Where the River Deepens: Exploring Place-based Relationships Through the Swimming Hole Experience

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Vermont

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WHERE THE RIVER DEEPENS:
EXPLORING PLACE-BASED RELATIONSHIPS THROUGH THE SWIMMING HOLE EXPERIENCE

An Environmental Studies Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science at The University of Vermont May 2011

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Abstract

Without a doubt, swimming holes are one of Vermont’s most valued natural resources. These spots provide a place for a diverse population to experience invigorating recreation and spiritual relaxation away from urban environments and the hustle and stress of everyday life. Unfortunately, overuse, abuse, and degradation have caused a plethora of issues at these locations over the years. The research explained in this thesis identifies the different “user groups” who make use of swimming holes in Vermont, and explores the types of place-based relationships that the individuals in these groups ascribe to water environments. Through interview, observation, and analysis, this thesis extrapolates behavioral themes, place attachment dimensions, and common problems that are present in three specific Vermont swimming holes. From this gathered information, policy and management options that offer a range of solutions to the issues at hand are described.
Acknowledgements

First and foremost I’d like to thank my father, David Sobel, for inspiring me to do this project. If it wasn’t for his passion, curiosity, and love of exploration, I never would have been drawn to swimming holes in the way I am. The blissful river adventures he provided me with as a child have magically transformed my connection to place over the course of my life, and for this, I am eternally grateful.

Secondly, I would like to thank my advisors Steve Libby and Rick Paradis; to Steve, for his constant input and support throughout the entire process, and to Rick for his proofreading, discussions, and thoughtful critique.

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I. Introduction

“Just jump,” my friend Pete screams to me from the rocks down below. I peer over the edge of a cliff to see a 40-foot drop ending in a pool of churning water. I take a deep breath, and with a big yelp, leap off the edge, free falling for what feels like an eternity. Finally I make impact with the water, plummeting deep into the pool I kick hard and paddle for the surface. I come splashing out of the water with huge smile on my face as friends applaud my jump. I lay back on my towel with the sun in my face and at this moment I couldn’t be happier to be alive.

My dad has been taking me to swimming holes ever since I was just a few years old. The first time I learned how to swim was at a swimming hole. Growing up, my dad brought me to a variety of holes—some deep, some shallow, some with big cliffs, others with rope swings, some completely isolated and others packed with people. No matter the characteristics, I absolutely loved the experience every time. I was drawn to these places and felt at home at them. But moreover, spending time at swimming holes was my way of connecting to the natural world. In a way, these places gave me a sense of purpose and belonging in my life.

By the time I got my drivers license I had tons of different swimming spots I knew around my hometown. My passion became heightened, and during the summer months I would take my friends to different locations. Soon we had used up all the spots my dad had showed me and the hunt began for new ones. Day trips to Vermont turned into weekend trips to Maine, and before I knew it, I was spending every bit of my free time reading and talking to people about swimming holes in New England.

When I came to UVM and Burlington, I felt as if I had been reborn. I had the opportunity to discover swimming spots such as Bolton Potholes, Bristol Falls, Warren Falls, and Huntington Gorge. Nothing got me more excited than to head out on a day trip to see and swim at a new location. But as my love and interest for these places grew, so did my concern for them. Some days I would go to Bolton Potholes and there would be hundreds of people crowding every inch of
free space. Myriad beer cans, glass shards, cigarettes, and other sorts of debris littered the natural area. I would go to Warren Falls and see people arguing about music being played too loud. I’d travel to Huntington Gorge and talk to private landowners that were upset that people were parking in front of their driveway and acting disrespectful. Thus, when it came time to decide on my thesis topic—a project that I could take in any direction—it was quite clear what interested me most: swimming holes in Vermont.

This thesis focuses specifically on the place-based relationship between individuals, groups and these water environments. Using unobtrusive observational research, this thesis identifies the different types of people who choose to recreate in these areas. Then, through six personal interviews I hear from individuals about their bond and connection to these places. My research fits into the field of place attachment. Place attachment is defined by Williams and Stewart (1998) as “the collection of meanings, beliefs, symbols, values, and feelings that individuals or groups associate with a particular locality” (p. 19). Within the field of place attachment are two main concepts: functional place attachment (place dependence) and emotional place attachment (place identity). Place dependence refers to the ability of the resources at a place to meet the needs or goals of individuals. (Stokols & Shumaker, 1981; Williams & Roggenbuck, 1989). Place identity refers to the emotional aspects of the person-place relationship and how place contributes to an individual’s self-identity (Williams, et al., 1992).

After a comprehensive literature review, I found that no study had ever been done on the human relationship to swimming holes. This is where my work fits in. Using results obtained from observation and interviews, this thesis examines both behavioral and place attachment themes that were recurring throughout the study. By analyzing what I witnessed and heard, this thesis extrapolates the anthropogenic problems that threaten the ecological health, safety, social, and physical functionality of swimming holes. Lastly, this thesis proposes both policy and management options that address the issues that were discovered throughout the process.

This study is the starting point to addressing some of these issues. By providing this critical information on user group trends, place attachment
dimensions, relationships, and behavioral patterns of people at swimming holes in Vermont, I have opened doors for other research to begin. I am passionate about the work that is presented here and am eager to share it with the world at large. Let’s begin!
II. Literature Review

Section 1: Water and people

Introduction:

Water and people have always been intrinsically related to one another. The human body is composed of 55 – 65% water and 70% of the earth’s surface is covered in it (Utz 2000). People have manipulated fresh water for thousands of years through agriculture and urbanization, with reservoirs, ditches, levees, dams and more. But water has symbolic meaning as well, and has been venerated for its life giving properties, power, and purpose. In almost all religions and cultures, water holds a certain sacred significance and is regarded as a precious resource. But at the same time, water resources are being polluted, diverted, dried up and exhausted due to over consumption and overuse. Thus history has shown that water plays a dualistic role in our lives, a physical necessity and a sacred and symbolic part of the natural world (Diamond 2004).

Historically water has always been a catalyst of economic development, thus it has been thought of as a commodity with utilitarian values (EPA 2009). For example, in the Western United States, development has been influenced by water availability while its presence or scarcity has shaped the cultural landscape of our nation. But this approach to understanding water as a resource has failed to address the symbolic and spiritual aspects of water. These meanings are not trivial, but have deep meaning to human health and wellbeing. Water symbols can be categorized into five dimensions: creation and birth, spiritual and emotional growth, cleansing, journey and fulfillment (McCool 2008).

Throughout the last 30 years scientific studies looking at ecosystem services have concluded that water has an important role in sustaining and maintaining key ecological processes. Thus there is conflict between recreational users and resource management. Recreational activities that happen near or around water resources have detrimental effects to the water environments, and it’s hard to curb these results (EPA 2009). But at the same time federal legislation such as the Clean Water Act and the Wild and Scenic Rivers Act have justified that consumptive uses of water are not always first in line either. These laws have allowed for increased outdoor recreation, and made water a utility of use for
other things than consumption. This allows for more people to connect with nature through water recreation. In the process people come to understand how society values this precious resource (McCool 200).

**Water and recreation:**

Recreation is defined as “refreshment of one’s mind or body after work through activity that amuses or stimulates” (cambridge.org). Water recreation by definition occurs on, in, or by water and lets people feel the aesthetic, therapeutic, emotional and even spiritual value of water. It offers indulgence into the natural world, immersion into a unique environment and offers a sense of power and wonder (Gelt 2004). Types of water recreation vary immensely. While it is required for some activities such as water skiing, boating, swimming, fishing, scuba diving, for others such as picnicking and hiking it serves as a backdrop. Although water recreation takes on many forms they all lead to meanings, experiences, and benefits that all depend on the presence of clean, healthy water (UNESCO 2006).

Because water has so many uses it is often over allocated to a variety of different user groups. Hydroelectric stations warrant its use for power, agriculture diverts it to water crops, ski resorts use it to make snow; the list goes on and on. One of the most common uses of water for the public sector is recreation. As water faces a diverse set of threats ranging from pollution, to diversion, to contamination, water recreation plays a crucial role in conserving and maintaining healthy bodies of water. This is due to the fact that most water recreation requires swim-able, drink-able and fish-able waters. If the water bodies are clean enough to recreate in and are maintained in this way, it provides a medium for clean water conservation (McCool 2008).

Aldo Leopold saw outdoor (water) recreation not as privilege but as a basic human right. He understood and wrote about how this recreation allows human beings to connect with wild things and places that were part of history and helped define our culture. Moreover this type of recreation brought together human and natural histories, and allowed for a deeper understanding of environment (Leopold 1966).

There are many challenges between water, people, and recreation, three of which have been highlighted heavily in water recreation literature. They are:
1) Open water areas are often over allocated to a wide range of uses. This means different people ascribe different meanings and have varying relationships to the same water resources. This causes tension between user groups, but also many of these views are not compatible with the conventional, commodity-based perception of water (Smardon 1988).

2) Many lakes, streams, wetlands, rivers that people use for recreation are on public lands. These public lands provide opportunities for a variety of uses and values. But they are managed by state and federal resource agencies that view water with a strictly utilitarian purpose (Smardon 1988).

3) Lastly, population growth with different and often changing demographics along with higher demand for water supplies means that there is a diverse set of demands and meanings towards water resources and water recreation (Smardon 1988).

As shown, people have different meanings, perceptions, ideas, and relationships to water environments in their local landscape. But why is this so? Williams and Patterson did a study in 1992 that helped them develop a classification system for understanding the meanings people attach to special places. The four dimensional framework is as follows:

1) The place has aesthetic meanings (river is pretty, astounding, awe-inspiring)

2) The place has instrumental meanings (stream is good for fishing)

3) The place has cultural or symbolic meanings (the ocean as a symbol of power)

4) The place has individual or expressive meaning (this lake is where I had my first kiss)

This information is helpful in understanding the different reasons why people choose to recreate near and around water environments (Williams and Patterson 1992).

Water and symbolism:

*Today water refers mainly to a commodity providing material comfort and prosperity....We expect it to be as clear, colorless, and odorless as we can get it, and then we dismiss it from consciousness. With hardly any effort on our part, it comes gushing from a tap....* (Worster 1994, 124p)
As stated by Worster although water is a precious, life giving resource, which is crucial to our existence, it is still treated as a commodity. Little attention is given to the symbolic and spiritual side of water. Furthermore most people don’t understand human’s history with water, its cultural significance, and how perceiving these things could lead to paradigm shift in water based recreation and public lands management (McCool 2008).

Water is a symbol in most world religions. It is common in most creation stories as the powering force of either creation or destruction. The idea of floods is related to birth, fertility, and sustaining growth. Sacred water places such as pools, springs, rivers, and waterfalls, are sites of cleansing, and purity and symbolize spiritual renewal, youth, and immortality. Water sites are also used for baptisms, and thought to have healing powers. Rivers and ocean are symbols of power and represent the conquest of new lands and people. They also have unknown threats (sailing across the ocean, fording a large river) that must be overcome for success. It is used for protecting and cleansings, and has both harmful and peaceful qualities. In religions and cultures everywhere water is a liberating force and central to life (Witcombe 2009).

A study done by river enthusiasts Richard Bangs and Christian Kallen noted that rivers are the so-called “arteries of the planet”. There is a certain symbolic attraction of people to rivers, moreover they concluded that people are actually “irresistibly drawn to rivers for recreation, refreshment and reconnection.” (Bangs & Kallen 1985) A quote from the book River Gods describes how spending time on a river can be both a symbolic and spiritual experience:

“For some, a river trip means water fights and wet summer fun; for others, it is mainly a testing of personal mettle. But for nearly all there is something more, something ineffable yet deeply satisfying, as we join the ancient currents and flow, for a brief time, between the timeless banks (Bangs & Kallen 1985, 210p).”

Section 2: Place attachment to natural settings

Introduction:

In the field of environmentalism, the concept of place is a large and constantly changing concept. Writers, scientists, philosophers, and geographers
have attempted to define the concept of place. Geographically, it is described as a center of meaning constructed by experience. Other definitions make it even simpler and define place as a location on a map. The distinction between “space” and “place” is that space becomes place as we get to know it and understand on a deeper level (Tuan 1980). But place is also thought of as an experiential process, it is a combination of both what the individual brings to that place and what the place gives back in return (Stedman 2002). As stated by Steel, “We create our own places, they do not exist independent of us” (Steel 1981).

In leisure and recreation literature it is the prevailing view that an individual connects to natural settings through a variety of different mediums. This connection to landscape is known as place attachment (Williams & Roggenbuck 1989). The basis of place attachment is that certain areas have sincere meaning to people because of an emotional, mental, spiritual, and physical bond between person and place (Cuba & Hummon 1993). These places are instilled with meaning which in turn craft a universal bond to the natural world (Guiliani & Feldman 1993). Through this bond a sense of identity, belonging, dependence, rootedness, familiarity and even possessiveness arises towards these settings (Hammit 2004).

Most literature written before the year 2000 defines place attachment as having two components: place identity and place dependence, which will both be discussed later in this section (Guiliani & Feldman 1993). However, new research and peer-reviewed articles have started to show that the place identity and dependence framework that has dominated recreation place literature is not completely inclusive of all the meanings that people attribute to place. This applies to any individual, but more specifically recreationists in the context of recreation areas. These areas provide so many different possibilities for a connection and relationship to the natural world that a diverse array of place attachment relationships arise (Stedman 2002). The literature shows that place bonding has more psychological components than just identity and dependence. A new five point framework has been proposed to be more inclusive of all place based attachments to natural resources, landscapes, and settings (Hammit 2004). Interestingly though, another view within this field is that it does not matter how
many “dimensions exist within place attachment literature”—the focus of study should be how much a setting means to a person rather than what a setting means to a person (Stedman 2003).

One more important point to understand is that place attachment is a complex phenomenon that involves a multitude of factors. The three which are most commonly used and referred to are: 1) characteristics of the physical environment, 2) human experience and values to the environment and 3) the social, mental, and cultural meanings that people ascribe to place (Hammit 2004).

**Place Identity:**

Different people in different contexts have defined place identity, so it is not possible to say there is one overarching description that encapsulates the entire concept. To start, place identity has to do with the individual. It defines our self and our consciousness, and is based on personal, symbolic meaning to a place developed over a long period of time. For example, if one returns to their favorite childhood swimming holes again and again, he/she will experience places identity (Williams 1992, Moore & Graefe 1994). Place identity is also thought of as an individual’s personal identity in relation to the physical environment. One person’s place identity to the same place can be completely different from another person’s. This is because place identity arises by the means of conscious and unconscious ideas, beliefs, attitudes, thoughts, preferences, feelings, values, goals, and behavioral tendencies that all factor into personal connection to the environment and the natural setting (Proshansky 1978 & Hammit 2006). Another key point to understand about place identity is that it’s not all about familiarity and awareness of a place, although these aspects help in the identification process. It’s a much more personal and emotional identification in relationship to the special places in our lives (Proshansky 1983).

**Place Dependence:**

Place dependence is completely different from place identity. It is, in its simplest form, described as the functional meaning of a place. It is viewing the environment as a compilation of qualities and attributes that allow for leisure and enjoyment of a certain recreational activity (Williams 1992) (e.g. looking at a swimming hole as place to hang out with friends, jump off cliffs, go swimming,
and relax). It is also defined as the importance of a resource or place, like a river or campsite on river, or for providing services for a certain interest or activity, like kayaking or camping (Kyle 2004). Another view looks at place dependence as a “strength of association” between the person and the actual place connection. The strength of association depends on how many needs are met for the individual. The more needs met by the place, the stronger the place dependence becomes (Stokols & Shumaker 1981). Place dependence is affected by the individual’s awareness of the place, their history of experience, their familiarity with similar places, travel time, mobility, and resources required to visit this certain location (Hammit 2006).

**Place Familiarity:**

Part of the new five point framework to understand place bonding, place familiarity is much more associated with the cognitive and mental side of place attachment. Although similar to place identity, it is has its own definition. Place familiarity is associated with different types of memories at specific places. These can be happy memories, achievements, landscape images and environmental experiences that are linked with recreation areas (Roberts 1996). These memories of experience can create a lens through which individuals assign meaning to the natural world (Stedman 2003). The process of place familiarity is part of the initial stages of human to place bonding, and is grounded in place-based locations through experience and memory (Hammit 2006).

**Place Belongingness:**

Place belongingness is more of social bond than a sense of familiarity (place familiarity) or emotional connection (place identity) to the land. It has been described as though people are connected to the land and hold a “membership” with the natural world, thus they belong to a special and unique place (Mesh and Manor 1998). Going deeper, place belongingness can also include a spiritual connection toward the environment, which can be individual or shared by other recreationists (Milligan 1998). Feelings of place belongingness also foster strong feelings of place connectivity that translate into a communal bond between the environment and the human being. This type of place-person interaction is part of fostering a deep-rooted relationship to the natural world (Proshansky
1983). Visitors to recreation areas may feel more than just appreciation for a place and this is when place belongingness comes into play. Individuals may feel as though the place belongs to their social, cultural, and physical environment or that they in turn belong to that place (Kaplan 1989).

**Place Rootedness:**

Different than the other dimensions of place attachment, place rootedness is a powerful and focused bond that means to be completely at home. It is the feeling that you are entirely secure and comfortable in a particular location (Tuan 1980). Stegne (1992) truly captures the essence of place rootedness when he states:

> Place is not a place until people have been born in it, have grown up in it, lived in it, known it, died in it – have both experienced and shaped it, as individuals, families, neighborhoods, and communities over more than one generation.

Place rootedness has been called the strongest level of place attachment, because it takes the longest amount of time, experience, and dedication (Stedman 2003).

**Section 3: Water in Vermont**

**Vermont’s Water Resources:**

Aquatic ecosystems in Vermont have played an important role in the natural and cultural history of this region. These ecosystems are home to a diversity of plant and animal species, provide necessary ecosystem services, and give Vermonters and tourists alike special places to connect with nature while be entranced by the power, mystery, and beauty of water. (Klyza et. Al 1999)

For centuries, water has played an important role in the development of the state of Vermont. The use of lakes, streams, and rivers for transportation, power sources and food sources was a shaping factor in the establishment of human settlements and industry throughout Vermont. Historically, tourism has also revolved around Vermont’s water resources (Sherman et. al 2004). Most visitors to the state in the late 1700s and early 1800s came because of mineral springs throughout the area. People would travel hundreds of miles to take part in the so-called “water cures” that Vermont had to offer. Many believed that the
natural swimming holes and springs in Vermont had healing powers that could relax, rejuvenate, and refresh city-dwelling people (Klyza et. al 1999).

Today, Vermont is still full of water resources that provide a vast amount of opportunities for industry, recreation and tourism. Vermont is home to Lake Champlain, which is the sixth largest freshwater body in the United States. The lake covers 435 square miles and is over 120 miles long, with 212 miles of Vermont shoreline. Vermont also has more than 800 lakes and ponds, ranging in sizes from a few acres to thousands of acres. Furthermore Vermont is also home to around 7,000 miles of rivers and streams. Some of these spectacular rivers include the West, the Lamoille, the Batten Kill and the Winooski. The diversity of water resources in Vermont allow for a variety of different adventures and activities (VOGA 2010).

Popular water sports in Vermont include canoeing, kayaking, paddle sports, sailing, scuba diving, sculling, and whitewater rafting. Many clubs and organizations such as the Vermont Paddlers Club and Champlain Kayak Club promote the use of these water resources for different recreational activities throughout Vermont (VOGA 2010). Different water environments provide different mediums for these activities. Smaller lakes and ponds are calm and quiet, allowing for relaxation where as large lakes provide opportunities for power boating and sailing (Klyza et. al 1999). Tranquil rivers provide a lazy float downstream compared to whitewater rivers which provide kayakers with a thrill ride. Regardless of an individual’s interest, the lakes, rivers, and streams in Vermont provide one of the most scenic and welcoming places to recreate and relax around and in water environments.

**Swimming Holes in Vermont:**

Swimming hole use in Vermont is exceptionally popular. Each summer, thousands of people flock to swimming holes along the rivers and streams in Vermont to relax, cool down, take a dip, have a picnic, and just enjoy the beauty and wonder of the outdoors. Although swimming holes are a place of enjoyment and recreation, there are many issues with the use of these places (Minor 1998). A variety of user groups, interests, meanings, and relationships to these special places have caused a series of threats and problems to arise. But with over 90
listed swimming spots on the popular Vermont swimmingholes.org website, and a guidebook with 30 different locations, there is more than enough room, space, and opportunities for everyone to enjoy these natural wonders (Swim-hole Info 2009).

A swimming hole is classified as a body of water usually in a river, stream, or creek that is large enough and deep enough for a person to swim in (princeton.edu 2010) Each swimming hole has its own attributes and qualities that make it completely unique. The Vermont swimming hole website and Make A Splash (a Vermont swimming hole guidebook) outline different characteristics that define these spots. Theses qualities include the water type, size of swimming area (depth, width, rate of flow), sanction or fees, facilities, activities, whether bathing suits are required or optional, camping, directions, and more (Minor 1998). Along with these topics, other qualities such as safety, directions, private/public land-owners, and etiquette are included (Swim-hole info 2009). The guidebook and website give swimming-hole users the general information they need to use the spots.

One gap in the literature is the type of experience individuals will encounter at each of these locations. Each spot has a different feel and personality, thus each location provides differential experience for a variety of user groups. Some information on the type of experiences people will enter into at these spots, along with the relationships people have to these locations would be helpful information for users.

Map of Swimming Holes in Vermont:

The map on page 18 is from the Vermont swimming holes website. Some locations on the map have multiple swimming spots in one location. For example where the map says (BRIS) this stands for Bristol Falls. This section of river has four different pools along a half-mile stretch of river. The green tabs stand for swimming hole locations that can be accessed easily (within a few minutes of walking from the parking area) and are classified as a “road trip dip”. The blue tabs stand for swimming hole locations that are harder to get to. This can mean climbing down steep embankments, hiking anywhere from 15 minutes to over an hour, and even bush-whacking through the woods. The green locations tend to be
more crowded, overused, and have higher levels of human impact. The blue locations are still popular but tend to be more secluded, resulting in less human impact.
Threats and Risks to Swimming Holes in Vermont:

The Vermont Agency of Natural Resources conducted a survey that rated the Mad River “an outstanding swimming resource and questionably one of the State’s best (MRV 1995).” The survey looked at 210 swimming holes in Vermont, 19 of which were on the Mad River. Out of these 19 only four are publicly owned, meaning there are many issues with private landowners denying access to swimming hole users. The Vermont survey identified several problems and threats to swimming holes along the Mad River. These threats all stem from human activity, either directly or indirectly. The social and ecological health of a swimming hole depends on the human impact and actions at the certain location. These threats include:

- Water quality deterioration due to human caused contaminants (beverages, urine, fecal matter)
- Sedimentation and erosion impacts due to heavy foot traffic. This can actually cause the swimming holes to be filled in with dirt, reducing the depth for swimming, along with causing the bottom of the pool to become muddy and slippery.
- Destruction and harm to natural features such as trees, rocks, pools, seclusion areas and shaded areas.
- Access issues such as parking, footpaths, and legal access due to privately-owned lands.
- Other issues such as nearby development, noise, partying, fishing, traffic, congestion, and overuse.

These threats are only specifically identified for swimming holes along the Mad River. While these threats do represent some of the issues present at swimming holes throughout Vermont, it is in no way an all inclusive risk assessment. There has been no study that has looked at swimming holes throughout Vermont and identified reoccurring problems at each location. Furthermore, there is almost no published information about social issues, ecological health, and the overall status of swimming holes in Vermont. In consequence, this section lacks in-depth description due to a gap in the literature (MRV 1995, Swimming-hole info 2009).
Two Examples of Swimming Hole Issues

Development is a major issue for swimming holes and can compromise the use of a swimming hole in certain situations. An example of this is at the lower gorge of the Mad River, just before it enters into the Winooski River. Two new homes were built in close proximity to the traditional swimming hole. When the homes were bought the landowners wanted to make all their land private, and posted their property with no trespassing signs. This is in direct conflict with public use because prior to the development of these two homes, the area was free for recreation which included swimming, fishing, and just relaxing by the pools edge. As development continues, the access to swimming holes will decrease as well, unless an alternative solution is proposed between private lands and public use of these lands (Minor 1998, MRV 1995).

Overuse, involving foot traffic, car traffic, noise, partying, trash and litter all contribute to the deterioration of swimming holes in Vermont. One hole that has suffered great abuse from overuse is Bolton Potholes (Swimming-hole info 2009). Located directly off the Bolton Valley access road, this swimming hole is more than easily accessible. It takes less than a minute to walk to, and there are huge flat rocks, ledges, and multiple pools that allow for hundreds of people to occupy this spot every warm summer day (Minor 1998). Because of its close proximity to Burlington, college students come to the potholes to party and relax on the weekend. Beer cans, trash, cigarette butts, along with an un-friendly family atmosphere has caused a variety of issues, and tension between different user groups. This has altered its original quiet and secluded character, the very reason many people choose to come. According to both the Vermont swimming hole website and Make A Splash Vermont swimming hole guidebook something must be done to change the course of Bolton Potholes or it might be posted as private property, ensuring that the public will no longer be able to enjoy its serenity and peaceful qualities (Swimming-hole info 2009).
Section 4: Outdoor Recreation and Impacts to Natural Resources

Introduction:

Minimal impact, leave no trace, take only photographs--leave only footprints, pack in, pack out. These sayings have created a misconception: that through special practices and specific techniques, individual impact to the natural environment can be completely avoided. While these techniques do reduce the overall impact of people recreating in the outdoors, there is a level of disturbance that cannot be avoided. The truth of the matter is that no matter what careful actions individuals take to minimize impact, humans will always have some effect when using the environment for recreational activities (Ewert 1999).

In 1987, a study was done that reviewed the American population and its relationship to the outdoors. The results suggested that more than 80% of the American public thought of themselves as “outdoors people”, meaning they enjoyed recreating and spending time outside in the natural world (PCAO 1987). Another study done in 1999 showed that 95% of the American population reported participating in an outdoor recreation activity at least once in the last 12 months (Cordell 1999).

It is clear that outdoor recreation is a very popular activity within the United States, but then the question comes down to what are the impacts of all these people “recreating” in the outdoors? Furthermore, outdoor recreation numbers are on the rise, and access and increasing interest will exponentially increase these effects (Marcin 1993). This can mean major problems for natural resource management in terms of how to regulate and effectively deal with the impacts of outdoor recreation (Ewert 1999).

Impacts of recreation to the environment:

Before examining the actual impacts of recreation a few trends should be highlighted. Most importantly, the impacts of recreation are multi-dimensional. They happen on different scales, different levels and in a variety of contexts. Furthermore, the use of recreation areas creates the impact. Studies have shown that impacts are both direct and indirect, but both affect the environment in some way. Finally, the type of recreational activity correlates directly to the nature and level of impact (Cordell 1999; Wagar 1974).
One of the biggest impacts of recreation on the environment is the effect on wildlife. This falls into four dimensions: habitat alteration, disturbance, pollution, and over-harvesting. Impacts to habitat include crowding of animal trails, loss of sheltering sites, alteration to actual habitats, and the destruction of feeding and nesting areas. Impacts of pollution include plastic and petroleum products along with increased erosion and sedimentation that contaminates watersheds. Over-harvesting occurs with non-timber forest products, hunting of game animals, over-harvesting of fisheries, and the loss of some crucial prey and predator species (Ewert 1999).

Outdoor recreation impacts vegetation as well. Entire ecosystems can be damaged starting at the ground layer, to shrubs, saplings and mature trees. Impacts include trampling of ground cover species, snapping of saplings, and abrasion and breakage to mature trees (Hammit & Cole 1998; Ewert 1999).

Recreation even has impacts to air and water quality, again depending on the multi-dimensional levels. The impacts to water quality are much more prevalent than air quality impacts. One major impact to water quality from recreation is bacterial contamination from activities such as swimming, wading, washing and bathing in water sources. Another impact is nutrient enrichment stemming from runoff. An example of this is fertilizer runoff from golf courses, which in turn causes eutrophication in near-by creeks and streams (Hammit & Cole 1998). This then can pollute larger rivers downstream, which may be swimming and fishing locations. Another impact to water quality is increased turbidity and sediments from walking and wading in shallow areas. Impacts can even affect water quality such as increase in water temperature, change of flow rates, and damage to aquatic vegetation (Wenger 1984).

**Dealing with impacts:**

A multitude of different approaches have been proposed for how to reduce and moderate the variety of impacts caused by outdoor recreation. The following table (on page 23) shows a compilation of these proposals:
Table: Mitigating Negative Impact

<table>
<thead>
<tr>
<th>Visitor management:</th>
<th>Site management:</th>
<th>Information management:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment and monitoring of visitor use</td>
<td>Assessment of selected sites and locations</td>
<td>Media outreach including radio, TV, newspapers and public announcement</td>
</tr>
<tr>
<td>Length of visit restrictions</td>
<td>Placement of use on selected locations</td>
<td>Environmental education and training</td>
</tr>
<tr>
<td>Distribution of use</td>
<td>Closures of locations or stopping specific activities</td>
<td>Visitor assessment and briefings</td>
</tr>
<tr>
<td>Rationing techniques such as lotteries, reservations, pricing, and first come first serve.</td>
<td>Propagation of resilient species.</td>
<td>Effective visitor information - Different types of communication with user groups.</td>
</tr>
<tr>
<td>Group size limits</td>
<td>Water quality and camp fire management</td>
<td>Highly specific and explicit information</td>
</tr>
<tr>
<td>Season conditions regulations</td>
<td>Rehabilitation of sites</td>
<td>Use of incentives or potential punishment</td>
</tr>
</tbody>
</table>

As shown above in the Table: Mitigating Negative Impact, there is a vast array of techniques, tactics and strategies available for addressing the impacts of outdoor recreation. In general these techniques can be grouped into three components: visitor management, site management and information management. Visitor management includes any change or decision that directly effects the visitors experience and ability to utilize the site. For example these management decisions could restrict time at an outdoor location, make the visitor pay money to use the location or regulate the visitors use seasonally. Site management includes any change or techniques that effect the physical site and access to the recreation area. This could include the implementation of infrastructure to curb visitor impacts, or the closure of certain sites to let them recover from user contact. Information management is inherently different from visitor and site management. This type of management technique is based upon providing visitors with clear and specific information that allows them to make responsible decisions. This management is grounded in the belief that visitors will
use the information to make knowledgeable decisions, leading to less impact. These three venues for management provide a framework for addressing some of the issues present within outdoor recreation (Ewert 1999)

Summary of Literature Review:

As shown through the literature review the connection between water and people is powerful and important for our wellbeing. It provides humans with an escape from our fast-paced lives and allows us to relax and recreate while bonding with the natural environment. This bond is placed within the scientific field of place attachment, described by both our identity and dependence to a place. In Vermont, swimming holes are one of the State’s valued water resources that provide a unique and fulfilling experience. While the visitor experience is beneficial, sometimes the corresponding impact is not. There are a variety of ways to deal with these impacts so that swimming holes can be maintained as functional, symbolic, and spiritual locations long into the future.
III. Methods

To study swimming holes in Vermont, I developed a series of questions that provided me with the necessary structure for my research. Each question had a specific purpose and through investigation, supplied me with necessary data. Answering these four questions, and then analyzing the information I gathered led me to the conclusion of my research. With each question comes a description for why the question(s) was asked, what materials were used to gather the information, and what specific methods were applied to attain legitimate results.

**Question 1: What locations will provide a well-rounded, diverse, and clear sample of human’s place-based connection to swimming holes in Vermont?**

This question was the most basic and was answered within a short time because I needed to begin my research. Clearly, this question required asking, because it would have been impossible to study every swimming hole in Vermont. I decided to focus on three specific locations that each had a different feel, culture, and crowd that utilized the hole frequently.

To answer this question I drew upon swimming hole literature, personal experience, and conversational interviews. I knew that I wanted to study swimming holes that were heavily trafficked by a wide range of user groups and ones that offered a variety of experiences. Furthermore I wanted study sites that had management issues already present. Using these criteria I choose Bolton Potholes, Bristol Falls, and Warren Falls.

Bolton Potholes fit my criteria in a number of ways. Using the Vermont Swimming Hole Guidebook (Minor 1998) and the Vermont swimming hole website (Swimming Hole Info 2009), I concluded that Bolton Potholes is a very popular location that attracts college students and locals alike. I also learned from a conversational interview with Steve Libby of Vermont River Conservancy that this location has had issues with access due to double parking, degradation, and private land ownership. I decided to use it as one of my study sites, knowing that it would provide a well-rounded location to examine further.

Warren Falls was chosen for its stunningly beautiful series of holes that attracts an increasingly large amount of tourists, families, and summer camps
each year. Furthermore, this location was selected for its recognition as a well-
managed swimming hole and its lack of ecological degradation. I knew this
location would provide a good contrast to Bolton Potholes, which would benefit
my study. Both swimming hole literature and my own personal experience at
Warren Falls led me to making this informed decision.

Finally, Bristol Falls was chosen for its popularity among a varied user
group base. It was also chosen for its distinct natural features that draw people in.
These include a waterfall, flat sunbathing rocks, and multiple cliff jumps. Finally,
it was selected for its “locals only” culture that has transformed the place
physically and socially. This decision was informed again by swimming hole
literature, personal experience, and conversations with other users.

To see the locations of these swimming holes in correspondence to each
other, refer to the Map of Vermont Swimming Holes located in the Literature
Review on page 18. The letters (BOLT) show the location of Bolton Potholes. The
letters (BRIS) show the location of Bristol Falls. The letters (MADR) show the
location of Warren Falls.

**Question 2: Are there distinct user groups that utilize swimming holes in
Vermont and if so, what are they?**

The framework of my research was to uncover what types of people
actually visit Bolton Potholes, Bristol Falls, and Warren Falls. In order to do this, I
identified the range of individuals that utilize these places through direct
observation, and organized them into “user groups”. These user groups helped
me address the varying dimensions of place attachment that came up in the
interviews, which will be discussed through questions three and four.

To tackle this question I conducted unobtrusive observational research of
subjects at the three specific locations. I spent three days at each swimming hole,
and varied my time of day at each location. The first day was spent in the
morning hours, between 9 a.m. and noon, the second day was spent in the early
afternoon hours from 12 – 4 p.m., and the third day was spent during the late
afternoon and evening hours from 4 – 8 p.m. This research was conducted from
June 25th through August 5th 2010.
To gather data on the people that I observed, I created a simple behavioral spreadsheet that I filled in with the appropriate information as I watched it occur. The spreadsheet I used is shown below in Figure 1.

Along with the spreadsheet, I also had a notebook that I used to document the time of day, day of the week, weather, and other important behavior and demographics that I noticed.

**Figure 1: Behavioral Spreadsheet**

<table>
<thead>
<tr>
<th># of ppl in group</th>
<th>General ages</th>
<th>Gender</th>
<th>Brought alcohol</th>
<th>Brought food</th>
<th>Cliff jumping, swimming, risk taking</th>
<th>Sunbathing, tanning, reading,</th>
<th>Littering &amp; leaving trash behind</th>
<th>Music, floats or other items</th>
<th>Other behavior:</th>
</tr>
</thead>
</table>

As a group of people would arrive at the swimming hole I would take down all relevant information that was visible and added it to the spreadsheet. Then, as the group of people began to participate in activities at the location, (swimming, eating, drinking, socializing) I would note these behaviors. Each group of people occupied a new column, denoting that it was separate party. There was, however, a margin of error in that sometimes a large group of people would enter the swimming hole at the same time, but would not be one party. Another margin of error was my inability to see all groups from my vantage point. My estimation for the amount of groups I observed and recorded is 75 percent out of the total amount of people using the swimming hole at that particular time and day.

Once I had compiled all the observational data in the behavioral spreadsheets, I analyzed it. This process including categorizing the different groups by apparent similarities in any of the characteristics documented. This included similar ages of people, similar behavior, similar activities and similar length of stay.

After I had compiled the different groups of people by all their similar characteristics, I actually had to define each user group. This was done by critically understanding what my information meant. I looked into each group,
noted all the information on age, gender, activities, behavior, and interaction with the physical place and came to a final conclusion. I identified six major user groups with one outlier group for these specific swimming holes, but believe that they could be applied to most swimming holes in Vermont. The user groups identified are:

- High School/College Students
- Families
- Other
- Thrill Seekers
- Couples
- Locals
- Elders

These groups will be discussed in detail during the results and discussion of this thesis.

**Question 3: What are the dimensions of the person-place relationship in each of the identified user groups?**

After clearly observing, analyzing, and defining the six user groups I was ready to move onto the third question of my research. Not only was my research focusing on the question of “Who uses these places?” I wanted to look further and understand why people come to these places, and what they experience physically, mentally, emotionally, even spiritually from swimming holes. As I compiled my literature review I examined articles on place attachment and decided to use this framework for understanding individuals place-based connection to water environments. The importance of uncovering this relationship was clear. To present informed management options, I first needed to recognize the behavior present and feelings people ascribe to swimming holes. Once I understood this, I could move onto my final question.

To tackle this question I decided to conduct interviews with different swimming hole users. From August 5 to September 10, 2010 I conducted a total of eight interviews with at least one individual from each user group. I conducted three interviews at Bolton Potholes, three at Bristol Falls and two at Warren Falls. To conduct the interviews I used a voice recorder and then transcribed the conversation later that day. I originally wanted to interview two subjects from each user group, but quickly noticed a limitation in the study. People were commonly hesitant to do interviews because interview sessions were lengthy and
occasionally quite personal. I explained to the subjects that it was not a quick process and would take some time to complete. Another limitation in the process was that there was no incentive for the interviewees. I believe both of these factors contributed to the hesitancy individuals expressed towards participating in my study. Clearly, people wanted to relax and be left unbothered. On average, one in six people agreed to do an interview. This affected my results in that I could not completely generalize about each user group because I only had one viewpoint. However, the interviews I did conduct are both in-depth and very informative, and I feel that they have produced high quality results.

The conversations that took place were standardized, open-ended interviews with a few closed response questions. I chose this type of interview because I wanted to allow for varying responses between people in the same user groups. I decided to ask all interview subjects the same baseline questions. Then if I felt I wanted to understand the specifics (e.g. behavior, motivations, emotions) of one individual or one specific user group, I added in questions on the spot. This allowed for a conversational, free flowing interview to transpire, during which real sentiments came out. The series of questions were drawn from my literature review and were based upon Place Identity and Place Dependence. The questions I asked every subject were:

**Place Identity:**

- Why do you come to this swimming hole?
- How long have you been coming here?
- How often do you come here?
- How did you first find out about it?
- Do you go to other swimming holes?
- How long do you tend to stay?
- How far away do you live?
- Who do you come with? By yourself?
- Do you have any strong feelings or values towards this place and if so what are they?
- Does this place give you any sense of meaning or purpose in your life?
- How would you explain your “sense of place” to this swimming hole?
• What words would you use to describe this place?
• Do you think about this place when you are not here?

Place Dependence:
• What do you like most about this swimming hole?
• What do you like least about it?
• Have you ever had any problems at this swimming hole? (w/ other people, noise, trash, illegal behavior?)
• Do you think there are any problems with this swimming hole? (environmental, social, land use, ethical)
• What do you think of the other people who use this swimming hole?
• Do like having lots of other people here or would you rather be alone/just with your friends?
• What specific qualities and attributes of this place make you come here? Which ones to you enjoy the most?
• What (how many) activities do you participate in when you come here?
• How important is this place to you in your life? (explanation and scale 1 – 10)
• If there was a fee to use this swimming hole what is the most you would be willing to pay?
• How would you feel if you couldn’t come to this swimming hole anymore?

Question 4: What do individuals (user groups) do at these places? What do swimming holes mean to different groups of people who use them? How do user groups value and treat swimming holes as a result of their differential experience?

These final questions were the capstone to my thesis. After defining user groups and interviewing individuals about their behavior, motivations, emotions, and connection to swimming holes, the last step was to compile all the information into functional results. The process of answering these questions was determined by the organization of my quantitative and qualitative data. I decided to split my results into sections in order to make them easier to interpret and
understand. What follows is the framework of my results – concise descriptions of how each section addresses the final questions.

The first section of results includes strictly site descriptions of each swimming hole. This includes location, size, natural features, defining characteristics and photographs I have taken. This section is necessary to answering these final questions because to understand individual responses in the interviews, you need to know about the actual place they are “attached” too.

The second section of results is in depth descriptions of each user group identified. This includes mostly quantitative characteristics such as demographics, size of groups, male to female ratios, and length / time of stay. This information was compiled from the unobtrusive observational data. This data is critical to answering these questions in that understanding the specifics of each user group provides the background for understanding the place attachment in each group.

The third section of results is a description of distinct behavior types for each user group. This is when the question, “What do swimming holes mean to different groups of people?” starts to become clear. In many cases specific behavior represents certain levels of place attachment. This section of the results is based entirely on observational data. I compiled behavioral data by reviewing my spreadsheets and listing the behavior noticed for each group. This section of results also addresses the question of: “How do people behave at these places?” By looking at the behavior and interaction between person and place, this section examines the diversity of behavior in each user group and the key differences between user group behaviors as well.

The last section of my results is a narrative story of my interviews with six individuals, one from each user group. This story provides the framework for understanding the types of relationships people have to swimming holes in Vermont. Using a combination of summary paragraphs, quotes from the actual interviewees, and my own reaction to their responses, I created an in-depth and cohesive report on these special conversations. The other part to this section is an analysis on the type of place-based relationship that exists for each individual interviewed. By using detailed information from my literature review that describes different types of place-attachment, I was able to come to some
conclusions on the dimensions of attachment for each individual. By cross-referencing both words and descriptions from interviews and behavior from observations, I was able to see the different values that people ascribe to these places and understand why they feel the way they do.

According to place attachment literature higher levels of attachment are related to:

- Coming to the swimming hole for multiple reasons such as swimming, fishing, family time and relaxing, instead of just one reason.
- Coming to the swimming hole for long periods of time (e.g. years over months, since they were a child)
- Finding out about the swimming hole through friends and family rather than guidebooks would suggest greater level of place identity.
- Staying at the swimming hole for long periods of time (e.g. 4 hours instead of 30 minutes, suggest higher level of place dependence)
- Living far away (+50 miles) and still coming frequently would translate to higher level of place dependence or living close by and coming infrequently would mean lower levels of place dependence.
- Coming to the swimming hole for personal, spiritual, or emotional reasons would suggest higher levels of place identity. D
- Having strong feelings towards the swimming hole, and ascribing certain meaning to the place (of both identity and dependence) compared to having no strong feelings or meaning.
- Describing a “sense of place” towards the swimming hole would suggest higher levels of attachment.
- Using words to describe the place that display a sincere connection, deep relationship, or underlying bond between individual and the natural environment.
- Thinking about the place when they are not present, and / or wishing they could be there when they are not.
- Having a variety of different attributes of the swimming hole that they enjoy (e.g. the natural features, the sound of the water, the smell, the wildlife)
• Describing the place as very important to them in their lives (scale 1 – 10)
• Having strong feelings if they couldn’t come to the swimming hole anymore.

No place attachment studies have been done on swimming holes, instead they have focused on natural settings in general. To compile this list of elements that point to higher levels of place attachment I reviewed articles based upon similar place attachment studies, and altered the setting to swimming holes. I then used the place attachment articles to create my framework for the analysis of place attachment dimensions in each of the individuals interviewed. Although the studies did not focus on swimming holes, the criteria for place attachment stays the same and thus can be applied to water environments. This framework for interviewing individuals and evaluating their dimensions of place attachment is based upon literature from:


Summary to Methods:

Addressing these four questions shaped the course of my study, each providing important information that was necessary for the final product. Guidebooks, conversations, and personal experience led me to choosing Bolton Potholes, Bristol Falls, and Warren Falls as study sites. Unobtrusive observational research led me to the development of the six user groups. Interviews (based upon place attachment) with individuals from each user group gave me a deep understanding of the person-place bond to swimming holes in Vermont. Finally organizing and analyzing this is information into functional results led to the conclusion of this project.
IV. Results

The information collected and analyzed for this thesis is divided into five sections. The first section is in-depth site descriptions. This information on the study sites provides the necessary background for the rest of the results. The second section describes user group demographics. This data then leads into the third section, which examines behavioral trends in each of the user groups. The fourth section of results is part ethnography, part narrative story of the six interviews I conducted. The fifth and final section of results is an examination of the place attachment dimensions in of the individuals interviewed.

Section 1: Site Descriptions

Bolton Potholes

Bolton Potholes is located on the Bolton Valley Access Road in Bolton Vermont. The swimming hole is located along Joiner Brook, a Winooski River tributary that eventually drops into the Winooski Valley and drains into Lake Champlain. The potholes were formed over thousands of years as the Joiner Brook intersected the Underhill Schist. Schist is a type of soft bedrock that is highly susceptible to water sculptures, thus allowing the falls to cut through the layers of rock and create what is present today. Joiner Brook has high amounts of water flow through it because it gets runoff from three different mountains all of which is funneled through the narrow valley below.

Figure 2: Top Hole

Bolton Potholes consists of four different “holes”. Holes refer to a distinct pool of water separate from another swim spot. The top hole at Bolton is shown below in Figure 2. This hole is 40ft long and 10 – 15 ft wide. The deepest point is 6 ft deep towards the back where the moving ‘water is visible.
The rest of the hole is between 2 – 4ft deep. This spot is popular with families and young children because it provides a calm location away from the rowdiness of the bigger holes below.

The next hole is the most dangerous one at Bolton. This hole is shown in Figure 3.

Figure 3: Whirl Pool

This hole is almost a perfect circle with a radius of only 8 – 10ft. The depth is unknown but could be anywhere from 15 – 20 ft deep. As shown in Figure 3 the water creates a recycling current (whirl pool) that can be extremely dangerous. In 2004 a swimmer became trapped in this current and drowned in the hole. Locals at the hole have expressed concern and frustration with people swimming in this spot. One local who lives on the Bolton Valley access road described a situation when he pulled two teenagers out of this hole with climbing rope and life preservers barely rescuing them in time. Clearly, this hole has a variety of safety issues that need to be addressed. Until then, people will continue to put their lives at risk by swimming in this hole.
The third hole at Bolton Potholes is the largest in size and also attracts the most people. This hole is shown in Figure 4.

Figure 4: Center Hole

This is the center hole at Bolton Potholes. The center hole is approximately 40 – 50 ft across and 6 – 10 ft deep. It is nearly perfectly round and is a shade of emerald green. The hole has southwestern exposure that keeps sun on it late into the afternoon. On a weekend day there are normally 75 – 125 people utilizing this hole at any given time. Above, below and around the center hole are a series of large flat rocks that provide ample room for people to recreate, sunbath and relax. Towards the shaded backside of the hole are two jumping locations. One of which is 12ft high, the second which is 28ft. The 28ft jump can be seen in Figure 5. These cliff jumps provide activities and excitement for the thrill seekers, but can cause hazard for non-jumpers swimming below. I witnessed two jumping accidents over the course of three days at Bolton Potholes, neither of which were life threatening, but still point to the need for some rules to be put in place. Along with thrill seekers this hole is very popular with college students during late August and September when classes resume.
The fourth hole at Bolton is located below the center hole after a small waterfall. This location can be seen in Figure 6. This spot is not so much a hole, instead a wide part of Joiner Brook as it begins to narrow again and flow towards the Winooski. This spot is very shallow, only 2 – 3ft at its deepest point and is approximately 80ft across. This spot is popular with summer camps, large groups of young children, and older adults looking to escape the loud noises, partying, and intensity of the center hole.
One last defining characteristic of Bolton Potholes is parking. Because of its popularity, hundreds of cars line the access road on a daily basis. There are no designated parking spots, so people pack cars along the road. The town has begun to post no parking signs and stake out areas that are off-limits. State troopers check on the situation frequently to ticket people for double parking and parking in the lane of traffic. This has created tension between the town of Bolton and the influx of swimming hole users, especially college students. This clearly shows that the carrying capacity of this swimming hole is being exceeded regularly. Because of its ease of access and numerous holes, its popularity is exponentially increasing. This is another issue with this location that needs to be addressed or Bolton Potholes could be posted and no one would be able to enjoy it.

**Bristol Falls**

Bristol Falls is located along the New Haven River in Bristol, Vermont. The parking area for Bristol Falls is on the Lincoln Gap Road and is easily recognizable. Bristol Falls, once known as Bartlett Falls, is a spectacular location with a variety of natural features. The waterfall has a block-style formation, is about 15ft high, and drops over an overhanging ledge. The falls can be seen in Figure 7.

**Figure 7: The Falls**
The overhanging ledge that the waterfall pours over has created an alcove behind the moving water. Large flat rocks run along the right side of hole creating an access point to actually go behind the waterfall. Behind the falls the overhang goes back 15 – 20 ft and there is plenty of room to sit down and watch the water from a new perspective. Behind the falls all sound is drowned out and the power of the river falling in front of you is a full body experience. Some locals and thrill seekers swim right under the falls and are carried into the gorge below. The gorge is approximately 40ft wide and 120ft long. The water is yellowish-green, 4 – 8ft deep and has a sparkle to it when the sun hits it just right. This gorge is the main swimming location at Bristol Falls and can be seen in Figure 8. Running along the side of the gorge closest to the road is a cliff-band 15 – 20ft high. It runs the length of the gorge and provides numerous jump-off points. Because of the length of the gorge and multiple jumping locations, Bristol Falls is a safe location for thrill seekers to practice flips and get their adrenaline rush in for the day.

Figure 8: The Gorge
The ledges along the gorge provide a hangout place for all swimming hole users. During a hot summer day, Bristol Falls can attract up to 500 visitors. At any one time 50 – 100 people can be utilizing the location for water recreation. The gorge provides a place for locals, students, tourists, and families alike to enjoy a day relaxing by the waters edge, jumping off the cliffs, exploring behind the waterfall and wading downstream. A crowd of college students hanging out and getting ready to jump can be seen in Figure 9.

Figure 9: College Students Socializing and Preparing to Jump

Another defining aspect of Bristol Falls is the “Locals Only” rock. This is a spot that has been spray painted and abused by certain individuals. There are also rumors that this rock ledge is only for people who have lived in Bristol or neighboring towns their entire life. If you step foot on this spot you might get an angry look or hateful comment. Details of this interaction between user groups will be discussed during Section 3 of Results. An image of the Locals Only rock can be seen in Figure 10.
Figure 10: The Locals Only Rock

The swimming at Bristol Falls is, for the most part, safe and reliable. Getting under the falls can be dangerous in that the rocks become very slippery with algae, so users must use caution. The main issues with this location are tension between locals and tourists, and a high level of trash being left behind. On the other hand the large amount of space and lower jumps offer one of the most people friendly swimming hole locations in Vermont. There are also numerous pools above and below the falls that provide a quieter atmosphere and place to escape the bustle of people coming and going.

Warren Falls

Warren Falls is located on the Mad River just outside of Warren, Vermont on Route 100. Unlike Bolton Potholes and Bristol Falls there are actual parking lots established for visitors. From the parking area it is a short, quarter mile walk down to the falls. This formation is similar to Bolton Potholes in that water has carved out these formations by molding the Pinney Hollow Schist – a very
moldable type of rock. Warren Falls is composed of a series of small drops, leading into a multitude of pools and surrounding cliff jumps. This location has a little bit of everything for everyone.

The upper pool starts with a 5ft drop and empties into the upper hole, 12ft across and 25ft long. This pool is 15ft deep and has a bluish green tint to it. There are two main jumps into this pool. One is a small 10ft jump along the backside of the hole; the other is a 25–30ft jump coming out of the woods at the top of the gorge. This hole can be seen in Figure 11 and the corresponding large jump in Figure 12.

Figure 11: Upper Hole

After this pool the river curves right and goes over a 7ft drop. Directly to the right of this drop is a steep, smooth section of rock that when wet is transformed into a waterslide. This slide is wildly popular with all swimming hole users. People will help each other by wetting down the slide and then cheer participants on as they fly down the rocks into the froth of the waterfall below.
Below the waterslide and small falls the river menders along creating two smaller pools and takes one final 3ft drop into a very deep bottom hole. This section of river can be seen in Figure 13. The bottom hole is the largest and most frequently used hole at Warren Falls and can be seen in Figure 14. A series of rock outcroppings surround the hole and provide hang out and jump off spots. Cliff jumps ranging from 5ft to 45ft encircle the location and all sorts of users participate in the activity of jumping in. On a weekend day at Warren Falls an average 100 – 200 people will be occupying the location at any one time. Space does become an issue because so many people are crowded on the small rock outcroppings to jump in that it can be dangerous.

From three days of observing at Warren Falls I only witnessed one serious jumping accident, but saw a few more close calls. Because of the varying heights, people jump in at the same time and risk landing on top of each other. Other than minor safety issues with jumping, Warren Falls is a spectacular location with a diversity of natural features. Because of its numerous holes it allows for different user groups to occupy different locations, each spot having a specific feel. The parking area allows for people to park cars out of the way and doesn’t cause issues with the town of Warren. Overall Warren Falls, as a site, is managed very
well. Bolton Potholes and Bristol Falls have a variety of management issues that need to be addressed before they are comparable to Warren Falls.

**Figure 13: Looking Downstream at Bottom Hole**

![Looking Downstream at Bottom Hole](image)

**Figure 14: Bottom Hole**
Section 2: User Group Demographics

After observing individuals at each location for a total of nine days, I developed six specific user groups based upon demographics (age and sex), size of groups, amount of usage, and behavior. This section is designated to highlight mostly quantitative data on each group. Thus behavior is not included in the description of these user groups. Behavior types of each user groups are addressed in Section 3 of results. As mentioned in my Methods the six user groups defined are High School/College Students, Thrill Seekers, Locals, Families, Couples and Elders.

High School/College Students

High school and college students are in the age range of 16 – 24 years old. Occasionally the age slips as low as 14 and as high as 26. The average size of these groups is between 4.5 - 5 people but can range from 2 – 10 individuals per group. The ratio of male to female in this user group is 3 males to 1 female. These groups tend to stay at swimming holes for 1 – 2 hours on average during the middle of the day (10 -3 p.m.). The most common users within this category are males between 19 – 22 years old.

Thrill Seekers

Thrill seekers are in the age range of 12 – 40 years old, but the majority of these users fall between 16 – 24 years old. The average size of these groups is slightly smaller than college student groups and falls between 3.5 - 4 people, but ranges from 2 – 8 people per group. The ratio of male to female in this group is almost non-existent, being completely dominated by males. These groups tend to stay at swimming holes for 30 minutes to 1hr on average during the afternoon (12 – 4 p.m.). There is overlap between high school/college students and thrill seekers but what distinguishes them is distinct behavior attributed to each specific group. On occasion individuals could belong to both groups but the majority of the time behavior and usage type classify them as one or the other. Again, the most common users within this category are males between 17 – 22 years old.
**Locals:**

Locals are in the age range of 20 – 60 years old, but the majority of these users fall between 25 – 35 years old. The average size of these groups is between 5 – 6 people but ranges from 1 – 10 individuals. The male to female ratio in these groups is 1.5 male to 1 female. These groups stay at swimming holes 1 to 3 hrs on average; normally in the later part of the day (3 – 8 p.m.).

**Families:**

Families consist of two sub-groups, the parents and the children. The age range for the parents is between 25 – 55 years old, but the majority fall between 30 – 40 years old. The age range for the children is anywhere between 1 – 16 years old, but tends to be between 4 – 13 years old. The average size of these groups is 4 people, generally two parents and two children. The male to female ratio is generally 1 male to 1 female, but shifts a little depending on each family. Families tend to stay at swimming holes for 2 – 3 hrs (sometimes longer) during all hours of the day (10 – 5 p.m.).

**Couples:**

Couples are in the age range of 18 – 70 years old but are generally between 20 – 50 years old. The average size for these groups is two people, but on occasion is 4 people when there is a pair of couples present. The male to female ratio is 1 male to 1 female. Couples tend to stay at swimming holes for 1 – 2 hrs during the mid-afternoon hours (1 – 6 p.m.).

**Elders:**

Elders are in the age range of 55 – 90 years old but are generally between 60 – 75 years old. The average size of this group is just 1 individual. Sometimes the size of the group is 2 individuals but more frequently they come by themselves. The male to female ratio in this group is 2.5 male to 1 female. Elders generally stay at swimming holes for 1 – 2hrs during all times of the day (10 – 6 p.m.).

**Other:**

This outlier group includes all other users that could not be quantified into a particular user group. This consisted of:
• Tourists who came to swimming holes not to swim, but instead to watch and photograph other users.
• Summer camps that utilized swimming holes in large numbers but at infrequent intervals, making it challenging to quantify the individuals.
• Motorcyclists, who used swimming holes as a spot to take a break from their rides and eat lunch.
• Fishermen who were looking for a place to cast their lines but were turned away due to the high amount of swimmers.
• Police officers checking on the situation and taking a break from their daily routine.

These user groups were designed to be all inclusive of the majority of people that utilize swimming holes in Vermont. To include these outlier groups in the identified user groups would have been a challenge because they didn’t fit the criteria. However, their presence was noted and factored into the big picture. What it shows is that people come to these places for a multiplicity of reasons, and no matter how many “user groups” were identified there will always be people that don’t fit into the equation. The next piece of understanding these user groups is interpreting their specific behavior. Section 3 looks at each group independently, examining behavioral trends within each of the user groups.

Chapter 3: Behavioral Trends

The previous section of results focused on the basic quantitative data collected for each user group. This next section is more extensive and focuses on the behavior of each user group. Behavior includes: the activities people participate in at swimming holes, the impact they have on swimming holes (what they leave behind) and their overall social and physical interaction with the place.

High School/College Aged Students:

High school and college students use swimming holes frequently and in large numbers. On most weekend days 25 – 50 percent of the individuals at a swimming hole can be categorized into this group. Even on weekdays there is always a substantial crowd of students at swimming holes. The most common
activity for this user group is drinking alcohol. On weekdays (Monday – Thursday) one out of every four groups brings alcohol with them, on weekends (Friday – Sunday) one out of three. The drinking culture within this user group is huge. Swimming holes provide an outdoor location that in many ways is lawless. Thus a high percentage of the drinkers are underage, and nobody seems to care or notice. Along with drinking, smoking marijuana and cigarettes is also a popular activity. For many students, swimming holes are essentially a party location.

Students also participate in standard swimming hole activities such as cliff jumping, sunbathing, socializing, and picnicking. For food, one out of five groups brings snacks with them. Students also bring water-tubes, stereos for music, and cameras. Because of the friendliness between students, many times users will know other groups and connect with them at the location. Swimming holes provide a social setting for students during the summer months and when school resumes in September the number of students at swimming holes increases. Many times students will arrive separately but will congregate with other individuals creating large numbers of students in certain areas around the hole. These locations are an outdoor playground for students. Jumping, sliding, water fights drinking in groups, yelling to each other, and cheering each other on are commonplace behavior for students at these locations.

While students love to have fun and party at swimming holes, there is a range of issues associated with this type of behavior. They include:

- **Trash** – Because so many students drink and party at swimming holes, a considerable amount of beer can/bottles, cigarettes, and food wrappers are left behind. At Bolton Potholes and Bristol Falls one out of six student groups leaves either beer bottles or food wrappers behind. Almost all students who smoke cigarettes at swimming holes leave the butts behind as well.

- **Safety** – Also due to drinking, safety becomes an issue. Student’s behavior changes significantly as they become intoxicated and they take more risks including high cliff jumps, flips from questionable locations and roughhousing near dangerous slopes.
• **Tension** – Because of students loud, and sometimes-disruptive behavior, other user groups become annoyed, offended, and aggravated by their presence. This causes tension mostly between the students and families. In general students behavior becomes a problem when it negatively affects the other user groups experience at the swimming hole.

**Thrill Seekers:**

Thrill Seekers are defined by their distinct behavior at swimming holes. These users come to swimming holes to participate in the act of jumping off of cliffs into the water below. Almost all user groups participate in jumping off cliffs into the water—it’s the, frequency, height, and skill level that distinguish these users as thrill seekers. These individuals will jump anywhere from five – 50 times in their stay at the location, generally leaning toward a greater amount of jumps (more than other users). Thrill seekers also jump from much higher locations than the other user groups. These jumps will range from 20 to 70 ft, into the small holes below. Thrill seekers are typically skilled at aerial maneuvers performing flips, spins, and dives off the cliffs.

The social interaction within this user group is defined by a machismo attitude, and the drive to “out do” one another. Other user groups cheer on thrill seekers as they perform a variety of flips from increasingly higher locations. Part of the drive for this male-dominated user group is to impress female users with their cliff jumping skills. The thrill seekers that perform the biggest flips are congratulated and praised by their friends and other (female) users as well.

Thrill seekers do participate in other activities at swimming holes such as drinking, eating, sunbathing, and socializing, but its clear from observation that the defining element of their experience at these locations is cliff jumping. There is a hybrid group that is a combination of college students and thrill seekers. These tend to be college students who are taking part in the drinking culture, which then leads them to exhibit behavior similar to thrill seekers. However thrill seekers generally don’t consume alcohol and are focused solely on their jumping experience.
Because thrill seekers stay for short time periods, they normally don’t bring food or drinks, so trash, alcohol and intoxication are only occasional problems. However, tension between thrill seekers and other groups can lead to some issues. Unmistakably the major issue with thrill seekers behavior is safety.

- **Safety** – Because thrill seekers push each other to go bigger and bigger, the risk of getting injured during a cliff jump increases. Users are pushed outside of their comfort zone and enter into some dangerous situations. Thrill seekers also run the risk of jumping onto a swimmer below, especially when jumping from the highest cliffs at the hole. During an observation day at Bolton Potholes I watched two friends convince another to perform a double front flip from the 28ft cliff. The individual under rotated the second flip and landed on his head under water. He cut his scalp down to the bone, was bleeding profusely, an ambulance was called, and he was rushed to the hospital. (Note: This user was drinking alcohol)

**Locals:**

This user group is the hardest to categorize because their behavior is scattered and ever changing. Locals tend to be frequent users of swimming holes, and participate in a variety of activities when coming to these locations. Similar to college students, drinking alcohol is a popular activity. These users are older in age, so underage drinking is not an issue. Smoking marijuana is also common and happens both around the swimming hole and in more disclosed locations above and below the swimming area. Bringing food and picnicking is also very popular; locals tend to bring lunch/dinner to the location. Other activities such as lounging in tubes, sunbathing, playing music, smoking cigarettes and socializing are customary. Because locals come in larger groups the party atmosphere is prevalent. Due to the fact that these users spend longer time periods at swimming holes they bring supplies with them. This includes lounge chairs, coolers, small grills and inner tubes. On weekends one out two groups brings alcohol with them and one out three brings food.

The social dynamic in this group is a defining factor. The standard locals tend to be adults between 25 – 40 years old, and utilize swimming holes as an
after work hangout spot for long-time friends. Because locals live in close proximity to the hole, these places are like their “backyards” and they feel a sense of ownership to them. Because of this fact some locals can be protective of “their” swimming holes and see other users as a threat to their slice of paradise. This causes a type of elitist mentality in some individuals and can lead to tension between other users. An example of this is at Bristol Falls, where the “Locals Only” rock has been the cause of some controversy. This is a spot where locals hang out and will actually confront you (sometimes aggressively) if you get in their space. This is also a party spot for locals and is where the largest amount of trash is present. Pictures of the “Locals Only” spot can be seen in Figure 15, 16 and 17.

Figure 15: Spray Paint on the Locals Only Rock
Figure 16: Beer Cans and Cigarettes

Figure 17: Empty Case of Beer
Clearly, there are some issues within this user group, and between locals and other user groups as well. These include:

- **Exclusivity and Tension:** Because locals feel protective of these locations, there is an element of exclusion for certain spots around the swimming hole and exclusion to certain swimming holes in general. This leads to some tension between locals and other user groups, especially college students, thrill seekers and families.

- **Trash and Litter:** The party scene with locals can be large and rowdy. Surprisingly, although many feel ownership to these places, beer cans, smashed glass, food wrappers, and cigarette butts are frequently left behind. At Bristol Falls one out three local groups leave trash behind.

- **Drug Use:** Due to feeling of ownership at these locations, some locals will openly use drugs at swimming holes in front of all other users including families with children. This causes other users to feel uncomfortable and threatened, increasing the tension between groups.

**Families:**

Families utilize swimming holes in a very different way compared to the other user groups, specifically the three already discussed (students, thrill seekers, locals). In general parents come to these places on weekends as a place to bond with their children, relax away from the work environment, pass on an appreciation for the outdoors, and teach their children how to swim. Children enjoy these locations immensely and display the most full hearted and pure love for swimming holes. The general activities of these families include:

- **Picnicking** – parents bring food and feed their children and themselves.
- **Swimming** – parents teach their children how to swim, advise them in how to cliff jump, play in the water with them, and swim themselves.
- **Drinking and Smoking** – some parents drink alcohol (1 in 8 families at Warren Falls brought alcohol) and smoke cigarettes.
• Exploring – children roam around the swimming hole with a sense of adventure and wonder. They go up and downstream along the banks to see what they can find.

• Games – children participate in (and invent) playful games ranging from pretending to be river creatures, to skipping rocks, and climbing trees.

• Sunbathing and Napping – Mom’s tend to sunbath and watch their children swim. Sometimes one parent will take a nap while the other observes the children.

Families bring lots of supplies with them as well and normally set up a place to hang out away from the more crowded areas. Families will bring coolers, blankets, chairs, cameras, floats and toys for children. Because families want to be away from the rowdiness of the students, thrill seekers and locals, they normally choose swim spots above or below the main hole. At Bolton Potholes, they set-up at the top or bottom hole, at Bristol Falls they set up below the long gorge in a wide shallow area, and at Warren Falls they set up above or below the four main holes. These spots tend to be shallow, with no jumps, and attract less people.

The social interaction between families and other user groups is not a defining aspect of their experience. Families are generally friendly and interact briefly with other users, but for the most part stick to themselves and their spot. However, on peak days when the swimming holes get overly crowded, the social interaction between families and other user groups can be a negative one. This happens when there are so many people present, but not enough room for varying user group behavior to take place. I observed frequent altercations between families (generally dads) and college to young adults (students, sometimes locals). The arguments normally stemmed from inappropriate behavior such as swearing, smashing glass, jumping very close to a child, or intoxication. However, in other scenarios parents would get aggressive towards students for no reason except that they were “invading their spot’ as one dad put it. This type of interaction between families and young adult users is the main issue within this group. For the most part, families do a good job of taking their trash with them, and are demonstrate consistent safety awareness.
Couples: This user group is less common to see at swimming holes compared to the previous four user groups, but is nevertheless distinguishable and significant. When couples do come to swimming holes alone it is typically a date. They come to spend time together, relax, cuddle, laugh, and bond. Couples bring the basics to swimming holes—a camera, a blanket, maybe a cooler with some beers and food—but not much else. They participate in standard swimming hole activities such as swimming, cliff jumping, sunbathing, eating and drinking, and overall relaxing. But couples also participate in unique activities such as displays of romance, affection and on occasion, nudity.

Couples, similar to families, tend to shy away from the crowded areas where the students, thrill seekers, and locals hangout. They set up in areas that are above or below the popular areas. Because families also use these less crowded spots, couples will venture even further away from the main swim spot to find locations that are private, secluded, and intimate. However, not all couples are looking for privacy, and some will hang out in the crowded areas.

The social interaction between couples and other user groups is minimal. The defining aspect of the pair’s experience at swimming holes seems to be spending time together away from the stresses of everyday life. Swimming holes provide a warm, tranquil, outdoor location where they can enjoy each other’s company while embracing the natural river environment.

Similarly, there are not many issues associated with this user group. When couples do bring food or alcohol they consistently pack out their trash. Occasionally they will leave behind cigarette butts, but this is common in every user group. Safety is not a concern, as couples don’t typically partake in risky behavior. Tension between couples and other user groups is also minimal because they tend to set up outside of the crowded swimming hole proximity.

Elders: Elders are the least frequent users of swimming holes compared to the other groups, but are exceptionally important. This is because they have the longest history, and most developed connection to these places. Elders participate
in standard behavior such as swimming, cliff jumping, sunbathing, reading, and relaxing. But some elders display behavior that is different from every other user. Those who are generally alone seem to have a spiritual connection to these places. Because of this, they meditate and reflect at these places. The water seems to be a therapeutic force, and the rock formations a calming ground. Their type of behavior is simple and pure. Normally, elders stray away from the crowded hole, or the family zone, and find their own spot. This is normally a flat rock, or embankment where they can sit and watch the river flow.

The social interaction between elders and other users is interesting. Sometimes elders will keep to themselves and not talk to anyone. In contrast, I also observed elders telling stories and relating to the younger users. These students and thrill seekers weren’t bored by these conversations, but instead they seemed fully engaged. There doesn’t seem to be much tension between elders and other users, mainly because they find a spot where they won’t be bothered. Elders rarely bring alcohol or food with them so litter is never an issue. Overall, elders seem to accept swimming holes for what they are and who uses them. They are not angered by the college crowed, nor are they bothered by locals. The greatest element of their experience at these places seems to be the ambiance and calming qualities of the river itself.

Section 4: The Power of Words

This section of results tells the story of my interviews with individuals at the three swimming holes I studied: Bolton Potholes, Bristol Falls, and Warren Falls. I interviewed one individual from each user group; what follows is both a summary of their personal responses and my own narrative in exploring this connection between person and place. The interviewees are given fake names in order to conceal their identity and ensure that no ethical guidelines are broken.

College Student – William

I interviewed William (Will), a college student at the University of Vermont on September 10, 2010 at Bristol Falls. Will was with a group of three males and two females, and from observation seemed to be your typical college
student. I approached Will and told him about my thesis. After some time I asked if he would be willing to answer a series of questions. He agreed and we found a quiet rock ledge in the sun where our conversation transpired.

I started with the basic questions from my list and began to get a feel for his relationship. I found out Will comes to Bristol Falls at least six times a summer. His good friend Laura brought him to the spot one afternoon and he instantly felt a connection to the place. He described how he rarely comes to swimming holes on his own; instead he rounds up a group of friends, and spends the afternoon relaxing with them at the hole. He explained how he goes to a bunch of swim spots around Vermont in the summer including Bingham Falls, Warren Falls, Bolton Potholes and Huntington Gorge.

Our conversation began to evolve and Will started to describe his feelings towards Bristol Falls and the other swimming holes he goes too. As he put it:

I am grateful that this place exists. If it vanished or if I couldn’t come here anymore I would have only vivid memories of it. I have enough of a relationship to this place that it pulls me back to revisit, to drive to it, to get excited, to invite other people to come here and have them experience what I’ve felt.

I began to feel that swimming holes were a significant element to Will’s summer experience, but I wanted to know more. He told me that he thinks about these places when he is at work, or at home, and even dreams about them. Clearly they are important to his life, but why? To answer this, I began to explore the qualities of the place that draw him in. He explained how it’s the variety of activities you can do at swimming holes (namely, Bristol) that brings him back again and again. Things such as jumping, skipping rocks, building sculptures, walking, laughing, talking, observing and overall being creative within a place that is familiar to him, these all contribute to his experience. As he put it: “…exploring a place I think I know well but then discovering that there is always something new to do, to see, to partake in, that’s incredible, that’s what brings me back.”

I wanted to explore this further so I asked if it was certain attributes or characteristics of the natural setting that were engaging or if it was the social experience that drew him in. For Will, it seemed to be a combination of various factors. A river waterfall, deeps and shallows, warm rocks, excellent friends,
playful activities, sun, shade, “a great recipe with good ingredients” were all reasons he gave for utilizing this place.

Our discussion moved in a different direction and I asked him about any problems or negative experiences at swimming holes, specifically Bristol Falls. He described some individuals as being negligent, leaving cigarettes, food wrappers, cans and trash, all of which create an eyesore that hurts other people’s experience. He also described individuals coming to swimming holes with anger and contempt, and having this spread by what they say or their demeanor towards other users. This led me to ask him about his opinion on other swimming hole users. He replied:

I think it is a mind-expanding experience for people who haven’t been before. It’s a perfect thing for anyone to experience, it is such a good place to see and be at because it leaves a lasting impression that can only make you happier. I like talking to people at swimming holes when they are approachable. The fact that it is a friendly, social atmosphere is really fun.

As the conversation got deeper I could tell that Will was a down-to-earth and insightful individual. His connection to swimming holes on the surface was standard: attracted to natural features, enjoys the social setting, has fun in the sun and so on. But the way he talked about these places, the way his eyes lit up, I knew there was something else he had to say. I decided to ask him if he had ever thought about a sense of spirituality towards these places. His response was riveting:

Yes I do, this spirituality exists because you can hear the river, you can be in it, touch it, and feel it. The experience here engages all the senses in a unique way, just as exploring a forest does or climbing a mountain. It is a combination of all these traits and the masterful architecture that just so luckily happened to take place that creates this supernatural experience.

I was blown away by Will’s response. It washed away any stereotypes I had about college students only utilizing swimming holes as party locations, apparently (for some individuals) there is much more to the relationship. We talked in further depth about this idea and at the very end of our conversation Will proposed his swimming hole spirit theory, a perfect summary to my interview:
I came to this conclusion that there is me separate from the swimming hole, the swimming hole out there that exists regardless if I do. Both of us can exist separately and never come into contact. But when I do come into contact with a swimming hole, naturally a spirituality arises – it activates the spirit of the swimming hole and that’s the basis of the relationship of my humanness and my swimming hole spirit.

**Thrill Seeker – Jack**

I interviewed Jack, a first year college student on July 5, 2010 at Warren Falls. Jack was with two other male friends who showed up at Warren Falls later in the afternoon. They started to exhibit typical thrill seeking behavior – multiple jumps, flips, challenging each other to bigger maneuvers. Because it was late in the day, the swimming hole had cleared out and there were only a few groups left. As they finished their jumping session I approached Jack and praised his jumping skills (they were truly impressive). We talked about good cliff jumping locations and I mentioned my research, asking him if he would like to be part of it. I thought he was going to decline, but he unexpectedly accepted with excitement. We sat down at the top of one of the many cliff jumps at Warren Falls, I turned on the tape recorder and a thrilling conversation took place.

Right off the bat Jack told me that he comes to swimming holes to jump off cliffs into the water to do flips for “enjoyment and recreational purposes”. (This statement made me feel confident in my assessment of the thrill seeker group). He also comes to these places because it’s a nice location to be with friends and socialize with other individuals who enjoy swimming holes. Surprisingly, the day I interviewed Jack was his first day at Warren Falls. His friend who lives in Waterbury brought him out because he knew Jack was “obsessed” with cliff jumping. He went on to tell me that he normally goes to Bolton Potholes, Triple Buckets, Halifax Gorge and handful of other holes. Jack told me he specifically likes locations that are known to have multiple cliff jumps, deep water, and lots of room to land. Normally he stays at swimming holes for 1 - 2 hrs, but on weekends will stay for half of the day or more.

Jack went on to describe that he doesn’t really ever come to swimming holes on his own. He felt that going to these spots is a social activity, and that it’s always more fun to have friends with you. After asking Jack the series of basic
questions, I wanted to get a real sense for his feelings towards these special water environments. He explained that swimming holes have come to define his summer experience in Vermont, and he feels this sense of belongingness towards them, as he put it “it’s like coming home.” He went on describe how these places have special meaning to his life:

Ultimately just being outside reminds me why I am alive, and makes me present to the things that are going on around me. Visiting a swimming hole is a great way to access nature, especially to escape the city environment. In that sense it is like coming home – going back to nature and connecting with the greater universe. Swimming holes have come to define me – part of my identity is the experience I enter into at these places.

I wanted to know more about Jack’s unique experience at these places (compared to other users) so I began to ask him about his behavior. I asked if he considered himself a risk taker, and what he personally got out of cliff jumping. He responded:

There is something about the adrenaline rush that puts you in the moment that you can’t achieve on a day to day basis. Whenever I jump off a cliff into the water it’s an immediate pull back to the moment. It’s like the universe is saying “don’t forget about this.” In day-to-day life there are always distractions and your mind drifts and wanders; but when you are in the air every part of you is there. Mind, body and spirit are there.

This response helped me understand the thrill seeker mindset. It’s not just about impressing each other, or seeing who can get the most applause, there is some feeling real and tangible about cliff jumping that makes the present moment last forever. This feeling makes the risk worth it, over and over again.

Because Jack seemed to be a frequent user of swimming holes I wanted to know if had ever experienced problems at these places. One that he mentioned was simply the amount of people at swimming holes on popular days. He felt that this is when it can get out of control and dangerous. Jack also described how your connection with nature is mitigated when there are tons of people present.

Stemming from swimming holes being overcrowded, Jack described a series of other problems. He felt drinking and smoking happen and can cause problems when the drinking crowd gets rowdy. He also felt the amount of trash is disappointing because swimming holes have this “sacredness” to them, and when you see trash it takes away from this feeling. He described noise as being
connected to the number of people and negatively affecting the experience. He went on express his feelings that wear and tear on landscape could become an issue if the number of people was not controlled. Finally Jack mentioned this feeling of tension between different individuals at the swimming hole. He could see that the older population has trouble with the college crowd (putting himself in that group) but explained there is no obvious solution because “everyone has their own interests in mind when they are at swimming holes.”

I wanted to know a bit more about Jack’s attraction to swimming holes so I asked a few questions about the specific qualities that he enjoys and activities he participates in. He expressed how he took pleasure in the variety of levels, pools, jumps, and flat rocks at Warren Falls. For activities, he described jumping as the defining aspect of his visit along with talking with other users, relaxing, and smoking pot.

Swimming holes seemed to be an important part of Jack’s life, so I asked him why? As he explained, they are a major source of recreation for him, they are meditative, rewarding, and brings him to the moment. These feelings translate to happiness for Jack, and allow him to be content with the world.

Jack seemed like a smart individual, with good ideas and a heightened sense of the dynamic at swimming holes. So, to close our conversation, I asked him about the future of swimming holes in Vermont and how he would feel if some locations were closed down due the problems he had described. He replied:

I would be really upset if they shut a swimming hole down, mainly because I think swimming holes can be managed in ways that they can stay open. Shutting them down would be the easy solution but not an intelligent or fair solution to the general public. You could address the problems and not have to shut them down. These places are so unique, there is societal duty to keep them open for everyone, and because they are acceptable to any socioeconomic group. For people who don’t have a swimming pool this a place where they can come to swim, relax, and bond with family and friends. This is one ethical factor that must be taken into account.

Jack brought up a critical point. Swimming holes are open to anyone and everyone. This is what makes them such unique recreational environments. They don’t cost a cent, yet the experience available at them is invaluable. Keeping them accessible and open is not only convenient but also essential for the wellbeing of Vermont’s citizens in every socioeconomic group.
Local – John

I interviewed John on September 3, 2010 at Bolton Potholes. John and a group of his buddies showed up at Bolton around 5 p.m. It was one of those beautiful early September days, still in high 70s, sun was shining, and it felt like summer was never going to end. I had seen this group before at Bolton Potholes and knew they were locals. They showed up with a case a beer, a grill, some lounge chairs, a couple of dogs, a couple of kids (family locals) and set up right at the upper hole (see Section 1: Site Descriptions). I had wanted to interview a local for some time, but felt slightly embarrassed; I worried I would be stepping on soft ground. I finally mustered up some courage and approached the group once they had settled in and had a few beers.

I slipped into conversation with a few males sitting on the large flat rocks. The conversation was low key – weekend plans (it was a Friday), talking about the weather, how crowded it was at the hole, commenting on thrill seekers flips from our good vantage point. Once I felt I gained their trust, I mentioned my research and how I was interested in getting a mixture of responses. I asked if any of them would be interested in doing a recorded interview. All three seemed hesitant at first, and I thought I was out of luck. Just I was ready to part ways, John stood up and said he would talk with me as long it didn’t take “for fucking ever.” We sat down beside the upper pool and I began the interview. (I kept it shorter than most to keep John happy).

I found out right away that John lives right down the road in Bolton, Vermont. He works at Bolton Valley during the winter months, does construction in summer; and comes to the Potholes almost every day after work when “the sun is shinning.” He moved to Bolton from New Jersey in 1999 and fell in love with Vermont – both the landscape and the people. He typically comes to the Potholes to relax, swim, drink some beers, and hang out with friends who also live nearby. I asked John his feelings towards the Potholes and he responded:

I mean, I appreciate it definitely; it helps me calm down and feel relaxed after a long day at work. So I’d say I have positive feelings for this place, it makes me feel alive and in return I take care of it. But not everybody does, you know, a lot college kids come out here and don’t give a shit about it. And I don’t mind them you know, I was your age too once, but we never fucked the place up. You just have to take responsibility for your shit.
I found his response interesting. It was starting to occur to me that nobody I interviewed placed blame on himself or herself. There seemed to be a constant passing off of fault and tension from one group to the next.

I asked John what he specifically enjoyed about this place and he described the atmosphere and social setting being his favorite part. When I asked what he liked least about the Potholes he explained how the overcrowding was detracting from his relaxing experience he was accustomed too. When I asked him about any problems at Bolton Potholes he described the safety issues and drowning concerns in the small pool. He also expressed some frustration with the increase of college students and parking issues along the road. As he stated: “My friend lives right at the bottom of the access road and she gets parked in on a daily basis, that’s bullshit – the town has to do something about it!”

The way John talked about the Potholes it felt as if they were his backyard. He comes to them almost daily, but could see that there were issues developing – the overcrowding, the pressure from the town of Bolton, the safety with the small pool. I asked John how he would feel if couldn’t come to his treasured hang out spot any more he replied:

*I’d be really upset man, I mean I don’t know how they could take this away from me, from us, that just not fair. But I heard rumors the town is trying to shut down the whole spot because too many kids are coming up here and getting drunk, smashing glass, swimming in high water and what not, taking risks. Nobody wants to be liable when somebody dies or gets hurt.*

I could sense John’s strong emotions towards the Potholes and recognized his attachment to this place was powerful. By the end of the conversation he seemed upset, if not concerned for the future of this place. We talked a while after I turned off the recorder and he actually thanked me. Explaining that people have to take initiative and stand up for these places, otherwise their future looks grim. As he put it: “If swimming holes can bring us together they can also tear us apart.”

**Family (local) – Jenny**

I interviewed Jenny on July 11, 2010 at Bristol Falls. Jenny (mom), Todd (dad) and Sandra (baby) were hanging out on the local’s only rock, during the middle of day. Todd and his friends were both drinking beers and a few other
individuals were present. They had a young girl; maybe 12 – 18 months old that Jenny was cradling and breast-feeding. At first the scene shocked me: dad drinking, mom cradling baby near cliff and waterfall, swearing constantly. Right away I thought to myself, “These people are definitely going to leave trash behind and be irresponsible.” Then, something happened that changed my perception altogether. Jenny’s friend took the baby and her and Todd took out trash bags and began picking up all the trash along the riverbank. It was a Sunday so the “Locals Only” spot was littered with beer bottles, food wrappers, and other trash. They spent the next 20 minutes picking up every last bit of trash, filling up two entire bags. This inspired me to go talk to them. I told them how grateful I was that somebody was taking charge and dealing with the problem. Jenny was incredibly friendly, we jumped into conversation, I mentioned my research and she agreed in an instant. After helping her carry the trash bags to their car, we sat down at the locals only rock and our conversation began.

Jenny told me how she lives right up the road, and that she had been coming to Bristol every since she was a little girl. Her mom brought her there and now she brings her daughter there too. She comes to Bristol to cool off (because she doesn’t have a pool), relax with her family, and spend down time here after a busy workweek (she works two jobs). Bristol is a place where all her friends come on the weekend to catch up, socialize, have fun, and party. They bring small grills, beers, blankets, and spend the day at the hole. She likes the fact that she can come with her family, by herself, or with friends and each time it is a refreshing experience.

When I asked Jenny about her feelings towards Bristol Falls she replied with a similar “local” attitude. She explained how she loves the place and that it comforts her. She told me when she is really stressed out with work, her marriage, or just life in general, she comes down to Bristol to sit and watch the water. “It brings me back, reminds me who I am, gives me some purpose, its like a home away from home. You could say it makes me more of a sane person.” She told me how she thinks about Bristol everyday, and often yearns to be there.

Our conversation moved in a different direction and so I asked Jenny what she likes most and least about Bristol Falls. She explained how she loves the
natural features including the big flat rocks for sunbathing and the waterfall – she used to go behind it when she was young girl. She also described the atmosphere, how everyone is friendly and outgoing – “a great place to meet people and have a good conversation”.

What she liked least was a very different response; this is what she said:

I hate that people always party here but never pick up their trash. I mean I like to drink too and don’t get me wrong I do my fair share of partying, but I always pick my trash up. I have such an issue with all this trash that I’ve started bringing a couple trash bags here every time I come. My girlfriends and I come down and clean up along the river. It just ruins it for everyone else, the beer cans, the smashed glass, the cigs and what not. It’s just not fair for everyone else who wants to enjoy a clean, beautiful place.

Jenny explained how her friends can get out of hand when they drink and she tells them to cool it. Overall, she felt trash was the biggest issue. As we talked more I could tell she also had felt this “tension” between different groups at the hole and had even witnessed fights between rowdy individuals. However, she enjoys the variety of people at Bristol and wants everyone to be able to enjoy such a beautiful place.

Our conversation neared its end and I asked Jenny one last question: how important is Bristol Falls to her life?

This is by far one of the most important places to me in my life. In the summertime this is my home, and this is where I come to relax, with the family, with friends, by myself. You couldn’t replace something like this, not in a million years.

**College Couple – Ben and Sarah**

On July 24, 2010 I interviewed Ben and Sarah at Warren Falls. I had seen Ben and Sarah at Warren Falls before this interview and I had even interacted with them, talking about the waterslide and “grandness” of the gorge. On this particular afternoon I was hanging out near the upper hole and I saw Ben and Sarah lounging together on some flat rocks near the waters edge. Ben recognized me and came over to my spot. We talked casually for a sometime, and as our conversation deepened I realized I was asking him questions similar to those in my interviews. I stopped myself, told him about my realization, and asked if I could record a conversation between him, Sarah and myself. He seemed pleased
with the idea that he could be part of my research. We made our way back over to where Sarah was laying, we all got comfortable and the interview began.

Right away, I learned that Ben and Sarah were both UVM students and had been coming to Warren Falls for the last couple of years. They explained how 50 percent of the time they come on their own to “escape everyday life, relax, and connect with each other in a stress-free environment.” The other 50 percent of the time they come in large groups of friends, for the social scene and laidback atmosphere. Normally they stay for 2 – 3 hours, depending on the weather, how crowded it is, and what other engagements they have.

Ben and Sarah had been coming to swimming holes together ever since they started dating two years ago and share a special connection to these places. Ben felt that they are part of what he does, and that they define his experience in Vermont. “Swimming and jumping off cliffs is what I do, if I couldn’t go to a place like this I wouldn’t know what to do in the summertime.” Sarah felt that these places give her the time and space to connect with nature and calm her mind.

I was curious to know why Ben and Sarah would drive over an hour to Warren Falls, when there are plenty of swimming holes close to Burlington. Sarah explained how they like the variety of different natural features, from cliff jumps, to small pools, a waterfall and waterslide. As she put it:

*The functionality of this place doesn’t just draw in the people that are into the whole cliff jumping thing. It has something for everybody, a whole family can enjoy this place without having to worry about safety or other irresponsible individuals.*

Ben also described how much space there is and how this makes it a more enjoyable experience. The series of pools and waterfalls allow most everyone to have their own spot.

Next, I asked them about what activities they participate in at swimming holes (as a couple and in groups of friends). They participate in cliff jumping, swimming, drinking, sliding, sunbathing/basking, bonding with each other, and socializing with friends. They also like to build rock cairns and sculptures that can be seen in *Figure 18.*
I also wanted to know if they had ever experienced problems at the swimming hole with other users, or any issues in general. They felt for the most part that everyone is friendly, supportive and outgoing. People cheer each other on, but sometimes push it to far – which is when somebody gets hurt. Sarah noted that when people bring glass beer bottles they get dropped or smashed, causing another safety issue. Ben explained how overcrowding, especially at small locations can lead to a bunch of other issues. They tend to avoid crowded swimming holes because they feel the amount of people detracts from the experience they are looking for.

Ben and Sarah both described swimming holes as “very important” to their lives. Sarah who is originally from New Jersey said:

*Where I’m from you don’t see many places like this, so I really hold these places close to my heart. I travel a lot and when I need to feel grounded and comfortable I think of Warren Falls.*
Because Ben and Sarah were frequent users of Warren Falls, I was curious to know if they had any management ideas or opinions about this place or other swimming holes in general. Ben felt that parking lots are crucial and having a staircase down to the water would mitigate some of erosion along the banks. Sarah felt that there should be warning signs, to keep people from making “stupid” decisions and putting lives at risk. Ben chimed in that the signs should be positive instead of negative (e.g.: Help Us Keep This Place Beautiful vs. Don’t Litter).

Finally I mentioned Will’s swimming hole spirit theory to them and asked what they thought. Ben agreed and felt that swimming holes create memories and fuel a connection to the natural world because they are such “magical and alluring places.” Sarah agreed and felt that her time spent at swimming holes was a type of transcendental experience.

**Elder – Fred**

I interviewed Fred on August 28 2010 at Bolton Potholes. I hadn’t fully developed the elder user group yet, but spotted Fred by himself along the edge of the bottom pool (see Site Descriptions) and wanted to talk with him. He seemed at peace and completely in the moment, standing by the river with the sun warming his face. I approached him slowly and introduced myself. He was immediately friendly and engaging and we jumped into some intriguing swimming hole conversation. After a few minutes of introduction, I asked him about an interview and he said yes without hesitation.

I started the interview by simply asking him why he comes to the Potholes, he answered with one word: spiritual. He proceeded to tell me that in lives in Waterbury, Vermont; he was born and raised in the trailer court and has been coming to the Potholes for as long as he could remember (told me he was 62 yrs old). Fred went on to explain how he was baptized in the Potholes along with his two brothers. Their mom brought them to Potholes as kids and taught them how to swim back in the mid 1950s. He told me how the Potholes have changed a lot over the years. He remembered when it wasn’t an active swimming hole at all like it is now.
I asked Fred about the Potholes, the river and why it draws him in, he replied:

I told my wife this morning I'm going up to the potholes, she said don't dive off the top, I told her that's one of the reasons I come here every year. I'm sixty two but I still have to dive off the top. When I was standing up there I felt the adrenaline, makes me feel alive. If I die so what, at least I died doing something I love.

He also explained how he comes to the Potholes to snorkel (looking for items people have lost in the pools) and to meditate.

I asked Fred about his sense of place towards the potholes and he described how he had his roots and history engrained in this spot. Because he was baptized here as a newborn he is attached to the old Vermont ways of coming to swimming holes. When he got married and had children he did the same thing with them. He brought them there not to just to go swimming, but to experience the river, the natural beauty, and spirituality of such a special place.

Next, I asked Fred about any problems he had noticed over all of his years of coming to this spot. He replied that the problems had gotten much worse in the last 5 – 10 years.

Oh just the drinkers, like I said if you look right behind you there is another bottle. The owners live right over there (points across stream). Notice those silver markers on the other side of the road, slowly but surely their closing down the parking. The town is closing the whole place down bit-by-bit cause of all the drinking.

I asked Fred if had any hopes for change, and if he thought that implementing rules and regulations could change things for the better. He explained to me how swimming holes have intricate history. They are here for lifetimes, while we’re just a tiny bit of the big picture. He felt that to change anything about them, to make rules, or put a cost on the experience would take away from the true nature of these places. I questioned this further and asked him what he thought it would take to solve the problems at Bolton. He replied:

Just do what you were taught to do. I try to do my little bit. Maybe that's what we should do, have a clean up team that goes in once a week, or a month and gets rid of all the trash, glass, and danger. The major problem is the drinking culture at swimming holes, the yahoo culture. You know people are here for other reasons too.
Finally I asked Fred about his deepest feelings toward this place; he replied: “The potholes will always be my refuge, my heaven on earth. I love this place more than other spot in the entire world. I know no matter what happens I can always come back.”

**Clarification for Section 4: The Power of Words**

At this stage in the results I’d like to clarify a few points. The interviews that took place were in-depth, thought provoking, and insightful. The information I extrapolated from these interviews has been placed carefully within the context of all the other data I have gathered from literature and observations. Furthermore the interpretations and recommendations I develop later in the thesis are based upon the collective research I conducted, not just what six people told me. The purpose of hearing from these individuals is to provide a glimpse into the types of relationships, feelings, and emotions that people have towards these water environments. In doing so it brings to the light the essential importance of swimming holes – to a diverse group of people – in a wide range of contexts.

**Section 5: Dimensions of Place Attachment**

After conducting interviews, the next step was assessing the “level of place attachment” for each individual. The more I read their responses and tried to evaluate what they said, the harder it became to give them a score. After looking carefully into the interviews, and relating what they said back to my place attachment framework, I came to the conclusion that these individuals all expressed **high levels** of place attachment – each in a different and unique way. For the purpose of my research understanding this (the essence of their relationship) was much more important than denoting a score and level of attachment for each person.

**William**

Will displayed high levels of place attachment through his spiritual identification to swimming holes. This is part of his place identity and shapes his
personal and emotional relationship to these places. His relationship has elements of place belongingness (sense of familiarity or emotional connection to the land) that contribute to this deep-rooted bond that is present in his life, that “brings him back” time and time again. Swimming holes also hold symbolic meaning for Will as a place full of power that must be respected. In a sense, Will holds a “membership” to the natural world of swimming holes, fostered by his spiritual identity and dependence for engaging his senses in a water environment.

**Jack**

Jack displayed high levels of place attachment through his relationship of cliff jumping at swimming holes. Jack expressed a functional bond in which swimming holes provide a place for this recreational activity (actual swim spot) and the resources to do so (cliffs and deep water). Along the lines of place dependence, Jack finds instrumental meaning at swimming holes – participating in an activity that isn’t possible anywhere else. Jack’s strength of association to these places was powerful. A variety of “needs” are met for Jack when he comes to swimming holes – positive emotion, invigorating recreation and personal connection to the natural world.

**John**

John’s relationship is inherently different than other users, but a strong one nonetheless. His relationship follows the lines of place rootedness. Because of John’s long-standing relationship and frequent visits to the Potholes his bond is authoritative and makes him feel “right at home.” He is comfortable and secure at the Potholes because of the time and experiences he had at this spot over many years. He feels connected because it is his “backyard,” and values it highly as a place to relax, hang with friends, and “be himself.” John’s relationship exhibits both instrumental meaning (as place to engage with friends) and individual meaning (long standing connection to place).

**Jenny**

Jenny also displayed high levels of place attachment. She displayed feelings of place familiarity and strong place identity. Jenny has memories at Bristol Falls as a young girl and now wants these same experiences for her daughter. Her identity towards Bristol has developed over time and become more
powerful. This has motivated her to clean up the area, preserve it, and pass it on to her friends and family in the same condition she enjoyed it in. Similar to John, Jenny’s relationship is also based upon her individual and expressive meaning she attaches to Bristol Falls. Her deep-rooted appreciation, attraction, and dedication to this place all exemplify her bond to Bristol and her intrinsic place based relationship.

**Ben and Sarah**

Ben and Sarah’s relationship to swimming holes is strengthened by their combined identity and dependence. A special connection arises when they immerse themselves in swimming holes together. This calming environment works its magic on them and in turn they feel more connected to each other and to the natural world. They also depend on these places to escape the stressors of everyday, to be present with each other and friends, and “feel grounded.” Their high level of place attachment is embodied through their emotion, frequent visits, spiritual connection, and thoughtful bond to these water environments.

**Fred**

Fred expressed high levels of place attachment defined by his place belongingness and place rootedness. Similar to Jenny, Fred has been coming to the Potholes for a long time – more than 60 years. His relationship is defined by his spiritual connection, years of returning, sense of ownership, and stewardship towards the Potholes. Furthermore his knowledge on the history of the Potholes, the developed communal bond between himself and the environment, and his understanding of problems present portrays a diverse place based relationship.

**Summary to Results:**

Bolton Potholes, Bristol Falls, and Warren Falls are spectacular swimming hole locations. The numerous pools, ledges, waterfalls, slides, flat rocks, and cliff jumps attract people throughout the summer months. Young or old, local or out of state, male or female, these places have a little bit of everything for everyone. These different user groups interact with swimming holes in range of ways. Some come to socialize, drink alcohol, kick back and relax after a hard week. Some come to meditate, clear their mind, and have a spiritual experience. While others
just come for a quick dip, a few cliff jumps, or a moment by the rivers edge. No matter the reason for visiting each spot, the “swimming hole experience” is valued highly by many and creates positive meaning in people’s lives.
V. Discussion

This section of my thesis highlights themes from the results and ties them back to what the literature says about people, place, and water recreation. This section also addresses my personal experience of collecting this data, surprises and contradictions of the study, and the effect I had on people, which influenced the information I gathered. Finally this section looks into limitations of the study and external factors that could have influenced the data I collected.

Section 1: Themes from Results

Behavior:

After analyzing my observations and interviews, clear behavior types stand out for the user groups. Understanding this is key to making proper management decisions. For almost all users, socializing is a large part of the swimming hole experience. People come to swimming holes to “hang out” with friends, “bond” with family and have “personal” time with loved ones.

Another clear activity type seen in most user groups is swimming and cliff jumping. The majority of people who come to swimming holes are utilizing the natural features to swim, jump, dive, and cool off in. The allure of clean river water on a hot summer day draws people in to participate in various types of water recreation.

Engaging in downtime is also a behavior type seen in all user groups. Swimming holes provide not only a socializing and swimming atmosphere, but they also provide a place to lay in the sun, nap, do yoga, stretch, and rest. This is more of an individual behavior type than a group behavior type.

Creative expression is seen at swimming holes, varying between user groups. Children invent adventurous water games, college students build rock cairns and other sculptures out of natural features, individuals experiment with nature photography. The friendly atmosphere allows people to express themselves in an engaging environment.

Drinking alcohol, smoking cigarettes and marijuana is common behavior seen in at least 25 percent of all users. As stated before, swimming holes are a
social, recreational environment where drinking and smoking is commonplace and accepted.

As described by Smardon (1988) open water areas are allocated to a wide range of uses. People ascribe different meanings and have varying relationships to the same water resources. Thus, the variety of behavior types seen at swimming holes is actually a common occurrence. People form different meanings, perceptions, and relationships to water environments, and in doing so a variety of behavior arises. Williams and Patterson (1992) developed a classification system for understanding these meanings. People develop aesthetic, instrumental, cultural, and individual/expressive relationships to water environments. Each of these relationships can create a different type of behavior. For example, an instrumental relationship can lead to cliff jumping while an individual/expressive relationship can lead to meditating at swimming holes. It is clear that the behavior I documented closely aligns with the research about human’s connection and corresponding behavior in and around water environments.

**Place Attachment/Relationship to Swimming Holes:**

After conducting interviews with six individuals I noticed recurring themes in the descriptions of their relationship to swimming holes. One of the most common was the “relaxing” quality of these places. Swimming holes provide a calming, meditative and sometimes spiritual setting for people to connect with the natural world. All interviewees expressed this emotion, and felt that swimming holes provide an escape from the busyness of everyday life. They are places to slow down, to be present, to release stress and anxiety, and to refresh the “mind, body, and soul”. These descriptions align almost exactly with what Gelt (2004) and others have said about water recreation—that it provides a “therapeutic, emotional, even spiritual experience” that “refreshes one’s mind and body”.

Along these lines, many users described that not only were swimming holes a spiritual setting, but interacting with them lead to a type of transcendental connection to the water, river and rocks; they felt connected to the place in its entirety. This corresponds well with what McCool (2008) says about water; that it is both a “physical necessity and a sacred, symbolic part of our lives.” Users also
described their time at swimming holes as “bringing them back to the moment”, “being present” and “feeling grounded and comfortable.” These descriptions support what has been said in the literature. Bangs & Kallen (1985) concluded that people are “irresistibly drawn to rivers for refreshment and reconnection”. Furthermore they stated “there is something ineffable yet deeply satisfying as we join ancient currents and flow, for a brief, time, between the timeless banks.”

Another common theme is the functionality of swimming holes for place-based water recreation. People connect to these places through immersion in the “natural playground” setting – jumping, climbing, sliding, sunbathing, swinging, and soaking. The variety of pools, ledges, cliffs, waterfalls, flat rocks and open space allows for hands on connection to an organic and stimulating environment. This type of behavior is associated with place dependence. As expressed by Tuan (1980) “space becomes place as we get to know it and understand it on a deeper level.” This process of interacting with place – “through a variety of mediums” – (Williams 1992) allows individuals to forge lasting bonds to swimming holes. As stated by Steel (1981), “We create our own places, they do not exist independent of us.” The natural features and physical structure at swimming holes allow for this unique process to occur.

Shown through common behavior, all users expressed that swimming holes provide a place for social bonding and a shared love for the outdoors. I believe the combination of the calming and relaxing qualities combined with a stimulating functional environment allows for people to connect and build relationships in a meaningful way. Interviewees described these locations as bringing together friends, family, and strengthening intimate relationships as well. This theme is summarized in a UNESCO (2006) report. It describes that water recreation allows us to connect not only with wild places but with each other. Furthermore, Witcombe (2009) explains, “In religions and cultures everywhere, water is a liberating force and central to life.”

Common Problems

Analysis of observations and interviews lead me to identify four recurring problems at swimming holes. The first and most easily recognizable issue is trash and litter stemming from drinking alcohol and disposing of food wrappers. This
trash detracts from the place attachment themes mentioned above. It takes away from the soothing qualities of place, it hinders the functionality of the swimming hole, and it hampers social bonding through its presence.

The second problem is overcrowding. Overcrowding affects individual’s relationship to these places and detracts from the overall experience. Overcrowding also leads to access issues and crowded parking zones. Because swimming holes are generally small in size, overcrowding leads to a variety of other problems including safety and tension between user groups.

Safety issues take shape in a range of ways. Drinking leads to intoxication that causes individuals to make rash decisions, putting themselves and other users in danger. Cliff jumping can cause safety issues through people hitting rocks above or underwater and colliding with other swimmers below (amplified by overcrowding and intoxication).

Lastly tension between user groups is a major issue. Different groups partake in different activities and exhibit a variety of behaviors. In many cases the abuse of alcohol in one group upsets another group and leads to aggression between users. This detracts from everyone’s experience.

Although few studies have been done on swimming holes, the Vermont Agency of Natural Resources did conduct a study on the Mad River that outlined some specific threats. The study (MRV 1995) identified issues of partying, noise, traffic, and overuse. These correspond to the problems of overcrowding and tension that I identified in my study. The study also identified water quality deterioration due to human caused contaminants (beverages, fecal matter, trash), which matches up to the problem of litter that I identified. Smardon (1988) stated that people have different relationships to the same water resources, which causes tension between different users. This supports the fact that I also identified tension as a major problem. Interestingly, none of the information I reviewed listed alcohol use as a threat to these locations. I would argue that alcohol use contributes to trash and litter and exponentially increases tension between user groups. This threat is undocumented but consistently detracts from the safety and positive experience at swimming holes.
Section 2: Personal Experience

Prior Thoughts and Misconceptions

Prior to beginning my research I had opinions on “how swimming holes work.” I thought I knew why people abused these places, what people do at them, and why individuals come to them in the first place. One of my largest misconceptions was stereotyping certain individuals - expecting to see a type of behavior. The first two days of observation taught me quickly that stereotyping was only going to hinder the academic process. I learned to enter into the observation sessions with a clear mind and be as nonjudgmental as possible. This process helped me analyze the behavior with a clear mind, never jumping to conclusions or pushing the data one way or another.

The other large misconception I had prior to conducting this research was that swimming holes were merely places for recreation and relaxation. It never occurred to me that these places could hold such powerful spiritual value. It surprised me that individuals from 20 to 60 years expressed these similar feelings about spirituality. The more I talked to people the more I learned that swimming holes provide a place to form a sacred bond to the river, the water and each other.

Surprises and Contradictions

There was only one major surprise that I ran into during the course of this study. This was the amount of tension between different user groups. When I started the research, I expected the problems to be more ecologically based – erosion, trash, parking issues, wildlife. These came up, but the most frequent problem that seemed to be affecting everyone’s experience was this mismatching of priorities and behavior. After the initial surprise of observing this, I was intrigued and it became a central part of my study.

I also found one dominant contradiction in my study. I observed behavior in certain user groups and described this in Section 3 of Results. I expected that the behavior I witnessed would match up with the information I gathered during interviews, but this was not the case. One example: I noted that for many college students drinking is a common component of their swimming hole behavior. However Will, the college student I interviewed, never once mentioned drinking alcohol, nor did I observe him doing so. At first it worried me that my behavioral
observations and interview information did not correlate like I thought they would. But I realized that because I only had one interview with one individual from each user group, I couldn’t make accurate generalizations for the entire user group.

**Personal Affect on Study**

Clearly my presence during this study affected the information I gathered. During observations I was discrete and didn’t let people know I was gathering information. I don’t believe people changed their behavior because of my presence. However the interviews are a different story. When I conducted interviews I told people what the point of my research was and gave them an explanation of the study. Individual responses could have been altered because they wanted to give me the “right” answer, or an answer that wouldn’t frame them as the bad guy. I believe this is another reason that information from my behavioral observations and interviews did not always correlate.

Another affect on the study was that I immersed within it. When I conducted observations and interviews I utilized the swimming hole just as a thrill seeker/college student would (minus the drinking and inappropriate behavior). This added an extra challenge because it was hard not to judge people or come to conclusions during my interaction with users. At times I had to remove myself from the equation and be an external observer. Every little conversation I had or behavior I witnessed was “part” of my study. Although I conducted only six formal interviews, I had countless conversations that shaped my understanding of this relationship between person and place.

**Section 3: Limitations of the Study**

One major roadblock in my research that affected the entire process was establishing clear user groups. Right off the bat I knew it would be hard to distribute people into different categories. The process of doing this felt artificial, yet if I wanted to explore the types of people using swimming holes I needed to categorize them. Clearly demographics were easy to denote, but I still had to do quite a bit estimating. But categorizing people by behavior was extremely
difficult. Once I had established user groups, I felt I had to pick and choose a bit when evaluating a new crowd of people.

With all this in mind I realized that no matter what, there were going to be outliers and overlapping between groups. Creating user groups allowed me to work with the data in an efficient and organized way. However, I understand that not everyone can be categorized and assigning people into user groups only gives me a limited amount of information. For the purpose of this study, I believe it was an effective way to analyze the user base of swimming holes, but realize it is not 100 percent accurate.

Another limitation of the study or perhaps better labeled as bias, was my selection of the interview subjects. I concluded in Section 5 of Results: Place Attachment Dimensions, that each individual I talked to expressed high levels of place attachment. But then I realized, only 1 in 6 people agreed to do an interview with me. The people who choose to give up their time and talk to me had a story to tell. They felt some connection, bond or attachment to swimming holes, and most likely, this motivated them to share their opinions. I did not conclude that all individuals who go to swimming holes are highly attached to them, but looking at the data it could appear this way. I want to make it clear that the individuals I interviewed expressed high levels of identity, dependence, familiarity, belongingness, and rootedness. But this sample of six people in no way represents the cumulative level of place attachment of people to swimming holes in Vermont.

**Summary to Discussion:**

After analyzing my results from observations and interviews I discovered common behavior for all users and recurring place attachment dimensions for the six individuals interviewed. During this process I identified four common problems at swimming holes – overcrowding, trash and litter, safety and tension. The latter three problems were all amplified by alcohol use. These behavioral and place attachment themes align well with what the literature on person, place and water recreation has documented. Looking at this synthesized information, I explored my own personal experience and affect on collecting this data. Finally I
highlighted two limitations to my study that are imperative to understand when interpreting this thesis.
VI. Policy and Management Options

I conclude this study with recommendations on policy and management options regarding public use of swimming holes in Vermont. My discussion pointed to recurring themes of behavior and place attachment within a diverse selection of individuals. Through this process I also discovered that there are a handful of common problems present at swimming holes today. These problems are not easily solvable, but there are both policy and management options that could help to address these threats. The following section includes my recommendations based upon my collective research and extensive hours spent at swimming holes. While these are my own recommendations, the literature review provides the framework and supports them with scholarly evidence.

Section 1: Policy Option
Access and Availability

One of the key points that was apparent after analyzing my interviews is that swimming holes are available to anyone and everyone. They provide a recreation area for individuals, families, and couples across the entire socioeconomic spectrum. There is no entrance fee (unlike some state parks or wildlife areas) and there is no equipment necessary to utilize them. I talked to one father at Warren Falls who explained how their family couldn’t take a summer vacation because of the economic down turn, so instead he was bringing his two boys to a different swimming hole every weekend for the entire summer.

As described in my literature review, access to water is a basic human right. Water recreation allows people to feel the aesthetic, therapeutic, emotional and even spiritual value of water. Gelt (2004) explains that: “It offers indulgence into the natural world, immersion into a unique environment and offers a sense of power and wonder.” Leopold (1966) felt that outdoor (water) recreation is not a privilege but instead a human necessity. This view has been expressed over and over again. Thus, I recommend that access to and availability of swimming holes throughout Vermont should be supported and funded by the state.

As seen in the results, diverse sets of individuals utilize these places. And for each person, swimming holes provide a different, yet important experience in
their life. State policy should allocate funds to protect and manage these areas, instead of ignoring them. As more issues arise, the number of swimming holes available will decrease as public and private landowners shut them down. This will create an influx of people to a select few locations and will exponentially increase the four issues of trash, overcrowding, safety, and tension.

Funding can support the protection of current swimming holes, providing the resources necessary to keep these locations clean, safe, and functional. Funding can also support the purchasing of new swimming hole locations by the Vermont River Conservancy. This support from the state is the necessary backbone to addressing problems already present. By managing current swimming holes and creating new locations that are available to all, Vermont will be supporting place-based connection to water environments. The importance of this is remarkable. Swimming holes provide a unique and irreplaceable experience to children, students, families, elders and local residents.

Section 2: Management Options

Addressing Overcrowding

Overcrowding is a major problem at most popular swimming holes. Because Bolton Potholes, Bristol Falls, and Warren Falls are all easily accessible and accessed directly off the road, they see high levels of use. The most highly trafficked days are Saturdays and Sundays during late June, July, August, and early September.

Addressing overcrowding issues would have a positive ripple effect on the problems of safety and tension between user groups. Safety concerns increase when more people are present. The crowding and congestion along cliff jumps and in the pools below cause accidents. The likelihood of collisions in the water, or tumbles from high ledges, are all increased when there are more people at the swimming hole. That said, safety concerns are always present at swimming holes no matter how many people are recreating.

Tension between user groups is increased exponentially when there is overcrowding. I frequently witnessed altercations and aggression between different user groups on high traffic days (100 – 200 people present). In contrast
on lower traffic days (30 – 50 people present) I almost never observed tension between user groups.

**Option 1:**

One effective way to deal with overcrowding issues at swimming holes would be to establish clear parking zones at each location. Parking areas already exist at the three locations I studied. What would change is the size and structure of these parking zones, and the enforcement of parking outside of them. Each swimming hole has a carrying capacity. Determining this would be the first step. Once carrying capacities were established for each location, the parking zones would be set up to fit a specific number of vehicles. Once the lot is full, the swimming hole has reached maximum capacity. Law enforcement would be involved in the regulation of this system. Routine checks of the parking areas would be necessary to ticket cars for parking along the road and outside of the parking zone. I would recommend that the enforcement of this should be strict to make it clear that once parking areas are full, so is the swimming hole. This first come first serve system would be an effective way to cap the amount of people at these locations at any one time.

**Option 2:**

Another possible way to deal with the issue of overcrowding is to publicize and spread the word about other swimming hole locations. The issue with Bolton Potholes, Bristol Falls, and Warren Falls is that they are well known by a huge population base. These locations show up in swimming hole guidebooks, on swimming hole websites, and are frequently discussed in swimming hole conversations. On the Vermont swimming hole website there are 89 locations listed, but only a handful of them see overcrowding. By using media outreach including newspapers and magazines, the Internet (social networking sites, blogs, swimming hole websites) and public announcements, an effective message could be spread to the swimming hole community. This message would include two main points. First, inform the public about the threats to swimming holes, especially how overcrowding is increasing other issues of trash, tension,
ecological impact and safety. Second, provide the public with the necessary information so that they can locate and utilize other swimming holes in Vermont. Locations would be selected that do not see heavy use and that are already a well established swimming hole. Checking with the landowner before spreading the message (public or private) would be imperative. This distribution of use would help to alleviate overcrowding at popular areas, while introducing the general public to new swimming hole locations.

Challenges To Addressing Overcrowding at Swimming Holes:

There are a variety of tactics that have been proposed on how to deal with overcrowding within outdoor recreation, but applying them to swimming holes brings up a few issues. For example, one tactic is length of visit restrictions (Ewert 1999). Limiting people’s time at a swimming hole would be a huge challenge to implement. Moreover, this would drastically impact the experience that people are attached to. Some families come to swimming holes for the entire day. Telling them to get up and leave after two hours would be unfair and upsetting to the family as whole. Another tactic is setting up group size limits for users (Ewert 1999). Establishing this at swimming holes would be extremely difficult and detrimental to large groups, which seems unreasonable. Other tactics such as entrance fees, reservations, and lotteries seem out of line for the context of swimming holes, especially because most of these would require staff personnel to be on hand. In conclusion, the two proposed options of first come, first served, and distribution of use could improve the situation without altering the culture of swimming holes that many people are attached to.

Addressing Drinking, Trash, Tension and Safety Issues

The drinking culture at swimming holes has been the cause of frequent accidents. Drinking crowds are common and drunken behavior is present on the weekends. Drinking contributes to trash at swimming holes – both beer cans and smashed beer bottles. It is also one of the major factors leading to tension between user groups. In essence, these three issues are interrelated and are addressed together in this section. Drinking leads to a variety of trash, safety and tension
problems that come full circle. Nonetheless, trash does accumulate from non-drinkers, and safety concerns are still an issue when alcohol is not in the mix. But a majority of the time, alcohol is the catalyst for these other problems.

**Option 1:**

One way to address these interrelated issues is through information management. This can be done by establishing effective signage at swimming holes in Vermont, specifically at the three study sites. Currently Bolton Potholes and Bristol Falls have no signage. Warren Falls has a sign that describes the natural history of the area but doesn’t outline rules, regulations or swimming hole etiquette. The content of these signs should address issues of:

- Respecting other individuals/groups at the swimming hole
- Picking up after yourself, Pack in/Pack out
- Making safe decisions for yourself and others
- If drinking doing so in a controlled and conscious manner

Other content would be included on the signs to give site-specific information. This could include natural history, wildlife information, warning signs of high water levels, other cautions, and any other pertinent information. The signage should be:

- **Consistent** - have the same style signs at different swimming holes so people are familiar with them and know what to expect.
- **Memorable and Down to the Point** – because people will only stop to read a sign for a few seconds the information needs to be clear and comprehensible.
- **Visible** – this entails ensuring that the sign is clearly distinguishable from its surroundings.
- **Readable** – this entails ensuring that the message is easily understandable and direct.
- **Noticeable** – drawing in the viewer’s attention with an attractive color, shape and size.

( Проект для публичных пространств 2010)
Having this signage at swimming holes would raise public awareness and enhance the capacity for informed personal choice. Giving people information and having them make knowledgeable decisions could translate into a stewardship ethic towards these places. According to my literature review, more visitor information along with different types of communication with users leads to an increase in environmentally and socially responsible behavior. (Ewert 1999)

**Option 2**

Another possible way to deal with the issue of alcohol use (leading to tension, trash & safety concerns) is to actually enforce the Open Container Law that exists in Vermont. Open container laws vary from town to town in Vermont, but throughout the state drinking alcohol in public is illegal and results in a fifty-dollar fine. In order for this to be effective, signage would have to address the issue of “No Alcoholic Beverages” and describe the Open Container Law. Law enforcement would be involved in this system in ticketing people for open container violations. This would correspond to the parking zone checks. Police officers could drive by popular swimming holes a few times on heavily trafficked days. Quickly checking the parking lot to make sure the maximum capacity is not being exceeded, ticketing any cars parked outside of the lot. Then a quick walk through of the swimming hole, ticketing people for open container violations.

Actually enforcing this statute may be a challenge for local officials and could cause aggression between swimming hole users and law enforcement. However, this management decision of stopping the abuse of alcohol and having a potential punishment could make significant improvements to the situation. Instead of making alcohol use illegal (which might not solve the problem) I believe management should focus on changing user behavior. Drinking can be done it a respectful and considerate manner, and does not need to cause tension, create trash, or increase safety concerns. Unmistakably, there are pros and cons to both scenarios. Deciding to use strong enforcement and regulation compared to signage and information management is really up the landowner, town and community where the swimming hole is located.
Option 3

One final option for dealing with these interrelated issues would be to establish a Swimming Hole Stewardship Program in Vermont. The Lake Host Program in New Hampshire is a seasonal program in which individuals are assigned to different lakes around the state. These individuals are responsible for educating lake users about the introduction and spread of exotic aquatic plants, like milfoil, from lake to lake (NH Lakes 2010). While the responsibilities of the swimming hole stewards in Vermont would be very different, the concept is the same.

Swimming hole stewards would have a variety of responsibilities and would be involved in both information and visitor management. Some of these responsibilities would include:

- Reminding users about proper swimming hole etiquette and informing users about specific regulations including safety, dealing with trash, and being considerate of other users. These regulations would correspond to those on the signage at the entrance to the swimming hole.
- Confronting users who are drinking in an abusive manner and/or alerting law enforcement if the situation is out of their control.
- Having trash bags and other “clean up” materials ready to distribute to users, so they may pick up after themselves.
- Answering questions about safe jumping locations, water levels, trails, parking zones, and other regulations that have been newly established.

The implementation of a swimming hole stewardship program would be an effective way to deal with the issues of drinking, trash, tension and safety. It would be a middle ground between all out enforcement and no regulation at all. These swimming hole stewards would be friendly, approachable, direct, and outgoing. The purpose of their presence would be two fold. First, as a person to remind individuals of the specific regulations, along with contacting law enforcement and medical personal if needed. Second, as a person available to answer questions about the specific swimming hole location. They could help users understand natural history, geology, and river ecology; deepening this bond
between person and place. Additionally, they could provide the necessary information to users about water levels, strong currents, dangerous holes and cliff jumps, and safe swimming locations. This could help users make knowledgeable decisions about where and when to swim.

The Lake Host program in New Hampshire is funded by a grant from the NH Department of Environmental Services and the Department of Safety (NH Lakes 2010). Similarly, in Vermont, the Swimming Hole Stewardship Program could be funded by the Vermont Department of Environmental Conservation. Their mission is to “preserve, enhance, restore and conserve Vermont’s natural resources and protect human health for the benefit of this and future generations” (VDEC 2011). One of their grant options is the Vermont Watershed Grant, which supports a wide variety of projects to encourage “the protection, restoration and enhancement of habitat, water quality, recreation, and/or cultural/historic resources, and monitoring and education” (VDEC 2011). This specific grant program could fund the swimming hole stewardship program, hiring a handful of individuals to be stationed at popular swimming holes during the summer months. I believe this option is the most viable and could realistically deal with the problems noted, without imposing on individuals’ experience and attachment to place.

**Challenges To Addressing Drinking, Trash, Tension and Safety Issues**

Similar to overcrowding, there are variety of other ways to deal with the issues of drinking, trash, tension and safety. But many of these tactics don’t work in the swimming hole setting, such as long-term closure, or harsh regulations. Part of what makes swimming holes so unique is the feeling of freedom, relaxation, and escape. It comes down to a fine line between regulating individual behavior or not. I believe the most effective way to deal with these issues, without hampering people’s experience, is through a combination visitor and information management. Trying to change people’s behavior solely through rules, regulations, and punishment will never lead to a paradigm shift, and might even worsen the problems. However, presenting people with constructive information, having an educated swimming hole steward on hand, and in turn, letting them make an informed decision – that WILL lead to positive, long term change.
Once people start to understand what the issues are, they can actually recognize their behavior and make a personal decision to change it. This information management can be done through a variety of mediums. Effective signage addressed in option one is a viable solution and could help change people’s behavior. Using the Internet, media, books and other swimming hole literature to spread information and highlight swimming hole etiquette is another option. This is actually already happening; some websites and literature address issues of respecting other users, picking up after your group, and making safe decisions. Many people I talked to at swimming holes said it was “a few people ruining it for everyone else.” Combined with the swimming hole stewardship program, another method for visitor management is individual word of mouth. If other users talk to these negligent individuals and let them understand both the negative impact of their actions (to the swimming hole & other users) and the risk they are putting themselves in, they might behave differently in the future. In conclusion, I feel that dealing with these social issues will be an ongoing process. There is no one obvious solution to fix these problems, however, the combined implementation of signage and a stewardship program could provide the foundation for management of safe, functional swimming holes long into the future.

Summary to Policy and Management Options:

Addressing the four problems noted will be a challenge. Not only are these problems rooted within the culture of swimming holes, but they all revolve around people and their interaction with place. If there was a simple solution to alleviating all the tension between user groups, or to stopping individuals from drinking irresponsibly, it would be presented here, loud and clear. The fact is these issues are multifaceted and complex, interwoven within a behavioral context. The few options laid out here just scratch the surface. In order to develop in-depth management plans for swimming holes, or secure funding from the state, other extensive studies must be done. The purpose of this section was to present a few basic options for the problems I documented in order to create a starting point. These options lay the groundwork for other research to follow.
Personally, I stand behind the policy and management options presented here and feel strongly that, if implemented, they could create positive change for swimming holes long into the future.
VII. Conclusions

This project started over a year ago and it’s hard to believe it’s coming to a close. Countless hours spent at swimming holes, dozens of conversations, analyzing observation and interviews, taking pictures, extrapolating themes, pondering solutions and here I am. I wasn’t completely sure what I was going to find before starting this research. What drew me in was the intrinsic connection between person and place— the mystical qualities of the river, the smile on a boy’s face after a cliff jump, the laughter, and the shared passion for immersion in cool, clean, refreshing water.

So now I have to ask myself, did I achieve my goals? Was it all worth it? I identified user groups, check. I got a feel for the different types of place-based relationships people ascribe to swimming holes, check. I attempted to paint a picture of how people bond to these places. What they feel-think-see, what draws them in, what makes them come back again and again. And then I dug into this information. I looked at what people said, what problems they noticed, what they thought could change. I took this information and digested it, worked with it and now have presented it here in this thesis.

Some part of me thought I was going to arrive at the perfect solution for swimming holes. I wanted to make everyone happy, alleviate all the tensions, clean up all the beer cans and cigarettes, ensure safety without telling people what to do or making rules. And then at some point it hit me— I realized that was never going to happen. This was hard for me to accept, that I couldn’t solve the problems that I was seeing happen over and over again. But overall, I am very satisfied with the direction the project went and what I have presented. I learned so much about myself, about motivation and dedication, about exploration and curiosity, about passion and creativity. This project was the biggest learning experience of my life, and has helped me grow up.

My hope is that this information is used in a variety of ways to create positive change for swimming holes in Vermont. I plan on submitting this information to the Vermont River Conservancy, towns where swimming holes are frequently used, state representatives, conservation organizations, and other individuals working on protecting these places. Prior to this study, no real
information had been gathered on this topic so I feel that this has been the first step in understanding swimming holes and the people that use them. I’m optimistic that somebody will pick up where I left off, continue this research, and figure out how to keep swimming holes clean, safe, functional, accessible, and available to ALL for hundreds of years to come.

I can’t think of a better way to bring it all back home. Swimming holes have been part of my life since I was a young child, and now getting to study them and the people that use them has been awe-inspiring. This thesis has defined part of my identity, my college career, and my experience at the University of Vermont.
VIII. Bibliography


