Tell Me About Your Trip

F1) If you could change one thing about your paddling trip to the National Parks, what would it be? _____

_____

_____

_____

_____

F2) What could Parks Canada do to make your paddling experience better?

_____

_____

_____

_____

_____

_____

_____

F3) If Parks were to place log books (to record date, time, number in group, and put-in and take-out locations) to monitor use at various locations (i.e. the Kootenay River Picnic Area) would you log your trips? If not, why?

_____

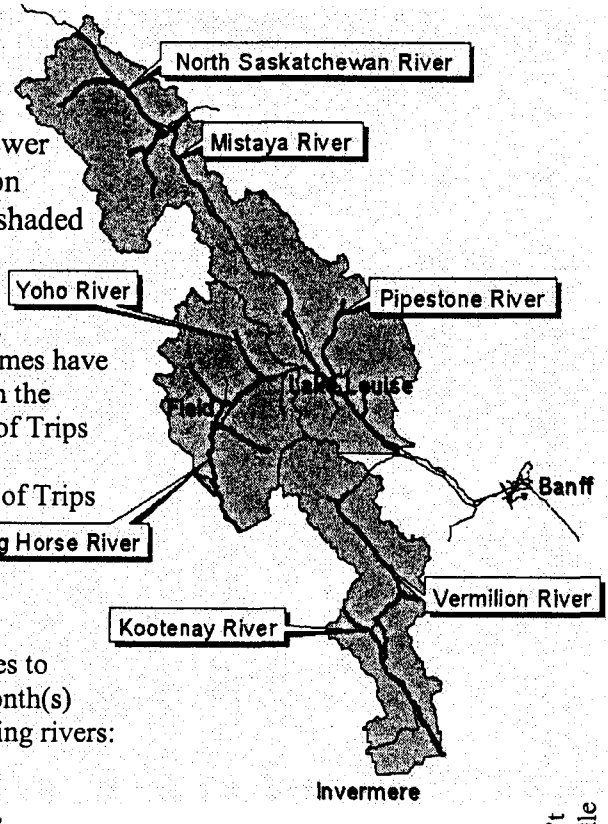
_____

_____

_____

_____

Here is a map of the area within Banff, Kootenay, and Yoho National Parks I am studying. Please answer the next questions based on your activities within the shaded area.



A10) In the last five years, approximately, how many times have you paddled in this area with the services of a guide?_____# of Trips

Without a guide? _____# of Trips

A11) Please check the boxes to indicate during which month(s) you paddle on the following rivers:

	April	May	June	July	Aug	Sept	Oct	Don't Paddle River
North Saskatchewan River	☐	☐	☐	☐	☐	☐	☐	☐
Mistaya River	☐	☐	☐	☐	☐	☐	☐	☐
Kicking Horse River	☐	☐	☐	☐	☐	☐	☐	☐
Yoho River	☐	☐	☐	☐	☐	☐	☐	☐
Pipestone River	☐	☐	☐	☐	☐	☐	☐	☐
Kootenay River	☐	☐	☐	☐	☐	☐	☐	☐
Vermilion River	☐	☐	☐	☐	☐	☐	☐	☐
Bow River	☐	☐	☐	☐	☐	☐	☐	☐

Part D) Please Tell Me About Your Site/Route:

D1) Think of the site/route where you were when you were contacted. Indicate the importance of the each of the following site characteristics when you picked that site/route for your trip.

	Very Important	Moderately Important	Somewhat Important	Neither	Somewhat Unimportant	Moderately Unimportant	Very Unimportant	Not Applicable
Water levels	1	2	3	4	5	6	7	N/A
Gradient (grade)	1	2	3	4	5	6	7	N/A
River characteristics (boulders, ledges, falls)	1	2	3	4	5	6	7	N/A
Easy Access (river < 1km of road/parking)	1	2	3	4	5	6	7	N/A
Remote Access (river > 1km of road/parking	1	2	3	4	5	6	7	N/A
Proximity to where I live or am staying	1	2	3	4	5	6	7	N/A
Length of the run	1	2	3	4	5	6	7	N/A
Consistency of the run	1	2	3	4	5	6	7	N/A
First descent	1	2	3	4	5	6	7	N/A
Availability of route information	1	2	3	4	5	6	7	N/A
Amount of natural debris (logs)	1	2	3	4	5	6	7	N/A
Presence of toilets	1	2	3	4	5	6	7	N/A
Weather	1	2	3	4	5	6	7	N/A
Health of the shoreline vegetation	1	2	3	4	5	6	7	N/A
Presence of wildlife	1	2	3	4	5	6	7	N/A
Scenery	1	2	3	4	5	6	7	N/A
Water quality	1	2	3	4	5	6	7	N/A
Parking facilities	1	2	3	4	5	6	7	N/A
Class of water	1	2	3	4	5	6	7	N/A
Signage for portages	1	2	3	4	5	6	7	N/A
Condition of portages	1	2	3	4	5	6	7	N/A
Presence of emergency take-outs	1	2	3	4	5	6	7	N/A
Other A:_____	1	2	3	4	5	6	7	N/A
Other B:_____	1	2	3	4	5	6	7	N/A

Part C) Please Tell Me About Your Personal Investments in Paddling:

C1) Please specify your estimated total paddling equipment investment to date.

____ $0 ____ $1-99 ____ $100-499 ____ $500-999
____ $1000-1499 ____ $1500-1999 ____ $2000-4999 ____ more than $5000

C2) Approximately, how much did you spend on all paddling-related expenditures (accommodations, travel, courses, etc.) in the past 12 months?

____ $0 ____ $1-99 ____ $100-499 ____ $500-999
____ $1000-1499 ____ $1500-1999 ____ $2000-4999 ____ more than $5000

C3) Were your expenditures during the last 12 months typical of your yearly expenditures related to paddling? _____ Yes _____ No

C4) Please check the items you currently own.

_____ Paddle(s) _____ Paddling jacket _____ Drybags/Ammo cases
_____ Life jacket/PFD _____ River knife _____ Helmet
_____ Repair kit _____ First-aid kit _____ Throw-bag
_____ Wet-suit/Dry-suit _____ Whitewater shoes _____ Whistle
_____ Bailer _____ Buoyant heaving line

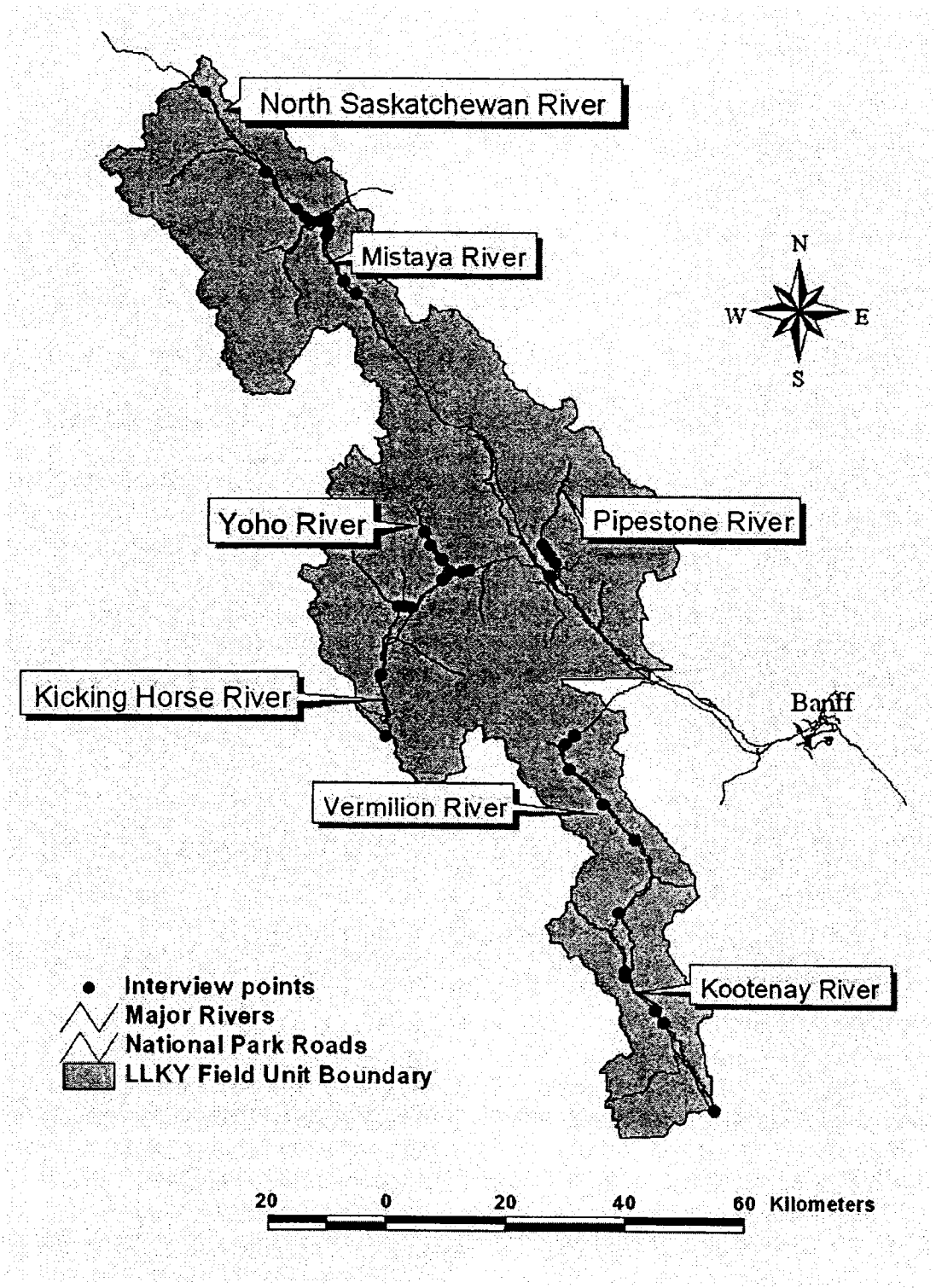
_____Other (that you routinely carry in the boat with you)
_____

C5) Canoe/Kayak/Raft: If you own your own boat(s), please specify the name, model, length, type, and year the boat was purchased.

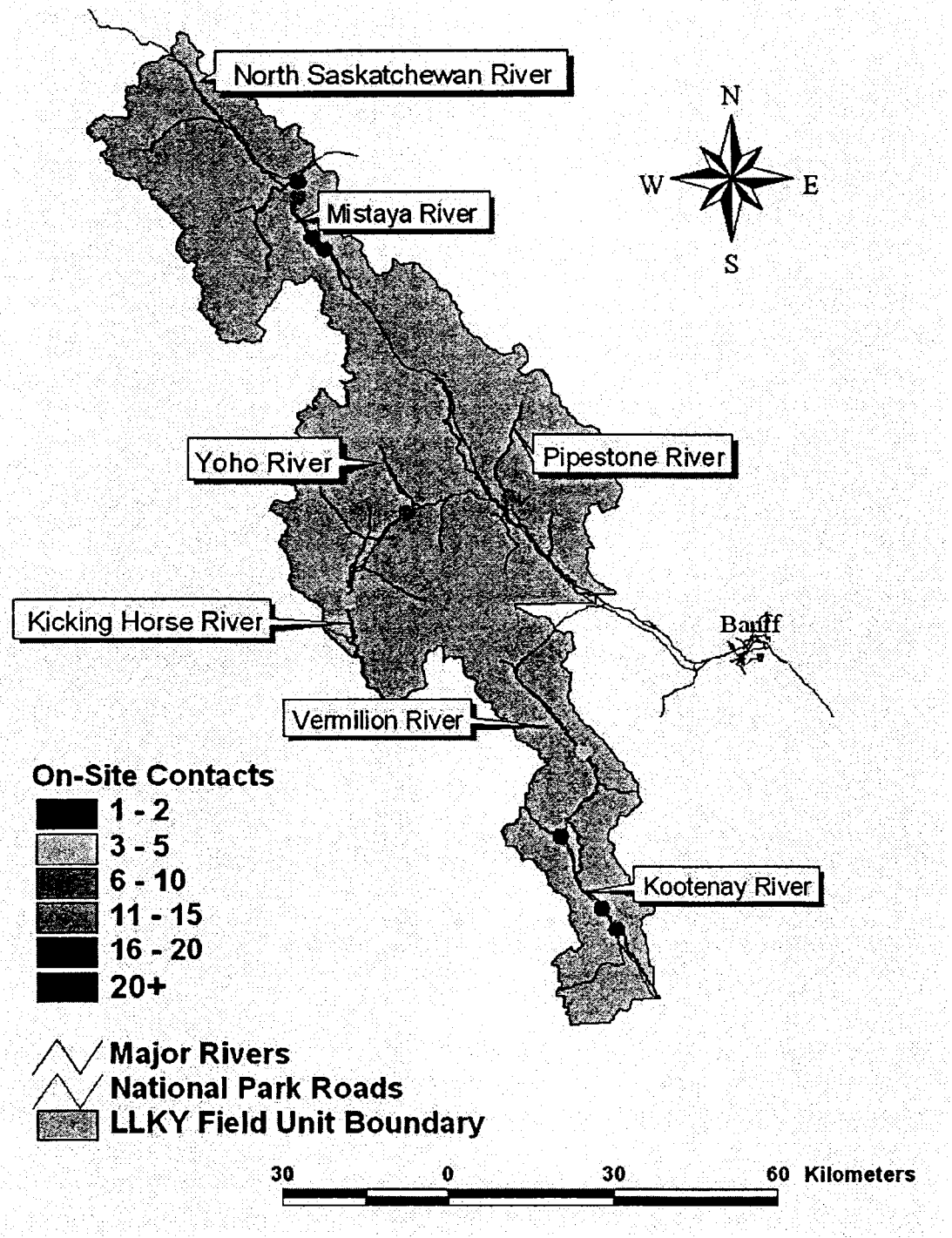
Type (canoe/kayak)/Name/Model/Length	Year Purchased
_____	_____
_____	_____
_____	_____
_____	_____

On the following page is a map for you to record the route you used for the trip during which you were contacted. Please follow the instructions on the next page.

Appendix 10: Map of Locations Identified in the Interviews



Appendix 11: Map of OSC Locations



Appendix 12: Map of MOS routes