

ABSTRACT

FACTORS CONTRIBUTING TO CONFLICTS AND USER SATISFACTION AT LAKE GASTON: EXAMINING CONFLICT BETWEEN PERSONAL WATERCRAFT USERS AND ANGLERS

by

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Over the past thirty years, personal watercraft (PWC) use has grown widely and become common on many waterways. Despite evidence that links PWC use to disturbances with other recreationists, fishery activities, and wildlife at recreational resource sites, few studies of recreational user conflict examine the interaction of PWC users with other water-based recreationists. The purpose of this study was to examine the relationship between PWC users and anglers (on-shore and in motorboats) to determine: 1) if conflict exists between these user groups; 2) to what extent experience with other activities is related to conflict, and 3) examine the relationship between conflict and tolerance, proposing that tolerance for others will correlate with decreased experiences of reported conflict with others. This study used a secondary data set from the Lake Gaston Association. The data set contained a sample of adults 18 years and older who participated as anglers and personal watercraft users at Lake Gaston, a popular lake in north central North Carolina. Findings identified that conflict was experienced asymmetrically, as anglers experienced high degrees of conflict attributed to PWC users, whereas PWC users reported conflict levels similar to each angler type when examining conflict attributed to anglers.

Subsequent analyses revealed that conflict attributed to PWC users was not significant when anglers had experience with PWC use and were tolerant of PWC users. A series of open-ended questions asked recreationists to briefly describe how the presence of specific user types reduced or increased their enjoyment at the lake. For conflict attributed to PWC users, responses centered on themes involving safety and perceptions of inconsiderate behavior. Managerial recommendations include developing 'no wake' zones near shore with appropriate markers and signage, lake safety education, lake patrols, and penalties resulting in limits to lake access points managed by lake authorities.

FACTORS CONTRIBUTING TO CONFLICTS AND USER SATISFACTION AT LAKE
GASTON: EXAMINING CONFLICT BETWEEN PERSONAL WATERCRAFT USERS AND
ANGLERS

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Chapter 1

INTRODUCTION

For years, managers of natural resource areas have dealt with conflicts among user groups because of competition to utilize limited resources for recreation purposes. Demand for recreational activities coupled with shortages of land and water resources increases the likelihood of conflict, and can result in dissatisfaction among recreational user groups. It is imperative for resource managers to consider ways to minimize conflict by understanding the source of its development (Owens, 1985). Understanding the sources and causes of recreational conflict is very important to enacting management practices that minimize conflict. In turn, these practices can increase user satisfaction and maintain stable participation within parks and natural resource areas. Resolving conflict is also important to resource managers because it helps improve user safety, protect natural resources, and provide a high quality user experience (Jacob & Schreyer, 1980).

Earlier studies described conflict as competition between incompatible groups over the same resource (Devall & Harry, 1981). The definition then shifted to goal interference attributed to the behavior of others (Jacob & Schreyer, 1980). Gramann and Burdge (1981) described a recreational goal as an outcome of a behavior that gives reason for that behavior. Later, Owens (1985) clarified that conflict is not goal interference, but rather the failure of conflicting parties to cope with the interference. Recreational conflict is also related to crowding, density, skill level, norms, outcomes, and other incompatibilities associated with goal interference. For example, a study by Moore, Scott, and Graefe (1995) among in-line skaters concluded that skill level had a negative effect and decreased the enjoyment of other recreationists. Jacob and Schreyer (1980) relate crowding to recreational conflicts and proclaim that crowding can undermine satisfaction with recreational experiences. Vaske, Shelby, Graefe, and Heberlein

(1986) describe norms as a standard of evaluation, as opposed to a specific behavior. Past research has shown that when an individual's norms are equal or less tolerant than the social norm then that individual may experience conflict (Ruddell & Gramann, 1994). Deutsch (1971) compares conflict to outcomes and concludes that if the outcome of an individual or group's recreation activity is interrupted then conflict may occur. Regardless of cause or associations, the literature is clear in its portrayal of conflict as a special type of dissatisfaction attributable to interpersonal situations, where users do not achieve or realize personal goals-related to recreation participation. When goal interference occurs it can negatively impact a recreation experience, causing some users to end activities prematurely or cease future recreation participation in specific natural resource areas.

Jacob and Schreyer (1980), provide a framework for understanding the conditions that lead to conflict. According to Jacob and Schreyer, there are four major factors that contribute to conflict: activity style, resource specificity, mode of experience, and tolerance for lifestyle diversity. It is possible for conflict to occur when only one factor is present, however, in most cases of conflict, a combination of all factors occurs. First, activity style is defined by Jacob and Schreyer (1980) as "the various personal meanings assigned to an activity." (1980, p. 370) Therefore, if one participant's idea for the activity is different from other participants' ideas, then conflict may occur. Resource specificity is defined as, "the significant attachment to using a specific recreation resource for a given recreational experience." (Jacob & Schreyer, 1980, p.370) Specifically, if a participant feels that he or she has more priority over a given recreational resource than other participants, then conflict may occur. The third factor described by Jacob and Schreyer is mode of experience, which is defined as, "the varying expectations of how the natural environment will be perceived." (Jacob & Schreyer, 1980, p.370) For example,

if a participant expects the natural resource to be litter free and there is litter, then the participant may experience a conflict. The last factor described by Jacob and Schreyer and a source of focus for this study is participants' tolerance for lifestyle diversity. This is defined as, "the tendency to accept or reject lifestyles different from one's own." (Jacob & Schreyer, 1980, p.370) Graefe and Thapa (2004) explain that participants who are unwilling to share resources and unwilling to accept different lifestyles other than their own are more likely to experience conflict. Graefe and Thapa also state that participants are more likely to be tolerant of other participants who are like themselves. For example, Ivy, Stewart and Lue (1992) explained that individuals with higher tolerance will experience less conflict, and vice versa, individuals with lower tolerance will experience more conflict. Thapa and Graefe (1999) found that age and gender were related to the perception of conflict and tolerance among skiers and snowboarders. In this case, age and gender influenced the choice of activity, which in turn affected the participant's tolerance and perceived conflict.

When using Jacob and Schreyer's (1980) conflict model, which this study does, there must be social contact, direct or indirect. Direct contact refers to face-to-face contact. In this study between anglers and personal watercraft users, it may be possible for indirect or direct social contact to take place. Therefore conflict may take place due to either social contact occurring. Indirect contact refers to the idea of conflict occurring without direct contact. For example, indirect contact refers to occasions where one can view an activity but does not directly interact with another user on site, such as when an angler sees a recreational boater on the water or when a skier spots a snowboarder.

Graefe and Thapa (2004) explained lifestyle diversity typically stems from inexperience with behavior. A study conducted by Wang and Dawson (2005) comparing personal watercraft

owners, landowners, and motorboat owners identified that landowners and motorboat owners that did not own a PWC evaluated PWC users in a negative way. Beginners in an activity were less likely to experience conflict, whereas experienced recreationists were more likely to experience conflict due to low and high tolerance for lifestyle diversity. Less experienced recreationists were more likely to be more tolerant of other recreationists due to fewer, personally meaningful goals. Whereas more experienced recreationists report having more personally meaningful goals and are less tolerant to goal interference, causing these individuals to report experiencing higher degrees of conflict. Therefore, in the case of anglers and personal watercraft user conflict, it may be seen that more experienced anglers who do not have experience with personal watercraft will experience more conflict. Similarly, anglers who do have experience with personal watercraft will be more tolerant and experience less conflict.

Conflict can occur as asymmetrical or symmetrical. Asymmetrical conflict is when one party experiences more conflict than another, therefore symmetrical conflict is when each party experiences the same amount of conflict. An example of asymmetrical conflict is that which emerges between traditional and newer forms of recreation activities. A study by Adelman, Heberlein, and Bonnicksen (1982), found that canoeists (i.e., traditional form) experienced more conflict than motorboat operators (i.e., newer form) when an encounter occurred. Another study conducted by Gibbons and Ruddell (1995) found an asymmetrical conflict relationship between self-propelled backcountry and heli-skiers, where self-propelled backcountry users experienced higher degrees of goal interference due to the behavior of heli-skiers. With regard to personal watercraft and angling, an asymmetrical conflict relationship can occur with anglers experiencing more conflict than personal watercraft users. Several studies observe that when an individual has experience in both activities such as angling and personal watercraft use, that

individual will likely experience less conflict when interacting with another recreationist engaged in an opposing activity (Thapa, 1996). Thapa's study (1996) of conflict between skiers and snowboarders adds to this understanding, as he observed a relationship between increased tolerance and reduced conflict, when recreationists had varied experience as opposed to experience in one activity.

Personal watercraft users generate considerable amounts of concerns at the national, state, and local levels of government management. These watercraft move at high speeds and maneuver in a way that create a false sense of control. As such, personal watercraft (commonly known as jet-skis or wave runners) cause general safety and environmental concerns.

Statement of Problem

When demands for recreational activity go up and the availability of land and water resources goes down, conflict often occurs. By understanding the source of conflict, managers will be able to put into action solutions and strategies to minimize conflict. By decreasing conflicts, user satisfaction will increase. Further, by resolving conflict, user safety will increase, natural resources will be sustained, and higher quality user experiences will be reported. An area that is in need of more research is the experience of conflict between anglers and personal watercraft users. Much of the conflict research in water-based recreation focuses on conflicts between users of different types of water-based transport (Gibbons & Ruddell, 1995; Wang & Dawson 2005). Managers need to understand the experience of conflict between these two groups to implement effective practices that minimize conflict.

Purpose Statement

The purpose of this study was to examine the relationship between personal watercraft users and types of anglers to 1) determine if conflict exists between these user groups and 2) to what conflict is attributed. The following objectives will guide this study:

Objectives

- Determine the extent of perceived conflict between anglers and personal watercraft users.
- Determine how tolerance for lifestyle diversity relates to conflict in these user groups.
- Examine how experience in both activities relates to tolerance for lifestyle diversity.

Research Questions

1. How does conflict emerge between personal watercraft users and other recreationists, and specifically, what experiences do anglers link to conflict with personal watercraft users and vice versa?

Hypotheses

1. The extent of perceived conflict between on shore anglers, anglers in motorboats, and personal watercraft users will be asymmetrical with on-shore anglers and anglers in motorboats experiencing a higher degree of conflict. Specifically, anglers will attribute higher levels of conflict than PWC users when assessing attribution of conflict to PWC users, while PWC users will not significantly differ with either angler group in their attribution of conflict to either angling type.
2. Tolerance for lifestyle diversity will be negatively related to conflict.
3. Individuals with experience in both activities, angling and personal watercraft use, will experience a lower degree of conflict than individuals with experience in only one activity.

4. Individuals with experience in both activities will report higher tolerance for lifestyle diversity than individuals with experience in only one activity.

Delimitations

This study is delimited to anglers and personal watercraft users over the age of 18 who are recreationist at Lake Gaston.

Assumptions

When conducting this form of field research, several assumptions must be considered. While the questionnaire was administered by reading questions to participants, it was assumed that users understood and could properly respond to questions elicited by the administrator. It is also assumed that the participants answered questions truthfully and did not answer based on social acceptability. Finally, the reality for many water-based recreationists is that they might have experience in angling and PWC use. Care was taken in trying to identify recreationists who primarily participate in angling or PWC use along with users who have some experience in each to properly address the objectives of the study.

Limitations

This study was a convenience sample that is not representative of the entire population and low in external validity. This may contribute to systematic bias or sampling bias where the results from the study are different from the results of the actual population. Convenience sampling is very unstructured and often provides fewer definitive findings. This study also relied on an electronic questionnaire, which limited the sample type to those who have availability to internet access. As a result, the findings from this study are limited to this rather small sample of anglers and personal watercraft users.

Definition of Relevant Terms

Personal watercraft user

A jet-propelled boat or boats ridden like a motorcycle by a person

Angler

A person who fishes with a hook and line.

Conflict

Goal interference attributed to the behaviors of others (Jacob and Schreyer, 1980)

Activity Style

The various personal meanings assigned to an activity.

Resource Specificity

The significance attached to using a specific recreation resource for a given recreational experience.

Mode of Experience

The varying expectations of how the natural environment will be perceived.

Lifestyle Tolerance

The tendency to accept or reject lifestyles different from one's own.

Chapter 2

REVIEW OF THE LITERATURE

This literature review outlines and describes causes of recreational conflict and identifies key points from the literature regarding recreational conflict research and its implications for resource managers. This study examines recreational conflict that occurs on waterways between personal watercraft users and anglers. The conceptual framework is guided by Jacob and Schreyer's (1980) conflict model and focuses specifically on how tolerance and conflict are associated.

Recreation User Conflict Defined

Recreation conflict has been examined in many different ways. Past studies have used different definitions to establish relationships between user groups. Ewert, Dieser & Voight (1999) define conflict as, "a condition that exists when one person, or group of people, experience or perceive an interference of goals or the likelihood of incompatible goals, as the result of another person's or group's actions, threat of action, or personal/group attributes (1999, p. 337)." This is consistent with Jacob & Schreyer (1980) conceptualization of conflict that focuses on the degree to which interference with one's goals is attributed to the actions of others. Owens' (1985) described conflict as the inability of conflicting parties to agree. Devall and Harry's (1981) definition depicts conflict as a competition over resources by both compatible and incompatible groups.

Conflict is not always experienced symmetrically between two parties. Symmetrical conflict describes conflict that is occurring between or within recreational users. Asymmetrical conflict refers to out of balance or unequal conflict. Asymmetrical is often typical, and is

illustrated in cases where one individual or group usually experiences more conflict than the other. Asymmetrical conflict is often related to different goal orientation, different activity types, different experience levels of recreationists, or a combination of these factors. The history of conflict research demonstrates the evolution of conflict research and how these different user experience factors lead to conflict between recreationists.

History of Conflict Research

Over the past 50 years, conflict has emerged as a prominent topic in the recreation research literature. Early research in conflict focused mainly on users having difficulty stemming from encounters with other users and different types of users using the same recreational resource (Church, Gilchrist & Ravenscroft, 2007). Conflict research grew in the 1960's and 1970's, and focused mainly on competition over similar resources by several competing activity groups or incompatible activity groups (Church, Gilchrist & Ravenscroft, 2007; Owens, 1985). Much of this research focused on conflicts between motorized and non-motorized recreationists, and often, this research yielded results that the occurrence of conflict was asymmetrical. For example, skiers disliked their encounters with snowmobilers but snowmobilers did not mind skiers (Jackson & Wong , 2004). Due to the technological improvements and newer forms of outdoor recreation such as geo-caching, all-terrain vehicles, and jet-skis (Roe & Benson, 2001; Wang & Dawson, 2005 in Marcouiller, Scott, & Prey) there has been an increase in intra-use conflict or conflict within specific groups. The increase in technology brought newer styles of recreation and these styles caused conflicts with traditional, often non-motorized users.

Numerous studies have examined recreational conflicts. Examples of studies include motorized versus non-motorized rafters (Nielsen & Shelby, 1977; Shelby, 1980); cross country skiers and snowmobilers (Jackson & Wong, 1982; Jackson, Haider & Elliot, 2002); water skiers and anglers (Gramann & Burdge, 1981); hikers and mountain bike riders (Carothers, Vaske & Donnelly, 2001; Ramthun, 1995; Watson, Williams & Diagle, 1991); off road vehicle users and hikers (Noe, Hull, & Wellman 1982); canoeists and motorboaters (Adelman et al., 1982); helicopter skiers and backcountry users (Gibbons & Rudell, 1995); skiers and snowboarders (Baird, 1993; Thapa, 1996; Thapa & Graefe, 1999, 2003 in press; Vaske, Carothers, Donnelly & Baird, 2000; Vaske, Dyar & Timmons, 2004, in press; Williams, Dossa & Fulton, 1994); hikers, stock users and llama packers (Blahna, Smith & Anderson, 1995); hikers and stock users (Watson, Niccolucci, & Williams, 1994); hunters and non-hunters (Vaske, Donnelly, Wittman & Laidlaw, 1995); walkers and mountain bikers (Cessford, 2003) and walkers, runners, in-line skaters, and bicyclists (Moore, Scott & Graefe, 1998). These studies have led to a body of knowledge that informs the specific types and causes of conflict as it occurs. The next several subsections examines these causes, and provide a brief overview of findings related to research in these areas.

Traditional vs. New

Numerous studies have been conducted with traditional versus new recreational activities where conflict is almost certain to occur. Adelman et al. (1982) found a negative relationship between paddling canoeists and motorcraft users where motorcraft users decreased the enjoyment of paddling canoeists. Gibbons and Rudell, (1995) found that heli-skiers annoyed backcountry skiers. Another study conducted by Gramann and Burdge (1981) found a weak relationship between water skiers and anglers where anglers disliked water skiers. Ivy, Stewart,

and Lue (1992) found that canoeists experienced twice as much conflict as motorboaters. The preceded studies analyzed traditional activities with newer activities, where conflict was identified as occurring mostly within traditional activities due to newer activities. Although this type of conflict occurs frequently, it is possible for traditional recreationists to experience conflict with other traditional recreationists.

Traditional vs. Traditional

Past studies have shown that conflict often occurs between two traditional activities. A study conducted by Moore, Scott and Graefe (1998) examined the relationship between walkers, runners, in-line skaters and bicyclists, and found that in-line skaters decreased the enjoyment of every other group. Another study by Blahna, Smith and Anderson (1995) found that horse and llamas users disliked hikers. Overall, traditional versus traditional conflict is not looked at as often as traditional versus new, however, this type of conflict does occur and is often associated with other factors, such as competition, incompatibilities, and interference with desired outcomes.

Competition, Incompatibilities, Outcomes

Past research has related conflict to competition, incompatibilities, outcomes, and norms. Devall and Harry (1981) describes conflict as competition over resources by competing activity groups. Jackson and Wong (1982) oppose this definition, and state that conflict takes place when goals are unaccomplished, rather than the result of competition for land or resources. Devall and Harry propose that conflict may also be the result of incompatibilities. This assertion is based on the observations of those participating simultaneously with others in similar or dissimilar activities. Those in similar activities experience fewer instances and less intense

levels of conflict when compared with the experiences of those participating in dissimilar activities.

Conflict also occurs when outcomes are disrupted. Deutsch (1971) examined the relationship between conflict and satisfaction. He states that when interaction is beneficial, then conflict is positive and the outcome is satisfying. Conversely, when interaction is negative; conflict is also negative, and the outcome is dissatisfying.

Level of Experience and Conflict

Experience in a recreational activity plays a crucial role in whether or not a participant will experience conflict. Schreyer and Lime (1984) state that experience is associated with a participant's previous involvement with an activity. Past research provides evidence that the more experience a participant has in an activity the more specialized a participant becomes in that activity (Bryan, 1979). In the recreation literature, specialization refers to the level of commitment and personal investment one has with respect to a recreational activity. Specialization is also reflective of one's identity, and it often follows a developmental pattern related to exposure and experience with an activity (Bryan, 2000). Specialized recreationists report experiencing more conflict when compared to those who are hobbyists or casual recreationists. Skill level is also intertwined with experience.

A person with a high skill level in an activity most likely has more experience in that activity than an individual with less experience. Jacob and Schreyer (1980) proclaim that an individual with more experience has higher expectations and set more goals than an individual with less experience and skill level. In fact, individuals with less experience tend to unwittingly cause more conflict. A study by Moore et al. (1998) concluded that novice in-line skaters interfered with experienced skaters' goals, thus negatively impacting this group. Another study

with canoeists by Todd (1987) found that less experienced recreationists interfered with more experienced recreationists which caused goal interference and conflict to occur.

Factors related to experience provide a great deal of insight into how conflict occurs between parties. Although much of the research indicates greater experience often leads to higher reports of conflict, there are instances where experience provides perspective and understanding; particularly when one has some exposure to other activities and becomes more tolerant of other recreationists as a result.

The Challenge of Conflict Research

Conflict research is fraught with problems. Inconsistent measurement and other methodological issues have limited the accumulation of knowledge in recreational conflict research, although numerous studies have yielded valuable information (Graefe & Thapa, 2004). One of the biggest issues in recreational conflict research relates to how the concept is operationalized. This is largely due to the prevalence of studies that employ study specific measurement tools developed by researchers (Graefe & Thapa, 2004). This lack of consistency coupled with the presence and acceptance of numerous definitions make it difficult to establish a single overriding view or model of recreation conflict. For example, the meaning of conflict can vary significantly when it is viewed from a normative perspective (i.e., what is commonly acceptable behavior) as opposed to goal interference (i.e., how one's presence interferes with another's ability to realize goals) (Carothers, Vaske, & Donnelly, 2001; Vaske, Donnelly, Wittmann, & Laidlaw, 1995). In other studies conflict is based on participants encounters being desired or undesired (Jackson & Wong, 1992; Watson, Williams, & Daigle, 1991). Shafer (1968) suggests that conflict may occur when two or more user groups with dissimilar interests compete for the similar space within a resource area. Graefe and Thapa (2004) state that conflict

studies often focus more on the likes and dislikes, problems encountered, reactions to various types of encounters or other attitudinal ratings instead of using the term *conflict* in measures. Employing measures that adequately address these concerns is often challenging to those studying conflict.

Social Values Conflict

Conflicts that occur separately from face-to-face interaction between two individuals or groups are considered social values conflicts (Vaske, Donnelly, Wittman, & Laidlaw, 1995). For example an angler could assume there are personal watercraft present without being on or near a body of water and experience conflict. Social values conflict could also be related to intrapersonal conflict. A study conducted by Vaske et al. (1995) examined the difference between social values conflicts and interpersonal conflicts between hunters and non-hunters on Mt. Evans, Colorado. Vaske et al. (1995) proclaims that social values held by both parties caused conflicts. Another study conducted by Carothers, Vaske and Donnelly (2001) also examined the relationship between social values conflicts and interpersonal conflicts among hikers and mountain bikers. Carothers et al. (2001) proclaims that interpersonal conflicts occurred more frequently than social values conflicts. So while social values conflicts occur, more studies are needed to understand what leads to social values conflict and how these conflicts occur (Graefe & Thapa, 2004). Related to the idea of social values conflict is Jacob and Schreyer's (1980) conceptualization of tolerance for lifestyle diversity, which reflects the degree to which one accepts or disapproves of other's behavior in the recreation experience. This is a central idea in understanding conflict, and provides evidence for understanding the basis for social values conflict.

Jacob and Schreyer's Definition of Conflict

Based upon the profusion of research in the mid-1970s, Jacob and Schreyer (1980) proposed a model of conflict based upon goal interference attributed to the behavior of others. The value of Jacob and Schreyer's work was that it focused on the causes and factors that lead to conflict and what participants go through to experience conflict. At the core of Jacob and Schreyer's work is social contact. Jacob and Schreyer contend that social contact, whether direct or indirect, must occur to experience conflict. Indirect contact is associated with the presence or behavior of a participant. For example, if an angler sees a personal watercraft user. Direct contact is associated with face-to-face contact. Social contact is linked to four factors which cause recreational conflict in outdoor settings. These factors are activity style, resource specificity, mode of experience, and lifestyle tolerance. It is possible for conflict to occur when only one factor is present, but in most cases all four factors will be present.

Activity style refers to how close participants are attached to their activity. Participants who have specific objectives, goals, expectations, levels of experience, and skill level will have a better chance of conflict due to their higher expectations and mind set. Individuals with lower levels of activity style will most likely experience less conflict due to their lack of seriousness in the activity. As mentioned previously, variation in technology (i.e., specifically to mechanization) has also been linked to the occurrence of conflict between recreationists.

Resource specificity refers to how much a participant is attached to the recreational resource that is being used. Participants who are very possessive over a certain resource may feel that they have specific right to that resource, and experience conflict with participants who impose upon or have no attachment to that resource. Status level such as income and, occupation (socio-economic, class-level, blue-collar vs white collar), could cause conflict when interaction

between parties of different types takes place. For example if a blue collar recreationist uses the same resource as a white collar recreationist, the white collar recreationist may see the resource as being less elite; conflict may occur to protect the status of the resource. Conversely, a blue collar recreationist may experience conflict if he or she perceives being shut out of a resource area based on this prejudice.

The third factor identified by Jacob and Schreyer (1980) is mode of experience. Mode of experience refers to how a participant may feel while participating. If a participant is in a focused mode, that participant is more sensitive to what is occurring around him/her and is more likely to experience conflict. Whereas a participant in an unfocused mode is less aware of what is happening around him/her and is less likely to experience conflict. When a recreationist in a focused mode interacts with a recreationist in an unfocused mode there is a high chance of conflict.

Tolerance for lifestyle diversity is the final factor of Jacob and Schreyer's (1980) model, and refers to participants being able to accept or reject a lifestyle different from their own. Participants who are not willing to share resources with people of different lifestyles have a higher chance of experiencing conflict. Stereotypes that are linked to lifestyle diversity and causes of intolerance are prejudice, resource consumption, and technology use. Different equipment is used by different recreationists to achieve personal goals while recreating. This relates to tolerance due to what one might feel is appropriate for a specific activity. If the recreationist chooses to accept the different equipment or is more tolerant, then conflict is less likely to occur. Similarly, when one chooses to reject the equipment or specific practices of others within an activity, conflict is likely to occur. While tolerance represents one of four factors related to conflict, it also represents a fairly recent area of focus in conflict research.

Tolerance and Conflict

Ivy (1990) describes tolerance as the reaction an individual estimates he or she will possess during an activity. Ivy et al. (1992) describe tolerance as more of an attitude instead of a behavior associated with a certain situation. Novices are described by Schreyer and Lime (1984) as individuals who are using a resource site for the first time. These individuals are less likely to experience conflict and report high levels of tolerance as a result of not being able to relate what constitutes a valuable experience. Novices are not necessarily beginners, but may also represent people who have limited familiarity with activities of recreational counterparts or competitors for the resource. To this end, Jacob and Schreyer (1980) explained that participants who are participating in the same activity have more tolerance for each other than participants who are participating in different activities.

Ingroup-Outgroup Conflict and Tolerance

When participating in recreational activities, participants usually label themselves as in-group or out-group (Jacob & Schreyer, 1980). Ivy et al. (1992) describes an in-group as a group of participants who believe they fit into the activity in which they are participating, whereas an out-group are participants who seemingly do not fit into the activity. For example, if anglers believe that a lake is primarily for fishing and that they are the in-group, users who are not anglers (e.g., personal watercraft users) are the out-group. Out-group conflict is the focus of most recreational conflict research, and this work demonstrates that individuals who are participating in the same activity are more tolerant of each other as opposed to those who participate in differing “out-group” activities (Adelman et al., 1982; Gibbons & Ruddell, 1995; Jackson & Wong, 1982; Knopp & Tyger, 1973; Lucas, 1964; Watson et al., 1991, 1994;

Williams et al., 1994). Conflict may also occur due to unacceptable behavior observed during group interactions (Vaske & Dyar & Timmons, 2004).

Studies by Todd and Graefe (1989) and Thapa and Graefe (1999a) show that in-group behaviors are more likely to be attributed to goal interference than out-group behaviors. A study by Vaske, Carothers, Donnelly, and Baird (2000) examined out-group and in-group normative beliefs regarding unacceptable behaviors reported by skiers and snowboarders. The findings show that skiers reported more unacceptable behavior by snowboarders than their fellow skiers who were considered in-group. Snowboarders also reported more out-group than in-group conflict.

Stereotypes, Prejudice, Discrimination and Conflict

Past research supports the idea that stereotypes, prejudice, and discrimination are all related to conflict. Taylor and Moghaddam (1994) describe a stereotype as the process of collective thoughts of specific individuals or groups. When an individual has a stereotype towards another individual or group their tolerance for that individual or group is influenced. This type of influence could cause conflict to emerge intrapersonally and interpersonally, and may affect one's social values, in the form of prejudice. Prejudice builds on the opinion that one has for a group or specific individual (Allport, 1954). Discrimination or denying or limiting one's rights is a result of acting on negative prejudice (Allport; Taylor & Moghaddam, 1994). Jacob and Schreyer (1980) make clear that recreational goals cannot be achieved when prejudice is present as it is evidence of conflict.

Normative Approach to Recreational Conflict

Past research has examined conflict from a normative perspective (Moore et al., 1998; Thapa, 1996; Watson et al., 1991). A norm refers to perceptions or beliefs about how to behave

and act. Vaske et al., (1986) defines norms as evaluative standards and not behaviors. Whereas Ivy et al., (1992) state that tolerance is an attitude and not a behavior, and that tolerance is linked to expectations. Therefore, recreationists with low tolerance and unrealistic expectations are likely to have goal interference and experience conflict (Ivy et al., (1992). Personal norms can be defined as personal expectations learned from shared experiences and adapted or modified through interaction (Vaske, et al., 1986). Manning (1985) suggests that crowding norms are influenced by visitor characteristics, characteristics of those encountered, and situational variables.

Heywood (1996) compares social norms to conventions and obligations. Conventions are described as behaviors built from expectations (Heywood, 1996). Heywood (1996) also describes a social norm as, behaviors that are enforced through sanctions. A social norm may be emerging when conventions become so important that people begin to see them as obligations (Heywood, 1996).

Whittaker and Shelby (1988) conducted a study on the Deschutes River in Oregon, USA concerning boater standards to social and ecological impacts. Whittaker and Shelby (1988) note that social norm theory suggests that norms or standards may be established through group agreement. The study suggested that norms fall into three different categories: no tolerance norm, single tolerance norm, and a multiple tolerance norm. When most users agree that any impact is unacceptable a no tolerance norm is taking place. When users show similar agreement at impact levels greater than zero a single tolerance norm is occurring, and when two or more groups have different standards for acceptable impact a multiple tolerance norm is taking place (Whittaker & Shelby, 1988). Ruddell and Gramann (1994) also state that when individual norms are equal to or less tolerant than the social norm, then those individuals are more likely to

experience conflict. Normative information is used for establishing management standards as well as understanding differences in acceptable impact levels and group agreement (Whittaker and Shelby, 1988).

Conflict on Waterways

Water-based recreation conflict has increased with the rise of new technology, increases in the number of recreationists, and availability of water-based recreation vessels. Water-based recreation includes fishing, motorboating, water skiing, personal watercraft use (e.g., jet skiing), sailing, canoeing, kayaking, swimming, and bathing. Trend data demonstrate that the number of water-based recreationists is growing rapidly. Tseng, Kyle, Shafer, Graefe, Bradle, & Schuett (2009) state that from 2004 to 2005 recreational boating participation increased by an estimated 2.3 million participants going from 69 million to 71.3 million. This growth in the number of recreationists combined with virtually no change in resource capacity has led to several types of studies to understand the human and experiential dimensions related to this type of recreation.

Past studies on recreational boating research have covered areas such as specialization (Donnelly, Vaske, & Graefe, 1986), the importance of knowledge (Reichle, 1975), crowding (Whisman & Hollenhorst, 1998), safety (Heatwole & West, 1982), carrying capacity (Falk, Graefe, Drogin, Confer, Chandler, 1992), satisfaction (Graefe & Fedler, 1986) and conflict (Adelman et al., 1982 in Tseng et al., 2009). Cox (1980) states that in past years, water-based recreation has grown substantially resulting in an increase amount of conflict between the public and property owners near water-based recreation areas. In a study conducted by Tseng et al. (2009) examining crowding and satisfaction in relationship to recreational boating, participants identified that the number of people they had seen on the lake negatively affected their boating experience. A shared concern between managers and visitors of resource areas is crowding. A

national survey conducted by (Manning, Valliere, Minter, Wang, & Jacobi, 2000) found that two-thirds of all recreation areas were considered beyond capacity, and in most of these cases problems were considered to occur due to social or crowding issues instead of resource damage.

Conflicts occurring on lakes and other water areas such as rivers and oceans are gaining attention by users, law enforcement, and managers. Conflicts affect the participants' experience negatively, and managers as well as users need to understand ways to decrease conflict. Schuster and Hammitt (2000) analyzed conflicts occurring with private boaters on the Ocoee River. The study showed that 72% of boaters had experienced some type of conflict. The study found no significant relationship between conflict and satisfaction. One reason for this is the boaters were expecting conflict, and found ways to cope with the conflict and not let it affect their satisfaction (Schuster et al., 2000).

When considering conflict on waterways, it is more likely to occur when traditional style recreationists encounter new styles of recreationists. In this study personal watercraft users are considered new styles of recreationist and motorboaters and anglers are considered to be traditional. Past research has looked at motorized versus non-motorized which will compare to new versus traditional styles of recreation. Past research has found evidence of conflict consistently occurring between motorized versus non-motorized or new versus traditional recreationist. Conflict also occurs between similar types of activities, such as two types of motorized activities. This study examines the extent to which PWC use is related to or considered a source of conflict by other user groups. Furthermore, this study seeks to understand if this relationship is asymmetrical, and the extent to which experience with other activities leads to lower reports of conflicts with other users.

Personal Watercraft Conflict

Personal watercraft (PWC), more commonly known as jet skis or wave-runners, are very popular in the United States. With over one million in operation and an estimated 250,000 sold each year, personal watercraft participation represents a fast growing, relatively new form of water recreation (D'Antuono, 1999). Past research provides evidence that the increase in personal watercraft users disturb people, fishery activities, and wildlife at recreational resource sites (Burger & Leonard, 2000).

Wang and Dawson (2000) state that personal watercraft users impact the experience of motorboaters by speeding, jumping their boat wakes, or crossing their boating path. Davenport & Davenport (2006) state that noise pollution and accidents are the public's highest concern with personal watercraft. In the US 40% of all boating injuries are caused by personal watercraft users in which swimmers have been injured or killed. With the high speeds and maneuverability, personal watercraft users generate considerable amounts of concerns at the national, state, and local levels of government management (D'Antuono, 1999).

Personal watercraft users are also harming and killing mammals such as seals, dolphins, and turtles who come to the surface to breathe. Studies also show that personal watercraft emit 50% more hydrocarbons and nitrogen oxides than all of California's cars combined on an average weekend day in California. (IWLA, (2003) in Davenport et al., 2006). The research on PWC use is linked to several factors that can cause conflict with motorboaters and anglers who share waters with PWC users. This study seeks to understand to what extent conflict exists with other recreationists and in what forms.

Summary

The increase in potential for conflicts to occur between users at recreation areas has increased, as the number of participants wanting to use those sites has increased. Shortages of land and water resources have also increased the need for managers and planners to evaluate their situations and decrease conflicts to improve user satisfaction and attendance (Owens, 1985). Identifying the sources of conflict can potentially enable resource managers and law enforcement to reduce instances of these experiences, and provide a better experience for all recreational users. Understanding the factors behind recreational conflicts can also provide a starting point for understanding conflicts that are occurring and what can be done to reduce conflicts. Past research shows that personal watercraft users are disturbing other users at the same recreational resource site (Wang & Dawson, 2005). Past research also shows that tolerance of lifestyle diversity is a factor that could cause recreational conflict (Jacob & Schreyer, 1980). Due to the importance of managers being able to provide a quality recreation experience, more research is needed to better understand the causes of recreation conflicts. It is vital that managers understand the causes of these conflicts to provide adequate procedures to decrease conflicts and increase user satisfaction at these recreational resource sites.

Chapter 3

METHODS

The purpose of this study was to examine the relationship between anglers and personal watercraft users to determine if conflict exists between these user groups. This study focuses specifically on the relationship between tolerance for lifestyle diversity and conflict per Jacob and Schreyer's (1980) model of "goal interference attributed to others behavior."

Research Setting

Lake Gaston is located on the Virginia/North Carolina border between Interstate 95 and Interstate 85 and was the setting for this study. Lake Gaston is approximately 20,300 acres and encompasses portions of Halifax, Northampton and Warren Counties in North Carolina and Brunswick and Mecklenburg Counties in Virginia (Papierniak, 2005). Lake Gaston is a very popular place for personal watercraft users, anglers, and recreational boaters.

Selection of Subjects and Sampling

A sample of adults 18 years and older participating as anglers or personal watercraft users was recruited by the Lake Gaston Association in the summer of 2010 through electronic questionnaire. The Lake Gaston Association (LGA) is a private, non-profit association that represents homeowners and lake recreationists in Halifax county. The LGA and its members actively targeted recreationists who participated in angling, personal watercraft use, or both. LGA targeted its members, who were encouraged to pass the word about the study. LGA also used informational meetings and newsletters to capture its sample. Sampling occurred from July 30 through the end of September. Lake Gaston granted permission to use the data set for the purposes of this study, and this study represents a secondary analysis of that data set.

Instrument Design

The on-line instrument consisted of a four page questionnaire. Multiple item summative scales measured conflict experienced with each recreationist type. These items originated from previous studies with modifications to reflect the various recreational activities under study (Thapa & Graefe, 1999; Thapa, 1996).

The instrument consisted of five major parts. Part I of the instrument consisted of questions related to the participant's mode of activity and skill level. Participants rated their skill level from novice/beginner to expert.

Part II of the survey reflected Jacob and Schreyer's (1980) conflict model. This model deals with the presence or behavior of other recreationists impacting enjoyment of experiencing the lake on the day of the survey. A seven-point Likert scale asked respondents to specify if the presence or behavior of anglers and personal watercraft users greatly reduced (1), had no effect (4), or greatly increased (7) their enjoyment of the lake during the course of the day. An open-ended question asked respondents to explain how the presence or absence of specific recreationists affected their experience on Lake Gaston. The questionnaire asked similar questions for all activities under study (i.e., angling, personal watercraft use).

Part III of the questionnaire included items that were additional measures of water-based conflict. This type of conflict scale was measured using a seven point rating scale in which 1=not a problem; 4=moderate problem and 7=very serious problem. The items in this section were derived and modified by a study conducted by Thapa (1996) comparing skiers and snowboarders. These items are of general concern to both anglers and personal watercraft users alike. The degree to which any respondent indicated that any of the items was "a problem" was

considered to represent conflict. Past research reports Cronbach's alpha reliability coefficients ranging from .90 to .94 for conflict items.

Part IV of the instrument examined tolerance for lifestyle diversity. Past research demonstrates that tolerance for lifestyle diversity is a major factor when determining conflict. Items originated from Thapa's study on skier/snowboarder conflict (1996) with modifications to reflect the recreationist types in this study. The scale for these items asked participants to respond -3=strongly disagree to +3=strongly agree, with 0 considered a neutral category. The researcher treated this scale as a seven-point Likert scale for the purpose of data analysis. Jacob and Schreyer's (1980) model and concept of tolerance for lifestyle diversity had a strong influence on this section. Items focused on conditions such as undesirability of encounters with PWC users/anglers, unwillingness to share resources, compatibility of activities, etc. A participant with low tolerance would agree that individuals participating in different activities should not share the same resource. Conversely, it was expected that tolerance existed when answers reflected indifference or disagreement about not sharing the water resource. Thapa (1996) reported Cronbach's alpha reliability coefficients ranging from .51 to .80 for the sub-indices measuring tolerance for lifestyle diversity.

Part V, the final section of the instrument, consisted of level of experience, history of participation in the activity, and background information on the participant. This section contained a series of open-ended questions, which the researcher developed thematic codes for the purposes of analysis. The open-ended data were complementary and utilized to illustrate specific instances of conflict between the recreational user groups participating in this study.

Administration of Pilot Survey

A pilot survey was administered by officials from the Lake Gaston Association prior to the data collection. The pilot survey took place to ensure that participants had no trouble answering questions, and that the electronic data collection method worked as envisaged. Approximately 30 participants took part in this pilot test with targets focused on capturing adequate representation from each recreationist group. Data from the pilot test is included in the overall set of data from collection activities occurring from July through September 2010;

Treatment of Data

Electronic questionnaires automatically generate a database of responses. The Lake Gaston Association shared this database with the researcher. Upon delivery, the researcher reviewed this database for completeness of data. Data analysis utilized the latest version of the Statistical Package for the Social Sciences (SPSS). Data analysis proceeded from univariate through bivariate to multivariate procedures. At the univariate level, the analysis focused on descriptive statistics to summarize information obtained through questionnaires. Simple bivariate analysis explored the relationship between and among background variables, and identified interrelationships between variables in the study. Analysis of variance tests, independent sample 't' tests, and correlation analyses tested the study hypotheses. The next section outlines specific steps related to addressing the one research question and four hypotheses.

Research Question and Hypothesis Testing

Research Question- How does conflict emerge between anglers and personal watercraft users, and specifically, what experiences do anglers link to conflict with personal watercraft users and vice versa?

The researcher addressed this research question by utilizing the responses from open-ended questions asking recreationists to explain if and how conflict emerged on their visit to Lake Gaston that day. The researcher linked answers to user types, coded, and then categorized these responses to identify specific situations where conflict between user groups occurred.

Hypothesis 1: The extent of perceived conflict between anglers and personal watercraft users will be asymmetrical with anglers experiencing a higher degree of conflict.

Independent Variables: Recreational user type (angler type or PWC user)

Dependent Variable: Recreation conflict as measured by goal interference in Part III of the questionnaire

Analysis: A series of one-way analysis of variance compared mean differences on conflict scores between types of anglers and PWC users. These comparisons used the scale measuring dissatisfaction related to goal interference (Part III) to assess conflict.

Hypothesis 2: Tolerance for lifestyle diversity will be negatively related to conflict.

Analysis: A bivariate correlation test (Pearson's r) examined the relationship between tolerance for lifestyle diversity (a scale developed from items from Part V of questionnaire) and level of conflict experienced (a scale developed from items from Part III of questionnaire).

Hypothesis 3: Individuals with experience in both activities, angling and personal watercraft use, will experience a lower degree of conflict and higher degree of user satisfaction than individuals with experience in only one activity.

Independent Variable: User Type

Dependent Variable: Degree of conflict and user satisfaction

Analysis: An independent samples 't' test examined mean differences in the dependent variable, conflict, between groups within the independent variable, user type (i.e., primarily one recreationist type, experience with both activities).

Hypothesis 4: Individuals with experience in both activities will report higher tolerance for lifestyle diversity.

Independent Variable: User Type

Dependent Variable: Tolerance for lifestyle diversity

Analysis: An independent samples 't' test examined mean differences in the dependent variable, tolerance for lifestyle diversity, between groups within the independent variable, user type (i.e., primarily one recreationist type, experience with both activities).

CHAPTER 4

RESULTS

This chapter presents the results of the hypotheses formulated in Chapter 1 in which the relationships of experience in on shore angling, angling in a motorboat and PWC use compare with the role of tolerance in recreational conflict between on shore anglers, anglers in a motorboat and PWC users. The chapter is divided into five sections: (1) profile of subjects, (2) summary statistics for scaled scores, (3) comparisons among recreationist types on study variables, (4) results of the hypothesis testing, and (5) analysis and summary of open-ended question data.

Profile of Subjects

The electronic questionnaire used several measures to describe specific characteristics of the population under study. Demographic information included gender, age of the respondent, recreationist type, distance of primary residence from Lake Gaston, and frequency of primary recreation activity at Lake Gaston. Missing from the demographic data was a variable measuring race/ethnicity. An oversight occurred when officials from the Lake Gaston Association changed the method of data collection from on-site intercept to an electronic questionnaire; questions to ascertain race/ethnicity were not added to the electronic questionnaire. Data were already entered and cleaned upon recognition of this oversight. As the questionnaire was anonymous, no follow-up with participants was possible.

A total of 165 subjects were selected from the database of 278 cases. Subjects were selected based on their participation in one from of angling (on-shore or motorized) or personal watercraft use. As shown in Table 4.1, the majority of respondents were male (74.0%). In terms of age, the sample was positively skewed along age with 51.6 percent of the sample being over

60 years of age, 32.9 percent of the sample were between 40-59 years of age, 11.6 percent of the sample were between 25-39 years old, and just 3.9 percent of the sample were between 18 and 25 years old. The mean age for the sample was nearly 56 years old. The largest segment of the sample reported themselves as personal watercraft users (41.8%), while the rest of the sample split evenly between recreationists who were on-shore anglers (29.1%) and anglers in motorboats (29.1%).

The area of Lake Gaston from which the sample was drawn is known to have a number of residences that serve as second homes. For this reason, this study sought to identify how far recreationists traveled from their primary residences. Zip codes were used to determine the distance from Littleton, NC in Halifax County where the Lake Gaston Association is located. Close to 70 percent of the sample lived within 60 miles of Littleton with 31.2 percent residing less than 20 miles from this location and 37.0 percent living between 21 and 60 miles from Littleton. The remaining individuals in the sample reported living between 60-99 miles from Littleton (14.3%) and over 100 miles (17.5%).

Another measure of interest was how often respondents reported participating in the primary recreation activity at Lake Gaston. The mean number of days of primary recreation participation at Lake Gaston was 52.36 days with 17.7 percent reporting 10 or fewer days of participation, 24.8 percent reporting between 11-29 days of participation, 34.6 percent reporting between 30-59 days of participation, and 22.9 percent reporting participation at 60 days or more.

In summary, the sample was primarily males in their mid-fifties who lived within 60 miles of the sampling site, and used Lake Gaston for their primary recreation pursuits for just over 50 days a year.

Table 4.1

Visitor Demographics and Visitation Statistics

| Descriptive Category | N | % | Valid % |
|--|-----|-------|---------|
| Gender | | | |
| Male | 114 | 69.1 | 74.0 |
| Female | 40 | 24.2 | 26.0 |
| Missing | 11 | 6.7 | - |
| Total | 165 | 100.0 | 100.0 |
| Age (Mean= 55.68 SD=15.34) | | | |
| 18-24 | 6 | 3.6 | 3.9 |
| 25-39 | 18 | 10.9 | 11.6 |
| 40-59 | 51 | 30.9 | 32.9 |
| over 60 | 80 | 48.5 | 51.6 |
| Missing | 10 | 6.1 | - |
| Total | 165 | 100.0 | 100.0 |
| Recreationist Type | | | |
| On-Shore Angler | 48 | 29.1 | 29.1 |
| Angler in Motorboat | 48 | 29.1 | 29.1 |
| Personal Watercraft User | 69 | 41.8 | 41.8 |
| Total | 165 | 100.0 | |
| Distance of Primary Residence from Lake Gaston | | | |
| 0-20 miles | 48 | 29.1 | 31.2 |
| 21-59 miles | 57 | 34.5 | 37.0 |
| 60-99 miles | 22 | 13.3 | 14.3 |
| More than 100 miles | 27 | 16.4 | 17.5 |
| Missing | 11 | 6.7 | - |
| Total | 165 | 100.0 | 100.0 |
| Frequency of Primary Recreation Participation at Lake Gaston (Mean=52.36) | | | |
| 10 days or fewer | 27 | 16.4 | 17.7 |
| 11-29 days | 38 | 23.0 | 24.8 |
| 30-59 days | 53 | 32.1 | 34.6 |
| More than 60 days | 35 | 21.2 | 22.9 |
| Missing | 12 | 7.3 | - |
| Total | 165 | 100.0 | 100.0 |

Summary Statistics for Scaled Scores

Scales measuring conflict and tolerance for lifestyle diversity were used to test hypotheses. The conflict scale assessed the amount of problem behaviors attributed to other recreationists. The tolerance for lifestyle diversity measured the degree to which recreationists accepted different recreationists.

Conflict Scales

Three separate scales were used to assess conflict attributed to on-shore anglers (OSA), anglers in motorboats (AIMB), and personal watercraft (PWC) users. The scales used a common set of behaviors that included recreationists being out of control, unfriendly, behaving discourteously, failing to be aware of others, driving unsafely (AIMB and PWC only), and obstructing entry points to Lake Gaston. Respondents were asked to rate the extent to which these behaviors were a problem with responses ranging from “1”= not a problem to “7” = a serious problem.

Tables 4.2-4.4 report statistics for each scale. Table statistics include the mean, standard deviation, number of respondents, and Cronbach’s Alpha if the item was deleted from the total scale. A total Cronbach’s Alpha is also reported for each scale.

Table 4.2

Conflict Scale: Conflict Attributed to On-shore Anglers

| Item | Mean | SD | N | Alpha if item deleted |
|---|------|-----|-----|-----------------------|
| On shore anglers... | | | | |
| ...are out of control | 1.19 | .54 | 153 | .89 |
| ...are not friendly | 1.25 | .62 | 153 | .82 |
| ...behave in a discourteous manner | 1.25 | .71 | 153 | .83 |
| ...fail to be aware of others around them | 1.24 | .71 | 153 | .81 |
| ...obstruct entry points | 1.33 | .74 | 153 | .86 |
| Cronbach’s Alpha (Total Scale)=.87 | | | | |

Table 4.2 indicates an acceptable reliability ($\alpha=.87$) for the scale measuring conflict attributed to on-shore anglers. While deleting the item, “On-shore anglers are out of control,” improves the scale, this item was kept because the improvement was marginal and a similar item is used in past assessments of conflict.

Table 4.3 reports the scale statistics for the measure of conflict attributed to anglers in motorboats. This scale demonstrated acceptable reliability ($\alpha=.76$). Deleting the item, “Anglers in motorboats drive unsafely,” increases level of internal consistency for this scale. However, the item remains as it is consistent with other applications of this scale.

Table 4.3

Conflict Scale: Conflict Attributed to Anglers in Motorboats

| Item | Mean | SD | N | Alpha if item deleted |
|---|-------------|-----------|----------|------------------------------|
| Anglers in Motorboats... | | | | |
| ...are out of control | 1.77 | .94 | 154 | .65 |
| ...are not friendly | 1.69 | .81 | 154 | .66 |
| ...behave in a discourteous manner | 1.76 | .99 | 154 | .63 |
| ...fail to be aware of others around them | 1.97 | 1.13 | 154 | .61 |
| ...drive unsafely | 3.85 | 1.55 | 154 | .81 |
| ...obstruct entry points | 1.58 | .73 | 154 | .74 |
| Cronbach's Alpha (Total Scale)=.76 | | | | |

Table 4.4 indicates an acceptable reliability ($\alpha=.94$) for the scale measuring conflict attributed to personal watercraft users. While deleting the item, “Personal watercraft users obstruct entry points,” improves the scale, this item was kept because the improvement was marginal and a similar item is used in past assessments of conflict.

Table 4.4***Conflict Scale: Conflict Attributed to Personal Watercraft Users***

| Item | Mean | SD | N | Alpha if item deleted |
|---|-------------|-----------|----------|------------------------------|
| Personal Watercraft Users... | | | | |
| ...are out of control | 3.76 | 1.57 | 151 | .92 |
| ...are not friendly | 2.95 | 1.68 | 151 | .93 |
| ...behave in a discourteous manner | 3.61 | 1.63 | 151 | .91 |
| ...fail to be aware of others around them | 3.88 | 1.53 | 151 | .92 |
| ...drive unsafely | 3.82 | 1.58 | 151 | .91 |
| ...obstruct entry points | 1.94 | 1.34 | 151 | .95 |
| Cronbach's Alpha (Total Scale)=.94 | | | | |

Tolerance Scales

Tolerance scales were developed for each recreationist type under study, and reflect recreationists' acceptance of on-shore anglers, anglers in motorboats, and personal watercraft while recreating at Lake Gaston. On the questionnaire, respondents were asked to rank their level of agreement for each statement. These items were ranked from -3=strongly disagree to +3=strongly agree with a zero midpoint indicating uncertainty. When translated into the SPSS database, values were recoded to 1=strongly agree to 7=strongly disagree with a response of 4 indicating uncertainty. Tables 4.5-4.7 report the item descriptive and scale statistics, as well as the total Cronbach's Alpha for each scale.

Table 4.5***Descriptive and Scale Statistics for Tolerance of On-Shore Anglers (OSA) Scale***

| Item | Mean | SD | N | Alpha if item deleted |
|---|-------------|-----------|----------|------------------------------|
| Encounters with OSA decreased enjoyment | 5.71 | 1.57 | 153 | .33 |
| OSA bother me | 5.83 | 1.47 | 153 | .36 |
| I avoided my favorite part of the lake because of OSA | 5.77 | 1.46 | 153 | .21 |
| Cronbach's Alpha (Total Scale)= .75 | | | | |

*item reverse coded

Table 4.5 reports the scale statistics for the measure of tolerance for lifestyle diversity of on-shore anglers. Initially, this scale demonstrated poor reliability ($\alpha=.53$). Deleting the item, “The best way to enjoy the lake is on-shore angling,” increased level of internal consistency for this scale ($\alpha=.75$), and the researcher adjusted the scale to reflect this change. Table 4.6 indicates an acceptable reliability for the scale measuring tolerance for anglers in motorboats. The researcher deleted the item, “The best way to enjoy the lake is angling from a motorboat,” as it improved the scale from $\alpha=.65$ to $\alpha=.80$.

Table 4.6.***Descriptive and Scale Statistics for Tolerance of Anglers in Motorboats Scale***

| Item | Mean | SD | N | Alpha if item deleted |
|--|-------------|-----------|----------|------------------------------|
| Encounters with AIMB decreased enjoyment | 5.08 | 1.65 | 154 | .45 |
| AIMB bother me | 5.01 | 1.61 | 154 | .43 |
| I avoided my favorite part of the lake because of AIMB | 5.38 | 1.58 | 154 | .52 |
| Cronbach's Alpha (Total Scale)= .80 | | | | |

*item reverse coded

Table 4.7 reports the scale statistics for the measure of tolerance for lifestyle diversity of personal watercraft users. After adjustments, this scale demonstrated acceptable reliability ($\alpha=.87$). As with the other tolerance scales, deleting the item, “The best way to enjoy the lake is through using personal watercraft,” increased level of internal consistency for this scale.

Table 4.7

Descriptive and Scale Statistics for Tolerance of Personal Watercraft (PWC) Scale

| Item | Mean | SD | N | Alpha if item deleted |
|---|-------------|-----------|----------|------------------------------|
| Encounters with PWC decreased enjoyment | 3.73 | 1.92 | 151 | .72 |
| PWC bother me | 3.61 | 1.84 | 151 | .72 |
| I avoided my favorite part of the lake because of PWC | 4.37 | 2.00 | 151 | .76 |

Cronbach’s Alpha (Total Scale)= .87

Comparisons among Recreationist Types on Study Variables

The next set of analyses report bivariate comparisons of the recreationist types on the variables age, sex, experience in the three primary recreation activities, the mean percentage of time spent doing the primary activity at Lake Gaston, and the mean number of days spent at Lake Gaston participating in their primary activity.

Table 4.8 compares OSA, AIMB, and PWC recreationists by age. A one-way analysis of variance was conducted to examine mean age differences by recreationist type.

Table 4.8***Comparing Recreationists by Age***

| | 1. OSA (n=46) | 2. AIMB (n=46) | 3. PWC (n=65) | Total (n=157) |
|----------------------|------------------------------|-------------------------------|------------------------------|--------------------------|
| Mean Age | 43.98 ^{2,3} | 63.59 ¹ | 58.60 ¹ | 55.68 |
| (Standard Deviation) | (14.67) | (12.05) | (12.94) | (15.34) |

Overall: $F= 27.00$, $df=1$, $p<.001$;

Differences between groups are indicated through the use of superscripts

The analysis of variance test demonstrates that there is a difference between at least two of the groups with respect to mean age ($F= 27.00$, $df=1$, $p<.001$). Scheffe's post hoc tests demonstrate that the on-shore angler group has a significantly lower mean age ($p<.05$) when compared to the PWC user and anglers in motorboats groups.

Table 4.9***Comparing Recreationists by Sex***

| | 1. OSA n (column %) | 2. AIMB n (column %) | 3. PWC n (column %) | Total n (column %) |
|----------|------------------------------------|-------------------------------------|------------------------------------|-----------------------------------|
| Sex | | | | |
| Male | 36 (78.3) | 39 (88.6) | 39 (60.9) | 114 (74.0) |
| Female | 10 (21.7) | 5 (11.4) | 25 (39.1) | 40 (26.0) |
| Total | 46 (100.0) | 44 (100.0) | 64 (100.0) | 154 (100.0) |
| column % | (100.0) | (100.0) | (100.0) | (100.0) |
| row% | (29.9) | (28.6) | (41.6) | |

Overall: $\chi^2=11.016$, $p=.004$, *Cramer's V*=.267

Table 4.9 provides comparisons between OSA, AIMB, and PWC recreationists by sex. A chi-square analysis was performed to see if the groups vary in representation by sex. The overall table demonstrated significant differences between at least two of the groups with respect to gender makeup. Separate contingency table analyses were performed to ascertain these differences. One of the contingency table analyses demonstrated that the PWC group has a

higher percentage of females when compared to anglers in motorboats ($\chi^2=9.97, p<.01, \phi=.304$). When comparing PWC users to on-shore anglers, a marginally significant relationship was observed with PWC users having more females than the on-shore angler group ($\chi^2=3.70, p=.054, \phi=.183$).

Comparing Recreationists by Experience in Water-based Activities

Tables 4.10 - 4.12 illustrate comparisons between recreationists in the activities under investigation. The comparisons were performed to see if differences in activity experiences existed when comparing the groups of recreationists. Inferential analyses used a one-way analysis of variance. Analysis results correspond with each table.

Table 4.10

Comparisons between Recreationists on Years of On-Shore Angling Experience

| | 1. OSA (n=46) | 2. AIMB (n=44) | 3. PWC (n=62) | Total (n=150) |
|--|-------------------------------|-------------------------------|---------------------------------|--------------------------|
| Mean number of years (Standard Deviation) | 26.95 ³ (16.92) | 38.78 ³ (22.64) | 18.19 ^{1,2} (21.39) | 23.69 (22.71) |

Overall: $F= 12.80, df=2, 142, p<.001$;

Differences between groups are indicated through the use of superscripts

The analysis of variance test demonstrates that there is a difference between at least two of the groups with respect to mean number of years spent on-shore angling ($F= 12.80, df=2, 142, p<.001$). Scheffe's post hoc tests demonstrate that the AIMB and OSA groups had higher mean years of experience ($p<.05$) when compared to the PWC group. There are no significant differences between the AIMB and OSA groups when examining mean years of on-shore angling experience.

Table 4.11 presents comparisons by recreationist type on the mean number of years spent angling in motorboats. The analysis of variance test indicates differences in mean years of experience angling in motorboats between the recreationist groups ($F= 24.16, df=2, 142,$

$p < .001$). Scheffe's post hoc tests demonstrate that the AIMB group had higher mean years of AIMB experience ($p < .05$) when compared to the PWC and OSA groups. There were no mean differences for this measure between the PWC and OSA groups.

Table 4.11

Comparisons between Recreationists on Years of Angling in Motorboats

| | 1. OSA (n=46) | 2. AIMB (n=44) | 3. PWC (n=64) | Total (n=154) |
|--|-------------------------------|---------------------------------|-------------------------------|--------------------------|
| AIMB Experience | | | | |
| Mean number of years (Standard Deviation) | 22.59 ² (14.79) | 37.82 ^{1,3} (17.77) | 14.45 ² (18.70) | 23.99 (19.69) |

Overall: $F = 24.16$, $df = 2, 142$, $p < .001$;

Differences between groups are indicated through the use of superscripts

Table 4.12 presents comparisons by recreationist type on the mean number of years spent using a personal watercraft. The analysis of variance test indicates differences in mean years of experience in PWC use between the recreationist groups ($F = 17.01$, $df = 2, 151$, $p < .001$).

Scheffe's post hoc tests demonstrate that the PWC group had higher mean years of PWC experience ($p < .05$) when compared to the OSA and AIMB groups. There were no mean differences for this measure between the OSA and AIMB groups.

Table 4.12

Comparisons between Recreationists on Years of Personal Watercraft Use

| | 1. OSA (n=46) | 2. AIMB (n=44) | 3. PWC (n=65) | Total (n=155) |
|--|------------------------------|-------------------------------|--------------------------------|--------------------------|
| PWC Experience | | | | |
| Mean number of years (Standard Deviation) | 4.36 ³ (4.93) | 4.67 ³ (9.21) | 12.17 ^{1,2} (9.09) | 7.83 (8.88) |

Overall: $F = 24.16$, $df = 2, 142$, $p < .001$;

Differences between groups are indicated through the use of superscripts

Comparisons on Lake Gaston Use

Tables 4.13 and 4.14 compare the recreationist groups on the extent to which these groups use Lake Gaston for recreation. Table 4.13 compares the three groups on the mean percentage of time spent in the primary activity occurring on Lake Gaston. Table 4.14 compares the three groups on the mean number of days spent on Lake Gaston performing the primary activity. One-way analysis of variance tests examined mean differences between these groups. Where appropriate, Scheffe’s post hoc tests were utilized to identify specific differences between two groups.

Table 4.13

Comparing Mean Percentage of Time Spent on Lake Gaston Performing Primary Activity

| | 1. OSA (n=45) | 2. AIMB (n=42) | 3. PWC (n=62) | Total (n=149) |
|--|------------------------------|-------------------------------|------------------------------|--------------------------|
| Mean % of Time (Standard Deviation) | 74% ³ (.16) | 80% ³ (.33) | 97% ^{1,2} (.11) | 85% (.19) |

Overall: $F=18.02$, $df=1,148$, $p<.001$;
Differences between groups is indicated through the use of superscripts

Table 4.13 depicts the mean differences by recreationist group on the percentage of time spent on Lake Gaston performing primary activity. This percentage was calculated by dividing the average number of days spent within a specific recreation type on Lake Gaston by the average number of days spent doing this type of recreation activity over the course of a year. The analysis of variance test demonstrates differences between at least two groups for the mean comparison under investigation ($F=18.02$, $df=1,148$, $p<.001$). The PWC group reported the highest mean percentage of time spent on Lake Gaston at 97%, meaning that most PWC users utilize their PWC exclusively at Lake Gaston. Scheffe’s tests demonstrate that this mean percentage of time was significantly higher than the percentage of time OSA and AIMB reported

pursuing their activities on Lake Gaston ($p < .05$). OSA and AIMB did not significantly differ in this comparative analysis.

Table 4.14

Mean Number of Days Spent on Lake Gaston Performing Primary Recreation Activity

| | 1. OSA (n=46) | 2. AIMB (n=46) | 3. PWC (n=65) | Total (n=157) |
|---|------------------------------|-------------------------------|------------------------------|--------------------------|
| Mean Number of Days (Standard Deviation) | 45.80 (56.72) | 67.12 (59.79) | 47.20 (54.01) | 52.36 (56.43) |

No significant differences between groups for this measure

Table 4.14 depicts comparisons between recreationists by the mean number of days spent on Lake Gaston performing their primary recreation activity. Analysis of variance tests demonstrate no significant differences between groups.

Results of Hypothesis Testing

Study hypotheses were developed in conjunction with the conflict literature and outline proposed relationships between variables based on a priori observations. Studies on waterways conflict are limited and, to this point, do not examine the construct of tolerance for lifestyle diversity. This study seeks to examine if patterns found in other studies of conflict hold true, while examining the relationship between angling and personal watercraft use on Lake Gaston. Each hypothesis is restated, and is followed by analysis and results related to statistical testing.

Hypothesis One

The extent of perceived conflict between on shore anglers, anglers in motorboats, and personal watercraft users will be asymmetrical with on-shore anglers and anglers in motorboats experiencing a higher degree of conflict. Specifically, anglers will attribute higher levels of conflict than PWC users when assessing attribution of conflict to PWC users, while PWC users

will not significantly differ with either angler group in their attribution of conflict to either angling type.

Table 4.15

Mean Ratings of Conflict Attributed to Recreationists by Recreationist Group Type

| | Conflict with PWC | | Conflict with OSA | | Conflict with AIMB | |
|---------------------|----------------------|------|-------------------|-----|--------------------|-----|
| | Mean | SD | Mean | SD | Mean | SD |
| On-shore Angler | 3.63 ^{2,3} | .99 | 1.22 | .41 | 1.90 | .58 |
| Angler in Motorboat | 4.23 ^{1,3} | 1.25 | 1.20 | .34 | 1.76 | .72 |
| Personal Watercraft | 2.57 ^{1,2} | 1.14 | 1.31 | .72 | 1.81 | .83 |
| Total | 3.37 ^{1,2} | 1.33 | 1.25 | .54 | 1.82 | .72 |
| F value (df) | 29.17*** (2, 150) | | n.s. (2, 150) | | n.s. (2, 150) | |

***= p <.001; superscript indicates differences between enumerated groups

This study tested hypothesis one through a series of one-way analyses of variance. Conflict was measured by examining conflict attributed to PWC users, conflict attributed to on-shore anglers, and conflict attributed to anglers in motorboats. Analyses consisted of one-way analyses of variance and Scheffe’s post hoc tests to examine differences by user type (personal watercraft, on shore anglers, anglers in motorboats) for each measure of conflict attribution. When examining conflict attributed to PWC users, we observed specific differences by user types (Table 4.15). Anglers in motorboats reported the highest degree of conflict attributed to PWC users (mean conflict score=4.23), followed by on-shore anglers, (mean conflict score =3.63). Personal watercraft users reported the lowest levels of conflict attributed to other personal watercraft (mean conflict score = 2.57).

When examining conflict attributed to on shore anglers and conflict attributed to anglers in motorboats no significant mean differences in conflict score were observed among these three user types; meaning that conflict attributed to these groups of anglers was similar for each user

group. Based on these results, we cannot reject hypothesis one. An asymmetrical experience of conflict was observed when considering conflict attributed to a particular user group. Each angler group experienced significantly higher levels of conflict than the PWC group with respect to their assessment of conflict attributed to PWC users, suggesting that anglers experienced conflict when PWC users were present. However, PWC users did not significantly differ with the two angler groups when examining conflict attributed to these two groups.

Hypothesis Two

Tolerance for lifestyle diversity will be negatively related to conflict.

Table 4.16

The Relationship between Conflict and Tolerance for Lifestyle Diversity

| | OSA Tolerance | AIMB Tolerance | PWC Tolerance |
|---------------|--------------------------|---------------------------|--------------------------|
| OSA Conflict | -.540** | - | - |
| AIMB Conflict | - | -.482** | - |
| PWC Conflict | - | - | -.638** |

** p=.010

Hypothesis two was tested using a Pearson r correlation in which the relationship between tolerance for lifestyle diversity and level of conflict experienced was examined. This hypothesis was not rejected, as tolerance for diversity remained negatively related to conflict attributed to each user type. The degree of strength and significance of these relationships did vary based on assessment by user types. Table 4.16 presents the correlations between tolerance and conflict for each user type. Responses for the PWC user group were used to derive the correlations between tolerance and conflict for each angling type.

For anglers (on-shore and motorized), a negative relationship ($r = -.638, p = .01$) was observed between tolerance for PWC lifestyle diversity when related to conflict with PWC users. When examining PWC users' appraisals of anglers, the relationship between conflict with on-

shore anglers and tolerance for on-shore anglers lifestyle diversity was negative and significant ($r = -.540, p = .01$). PWC users had a similar assessment of anglers in motorboats, as the relationship between these two variables was also negative ($r = -.482, p = .01$). When examining PWC users' assessments of conflict and tolerance with each angler type, the negative relationship between conflict and tolerance for lifestyle diversity held true, but was somewhat weaker than those observed for anglers' assessments of PWC users; suggesting that tolerance for lifestyle diversity played a bigger role in minimizing conflict attributed to PWC users for anglers, and was not as much of a factor in minimizing conflict attributed to anglers by PWC users. Considering that anglers were more likely to attribute higher levels of conflict with PWC users, this is an important observation.

Hypothesis Three

Individuals with experience in both activities, angling and personal watercraft use, will experience a lower degree of conflict than individuals with experience in only one activity.

This hypothesis was tested using a series of independent samples 't' tests examining differences in conflict between recreationists who participated primarily in one type of recreation (i.e., angling only/PWC only) versus those who had experience in both types of recreation (i.e., angling and PWC use). Angler groups were collapsed to reflect one angler group, as the sample size was too small to yield sufficient sizes for analysis. These categories were developed through a recode of a question that examined the extent to which someone reported experience in angling type (on-shore or motorboat) and PWC use. Levels were categorized as no experience, novice/little experience, intermediate, advance, and expert. Categories were collapsed to form experience levels. Primarily on-shore angler was developed if anglers reported intermediate experience or higher in on-shore angling and no experience or novice experience in PWC use.

Primarily PWC users were classified when individuals reported intermediate experience or higher and no experience or novice for angling. Users were classified as having experience in both activities if they reported intermediate experience or above for angling and PWC use. Separate independent samples ‘t’ tests were then performed to observe mean differences between the recreationist experience groups. Table 4.17 presents analyses comparing recreationists who were primarily anglers to anglers who had experience with PWC. Table 4.18 presents analyses comparing recreationists who were primarily PWC users to PWC users who had experience with angling.

Table 4.17 demonstrates that for anglers, experience with both activities was an important factor for assessing conflict attribute to PWC use. In Table 4.17, the independent samples ‘t’ test revealed that there were significant mean differences among user types with respect to the conflict attributed to PWC use ($t=2.49, p=.02$). When compared with anglers who had PWC experience, anglers without PWC experience reported higher mean levels of conflict attributed to PWC users. This is consistent with hypothesis three.

Table 4.17

***Mean Differences in Conflict Attribution by Recreationist Experience
(Anglers Only vs Anglers with PWC Experience)***

| | 1. Anglers Only (n=58) | 2. Anglers with PWC (n=30) | t (sig) |
|---|---|---|--------------------|
| Mean Conflict Attributed to PWC (Standard Deviation) | 4.14 (1.12) | 3.51 (1.17) | 2.49 (.02) |

Table 4.18 provides analyses comparing PWC users without angling experience to PWC users with angling experience in their mean appraisals of conflict attributed to on-shore anglers and anglers in motorboats. For each angling type, the two PWC user groups did not significantly

differ in their mean appraisals of conflict attribution. In other words, experience with angling did not result in lower appraisals of conflict for the PWC users.

Table 4.18

Comparing Mean Differences in Conflict Attribution by Recreationist Experience (Only PWC Use vs PWC Use with Angling Experience)

| | 1. PWC Only (n=26) | 2. PWC with Angling (n=33) | t (sig) |
|--|---------------------------------------|---|--------------------|
| Mean Conflict Attributed to On-shore Anglers (Standard Deviation) | 1.22 (.50) | 1.38 (.87) | -.820 (n.s.) |
| Mean Conflict Attributed to AIMB (Standard Deviation) | 1.93 (1.02) | 1.73 (.70) | .875 (n.s.) |

The results provide support for hypothesis three as it held true when examining the case for conflict attributed to personal watercraft use. When considering experience type for PWC users, no significant differences in conflict attributed to anglers were observed. This is consistent with the findings for hypothesis one, and may be related to the experience of asymmetrical conflict that exists between anglers and PWC users.

Hypothesis Four

Individuals with experience in both activities will report higher tolerance for lifestyle diversity.

Experience user groups were developed as described in hypothesis three. Hypothesis four is similar to hypothesis three, but examines the relationship between user experience (i.e., primarily participates in one water recreation versus experience with both water recreation types) and tolerance for lifestyle diversity. Independent samples ‘t’ test compared these groups by mean differences in tolerance for diversity scores. Table 4.19 presents the statistics for this first set of analyses that compared recreationists who were primarily anglers to anglers with PWC

experiences. A second, similar series of transformations and analyses were performed to compare recreationists who were primarily PWC users to PWC users with angling experience.

Table 4.20 presents data for the second set of analyses testing hypothesis four.

Table 4.19 shows that anglers with PWC experience reported significantly higher mean levels of tolerance for PWC users when compared to anglers with little or no PWC experience ($t = -2.37, p = .02$). This finding means that experience with PWC was linked to higher levels of tolerance when comparing the two groups.

Table 4.19

Mean Differences in Tolerance for Lifestyle Diversity by Recreationist Experience (Anglers Only vs Anglers with PWC Experience)

| | 1. Anglers Only (n=58) | 2. Anglers with PWC (n=30) | t (sig) |
|--|---|---|--------------------|
| Mean Tolerance for PWC (Standard Deviation) | 3.17 (1.46) | 3.93 (1.36) | -2.37 (.02) |

Table 4.20 demonstrates no differences between PWC user groups with respect to mean reports of tolerance for anglers. In other words, experience with angling was not reflected in higher tolerance for anglers.

Table 4.20

***Mean Differences in Conflict Attribution by Recreationist Experience
(Only PWC Use vs PWC Use with Angling Experience)***

| | 1. PWC Only (n=26) | 2. PWC with Angling (n=33) | t (sig) |
|---|---------------------------------------|---|--------------------|
| Mean Tolerance for On-shore Anglers (Standard Deviation) | 5.55 (1.25) | 5.29 (1.41) | .731 (n.s.) |
| Mean Tolerance for AIMB (Standard Deviation) | 4.99 (1.44) | 4.80 (1.31) | .500 (n.s.) |

Hypothesis four was partially supported as tolerance was greater for anglers with PWC experience. However, angling experience did not account for differences in mean tolerance for anglers when considering the case of PWC users.

Analysis and Summary of Open-ended Questions

The research instrument contained a series of open-ended questions that asked respondents to briefly describe how specific recreationist types (e.g., OSA, AIMB PWC) reduced or increased their enjoyment of the Lake. These comments were compiled and then coded using thematic codes related to past conflict literature. Codes were compiled to provide insight into the experiences of recreationists, and to provide concrete examples of why conflict was reported. The nature of the data did not allow for in-depth qualitative inquiry, however, tangible explanations for why conflict existed emerged. Summaries of these comments are presented below. A coding sheet with specific quotations for each recreationist group is provided in the appendix section. These comments can provide management officials with information that will decrease conflicts and increase user satisfaction, as well as provide a safer experience for users at Lake Gaston.

Summary of Comments by On-Shore Anglers

On shore anglers provided comments on behaviors of PWC users, anglers in motorboats and other on shore anglers. The comments fell into three broad categories of: safety, inconsiderate behavior, and enjoyment. On shore angler comments on PWC user behaviors related to conflict and user satisfaction fall into the categories of safety, inconsiderate behavior and enjoyment. On shore anglers noted that PWC operators are many times under age, ill-trained in craft use and not state certified. It is also noted by on shore anglers that PWC users behave in an inconsiderate manner. PWC users frequently run too close to boats in motion or anchored. PWC users are described as not having respect for anyone on the water, riding too close to docks, driving too fast, discourteous, and assume they always have the right away. Although it is noted that PWC users contribute to conflict between on shore anglers, on shore anglers also note that PWC provide enjoyment as well. It is noted that PWC are just another toy used on the lake. On shore anglers like to see people, young and old, enjoying themselves on the water. One individual stated, "For the most part I see people are acting responsible." Although, conflict is attributed to PWC use, PWC can also vicariously enhance the experience of some on shore anglers.

On shore anglers provided comments about anglers in motorboats and the comments fell in the categories of enjoyment and inconsiderate behavior. One on shore angler noted, "I love to fish from my boat and that recreation is one of the purposes of the lake. It is nice to see responsible boating anglers using the lake." On shore anglers noted that anglers in motorboats speed, come too close to docks, block cove entrances, cast their lines into our swimming area, pee off their boats and throw trash off their boats. While conflict between these two groups was not

observed to be statistically significant, it is clear that cases for conflict do exist between shore-bound and boat-based anglers.

On shore anglers' comments of other on shore anglers fall into the category of enjoyment. It is noted that on shore anglers love to fish off their pier with family and friends and this increases enjoyment. It is also noted that when done responsibly and with property owners' permission, on shore angling fulfills one of the recreational purposes of the lake. Denying such rights would not be right. Therefore, on shore anglers increase the enjoyment of other on shore anglers.

Summary of Comments by Anglers in Motorboats

Anglers in motorboats provided comments on behaviors of PWC users, on shore anglers and anglers in motorboats. The comments fell into six broad categories of: safety, inconsiderate behavior, decreased participation, behavior tolerable, crowding, and no problem. Anglers in motorboats noted that PWC users attribute to many cases of conflict on the lake. First it was noted that PWC users come too close to boats, swimmers, and piers. PWC users only know one speed and that is fast. PWC users drive/operate recklessly and at high speeds, ignoring laws regarding "no wake areas," and have poor regard for boater safety and courtesy.

Numerous comments were noted by anglers in motorboats on how PWC users contributed to conflict and produced behavior that was inconsiderate of other users. Anglers in motorboats noted that PWC users usually travel in pairs and groups causing excess noise and wake. One AIMB noted that, "PWC are in my face and creating annoying wake." PWC showed a lack of consideration for other users, such as cutting across the bow and wake, and running at high speeds in restricted areas. Another AIMB recreationist mentioned, "PWC ride very close to where I am fishing, and cutting figure eight's. It is very annoying when PWC buzz around coves

when they can clearly see that there are one or more fishing boats in the cove.” It was also noted that when PWC users are present, some residents and visitors will not fish. Although, one AIMB recreationist remarked that, “PWC users put up a very small wake, compared to larger boats or the boats pulling boards.”

Safety and inconsiderate behavior were to themes that were identified by anglers in motorboats that led to increased conflicts and decreased safety issues attributed to PWC users. One AIMB recreationist had this observation and suggestion, “The law is to stay 100 feet from docks, but this could be changed to 150 feet to protect on shore anglers.” One angler noted, “I hate to get caught in lines broke off from people who fish from the shore.” Installing such policies might eliminate potential conflict between motorboat and on shore anglers.

Anglers in motorboats also commented on anglers in motorboats. Inconsiderate behavior and crowding were two issues related to conflict. Anglers in motorboats noted that anglers in motorboats have a tendency to go fast and create wake issues for others. Anglers in motorboats produce large wakes when leaving small coves at full throttle. Crowding became an issue when too many bass tournaments significantly increased boating pressure on the lake and ramps. Other comments provided information that did not negatively affect anglers in motorboats such as, it is easy to give the fishermen a little room to fish without my wake bothering them and for the most part they are not a problem.

Summary of Comments by Personal Watercraft Users

PWC users provided comments on behaviors of on shore anglers, anglers in motorboats and other PWC users. The comments fell into five broad categories of: safety, inconsiderate behavior, behavior tolerable, enjoyment and no problem. PWC users noted several incidents that cause conflict to occur between other PWC users. It was noted that PWC users always have to

be on the lookout for inexperienced PWC operators doing reckless maneuvers or just plain not having a clue of what they should be doing as a matter of safe boating behavior or courtesy.

Numerous PWC users do not believe that the NO WAKE, etc. rule applies to them.

One PWC user noted that he or she had no issues with PWC's especially since they own one, but they firmly believe that anyone under 16 years of age should be prohibited from operating them and then only after having proper boating education. "Young kids are not strong enough or mature enough to operate them."

Inconsiderate behavior is a major issue that attributes conflict to PWC users. It is noted that "PWC riders always seem to act like idiots, completely ignoring "No Wake" zones at boat tunnels or bridges and making wake too near shore lines." Other comments described PWC users as reckless operators, irresponsible, noisy and unsafe.

PWC users also note that PWC's provide enjoyment for them at the lake. Comments by PWC users focused on freedom ("I am a senior citizen with my own PWC"); enjoyment ("My jet ski has been one of the nicest treats to enjoy the lake"); accessibility ("I love riding my jet ski because it allows me to enjoy parts of the lake that a boat could not maneuver); and socialization ("It is great riding with others," "spending time with grandchildren"); underscore the benefits PWC users equate with this form of recreation. Therefore, conflict is attributed to PWC, but it is noted that PWC also provide enjoyment and therefore enhance the experience of some users.

PWC users provided comments that attributed to conflict and user satisfaction between on shore anglers. PWC users' comments fell in the categories of safety, inconsiderate behavior, enjoyment and no problem. It was noted that the boat passage tunnel at Lizard Creek is the only tunnel/bridge that does not have a "No Fishing" sign. It was also noted that fishing over boat passage ways/tunnels creates hazardous situations with fishing hooks dangling into boaters' way.

Other PWC users noted that fishermen flat out refuse to remove their fishing lines from what is an area clearly designed for boaters trying to pass through the waterway.

Although some PWC users noted negative comments attributed to on shore anglers others noted having no problem and experiencing enjoyment from on shore anglers. PWC users noted they enjoy finding out what they caught. PWC users also note that on shore anglers have never been an issue at Lake Gaston, the lake is plenty large enough so all can enjoy. Unless there is a fishing tournament, fishermen tend to be very respectful. Therefore, on shore anglers do attribute to conflict between PWC users, some on shore anglers enhance the experience to PWC users.

Finally, PWC users provided comments on behaviors that attributed to conflict between anglers in motorboats. Categories such as inconsiderate behavior, safety and no problem were established. Comments that fell in the category of inconsiderate behavior around fishing areas, for example, “motorboats get too close to piers, get hooks caught in piers and are not respectful.” One example of inconsiderate behavior stated that anglers were bow hunting at night and shining lights into peoples’ homes. Clearly, there are instances when anglers disrupt and cause conflict on the lake.

Other PWC users noted that anglers in motorboats should be restricted on the amount of noise and speed their boats can produce. Some expressed suggestions such as taking boater safety courses and mandatory follow-up training. It was also noted by PWC users that anglers in motorboats are “just fine...motorboats come in and around the piers looking for fish or out the main streams and that is great.” One PWC user captured what appears to be the view of many PWC operators, “The lake is big enough for all of us.”

CHAPTER 5

CONCLUSIONS AND DISCUSSION

This chapter presents a summary of procedures, conclusions, discussion, and recommendations from this study, which examined the experience of conflict and its relationship with tolerance for lifestyle diversity for personal watercraft (PWC) users and anglers at Lake Gaston. This study examined differences between anglers (i.e., on-shore, in motorboats) and PWC users in their attributions of conflict. It also examined the relationship between conflict and tolerance for lifestyle diversity. Finally, it examined the role of experience in accounting for differences in reports of conflict and tolerance for lifestyle diversity.

Summary of Procedures

The Lake Gaston Association sampled water-based recreationists during the summer of 2010. A total of 278 recreationists took part in that survey. This study is a secondary analysis of the Lake Gaston survey from which a sample of 165 adult, water-based recreationists was utilized to explore objectives related to conflict and tolerance for lifestyle diversity between anglers and personal watercraft operators. Of the 165 sampled, there were 48 on shore anglers, 48 anglers in motorboats and 69 PWC users. The questionnaire assessed conflict attributed to recreationists (anglers and PWC users), tolerance for lifestyle diversity, and experience in the recreation activities under study to test study hypotheses. Open-ended questions captured the experiences leading to conflict between recreationists and were analyzed qualitatively.

Males comprised about 69.1% of the total sample, and the average age of the sample was 55.68. The youngest person sampled was 18 years old while the oldest person was 82.

Study Conclusions

Study conclusions are presented in order of hypothesis with a summary of results.

Hypothesis One: *Conflict between on shore anglers, anglers in motorboats, and personal watercraft users will be asymmetrical.*

In regard to hypothesis one, asymmetrical conflict was observed between on shore anglers, anglers in motorboats and personal watercraft users. Both angling groups reported significantly higher appraisals of conflict related to PWC users. Therefore, hypothesis one was accepted.

Hypothesis Two: *Tolerance for lifestyle diversity will be negatively related to conflict.*

As hypothesized, tolerance for lifestyle diversity was negatively related to conflict with all three activity types (one shore angling, angling from a motorboat, and PWC users). For PWC users and on shore anglers the correlation was negative and significant. For anglers in motorboats, the correlation was negative but was not significant.

Hypothesis Three: *Individuals with experience in both activities, angling and personal watercraft use will experience a lower degree of conflict than individuals with experience in only one activity.*

As hypothesized, individuals with experience in both activities reported lower degrees of conflict with other recreationists. These findings support past research where skiers and snowboarders reported experiencing lower degrees of conflict if they had experience in both activities (Moore et al. 1998).

Hypothesis Four: *Individuals with experience in both activities will report higher tolerance for lifestyle diversity.*

When examining hypothesis four, the results suggest that individuals with experience in both activities reported higher levels of tolerance than individuals with experience in only one activity. This hypothesis was accepted. Individuals with experience in angling and personal

watercraft use did report higher mean scores for tolerance than individuals with experience in only one activity. This finding supports findings from (Moore et al. 1995) where skiers and snowboarders were more tolerant of each other if they had experience in the other activity.

Study Limitations

This study was limited to adults who were 18 years of age or older who participated in PWC use, on shore angling, or angling from a motorboat during the summer of 2010 at Lake Gaston, which straddles the North Carolina and Virginia border. An electronic questionnaire was used to collect data. This limited the study to participants who were able to access the website address distributed through a local newspaper as well as the Lake Gaston Association. Inferences drawn by this study are not generalizable beyond the sample.

Discussion

In this study where conflict was examined between anglers in motorboats, on shore anglers, and personal watercraft users (PWC users), the idea of traditional versus new seems to hold true, with PWC users representing the newer style of water-based recreation and anglers representing the traditional style of water-based recreation. Conflict was attributed asymmetrically to PWC users, while conflict attributed to anglers did not vary by user type. Past studies identify mechanized versus non-mechanized activity styles producing conflict in recreational settings. For example, canoeists experience more conflict than motor-boaters (Ivy et al., 1992) and snowmobilers decreased the satisfaction of skiers (Jackson & Wong, 1982). This study relates non-mechanized recreation as a traditional style of recreation (on shore and angling from a motorboat) and mechanized as the newer style of recreation (PWC users).

What is also interesting about this study is that conflict was attributed to PWC users from both angling types, yet the two angling types did not report conflict with each other. Numerous

studies describe conflicts emerging between mechanized versus non-mechanized recreational participants. Studies have explored the conflict between snowmobilers and skiers (Jackson & Wong, 1982), motorboat users and paddling canoeists (Adelman et al., 1982), as well as backcountry skiers and heli-skiers (Gibbons & Ruddell, 1985). Past findings identify asymmetrical conflict that is attributed to motorized user groups. For example, skiers were annoyed by snowmobilers (Jackson & Wong, 1982); where motorboat users were disliked and unwanted by paddling canoeists. The lack of conflict between the on-shore and motorboat anglers may be related to the fact that nearly all of the anglers in motorboats had experience with on-shore angling, making these anglers more sensitive to the experience of on-shore angling and aware of behaviors that might cause conflict or dissatisfaction with the recreation experience. Moore et al. (1998) identified that participants with past experience in a specific activities had positive attitudes toward those participants in the same activity. Anglers in motorboats might be more careful not to create wakes and may have also been familiar with many of the “fishing holes” around Lake Gaston, and were not likely to disturb their fellow shore-bound anglers.

Experience with a given activity was also related to more tolerance for that activity. Tolerance is described as more of an attitude rather than a behavior when associated with a certain situation (Ivy et al., 1992). Researchers also compared tolerance with in-group/out-group conflict, proclaiming that in-group participants are less tolerant of out-group participants (Ivy et al., 1992). This was particularly important when examining angler-PWC conflict. Past research identifies that the more tolerance an individual has the less conflict that individual will experience (Ivy, 1990). Jacob and Schreyer (1980) proclaim that participants with the same goals and activity interests tend to be more tolerant of others with those same goals and interest.

As discussed in chapter two, social values conflict is a style of conflict that exists without face-to-face interaction within two groups or individuals (Vaske et al., 1995). Social values conflicts reflect those instances where intergroup norms and values are perceived to be incompatible and results in dislike or disapproval of a specific group. The measure of tolerance for lifestyle diversity reflects this orientation. Interpersonal conflict is identified as the interaction of recreationists or visitor groups that leads to “perceptions of problem conditions” (Vaske et al., 1995, p. 206). This conflict exists when there is some type of interpersonal contact that leads to dissatisfaction with the experience and is attributed to a specific user group. Goal interference is a typical example of interpersonal conflict (Jacob & Schreyer, 1980; Vaske et al., 1995). Numerous studies have sought to differentiate if conflict is attributed to social values or goal interference (Carothers, Vaske, & Donnelly, 2001) and (Vaske et al., 1995). In many of these cases, individuals experienced more than one type of conflict (Vaske, Needham & Cline 2007). Interpersonal and social values conflicts are often co-occurring, and this makes it very difficult to detect which style of conflict is actually driving perceptions of problem conditions within a recreation environment.

Recommendations

This study provided information that will supply resource managers with recommendations to decrease conflicts at Lake Gaston. Some recommendations are discussed below.

Considering Social Values

When examining the relationship between tolerance and conflict, the current study found that anglers’ assessments of tolerance for PWC users were higher and assessments of conflict attributed to PWC users were lower for those anglers who had experience in PWC use. While

this is consistent with past research, it does not provide insight into how conflict can be minimized in situation where there are obvious social values implications. Given the age and level of experience reported among the recreationist types, it is reasonable to suggest that anglers without PWC experience may not want to have anything to do with using PWC users. Measures to increase PWC safety and create better PWC users may not adequately address the conflict attributed to PWC users by anglers. For these users, strategies to separate users might serve as better measures for minimizing conflict experienced by anglers.

Time area zoning is one way to address water-based recreation conflicts related to social values differences. Time area zoning is a practice where specific types of water-based activities are prohibited in specific areas at particular times (Ditton & Stephens, 1976). Time area zoning is an effective strategy for dealing with social values conflict where tolerance for lifestyle diversity is low for specific user types. At Lake Gaston, this could mean implementing morning and dusk hours (e.g., sunrise through 9 am and 7 pm to sundown) for angling only. This would increase user satisfaction for anglers, as these recreationists would not be disturbed by personal watercraft users during what are typically regarded as prime fishing hours.

Implications for Lake Gaston N.C./V.A. Management

Beyond time area zoning strategies, steps can occur at the lake to minimize interpersonal conflict experienced by water-based recreationists. Evidence from this study suggests that water safety is at the heart of conflict between anglers and PWC users. The popularity of PWC use has required resource managers to reassess water safety standards. PWC offer unique challenges due to their high-speed maneuverability (MOCZM & EOE, 2002). The high-pitched whine of PWC also detracts from other recreationists' experiences on shared water resources (MOCZM & EOE, 2002). There are several suggested strategies to increase water safety and decrease

conflicts at these sites. Approaches range from voluntary measures to legal regulation to prohibition, and include mandatory education, zoning, licensing, and pollution and noise abatement measures (NWSC, 1996 in MOCZM & EOE, 2002).

By using education to increase water safety, courses will be required before the use of PWC. Participants will be required to attend a certain number of classes or score a certain percentage on an exam to be allowed to use a PWC. Zoning can be used to eliminate PWC use in a certain area of the water resource as well as promote use in certain areas. Taking these measures may reduce noise impacts, while preserving aesthetic and natural resources. This limits impacts on other recreationists, and leads to more enjoyable recreation experiences (Komanoff & Shaw, 2000 in MOCZM & EOE, 2002).

Irresponsible behavior and lack of experience can be linked to numerous safety problems on the water (Whitfield & Roche, 2007). Whitfield and Roche (2007) suggest that two contributing factors to accidents attributed to PWC are lack of knowledge and lack of operator skills. Jones (2000) in Whitfield and Roche, (2007) conducted a study on waterways in Arkansas and found that only 5% of PWC operators participated in any type of boating education. Jones (2000) also reported that PWC operators were involved in 51% of all boating accidents.

PWC education and safety requirements have significantly reduced PWC accidents and fatalities (MOCZM & EOE, 2002). Other studies from the states of Minnesota, Wisconsin, Virginia, and California also report fewer PWC accidents since the implementation of mandatory PWC education (MOCZM & EOE, 2002). For example, in the state of Minnesota PWC collisions were decreased by one third from the previous year. In Wisconsin, results indicated that in two years following mandatory PWC education, PWC accidents decreased by 68%.

Similar results were found in Virginia, where accidents have decreased by 40% and California where accidents have decreased by 32% (MOCZM & EOEA, 2002).

PWC noise is a common issue that creates conflict in recreational and natural resource settings, but at the same time strategies are available to decrease PWC noise. Over time, manufacturers have added mufflers, bafflers, and insulation to PWC to decrease noise but also allow for powerful engines. The outright ban of PWC users that failed to adopt sound reduction technology will eventually eliminate personal watercraft that create more noise.

Buffer zones, speed limits, and zoning are also strategies that can be implemented to decrease PWC noise. For example a buffer zone is an area that is set back from other areas and is a simple and effective way to decrease noise that is caused by a personal watercraft or any other recreational activity (MOCZM & EOEA, 2002; Personal Watercraft Industry Association; 2000) in the Massachusetts Office of Coastal Zone Management and the Executive Office of Environmental Affairs (2002) state that enforcing PWC speed limits is an effective way of decreasing PWC noise. Where, Komanoff and Shaw (2000) in the Massachusetts Office of Coastal Zone Management and the Executive Office of Environmental Affairs (2002) state that by concentrating PWC use in a small number of locations will decrease the amount of PWC noise.

Tightening restrictions on PWC rentals is another way to increase safety and decrease conflicts at natural resource and recreation settings (MOCZM & EOEA (2002). Out-of-state clients are involved in nearly half of PWC accidents (MOCZM & EOEA (2002). Limiting rentals to in-state residents or requiring a 'license' fee for out-of-state residents would help reduce the number of rentals.

Numerous recommendations were developed by The National Transportation and Safety Board (1998) to increase water safety and were delivered to specific organizations such as manufacturers of personal watercraft, the U.S. Coast Guard, U.S. States Coast Guard Auxiliary, U.S. Power Squadrons, as well as other state organizations. These groups were advised to develop standards specific to personal watercraft, and include: providing PWC operators more control through an off throttle steering situation, providing boat rental businesses a checklist to evaluate a PWC users ability to operate a PWC, and providing safe operating instructions for PWC in all boating courses, these and other recommendations were developed to decrease conflicts and increase safety at recreational and natural resource settings.

Putting the onus on boat rental businesses to police the users who rent personal water is viewed as sustainable, and should increase the number of responsible users on the water. By including safe operating instructions in all boating courses, users will be informed of the rules and regulations early, and will hopefully adopt habits that lead to safe operation of PWC.

Whitfield and Roche (2007) propose using clubs to influence and change patterns of PWC users to increase water safety and decrease conflicts on the water. Clubs have the ability to reach many participants as well as provide those participants with useful information that emphasize decreasing conflicts and behaving in a safe manner (Whitfield and Roche, 2007). Clubs could also reinforce social norms specific to watercraft use, regard for others, and safety.

These recommendations and safety strategies should help provide users with a safer and more enjoyable experience. By implementing these recommendations at water-based recreation and natural resource sites, conflict should decrease.

Implications for Future Research

The results of this study provide new knowledge while connecting to past conflict research related to tolerance level of experience, and conflict (Jacob & Schreyer, 1980). Jacob and Schreyer's (1980) model of goal interference and tolerance was largely supported by this study. Specifically, we found that when anglers have experience with PWC use, they experience less conflict due, and report increased tolerance for lifestyle diversity.

Further research dealing with conflict and ways to decrease conflict could be very helpful for resource managers. Looking at other water-based recreationists (e.g., pleasure boaters, kayakers, bathers, etc.) could provide a bigger picture of how conflict occurs on waterways such as Lake Gaston. Studying the impact of buffer zones and procedures to limit noise from PWC would also aid in understanding how to minimize conflict. Finally an examining the effectiveness of strategies through experimental design would yield a better understanding of how effective strategies are and for whom. For example, implement new strategies in select areas of a lake and compare these to sites utilizing current management policies.

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Appendix A: Lake Gaston Water-based Recreationist Questionnaire (2010)

Lake Gaston NC/VA Anglers/Personal Water Craft (PWC) Survey

PART I— Experience with Water-based Recreation

1. When recreating on the water what percentage of the time do you participate in the following activities? (select the percentage closest to what you do):

| Activity Type | 0% never | Up to 10% | Up to 20% | Up to 30% | Up to 40% | Up to 50% | Up to 60% | Up to 70% | Up to 80% | Up to 90% | 100% always |
|--|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
| On Shore Angling | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Angling from a Motorboat | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Pleasure boating (e.g., waterskiing, tubing, sunbathing, cruising, etc.) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Personal Watercraft Use (e.g., jet ski, waverunner, etc.) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

2. Indicate your level of experience in the following water-based activities:

| Activity Type | No Experience | Novice/ Beginner | Intermediate | Advanced | Expert |
|--|------------------|---------------------|--------------|----------|--------|
| On Shore Angling | 0 | 1 | 2 | 3 | 4 |
| Angling from a Motorboat | 0 | 1 | 2 | 3 | 4 |
| Pleasure boating (e.g., waterskiing, tubing, sunbathing, cruising, etc.) | 0 | 1 | 2 | 3 | 4 |
| Personal Watercraft Use (e.g., jet ski, waverunner, etc.) | 0 | 1 | 2 | 3 | 4 |

3. What is your activity today? (please circle what best describes your experience)*

- a. On Shore Angling/Fishing
- b. Angling/Fishing from a boat with a motor
- c. Pleasure boating (waterskiing, tubing, sunbathing, etc.)
- d. Using a personal watercraft (e.g., jet ski, wave runner, etc)

PART II –The following questions address how other lake users affected your enjoyment today.

1. How did the presence or behavior of any **personal watercraft (PWC)** user you might have seen affect your enjoyment of the lake?

CIRCLE ONE NUMBER

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
|--|---|---|---|---|---|---|---|--|--|
| PWC Greatly reduced my enjoyment | | | | | PWC Had no effect on my enjoyment | | | PWC greatly increased my enjoyment | |

2. If applicable, briefly describe how PWC reduced or increased your enjoyment of the Lake?

3. Would you say that **personal watercraft users** are.... [Circle one number]

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
|--|---|---|---|---|---|---|---|---|--|
| Necessary for people to enjoy the lake | | | | | Neither necessary or un- necessary | | | Are totally un- necessary at the lake | |

4. How acceptable was the number of **personal watercraft** you saw on the lake today? [Circle one number]

| +4 | +3 | +2 | +1 | 0 | -1 | -2 | -3 | -4 |
|-----------------|----|---------------------------------------|----|---|----|----|--------------------|----|
| Very Acceptable | | Neither acceptable or unacceptable | | | | | Very Un-acceptable | |

5. If **Personal Watercraft** were not allowed on this lake, I would visit this lake...

| +4 | +3 | +2 | +1 | 0 | -1 | -2 | -3 | -4 |
|--|------------|----|----|--------------|------------|----|----|------------|
| Much more than I currentl y do | More Often | | | No Change | Less Often | | | Not at all |

How did the presence or behavior of **on-shore anglers** reduce or increase your enjoyment of the Lake?

CIRCLE ONE NUMBER

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| On-shore anglers Greatly reduced my enjoyment | | | | | On-shore anglers Had no effect on my enjoyment | | | On-shore anglers greatly increased my enjoyment |

6. If applicable, briefly describe how **on shore anglers** reduced or increased your enjoyment of the Lake?

7. Would you say that on shore anglers are.... [Circle one number]

| | | | | | | | | |
|--|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Necessary for people to enjoy the lake | | | | | Neither necessary or un- necessary | | | Are totally un- necessary at the lake |

8. How acceptable was the number of **on shore anglers** you saw on the lake today? [Circle one number]

| | | | | | | | | |
|-----------------|----|---------------------------------------|----|---|----|----|--------------------|----|
| +4 | +3 | +2 | +1 | 0 | -1 | -2 | -3 | -4 |
| Very Acceptable | | Neither acceptable or unacceptable | | | | | Very Un-acceptable | |

9. If **On Shore Angling** were not allowed on this lake, I would visit this lake...

| | | | | | | | | |
|--|------------|----|----|--------------|------------|----|----|------------|
| +4 | +3 | +2 | +1 | 0 | -1 | -2 | -3 | -4 |
| Much more than I currentl y do | More Often | | | No Change | Less Often | | | Not at all |

10. How did the presence or behavior of **anglers in motorboats** reduce or increase your enjoyment of the Lake?

CIRCLE ONE NUMBER

| | | | | | | | | |
|--|---|---|---|---|---|---|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Motorboat Users Greatly reduced my enjoyment | | | | Motorboat users Had no effect on my enjoyment | | | Motorboat Users greatly increased my enjoyment | |

11. If applicable, briefly describe how **anglers in motorboats** reduced or increased your enjoyment of the Lake?

12. Would you say that **anglers in motorboats** are.... [Circle one number]

| | | | | | | | | |
|--|---|---|---|----------------------------------|---|---|-------------------------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Necessary for people to enjoy the lake | | | | Neither necessary or unnecessary | | | Are totally unnecessary at the lake | |

13. How acceptable was the number of **anglers in motorboats** you saw on the lake today? [Circle one number]

| | | | | | | | | |
|-----------------|----|------------------------------------|----|---|----|----|--------------------|----|
| +4 | +3 | +2 | +1 | 0 | -1 | -2 | -3 | -4 |
| Very Acceptable | | Neither acceptable or unacceptable | | | | | Very Un-acceptable | |

14. If **Angling or Fishing from Motorboats** were not allowed on this lake, I would visit this lake...

| | | | | | | | | |
|-------------------------------|------------|----|----|-----------|------------|----|----|------------|
| +4 | +3 | +2 | +1 | 0 | -1 | -2 | -3 | -4 |
| Much more than I currently do | More Often | | | No Change | Less Often | | | Not at all |

15. How did the presence or behavior of **those motorboating for pleasure (e.g. waterskiing, tubing, sunbathing, cruising)** reduce or increase your enjoyment of the Lake?

CIRCLE ONE NUMBER

| | | | | | | | | |
|--|---|---|---|---|---|---|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Motorboat Users Greatly reduced my enjoyment | | | | Motorboat users Had no effect on my enjoyment | | | Motorboat Users greatly increased my enjoyment | |

16. If applicable, briefly describe how **pleasure-based motorboaters** reduced or increased your enjoyment of the Lake?

17. Would you say that **pleasure-based motorboaters** are... [Circle one number]

| | | | | | | | | |
|--|---|---|---|----------------------------------|---|---|-------------------------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Necessary for people to enjoy the lake | | | | Neither necessary or unnecessary | | | Are totally unnecessary at the lake | |

18. How acceptable was the number of **pleasure-based motorboaters** you saw on the lake today? [Circle one number]

| | | | | | | | | |
|-----------------|----|------------------------------------|----|---|----|----|--------------------|----|
| +4 | +3 | +2 | +1 | 0 | -1 | -2 | -3 | -4 |
| Very Acceptable | | Neither acceptable or unacceptable | | | | | Very Un-acceptable | |

19. If **Pleasure-based Motorized Boating** were not allowed on this lake, I would visit this lake...

| | | | | | | | | |
|-------------------------------|------------|----|----|-----------|------------|----|----|------------|
| +4 | +3 | +2 | +1 | 0 | -1 | -2 | -3 | -4 |
| Much more than I currently do | More Often | | | No Change | Less Often | | | Not at all |

PART III—Now think about all your experiences at Lake Gaston with other water-based recreationists. To what extent are the following conditions problems at Lake Gaston? Using a scale of “1” to “6,” where “6” means very serious problems and “1” means not a problem, circle the number that best reflects how you feel. Of course you may rate them anywhere in between “1” and “6.”

Remember that PWC refers to personal watercraft and “Pleasure boaters” or those who use boats primarily for waterskiing, tubing, sunbathing, and cruising.

| | Not a problem | —————▶ | | | | Serious problem |
|---|---------------|--------|---|---|---|-----------------|
| a) PWC users are out of control | 1 | 2 | 3 | 4 | 5 | 6 |
| b) On shore anglers are out of control | 1 | 2 | 3 | 4 | 5 | 6 |
| c) Anglers in motorboats are out of control | 1 | 2 | 3 | 4 | 5 | 6 |
| d) Pleasure boaters are out of control | 1 | 2 | 3 | 4 | 5 | 6 |
| e) PWC are not friendly | 1 | 2 | 3 | 4 | 5 | 6 |
| f) On shore anglers are not friendly | 1 | 2 | 3 | 4 | 5 | 6 |
| g) Anglers in motorboats are not friendly | 1 | 2 | 3 | 4 | 5 | 6 |
| h) Pleasure boaters are not friendly | 1 | 2 | 3 | 4 | 5 | 6 |
| i) PWC behave in a discourteous manner | 1 | 2 | 3 | 4 | 5 | 6 |
| j) On shore anglers behave in a discourteous manner | 1 | 2 | 3 | 4 | 5 | 6 |
| k) Anglers in motorboats behave in a discourteous manner | 1 | 2 | 3 | 4 | 5 | 6 |
| l) Pleasure boaters behave in a discourteous manner | 1 | 2 | 3 | 4 | 5 | 6 |
| m) PWC fail to be aware of others around them | 1 | 2 | 3 | 4 | 5 | 6 |
| n) On shore anglers fail to be aware of others around them | 1 | 2 | 3 | 4 | 5 | 6 |
| o) Anglers in motorboats fail to be aware of others around them | 1 | 2 | 3 | 4 | 5 | 6 |
| p) Pleasure boaters fail to be aware of others around them | 1 | 2 | 3 | 4 | 5 | 6 |
| q) PWC users drive unsafely | 1 | 2 | 3 | 4 | 5 | 6 |
| r) Anglers in motorboats drive unsafely | 1 | 2 | 3 | 4 | 5 | 6 |
| s) Pleasure boaters drive unsafely | 1 | 2 | 3 | 4 | 5 | 6 |
| t) PWC users obstruct lake entry points | 1 | 2 | 3 | 4 | 5 | 6 |
| u) On shore anglers obstruct lake entry points | 1 | 2 | 3 | 4 | 5 | 6 |
| v) Anglers in motorboats obstruct lake entries | 1 | 2 | 3 | 4 | 5 | 6 |
| w) Pleasure boaters obstruct lake entry points | 1 | 2 | 3 | 4 | 5 | 6 |

PART IV—How much do you agree or disagree with the following? Using a scale of “-3” to “+3,” where “+3” means strongly agree and “-3” means strongly disagree, circle one number for each item.

| | Strongly agree | | | | Strongly disagree | | | |
|---|----------------|----|----|---|-------------------|----|----|--|
| a. The best way for people to enjoy the Lake is on shore angling | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| b. The best way for people to enjoy the lake is using a PWC | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| c. The best way for people to enjoy the lake is angling from a motorboat | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| d. The best way for people to enjoy the lake is pleasure boating | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| e. Encounters with on shore anglers decreased the enjoyment of my trip | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| f. Encounters with PWC users decreased the enjoyment of my trip | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| g. Encounters with anglers in motorboats decreased the enjoyment of my trip | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| h. Encounters with pleasure boaters decreased the enjoyment of my trip | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| i. People on PWC bother me | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| j. On shore anglers bother me | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| k. Anglers in motorboats bother me | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| l. Pleasure boaters bother me | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| m. I avoided my favorite parts of the lake because there were too many PWC there | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| n. I avoided my favorite parts of the lake because there were too many on shore anglers there | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| o. I avoided my favorite parts of the lake because there were too many anglers in motor boats there | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| p. I avoided my favorite parts of the lake because there were too many pleasure boaters there | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |
| q. I selected a time to recreate at the lake today to avoid the presence of others | +3 | +2 | +1 | 0 | -1 | -2 | -3 | |

PART V—Experience, Participation & Background Information

1. Are you ____ Male ____ Female
2. In what year were you born? _____
3. How many years have you been On-shore Angling? _____
How many years have you been Off-shore Angling: ? _____
How many years have you been using Personal Watercraft? _____
How many years have you been using a motorboat for pleasure (waterskiing, sunbathing, etc?) _____
4. On average, how many days in a season would you say you
____ On shore fish or angle at Lake Gaston
____ On shore fish or angle at other areas?
____ use Personal Watercraft at Lake Gaston?
____ use Personal Watercraft at other areas?
____ Angle or fish from a motorboat at Lake Gaston?
____ Angle or fish from a motorboat at other areas?
____ Pleasure boat (waterski, sunbathe, etc) at Lake Gaston
____ Pleasure boat at other areas?
5. Where is your current residence? _____
(zip code & country)

Appendix B: Comments from Lake Gaston Water-Based Recreationist Questionnaire

Responses to:

If applicable, briefly describe how PWC reduced or increased your enjoyment of the Lake?

- Noisy. A number of PWC users cut across the path of our boat, or cause us to change direction to keep a safe distance.
- They do not seem to respect the families using boats with skiers and children.
- I don't fish when there are a lot of pwc's around.
- I love to ride my PWC responsibly. Others (mostly kids) are endangering themselves and others and it must be addressed. People are just not cognizant of the dander they are creating.
- Drunk rider of PWC crashed into my daughter's boat with four girls aboard.
- PWC provide another option for Lake Users. The only time it reduces the enjoyment of the lake are on busy Holidays.
- Looks like a lot of fun. Wish I had the extra cash to buy one.
- Younger drivers operating unsafely
- Operated too close to my boat to jump wake.
- Too many people don't listen to the rules and are not careful
- I find PWC users to be inconsiderate of those needing smooth water or space for skiing and fishing. They have cut in front of our boat and crossed wakes behind a skier causing us to react. This puts both those in the boat and the skier at un-necessary risk. I think that if PWC want to "race" around, they should go out to the main lake. Tubing should also be in the main lake.
- PWC users seem to lack consideration of other on the water. A little awareness and maturity would go a long way.
- Going between me and the shoreline, or generally too close to my boat. Also, making wakes back and forth in front of my boat when I am traveling.
- The constant noise and waves from them reduce the quite calm lake conditions enjoyed before they became so popular.
- Jumping waves while we were towing grandchildren on a kneeboard. Criss-crossing bow within 200 feet making it difficult to determine which way they intended to proceed. Buzzing docks within 50 feet.
- Plenty of noise.
- Speed by my dock too close. Did not follow good marine etiquette. Had water skiers when they were prohibited by a buoy notice. Did not observe the no wake rules.
- High speeds, large wakes, too close to the shoreline in front of my house. Jet skiers crossing in front of my pontoon boat as if the boat has brakes. Boaters who do not know the rules of boating e.g. which side to pass.

- In my face and created annoying wake.
- Excess noise
- I enjoy using the PWC much more than I care for the noise of someone cutting up on one in my area. It is distracting.
- It's a lot of fun.
- We are retirees and enjoy our jet skis to "tour" the lake and pull grandchildren on tubes. Also, my husband fishes from his 3-man SeaDoo.
- Any additional craft, boats or PWC's, require additional attention. Because PWC's are so small and fast, they require more attention to make sure you navigate around them. And there are always some folks, when armed with a PWC, seem to feel they need to jump wakes, come close to swimmers, etc.
- Many times the drivers are not very considerate
- Concerned about the excessive speed of two PWC, twice in and out of "our" cove; the drivers do not live in this area
- Noise level and persistent turns staying in one area
- I am a senior citizen with my own PWC. My jetski has been one of the nicest treats to enjoy the lake. I think some of the wakeboard boaters are causing us to have real trouble with their huge wakes to cross and the turbulence when they are turning, but we have to take the good with the bad.
- It still appears that there are many users (this applies to all water craft users) that they do not know or do not obey the rules of the road in the correct and safe operation of their vessels. Numerous PWC users do not believe that the NO WAKE, etc. rule apply to them.
- Jet ski operators are many times under-age, ill-trained in craft use and not state certified. They frequently run too close to boats in motion or anchored.
- Week end users of PWC are very inconsiderate of others, following too closely, creating huge wakes, pulling tubes under bridges, cutting in front of others, throwing water on others, etc. If everyone was considerate of others it would be more enjoyable as it was in the beginning.
- Noise, noise and noise. Some very rude and borderline dangerous
- There were three pwc's out together. Great riding with others, even saw a bald eagle!
- Rode with the FABS who always have some good advice on boating safety and ethics
- Enjoy going into smaller creeks & shallow areas to look at houses
- The operators are obnoxious, inconsiderate and obviously oblivious of other people's activities and enjoyment of the lake and have little knowledge of or abeyance of the boating regulations. We have seen them constantly coming within a few inches or feet within the end of our pier. We have had our pier hit by a PWC in broad daylight by a sober driver who was not paying attention to where he was going.
- Loaded question. Clearly you are looking for negative comments about PWC users.

- Wakes affect activities on dock and shoreline.
 - We rarely experience problems with PWC users
 - Many of the users of both PWCs and boats simply do NOT understand the "rules of the road" as they apply in boating as on the coast.
 - No problems
 - When they go into coves, they do not know the "no wake" rules for being close to boathouses.
 - Doing donuts and unable to predict which way he would go- waves caused.
 - We have four young children who are learning to ski and wakeboard. We find the jet skiers continually get too close to our boat or jump our wake while we are out on the lake. We also feel that, in general, personal water users are not watching when they take a fast turn, and often swerve directly in front of our boat. I was just saying today that it would be great if there were certain times that jet skis were allowed and that all other times it would only be boats on the lake.
 - Concern over age, experience and stability of other operators.
 - There are times when there are those who ride a wave runner without regard to the rules; however, so do boaters.
 - Enjoy seeing people ride with their children.
 - A lot of the operators are reckless. They speed much too close to swimmers, other boaters, and docks, even though there are no wake limitations. They often endanger the other PWC operators with their behavior. We often kid that their testosterone has gone wild.
 - Too fast in congested areas {narrow creeks, close to boat docks.
-
- I ride with the FABS, and we are all about safety. I feel like the majority of those on jet skis have no idea what they are doing, and they are a danger to themselves and others when they are on the lake. If I know it is going to be a busytime on the lake with jet skis, I stay OFF the lake!!!! The jet skis go entirely too fast now, and with a lot of the folks that take the boating course, one day a year on a jet ski does not mean they know what they are doing.
 - Personal water craft put up a very small wake.
 - This is much better than the larger boats or the boats pulling boards etc.
 - PWC's continually operated in unsafe manner, with no regard for safe seamanship or rules of the road.
 - I enjoy riding in and out of coves, enjoying the fresh air and water on the lake because I can maneuver with ease my PWC. It takes me into smaller areas than my boat can go.
 - They are too noisy and cause a lot of shore line erosion

- PWC owners do not know or if they know, do not obey the rules of the road. Unfortunately, this also applies to several pleasure boaters who think because they can afford the boat/jet ski, they can do as they wish.
- Noisy, frequently cut in front or in back of personal boat.
- I own 2 PWC's. But the ones that run next to you and cut in front and behind you are the problems
- Go too fast without regard to how close they are to other boats. Poor regard for boater safety and courtesy.
- Noise disrupts fishing, Waves are unnecessary, Risky behavior
- Too much power for inexperienced drivers
- No consideration for other users-cutting across the bow or wake, running at high speeds in restricted areas, etc.
- Most PWC riders always seem to act like idiots, completely ignoring "No Wake" zones at boat tunnels or bridges and making wake too near shore lines.
- Young PWC are the majority of dangerous practices on the lake.
- I love riding my jet ski because it allows me to enjoy parts of the lake that a boat could not maneuver in.
- They are irresponsible
- They buzz around coves when they can clearly see that there are one or more fishing boats in the cove.
- On July 31 I saw two PWC chasing a gaggle of geese around for about ten minutes. Wave jumping bothers me when I am piloting a boat. Etc.
- Too close to dock.
- PWC operators tend to disregard other users, and don't seem to be concerned with other users on the lake. They can be fast, discourteous, and assume they always have the right of way.
- Young PWC are the majority of dangerous practices on the lake.
- Too close to Private Docks. Too much wake.
- I liked the peace and quiet watching nature. PWC's go fast in our very narrow creek- (Less than 50 feet across). Makes Maps show this area to be designated "NO WAKE." PWC's speed and create wakes that destroy water's edge.
- Have no problem with PWC if they would watch where they are going.
- PWC activity detrimental to enjoyment includes crossing wakes behind other boats including boats pulling skiers, doing sharp turns and donuts in front of the path of other boats and excessive speed in congested areas and driving too close and too fast by permanent docks.
- Too many waves.

- Disregard for other boaters. They only know one speed--fast. They usually travel in pairs or groups causing excess noise and wake. They should not be allowed to pull skiers or tubers. They need to concentrate fully on where they are and their surroundings.
- Noise like chain saw.
- Driving/operating recklessly and at high speeds. Ignoring laws regarding, "no wake areas."
- Riding very close to where I'm fishing, cutting figure 8's close to where I'm fishing.
- Noise and coming dangerously close to dock.
- Not following rules of water.
- Reckless Operation
- Ride too close, try to jump my wake, drive irresponsible.
- Noise, too fast.
- PWC is increased the shoreline erosion on by property by increasing the wave action in the shallow water.
- PWC is just another toy used on the lake. I like to see people, young and old, enjoying themselves on the water. For the most part the people I see are acting responsibly. If I was younger I'd be out there with them.
- They drive way to fast to see kayaks and swimmers, they also speed way to close to boat docks to allow safe swimming even within a few feet of our dock.
- Most PWC users either ignore the "Rules of the road," and or the specific laws for PWC use, in particular, "no wake" areas.
- Some do not follow the 100 feet from boat or dock law.
- PWC easy to move around in smaller coves/areas.
- Need to keep constant lookout for PWC's.
- Don't like when PWC jump waves when pulling kids on tubes. Very dangerous.
- Users as a group tend to drive erratically and cross paths of other PWC's and boats.
- Dangerous handling. Complete disregard for any other craft on the water. 90 to 180 degree turns without looking around for other craft. Numerous times we have had to take drastic and extreme measures to avoid an accident with a PWC while waterskiing. I have over 22 years experience pulling waterskiers and do so in a very courteous manner; 95% of the time pulling is spent seeking to drive a straight line and minimize wakes. I have personally pulled a young PWC pilot from the water after he crashed with his friend. This PWC driver suffered a severe leg injury. One PWC driver jumped the wake between my boat and the youth skier I was pulling. Last year a PWC driver came within 2 to 3 feet of my boat while I was pulling a water skier. He started and turned 90 degrees without looking nearly t-boning my boat.
- They tend to be more careless, distracted, and go too fast. Seem to take risks that put others on the lake at risk.
- Great to see people having fun on the lake.

- Had to watch out because there are a lot out there and most are not paying attention.
- PWC repeatedly circled cove making waves which made waterskiing more difficult.
- Frequently boaters operate their vehicles in unsafe manner.
- Wake occasionally affects my kayak or canoe.
- Lack of consideration for wake and occasionally swimmers.
- We are on Lizard Creek and have a lot of PWC traffic close to our boat house. Too fast and noisy.
- Over population, occasional reckless behaviors observed.
- Reduced slightly due to high level of traffic on 4th of July weekend.
- They had no effect.
- Many of the PWC drivers don't appear to be aware of the safety issues and rules.
- Seem to have insufficient safety awareness. Erratic and reckless driving behavior exhibited by PWC drivers.
- Noise; their high speed zooming around is a distraction.
- Operation within 100 feet of my boat or pier and not observing no wake zone
- Coming too close to boaters, swimmers, and piers.
- They have no respect for anyone on the water. All they want to do is go fast and not think about others. In addition to riding after the sun has set.
- Operator cutting in front of our pontoon.
- Buzzing too close to the docks.
- We do not go to the lake on the 4th and Labor day because of the PWC's.
- Always have to be on the lookout for inexperienced PWC operators (usually young, although not always) doing reckless maneuvers or just plain not having a clue of what they should be doing as a matter of safe boating behavior or courtesy. I have no issues with PWC's especially since I own one, but I firmly believe that anyone under 16 years of age should be prohibited from operating them and then only after having proper boating education. Young kids are not strong enough or mature enough to operate them!
- PWC operators tend to want to "jump" the wake created by boaters and frequently get too close to the boat. I've seen them do the same with a wakeboarder and if that wakeboarder were to fall, not sure the PWC operator could maneuver quickly enough to avoid the fallen wakeboarder. Scary sometimes.
- They often fly close by when family is boat riding and create both noise and wakes.
- Noisy and followed too close to boat.
- Although most PWC users are responsible, occasionally we have some who fly down our cove making it hazardous for anyone swimming and could result in a serious accident involving the swimmer.
- When I don't want to take the time to get the boat out, I just hop on the PWC and take a cruise. I love it.

- People who drive these are concerned about nothing except excessive speed. Usually younger drivers who do not understand they can kill or be killed/seriously injured on one of these pieces of equipment. Come up way too fast on boats and like to get real close.
- Create wakes, irresponsible users
- Improper use of PWC- "hot dogging," too close to other craft and docks.
- Ride too close to dock.
- I was kayaking today. PWC came very close to the shore going very fast on several occasions during my kayak trip.
- PWC drive very fast and some make loud noises near my pier.
- People on PWC come in and out of our cove at high speed, adversely the shoreline and other watercraft tied to our docks.

Responses to:

If applicable, briefly describe how on shore anglers reduced or increased your enjoyment of the Lake?

- These guys are only a pain inasmuch as they fish too close to our pier when people are swimming. They leave a tangle of lines and lures on the pier and the beach area. In general, I would say they deserve to enjoy, but too many are discourteous.
- It's a nice pastime, wish I had the time to try it and/or do it.
- I like to find out what they caught, I do not fish
- Enjoy fishing with the family (especially in the morning and evening). I have not had an experience that negatively impacted enjoyment of activities in the water.
- Kids and adults were having some good wholesome fun.
- We make every effort not to interfere with on shore anglers, as well as fishing boats.
- The only experience I have really seen with on shore anglers is when they work around the bridges throwing their lines in front of an coming boats or pwc's. They often seem to have no regard for others but their own needs.
- I absolutely hate to get caught in line broke off from people who fish from shore. But, it's hard not to, I understand how it happens. Been there, done that.
- No problems
- Unless there is a fishing tournament, fishermen tend to be very respectful. In fishing tournaments they sometimes speed and may not pay attention to their surroundings while traveling at such a fast speed.
- The law is to stay 100 feet from docks. This could be 150 feet to protect the shore fisherman.
- Enjoy seeing people fish.
- Fishing over boat passage way/tunnels at Lizard Creek Bridge creating hazardous situations with fishing hooks dangling into boaters way. Also, in some cases, flat out refusing to remove fishing lines from what is an area clearly designed for boaters tying to

pass through on the waterway. Apparently, the boat passage tunnel at Lizard Creek is the only tunnel/bridge that does not have a “No Fishing” sign. Something is clearly wrong with that situation.

- They have never been an issue for me at Lake Gaston, the lake is large enough so all can enjoy.
- Increases enjoyment
- On shore anglers have no affect either way.
- Good activities are always enjoyable to participate in and watch.
- When done responsibly and with property owners' permission shore angling fulfills one of the recreational purposes of the lake. Denying such rights would not be right. I would venture that those who would want to deny those rights, or any recreational rights, are those who want the lake to be their own exclusive club for shoreline property owners.
- Little to no effect. Occasionally I see garbage left behind, but other than that, little impact.
- Rarely notice them.
- They had no effect.
- No problem
- Loud air boats with bright lights at late hours during the night are very annoying. They are using bow and arrows to kill fish which I don't object to. The bright lights and noise is totally unacceptable.
- I love fishing off my pier with family and friends.
- I enjoy watching everyone ride and have fun on their jet skis. I do think the lake would be safer if they would slow down.

Responses to:

If applicable, briefly describe how on shore anglers reduced or increased your enjoyment of the Lake?

- When there are a lot of motorboats on the lake I don't fish. Too much wave action.
- Indicates a healthy lake. My disconnect with the fishermen is that if I were to go fishing, I'd want to keep/eat my catch, and most release, which is good.
- Because I use my boat for cruising rather than fishing, I always fear I'm am interfering with the fishermen. I try to stay clear of them but sometimes when there are a lot of boats on the lake, I know I get close enough to bother them.
- Anglers in motorboats are fine. They come in around the piers looking for fish or out the main streams and that is great. The lake is big enough for all of us.
- Drive too fast for the number of boaters and PWCs and canoes, sailboats on the lake.
- Only when they come WAY too close to docks. It is invasive and sometimes extremely rude.

- I enjoy seeing fisherman early in the mornings near my home
- Bass fishermen, in particular, those participating in tournaments, come tearing into our cove at pre-dawn hours with their high horsepower, loud engines, only to leave their cans, water bottles, and other trash floating on the lake.
- Some come too close to my dock.
- Many boaters are "new" to boating and simply do not realize how to handle the new \$25k to \$80k boat they have purchased. Most of the time they are reasonable boaters, but everyone (including the out of state people visiting or vacationing) should have some understanding of right of way rules. Many are concerned about speed on the lake, but speed is not a problem. It never has been.
- No problems
- I feel that there should be restrictions on the amount of noise and speed their boats can produce. They have no regard for the people who live on the lake and seem to take great offense when anything is said to them. I for one and i am not alone on this, how would you like being awakened at 5:30 am by 150 boats with 200 HP engines running full blast. It's not a great way to start you day off.
- A few boat anglers speed through our inlet and can't always see swimmers.
- They get a little too close to my dock.
- Produce large wake when leaving small coves at full throttle.
- It is easy to give the fishermen a little room to fish without my wake bothering them.
- Enjoy seeing other boaters who follow boating safety rules.
- Bass boats are designed to go fast, and get up to speed quickly. Unfortunately, several, but not all of the bass boat drivers, come into and out of the coves causing large wakes and throwing floating, docked boats into the peirs and boathouses that there tied to. Respect for the other's property would go a long way.
- Anglers in bass boats have a tendency to go fast and create wake issues for others.
- There are always a few that blast past too fast and too close; however, foir the most part they are not a problem.
- Speeding
- They came too close to my dock and my home and cast their lines into our swimming area. They pee off their boats in front of my home. They throw trash off their boats.
- Some were inconsiderate.
- They throw in their lines (Fish Hooks) with people and pets in the water.
- Have no effect on my enjoyment.
- Need to take boater safety course and follow training.
- While sitting on my dock with my family and friends, we see fishermen in their boats pull right up to our dock and throw their lures under our dock and into the boat bays. I don't mind this activity when i'm not there, but i think its kind of rude to drier up with the trolling motor right in front of me and fish under my dock. pisses me off a bit.

- Too many bass tournaments do significantly increase boating pressure on the lake and ramps as well as the fish (especially during the nesting season).
- As a fisherman, motorboaters often do not respect a reasonable area around the fisherman.
- They come up in your coves and fish while people are in the water. They leave fuel in the water.
- Bass boats and bass tournaments are a nuisance. Bass boat drivers are very arrogant.
- Early morning noise can be heard from my house.
- Recreation is one of the purposes of the lake. I like to see responsible boating anglers using the Lake.
- Some bass fisherman ignore "no wake" rules in small coves.
- Some bass fisherman show no respect for their wake.
- No impact. They usually are very courteous and appear to be very safe boat drivers. They occasionally go a little too fast in the coves, but usually operate safely.
- Many bass boats are wreckless with their speed and do not respect the rules of the water regarding wakeless speeds, distance from other craft when passing, rights of way, etc.
- Idiots "jugging" for catfish in the middle of the lake made it very dangerous.
- Only slightly reduced in and around the bridge that we go under. This results in having to be very aware as to the location of their fishing lines.
- Too fast
- Wake sometimes affects my kayak or canoe.
- Get too close to piers, get hooks caught in piers. They act entitled. Not respectful. Bow hunting at night was inconsiderate. Shining lights into peoples homes. Seemed like a great cover to steal from boat houses.
- Loud engines racing around very early in the morning.
- Have to slow down in order to not create wake.
- They had no effect.
- They have little influence as boaters, I am concerned that the hydrilla may have come in from anglers coming from other bodies of water. Their boating skills have not been an issue with my enjoyment.
- They fish under the bridges which sometimes blocks other boats ability to get them.
- The only issue I have with the fast bass boats is their speed as they travel to get from one point to another. Sometimes, I think it is dangerous.
- It does not really effect enjoyment but we always slow down around those fishing to minimize our disturbance to them while fishing.
- Motorboat anglers reduce the enjoyment of the lake when they come too close to our dock, cast in the direction of our dock and dogs which could precipitate harm to our animals.
- They block the cove entrance.

- Speed boats create wake.
- Many are discourteous.
- Usually they don't effect me. Sometimes they drive very fast early in the morning. It's noisy. The bass fishing competitions seems like NASCAR on the water.
- I love to fish from my boat.
- The bass fishermen do the same as PWC owners. They ignore the fact that our cove is narrow, and especially tend to speed out after they've finished fishing the docks in our cove.

Appendix C: IRB Approval

EAST CAROLINA UNIVERSITY

University & Medical Center Institutional Review Board Office

1L-09 Brody Medical Sciences Building · Mail Stop 682

600 Moye Boulevard · Greenville, NC 27834

Office 252-744-2914 · Fax 252-744-2284 · www.ecu.edu/irb

Notification of Exempt Certification

From: Social/Behavioral IRB

To: [Donald Beal](#)

CC: [Clifton Watts](#)

Date: 11/10/2011

Re: [UMCIRB 11-001195](#)
Examining Conflict of Water Recreationists

I am pleased to inform you that your research submission has been certified as exempt on 11/9/2011. This study is eligible for Exempt Certification under category #4.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification request at least 30 days before the end of the five year period. The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418 IRB00004973
East Carolina U IRB #4 (Behavioral/SS Summer) IORG0000418

Study.PI Name:

Study.Co-Investigators: