Sharing a Landscape: The Construction of Sense of Place on the Maine Coast

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SHARING A LANDSCAPE:
THE CONSTRUCTION OF SENSE OF PLACE ON THE MAINE COAST

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A THESIS
Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy
(in Forest Resources)

The Graduate School
The University of Maine
December, 2007

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Motivated by interest and concern over the changing coastline in Maine, this study uses the concept of sense of place to develop an understanding of how a range of users share the resource, and to explore how place meanings are associated with their social experiences and perceptions. The site for this study was the Stonington region archipelago, an area that has not yet experienced the same amount of development as seen on the southern Maine coast, yet one that has witnessed a boom in recreational use and an influx of people from other areas. Using a mixed methodology, two groups of research questions were developed with the purpose of developing an understanding of how place meanings are constructed over time in a changing landscape, and how managers and community interests can benefit from this information.

A visitor survey was completed to investigate the connection between landscape characteristics, socio-demographic, and travel characteristics, previous experience, and attachment to place. During the summer of 2006, 435 visitors to 23 islands participated in the two-part survey, which included an on-site interview and a mail-back questionnaire. Twenty-three in-depth interviews were conducted with long-term visitors,
transplants (people who have moved to the region) and locals to explore sense of place over time, and the connection between place meanings and user compatibility.

Results from the visitor survey indicated that regardless of level of attachment, study participants were most attracted to the physical landscape and least to the local culture of the area. Differences in place attachment based on travel and socio-demographic characteristics were often linked to local experience. Findings from the interviews also suggested the physical environment was an important draw, and continues to be an important component of why participants, including locals with ancestral roots, stay in or visit the region over time. Participants in each groups also felt drawn to the community, and compatibility issues on the water were affected by experiences in the surrounding communities. This highlights the need for recreation researchers to cast a wide enough net to understand how dynamics in surrounding communities might influence social experiences within recreation areas.
PREFACE

This study was motivated by interest and concern over Maine’s socially and ecologically changing coastline. Similar to other amenity rich rural areas across the U.S., the Maine coast has witnessed an influx of recreational users, in-migration, and coastal development over the past two decades (Brehm, 2007). The site for this study was the Stonington region archipelago, a working waterfront that has not yet experienced the same amount of development as seen on the southern Maine coast, yet one that has witnessed a boom in recreational use and an influx of people from other areas. This research utilized the concept of sense of place to develop an understanding of how a range of resource users (recreation and non-recreation) share the changing landscape, and to explore how place meanings are associated with their social experiences and perceptions. Specifically, the purpose of this project was to develop an understanding of how place meanings are constructed over time in a changing landscape, and to explore how managers and community interests can benefit from this information.

Two groups of research questions were developed for this mixed methodology study. A visitor survey was completed to investigate the first set of questions that pertained specifically to island visitors. An interpretive approach, using in-depth interviews, was used to explore the second set of questions which inquired into landscape meanings over time. Figure 1 demonstrates the overall study approach guided by these questions:
1) **Who are the users of the resource?**

- How attached do users feel to the resource, and to what extent are their experiences dependent upon the setting?
- What characteristics of the landscape have drawn them to the region, and how does this relate to visitor attachment to the landscape?
- How does visitor attachment relate to travel and socio-demographic variables, and previous experience in this and other coastal regions?

2) **What does the resource mean to long-term visitors, locals, and people who have moved to the region?**

- What characteristics of the landscape did individuals originally become connected to?
- What causes participants to stay in or to keep visiting the region over time?
- Has the meaning of the landscape changed over time?
- What would cause participants to leave?
- How are place meanings related to the compatibility between users of the resource?

**Figure 1. Study approach.**
Phase 1: Visitor Survey

The Stonington region island visitor survey was completed in the summer of 2006. The purpose of the visitor survey was to investigate island user characteristics, experiences and perceptions, and to explore the relationship between place attachment, reasons for visiting, and socio-demographic and travel characteristics. Visitors to 23 islands managed by the Maine Island Trail Association or the Maine Coast Heritage Trust were asked to participate in the study. A brief on-site interview and a more extensive mail-back questionnaire were used to collect information. All participants were met in person by the researcher who was doubling as a Maine Island Trail Association island steward. The researcher was also observing use on the islands recording group size, mode of travel, and whether parties were day users or overnight campers (Appendix A). The questionnaire was designed to obtain visitor characteristics including socio-demographic and travel information, Leave No Trace knowledge and behavior, and place attachment. It also inquired about visitor attitudes toward and perceptions of a number of variables including the importance of certain island conditions, attitudes towards management actions, and reasons for visiting. Administration of the questionnaire followed strategies developed by Salant & Dillman (1994) and Dillman (2000), and a total of 361 completed questionnaires were returned, providing an overall response rate of 85%. A technical report detailing survey procedures, results, and management implications has been submitted for publication by the Maine Agriculture & Forest Experiment Station (Appendix B).
Phase 2: Interviews

Twenty-three in-depth interviews were conducted over the fall and winter of 2006-07 with long-term visitors, locals, and people who have moved to the region. The purpose of the interviews was to explore how resource managers and community interests can benefit from understanding place meanings over time in a changing, mixed-use resource. The interviews were also designed to advance sense of place theory by examining five conceptual phenomena (figure 2):

- The importance of physical and social/cultural aspects of the landscape in attachment to place;
- Similarities and differences between how diverse groups connect with a landscape;
- The qualities of a landscape that keep and draw people (anchors and magnets);
- Changes in sense of place over time (SOP); and
- The relationship between sense of place and user compatibility.

Figure 2. Interview conceptualization.
Interviews were all conducted face-to-face, and ranged from 40-120 minutes in length. Participants were contacted by phone or in person, introduced to the purpose of the study, and asked to schedule an interview. Prior to the interview, participants were presented with a consent form (Appendix C). Participants were selected purposively, using an initial pool selected through contacts made while residing in the region as a participant observer for three months, and branched out through the network sampling method. An interview guide was used (Appendix D), and conversation centered on five main themes:

• The characteristics of the landscape that attract people;
• The nature of their connection and how it has changed over time;
• The reasons they stay in or continue visiting the area and what would cause them to leave;
• Their perceptions of what draws other users to the landscape; and
• Their perceptions of the compatibility between users that share the resource.

**Overall Theoretical Significance**

A goal of this study is to contribute to current efforts bridging two streams of sense of place research that have been receiving a considerable amount of research attention over the past two decades: community attachment, and recreation place attachment. Research in community attachment tends to study the relationships between local communities and their resources. Recreation place attachment tends to focus on how short-term visitors to an area connect with the landscape. Considering the Maine coast hosts long-term residents and short-term visitors along with a spectrum of categories in-between (summer residents, transplants, etc.), the region provides the opportunity to study the two streams
together. Recreation place attachment to date has focused heavily on the development of measures of attachment, and on understanding the components of sense of place (e.g. Tuan, 1977; Williams et al., 1992; Jorgensen and Stedman, 2001; Stedman, 2002, 2003; Williams and Vaske, 2003). The question of how individuals initially become attached to a landscape requires further exploration. Research in community attachment has explored to a greater degree the causes of attachment (e.g. Eisenhauer et al., 2000; Hidalgo and Hernandez, 2001); however, further research is clearly needed to better understand the process of how individuals become connected with a place, and how that connection evolves over time. In response to specific calls for research, this project places emphasis on the specific role of physical and cultural components of the landscape in the development of sense of place, and on characteristics that keep people in (anchors) and draw people to (magnets) the landscape (Beckley, 2003; Kyle et al., 2004).

**Overall Management Significance**

This study contributes to efforts to bridge the gap between social science theory and natural resource management applications. The study of user compatibility in a shared landscape provides the opportunity to directly apply sense of place research to management considerations. By investigating a landscape that hosts a diversity of users, researchers can help managers better understand how user conflict is rooted in different landscape meanings. This research will allow managers to consider, ahead of time, the implications of management actions by understanding what characteristics of the landscape are most important to different user groups. By understanding how different users are connected to the landscape, managers will better predict how management
actions can affect user compatibility. In a shared resource, the extent to which the users are willing to compromise can affect their intentions to stay or to continue visiting. This research will serve to inform managers in the direct study area, and also managers in less-developed coastal areas that are predicted to experience high levels of development in the near future.
ACKNOWLEDGEMENTS

I would like to thank and acknowledge the people and organizations who have contributed to this project. Dr. John Daigle, my academic advisor has provided immeasurable support, feedback, and ideas throughout the entire process. He was flexible in supporting my choice of dissertation project, and made sure my research was grounded in sound theory. Dr. Jessica Leahy, a member of my academic committee, has also been an instrumental resource by being a sounding board for my ideas, and providing a system of support. Dr. Leahy exposed me to sense of place theory, and challenged me to maintain momentum in accomplishing the requirements of my program at the University of Maine. Dr. Jim Acheson, Dr. Richard Judd, and Dr. Jamie Moreira, also committee members, have provided valuable insight and suggestions throughout the process. Natalie Springuel from Cooperative Extension / Maine Sea Grant provided the opportunity for my research on the Maine Islands, and acted as an external committee member for my project. Dave Mention and Brian Marcaurelle at the Maine Island Trail Association made this project happen and provided immeasurable technical, administrative, and conceptual support for the visitor survey segment of my dissertation. Steve Spencer from the Department of Conservation, Charlie Jacobi from Acadia National Park, and Sid Quarrier, a long-term Maine Island Trail Association volunteer provided insight and support throughout the entire project. Douglas McMullin, Jane Arbuckle, and Ciona Ulbrich with the Maine Coast Heritage Trust provided valuable support with visitor observations and technical insights, and they also welcomed me into a beautiful island cabin for the survey season. I would like to thank Bill Baker, owner of
Old Quarry Adventures in Stonington, Me., for his support throughout the survey season.

A special thanks to Min Kook Kim and Adam McKay, as well as “Team Leahy”,
students in the Parks, Recreation, and Tourism program at the University of Maine, for
their substantial help in providing assistance in administering the mail survey, with data
entry, and with interpretive data coding. The Ednie family, my friends who understand
when I disappear for prolonged periods of time, and my husband Chad Everett provided
the support and encouragement I needed to be able to focus on this project. Perhaps most
importantly, thank you to all of the study participants. This includes the 2006 volunteer
Stonington clean-up crew for their willingness to serve as pilot study participants for this
project. I thoroughly enjoyed meeting visitors on the islands, and I appreciated my time
with the interview participants.
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CHAPTER 1

THE DEVELOPMENT OF RECREATION PLACE ATTACHMENT ON THE MAINE COAST: USER CHARACTERISTICS AND REASONS FOR VISITING

Abstract

The concept of place attachment is used to help natural resource managers understand recreational users as part of a landscape. The source of place attachment is examined in a mixed-use area in order to learn what draws individuals to a landscape, and to better predict how visitors may react to management actions. With an emphasis on physical, social, and cultural characteristics, this study set out to develop an understanding of how recreational users become connected with a resource, and how different forms of connections are shaped by socio-demographic and travel variables. The Stonington region island archipelago, hosting a range of recreational use and user characteristics, is a popular ocean-recreation destination along the Maine Island Trail; one of North America’s first and longest water trails. An island visitor survey was conducted in the region during the summer of 2006 measuring place attachment, reasons for visiting, socio-demographic variables, and travel characteristics. A factor analysis of the place attachment scale supported previous conceptualizations of place identity and place dependence as two separate but highly correlated components. The place identity and dependence factors were clustered into three groups for comparison with other variables. Results indicated experience use history was positively related to place
attachment, but place attachment was the best predictor of reasons for visiting. Individuals with higher attachment rated physical, cultural, and activity based reasons for visiting significantly higher than those with lower levels of attachment. Regardless of level of attachment, study participants were most attracted to the physical landscape and least to the local culture of the area. Differences in place attachment based on travel and socio-demographic characteristics were often linked to local experience. For example, participants in the high attachment cluster were more likely to be traveling by motor boat (associated with locals and long-term users) and less likely by kayak (associated with visitors). Findings demonstrate how attachment is developed through local experience, and how visitors are drawn to different characteristics of the landscape depending on their attachment to the area. The diversity of use characteristics within the Stonington region archipelago attracts individuals with different levels and forms of attachment. Managing the diversity of recreation opportunity becomes crucial for facilitating the development of strong attachments to the landscape. Considering research has previously demonstrated a connection between attachment and behavioral choice, maintaining a resource that is appealing for return visitation is particularly important for resource managers.

Introduction

The beauty and biodiversity of the Maine coast has made it a popular destination for nature-based tourists for over 150 years, and a home to a thriving fishing industry. Diverse groups of users share the resource which is no new phenomenon to the coast of
Maine, but the nature of the sharing continues to change with time. With nature-based tourism currently a significant and growing portion of the state economy (Fermata, 2005; Travel Industry Association of America, 2002), interest has turned to better understanding who the visitors to the Maine islands are, and how their experiences balance with the other users of the resource.

The concept of sense of place, or developing an understanding of the connections people have with a landscape, has the potential to help resource managers understand humans as part of a landscape (Eisenhauer et al., 2000). By investigating who the users of the landscape are, and what it is about the landscape that drew them there in the first place, managers can better understand what is important to people who visit a landscape. They can also better predict how those visitors might react to different management actions. Source of attachment remains a significant question in sense of place research (Stedman, 2002). Research to date has focused on the conceptualization of the dimensions of place attachment and few studies have tackled the “what” and “how” questions of sense of place research. These questions include whether higher levels of attachment are more closely linked with social relationships or the physical setting, and what setting attributes contribute to the development of place meanings (Stedman, 2003).

In addition to understanding what attracts people, we can determine if levels of the two different “types” of attachment (identity and dependence) differ according to socio-demographic and travel variables. Also, by understanding the degree to which resource users are connected to the landscape, managers will be able to predict how much compromise different resource users are willing to make before they are displaced, and how that compromise affects their intentions to stay or to continue visiting. With an
emphasis on social relationships and setting attributes, the purpose of this study was to develop an understanding of how recreational users become connected with a resource, and how place attachment is shaped by demographic and travel variables.

*Place Attachment*

Although place attachment, or sense of place, has been studied for decades by geographers, ethnographers, environmental psychologists, and architectural researchers, it is relatively new in natural resource management research. Sense of place has been defined as the connections people have with the land (Tuan, 1974), their “perceptions of the relationships between themselves and a place” (Eisenhauer et al., 2000, p.422), or “rich and varied meanings of places and emphasizes people’s tendency to form emotional bonds with places” (Williams & Stewart, 1998, p.19). A place is thought of as a setting given “meaning based on human experience, social relationships, thoughts, and emotions (Stedman et al., 2004, p.581). Place attachment refers to the bond people develop with their environment (Moore & Graefe, 1994), based on affect and cognition (Low & Altman, 1992). An individual’s identity is an important part of their place attachment (Stedman, 2002), and place identity is the emotional component of attachment to a place (Vaske & Kobrin, 2001), which has been defined as their perception of the world based on memories, interpretations, and related feelings about settings (Proshanski et al., 1983; Warzecha & Lime, 2001). Place dependence, on the other hand, is the more functional attachment to a place, or the usefulness of a place to satisfy a person’s need or goal (Vaske & Kobrin, 2001).
In his essay *Geopeity: A Theme in Man’s Attachment to Nature and to Place*, geographer Tuan (1976) discussed the emotional attachments people develop with their surrounding landscapes. This concept of “geopeity” motivated other researchers toward the development of models of people-place relationships (Proshanski et al., 1983; Stokels and Shumaker, 1981). The sense of place literature now contains a timeline of research attempting to understand the components of sense of place, and there has recently been a resurgence of effort to clarify what those dimensions are and to conceptualize how they affect environmental attitudes and behavior. Williams et al. (1992) suggested a two-dimensional model of place attachment, where place dependence and place identity contribute to overall attachment. Their measure of place attachment based on this model has been widely used and adapted in sense of place research (Kaltenborn & Williams, 2002; Vorkinn & Riese, 2001; Vaske & Kobrin 2001; Bricker & Kerstetter, 2000).

Williams and Vaske (2003) later validated the structure of the scale for construct validity and generalizability, and found the scale able to systematically identify and measure place bonds and different levels and forms of attachment to different places. They also concluded that although studies generally use five or six scale items on each dimension, good reliabilities can be achieved with as few as four items in each scale.

Some researchers have suggested a shift in the model by conceptualizing place identity, dependence, and attachment each as components of sense of place. For example, Jorgensen & Stedman (2001) tested this three-dimension model, and found no significant correlation between the three dimensions, suggesting they represent three specific attitude domains. Three different place measurement models suggested the general sense of place dimension, which represented thoughts, feeling, and behavioral
commitments for a place was more explanatory than were the three individual dimensions. They did find evidence of shared variability between the individual dimensions and the general sense of place measure. The identity and dependence components were found to be less synonymous with the general sense of place measure than was attachment.

Some studies have implemented one-dimensional scales that examine stronger or weaker forms of sense of place or place attachment (Shamai, 1991). Other studies have suggested additional dimensions of place attachment. For example, Bricker & Kerstetter (2000) also identified an additional component of place attachment in their study assessing the relationship between place attachment and level of specialization. They measured place attachment using a fifteen-item scale representing place identity and place dependence following the Williams et al. (1992) tradition. Their results indicated that a third dimension of place attachment exists which is linked to, but slightly different from, place identity. They named the third dimension “lifestyle,” as it contained statements emphasizing the physical landscape as being integrated into a person’s life. Participants who may have scored highly on emotional and personal-based attachment (place identity) may not have rated the integrated lifestyle dimension highly at all. They suggested the lifestyle component should be considered its own factor, and they concluded place identity was clearly the most important of the place attachment factors, and also related most strongly with specialization measures.

Recently, a five component model of recreation place bonding has been suggested. Hammitt et al. (2006) factor analyzed, and tested convergent validity and predictive validity on a twenty-six item scale of place bonding. The five dimensions
were place familiarity, place belongingness, place identity, place dependence, and place rootedness. They suggested the scale requires further research prior to implementation, mostly because of a high correlation found between place identity and belongingness. Several other methods for quantitatively assessing sense of place were also present within the literature. For example, Hidalgo & Hernandez (2001) used a three level (house, neighborhood, and city) by three dimension (general, physical, and social) measure of attachment. Using this model, they were able to identify development of attachment of different degrees toward places with different spatial ranges. Our study utilized the widely-used measure of attachment developed by Williams et al. (1992) and followed recommendations by Williams and Vaske (2003) regarding scale items for achieving reliable results. A factor analysis of the data was used to determine how many components of place attachment the measure represented.

Application of Sense of Place Research to Natural Resource Management

Place attachment theory can play an important role in helping to inform resource managers about the implications of management actions. Natural resource management has been changing over the past fifteen years to include not only economic or purely ecological concerns but also spiritual and social benefits (Mitchell et al., 1993; Cantrill, 1998). With this change, sense of place research has become a strong avenue for social science to contribute to natural resource management because it allows managers to consider natural resources in a meaningful context (e.g. Williams and Patterson, 1996; Eisenhauer et al., 2000). Considering it is the actual meanings associated with a place that are local to that place and not the possessors of the meanings, sense of place research
“offers managers a way to anticipate, identify, and respond to the bonds people form with places” (Williams and Stewart, 1998, p.18). For example, in their study of place meanings along the Niobrara National Scenic River, Nebraska, Davenport and Anderson (2005) concluded the most “powerful” finding for managers is that “contentious issues like development can be better understood by identifying and examining place meanings” (p.639).

Place attachment research can also help recreation resource managers better understand a diversity of aspects related to recreational visitation, including conflict over shared resources. While place attachment does not necessarily lead to more instances of user conflict (Farnum et al., 2005), high degrees of place attachment can, however, lead to more occurrences of conflict (Yung et al., 2003; Warzecha and Lime, 2001). For example, McAvoy (2002) discussed the conflict between American Indian and recreational rock climbing use of Devils Tower National Monument in Wyoming in terms of the four approaches to understand landscape meanings as outlined by Williams and Patterson (1999). McAvoy (2002) posited that conflict between the two groups was rooted in landscape meanings, where the arguments of climbers were based on individual/expressive place meanings, and those of the American Indians were based on cultural/symbolic meanings. To date, sense of place research has only just begun to be applied to inform recreation resource decision making. The approaches that have been taken need to be applied to a diversity of areas because it is the “emergent properties” of a landscape that are of interest, and these are not easily transferable even to other biophysically similar places (Cheng et al., 2003). Thus, there remains a strong need for further research into how sense of place studies can better inform management actions.
An understanding of the process of how users become connected to a resource contributes to this research area.

**How does Place Attachment Develop?**

Research in place attachment over the past three decades has focused heavily on the development of measures of place attachment, and on understanding the components of sense of place (Tuan, 1977; Williams et al., 1992; Jorgensen & Stedman, 2001; Stedman, 2002, 2003; Williams & Vaske, 2003). Only very recently has interest turned to such questions as how individuals initially become attached or connected to a landscape (Beckley, 2003). Further research is clearly needed toward developing an understanding of specifically what it is about a landscape that draws individuals to the place and causes them to become attached.

A body of literature exists on social networks and outdoor recreation (Stokowski, 1994), and also on the social construction of landscape meanings (Milligan, 1998; Stokowski, 2002). One important question that remains largely unanswered is whether people tend to connect to social components of a landscape, to the actual biophysical aspects of a landscape, or to a combination of both. In community attachment research, there are some findings suggesting social components are more important than the physical landscape (Hidalgo & Hernandez, 2001), but others suggest both physical and social components are important to the development of a sense of place. For example, Eisenhauer et al. (2000) conducted a survey with Southern Utah residents and found that the environmental features/characteristics of a place, along with family/friend-related reasons were the primary underlying explanations for emotional attachments with special
places. More recently, Stedman (2003) suggested both physical and social components of sense of place are important, and concluded a meaning-mediated model best explained how physical features of a landscape influence the meaning of the landscape. It has been suggested that individuals initially connect strongly with the physical environment, and with time, gradually experience a shift in connection toward more social aspects. Cantrill (1998) conducted a survey in the Lake Superior area studying thematic elements that describe sense of place discourse. He found with growing experience, the natural attributes of an area lose value unless they are perceived as necessary to support the social relationships that characterize a person’s sense of place. Some evidence suggests recreationists might be understood according to the importance of environmental qualities for specific activities and desired experiences related to those activities. Mitchell et al. (1993) differentiated between use-oriented and attachment-oriented visitors, where use-oriented individuals would not return to a recreational setting without the opportunity to participate in their choice activity, and attachment-oriented individuals consider the setting to be at least as important as the activity.

Experience in a landscape has also been found to be an important component in the development of place attachment. For example, Stedman et al. (2004) found that attachment was driven by accumulated experience and the expectation that more of such experiences will follow. Eisenhauer et al. (2000) concluded place attachment develops through a combination of personal experiences at a place, as well as broad-based cultural influences and the nature of the local community. Data from in-depth interviews led Worster & Abrams (2005) to the conclusion that the development of relationships in a social and ecological context, through experience, led to knowledge of the place, which
in turn fostered place attachment. Williams et al. (1992) found visitors with more previous visits and more years since their first visit were most attached to a place. Similarly, Vorkinn and Riese (2001) found experience, use intensity, and engagement in recreation activities predicted place attachment, although they could not confirm a causal relationship.

**Place Attachment, Socio-demographic Variables, and Travel Patterns**

Although studies in community attachment have been incorporating sociodemographic variables for decades (Kasarda & Janowitz, 1974; Goudy, 1990; Brown, 1993; Beggs et al., 1996), the inclusion of such data in recreation place attachment research is relatively new. More recent research on sociodemographic variables and place attachment include a study of attitudes toward the development of a hydro power plant by Vorkinn and Riese (2001), who found that sociodemographic variables did not explain variance in place attachment, but they were important predictors of attitudes towards change. They concluded that inclusion of sociodemographic variables is important for studies geared toward developing management implications because actions are more easily directed toward members of a certain sociodemographic group than towards individuals with strong levels of place attachment. Hidalgo and Hernandez (2001) also explored variation in place attachment according to sociodemographic variables in their study of attachment at three spatial ranges (house, neighbourhood, and city) and two dimensions (physical and social). They found that attachment increases with age, that women show greater attachment than men, and no differences in attachment regarding social class. One of the very few studies that looked
at sociodemographic variables and visitor place attachment was Kaltenborn & Williams (2002) comparison of local and tourist attachment to Femundsmarka National Park, Norway. They found residence and experience had little effect on place attachment of locals or visitors, and they concluded that attachment to place captures much broader environmental meanings than demographic variables such as residence.

A few recreation studies have looked for differences in place attachment according to recreational activity types and travel patterns, and mixed findings suggest the need for further inquiry into these relationships. Some evidence of differences in attachment have been found (e.g. Moore & Scott, 2003), and others found no relationship between attachment variables and activity type (e.g. Gibbons & Ruddell, 1995). In their study comparing the attachment users develop to a park and a trail within the park, Moore & Scott (2003) found activity type and frequency of use were significantly related to attachment to the specific trail, but not to participants’ attachment to the entire park. Gibbons and Ruddell (1995) found no difference in place dependence between helicopter skiers and non-motorized skiers in national forest land in Utah, and suggested the dependency might be more associated with recreational experiences than dependency on the place. A goal of this study was to further explore the relationships between demographic variables, activity patterns, and place attachment.

**Research Hypotheses**

Based on the literature, our study approach and analyses were guided by three hypotheses: 1) that differences will occur in place attachment based on experience use history: individuals who respond highly to dependence questions will have higher local
experience, and generalists will have high identity and dependence scores; 2) that individuals with less local experience and place attachment will be most attracted by the physical landscape, while more experienced and attached visitors will be connected to the physical as well as social and cultural components of the landscape; and 3) that there will be no significant differences in attachment based on demographic or travel characteristics.

**Methods**

**Study Area**

Roughly one-quarter of the 4,600 islands off the Maine coast have some vegetation, and their aesthetic beauty combined with their geographical proximity to one another cause them to be popular destinations for recreational boaters. In the 1980s, the Maine Bureau of Parks and Lands and the Island Institute became interested in developing a water trail to protect 45 public islands that were identified as appropriate for public use. Maine’s island trail became the largest and oldest water trail in North America covering 350 nautical miles. Since then, the Maine Island Trail has expanded from 45 public islands to over 150 public, private, and non-profit organization owned islands and mainland sites which hold varying levels of availability for public use for day visits or camping.

The Stonington region island archipelago, a cluster of nearly eighty islands located in Hancock County, Maine, was the site of this study. The Stonington archipelago represents a range of use characteristics (ex. heavily used locations versus
remote) and user characteristics (ex. local, outfitter, long distance travelers). The most common visitors to this area include private and commercial groups of sea kayakers, recreational sailors, recreational motor-boaters, recreational yachters, and commercial schooners. The commercial lobster fishery represents the core of the Stonington community, where the Stonington fleet includes approximately 288 commercial moorings, nearly all of which are for lobster boats.

Data Collection

Data were collected through the use of onsite interviews and mail-back questionnaires. For the onsite interviews, island visitors were briefly introduced to the purpose of the study, and asked to participate. Once they agreed to participate (only two individuals declined over the entire survey period), the researcher conducted a short interview lasting 2-4 minutes. Information was requested including access point, length of visit, type of group, size of group, mode of travel, and their address. The intent was to keep on-site visitor burden to a minimum while collecting sufficient information to draw conclusions about users and to compare response and non-response groups on the mail-back questionnaire. The mail-back questionnaire was sent to study participants two to three weeks following their onsite interview. Administration of the questionnaire followed strategies developed by Salant and Dillman (1994) and Dillman (2000), where participants received up to three surveys over a seven week period. The mail-back questionnaire was designed to obtain responses to a range of variables including socio-demographic information, travel information, perceptions of the importance of certain island conditions, reasons for visiting, Leave No Trace knowledge and behavior, and
place attachment. A pilot test was completed in the Spring of 2006 with volunteer island monitors; results and feedback were used to adjust question content, the survey length, and the survey design.

To obtain the data, island visitors of eighteen years of age and older were contacted from June 18 through September 3 on islands managed by the Maine Island Trail Association or a partnering land trust. The original sampling scheme followed a random stratified sampling method involving five days of sampling per week and covering 29 islands over a 10 by 7 mile region. However, the sampling scheme was adjusted within the first few weeks, eliminating islands on the edge receiving the fewest users and requiring long travel distances, to achieve maximum number of contacts with a range of diverse islands in close proximity. The new sampling scheme decreased the sampling area to 23 islands over a 5.5 by 6 mile region, and allowed the researcher to sample more frequently than originally planned.

A total of 427 deliverable surveys were sent to willing participants, and 361 usable questionnaires were returned garnering an 85% response rate. Multiple individuals per group were interviewed if they felt they could provide unique perspective. Results are reported on the basis of all participants with the exception of visitor or travel characteristic data which is reported by visitor group (n=232). Study respondents who returned the questionnaires were compared to those who did not on all of the onsite interview questions to check for non-response bias. A significant difference was found in party size ($\chi^2 = 9.738, \text{3df}, P = 0.021$). The difference can be attributed to groups of 2-5 respondents where it is likely that several members of the same party that were asked to complete two mail-back surveys decided to simply return one. Respondents did not
differ from non-respondents on whether they were day users or overnight campers ($\chi^2 = 0.013, 1\text{df}, P=0.909$), first time or repeat visitors ($\chi^2 = 0.028, 1\text{df}, P=0.866$), or visitors, summer residents, locals to the region, or individuals with other connections to the area ($\chi^2 = 0.326, 1\text{df}, P=0.568$).

**Demographic and Travel Characteristics**

Survey respondents ranged in age from 24 to 91, and the greatest proportion of visitors (33%) were between the ages of 46 and 55. Fifty-one percent of respondents were male, and 84% held either a bachelor or graduate degree. Although the largest proportion of participants was from Maine (28%), respondents came from 35 states, Canada, and the United Kingdom. Most participants were visitors to the Stonington region (87%), and most did not hold employment that is dependent on the resource (94%). The most common group size was two people, although group sizes ranged from 1-50. Forty-eight percent of the participant groups camped overnight and the mean number of nights camped were 3 nights. The majority of participant groups travelled on the water by kayak (78%), followed by motor boat (17%), and sailboat (16%).

**Measures, Data Reduction and Statistical Analyses**

The visitor survey included an eight-item measure of place attachment, a seventeen-item measure of reasons for visiting, and a nine-item measure of support for management actions. The measure of place attachment was adapted from Daigle et al. (2002) based on validation by Williams & Vaske (2003). Participants rated on a 5-point likert scale from “strongly agree” to “strongly disagree” with the option of “don’t know”
the place attachment statements regarding Maine’s Stonington region islands. Responses to the place attachment measure were factor analyzed using principal-components extraction with varimax rotation. The resulting eigenvalues, scree plots, and factor loadings were evaluated to determine the number of factors, and Cronbach’s alpha coefficients were computed for the items comprising each resultant factor. Two distinct factors emerged from the place attachment scale representative of place identity and place dependence, allowing us to use mean factor scores to build on work by Kyle et al. (2004) by using cluster analysis to create subgroups of participants characterized by similarities in their responses to the place identity and place dependence questions. Each respondent’s mean component score for each of the two place attachment dimensions were used to group participants according to their place attachment. Following procedures previously used by Daigle et al. (1998), the mean component scores were computed by adding the scale scores for each variable that loaded on a factor (place identity or dependence), and then dividing the total score by the number of variables on each dimension.

The K-means cluster analytic procedure was used to group participants as it is recommended for large samples (over 200 cases). The K-means clustering method uses Euclidean distance to maximize variability between clusters while minimizing within-cluster variability (SPSS, 2001). While this method of cluster analysis is accepted in our field and others (Shaull & Gramann, 1998; Stodolska, 1998), its subjectivity with respect to selecting the most appropriate number of clusters must be acknowledged (Jackson, 1993). Based on the literature, we used four criteria to select the number of clusters: 1) each cluster should be independent of the others; 2) no one cluster should contain the
majority of participants (raising within-group variation); 3) no clusters should be so small that they limit further statistical analysis; and 4) each cluster’s mean and contents should make intuitive sense. To probe more deeply into the relationship between place attachment and what draws individuals to a landscape, the mean component scores were also divided into three categories (low, medium, and high) to determine whether patterns found with the attachment clusters could be attributable to one component (identity or dependence) or the other.

The measure of reasons for visiting was developed based on a literature review, feedback from resource specialists familiar with the Stonington region, and the pilot test. Participant rated 16 items on a five-point likert scale ranging very unimportant to very important. This measure was also subjected to factor analysis using principal-components extraction with varimax rotation. Participant experience use history (EUH) was also calculated modeled on previous work by Hammitt et al. (2004) and Schreyer et al. (1984). Four variables were used to create an EUH index: total years visiting and number of visits last year to the Stonington region islands specifically, and the same for other coastal islands. The index was formed by adding each participant’s years visiting to their visits last year, and dividing each individual’s score by the sum of the most experienced participant for each variable (i.e. the Stonington islands, and other coastal islands). Each ratio was divided (by the median value) into low and high levels creating four groups (Table 1.1) defined by low or high levels of experience in Stonington (local) and experience in other coastal areas (general).
Table 1.1. Study participant groupings according to Experience Use History.

<table>
<thead>
<tr>
<th>EUH</th>
<th>Local experience</th>
<th>General experience</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginners</td>
<td>Low</td>
<td>Low</td>
<td>127</td>
</tr>
<tr>
<td>Visitors</td>
<td>Low</td>
<td>High</td>
<td>65</td>
</tr>
<tr>
<td>Locals</td>
<td>High</td>
<td>Low</td>
<td>57</td>
</tr>
<tr>
<td>Veterans</td>
<td>High</td>
<td>High</td>
<td>112</td>
</tr>
</tbody>
</table>

One-way analyses of variance (ANOVA) with Tukey Honestly Significant Differences (HSD) tests for multiple comparisons and eta-squared ($\eta^2$) tests of effect size, or where appropriate chi-squared ($\chi^2$) tests with Cramer’s $V$ tests of effect size were used to explore the relationships between place identity, place dependence, and participants’ experience use history, reasons for visiting, support for management actions, and demographic and travel characteristics. Effect size was calculated to better understand the relationships between variables (Kyle et al., 2004), and eta-squared was chosen for ANOVA tests as it measures strength of association interpreted similarly as the regression output $R^2$. Cramer’s $V$, a popular measure of nominal association for $\chi^2$, ranges from 0 to 1 regardless of table size, so can be interpreted in the same light as $\eta^2$.

Results

*Place Attachment*

Principal component factor analysis of the eight item place attachment scale determined the measure consisted of place identity and place dependence components, and a t-test showed the two components are significantly different ($p<.001$) where identity scores were higher than dependence, and highly correlated ($r=.673$), which is consistent with past research (Bricker & Kerstatter, 2000; Vaske & Kobrin, 2001). The
two components each demonstrated adequate internal consistency (Nunnaly, 1978), where Cronbach’s alpha was .88 for the place identity component and .81 for place dependence (Table 1.2).

The K-means clustering procedure was completed for three to eight clusters. Two sets of groupings proved appealing – the three-group solution that divided participants into high, medium, and low identity and dependence groups, similar to what was used by Kyle et al. (2004), and a six group solution. The six group solution would allow for identity or dependence-specific pattern detection, but it resulted in two clusters with small numbers of cases, and a random selection of half of the place attachment data failed to replicate the same six-cluster pattern. We therefore decided the three-cluster solution (Table 1.3) best suited our data while providing meaningful and distinct results for our purposes. We then divided the place identity and place dependence scores into low and high 25th percentiles and medium 50th percentiles to detect component-specific patterns within the relationship between attachment and reasons for visiting.

Table 1.2. Place identity and place dependence dimensions of place attachment with Stonington region island visitors

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Factor loading</th>
<th>Item mean</th>
<th>Standard deviation</th>
<th>Cronbach α</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Place identity (grand mean = 4.01)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This place means a lot to me</td>
<td>0.74</td>
<td>4.51</td>
<td>0.66</td>
<td>0.88</td>
</tr>
<tr>
<td>I feel this place is a part of me</td>
<td>0.78</td>
<td>3.72</td>
<td>1.12</td>
<td></td>
</tr>
<tr>
<td>I am very attached to this place</td>
<td>0.87</td>
<td>3.89</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>I identify strongly with this place</td>
<td>0.84</td>
<td>3.91</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td><strong>Place dependence (grand mean = 3.55)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I wouldn’t substitute any other area for doing the types of things I did here</td>
<td>0.86</td>
<td>3.44</td>
<td>1.26</td>
<td>0.81</td>
</tr>
<tr>
<td>I get more satisfaction out of visiting this place than any other recreation place</td>
<td>0.84</td>
<td>3.26</td>
<td>1.14</td>
<td></td>
</tr>
<tr>
<td>This area is the best place for what I like to do</td>
<td>0.81</td>
<td>3.64</td>
<td>1.06</td>
<td></td>
</tr>
<tr>
<td>The time I spent here could have just as easily been spent somewhere else*</td>
<td>0.50</td>
<td>3.84</td>
<td>1.05</td>
<td></td>
</tr>
</tbody>
</table>

* Reverse coded
Table 1.3. Three-cluster solution of the mean place identity and place dependence scores.

<table>
<thead>
<tr>
<th>Place attachment dimension</th>
<th>Final cluster centers</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>F</th>
<th>p</th>
<th>H²</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place identity</td>
<td></td>
<td>2.87</td>
<td>3.87</td>
<td>4.76</td>
<td>407.45</td>
<td>&lt;.001</td>
<td>.698</td>
<td>.673</td>
</tr>
<tr>
<td>Place dependence</td>
<td></td>
<td>2.41</td>
<td>3.29</td>
<td>4.47</td>
<td>493.95</td>
<td>&lt;.001</td>
<td>.737</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td></td>
<td>69</td>
<td>160</td>
<td>127</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹Mean scores with different superscripts are significantly different (p<.05)

**Hypothesis 1:**

Based on the literature, we hypothesized visitors in different experience use history categories would differ in terms of place attachment. Our findings illustrate that the mean identity and dependence scores of beginners and visitors were significantly lower than those of locals and veterans (Table 1.4). Although the effect sizes are weak, the pattern demonstrates that participants with low levels of local experience elicit lower levels or both place identity and dependence than those with high levels of local experience. General experience, on the other hand, does not appear to be as strong of a determinant of either dimension of attachment.
Table 1.4. Mean differences in place identity and dependence scores between Experience Use History categories.

<table>
<thead>
<tr>
<th>Place attachment dimension</th>
<th>Experience Use History</th>
<th>Δ mean</th>
<th>F</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beginners</td>
<td>Visitors</td>
<td>Locals</td>
<td>Veterans</td>
<td></td>
</tr>
<tr>
<td>Place identity</td>
<td>3.56^{a}</td>
<td>3.67^{a}</td>
<td>4.44^{b}</td>
<td>4.43^{b}</td>
<td>0.88</td>
</tr>
<tr>
<td>Place dependence</td>
<td>3.20^{a}</td>
<td>3.24^{a}</td>
<td>4.05^{b}</td>
<td>3.83^{b}</td>
<td>0.85</td>
</tr>
</tbody>
</table>

^1Mean scores with different superscripts are significantly different (p<.05)
**Hypothesis 2:**

Our second hypothesis posited that individuals with low levels of place attachment would be drawn to the physical landscape more so than to cultural aspects, and that higher-attached individuals would value both physical and cultural components. Our factor analysis of the sixteen-item reasons for visiting measure resulted in 4 factors, which we named nature and exploration, ocean adventure, local culture, and inter-group (Table 1.5). Items in the nature and exploration factor relate to appealing characteristics of the physical landscape; the ocean adventure factor is activity-specific, the local culture factor represents more social and cultural aspects of the landscape, and the final one-item factor, inter-group, reflects a reason for visiting altogether separate from the Stonington landscape.

Table 1.5. Reasons for visiting the Stonington region islands.

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor loading</th>
<th>Item mean</th>
<th>Standard deviation</th>
<th>Cronbach α</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Nature &amp; exploration (grand mean = 4.44)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenic quality</td>
<td>0.82</td>
<td>4.76</td>
<td>0.60</td>
<td>0.87</td>
</tr>
<tr>
<td>Distinctive coastline</td>
<td>0.78</td>
<td>4.61</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>Remoteness</td>
<td>0.76</td>
<td>4.22</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>Solitude</td>
<td>0.73</td>
<td>4.27</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>Exploration</td>
<td>0.68</td>
<td>4.37</td>
<td>0.77</td>
<td></td>
</tr>
<tr>
<td>Nature / wildlife appreciation</td>
<td>0.67</td>
<td>4.57</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>Alternative to daily routine</td>
<td>0.53</td>
<td>4.30</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td><strong>2) Ocean adventure (grand mean = 4.10)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise and health</td>
<td>0.81</td>
<td>4.10</td>
<td>0.88</td>
<td>0.79</td>
</tr>
<tr>
<td>Skill development</td>
<td>0.81</td>
<td>3.68</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Adventure / excitement</td>
<td>0.76</td>
<td>4.34</td>
<td>0.81</td>
<td></td>
</tr>
<tr>
<td>Ocean travel</td>
<td>0.63</td>
<td>4.29</td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td><strong>3) Local culture (grand mean = 2.98)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schooners / sailboats</td>
<td>0.79</td>
<td>3.11</td>
<td>1.15</td>
<td>0.73</td>
</tr>
<tr>
<td>Working waterfront / commercial fishery</td>
<td>0.77</td>
<td>3.04</td>
<td>1.06</td>
<td></td>
</tr>
<tr>
<td>Fishing / clam digging / mussel picking</td>
<td>0.74</td>
<td>2.60</td>
<td>1.07</td>
<td></td>
</tr>
<tr>
<td>Picnic outing</td>
<td>0.63</td>
<td>3.18</td>
<td>1.19</td>
<td></td>
</tr>
<tr>
<td>Meet new people</td>
<td>0.40</td>
<td>2.97</td>
<td>1.07</td>
<td></td>
</tr>
<tr>
<td><strong>4) Be with group (mean = 4.10)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be with family and/or friends</td>
<td>0.75</td>
<td>4.10</td>
<td>1.06</td>
<td></td>
</tr>
</tbody>
</table>
To analyze differences in what draws individuals to the Stonington islands in terms of place attachment, one-way ANOVA tests with Tukey HSD tests for multiple comparisons and eta-squared ($\eta^2$) tests of effect size were conducted using mean factor scores as dependent variables with the place attachment clusters as the independent variable. Significant differences were found between the attachment clusters for the nature and exploration (F=10.49, p<.001, $\eta^2=.06$), ocean adventure (F=6.94, p<.01, $\eta^2=.04$), and local culture (F=14.40, p<.001, $\eta^2=.08$) factors. In each case, scores in the low attachment cluster were significantly lower than those in the medium and high attachment clusters (p<.05). There were no significant differences found between the attachment clusters for the inter-group factor.

To gain a sense for how participants in each of the three attachment clusters rated the reasons for visiting factors, the mean factors scores of each cluster were compared (Table 1.6). We found that the low and high attachment clusters rated the nature and exploration factor significantly higher than the other factors, and the local culture factor significantly lower than the other factors. For these two clusters, the ocean travel and inter-group factors were rated similarly, and between nature exploration and local culture in importance. The medium attachment cluster rated the inter-group and nature and exploration factors similarly and highest, followed by the ocean travel factor. This cluster also rated local culture as less important than the other factors.

Table 1.6. Reasons for visiting factors rating according to attachment cluster.

<table>
<thead>
<tr>
<th>Attachment Clusters</th>
<th>Factors</th>
<th>$\Delta$ mean</th>
<th>F</th>
<th>P</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nature</td>
<td>Ocean</td>
<td>Local</td>
<td>Group</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>$4.44^a$</td>
<td>$4.07^b$</td>
<td>$2.96^c$</td>
<td>$4.11^b$</td>
<td>$1.48$</td>
</tr>
<tr>
<td>Medium</td>
<td>$4.18^a$</td>
<td>$3.81^b$</td>
<td>$2.58^c$</td>
<td>$3.88^{ab}$</td>
<td>$1.60$</td>
</tr>
<tr>
<td>High</td>
<td>$4.56^a$</td>
<td>$4.21^b$</td>
<td>$3.18^{c}$</td>
<td>$4.19^{b}$</td>
<td>$1.38$</td>
</tr>
</tbody>
</table>

$^1$Mean scores with different superscripts are significantly different (p<.05)
To gain a better sense of how place identity and place dependence affect these differences, similar ANOVA tests were run between the reasons for visiting factors and high, medium, and low groups of identity and dependence separately. The same pattern emerged from each of these tests as with the clusters of attachment; low levels of identity and dependence were significantly lower (p<.05) than high levels for the nature and exploration, ocean adventure, and local culture factors (Table 1.7). No significant differences were found between identity or dependence groups for the inter-group factor. ANOVA tests were also computed to compare experience use history groups with mean factor scores of what draws individuals to the Stonington landscape. Here, however, no significant differences were found between experience use history groups for any of the four factors.

Table 1.7. Relationship between identity and dependence groups and reasons for visiting factors.

<table>
<thead>
<tr>
<th>Reasons for Visit</th>
<th>Components of Attachment</th>
<th>Group Means</th>
<th>Δ mean</th>
<th>F</th>
<th>P</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature &amp; exploration</td>
<td>Identity</td>
<td>4.29 a</td>
<td>4.39</td>
<td>4.64 b</td>
<td>.35</td>
<td>9.76</td>
</tr>
<tr>
<td></td>
<td>Dependence</td>
<td>4.21 a</td>
<td>4.44 b</td>
<td>4.61 c</td>
<td>.40</td>
<td>12.97</td>
</tr>
<tr>
<td>Ocean travel</td>
<td>Identity</td>
<td>3.90 a</td>
<td>4.05</td>
<td>4.23 b</td>
<td>.33</td>
<td>4.61</td>
</tr>
<tr>
<td></td>
<td>Dependence</td>
<td>3.82 a</td>
<td>4.12</td>
<td>4.61 b</td>
<td>.79</td>
<td>6.81</td>
</tr>
<tr>
<td>Local culture</td>
<td>Identity</td>
<td>2.60 a</td>
<td>2.98 b</td>
<td>3.21 c</td>
<td>.61</td>
<td>14.82</td>
</tr>
<tr>
<td></td>
<td>Dependence</td>
<td>2.73 a</td>
<td>2.98</td>
<td>3.12 b</td>
<td>.39</td>
<td>6.41</td>
</tr>
<tr>
<td>Inter-group</td>
<td>Identity</td>
<td>3.94</td>
<td>4.12</td>
<td>4.19</td>
<td>.25</td>
<td>1.29</td>
</tr>
<tr>
<td></td>
<td>Dependence</td>
<td>4.05</td>
<td>4.02</td>
<td>4.10</td>
<td>.08</td>
<td>1.67</td>
</tr>
</tbody>
</table>

¹Mean scores with different superscripts are significantly different (p<.05)
**Hypothesis 3:**

We suggested in our third hypothesis that we expected to find no significant differences between attachment levels with respect to demographic and travel characteristics. Although there were no significant difference between the three clusters of attachment based on gender, education, or whether they held employment that is dependent on the resource, a significant difference was found with respect to age (F=5.575, p<.01, $\eta^2$.03). Here, participants in the low attachment cluster were significantly younger than individuals in the high attachment cluster (p<.05).

Although there are no significant differences between the three attachment clusters with respect to the type of community they live in now, a greater proportion of those in the high attachment cluster reported growing up in an urban area than did participants in the other two clusters ($\chi^2$.16.35, df=4, p<.05, Cramer’s V=.15). Also, compared to the high attachment cluster, more of the participants in the low and medium attachment clusters were visitors ($\chi^2$.47.64, df=6, p<.001, Cramer’s V=.26) whereas 91% of the year-round Stonington residents, and 75% of the summer residents were in the high attachment cluster.

Several significant differences were found among the three clusters of attachment according to travel characteristics. Although there were no significant differences based on group size, participants in the high cluster were more likely to be traveling in a group with family and/or friends and less likely to be part of a guided group/organization, and those in the low cluster were more equally spread between family and/or friends and guided groups ($\chi^2$.31.33, df=14, p<.05, Cramer’s V=.21). Participants in the high attachment cluster were more likely to be travelling by motorboat ($\chi^2$.10.46, df=2, p<.05,
Cramer’s V=.17) and less likely to be travelling by kayak ($\chi^2=10.77$, df=2, p<.05, Cramer’s V=.17) than those in the other two clusters. A greater proportion of the participants in the high and medium groups indicated they chose their route because they were seeking specific islands ($\chi^2=11.78$, df=2, p<.05, Cramer’s V=.18), and those in the high group because they had been there before ($\chi^2=41.85$, df=2, p<.001, Cramer’s V=.343) than those in the other groups. This finding parallels the relationship between attachment and local experience. Similarly, while there was no significant difference between clusters visiting public islands, participants in the high cluster of attachment were most likely to visit privately owned islands ($\chi^2=9.34$, df=2, p<.05, Cramer’s V=.16), islands owned by non-profit organizations ($\chi^2=22.10$, df=2, p<.001, Cramer’s V=.25), and a variety of islands ($\chi^2=14.43$, df=2, p<.05, Cramer’s V=.20) than were the other two attachment clusters. The low and medium attachment clusters, on the other hand, were most likely to report not knowing what types of island they visited ($\chi^2=8.66$, df=2, p<.05, Cramer’s V=.16).

A greater proportion of study participants in the low cluster camped overnight as compared to the medium or high clusters ($\chi^2=6.92$, df=2, p<.05, Cramer’s V=.16). There were no significant differences between the three groups with respect to Leave No Trace knowledge or behavior, except that participants in the high attachment cluster were slightly more likely to build a wood fire, but clearly more likely to have neither a wood fire nor use a camp stove than the other clusters ($\chi^2=16.96$, df=6, p<.05, Cramer’s V=.16).

Participants in the high attachment cluster also tended to rate their experience on the Stonington islands more highly than did the other two clusters ($\chi^2=17.13$, df=6, p<.05,
Cramer’s V=.16), and were also significantly more likely to consider the experience extremely valuable than the other two groups ($\chi^2=45.74$, df=6, p<.001, Cramer’s V=.25). Here the difference was quite striking, where 91% of those in the high cluster, 73% of those in the middle cluster, and only 52% of those in the low cluster considered the experience extremely valuable.

**Discussion**

In many ways, the results in this study are supportive of earlier work that has explored place attachment in recreation settings. This study has also extended our existing understanding of recreation place attachment by shedding light on reasons and causes as to how individuals become connected to a landscape. With an eight-item scale of place attachment, our factor analysis and Cronbach alphas allowed us to measure the two components of place attachment as conceptualized by others in our field of study (Williams et al., 1992; Williams & Vaske, 2003). We were able to cluster participants into three groups based on their place identity and place dependence ratings and compare the groups according to their reasons for visiting, recreation experience in the area, and demographic and travel variables. This allowed us to begin to paint a picture of what it is that attracts people to the Stonington landscape, and what patterns of use lead to the greatest levels of attachment to the place. Our findings also lend support to the argument that the study of recreation place attachment is a useful approach not only for segmenting visitors in recreation management studies, but for understanding how visitors with various patterns of travel may support or react to various possible management actions.
We examined the relationship between attachment and experience use history, and discovered that individuals with lower levels of local experience (beginners and visitors) had significantly lower mean place identity and place dependence scores than did individuals with higher levels of local experience (locals and veterans). The connection between local experience and attachment is consistent with past research (Williams et al., 1992; Vorkinn & Riese, 2001). A relationship was also present between place dependence and general experience, where locals scored significantly higher on place dependence than did visitors (high general/low local experience), and although the difference was not significant, locals scored marginally higher than veterans on place dependence as well. This relationship makes intuitive sense, as participants with higher general experience (locals and veterans) might be less dependent on the Stonington landscape given their knowledge of alternatives sites (Hammitt et al., 2006). These relationships bring an important management implication to light, which considers other research that has found more attached visitors to have better environmental behavior (Vaske & Kobrin, 2001). Since higher levels of local experience are associated with high attachment, participants with high levels of local experience, and return visitors become important in modelling environmentally responsible behavior while out on the islands. Managers can take from this the importance of promoting return visitation, and doing so requires strategy in a time where trends are shifting to one-time experiences. In 2002, the Travel Industry Association of America found that 76% of U.S. travellers want to visit new places instead of returning to old places. Fortunately, a previous report on this Stonington visitor survey (Ednie & Daigle, in review) showed 61% of Stonington visitors...
were on a return trip demonstrating the Maine coast has the potential to attract return visitation.

We found that participants with higher attachment rated physical, cultural, and activity based reasons for visiting significantly higher than participants with lower attachment, and inter-group reasons for visiting similarly as the participants with lower attachment. We further found this pattern exists in both the place identity and place dependence components of attachment. In terms of what characteristics of a landscape draw visitors, our findings suggest that participants with higher levels of attachment are more drawn to all aspects of the landscape. While these findings did not allow us to extrapolate specific characteristics of the landscape that draw individuals, they did support past research (Stedman et al., 2004) when considered along with the relationship between local experience and attachment. With accumulated experience in the area individuals become more attracted to physical, cultural, and activity-specific components of the landscape. A further finding, which did not completely support our hypothesis, was that study participants, regardless of level of attachment, were most attracted to the physical landscape, and were least attracted to the local culture of the area. We hypothesized, based on prior research (Cantrill, 1998), that participants with higher levels of attachment would value the culture of the area similarly to how they value the physical landscape. We found that while these individuals were attracted to the local culture more so than the lower attachment clusters, their ratings of the importance of the local culture were considerably lower than their ratings of the physical landscape. It is also interesting that no significant differences were found between experience use history groups and the reasons for visiting factors. Our findings support place attachment as a more
encompassing approach to research in human dimensions of natural resource management than simply evaluating visitor experience.

Our comparisons between the place attachment clusters and demographic and travel characteristics also shed light on the importance of local experience in the development of attachments to a landscape. For example, participants in the high attachment cluster were more likely to be travelling by motor boat (an activity associated with locals or long-term visitors) than those in the other clusters, and less likely to be travelling by kayak (an activity associated with visitors to the area). Similarly, although a high proportion (87%) of the survey respondents were visitors, most of the year-round and summer Stonington residents were in the high attachment cluster. Further, individuals in the high attachment cluster made their travel decisions based on knowledge of the area, and opted to visit islands that were more off of the beaten path (private or non-profit instead of the public islands). Participants with lower attachment were more likely to not know what type of island they were on, and also to frequent the public islands. This suggests with experience in the area, individuals learn about special places, perhaps hidden gems, and that attachment develops as they find and visit these special places. This could be a highly important pattern for island managers to consider, especially where a substantial difference was found between the high and low clusters in terms of trip ratings. Participants in the high cluster were far more likely to consider the experience extremely valuable. This leads to the questions of whether participants in the lower place attachment cluster will chose to return-visit. The struggle for managers might be to connect new visitors with these special places right away without, of course, causing the hidden gems to lose their appeal. Perhaps most important is that the Maine
Island Trail Association continues to add new private islands to the trail to ensure the capacity to disperse new visitors from the public islands.

The analysis of our three main hypotheses demonstrates place attachment is an important consideration in developing an understanding of recreational visitors as part of a landscape. This approach is particularly important in an area such as the Maine coast which offers a diversity of recreational experiences along the length of the coast. The different types of islands even within the Stonington region appear to attract individuals of different levels of attachment – and maintaining this diversity appears to be crucial in the development of strong attachments to the landscape. This study provides a better understanding of how place attachment is developed through local experience, and how visitors are drawn to different aspects of the landscape according to their attachment to the area.

Clearly, more research is necessary to investigate the management implications associated with place attachment. In particular, there remains a need for mixed methods research into the specific characteristics of a landscape that originally draw people, and that foster attachment. Stedman et al., (2004) used resident-employed photography to assess this in a community setting, and we suggest a qualitative approach to understand how individuals with different connections to a specific shared resource such as Stonington originally became connected. Also, although user conflict was not a focus of this study, an understanding of the connection between user conflict and place attachment in a shared resource such as the Maine coast could add to the current understanding of how one’s attachment to a place influences behavioral choices within the landscape.
References


CHAPTER 2

THE CONSTRUCTION OF SENSE OF PLACE ON THE MAINE COAST

Abstract

The Maine coast is home to productive fishing grounds that are ideal for recreational use. The Stonington region island archipelago, located near the center of the Maine coast, is home to a ‘mixing-pot’ of user groups. This study explores how different user groups became connected with the landscape, and how their place meanings have evolved over time spent in the changing landscape. An interpretive research approach was taken, where 23 in-depth interviews were conducted with long-term visitors, transplants, and locals in the region. Study findings demonstrated similarities and differences in place meanings between groups sharing a resource. The physical environment was an important draw, and continues to be an important component of why participants, including locals with ancestral roots, keep visiting or stay in the region. Participants in each group also felt drawn to the local community, highlighting the need for recreation researchers to understand community dynamics surrounding recreation areas.

Introduction

As in other amenity-rich landscapes, Maine’s coastal tourism and in-migration continue to grow, and the threat of potential conflict within communities and in areas
adjacent to communities is becoming of increasing concern for managers (Brehm et al., 2006). The concept of sense of place can serve to help managers and community interests understand what is at the root of conflict between users in order to develop strategies to avoid, or mediate conflict when it occurs. This concern over potential conflict between the users of a resource has led to research interest into what it is about the landscape that is important to different interest groups (e.g. Mitchell et al., 1993; Cheng et al., 2003; Cantrill, 1998). This paper explores how different types of resource users connect with a landscape, and how these connections have changed as the landscape itself has changed. This research strives to better understand the similarities and differences between how different user groups connect with a landscape, the balance between user groups sharing a resource, and to identify specific qualities of the landscape that are important to protect in order to preserve user attachment to a shared resource.

Over the past several decades, the concept of sense of place has been studied across several disciplines, including landscape architecture, environmental psychology, geography, planning, and anthropology (Brandenburg & Carroll, 1995; Eisenhauer et al., 2001; Relph, 1976; Tuan, 1974; Williams et al., 1992). A goal of this paper is contribute to current efforts bridging two streams of sense of place research that have been receiving a considerable amount of research attention over the past two decades: community attachment, and recreation place attachment. Considering the Maine coast hosts long-term residents and short-term visitors along with a spectrum of categories in-between (summer residents, transplants, etc.), the region provides the opportunity to study the two streams together. Community attachment has been defined as an emotional investment in a place that emerges through residence and a sense of belonging (Hummon, 1992). Many
studies in community attachment, ranging from the narratives of Vitek and Jackson (1996) to the quantitative analyses by Kasarda and Janowitz (1974) tended to be motivated by concern over the changes occurring in the social composition of communities. While much of the early work concerned the development of a model and measure of community attachment (Kasarda & Janowitz, 1974; Goudy, 1982; Beggs et al., 1996; Goudy, 1990), more recent research in community attachment tends to study the relationships between local communities and their resources, such as attitudes toward tourism development (McCool & Martin, 1994), attitudes towards a proposed hydro power plant (Vorkinn & Riese, 2001), and landscape changes in amenity-rich places (Brehm et al., 2006).

Recreation place attachment tends to focus on how short-term visitors to an area connect with the landscape. Recreation place attachment to date has focused heavily on the development of measures of attachment, and on understanding the components of sense of place (Tuan, 1977; Williams et al., 1992; Jorgensen and Stedman, 2001; Stedman, 2002, 2003; Williams and Vaske, 2003), and more recent work has begun to explore how sense of place is developed and how place attachment research can be applied on the ground by managers. For example, Kyle & Chick (2007) studied the construction of recreational sense of place, and Bricker & Kerstetter (2000) explored the connection between place attachment and behavior such as recreation specialization. Beckley (2003) argues that both community and recreation streams of research “represent pieces of an integrated model of place attachment, but neither alone attempts to look at the big picture – to the multitude of sociocultural and ecological or landscape features that simultaneously and in varying degrees attach people to places” (p.106).
Motivated by the Beckley’s (2003) argument, the purpose of this study was to develop an understanding of how different user groups (locals, transplants, and long-term visitors) of Maine’s Stonington region islands became connected with the landscape, and to understand the nature of their connection over time in a changing landscape. In particular, this study aimed to investigate what attracts people to, and keeps people in the Stonington landscape, and why individuals stay in the region or keep visiting the region over time. Three objectives were developed to guide this research: 1) to develop an understanding of what characteristics of the Stonington region landscape (i.e., social and physical) attract visitors; 2) to understand whether the meaning of the Stonington region landscape is the same now as it was originally for long term users of the resource (i.e., exploring the effect of the changing social and physical landscape on place meanings over time); and 3) to understand why long-term users of the Stonington region islands stay/keep visiting over time (i.e., exploring the qualities of the physical and social landscape that contribute to “anchoring” people to the landscape).

Conceptual Grounding

*Social and physical components of attachment to place*

Place attachment research has often focused on attachment to specific physical places (Kaltenborn & Williams, 2002; Mitchell et al., 1993) and on the social construction of a sense of place (Milligan, 1998; Stokowski, 2002). However, only recently has interest turned to such questions as how the physical environment weighs into how individuals initially become attached or connected to a landscape (Beckley,
One important question that remains largely unanswered is whether people tend to connect to social components of a landscape, to the actual biophysical aspects of a landscape, or to a combination of both. Some suggest social components are more important than the physical landscape (Hidalgo & Hernandez, 2001), but others suggest both physical and social components are important to the development of a sense of place. Eisenhauer et al. (2000) found that the environmental features/characteristics of a place, along with family/friend-related reasons were the primary underlying explanations for emotional attachments with special places. Stedman (2003) suggested both physical and social components of sense of place are important, and concluded (after testing several models) a meaning-mediated model best explained how physical features of a landscape influence the meaning of the landscape, which in turn is associated with certain evaluations, including attachment to place.

A recent focus in community attachment work has been to clarify to what physical characteristics of the environment people become attached, and to answer the question of whether it is possible to distinguish between physical and social components of attachment. Using survey data from three intermountain Western communities, Brehm et al., (2006) found social attachment and natural attachment to be two distinct dimensions of community attachment. Brehm (2007) later used qualitative analysis to examine the natural environment dimension of community attachment, and found some respondents described specific elements of the physical environment separately from social elements, but most described their attachment to the physical environment within the context of the lifestyle elements the physical environment supports. These findings were similar to those of Cantrill (1998), who concluded individuals initially connect
strongly with the physical environment, and then gradually experience a shift in connection toward more social aspects with time. The results of his survey in the Lake Superior area found with growing experience, the natural attributes of an area lose value unless they are perceived as necessary to support the social relationships that characterize a person’s sense of place.

**SOP over Time**

A few studies have investigated change in the strength of place attachment over time spent in an area (Bricker & Kerstetter, 2000; Moore & Graefe, 1994). For example, Hammitt (2004) found experience use history classifications (based on years visiting and number of visits per year to specific and general recreation areas) were linked to different types and degrees of place bonding and substitution behavior of recreationists. Not many studies, however, have looked at how an individual’s sense of place may change over time spent in an area. One exception is Hay (1998), who examined the development of sense of place in the contexts of residential status, age stage, and development of the adult pair bond. Hay found sequential stages in the development of sense of place which were particularly evident in people who were raised and spent most of their lives in Banks Peninsula, New Zealand. He suggested individuals in the embryonic phase of sense of place were most attracted to the scenic qualities and amenities of the region; did not, for the most part, have social connections with the place; and were not, for the most part, involved in the community.

The second phase, commitment, was characterized by a higher level of attachment, feelings of insidedness, and motivation to remain. The culmination phase
was characterized by stronger feelings of attachment and insidedness, along with a feeling of being ‘part’ of their community. Figure 2.1 is an adaptation of Hay’s (1998) findings tailored to represent what could be expected in the Stonington landscape. The major question that remains, which to our knowledge has not been examined, is how these progressions are affected by changes in the landscape.

![Figure 2.1. Expected type of sense of place, adapted from Hay (1998).](image)

**What keeps people over time?**

Considering the challenges many rural communities are facing, interest has turned to understanding the reasons why rural residents decide to stay in their communities even through the most difficult of times. In a time of changing rural communities that might be facing an influx in newcomers or degrading social and economical conditions, a sense of home or rootedness to place often exists that is strong enough to be more important than the severity of the problems themselves. Paige (1996) describes the development of a sense of place as finding a place where roots can be put down. He discusses five reasons why people stay in their rural community when the option of moving to another location may offer a brighter future: can’t leave; duty and responsibility; way of life;
inertia; and fear of uprooting. Falk (2004) also presented an interpretation of why people choose not to leave a community. In his ethnography of a southern U.S. community, Falk found that social connections, family bonds, and a strong sense of home are what keep people in a community. He learned that these bonds can be so strong that residents can have very positive feelings of attachments towards their homes and communities even in severely poor and troubled areas. Schumaker (1983) also suggested social reasons were most important in rooting individuals to their landscapes in his review of the literature on people-place relationships. The development of strong social ties, the love of home, and being part of a community for years have even committed individuals to staying in their communities when exposed to hazardous environments.

Beckley (2003) noted that the study of rootedness is an important contribution to place attachment literature, and suggested the way individuals are drawn to a place (usually positive attachments), and the way people are rooted to a place (often neutral or negative attachments) can be thought of as magnets and anchors, respectively. He further suggested that these anchors and magnets can be considered in terms of social and physical dimensions. A goal of this project is to explore Beckley’s (2003) hypotheses regarding positive and negative aspects of attachment (magnets and anchors, respectively) – with particular interest in how attachments to the social and physical landscape affect place bonds. Also, the vast majority of research into place rootedness has been completed by rural sociologists interested primarily in community attachments. This research provides the opportunity to study the phenomena in a geographical unit that hosts a range of residents (locals, transplants, summer residents), as well as long-term recreational visitors.
Study Site

The Maine coast is home to nooks of productive fishing grounds that are ideal for recreational use. There are more than 4,600 islands off the Maine coast and thousands of intertidal ledges. Roughly one-quarter of the islands have some vegetation, and their aesthetic beauty combined with their geographical proximity to one another cause many of them to be popular destinations for recreational use. Over the past few decades, the coast has been a changing landscape due to in-migration, increasing recreational use, and an increase in coastal tourism. The Stonington region island archipelago, a cluster of nearly eighty islands located near the center of the Maine coast, is home to a ‘mixing-pot’ of user groups, each containing unique connections to the landscape. During the summer of 2006, the Stonington harbor had 288 commercial moorings, the vast majority of which were for lobster fishing boats, and 151 pleasure moorings. The area is a working waterfront that has witnessed a rise in tourism over the past decade, and a dramatic in-migration of year-round and seasonal home-owners. Sixteen of the islands in the region are part of the Maine Island Trail, a water trail that was formed in 1988 with 45 public islands and now has grown to include over 150 public, private, and non-profit organization owned islands and mainland sites available for day visits or camping use (DOC, 2004). Other islands in the region are owned by non-profit organizations, such as land trusts, and a variety of private owners.

An island visitor survey conducted in 2006 (Ednie & Daigle, in review) provided an idea of who the users of the region are, and found visitors to the islands come with a diversity of interests and abilities. While other areas in the U.S. are experiencing
decreases in repeat visitation (Travel Industry Association of America, 2002), 61% of the visitors surveyed in the Stonington region were repeat visitors, and 31% reported having visited the region for at least 15 years. The majority (78%) of respondents were travelling by kayak, and most (73%) respondent groups were of family and/or friends. In terms of place attachment, the survey also demonstrated that the mean identity and dependence was significantly higher for individuals with high levels of experience in the Stonington region than for those with low levels of local experience (Ednie & Daigle, in review).

Participants in this study provided an on-the-ground picture of how the landscape is changing. Many participants commented they had “never seen as many people” using the region, and that “recreation is booming” where specifically there are “a lot more kayaks on the water”. Some participants, however, feel the recreation boom was 5 or 6 years ago and that “things out there are beginning to slow down”. Participants commented that there are “more expensive houses” along the shoreline and in the towns, and how the towns have become “more touristy.” Businesses along the waterfront have become “more artsy”, and the town of Stonington has become “much more crowded in the summer.” Locals have become concerned because “family land is gone”, and thus the next generation may not be able to afford to stay. The Stonington region is experiencing changes similar to other amenity-rich areas across the U.S. (Brehm et al., 2006).
Methods

An interpretive research approach using a grounded theory design (Strauss & Corbin, 1998) was applied in this study as it enables the documentation of subjective phenomena, and to understand the context of findings in sense of place research (Davenport & Anderson, 2005). The goal of this research is to generate theory through inductive analysis by establishing patterns or themes, rather than testing a theory as in deductive positivist research designs (Creswell, 2007). Participants were selected purposively, since the study strived to maximize contact with information-rich cases. A random sample was unnecessary in this case considering representation of a large population was not a goal of the study (Babbie, 2001). An initial pool of participants was selected based on contacts made while the researcher was immersed in the culture over a three month period conducting island use observations and a visitor survey. The network sampling method was used because the study population was elusive or hard to define (Babbie, 2001), as the list of long-term users of the resource is seemingly endless. Study participants were asked to recommend people who would feel similarly and who would have different perspectives from their own. The goal was to allow resource users to define themselves and their relationship to the resource. Face-to-face in-depth interviews ranging from 40-120 minutes in length were conducted over a four-month period in the winter of 2006-07. Twenty-five individuals were asked to participate, and twenty-three interviews were conducted.

The goal was to interview participants with different connections to the resource. Three groups of participants emerged from the sampling procedure: locals, transplants,
and long-term visitors (Table 2.1). Locals and transplants fit Beckley’s (2003) description of these groups in Maine’s shared landscape. Locals were multigenerational residents with deep social networks. Transplants were year-round residents – retirees or people who were drawn to the landscape for the lifestyle it offers. Long-term visitors encompassed people who have been recreationally visiting the islands for at least 10-15 years, and this category includes those who own land or a house in Stonington but only visit for a couple of weeks per year.

Table 2.1. Profile of study participants.

<table>
<thead>
<tr>
<th></th>
<th>Locals</th>
<th>Transplants</th>
<th>Long-term Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex:</strong></td>
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</tr>
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<td>Female</td>
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<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Age:</strong></td>
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<td></td>
<td></td>
</tr>
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<td>Range</td>
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</tr>
<tr>
<td>Mean</td>
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<td>54</td>
<td>51</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

During the interviews, an interview guide listing the questions to be explored was used to ensure consistency between interviews while allowing the interviewer to explore and probe in order to fully illuminate perspectives regarding a subject area (Patton, 2002). Conversation was centered around the three study objectives: what it is about the landscape that attracts people; the nature of their connection and how it has changed over time; and why they stay/continue visiting the area and what would cause them to leave. Interviews were all digitally recorded and transcribed, and data analysis utilized the grounded-theory method outline by Goulding, (2002), involving open coding, axial coding, and interpretation. Open coding involved line-by-line analysis of the transcripts to identify important participant statements. Axial coding involved comparing and inter-
connecting statements to categorize them based on emerging themes. Once the data were
categorized, interpretation involved the constant comparative method (Strauss & Corbin,
1998) making the process iterative and reflexive. The researcher searched for
relationships and patterns among the categories, and developed tables and concept maps
presenting the themes that emerged. As required in qualitative analysis (Patton, 2002),
steps were taken to ensure that the study results are credible. First, a field journal was
kept during the interview process and coded along with the interview transcripts. Notes
were also taken while analyzing the data to keep better track of relationships among the
data and to make sure all rival conclusions were understood and assessed. The
interviewer also worked with a research team to ensure the important statements were
identified, and that the identified categories were consistent with what others found. The
researchers also verified findings with the study participants to ensure proper
interpretation of the data.

Study Findings

This section begins with the components of the landscape that initially drew
transplants and visitors to the region. Next, the themes that emerged from participant
descriptions of what keeps them in / visiting the region are presented along with their
major components. Third, study participants’ perspectives of what would ruin the
landscape or cause them to leave are discussed. Quotations from the interviews are
presented throughout this section to demonstrate how study participants have become
connected with the resource, and how their sense of place has changed over time in the changing landscape.

*The original draw*

Participants were asked to describe how they became acquainted with the Stonington region. They were asked to describe their first memory in the Stonington region, and what it was about the Stonington landscape that made them decide to continue to visit or to move there. The participants described three inter-related components that encompassed their original draw to the area: the physical landscape, the local culture, and family experiences. Table 2.2 shows how each of the three components comprise several aspects. Within the physical components, all of the study participants mentioned the beauty of the Stonington region as important in their original attraction to the area. Participants described being attracted to the physical landscape for opportunities to fish and forage, for specific aspects of the biophysical landscape (eg. geology, plant identification, wildlife), and for spiritual experiences. The practicality of the physical landscape for several reasons was also important in these connections, where participants were attracted to Stonington for the number and proximity of islands as ideal for water recreation, for opportunities for work in the commercial fishing or water recreation industries, or for the proximity of Stonington to home. In this sense, the physical component interrelates with the cultural draw.
Table 2.2. Original draw to the Stonington region.

<table>
<thead>
<tr>
<th>Physical Landscape</th>
<th>Local Culture</th>
<th>Family Experiences</th>
</tr>
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<tbody>
<tr>
<td>• Aesthetic quality</td>
<td>• People &amp; community</td>
<td>• Family came to stay</td>
</tr>
<tr>
<td>• Practical value</td>
<td>• Lifestyle</td>
<td>• Family trips</td>
</tr>
<tr>
<td>• Spiritual connection</td>
<td>• Family connections</td>
<td></td>
</tr>
<tr>
<td>• Landscape diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Fishing / foraging</td>
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</table>

The cultural component tended to be important for several of the participants who have moved to the Stonington region, where participants wanted a lifestyle change from where they had been living (usually in a city), to slow down the pace of life, or to live somewhere where they felt safe and comfortable. For example, one transplant described his decision to move to the region after only having been there a couple of times, “it was a whole lifestyle change. Let’s move to Deer Isle, slow down the pace, appreciate the kids while they are little… and I will to do this dream of being a guide and making a living of it”. Attractions to the culture of the area also included appreciations for the family connections (the family trees), the fact that the resource is people oriented (fishermen making a living), that it is working class, and the commonly described feeling that being in Stonington was like a trip back in time.

Nearly half of the participants who were not born in Stonington mentioned family experiences in the region as important to their initial draw to the area. Participants described that their families were highly attracted to the physical landscape and to the local culture. Family experiences included both the cases where families would come to Stonington to stay (buy property), and family vacations to the Stonington area when participants were young. Memories from these family experiences tended to be important in participants’ decisions to stay/continue visiting.
Anchors and magnets: What keeps people visiting / living in the region

To gain an understanding of the effect of a changing landscape on place meanings over time, participants were asked directly if they felt attached to the landscape, and if so to describe the components of their attachment. Participants were also asked to describe how their sense of attachment, or connection to the landscape has changed over time, and whether they intended to stay or to continue visiting. All participants responded that they felt attached to the landscape, and provided descriptions of their feelings of connection with the landscape. Many participants mentioned a love of the place. Visitors described how they “look forward to the Stonington trip all year long”, and “spend time thinking of it when [they are] not there.” Local participants described how they felt lucky to live there, how their calling is there, and how when they visit other places they are excited to return home. One transplant described:

“It’s like heaven, why would I want to be anywhere else?... I like living in this little place up here, and I am just really comfortable so it’s my job, it’s where I live, it’s what I do, and it’s who I am, and it’s like a perfect fit. I was supposed to be here, it’s like I was put here by something or somebody to do what I am doing. It really feels like that.”

Many participants explained that their connection with the landscape and appreciation for the area has not changed over time. Most described how the landscape still holds the same meaning as it did in their earliest recollections of introduction to the area. In addition, many felt that the characteristics that initially drew them to the area were still there. Some participants in all groups described how while they still felt the same connection with the landscape as always, they have come to feel more concerned
about the region and a greater sense of responsibility for its protection. One visitor described:

“It’s not just habit, I still love it. To a certain extent it’s territorial, kind of adopted, it’s mine, (laugh) and you guys had better watch your step, and there is that sense of genuine ownership and the responsibility that goes along with that.”

Others visitors and transplants described how they feel their connection to the area is not “purely romantic” anymore, yet they feel the same affection for the landscape as always. Some local participants even described that they appreciate the beauty of the physical landscape more now than they did as children. One local participant described how he wished he could see the landscape again for the first time:

“I wish I could come down Caterpillar Hill where you get to see the bridge and stuff, I wish I could see that one more time for the first time like other people see it. I think when you’re younger like probably even in my 20s, I truly didn’t appreciate the beauty of this area. I did appreciate the fact that there were so many connections here, with different families, and that aspect of it but I certainly didn’t appreciate the beauty.”

Participants were asked to describe what it is about the landscape that keeps them there / visiting over the long term. The first two were similar as in their descriptions of their original draw: the physical landscape; and culture / community. The third, home / family was related to family experiences in their original draw, but was broader and included ancestral roots, and the next generation. The final theme, local experience, encompassed visitors’ expressions of the importance of past experiences and developed
traditions of activities in the area. Participants provided thick description of the characteristics of each of the four themes, and clear components emerged which are presented in Table 2.3.

Table 2.3. Landscape components that keep people visiting / living in the region listed in order of times mentioned.

<table>
<thead>
<tr>
<th>Physical Landscape</th>
<th>Culture / Community</th>
<th>Home / Family</th>
<th>Local Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aesthetic quality</td>
<td>• People &amp; community</td>
<td>• Family roots</td>
<td>• Accumulated experience</td>
</tr>
<tr>
<td>• Practical value</td>
<td>• Lifestyle</td>
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<td></td>
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<tr>
<td>• Spiritual</td>
<td>• Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>connection</td>
<td>• Community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Landscape</td>
<td>• Acceptance in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>diversity</td>
<td>community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Connection with</td>
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<tr>
<td>the water / islands</td>
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<tr>
<td>• Tranquility &amp;</td>
<td></td>
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<tr>
<td>solitude</td>
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</tr>
<tr>
<td>• Common resource</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>• Landscape value</td>
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</tbody>
</table>

The draw of the physical landscape comprised eight distinct components, which with two exceptions tended to be mentioned more by visitors and transplants than by Stonington region locals. One exception is that locals prioritized connections with the water and islands. A local fisherman described,

“It’s a connection with the water, and it’s you the person that it matters to, it’s how you see it. Some people, even though they are fishermen, they’re not really fishermen. There are some race car drivers that simply aren’t race car drivers. It’s just a fact of life.”
Another local described,

“I can always see the water, and there is an attachment to that. I don’t know what it is, but I always knew I wanted to stay here. It’s important to me to see the water all the time.”

The aesthetic quality was also an important magnet for all participant groups, where descriptors such as “absolutely beautiful”, “the natural beauty”, “it’s a visually captivating place”, and “its pretty” were used by all participant groups to describe the reasons why individuals choose to stay, or to keep visiting the region.

A draw to the region in a practical sense was particularly important to visitors. Here, participants described the region as ideal for providing the recreation (mostly kayaking and sailing) experiences they desire. For example, one visitor described how,

“This complex of land masses, and in an archipelago like this... creates a great variety of types of open water experiences. For the paddler type... it’s the experience of the water. It sounds almost hedonistic, I have to say, but it’s a combination of physical landscape... and then the challenge, the different types of water environments, wind, waves, the currents, it’s so refreshing to be out there.”

Another important practical draw of the landscape for visitors was the opportunity for fishing and foraging. For example,

“I like the diversity of forage there, between fish and mushrooms and wild plants, mussels, there are major amounts of clams, so it is possible to come back with more food than we take out, sometimes... From a foraging standpoint, it is definitely much more like being in a mall than cruising a strip, because you are inside, and all the shops are right there. Otherwise you might have to stop at
Other important components of the physical landscape included tranquility and solitude, which were often descriptive terms that arose when participants were asked to explain what keeps them in the region. Participants also described their spiritual connection with nature as an important reason that keeps them in / returning to the Stonington region. These descriptions often coincided with descriptions of the natural beauty of the landscape, where participants described how the “ocean is God” or enjoying the opportunity to “commune with nature.” As one person described, “I consider myself a very religious person, but I just don’t go to church. To me, watching the water come along the rail is enough, that would do it.” The area’s uniqueness in terms of landscape diversity was also an important draw, with characteristics ranging from the geology, wildlife, botany, to the interplay of granite and spruce, seafood, and history of the islands.

Participants also described their draw to the region because it is a shared resource. Here, participants discussed how they enjoyed observing the dynamics between nature and the different users in the area, how they consider the landscape as offering a nice way of sharing a resource, and others, such as this example, discuss how sharing a working landscape is a familiar and comfortable opportunity, “the fact that other people are out there, again, this is where I come from is a working waterscape. It is not at all alien. It is very easy to share. It is not mine, it is a common resource.”

The final major component that emerged under landscape characteristics was a draw to the value of the resource. For example, one participant described how investing
in property in this area allowed him to make a good investment that brought enjoyment along with it,

“First of all it is the aesthetic beauty that really draws me to this area, and the value from an investment point of view, is one of the best. Not that ever in my life would I recognize that value, it’s just something where I have invested in something and at the same time I can enjoy it. I get the best out of both, you know, you can buy shares of stock, and you don’t get any enjoyment out of that.”

The second major theme that emerged from participants’ descriptions of what keeps them in the region, culture / community, consisted of five sub-themes. Participants in all three groups described the local people and community as a very important reason in their decision to stay or keep visiting the region over time. Some described the importance of being “surrounded by people who make it on their own”, others described how not many places are home to the “quality and caliber of people” such as here. Locals often described themselves as “simple” and “honest” people, and transplants discussed their desire to live amongst others who lead a “deliberate” lifestyle.

Friendships and connections were also important draws for people, where participants in all groups described old friends as important, and locals described knowing virtually everyone on the island as very important. Some fishermen described the rough-around-the-edges friendships, or “hidden camaraderie,” where people will help if you are in trouble, but how fishing is a “cut-throat” industry. Some described the sense of community they feel in the region, which lead to another distinct but related component that emerged: acceptance in community. This was also important for participants in all three groups, where even individuals who had been visiting the area over a long term felt
their acceptance in the community was an important reason to continue visiting and to remain connected with the community. For example, one visitor described how “it takes a long kind of introductory period, but when they start calling you --, then you know that you are in, you are going to hear the truth unconditionally. That, that is a complement in itself.” Involvement in the community emerged as an important reason why transplants and locals chose to remain in the region. Here, people appreciated that it is easy to become involved politically in such a small community, and enjoyed having a voice with community decision making. Involvement in community groups and development was mentioned as an important draw by nearly half of all transplants and local participants.

Another important and clearly related component of the community that emerged was what we called lifestyle, which included qualities such as how the region is a safe place to live, “I leave my keys in my truck”, as well as feeling independent, and having autonomy and privacy. One local participant described how “we’re still the frontier here, we’re the end of the line”, and others in all groups described how being in the region is like going back in time. One transplant described how an important draw of the region is “being outside of mainstream America, but with access to it”, and another described how it is “what the place does not have, compared to what it has” that keeps him in the region.

The final component of the culture / community theme was work as a draw to the region. Here, transplants described how they enjoyed their jobs in the community, and locals described their love for their work. Fishermen, in particular, described their work as part of their identity, and as something they will find a way to never stop doing. One local who was not a fisherman described how his family business is the only place he has ever worked, and how he could not imagine doing anything else for a living.
Some participants, however, described how even over time they have not come to feel they “fit in” with the community. One transplant described their love for the environment, but was clear that the social aspects were missing even though he had lived in the region for over a decade and for much longer as a summer resident. A visitor explained that some aspects of the local culture are unattractive, and that her attachment is really to the physical landscape and to the group that she has been visiting with for years. She described that there is a cultural component to her draw to the area in that she thinks the working waterfront is an important part of the landscape, but the cultural component is not big compared to the physical landscape and group bonding.

The third theme that emerged was named home/family, and contained three related components. First, participants in all groups described family connections or roots as important reasons for why they stay in or continue to visit the region. These ranged from family history, family businesses, to residing in a region that is close to family. There was a general appreciation across all participant groups for the family roots and connections in the region. The second component was feeling at home, which was again important to all participant groups. One visitor described how he felt at home in the region because he felt the locals shared a similar mindset as those in his small ocean-side town. Several of the transplants described how the region has become their home base, or how they feel at home. One in particular described how he hates to go across the bridge now. Not surprisingly, several of the local participants described the importance of staying in the region because it has always been their home. The third component in this theme was what we called the next generation, where participants emphasized the importance of memories of introducing the younger generation to special
aspects of the landscape, or the importance staying in the region to raise children. For example, one transplant described,

“We chose to raise the kids here... my guess is that the beauty of the place is within them. And I cannot imagine we could sell the house and take their home, my guess is that they are always going to want to be able to come back. So I feel that since we moved them here, we owe it to them to keep the place for them to come back to.”

These descriptions were made by participants in all groups, and most common among them was that people felt they should stay in the region because it is a good place to raise children.

We named the final theme local experience, as it encompassed participant attachment to memories from accumulated experience in the area, and the development of traditions of visiting the area. Several locals and visitors described how their own childhood and more recent memories create a draw for them to stay or to keep visiting the region. Locals often described memories of clamming, camping, or playing as children on local beaches and islands, and visitors described accumulated memories from trips to the area over time. One visitor described,

“Coming repetitively to the same place is building up experiences, so they accumulate, and the more you have it the more you attach yourself to it. I think no matter where I go I will have an experience. Whether or not it is as, I don’t think it can be on the same comfort level as it is here, because my experiences here have built up over the years.”
There was no consensus among participants’ responses when asked if the Stonington region was the place with which they felt most strongly attached. Local participants were far more likely to consider Stonington the region to which they felt the greatest amount of attachment. All of the local participants responded yes, that they would not want to live anywhere else. Some transplants felt the same way, while others described strong connections to previous homes and listed other special places where they could picture themselves living. Only one visitor felt this region “is it” and had “absolutely no desire to transfer to another area.” The other visitors described other coastal regions they felt equally or more attached to, and often described the Stonington region as being the best for a particular purpose. For one visitor the Stonington region was the best destination for overnight trips. For another, it was the best destination for a trip with friends, and other areas are better suited for family vacations.

What would ruin the landscape

Participants ranged in opinion about what would cause them to leave. Some participants from each groups stated they intend to stay in the area or to continue visiting for a long time, and others felt they would leave or cease visiting under certain conditions. Some were determined that little could happen that would ruin the region: “if they had an oil spill, I would probably help clean it up. The only thing that would make me leave is financially if [we] couldn’t afford to stay here anymore”, or “if you burned it down, but it would come back.” Others were less optimistic. One visitor described how she would visit areas further north if population and development increases in the Stonington region. A transplant described that he is unhappy with his work, and plans to
cease living in the region full time and become a summer resident. Several locals expressed caveats on their decisions to stay in the area. For example, one local described how she returned to the region after several years of living elsewhere because her family needed her, and although she feels attached to the area, she often considers “if I were someplace else I could have…” Another local described that the part of the lifestyle he appreciated is almost gone, and that while “this place is not what it was, other places are not so great either.” Yet another local described how she felt anchored to the area because she now owns a business that had been in her family for nearly two hundred years. A fisherman described his concern over whether his children will be able to stay on the island due to rising real estate value and property taxes, and stated that although he loves being in the area, he feels he has to stay because he could not afford to do anything else, and “what else would I do?”

Overall, six themes emerged from participant descriptions of what changes could happen that would ruin the landscape, including more development, cultural changes caused by in-migration, collapse of the fishing industry, crowding, over-regulation of the islands, and pollution. Participants in all of the three groups were concerned about further development along the shorelines and in the towns. Many participants stated that further development, such as “more houses that don’t really fit in on the islands”, “more and more buildings”, “some real estate scheme”, “a huge hotel complex”, and “more development and big money” would ruin the landscape. Participants also stated other development-related concerns, such as water shortages, property tax rises, and further loss of shoreline access. One participant, on the other hand, felt that the prevention of development would ruin the landscape, and that development will lead to economic
health, which in turn will bring environmental health. This participant felt that the economic health of the region should be made a larger priority than aesthetic or environmental health because economic health will bring the greatest long-term benefits to the communities. The second theme, cultural changes, also relates to development and encompasses participants’ concern that continual in-migration of people from away is changing and will continue to change the social fabric of the town. Participants felt the landscape would be ruined if the “character changed to an affluent summer colony”, or if the “locals had to leave”, or if there were “only part-time jobs” available and “the town closed-up and died in the winters.” Participants described how the problem is often caused by people moving there and “trying to make it how it was back home.” Part of this change is how the local stores are changing from year-round businesses to gift shops and art galleries. One participant suggested, “how about a moratorium on art galleries.”

Participants in all groups mentioned they felt the loss of the fishing industry would ruin the area. There was clear agreement among participants that one thing that would ruin the area is if the “fishing industry just came to a screeching halt for some reason”. While some visitors stated the loss of the fishing industry would ruin the area, a stronger concern voiced by this group was over crowding on the water. Long term visitors in particular, but also transplants and some locals mentioned “more pleasure boats in the harbour”, “overcrowding”, “too much water traffic”, “when there is no privacy anymore”, “too many people, too much animosity” and “more rude recreationists” would ruin the area. Similarly, visitors felt strongly that over-regulation of the islands would cause them to stop coming to the region. Participants described how “charging to use the islands”, “a guy with a Smokey Bear hat on an island”, “having to
file itineraries”, and “having to reserve campsites” would ruin the area. While these concerns were most prevalent among long-term visitors, some locals and transplants felt the same way. Pollution was the final theme that emerged from participant descriptions of what would make them want to leave / stop visiting the area, and here concerns included “dirty, polluting industry”, “water pollution”, and “noise.”

Discussion

Findings from this study further develop sense of place theory by providing an understanding of how diverse user groups construct a sense of place while sharing a resource. The study findings also support the work of Brehm (2007) who suggested the natural environment is both a discrete component of community attachment and is also embedded in the social context of lifestyle. We expanded on the current literature in community attachment by including long-term visitors to the area in our study of place meanings over time (Beckley, 2003). The findings also respond to Stedman’s (2003) call for research into how meanings change in response to a changing physical landscape, and add to Davenport and Anderson’s (2005) explorations in this light. Participants in our study described how the physical environment was highly important in their original draw to the area, and continues to be an important part of why they choose to stay in the area or continue visiting. Even local participants with ancestral roots in the region described the physical environment as an important part of their attachment to the area, and described their connections with the water, and the importance of the aesthetic quality of the region in their determination to stay. This study allowed us to develop an
understanding of how the original draw of the physical landscape deepened into a connection with the water and an appreciation of the common resource over time. Also, participants’ attachment to the local culture deepened from an appreciation of the simple, laid-back lifestyle and working-class community with lots of family connections to a deeper appreciation of the culture, involvement in the community, and feeling of acceptance into the community. Past experience as a component of attachment to the region grew over time into accumulated experience that further attached participants to the landscape. Also, through time, participants became further attached to the region because they had developed a feeling of being at home and because of their decisions that it was a good place to share with the next generation.

An important finding within this research is that all groups, including visitors, felt drawn to the community. For recreation researchers, this phenomenon brings to light the importance of understanding dynamics within the communities surrounding recreation areas. Further, our findings suggest focusing social science research in specific recreation settings may not always be a wide enough net to cast in order to fully understand perceptions, experiences, and behavior. We have also developed a better understanding about similarities and differences between groups sharing a resource. For example, the physical environment in a practical sense (its suitability for recreation experiences) was highly important for visitors and less for transplants and locals, while community involvement was a major magnet for locals and transplants, and less for visitors. Descriptions of what keeps participants in the region also revealed a large number of similarities between the three groups. All groups felt some aspects of the four components were important in their attachment to the region.
There was also consensus among the groups over what would ruin the area. Locals, transplants, and long-term visitors all felt that more development, cultural changes caused by in-migration, collapse of the fishing industry, crowding, over-regulation of the islands, and “serious” pollution would ruin the area. There was less consensus among participants, however, over what would cause them to leave where differences were as prevalent within groups as they were between. Some participants in all groups felt they would definitely stay / continue visiting in the future while others reported they are considering leaving due to change, or that they would leave if changes continued. The groups also differed in their feelings about whether the Stonington region was the place to which they felt most attached. Local participants felt most strongly that Stonington was the region to which they felt the greatest amount of attachment, but there was little consensus on the matter among transplants, and most visitors felt the Stonington region could be substituted if necessary with another region.

Perhaps most importantly, this study provides evidence that the study of peoples’ connections to a landscape can shed light on perceptions and behavior of resource users, and can help predict how diverse resource users might react to changes in a landscape. It has become a widespread reality within the U.S. that amenity-rich rural communities are facing changes. It is therefore important for community leaders and natural resource managers to understand how locals and new residents feel about change and about how they might react to further change. This study demonstrates the advantages of examining specific “geographical units” that host a spectrum of resource users. We recommend further research following this approach to better understand the dynamics between the
spectrum of community members to whom rural communities are often home along with recreationists who share the resources.

References


CHAPTER 3

PLACE MEANINGS AND USER COMPATIBILITY IN A SHARED SEASCAPE

Abstract

Place meanings and user compatibility were studied in a shared-use landscape on the coast of Maine. Similarities and differences in how users of a working waterfront that is a popular destination for recreational use are connected to the landscape were investigated to help managers and planners understand how changes in the landscape affect user compatibility. In-depth, face-to-face interviews were conducted with 23 long-term visitors, transplants, and local residents to explore participant connections with the landscape, their perceptions of what draws other users, and their perceptions of the compatibility between user groups. Participants’ descriptions of their own connection with the physical landscape were similar to their perceptions of what draws other users, with one major difference. Participants perceived others visit with the expectation of a ‘wilderness experience’ while they are attached to the landscape as a ‘common resource.’ Transplants and locals believed other visitors are drawn for cultural reasons, while long-term visitors, for the most part, felt the physical landscape was the main draw. Participants described conflict within and between groups of recreational users, and between recreational and non-recreational user groups. However, signs were also detected in some interviews that conflicting meanings were evolving into shared meanings between user groups. Compatibility issues on the water are affected by experiences in the surrounding communities. This study highlights the need for resource
managers and recreation researchers to consider the impact of ocean-based tourism on the social dynamics of nearby communities.

**Introduction**

Recreation in shared-use landscapes is common in the northeast and particularly in Maine, due to the changing nature of amenity-rich rural communities, and the relatively small amount of public space. Inevitably, with resource sharing comes compatibility issues (Wolfhorst et al., 2006), which are no new phenomena in recreation research. However, compatibility studies in recreation research have traditionally focused on identifying and predicting conflict between recreational users. The situation in the northeast calls for an extra layer to this research; which is to examine compatibility between resource dependent non-recreational users and recreationists. This causes a need to expand on recreation-specific social monitoring to understand the compatibility between all layers of groups sharing a resource. This paper, therefore, sets out to develop a better understanding of the compatibility issues between recreational groups and between the broader resource user groups, and uses place meanings as a platform for examination.

Sense of place theory can provide a highly useful tool for resource managers, particularly for moderating opposing viewpoints regarding management objectives (Cheng et al., 2003). These types of conflicts are often conflicts over meanings of a resource such as how the resource should be used and by whom; or what the resource represents (Stedman, 2003). The study of sense of place has traditionally been highly
theoretical, and the complex nature of place meanings makes it sometimes difficult to
draw practical implications from the developed theory. However, recommendations for
managers have emerged concerning a variety of considerations including management
preferences (Kaltenborn & Williams, 2002), suggestions for planning and design
(Mitchell et al., 1993), visitor activity preferences (Eisenhauer et al., 2000) and
ecosystem management suggestions (Williams & Stewart, 1998). Several authors have
also suggested sense of place as a useful construct for understanding the root of
recreation compatibility issues (Cessford, 2000; Hammitt et al., 2004). Very few studies,
however, have devoted research specifically to this purpose (eg. Warzecha & Lime,
2001).

This study contributes to efforts to bridge the gap between social science theory
and natural resource management applications. The study of the connection between user
compatibility (recreation and non-recreation) and landscape meanings in a shared
landscape is an avenue for directly applying sense of place research to management
considerations that has received very little research attention. By investigating a
landscape that hosts a diversity of users, researchers can help managers and the broader
community better understand how conflict is rooted in differences of the meaning of the
landscape. By understanding the similarities and differences in how different users are
connected to the landscape, managers and planners will better predict how changes in the
landscape might affect recreation and non-recreation compatibility in a shared resource.
The purpose of this study was to evaluate the connection between user compatibility and
the meanings users associate with the landscape, and to directly apply sense of place
research to recreation and natural resource management.
Background

Several historians have depicted the shaping of the landscape as a result of changing place meanings over time. For example, Judd (1997) documented the history of cultures of resource use by examining the evolution of land use within constantly changing social and economical parameters. Cronon (2003) described early colonists’ perceptions of the New England landscape as a list of available commodities rather than as an ecosystem itself. The Native Americans valued what was on the land – what resources could be found in a given area, while the colonists valued land ownership and the betterment of land. The works of Judd (1997) and Ryden (1993) explain how attitudes and relationships with the land have shifted over time, perhaps through prolonged periods of dependence on the landscape, and generations of understanding the effects of human impact on the natural world.

Only recently has the importance of place meanings been considered of direct relevance to natural resource management (Farnum et al., 2005; Smaldone, 2002; Stokowski, 2002; Williams & Vaske, 2003). Over the past fifteen years, the U.S. Forest Service and other land management agencies have adopted a ‘new paradigm’ for natural resource management that places greater emphasis on biological diversity and sustainable forestry (Salwasser, 1990) instead of keeping commodity production and ecological efficiency as the main items on the front burner (Bengston, 1994). A goal within this new paradigm is to recognize emotional and symbolic meanings of natural resources in addition to tangible uses and economic concerns (Williams, 1995). Rural sociologists and recreation researchers have brought to light the importance of importing the study of
place meanings through the concept of sense of place, which has been studied across several disciplines including landscape architecture, geography, planning, anthropology, and environmental psychology (Branderburg & Carroll, 1995; Cohen, 1985; Eisenhauer et al., 2001; Relph, 1976; Tuan, 1974; Williams et al., 1992) to natural resource management. Thus, over the past fifteen years, the study of sense of place has been receiving considerable research attention in our field as it explores the “rich and varied meanings of places and emphasizes peoples’ tendency to form emotional bonds with places” (Williams & Stewart, 1998, p.19). Interest in this research continues to grow, for example Cheng et al. (2003) argued “natural resource politics is as much a contest over place meanings as it is a competition among interest groups over scarce resources” (p.87). They proposed a social science research agenda centered around place meanings and argued “place is a powerful, integrating social science concept that offers unique perspectives on how social science research in general can continue exploring the connections between people, natural resources, and the environment as a whole” (p.95).

The Meanings People Associate with Place

As Farnum et al., (2005) described, “places are composed of individualized and unique qualities that, when evaluated holistically – including the relationships people have in and with places – hold potentially deep meanings and values for their users” (p.1). The term place itself is thought to represent a setting given “meaning based on human experiences, social relationships, thoughts, and emotions” (Stedman et al., 2004, p.581). Tuan’s (1976) essay Geopeity: A Theme in Man’s Attachment to Nature and to Place motivated research into models of how people-place relationships are developed
(Proshanski et al., 1983; Stokels & Schumaker, 1981). From there developed a timeline of research into the components of sense of place (Williams et al., 1992; Jorgensen & Stedman, 2001; Williams & Vaske, 2003). Recently, place attachment researchers have shifted focus and in some ways have converged with the efforts of rural sociologists who, driven by concern over the changing composition of rural communities have long been interested in community attachment (Kasarda & Janowitz, 1974; Goudy, 1990; Beggs et al., 1996). The new focus centers around developing a better understanding of how people develop a sense of place, and on bringing our understanding of people-place relationships beyond conceptual models and into a practical form that is applicable in natural resource management.

Recent work on the construction of sense of place has entertained the questions of the importance of socio-cultural and physical landscape characteristics in sense of place (Clark & Stein, 2003; Beckley, 2003), and of what types of meanings a landscape can hold for different inhabitants or visitors (Trigger-Ross & Uzzell, 1996; Gustafson, 2001). With respect to landscape characteristics in sense of place, some have found social components were most important (Hidalgo & Hernandez, 2001), and others have found both social and physical components of a landscape to be important (Eisenhauer et al., 2000; Stedman, 2003) in the development of sense of place. The most recent work has in large part supported Cantrill’s (1998) earlier suggestion that physical and social components of a landscape become interwoven over time (Brehm, 2007; Kyle & Chick, 2007).

The meanings places hold have been studied in various urban and rural settings (Milligan, 1998; Yung et al., 2003; Manzo, 2005). In a rural Illinois study, Davenport
and Anderson (2005) described four dimensions of meanings local community members
along the Niobrara National Scenic River ascribed with the landscape. They named the
four dimensions sustenance, tonic, nature, and identity. They also concluded that
meanings change with landscape changes, and the meanings participants associate with
the landscape “frame perceptions of landscape change and, in turn, shape attitudes toward
and potential behaviors in the context of river planning and management” (p.638). Other
studies have also demonstrated how place meanings shape environmental attitudes and
behavior. For example, Vorkinn and Riese (2001) found place attachment explained
attitudes toward a proposed hydropower plant more than any socio-demographic
variables.

Place Meanings and User Compatibility

Recreation researchers have long been studying the cause and occurrence of
conflict between groups at particular recreational sites (Jacob & Schreyer, 1980;
Hendricks, 1995; Schneider, 2000). Examples of conflict between recreational groups
include issues between hikers and recreational stock users (Watson et al., 1994); skiers
and snow-m mobilers (Vaske et al., 2004), and hikers and mountain bikers (Watson et al.,
1991; Carothers et al., 2001). Compatibility has also been studied within recreational
groups, such as issues with crowding (Bishop & Gimblett, 2000) or same-activity users
of different levels of specialization (Wilde et al., 1998). By synthesizing the earlier work
of recreation conflict researchers, Manning (1999) presented a model of the causes and
effects of recreation conflict. The model expanded directly on the work of Jacob and
Schreyer (1980), who suggested four factors that can lead to conflict among recreation
users. They found activity style, resource specificity, mode of experience, and lifestyle tolerance to be the major factors which might lead to recreation conflict. Manning’s expanded model (1999) suggests these factors lead to sensitivity to conflict; an intermediate component which can lead to conflict. Manning also highlighted the importance of goal interference as a potential cause of conflict, which includes both direct interpersonal contact and indirect contact (affecting social values) with other recreational users. The model states conflict can lead to coping behaviors and diminished satisfaction.

Some researchers have used sense of place as a construct for understanding visitor behavior and compatibility between users sharing a place (Hammitt et al., 2004; Stedman, 2003). Warzecha and Lime (2001), for example, compared tolerance for encountering other river users between groups with high and low place attachment. They found differences in tolerances based on place attachment, and discussed the utility of sense of place research implications in natural resource management. Similarly, in a study of boaters on the St. Croix International Waterway, Daigle et al. (2002) found lake users with high levels of place attachment had different setting preferences (ie. desire for solitude and lightly impacted, undeveloped areas) than those with lower levels of place attachment. They concluded variability between groups in terms of attachment and preferences requires recreation management schemes designed for specific visitor groups or geographic zones within a recreation area. Also, using a slightly different approach, Bricker and Kerstetter (2000) studied the relationship between place attachment and recreation specialization, and concluded a combination of the two dimensions allows
resource managers to better understand how landscapes are defined and valued by visitors.

Few studies have expanded recreation compatibility to include non-recreation users of the resource. One early exception is a study by McAvoy et al. (1986) who studied conflict between recreational users and commercial barge operators on the Mississippi River. They found both commercial and recreational users experienced goal interference, which was directly related to the behaviors of the other resource user group. Activity intensity, skill level, and possessive attitudes were important considerations for understanding conflict between the two groups. Hazard perception and boating safety were also found to be important factors contributing to conflict, where commercial users felt recreational boaters lacked the judgement required to safely navigate the water, and recreationists felt the barges created dangerous wakes, congestion, and obstacles on the water. Interestingly, both commercial and recreational users felt “careless or inconsiderate operation of recreational boats” (p.55) was the largest safety issue on the river.

A recent study by Wulfhorst et al. (2006) used sense of place as a construct for examining compatibility between recreational and non-recreational users in a public rangeland area in Owyhee County, Idaho, that has recently witnessed a dramatic increase in recreational visitors. They found conflict arose when place meanings of non-traditional users challenged those of the local community. They also found components of sense of place that hold different meanings for the two groups. Both recreationists and local community members described remoteness as an important component of sense of place. However, local community members considered remoteness a constraint as it
limited their ability to access technology and amenities, while recreationists considered remoteness a “resource” as they often do not have the opportunity to seek solitude and escape where they reside. They further suggested that as changes in rural communities continue to cause work spaces to convert to recreational spaces, “our adaptations about where we perceive our sense of place fits across the landscape may either consolidate or shift based on the meanings we assign to the changes that occur” (p.182). Wulfhorst et al. (2006) concluded that shared landscapes can lead to conflicting place meanings, however, they can also cause meanings to evolve into “new, shared images” (p.183).

Although not always focused on outdoor recreation, researchers began studying the compatibility and difference in place meanings between rural local residents, seasonal residents, and visitors over twenty years ago (Sheldon and Var, 1984; Um and Crompton, 1987; McCool and Martin, 1994). It has been argued that due to their longer or more frequent experience in a landscape, locals have more complex attachments than do visitors (Jones et al., 2000). Bonaiuto et al. (2002) found locals held more intense place attachment for public land than non-locals. Their study of a community that had recently been designated as a protected area found locals exhibited more negative attitudes toward the new designation, identified more strongly with the traditions and culture of the community, as well as held higher levels of place attachment than did non-locals. Williams and Stewart (1998), however, noted that tourists and regular visitors can also have strong attachments to places. Stedman (2006) found seasonal home owners were actually more attached than year-round residents, although the attachment of year-round residents was more rooted in community meanings, and seasonal residents in the physical landscape and escape from everyday cares. Kaltenborn and Williams (2002) found place
attachment to be somewhat stronger for local residents than for tourists, but they noted differences between residents and tourists were small compared to the within-group differences in levels of attachment. For example, participants who had lived only in the local community valued components of the landscape more than locals who had also lived elsewhere. They also found locals and tourists held similar general patterns of attitudes toward management.

Some authors have found locals feel they have a unique, or proprietary sense of place (Hawkins and Backman, 1998; Farnum et al., 2005). For example, in their study using local resident photo elicitations, Stewart et al. (2003) had as one of their main themes that locals desired to educate others about the meanings and value of the landscape. Farnum et al. (2005) cautioned that this sense of proprietorship can lead to conflict, and that even if the attachments of locals are more intense and unique, they should be considered in combination with non-locals and visitors.

**Study Site**

With more than 4,600 islands and thousands of intertidal ledges, the Maine coast is home to nooks of productive fishing grounds that are ideal for recreational use. The aesthetic beauty of the islands combined with their geographic proximity to one another make many of the islands ideal destinations for recreation use. Over the past two decades, the Maine coast has been a rapidly changing landscape with increasing recreational use, in-migration, and an increase in coastal tourism. The study region was the Stonington region island archipelago, a cluster of nearly eighty islands located in
Hancock County, Maine. The islands, located to the south of the community of Stonington, represent a range of user characteristics (ex. local, outfitter, long distance traveler), and use characteristics (ex. remote vs. heavily used locations). Sixteen of the islands in the region are part of the Maine Island Trail, a water trail created by the Maine Bureau of Parks and Lands and the Island Institute in the 1980s. Other islands in the region are owned by non-profit organizations and private owners, some of which provide public recreational access.

An island visitor survey completed in summer, 2006, found island visitors come with a diversity of abilities and interests (Ednie & Daigle, 2007). The majority of participants were travelling by kayak (78%), 61% were repeat visitors, and 31% had been visiting for upwards of 15 years. A measure of place attachment (Williams & Vaske, 2003) found the mean identity and dependence to be highest for participants with high levels of local experience (see Chapter 1). To assess satisfaction with the social conditions on the islands, the survey asked if other nearby parties interfered with their camping experiences. Twenty-eight percent of participants who camped on an island reported other people interfered somewhat with their camping experiences, and another 11% reported others interfered or interfered significantly.

All participants described the town of Stonington as “first and foremost a fishing village.” The Stonington fleet includes approximately 288 commercial moorings, nearly all of which are for lobster boats. Study participants also provided a picture of how the landscape is changing in ways similar to other amenity-rich rural areas in the U.S. (Brehm et al., 2006). Although some felt recreation in the region had boomed 5 or 6 years ago, most described how “recreation is booming” in the region, and how “they had
never seen so many people.” They described how the town of Stonington had become “more touristy” and “more artsy” and the town and shorelines developed with “more expensive houses.” Most of the participants voiced concern that the next generation of locals may not be able to afford to stay.

Methods

To obtain a full and deep understanding of participant experiences and perceptions, an interpretive research approach was used following the grounded theory design (Strauss & Corbin, 1998). This approach allowed us to understand the context of the data, and to document subjective phenomena as is important in sense of place research (Davenport & Anderson, 2005). Instead of testing a theory as in positivist research designs, the interpretive approach has as its goal to generate theory through inductive analysis by establishing patterns and themes (Creswell, 2007). Considering representation of a large population was not a goal of the study, a random sample was unnecessary (Babbie, 2001). The study strived to maximize contact with information-rich participants, therefore, participants were selected purposively. An initial pool of participants was developed through contacts and relationships the researcher made during her three-month stay in the community while conducting island use observations and a visitor survey. As the list of long-term users of the resource seemed endless and the study population hard to define, a snowball sampling method was used (Babbie, 2001). Participants were asked to suggest people who would feel similarly as they do, and people who would have different perspectives from their own. The intension was to
allow resource users to define themselves as participant groups based on their relationship to the resource and experiences within the landscape.

The goal was to interview participants who held different connections with the resource. Twenty-three individuals comprising three participant groups emerged: locals (7), transplants (8), and long-term visitors (8). Table 3.1 shows how some of the participants used the resource for multiple purposes. Participants ranged in age from 32-78, and the mean ages for locals, transplants, and long-term visitors were 51, 54, and 51, respectively. Eighteen male, and five female participants were interviewed. Locals and transplants fit Beckley’s (2003) description of these groups in Maine’s shared landscape. Locals tended to be multigenerational residents who held deep social networks. Transplants were all year-round residents who had moved to the region from away. Most were retirees or people who were drawn to the area for the local lifestyle. Long-term visitors included people who had been visiting the islands for recreation for at least 10-15 years, and people who owned land or a house in Stonington but only spent 2-3 weeks per year in the region.

Table 3.1. Participant uses of the resource.

<table>
<thead>
<tr>
<th>Source of Data</th>
<th>Long-term Visitors (8)</th>
<th>Transplants (8)</th>
<th>Locals (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational users</td>
<td>7</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Water recreation/tourism industry</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Fishing industry</td>
<td>0</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Town government</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Coastal property owners</td>
<td>1</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Over a four-month period in the winter of 2006-07, face-to-face in-depth interviews that ranged from 40-120 minutes in length were conducted with the study participants. An interview guide which listed the questions to be explored was used to
ensure consistency between interviews but to also allow the interviewer to probe to fully illuminate perspectives in the subject area (Patton, 2002). The interviews were all digitally recorded and transcribed using the Gear Player Transcription Application in combination with the Dragon NaturallySpeaking 9 voice recognition program. The researcher repeated each interview for the voice recognition software to convert into a Microsoft Word document. This approach quickened the transcription process while still allowing the researcher to gain familiarity with the interview data.

Data analysis utilized the grounded-theory method as outlined by Goulding (2002) involving open coding, axial coding, and interpretation. For open coding, the transcripts were analyzed line-by-line to identify important participant statements. Axial coding involved comparing and inter-connecting statements in order to categorize them into emerging themes. Once categorized, the data were interpreted using the constant comparative method (Strauss & Corbin, 1998), which makes the process iterative and reflexive. Relationships and patterns were identified among the categories, and tables were developed to present themes that emerged. As qualitative analysis requires, steps were taken to ensure credibility of the results (Patton, 2002). A field journal was kept during the interview process which was coded along with the interview transcripts. Notes were taken throughout the data analysis process to keep better track of relationships and themes and to make sure rival conclusions were assessed. The interviewer also collaborated with a research team to ensure important statements were identified and properly interpreted. The findings were also verified with study participants.

Conversation was centered on three study objectives: 1) the nature of their connection and how it has changed over time; 2) their perceptions of what draws other
users to the landscape; and 3) their perceptions of the compatibility between users that share the resource. This study is the second component of research into place meanings and user compatibility in a changing landscape, and this article builds on findings from the previous chapter. As such, this paper presents findings to the two latter objectives. However, results related to the first objective are important to briefly review in order to compare participants’ own connections with their perceptions of what connects others.

**Phase 1: Attachment to Place**

The first component of this research analyzed participant descriptions of what characteristics of the landscape cause them to stay or to keep visiting over time. Participants described four main components of their attachment to the landscape: the physical landscape, the local culture/community, a feeling of home/family, and local experiences. Analysis of the interview data demonstrated how these became four distinct yet interrelated components of attachment over time spent in the region. Several themes were identified within each of these four components, as listed in Table 3.2.
Table 3.2. Components of the landscape that keep participants in or visiting the region as reported in Ednie (2007).

<table>
<thead>
<tr>
<th>Physical Landscape</th>
<th>Culture / Community</th>
<th>Home / Family</th>
<th>Local Experiences</th>
</tr>
</thead>
</table>
| • Connection with the water / islands  
  • Aesthetic quality  
  • Practical value  
  • Tranquility & solitude  
  • Spiritual connection  
  • Landscape diversity  
  • Common resource  
  • Landscape value | • People & community  
  • Lifestyle  
  • Work  
  • Community involvement  
  • Acceptance in community | • Family roots  
  • Feeling at home  
  • Next generation | • Accumulated experience |

**Study Findings**

This section begins with participant perceptions of what draws other users to the Stonington region. Next, participant perceptions of the compatibility between users in the region are discussed in detail. Excerpts and quotations from the interviews are presented throughout to demonstrate attachment and perceptions of attachment to the landscape, compatibility between users, and finally the connection between attachment and user compatibility.

*Perceptions of what Draws Individuals to the Landscape*

Study participants described three components of the landscape that they perceived as important in what draws others to the region (Table 3.3). Similar to their own attachment, participants perceived the physical landscape and the local culture to be
important. Differences, however, emerged in both these components between participant descriptions of their own attachment and their thoughts about what attaches others. The third component that emerged, which is different from how participants described their own attachment, involved the accessibility of the landscape.

Table 3.3. Participant perceptions of what draws other people to the region.

<table>
<thead>
<tr>
<th>Physical Landscape</th>
<th>Local Culture</th>
<th>Accessibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aesthetic quality</td>
<td>• Way of life</td>
<td>• Location and low-cost</td>
</tr>
<tr>
<td>• Practical value</td>
<td>• Escape</td>
<td>• Open for visitors</td>
</tr>
<tr>
<td>• Connection with the water</td>
<td>• Working waterfront</td>
<td></td>
</tr>
<tr>
<td>• Landscape diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Sense of wilderness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As in participants’ descriptions of their own attachment to the region, most participants mentioned they thought people visit the Stonington region for its aesthetic quality. Participants described how people come to the region for the “beauty of the islands”, to “watch the fog rolling in”, for the “ambiance”, the “views of the bay”, and because it’s the “prettiest place you’ll ever find.” Also, similar to their own attachments, participants described a practical pull that brings others to the region. Many described how people come to the region specifically for the kayaking and sailing opportunities offered by such an archipelago of islands. Some local participants also described that visitors come because of the region’s proximity to Acadia National Park, or specifically for the beaches in the region. Four participants also mentioned qualities of the landscape diversity as a draw for other visitors to the region. For example, they mentioned people come for the wildlife, for the flora and fauna, and for experiences unique to the region, such as the freshwater quarries. Participants also mentioned a draw to the water brings visitors to the region. Similar to their own attachments, participants thought just being near the water, or just being able to see the water is an important part of what brings
people to the region. One notable difference between participants’ descriptions of their own attachment to the landscape and what they think attracts other people pertains to participant descriptions of themselves as drawn to the region because it is a common resource. The idea of sharing the resource appealed to them, and some mentioned enjoying the idea of sharing the water with others who are making a living out there. Not only did participants not mention this sort of draw in their perceptions of why others come to the area, but several described how they thought others visit the region with the expectation of a wilderness experience. For example, one tour guide described,

“some clients think that they are going to be out on this wilderness kind of experience, and it’s not at all, and I keep telling them that it’s like you’re taking a hike through a semiconductor factory. You know, you’ve decided to go for a paddle but you’re paddling in the midst of all this action on the water.”

Our previous work with this data showed the region’s culture was an important reason in most participants’ decision to stay in or to keep visiting. However, some of the long-term visitors retained their strongest draw to the physical environment over time and felt the culture was a small part of the appeal. Participant perceptions of the importance of the local culture as a draw for others reflects this same pattern. Most participants who reside in the region (locals and transplants) felt the local culture was an important part of what draws others to the region. Meanwhile, only one of the long-term visitors mentioned cultural aspects in their perceptions of what draws others. Many of the transplants and locals thought others come to the area because of the “charm of the island”, because it is a “quaint little fishing village”, and because “it’s like turning the
clock back.” They thought visitors are attracted to the slow pace, for the simplicity, and because it’s a laid-back community. One transplant described,

“the first time that people come here they expect to find something that’s really laid back. The old Maine, the way the coastline used to be... more natural, with the people, there are the natives and they want to enjoy the culture, the ambiance, and even the speech which is Down East.”

Another component of participant perceptions of why others visit the area related more to what is not in the region than what is. They thought people come because there is “just less” here than in the cities. Participants thought people come to “escape their hectic lifestyles”, or to “get away from the city” and were drawn to the region because it is “not commercialized”, yet it has some “niceties” such as the movie theatre and art galleries. Some participants, only locals, mentioned they thought the lobster industry draws people to the region. One local described how “they may not come specifically to get out on the water, they come to town to see the marine activity, the working waterfront, and the fishing village.”

The final component that emerged from participant descriptions of what attracts other people to the region reflected the accessibility of the landscape. Participants described how people may have read about the Maine coast somewhere and decided to come, or they may have just decided to come here because they simply needed a destination for a vacation. Participants discussed how the region is inexpensive to visit, and how the communities within the region have become designed for visitors. For example, one participant described how the Stonington region is pushed as a package: “when people come here it seems like what they want to do is eat lobster, see the water…”
and go to the little galleries and shops and stuff like that.” Some described how locals and visitors travel more now than before. One participant described,

“many local people go to Ellsworth three times a week, and that used to be a big trip. Now it is nearly a suburb, it’s a car culture... when I first moved here no one would come here because it was such a long drive from the city. It’s a six hour drive from Boston, and that was too much. But now that’s not too much.”

User Compatibility

Study participants were asked to name the user groups who share the resource, and to describe their perception of the compatibility between groups. Discussion of both on and off-water compatibility emerged, where on-water covered compatibility intra-recreation group, inter-recreation group, and between recreational users and other resource users. Overall, participant perceptions of compatibility on the water ranged from “usually pretty good” to “there is discontent among groups”. Some felt the situation was improving (that it was worse 5 or 6 years ago), but others felt problems persist, for example, “people lose their sense of what is ok when they are tourists.” One long-term visitor described how the groups coexist well, and a local participant mentioned, “you just have to embrace people from away… you can’t knock them off.”

Participants described compatibility issues that occur between groups of recreationists of like activities. The most commonly mentioned issues were between groups of kayakers, although issues were also mentioned between groups of sailors mostly concerning the perception of certain groups as “elitist.” Compatibility issues between kayakers ranged from the feeling of being inconvenienced by having to share
islands to the feeling by long-term recreationists that some kayakers travel ill-prepared and as a result make bad decisions on the water. For example, one participant described, “a lot of kayakers think that we have the right-of-way... and I’ve heard people say this at the launch, and I say no, you’re totally wrong. So I think it’s just education for a lot of people, because kayaking is easy to get into. Buy a boat, you’re a kayaker.”

Several other participants mentioned the accessibility and low-cost of kayaking as a cause for the recent increase in kayakers on the water and the observation that many new kayakers seem to lack an understanding of safety considerations and on-water etiquette.

Participants also described compatibility issues between kayakers as a result of visitors’ expectation of a wilderness experience. They believed the expectation of a wilderness experience causes visitors to ignore others on the water, or to expect other groups to behave a certain way. For example, one long-term visitor described being approached by a group of kayakers and told to purchase a new tent that blends better with the environment. Another long-term visitor described being approached while on an island: “I have actually had people come up to me where I was camping and say, ‘could you camp someplace else because you are spoiling my wilderness experience.’ He is still alive, I think, but… it was very tempting.” That participant described how the visitor who approached him was concerned about experiencing solitude and having the whole island for his party. The participant, however, was most concerned about safety, and would not consider moving along to a different island in windy conditions and at a late time of day.
Participants described how “tempers can flare between any groups”, yet several mentioned positive qualities of other recreational users, and their enjoyment of sharing the resource with other forms of recreationists. Compatibility issues between user groups included “messes” left on the islands by other user groups, and perceived lack of respectfulness from one user group toward another. For example, a long-term kayaker described how with motor-boaters, the “powerful boat is an extension of their personality”, and sailors described how kayakers “are just a nuisance” and “think they are the chosen people.” Several motor boaters described how kayakers are like speed-bumps because they get in the way. Also, several participants (long-term visitors, transplants, and locals alike) mentioned “groups of locals” damaging the islands. These locals are either visitors to the islands or the island owners themselves. Participants described long-term issues of large parties of locals taking their toll on the environmental integrity and social character of the islands, although several participants mentioned this seems to be happening less as of late.

Several participants (long-term visitors, transplants, and locals) described how the “majority of conflict between pleasure boaters occurs at the town docks.” There were mixed opinions among the study participants over whether kayakers in particular “clog” the public launch areas. Some felt the situation is getting better, although many felt tension still exists at the launch areas. One participant described,

"What really ticks me off, and this shows my attitude about interaction, is when I come in here and I see boats tied up, you see these little dinghies tied up lengthwise instead of tucked away, taking up all the space... you see a fair
amount of pleasure craft that just aren’t very considerate in managing the space there.”

A related frustration experienced by locals and transplants was when they returned from on the water to find that a visitor had taken their mooring. When asked how the visitors reacted upon return, participants described the visitors were sometimes apologetic and at other time “plain rude.” This sort of reaction by visitors suggests the compatibility issues may not always be asymmetrical. Certainly, many visitors to the region are likely not aware of the implications of their actions at launch sites, but it appears some visitors also purposively make inappropriate judgement calls causing frustration for other resource users.

Participants also described compatibility issues between recreational groups and island owners. Both long-term visitors and island owners described how recreationists use the islands inappropriately or land without permission. For example, a recreationist described how “kayakers are finally stopping to use the islands as rest stops” and continued to discuss how recreationists who do so cause the island owners frustration risking loss of access. An island owner described how “people from away think everything is here for them.” He described how in years past when there were fewer recreationists,

“when somebody came, it was an event. We loved to see people. We would invite them in, have them for supper, and talk, and all this kind of stuff. But now you just want them to get out of there because you came out there to get away from people and, when you are out there in the summer and three bunches of people show up in one day, it’s just too much.”
Here, conflict is caused by the sheer volume of recreationists as well as their behavioral choices. Other examples included visitors who refused to leave when told by island owners that they were on private land without permission, and visitors who refused to tie up or remove their dogs from islands with grazing sheep.

By far, the most commonly mentioned compatibility issues on the water were between recreational user groups and the commercial fishermen. However, study participants held mixed opinions about the nature of these relationships. Many fishermen mentioned that kayakers were “an accident waiting to happen”, or “speedbumps” because they are difficult to see on the water, know little about water travel, and often travel in foggy weather. Fishermen also mentioned issues with sailboats, either because they tend to drag or damage lobster gear, or because they “are on a mission and will not change course to avoid the fishermen.” Several fishermen, however, mentioned these issues were less serious and more something they liked to complain about. Similarly, some locals and recreationists mentioned they felt the fishermen were “growing more accepting of kayakers.” One local mentioned, “when kayakers get into trouble, the fishermen pick up the pieces.”

Some described a “tension between working men and play boaters”, and locals mentioned feelings of frustration over complaints by visitors and some summer residents over “the noise of the lobster boats” or “the smell of bait.” Several participants (visitors, transplants, and locals) discussed how this tension between the working waterfront and recreationists is caused by a “terrible disconnect” between the expectations visitors have of the landscape, and their understanding of how the landscape came to be that way.

While discussing how visitors come to the region for the seafood, one participant
described, “they know that this stuff comes from here, they know that you can go to a restaurant here and get fresh fish, yet they don’t connect it with this is what you have to do to get those items.”

Some long-term recreationists and people working in the ocean-recreation industry did not see this disconnect, and commented there is “really very little conflict between recreational users and the lobstermen. They mentioned recreationists enjoy purchasing lobster from the boats, and although they “need to avoid the lobstermen at rush hour”, recreationists felt there is “more animosity within the lobster boats” than between them and recreationists. Others felt a little less positive about the situation. For example, one long-term visitor described how although fishermen “are beginning to understand kayakers”, some still “have disregard for kayakers, they scare them, and yell and scream at them.” Several other recreationists mentioned being “waked” by fishing boats. Others still voiced frustration over how the lobster fishermen expect special treatment on the water. One participant described, “everybody sort of dances around the lobstermen, but I don’t quite get it.” Another described, “I shake a bit at the idea that a lobster boat is kind of sacred here.” Yet another mentioned, “I tell people that you know, they are out here making a living, and then I say, well wait a minute, so am I.” These participants all felt the working waterfront was a crucial component of their sense of place, yet they described feeling frustrated at times over continually accommodating the fishermen on the water.
Discussion

The overall goal of this study was to expand traditional recreation compatibility studies to include non-recreational resource dependent users. A major finding of this research supports Stedman’s (2003) description of how compatibility issues are often over the meanings of a resource. Just as place meanings help historians understand landscape changes over time, they can provide natural resource researchers and managers insight into user expectations and the causes of conflict within and between groups.

From visitor expectations of a wilderness experience to the communication disconnect between visitors’ understanding and expectations of a working waterfront, compatibility issues centered around diverse opinions about how the resource should be used, and by whom. Moreover, we learned that compatibility issues revolve around both physical and cultural components of a landscape, and that they are grounded within surrounding communities as well as within the recreation area.

We began our exploration of the compatibility between user groups by searching for similarities and differences between how study participants (who were all long-term users of the resource) described their own attachment to the landscape, and what they perceive draws others. Several similarities emerged in these descriptions as well as one major difference. Just as participants described their own attachment to the landscape, they believed other visitors are drawn for the aesthetic quality, by a connection with the water, for the landscape diversity, and for its practical value. These draws appeared to be universal in our study, and are similar to what Davenport and Anderson (2005) named “nature” and “tonic” as a component of meanings of the Niobrara River. However,
participant descriptions of how other visitors come to the region expecting a wilderness experience differed notably from their own attachment to the region as a common resource. These competing motives or goals can be important in understanding user conflict.

Relating this difference to Manning’s (1999) extended model of recreation conflict, visitors’ mode of experience and lifestyle tolerance can both be important for consideration. According to the model, mode of experience refers to visitor expectations of the natural environment, and lifestyle tolerance depicts acceptance or rejection of lifestyles different from one’s own. Visitors who expect a ‘wild’ experience and reject the presence of other users who do not hold this expectation can easily conflict with those other users. This perspective highlights the importance of understanding why such expectations develop. Community interests and resource managers may both benefit from a content analysis of the promotion material visitors receive prior to their trip to the region to make sure the material is sending a message that corresponds with the nature of the landscape.

Participants ranged in their perceptions of the occurrence of conflict between users of the resource. Some stated they had experienced or noticed very little conflict on the water, others felt the situation has improved considerably over the past few years, while the majority still felt conflict is an issue on the water. Similar to McAvoy et al.’s (1986) findings, compatibility issues ranged from classic asymmetrical relationships, where visitors are likely not aware of their effect on other users of the resource, to reciprocal conflict. For example, groups of kayakers with little experience in a working waterfront likely do not understand how difficult they are for fishermen to see on the
water and may not realize the frustrations they cause locals by packing their boats on the town docks. However, participant descriptions also suggested some visitors purposively make inconsiderate decisions. Moreover, just as these kayakers can frustrate fishermen and other motor boaters on the water, they also described becoming annoyed or feeling threatened by the actions of the others. From being waked, woken, and yelled at, visitors also experience the conflicting use of the resource.

The participants’ descriptions of the compatibility between user groups supported Wolfhorst et al.’s (2006) description of conflict that occurred when place meanings of non-traditional users challenged those of the local community. Part of our findings, however, also supported their conclusion that place meanings can evolve into new, shared images between those groups sharing a resource. For example, participants described conflict between groups of kayakers over the use of island campsites, fishermen described feeling frustrated toward sailors, and some participants went so far as to say “there is discontent among groups.” However, several of our findings suggest the very place meanings that are at the root of this conflict can change over time to meanings that are more conducive for sharing a resource. For example, some locals described their decisions to “embrace people from way” because many were there to stay. Others described the situation is improving, and that compatibility issues were worse 5-6 years ago, and others still described how the fishermen are beginning to accept other users of the water. Further, some locals described how they had tried, or they wanted to try sea kayaking, and a long term visitor described his experiences volunteering at a commercial fishing wharf. The pattern appears particularly clear when considered in combination with the previous chapter, where we found over time, participants’ attachment shifted
from a strong draw of the physical landscape to an attachment where physical and
cultural aspects are intertwined. Findings from the 2006 island visitor survey also
suggest the Stonington region might be particularly conducive to shifting place meanings
since 61% of participants were repeat visitors, and 31% had been visiting the islands for
15 or more years (Ednie and Daigle, 2007).

Perhaps one of our most important findings is that compatibility issues occurring
out on the water and on the islands also affect the surrounding communities. Stedman’s
(2006) work supports these findings. Although his study looked at seasonal home owners
and year-round residents, he found the attachment of rural residents was rooted in
community meanings while that of seasonal residents was rooted in the landscape and
escape from everyday cares. Our participants, long-term visitors, transplants, and locals
alike, described strong connections to the local culture and communities in addition to the
physical landscape. Further, many of the compatibility issues they described pertained to
both the community and the activity, and it could be argued that many of the issues that
transpire on the water are rooted in the surrounding communities. For example, many
participants described tension between working people and recreationists – from
complaints over noise and the smell of bait to the disregard some recreationists feel the
lobstermen have for kayakers and sailors. This tension likely occurs because visitors or
new residents fail to understand what it means to be in a working waterfront, and because
individuals with long-term connections to the area resist challenges to central
characteristics of their place meanings. Not only do these findings suggest resource
managers should consider the impact of ocean-based tourism on the local communities,
but also that community interests and stakeholders should consider how the reactions of long-term users might add to the tension.

This study demonstrates how managers and planners can better understand the actions of recreational and non-recreational users of a resource by considering what the landscape means to these different user groups. Our findings support the suggestion by Farnum et al. (2005) that recreationists and locals should be studied together, particularly where there are indications of local proprietorship over the landscape. Through comments such as, “people lose their sense of what is ok when they are tourists”, we saw signs of a developed sense of ownership by long-term visitors and transplants as well as locals. In addition, we learned about the flip-side – where visitors suffer from the actions of long-term users. The need to understand these phenomena is emerging as rural U.S. communities continue to change through in-migration, increased tourism and recreational use.

References


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ISLAND USE OBSERVATION FORM
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<th>Island</th>
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APPENDIX B

INTERVIEW CONSENT FORM
“The Construction of Sense of Place on the Maine Coast” Research Project

Consent Form

You have been selected to participate in a research study about how Merchant Row resource users connect to the region. We are talking to people who live near, visiting, or work in the Merchant Row region. We are also talking with people who manage areas within the region. We ask that you read this form and ask any questions you may have before agreeing to be in the study. You will be given a copy of this form to keep for your records.

Background Information:
The purpose of the proposed research is to develop an understanding of how current users of the Merchant Row become connected with the resource. The information received will help us to suggest ways that resource managers can conserve important qualities of the region.

Procedures:
If you agree to be in this study, I would ask you to participate in a single 45-60-minute interview. The questions in the interview will address what it is about the region that you feel connected to.

Risks and Benefits of Being in the Study:
A potential benefit of participation is greater public understanding of the importance of including local perspective into natural resource management. Except for you time and inconvenience, there are no foreseeable risks to you in participating in the study.

Confidentiality:
The information collected in this interview will be kept private. In any published report, we will not include any information that will make it possible to identify an individual person. Research records will be kept in a locked cabinet for seven years and then destroyed. Only the researchers will have access to the records.

Voluntary Nature of the Study:
Participation in this study is voluntary. If you choose to take part, you may stop at any time during the study. You may skip any questions you do not wish to answer.

Contacts and Questions:
If you have any questions about this study, please contact me at 207-581-2835 (or email andrea.ednie@umit.maine.edu). You may also reach the faculty advisor on this study at 207-581-2850 (or email john_daigle@umenfa.maine.edu). If you have any questions about your rights as a research participant, please contact Gayle Anderson, Assistant to the University of Maine’s Protection of Human Subjects Review Board, at 207-581-1498 (or email gayle.anderson@umit.maine.edu).

Your signature below indicates that you have read and understand the above information.

_____________________________________  _____________________
Signature        Date
The Construction of Sense of Place on the Maine Coast

Interview Questions

Background Information
Home location
Place and date of birth
Place where brought up
Parents occupations
Schooling
Type of work

Initial Connection

What is your use region (travel along Maine coast, or Stonington specific, etc.)?
How long have you been living in / visiting the Stonington area?
What do you do when you are there?

Tell me a little about the first time you remember being out in the Stonington area:
Who were you with?
Whose idea was it to go?
How did you learn about it?
What did you do?
Did you meet new people?
What was your favorite part about the visit?

When did you come back next?

What was it that attracted you to the place?
Was it something about the environment or the landscape?
Was it something about the people or the culture?
Have you talked with other types of users – do you think they were initially attracted to similar things?

Connection Now

What are the elements / pieces of your connection to the Stonington area?

Has your appreciation of the area changed in time?

Who are the main types of users in the Stonington area?

How do the different groups of users interact?
   What kind of relationship do you have with sea kayakers, fishermen, sailors, etc.

Tell me about what you like in the landscape now:
   Do you think the other user groups like the same things?

Is there one particular place that you like the most?
   Describe your most recent visit to that place
   What is special about that place?
      Was it the people you were with?
      Is it the landscape / seascape?
   Who do you usually go there with?
   What do you generally do when you’re there?
How has the Stonington area changed since you’ve been using it?
   Has the environment or landscape changed?
   Have the people changed?
   Have the uses changed in type or intensity?

Are the things that initially drew you to the area still there?
   Does the coast still mean the same thing to you as it always has?

What would ruin the Stonington area for you?

From your perspectives, what are the elements of a healthy Bay?

Are there any changes that could make the Stonington area better in your opinion?

Are you satisfied with how things are now in the Stonington area?
   Yes: What makes it a good place to be?
   No: Can you pinpoint what it is that makes you feel this way?
Has your appreciation of the Stonington area changed over time? If so, how?

Do you think you’ll feel the same way about the Stonington area in the future? Are there changes that could strengthen your sense of connection to the region?

Do you plan to stay / continue to visit in the future?

Do you visit other places like the Stonington area? How often?

How does the Stonington area compare to your favorite vacation area?

Are you more (or less) attached to those other places compared with the Stonington area?

Who else would you recommend? Who would disagree – who would give a different perspective?
BIOGRAPHY OF THE AUTHOR

Andrea Jane Ednie was born in Ormstown, Quebec, on September 21st, 1978. She graduated from Chateauguay Valley Regional High School, and attended Stanstead College for a year. In 2001, Andrea completed her Bachelor of Kinesiology from the University of New Brunswick, spending her senior year on exchange at the University College of Chichester, in South England. After thru-hiking the Appalachian Trail in 2002 and working for a year as an instructor for the Canadian Outward Bound Wilderness School, she returned to the University of New Brunswick for graduate school. In 2004, Andrea completed a Master of Arts in Sports and Recreation Administration.

Andrea has recently joined the faculty in the Recreation and Tourism Management Program, University of Maine at Machias. This position allows her to combine her love of the outdoors with her passion for teaching and interest in research. Andrea is a candidate for the Doctor of Philosophy degree in Forest Resources from the University of Maine in December, 2007.
Maine Coastal Islands Visitor Survey 2006—Deer Isle/Stonington Region

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John J. Daigle
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ACKNOWLEDGMENTS

The authors would like to thank and acknowledge the people who and organizations that have contributed to this project. Douglas McMullin, Jane Arbuckle, and Ciona Ulbrich with the Maine Coast Heritage Trust provided valuable support with visitor observations and technical insights, and they also welcomed the researcher into a lovely island cabin for the data-collection season. Steve Spencer from the Department of Conservation, Charlie Jacobi from Acadia National Park, Natalie Springuel from Cooperative Extension/Maine Sea Grant, and Sid Quarrier, a long-term Maine Island Trail Association volunteer, provided insight and support throughout the entire project. Dave Mention and Brian Marcaurelle at the Maine Island Trail Association made this project happen and provided immeasurable technical, administrative, and conceptual support. We would like to thank Bill Baker, owner of Old Quarry Adventures in Stonington, for his support throughout the surveying season. Dr. Theodore Coladarci, professor of educational psychology at the University of Maine, provided assistance with data analysis and interpretation. We would like to thank the 2006 volunteer Stonington clean-up crew for their willingness to serve as pilot-study participants for this project. Also, a special thanks to Min Kook Kim and Adam McKay, students in the Parks, Recreation and Tourism program at the University of Maine, for their substantial help in administering the mail survey and with data entry. This study was funded by the Maine Island Trail Association.

Photo credit: More than 90% of the respondents rated the scenic quality, nature appreciation, the distinctive coastline, and exploration as important of very important reasons for visiting the Stonington region. This photo was taken by Andrea Ednie at Steves Island near Stonington, Maine.

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EXECUTIVE SUMMARY

In 2003, the Maine Island Trail Association and the Maine Department of Conservation involved hundreds of stakeholders in the development of the *Recreation Plan for the Public Islands on the Maine Island Trail, 2004–2014*, to address visitor use of 45 islands dispersed along more than 325 miles of coast and near to hundreds of coastal communities. Based on the management plan, an island-monitoring task force was created to develop a long-term monitoring plan to track environmental and social changes using established indicators and standards. The task force focused for three years on developing environmental-monitoring methods, and this report presents results from the second phase of the island-monitoring program headed by the Maine Island Trail Association, which was to inventory social conditions on a subset of public islands on the Maine Island Trail. During the summer season of 2006, we recorded observations on the use of 23 islands in the Stonington region of Maine and asked visitors to those islands to participate in a survey. The survey was designed to elicit information from participants on a variety of issues to determine characteristics of the visit including their travel patterns and travel decisions, background information, experiences, Leave No Trace knowledge and behavior, and preferences for and satisfaction with the condition of the resource. Information was collected from island visitors using two survey instruments: a short on-site survey card and a more extensive mail-back questionnaire. We mailed a total of 435 questionnaires to island visitors, and visitors returned 361 usable questionnaires, for an 85% response rate.

**Island Use Observations**

- The most popular islands for day use were Green Island (26%), followed by Wreck Island (12%), Hell’s Half Acre Island (11%), and Russ Island (11%). The greatest percentage of overnight use was recorded on Hell’s Half Acre Island (22%), followed by Steves Island (19%), Harbor Island (11%), and Buckle Island (9%).
- Our observations of island visitors found that group size ranged from one to 40 individuals. The mean day-use group size was 7.28; however, the most common day group size was two. The most common overnight group size was also two, while the mean overnight group size was 4.54.
- We observed a total of 193 groups of day users and 194 groups of overnight users. We found the greatest percentage of day users was on Wednesdays (19%) and Sundays (18%), and the greatest percentage of overnight users was on Saturdays (18%), Mondays (17%), and Fridays (16%).
- According to our observations, 272 groups of visitors traveled by hand power (kayak, canoe), and they were most frequently observed on Mondays (23%), Wednesdays (20%), and Saturdays (20%). We observed 39 groups of sailors (while physically on-island), and 94 groups in motorized boats.

**Visitor-Use Characteristics**

- Visitor group sizes ranged from one to 50; however, most groups consisted of two people, representing 32% of all survey participants. Only seven participants reported traveling alone. Twenty-seven percent of groups included at least one child under the age of 16. Fifty percent of all visitor groups were made up of family or family plus friends.
- Forty-eight percent of groups camped overnight, with an average of three nights. Respondents camped most frequently on Hell’s Half Acre Island, Steves Island, Harbor Island, and Wheat Island, which were mentioned 25, 24, 21, and 16 times, respectively. Steves Island and Hell’s Half Acre Island were the islands most commonly visited for day use, mentioned 14 and 10 times, respectively.
- The majority of groups traveled on the water by kayak (78%), followed by motor boat (17%), and sailboat (16%); only 2% traveled by canoe. Thirteen percent of respondents used more than one mode of travel.
- The most frequently reported access point to the water was Old Quarry Campground (58%); 16% of the study participants reported launching at the Stonington boat ramp. Another 13% of the participants were traveling through from another region.
- Seeking specific islands (38%), having been there before (36%), and visiting a new area (32%) were the most commonly reported reasons for choosing water routes. Sixty-three percent of the respondents decided to visit the Stonington region islands because someone recommended the area, and 27% did their own research.
- Having been there before (51%), NOAA charts (42%), word of mouth (34%), and the Internet/Web sites (30%) were the most popularly reported sources of information used to learn about the Stonington area.
Background Information

- Study participants ranged in age from 24 to 91 years, with most being between the ages of 46 and 55. Participants were balanced in gender, with 51% male and 49% female. Eighty-four percent held either a bachelor or graduate degree.

- Visitors to the Stonington region came from 35 states, Canada, and the United Kingdom. Most participants were from Maine (28%), followed by Massachusetts (17%), and New York (9%).

- Most participants in this study were visitors to the Stonington region (87%), and most did not hold employment that is dependent on the resource (94%). Thirty-three percent of respondents were members of the Maine Island Trail Association, and an additional 6% had been members in the past.

Visitor Experiences

- More than 90% of the respondents rated the scenic quality, nature/wildlife appreciation, the distinctive coastline, and exploration as important or very important reasons for visiting the Stonington region. Adventure/excitement and being with family and/or friends were also rated within the top three reasons for visiting by more than one-quarter of the respondents.

- Forty-eight percent of the groups camped overnight on the islands. Sixty-four percent of the camping groups reported that on the average night, no other groups were camped nearby (within clear sight or sound), and 30% reported one other group nearby. On the busiest night, 80% of the study participants reported one other group within sight or sound.

- Sixty percent of the groups who camped with other groups nearby reported the other groups did not interfere with their experiences. Twenty-eight percent reported other groups interfered somewhat, 7% reported that other groups interfered, and 4% felt other groups interfered significantly with their camping experiences on the islands.

- Seventy-three percent of overnight users took their intended campsites during their visit to the islands. Of the 27% who did not take their intended site, 64% did not take the first available site for only one night of their trip. The most common reason for not taking the intended site was because they chose to scout around first to see what other options existed. Thirteen individuals did not stay at their intended site because the site was already occupied, and only two individuals mentioned campsite size or access to the campsite as reasons for not choosing the intended site.

- Sixty-one percent of participants had previously visited the Stonington region for recreation, 73% had previous recreation experience at other coastal locations, and 84% had either previous experience in Stonington or at other coastal areas.

Leave No Trace Knowledge and Behavior

- The vast majority of visitors (92%) were aware of Leave No Trace techniques, and 99% felt the recommendations were either very important or important. An analysis of participants who were not familiar with Leave No Trace techniques revealed 85% were day users (did not camp) and 60% traveled by motorboat or sailboat.

- Eighty-five percent of participants always or often removed litter/trash when they notice it. Eighty percent of the respondents carried out human waste, and 89% carried out leftover food.

- Not including participants who used neither a wood fire nor a camp stove, 14% of the respondents built a wood fire, 67% used a camp stove, and 19% used both. Day users were more likely to build wood fires (17% of the day users vs 4% of overnight users). Eighty-five percent of the sailors were day users, and 41% of the sailors built wood fires.

- Forty-nine percent of the participants signed the island logbooks, 39% did not sign the logbooks, and 12% did not see, or visited islands that did not have, logbooks. Sixty-seven percent of MITA members and 40% of the non-MITA members signed logbooks.

Visitor Preferences for and Satisfaction with Resource Conditions

- The amount of litter/trash around a campsite and the amount of litter/trash along a shoreline most greatly influenced the quality of visitor experiences. More than 90% of respondents rated them very much or extremely influential. The least important conditions were the availability of choice between several different places to pitch a tent and the availability of small campsites with only one or two places to pitch a tent. These conditions were rated not at all to moderately influential by at least 70% of the respondents.
Most visitors (80%) strongly supported maintaining existing trails on the islands. Three other management actions received some degree of support from three out of four participants: posting signs outlining Leave No Trace recommendations; restricting use to manage impact and protect the islands; and providing the presence of a roving steward for the Stonington area.

Ninety-seven percent of the participants rated experiences like the Maine coast islands as extremely valuable or very valuable. Ninety percent of the participants rated their trip A, very good, and 9% rated it B, good.

Conclusions
This research was designed to help the Maine Island Trail Association and others interested in the management of the Maine’s coastal islands. It can be used for studying current visitation to the Maine islands, for planning educational programs, for selecting indicators for limits of acceptable change applications, and for establishing management objectives. Understanding the different aspects of the visitor experience and recognizing which of these are important to visitors is a crucial component in protecting the coastal recreation experiences of the Maine islands. Our research demonstrates that visitors to the Stonington region islands come with diverse interests and abilities. The many islands along the Maine coast make it a place that is capable of satisfying a broad array of needs, and the management and research implications in this report focus on helping managers to select the most effective approach for ensuring continual access while protecting the natural character of Maine’s beautiful islands.
INTRODUCTION

The Maine islands, once a chain of mountains located miles inland, became islands approximately 11,000 years ago when glaciers receded and the sea level rose. Today, there are more than 4,600 islands off the Maine coast and thousands of intertidal ledges. Roughly one-quarter of the islands have some vegetation, and because of their aesthetic beauty combined with their geographical proximity to one another, many of them are popular destinations for recreational boaters. In the 1980s, the Maine Bureau of Parks and Lands and the Island Institute became interested in developing a water trail to protect 45 public islands that were identified as appropriate for public use. Maine’s island trail became the largest and oldest water trail in North America, and the Maine Island Trail Association (MITA) was created to protect the integrity of the islands while keeping them accessible to the public. Since then, the Maine Island Trail has been expanded from the 45 public islands to include more than 150 public, private, and non-profit-organization-owned islands and mainland sites available for day visits or camping. The mission of MITA is to “establish a model of thoughtful use and volunteer stewardship for the Maine islands that will assure their conservation in a natural state while providing an exceptional recreational asset that is maintained and cared for by the people who use it” (MITA 2006).

In 2003, MITA, the Maine Department of Conservation, and the Bureau of Parks and Lands (BPL) involved hundreds of stakeholders in the development of a management plan for 45 of the state’s public islands. The Recreation Plan for the Public Islands on the Maine Island Trail, 2004–2014 addresses use of 45 islands dispersed along more than 325 miles of coast and near to hundreds of coastal communities. The plan focuses on recreation, rather than on integrated resource allocation, because the islands were selected specifically for public use in the 1980s. The management plan addresses both trail-wide issues and island-specific concerns (Department of Conservation 2003) and is a timely document given that island use is on the rise (MITA estimates that between 1997 and 2002, the use of the public islands on trail increased by 50%).

A central stipulation in the management plan is that the islands be managed to preserve the natural and cultural resources; to protect the relatively wild character of the islands and favor natural processes; to provide a setting for a high-quality coastal recreation experience; and to ensure equitable access to various users. The plan also states that “monitoring island conditions and social impacts is necessary to provide relevant information for ongoing recreational use management decisions” (Department of Conservation 2003: 35). One of the major recommendations of the management plan was to develop a monitoring task force to develop a long-term monitoring plan that would track environmental and social changes using established indicators and standards. In January of 2004, the Island Monitoring Task Force officially formed and developed their goal, which was “to develop recreational use management information and techniques that island owners and managers can use to achieve their resource and recreation management objectives” (Springuel 2007). The task force developed three main monitoring objectives: to conduct inventory of present natural resource and social conditions on a representative subset of islands; to identify natural resource and social indicators of the impact of recreation and define their associated standards; and to develop monitoring protocols that identify and monitor change caused by recreational use, for comparison to established standards. The task force decided to focus their first three years on developing environmental-monitoring methods. They used field mapping and GIS, a survey checklist, campsite monitoring, trails monitoring, shoreline monitoring, intertidal monitoring, and the photo-transect method to develop detailed baseline inventories for seven representative islands along the Maine coast.

The goal of this report is to present results from the second phase of the island-monitoring program, which was to inventory social conditions on a subset of the public islands on the Maine Island Trail. Specifically, the goal of this research was to obtain a better understanding of the visitors who use the Maine Island Trail. This research was designed to build on the ecological inventory developed by the task force and to help MITA and other groups to manage the islands by

1. determining characteristics of the Maine island visit, including activities, use patterns, method of travel, length of stay;
2. determining characteristics of the visitors, including types of groups, previous experience, place of residence, socio-demographic descriptions, visitor satisfaction and preferences;
3. determining visitor attitudes toward management actions; and
4. analyzing relationships between items listed.

This research will help natural resource managers to protect the island values that visitors and locals cherish: ecological integrity, a feeling of remoteness, and access. Quality in outdoor recreation can be defined as the degree to which recreation opportunities provide the experience for which they
are designed and managed. Key to protecting the experiences of the Maine Island Trail visitors is an understanding of the different aspects of the visitor experience and recognizing which of these are important to visitors. These indicators are measurable variables that help to define the quality of the recreation experience and standards that define the minimum acceptable conditions (Daigle 2005; Daigle et al. 2003). Good indicators are practical to measure quantitatively, sensitive to the type and amount of use, and potentially responsive to management control (Lucas and Stankey 1985; Manning 1999). They are used in managerial planning cycles such as limits of acceptable change (Stankey et al. 1985) along with standards to guide the implementation of management strategies and monitoring efforts.

Several studies examining indicators of quality have revealed some variables to be more important than others (Manning 1999). For example, visitors perceived litter and other signs of visitor use to have more of an impact on their experience than management-related issues, such as signs and presence of staff. Visitors often consider social indicators of quality, especially those dealing with behaviors or types of other user groups at remote campsite locations, to be more important than ecological indicators. Visitors to remote islands may be more sensitive to a variety of potential indicators of quality than visitors to highly used and developed islands or sites. On the Maine Island Trail, users have access to numerous public launch sites and diverse methods of travel to reach islands, such as by motor, sail, and kayak. Considering the recent increase in island visitation, this situation suggests the need to understand the diverse recreation experiences and indicators of quality.

Survey Site

The Stonington region island archipelago was chosen to host the first Maine Island Visitor Survey. This region was selected because of its geographical layout, its popularity as a recreation destination, its nature as a working waterfront, and its geography. The Stonington region archipelago is a cluster of approximately 80 islands located near the southern tip of Deer Isle, Maine. Deer Isle is approximately 55 miles South of Bangor or 155 miles East of Portland and is connected to the mainland by a causeway and a bridge at its north end over the Eggemoggin Reach. Although to a lesser extent than other coastal Maine communities, the community of Stonington has experienced a significant amount of change over the past two decades due to an increase in summer and other part-time residents. Also, Isle au Haut, home to an island community of just under 100 people and also home to a segment of Acadia National Park, is located just on the southern border of the Stonington region islands.

The Stonington archipelago represents a range of recreation use history (e.g., heavily used locations vs remote) and user characteristics (e.g., local, outfitter, long-distance travelers). The most common visitors to this area include private and commercial groups of sea kayakers, recreational sailors, recreational motor-boaters, recreational yachtsers, and commercial schooners. The commercial lobster fishery represents the core of the Stonington community, and the Stonington fleet includes approximately 288 commercial moorings, nearly all of which are for lobster boats. The extent of recreational use in the area has not been fully recorded to date. MITA has placed log books on public islands to track use and has asked monitor skippers to count visitors on their approximately weekly monitoring rounds.

Islands in the Stonington region archipelago are owned and managed by a range of groups, including MITA, the Department of Conservation, the Maine Coast Heritage Trust, the Island Heritage Trust, and a variety of private owners. The main focus of this study was on the seven public islands in the region managed by the MITA under the 2003 management plan. This visitor survey also included contacts and estimates on the use of six private islands managed by MITA, three islands owned by the Island Heritage Trust and managed by the MITA, and seven islands owned and managed by the Maine Coast Heritage Trust. These islands are intermixed geographically with many private islands that are not accessible to the public.

The 23 islands sampled in this study differ in terms of permitted use and recommendations for use behavior. Seven of the islands monitored had campsites open for public use, and six had campsites for use by members of MITA. Of those islands with permitted camping, recommended group sizes ranged from four to 18, based on natural character and the number of campsites per island. Nine of the monitored islands permit day use only. All of the campsites in the region are free of development, with the exception of one campsite that contains two tent platforms on Hell’s Half Acre Island. Each of the public camping islands has a sign at each campsite outlining use recommendations including a two-night maximum stay, party size, and “Leave No Trace” practices (Appendix A). Table 1 summarizes the islands monitored in terms of ownership, permitted use, and recommended group sizes for the public islands. Island landings range from long, gradual
Table 1. Islands where use estimates and survey contacts were collected.

<table>
<thead>
<tr>
<th>Island</th>
<th>Ownership</th>
<th>Use</th>
<th>Number of Campsites</th>
<th>Recommended Capacity (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Sheep</td>
<td>Public</td>
<td>Camping</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Hell’s Half Acre</td>
<td>Public</td>
<td>Camping</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Steves</td>
<td>Public</td>
<td>Camping</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Harbor</td>
<td>Public</td>
<td>Camping</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Wheat</td>
<td>Public</td>
<td>Camping</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Doler</td>
<td>Public</td>
<td>Camping</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Weir</td>
<td>Public</td>
<td>Camping</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Russ</td>
<td>Non-profit</td>
<td>Camping</td>
<td>2</td>
<td>N/A</td>
</tr>
<tr>
<td>Saddleback</td>
<td>Non-profit</td>
<td>Camping</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>The Fort</td>
<td>Non-profit</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Wreck</td>
<td>Non-profit</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Round</td>
<td>Non-profit</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Green</td>
<td>Non-profit</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Nathan</td>
<td>Non-profit</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Bills</td>
<td>Non-profit</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Millet</td>
<td>Non-profit</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Sand</td>
<td>Non-profit</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Fog</td>
<td>Private (non-profit easement)</td>
<td>Day use</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Buckle</td>
<td>Private</td>
<td>Camping</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>Sheep</td>
<td>Private</td>
<td>Camping</td>
<td>2</td>
<td>N/A</td>
</tr>
<tr>
<td>Rock</td>
<td>Private</td>
<td>Camping</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>Burnt</td>
<td>Private</td>
<td>Camping</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>Kimball</td>
<td>Private</td>
<td>Camping</td>
<td>1</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Sandy beaches to steep bolder-filled shorelines. There are three public access locations directly within the study region as well as several others nearby. Two of the public access points are within the town of Deer Isle; one is a concrete/stone boat ramp owned by the towns of Stonington and Isle au Haut, and the other is a floating dock, which is public; however, visitors are encouraged to avoid the float due to past issues with congestion. The third access point is a privately owned campground located along nearby Oceanville Road, where the owner provides public access for a small fee. The islands range from half a mile to six miles away from the closest points along the Stonington shore. Tidal variation in the Stonington region on average is approximately 10 feet.

SURVEY METHODS

The Stonington region visitor survey, 2006, included information collected from visitors using two instruments: a brief on-site visitor interview and a more extensive mail-back questionnaire. The researcher, a University of Maine Ph.D. student who was doubling as a Maine Island Trail Association island steward, greeted all study participants in person, briefly describing the purpose of the study and asking the visitors to participate. Contacts were made on most of the 23 islands described in Table 1 between June 18 and September 3, 2006. Contacts were also made at Old Quarry Ocean Adventures, a popular access point to the Stonington region island landscape.

Sources of Samples

Although sampling consistency is desirable, we had to adjust the sampling strategy during the course of the data collection process. The original sampling scheme followed a random stratified sampling method and extended the study region up into the Eggemoggin Reach. Within the first few weeks, however, we decided to reduce the study region and to convert from the random stratified scheme to a more purposive maximum yield approach because of concerns over the ability of one person to make enough contacts over such a large region, as well
as concerns about the accuracy of use estimates the researcher was also collecting for the Maine Island Trail Association.

The new sampling scheme involved a rigorous schedule of monitoring islands for as many hours as possible during a day. Weather permitting, each island was visited at least once during the day and also once in the evening or early morning to intercept campers. Although the researcher made all participant contacts for the visitor survey, the Maine Coast Heritage Trust (MCHT) regional steward was also estimating use of the islands.

**On-site Interview**

After they agreed to participate (only two individuals declined over the entire survey period), the researcher conducted a short interview lasting two to four minutes, requesting information about access point, length of visit, type of group, size of group, mode of travel, and their addresses. The intent was to keep on-site visitor burden to a minimum while collecting sufficient information to draw conclusions about users and to compare response and non-response groups on the mail-back questionnaire.

Study participants were assured that participation was completely voluntary and that all responses would be confidential. The following statement was printed on the back of the on-site interview card for participants to read if they were interested:

This study is being conducted by the University of Maine in partnership with the Department of Conservation, the Maine Island Trail Association, and the Maine Coast Heritage Trust. Your participation in this interview is voluntary, and you may skip any questions you do not wish to answer. Since each interviewed person will represent many others who will not be surveyed, your cooperation is extremely important. The answers you provide will be confidential. An identification label used on mail-out questionnaires is for mailing purposes only. Our results will be summarized so that the answers you provide cannot be associated with you or anyone in your group or household. Your name and address will not be given to any other group or be used by us beyond the purposes of this study.

We reviewed the on-site interview data for completeness, accuracy, and consistency, entered the information into a Microsoft Excel spreadsheet, and assigned a tracking number to each study participant. This number provided a unique identifier to link responses to the on-site interview with responses to the returned mail-back questionnaire.

**Mail Questionnaire Procedures**

The mail-back questionnaire was administered by the University of Maine. Administration of the questionnaire followed strategies developed by Salant and Dillman (1994) and Dillman (2000). In recreation visitor studies, this method has produced response rates as high as 90%. Using the Dillman (2000) total design method, survey participants received up to three surveys mailings over a seven-week period, each timed carefully following the initial visitor contact. The completed questionnaires returned to the University of Maine were processed regularly, to reduce the occurrence of respondents receiving follow-up mailings. Components of the mail survey included (1) the questionnaires; (2) cover letters; (3) envelopes for sending the mail survey; (4) stamped envelopes for returning the questionnaires; (5) postcard thank you/reminders; and (6) administration of the mail survey. We made extra effort to personalize this mail survey to emphasize the difference between it and other mail surveys more common to American households.

**The Questionnaire**

We designed the questionnaire to obtain visitor characteristics and perceptions of a variety of variables including information on socio-demographics, travel, attitudes towards management actions, perceptions of the importance of certain island conditions, reasons for visiting, Leave No Trace knowledge and behavior, and sense of connection to the landscape (Appendix B). Staff at the Maine Island Trail Association, the Department of Conservation, the Maine Coast Heritage Trust, Acadia National Park, among other organizations, assisted in the development of questions, the sequencing of questions, and the wording of the final questionnaire. A pre-test, completed in May 2006 with 16 volunteers, produced helpful feedback in terms of question development and survey length. The survey included a cover page with the title of the survey, an image of the landscape, and the names of collaborating organizations followed by 10 pages of questions including a final page containing an open-ended section for comments.

**Cover Letters, Envelopes, and Reminders**

We included a cover letter explaining the purpose of the survey and encouraging a high response rate, with the questionnaires. Printed on Parks, Recreation, and Tourism, University of Maine letterhead and addressed to each participant, the letter included (1) identification that this study was being conducted by the University of Maine; (2)
an explanation of the purpose of the study; (3) the importance of completing the questionnaire; and (4) an assurance that information provided would be held in the strictest of confidence. We created three slightly different versions of the cover letter, for use in each of the three possible rounds of survey mailing and hand-signed each cover letter.

To personalize the envelope, we hand wrote each name and address on the official department envelopes and also used regular postage stamps as opposed to mechanical stamping to mail the surveys. Each survey packet also contained a business reply envelope for returning the completed questionnaire. An account (business reply postage) was established so that postage was charged only if respondents used the envelope for returning questionnaires.

Additionally, we sent postcard reminders one week after the first questionnaire. The postcards encouraged participants to complete the questionnaire and thanked those individuals who had already done so. Again, we hand wrote the names and addresses on all postcards, which read:

Last week we mailed you a questionnaire asking about your perceptions of the conditions of the Maine Islands during your recent trip. If you have already completed and returned the questionnaire to the University of Maine, please accept our thanks. If you have not yet completed it, please do so today. The questionnaire was sent to a small but representative sample of different Maine Island visitor types. It is extremely important that your responses be included in the study for the results to be of assistance in future management. If, for some reason, you did not receive the questionnaire, or if it has been misplaced, please call me at (207) 581-2850 and we will mail a replacement questionnaire to you today. Thank you for your assistance.

Survey Administration

To monitor returned questionnaires and to facilitate additional mailings, we created a system with a master data table that contained (1) respondent identification number; (2) name and address; (3) mailing number (1, 2, or 3); and (4) notes on non-deliverable questionnaires. The identification number (corresponding with on-site interview numbers) was written on the last page of the questionnaire and used to monitor returns. We cross-referenced the names and addresses of each respondent with the identification number and recorded the date and applicable mailing (1, 2, or 3) when the completed questionnaires were received. We also recorded notes on the data sheets describing outcomes such as nondeliverables of the initial mailings.

We sent the first follow-up mailing three weeks after the first mailing, and the second replacement questionnaire six weeks after the first mailing. Each mailing contained a new copy of the questionnaire, a business reply envelope, and slightly different cover letter. Using a data table, we calculated response rates throughout phases of the mail survey process. We also produced codebooks for both the on-site interview and the mail-back questionnaire, which defined variables in terms of type, location, and description. The data were keyed into an Excel spreadsheet, which was inspected to ensure high accuracy of data entry. The Excel file was converted to a database suitable for analysis, and the data were analyzed using the Statistical Package for the Social Sciences (SPSS 2001).

Recruitment and Participation

Approximately 435 participants were contacted and asked to participate in the study. We decided to interview multiple individuals per group if they felt they could provide unique perspective. We also decided to present all data in this report on the basis of all participants sampled, with the exception of the visit characteristics section, where data are presented by visitor group. With only two exceptions, all who were asked to participate agreed. Table 2 shows visitor contacts by location over the three-month on-site survey period. Eighty percent of the participant on-site interviews were conducted on the Maine islands. Twenty percent were completed at nearby Old Quarry Campground, which is a popular public access point for visitors.

Eight of the 435 mailed surveys were returned because they were undeliverable; therefore, 427 respondents received the mail survey. A total of 361 completed questionnaires were returned, providing an overall response rate of 85%. Table 3 shows the number of on-site cards completed and the number who returned mail surveys and the percentage response rate by residence. Figure 1 shows the percentage of visitors by time of year who agreed to participate in the study and returned their questionnaires.

We compared the participants who returned the questionnaires with those who did not on several of the on-site interview questions to check for non-response bias. Respondents did not differ from non-respondents on whether they were day users or overnight campers ($\chi^2 = 0.013$, 1df, $P = 0.909$), first time or return visitors ($\chi^2 = 0.028$, 1df, $P = 0.866$), or visitors or individuals with other connections to the area ($\chi^2 = 0.326$, 1df, $P = 0.568$). There were also no significant differences between respondents
Table 2. Visitors who completed on-site interviews by sample location.

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Completed on-site survey cards</th>
<th>Distribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Quarry Campground</td>
<td>87</td>
<td>20</td>
</tr>
<tr>
<td>Green Island</td>
<td>62</td>
<td>14</td>
</tr>
<tr>
<td>Hell's Half Acre Island</td>
<td>60</td>
<td>14</td>
</tr>
<tr>
<td>Harbor Island</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>Steves Island</td>
<td>32</td>
<td>7</td>
</tr>
<tr>
<td>Russ Island</td>
<td>29</td>
<td>7</td>
</tr>
<tr>
<td>Wheat Island</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>Sheep Island</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Wreck Island</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Rock Island</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Buckle Island</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Saddleback Island</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>On the water</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Little Sheep Island</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Other islands</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>435</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3. Proportion of visitors who completed on-site cards and returned mail surveys by residence.

<table>
<thead>
<tr>
<th>Residence</th>
<th>Number of completed on-site surveys</th>
<th>Number of returned mail surveys</th>
<th>% of on-site cards returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maine</td>
<td>130</td>
<td>102</td>
<td>78</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>74</td>
<td>62</td>
<td>84</td>
</tr>
<tr>
<td>New York</td>
<td>47</td>
<td>35</td>
<td>74</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>22</td>
<td>17</td>
<td>77</td>
</tr>
<tr>
<td>Connecticut</td>
<td>21</td>
<td>19</td>
<td>90</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>17</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>Vermont</td>
<td>15</td>
<td>13</td>
<td>87</td>
</tr>
<tr>
<td>New Jersey</td>
<td>14</td>
<td>13</td>
<td>93</td>
</tr>
<tr>
<td>Virginia</td>
<td>11</td>
<td>11</td>
<td>100</td>
</tr>
<tr>
<td>Canada</td>
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<td>8</td>
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<td>40</td>
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<tr>
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</tr>
<tr>
<td>Total</td>
<td>435</td>
<td>363</td>
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</tr>
</tbody>
</table>
and non-respondents with respect to type of group $(\chi^2 = 9.553, 6\text{df}, P = 0.145)$. A significant difference was found in party size $(\chi^2 = 9.738, 3\text{df}, P = 0.021)$; however, the difference can be attributed to groups of two to five respondents (representing 47% of non-responders), where it is likely that several of the small parties that were asked to complete two mail-back surveys decided to return only one.

**OBSERVATIONS OF ISLAND USE**

We observed island use on-site from June 18 through September 3, 2006, and based observations on routine visits to the islands included in the survey (see Table 1), recording both visitor use and non-use (islands with no visitors). The MCHT regional steward supplemented the survey researcher's estimates by monitoring islands in different areas at the same time, by recording use during the researcher's days off-island, and by traveling with the survey researcher to increase efficiency on the water. We recorded only observed visitors on islands, not water traffic unless visitors were clearly going to land on an island or were just leaving an island.

We also noted visitation on islands that were not included in the survey, but we only recorded non-use, however, for those islands included in the survey (Table 1). Figure 2 shows that the most popular island for day use was Green Island, which has a freshwater quarry that is a popular swimming location for commercial outfitters and people from the area. Twenty-six percent of all recorded day-use groups were on Green Island, followed by 12% on Wreck Island, and 11% on both Russ Island and Hell's Half Acre Island. The greatest percentage of recorded overnight groups was on Hell's Half Acre Island, which had 22% of all observed camping groups. Steves Island received 19% of all recorded camping groups, and Harbor Island and Buckle Island were host to 11% and 9% of all camping groups, respectively. We observed little use on several of the monitored islands, including Sand, Millet, Bills, Nathan, Round, and Weir islands and no visitors on Burnt, Fog, and Doviler islands.

Figure 3 shows the number of islands monitored (for use and non-use) by weekday, and the number...
of times visitors were recorded for each day of the week. We made more observations on Saturdays compared with the other days of the week. There was also variation in the number of island visits we made throughout the rest of the weekdays, visiting islands less frequently on Mondays compared to the other days. For this reason, all further observations reported by weekday are presented based on the proportion of island visits where visitors were observed, rather than by number of observations. For example, out of the 199 visits on Sundays, we observed 52 groups. In other words, groups were observed during 26% of the 199 island visits on Sundays. This conversion controls for the heavy weight of observations on Saturdays and allows us to compare island use over the days of the week.

We observed visitor groups ranging in size from one to 40 individuals. The mean day-use group size was 7.28; however, the most common day-use group size was two. The most common overnight group size was also two, while the mean overnight group size was 4.54. The mean group sizes for hand-powered, sail, and motorboats were 3.75, 2.05, and 1.44, respectively. The most common hand-powered group size was two people, and single-person travel was most common for both sailboats and motorboats. Table 4 provides a breakdown of the number of visits we made to each island in the morning and afternoon, the number of visitors in the morning and afternoon on each island, and the number of visitor groups on each island in the morning and afternoon. The table shows that Green Island, Hell’s Half Acre Island, and Russ Island were the most visited islands, with 91, 90, and 86 visits, respectively. Buckle Island, Wreck Island, and Steves Island were also visited more than 70 times over the study period. These islands constitute what the Island Task Force considers to be the core of activity within the Stonington region. A total of 1,441 visits were made, and islands were visited considerably more in the afternoons and evenings (1,004 visits) compared to morning visits (437 visits). There was simply more time to visit islands in the afternoons and evenings (12 to 7 p.m.) than there was in the mornings (9 a.m. to 12 p.m.).

Green Island had the greatest number of visitors, with 506 recorded visitors, followed by Hell’s Half Acre Island, with 392 visitors. However, when considered as groups, 53 visitor groups were recorded on Hell’s Half Acre Island and only 44 were recorded on Green Island. The average group size on Green Island was 11.5, while the average group size on Hell’s Half Acre Island was 7.4. Green Island is available to the public for day use and attracts commercial groups. Hell’s Half Acre Island is a popular day use as well as camping destination located near Deer Isle, with a recommended capacity of 14 visitors on two campsites. Other popular islands included Steves, Harbor, Russ, and Wreck, which each had more than 100 recorded visitors, and Steves and Russ islands, which each had more than 30 recorded visitor groups.

Figure 4 shows the proportion of times visitors were observed over the total island visits for each day of the week. We split the observations further into day-use and overnight-use groups. We observed 193 groups of day users and 194 groups of island campers, finding the greatest percentage of day users on Wednesdays and Sundays, where visitor groups were observed during 19% and 18% of total island visits for those days, respectively. For overnight users, we observed the greatest percentage on Saturdays, Mondays, and Fridays, where island campers were recorded on 18%, 17%, and 16% of the total island visits for those days, respectively. The islands were least visited by day users on Fridays and Mondays, where groups were observed during 7% and 10% of island visits, respectively, and Thursdays and Sundays had the smallest percentage of campers, with groups observed during 6% and 9% of island visits, respectively.

Figure 5 shows the proportion of time we observed groups using the three major modes of travel
Table 4. Island visits, number of observed visitors, and visitor groups.

<table>
<thead>
<tr>
<th>Island</th>
<th>Island Visits</th>
<th>Total Visits</th>
<th>Visitors</th>
<th>Total Visitors</th>
<th>Groups</th>
<th>Total Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
</tr>
<tr>
<td>Little Sheep</td>
<td>19</td>
<td>25</td>
<td>44</td>
<td>6</td>
<td>28</td>
<td>34</td>
</tr>
<tr>
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<td>33</td>
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<td>90</td>
<td>136</td>
<td>256</td>
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<td>26</td>
<td>139</td>
<td>165</td>
</tr>
<tr>
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<td>18</td>
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<td>65</td>
<td>12</td>
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<td>36</td>
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<td>84</td>
<td>52</td>
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<td>1672</td>
<td>2268</td>
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<td></td>
<td>109</td>
<td>265</td>
<td>374</td>
<td></td>
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</tr>
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</table>

Figure 4. Proportion of island visits where day use and overnight groups were observed, N = 387.
we observed 272 groups of visitors traveling by hand-power (kayak, canoe), and observed them most frequently on Mondays (23% of island visits), Wednesdays (20%), and Saturdays (20%). We counted 39 groups of sailors using the islands, most frequently observed on Wednesdays and Thursdays (4% of all island visits). We saw 94 groups traveling by motorboat, most often on Wednesdays, Saturdays, and Sundays (9% of the visits on these three days).

The proportion of times visitors were observed over the total number of island visits also varied depending on the weather. The greatest percentage of groups observed per visits (30%) was between August 1 and 15, where the weather conditions were conducive for ocean travel through all 12 days of observations. Between August 16 and 31, however, the weather conditions were fair for six observation days and the conditions were windy, rainy, or foggy for the other six days of observations. During this period, we observed visitor groups on an average of 30% of the island visits on fair weather days and 12% of the island visits on inclement weather days.

RESULTS

As questionnaires were returned, we coded them and entered information from them into the statistical software. We calculated frequency distributions and cross-tabulations for the data and categorized and summarized responses to open-ended questions. We have organized this section of the report using three broad categories: (1) visitor characteristics; (2) visitor experiences; and (3) visitor preferences for and satisfaction with resource and social conditions.

Visitor Characteristics

We analyzed several visitor use characteristics, including group size and type, mode of travel, access points to the water, decisions on access locations, length of stay, several socio-demographic variables, previous experience, connection to the Stonington region, and attachment to place.

Figure 6 shows visitor group sizes, which ranged from one to 50 people. The mean, median, and mode for group size were 5, 3, and 2, respectively. Groups of two people represented 32% of all survey participants, only seven participants traveled alone, and 37% of all participants groups included three to six people. Twenty-seven percent of the groups included at least one child under the age of 16 (Figure 7). The number of children under 16 ranged from one to 18 youths. Of these groups with children, 11% had one child, 11% had two to five children, and 5% had six
or more. Fifty percent of all visitor groups were made up of family or family plus friends (Figure 8), 23% were groups of friends and acquaintances, 15% were guided groups, and 7% were lead by an organization (e.g., scouts or another club).

We asked visitors if they camped on the Stonington region islands, and if so, how many nights. From their responses, we learned that 48% camped overnight, while 52% were day-use groups (Figure 9). Those who stayed overnight camped an average of approximately three nights. The highest proportion of visitors, however, camped for two nights. Figure 10 shows that 33% of study participants camped for two nights, 23% camped for one night, 18% stayed for three nights, 15% for four nights, and 11% camped for five or more nights.

The survey asked participants to list the islands they camped on (Table 5) and the islands they visited for day use (Table 6). This question was only asked to participants who camped overnight in the Stonington region. The survey provided five spaces for listing islands used for camping and five spaces for listing other islands visited during the trip. The 111 participants who camped stayed on 161 islands and visited 106 islands as day-use destinations. Only 32% of the participants who stayed overnight listed the other islands they visited during their trip. Hell’s Half Acre, Steves, Harbor, and Sheep islands were the most popular islands for camping, while Green, Steves, Wreck, and Hell’s Half Acre islands were the most visited during the day.

The survey also asked all participants what type(s) of islands they visited (Figure 11). Of the three types of islands, public, private, non-profit, public islands were the most popular, visited by 75% of participant groups. Forty-three percent of the groups visited privately owned islands, and 43% visited islands owned by non-profit organizations. Twenty-three percent reported visiting all types of islands, and 20% did not know the ownership type of the islands they visited.

Figure 12 shows the different modes of travel used by groups while traveling between the islands. The majority (78%) of the participant groups traveled by kayak. Seventeen percent traveled by motorboat, 16% by sailboat, and 2% by canoe. The sum of percentages recorded in Figure 12 do not equal 100 because participants indicated more than one mode of travel. However, most visitors to the Stonington area traveled by a single mode; only 13% of the recorded boat types were second or third selections.

We asked the participants four questions to better understand their travel decisions. First, we asked what point of access to the

![Figure 7. Groups with youth under 16, N = 229.](image)

![Figure 8. Visitor group types, N = 231.](image)
Figure 9. Overnight stay on the Stonington region islands, N=230.

Figure 10. Number of nights camped on Stonington region islands, N = 109.

Table 5. Islands camped on by survey participants, N = 161.

<table>
<thead>
<tr>
<th>Island Type</th>
<th>Island</th>
<th>Times Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Hell’s Half Acre</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Steves</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Harbor</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
<td>16</td>
</tr>
<tr>
<td>Private</td>
<td>Sheep</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Rock</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Kimball</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Buckle</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Burnt</td>
<td>1</td>
</tr>
<tr>
<td>Non-Profit</td>
<td>Russ</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Saddleback</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Round</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Wreck</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 6. Islands visited for day use by survey participants, N = 106.

<table>
<thead>
<tr>
<th>Island Type</th>
<th>Island</th>
<th>Times Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Steves</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Hell’s Half Acre</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Little Sheep</td>
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</tr>
<tr>
<td></td>
<td>Harbor</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
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</tr>
<tr>
<td></td>
<td>Dolliver</td>
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</tr>
<tr>
<td>Private</td>
<td>Sheep</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Kimball</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Burnt</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Buckle</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Rock</td>
<td>1</td>
</tr>
<tr>
<td>Non-Profit</td>
<td>Green</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Wreck</td>
<td>12</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Bills</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nathan</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Saddleback</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 11. Type of island visited, N=230.
Most groups accessed the shore via Old Quarry Campground (58%), located in Webb Cove, a few miles east of the town of Stonington. Thirteen percent of participants traveled through from another region, and 16% launched at the Stonington boat ramp. Second, we asked participants why they chose their water route. Table 7 shows that seeking specific islands (38%), having been there before (36%), and visiting a new area (32%) were the most popular reasons for participant group selection of their route. Twenty-four percent of participants selected other reasons for choosing their route, and Figure 14 presents a breakdown of the other reasons. Being part of a guided group, or other group travel where the leader decided the route, was the most common other reason given (46%). Third, we asked respondents how they originally learned about or decided to come to the Stonington area. Figure 15 shows that 63% of the participants came to the area based on a recommendation, and 27% did their own research. Ten percent of the respondents learned about the Stonington area through “other” sources, and many of these participants described themselves as locals or people who have been visiting the Stonington islands for many years. Of the participants who came because of recommendations, 71% listened to family or friends, 27% were part of a guided tour/instructed group, and approximately 2% used the MITA guidebook to learn about the area. Fourth, the survey asked participants to check, out of a list, the sources of information they used to learn about the Stonington area. Table 8 outlines sources used, showing that most participants used more than one source, and that previous experience in the area was the most cited source (51%), followed by NOAA charts (42%), word of mouth (34%), and the Internet/Web sites (30%). Seventeen percent of the groups used other sources including topographical maps, advice from locals or friends, magazines, cruising guides, and various books.

**Background Information**

We collected and analyzed additional general information about study participants, including age, gender, and education. Figure 16 shows the age of participants, which ranged from 24 to 91 years. The mean, median, and mode for participant age were 49, 50, and 55, respectively. The greatest proportion of participants were between the ages of 46
Table 7. Reasons for selecting water route, N = 231.

<table>
<thead>
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<th>Reason</th>
<th>Number of Respondents</th>
<th>% of total respondents</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
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<td>Seeking specific islands</td>
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<td>1</td>
</tr>
<tr>
<td>Been there before</td>
<td>83</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>A new area, variety</td>
<td>74</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>Weather conditions</td>
<td>49</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>Might be less crowded</td>
<td>42</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Advice from steward</td>
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<td>7</td>
<td>7</td>
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<tr>
<td>Other</td>
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<td>24</td>
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</tbody>
</table>

Percentages do not equal 100 because participants could choose more than one reason.

Figure 14. Other reasons for route selection, N = 54.

Figure 15. How participants originally learned about the Stonington islands, N = 360.
Table 8. Sources of information used, N = 232.

<table>
<thead>
<tr>
<th>Information Source</th>
<th>Number of respondents</th>
<th>% of total groups</th>
<th>Rank</th>
</tr>
</thead>
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<td>Been there before</td>
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<td>51</td>
<td>1</td>
</tr>
<tr>
<td>NOAA charts</td>
<td>98</td>
<td>42</td>
<td>2</td>
</tr>
<tr>
<td>MITA membership handbook</td>
<td>96</td>
<td>41</td>
<td>3</td>
</tr>
<tr>
<td>Word of mouth</td>
<td>79</td>
<td>34</td>
<td>4</td>
</tr>
<tr>
<td>Internet / website</td>
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<td>30</td>
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<td>Guidebooks</td>
<td>60</td>
<td>26</td>
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<td>DeLorme Gazetteeer</td>
<td>46</td>
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</table>

Percentages do not equal 100 because visitors could choose more than one source.

Figure 16. Participant age (years), N = 354.

and 55, followed by between the ages of 56 and 65. Only 19% of the study participants were 35 years old or younger. Participants were fairly balanced in gender (Figure 17), where 51% of participants were male and 49% were female. For level of education, results showed that 84% of participants held either bachelor or graduate degrees (Figure 18).

The survey also asked participants if they grew up in a rural, suburban, or urban area (Figure 19) and in what type of area they currently reside (Figure 20). Their responses indicate that 30% of participants grew up in rural areas, 53% grew up in suburban areas, and 17% grew up in urban areas. Currently, 36%, 44%, and 20% live in rural, suburban, and urban areas, respectively.

Visitors to the Stonington region came from 35 states, Canada, and the United Kingdom. The largest percentage of visitors were from Maine (28%), followed by Massachusetts (17%), New York (9%), Connecticut (5%), New Hampshire (5%), Pennsylvania (5%), New Jersey (4%), and Vermont (3%). International participants constituted 3% of all visitors, and eight respondents were Canadian and one was from the U.K. Of the more distant states, 3% of participants were from Virginia, 2% from Ohio, and 2% from Florida. Individuals from 24 other states represented 14% of the study participants (Table 9).
We also asked participants about their relationship to the Stonington region (Figure 21), whether their work was dependent on the resource (Figure 22), and whether they are members of the Maine Island Trail Association (Figure 23). Most participants were visitors to the Stonington region (87%), 6% of participants were summer residents, 3% were year-round residents, and 3% either lived within an hour of Stonington, owned property in Stonington but do not stay there year-round or for the summer, guided for a commercial outfitter out of Stonington, or were visiting family in Stonington. Most respondents did not hold employment that was dependent on the resource (94%). Thirty-three percent of respondents were members of the MITA, and an additional 6% had been members in the past. Past memberships ranged between 1997 and 2005. Considering that 39% of respondents were current or past MITA members in combination with the finding that 41% of visitors use the MITA handbook as a source of travel information on the water, both current and past MITA members use their handbooks as a key source of information for trip planning.
Figure 19. Types of areas where participants grew up, N = 359.

Figure 20. Types of areas where participants currently reside, N = 358.
Table 9. Year-round residence of participants, N = 351.

<table>
<thead>
<tr>
<th>Residence</th>
<th>Number of participants</th>
<th>% of total participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maine</td>
<td>98</td>
<td>28</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>59</td>
<td>17</td>
</tr>
<tr>
<td>New York</td>
<td>33</td>
<td>9</td>
</tr>
<tr>
<td>Connecticut</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>New Jersey</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Vermont</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Virginia</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Ohio</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Florida</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Other states</td>
<td>50</td>
<td>14</td>
</tr>
<tr>
<td>International</td>
<td>9</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 21. Relationship to the Stonington region, N = 359.

Visitor Experiences

One of the main objectives stated in the *Recreation Management Plan for the Public Islands on the Maine Island Trail, 2004–2014* is to provide the setting for high-quality coastal island recreational experiences. High-quality experiences are defined by seven characteristics:

1. The sense of relatively wild, undeveloped character of the islands;
2. The interrelationship between the sights, sounds, and natural elements of the ocean, wind, fog, salt, air, and tides;
3. The powerful sense of solitude, as well as the opportunity for reflection and self-discovery;
4. The sense of adventure and exploration evoked on coastal expeditions;
5. The personal challenge of self-sufficiency in terms of both boating and camping skills;
6. The presence of minimal structures and educational signs; and
7. The exposure to fish, birds, mammals, wildlife habitat, in-shore and ocean-going vessels, scenic lighthouses, and navigational buoys.
Figure 22. Percentage of participants whose work is dependent on the resource, $N = 358$.

Figure 23. Maine Island Trail Association membership, $N=359$. 
To evaluate visitor experiences in terms of these objectives, we asked participants to rate the importance of 17 reasons for their visit to the Stonington region islands by selecting the level of importance on a five-point Likert scale. Table 10 shows the frequencies and percentages allocated to each degree of importance for the 17 characteristics. The most important characteristics, or those that obtained important or very important ratings by more than 90% of study participants, are scenic quality, nature/wildlife appreciation, distinctive coastline, and exploration. Between 80% and 90% of the respondents rated six characteristics as important or very important: solitude; remoteness; alternative to daily routine; ocean travel; adventure/excitement; and exercise and health. The characteristics that received the fewest ratings as important or very important (below 50%) are the working waterfront/commercial fishery, schooners/sailboats, meet new people, fishing/clam digging/mussel picking, and picnic outings.

The survey also asked participants to select, out of the 17 characteristics, the three most important considerations in their decision to visit the islands. Figure 24 represents the number of respondents who rated each characteristic among the top three considerations and shows that scenic quality was clearly the most important consideration in decisions to visit the Stonington region islands (rated by 69% of respondents within the top three). More than 25% of respondents rated adventure/excitement, being with family and/or friends, the distinctive coastline, and nature/wildlife appreciation within the three most important considerations. The survey also asked participants to indicate additional important characteristics to the Stonington region islands, and Table 11 summarizes the ones that were mentioned and the number of times it appeared. Participants most commonly mentioned the opportunity for kayaking and camping as important in their decisions to visit the islands.

To assess the experience of camping on the Stonington region islands, we asked participants who camped overnight about the number of groups camped within clear sight or earshot of their campsites and about how much those other campers interfered with their island recreational experiences. The survey asked how many groups were camped within clear sight or earshot on an average night. Responses ranged from zero to three. Figure 25a shows that 64% of respondent groups reported no other groups and 30% reported one other group camped within sight or sound on an average night. Figure 25b shows the number of other groups camped within clear sight or earshot on the most-busy night, excluding participant groups who responded zero. Here, 80% of respondent groups reported one other group nearby on the most-busy night, and 18% reported having two other groups within sight or sound on the most-busy night. Two percent of the

Table 10. Reasons for visiting the Stonington region islands.

<table>
<thead>
<tr>
<th></th>
<th>Very Unimportant</th>
<th>Unimportant</th>
<th>Neither</th>
<th>Important</th>
<th>Very Important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenic quality</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>81</td>
<td>360</td>
</tr>
<tr>
<td>Nature / wildlife appreciation</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>31</td>
<td>65</td>
<td>360</td>
</tr>
<tr>
<td>Distinctive coastline</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>28</td>
<td>68</td>
<td>360</td>
</tr>
<tr>
<td>Solitude</td>
<td>1</td>
<td>3</td>
<td>11</td>
<td>39</td>
<td>46</td>
<td>360</td>
</tr>
<tr>
<td>Remoteness</td>
<td>1</td>
<td>3</td>
<td>13</td>
<td>42</td>
<td>42</td>
<td>357</td>
</tr>
<tr>
<td>Exploration</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>39</td>
<td>51</td>
<td>360</td>
</tr>
<tr>
<td>Alternative to daily routine</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>35</td>
<td>51</td>
<td>356</td>
</tr>
<tr>
<td>Ocean travel</td>
<td>1</td>
<td>2</td>
<td>12</td>
<td>36</td>
<td>48</td>
<td>353</td>
</tr>
<tr>
<td>Adventure / excitement</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>39</td>
<td>50</td>
<td>358</td>
</tr>
<tr>
<td>Exercise and health</td>
<td>1</td>
<td>4</td>
<td>15</td>
<td>43</td>
<td>37</td>
<td>359</td>
</tr>
<tr>
<td>Skill development</td>
<td>2</td>
<td>12</td>
<td>25</td>
<td>40</td>
<td>22</td>
<td>357</td>
</tr>
<tr>
<td>Commercial fishery</td>
<td>8</td>
<td>23</td>
<td>35</td>
<td>26</td>
<td>8</td>
<td>359</td>
</tr>
<tr>
<td>Schooners / sailboats</td>
<td>10</td>
<td>20</td>
<td>34</td>
<td>24</td>
<td>13</td>
<td>358</td>
</tr>
<tr>
<td>Be with family / friends</td>
<td>3</td>
<td>7</td>
<td>13</td>
<td>31</td>
<td>46</td>
<td>358</td>
</tr>
<tr>
<td>Meet new people</td>
<td>12</td>
<td>18</td>
<td>40</td>
<td>24</td>
<td>7</td>
<td>360</td>
</tr>
<tr>
<td>Fishing / clam digging</td>
<td>19</td>
<td>27</td>
<td>34</td>
<td>18</td>
<td>3</td>
<td>357</td>
</tr>
<tr>
<td>Picnic outing</td>
<td>11</td>
<td>18</td>
<td>28</td>
<td>31</td>
<td>13</td>
<td>354</td>
</tr>
</tbody>
</table>
participants reported having three other groups camped within sight or earshot of their campsite on the busiest night.

We also asked participants who camped overnight to what degree the number of people they could see or hear interfered with their recreation experience. Figure 26 shows that, excluding participants who recorded no groups within sight or sound, 60% of respondents felt other groups did not interfere with their experiences. Twenty-eight percent reported other groups interfered somewhat, 7% reported that other groups interfered, and 4% felt other groups interfered significantly in their camping experiences on the islands. It was only possible to isolate one island-specific occasion, on George’s Head Island (a private island that was not part of this study), where participants’ experiences were interfered with or significantly interfered with by other groups. The other 11 participants who reported having other groups interfere or significantly interfere with their experiences either failed to note which island they camped on, or camped multiple nights, making the direct association impossible.

We asked campers if they took the first available campsite where they intended to stop each night, and 73% responded that they did take the first available site (Figure 27). Of the 27% who did not take their intended site, 64% did not take the first available site for only one night of their trip, 19% did not take their intended site for two nights, and 12% did not take their intended site for three nights (Figure 28). Table 12 lists the reasons why participants did not take their intended site or the first available campsite. Nineteen respondents out of the 47 who provided explanations did not take their intended site or the first available site because they chose to scout around to see what other options existed. Thirteen did not stay at their intended site because the site was already occupied. Encouragingly, only two respondents mentioned campsite size as a reason for not taking a site (in both cases they were looking for a larger site), and only two mentioned access to the campsite as a reason for not choosing the intended site. Also, very few participants (three) mentioned the condition of the campsite as their reason for not staying, and six participants wrote that the presence other people nearby caused them to continue on to another site. The survey also asked participants whether they had difficulty finding an alternative campsite if the site they had planned to use was occupied. Figure 29 shows that 79% of participants did not encounter this situation, and of the 21 individuals who did, 19 reported having no difficulty finding an alternative site.

<table>
<thead>
<tr>
<th>Table 11. Other important characteristics in participant decisions to visit, N=71.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Characteristics</td>
</tr>
<tr>
<td>Opportunity for kayaking</td>
</tr>
<tr>
<td>Experience of camping</td>
</tr>
<tr>
<td>Opportunity for sailing</td>
</tr>
<tr>
<td>Accessibility</td>
</tr>
<tr>
<td>Place-based education</td>
</tr>
<tr>
<td>Spiritual connection</td>
</tr>
<tr>
<td>Work</td>
</tr>
<tr>
<td>Photography</td>
</tr>
<tr>
<td>Seafood</td>
</tr>
<tr>
<td>New place</td>
</tr>
<tr>
<td>Artistic inspiration</td>
</tr>
<tr>
<td>Coastal culture</td>
</tr>
<tr>
<td>Local history and lore</td>
</tr>
<tr>
<td>Stonington attractions (local businesses)</td>
</tr>
<tr>
<td>Personal challenge</td>
</tr>
<tr>
<td>Vacation home</td>
</tr>
<tr>
<td>Part of larger trip</td>
</tr>
<tr>
<td>Island preservation</td>
</tr>
<tr>
<td>Recreational options</td>
</tr>
<tr>
<td>Island clean-ups</td>
</tr>
<tr>
<td>Swim in quarry</td>
</tr>
<tr>
<td>Close to home</td>
</tr>
<tr>
<td>Tradition of visitation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 12. Reasons for not taking first available campsite, N = 47.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reason</td>
</tr>
<tr>
<td>Chose to explore campsite options first</td>
</tr>
<tr>
<td>Campsite already occupied</td>
</tr>
<tr>
<td>Others nearby</td>
</tr>
<tr>
<td>Condition of campsite</td>
</tr>
<tr>
<td>Size of campsite</td>
</tr>
<tr>
<td>Access to campsite</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>
Figure 24. Most important considerations in decision to visit, $N=334$.

Figure 25a. Number of groups within sight or sound on an average night, $N=109$ groups.

Figure 25b. Number of groups within sight or sound on the most busy night, $N=50$ groups.
Figure 26. The degree to which other people interfered with camping experiences, \( N = 86 \).

Figure 27. The proportion of participants who took the first available campsite, \( N = 192 \).
Figure 28. Number of nights participants did not take first available campsite, $N = 42$.

Figure 29. The proportion of participants who had difficulty finding an alternative site if the site where they intended to camp was occupied, $N=187$. 
In the survey we asked about participants’ previous coastal recreation experiences. Sixty-one percent of participants had previously visited the Stonington region for recreation, 73% had previous coastal recreation experience at locations other than the Stonington region, and 84% of study respondents had either previous experience in Stonington or at other coastal areas. To obtain a measure of local experience, we asked participants how many years they have been visiting the Stonington islands (Figure 30), how many times they visited the Stonington islands last year (Figure 31), and whether they visit most years (Figure 32). Although responses ranged from zero to 60 years, the average number of years that participants had been visiting the Stonington islands was 12.4. The greatest proportion of participants, however, had been visiting for two years. The average times visited last year was 2.4, the greatest proportion of participants reported visiting once last year, and responses ranged from zero to 50 visits. Seventy percent of participants visited the Stonington region islands most years. We excluded first-time visitors to the Stonington region islands from these three calculations.

To obtain general coastal travel experience, we asked participants how many years they had been visiting coastal islands outside of the Stonington region (Figure 33) and how many times they visited other coastal islands last year (Figure 34). Not including participants who had not visited other islands (n = 102), the number of years visiting other coastal islands ranged from one to 70, the mean number of years was 15.19, and the greatest proportion of participants had been visiting other coastal islands for 10 years. Also without including participants who did not report having visited other islands, the number of visits to other coastal islands last year ranged from zero to 25, the mean number of visits was 3.38, and the greatest proportion of participants visited other coastal areas zero times last year.

For the participants who had previously visited the Stonington region, there were also questions about which other coastal island regions in Maine and outside of Maine they had visited. Figure 35 shows the percentage of participants who have visited other regions along the Maine coast and areas outside of Maine. Participants had most commonly visited the Mount Desert Island area (76%), followed by the Penobscot area/west (66%), and Casco Bay (54%). The region east of Schoodic was less commonly

Figure 30. Number of years visiting the Stonington region islands, N = 211.

Figure 31. Number of visits to the Stonington region islands last year, N = 217.
Figure 32. Percentage of participants who visit the Stonington region islands most years, N = 202.

Figure 33. Number of years since first visit to any other coastal islands, N = 259.
Figure 34. Number of visits to any other coastal islands last year, N = 215.

Figure 35. Other coastal regions in Maine and outside of Maine visited, N = 245.

Figure 36. Number of other regions in Maine and Outside of Maine visited, N = 245.

visited (36%). Forty-five percent of participants visited coastal island regions outside of Maine. Figure 36 shows that the greatest percentage (22%) of participants who had previously visited the Stonington region had also visited three of the regions listed in Figure 35. Only 5% of visitors who had previously visited Stonington had not visited any other regions, and 11% had visited all six of the other regions listed.

The survey contained a set of questions about place meanings. To understand how strongly visitors feel attached to the Stonington region landscape, we asked four questions about how they identify with the region and four questions about the degree to which their experiences depend on the Stonington region islands. Table 13 shows how participants rated the place identity and place dependence questions on a five-point Likert-type scale, ranging from strongly disagree to strongly agree with the option to select “don’t know.” The place identity question most strongly agreed with, this place means a lot to me, received the greatest percentage (92%) of agree/strongly agree responses. The other three identity questions were rated agree/strongly agree by between 60% and 70% of the respondents. Three of the four place dependence questions were rated agree/strongly agree by less than half of the respondents, and one, the time I spent here could have just as easily been spent someplace else, was rated strongly disagree/disagree (this question was reverse coded) by 74% of the study participants.
The visitor education program, as outlined in *The Recreation Management Plan for the Public Islands on the Maine Island Trail, 2004–2014*, highlights both the challenges associated with visitor education on Maine’s public islands and ongoing and future initiatives for improving visitor education with respect to Leave No Trace techniques. The major challenge, of course, is that there is no central access point to the islands or registration system that would facilitate information dissemination. In addition to the educational signs posted on the public islands, the management plan describes six priorities for educating visitors that range from developing new educational and outreach materials to effectively distributing the material, setting up a visitor education task force, and a host of other new programs to adopt.

To evaluate the awareness, attitudes, and behavior of study respondents regarding Leave No Trace practices, we asked participants several questions about their knowledge and opinions about Leave No Trace recommendations and their choice of related behaviors while visiting the islands. The survey asked participants if they were familiar with Leave No Trace techniques. Figure 37 shows that the vast majority of visitors (92%) reported awareness of Leave No Trace techniques. We then asked participants how important they believe it is to follow Leave No Trace recommendations, and Figure 38 shows that 99% felt the recommendations are either very important or important. To better understand participant behavior related to Leave No Trace, we asked participants whether they remove litter/trash when they notice it on the islands (Figure 39), how they disposed of human waste (Figure 40), and how they disposed of leftover food (Figure 41). Eighty-five percent of participants always or often remove litter/trash when they noticed it. Furthermore, not considering those who reported disposal of human waste and leftover food did not apply, 80% of respondents reported carrying out human waste, and 89% reported carrying out leftover food.

The survey also included questions about whether participants built a wood fire and/or used a camp stove (Figure 42). Of the participants who responded positively to these questions, 14% built a fire, 67% used a camp stove, and 19% used both. We compared day users and overnighters in their use of camp stoves and wood fires to check for unexpected patterns of behavior. Interestingly, day users were more likely to build wood fires, with 17% of the day users and only 4% of overnight users building wood fires. We also compared wood fire use and types of group and wood fire use and mode of travel to look for further explanation of which day users tend to build fires. The comparisons highlighted the high percentage of guided groups who use camp stoves (70% of participants in guided groups), but no other notable patterns between type of group and use of wood fires/camp stoves. When we compared modes of travel and use of wood fires/camp stoves, we found

### Table 13. Rating of place attachment, N = 357.

<table>
<thead>
<tr>
<th>Place Attachment Questions</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place Identity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This place means a lot to me</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>32</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>I feel like this place is a part of me</td>
<td>1</td>
<td>15</td>
<td>24</td>
<td>31</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>I am very attached to this place</td>
<td>2</td>
<td>8</td>
<td>21</td>
<td>39</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>I identify strongly with this place</td>
<td>2</td>
<td>5</td>
<td>24</td>
<td>37</td>
<td>31</td>
<td>1</td>
</tr>
<tr>
<td>Place Dependence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I wouldn’t substitute any other area for doing the type of things I did here</td>
<td>2</td>
<td>25</td>
<td>27</td>
<td>22</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>I get more satisfaction out of visiting this place than any other recreation place</td>
<td>2</td>
<td>24</td>
<td>37</td>
<td>21</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>This area is the best place for what I like to do</td>
<td>2</td>
<td>10</td>
<td>36</td>
<td>27</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>The time I spent here could have just as easily been spent somewhere else</td>
<td>29</td>
<td>45</td>
<td>10</td>
<td>14</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
Figure 37. Awareness of Leave No Trace techniques, $N = 354$.

Figure 38. Importance of Leave No Trace recommendations, $N = 320$. 
Figure 39. Participant removal of litter/trash noticed on islands, N = 350.

Figure 40. Mode of disposal of human waste, N = 345.
Figure 41. Mode of disposal of leftover food, N = 349.

Figure 42. Use of wood fires and camp stoves, N = 349.
that 41% of sailors built wood fires, and considering 85% of sailors were day users, it is likely that the greater use of wood fires by day users is attributable to sailors.

The survey also questioned whether visitors signed logbooks when visiting the islands (Figure 43). Forty-nine percent of the participants signed the island logbooks, 39% did not sign the books, and 12% did not see, or visited islands that did not contain, logbooks. In an interesting comparison between MITA members and non-MITA members, we found that 67% of MITA members signed logbooks and 40% of non-MITA members signed the log books.

**Visitor Preferences for and Satisfaction with Resource Conditions**

To understand what conditions influence visitors' experiences, we asked participants how much a series of eight island conditions mattered to them. Respondents rated each condition on a five-point Likert-type scale, ranging from not at all to extremely. Table 14 shows the percentage ratings participants, separated into day-user and overnight-user groups, attributed to each condition. Overall, the conditions that most influenced the quality of visitors' experiences, or those that were rated as very much or extremely influential by at least 90% of respondents, were the amount of litter/trash around a campsite and the amount of litter/trash along a shoreline. Four conditions were rated very much influential or extremely influential by less than 50% of the study participants: the availability of flat campsites; the availability of single party islands; having the choice of several different places to pitch a tent; and having small campsites with only one or two places to pitch a tent.

Comparing day users and overnight users to identify whether conditions are particularly important for either groups, we found significant differences between day users and overnight users for several conditions, including the amount of vegetation loss and bare ground around a campsite ($\chi^2 = 16.05, 4$)

**Table 14. The degree to which island conditions influence visitor experiences.**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very much</th>
<th>Extremely</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of vegetation loss*</td>
<td>14</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>27</td>
<td>35</td>
</tr>
<tr>
<td>Availability of flat campsites*</td>
<td>32</td>
<td>2</td>
<td>15</td>
<td>14</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>Number of damaged trees</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Amount of litter around campsite</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Amount of litter along shoreline</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Availability of single party islands*</td>
<td>24</td>
<td>5</td>
<td>15</td>
<td>13</td>
<td>23</td>
<td>38</td>
</tr>
<tr>
<td>Having choice of sites to pitch tent*</td>
<td>32</td>
<td>7</td>
<td>11</td>
<td>17</td>
<td>31</td>
<td>45</td>
</tr>
<tr>
<td>Availability of small campsites*</td>
<td>31</td>
<td>13</td>
<td>13</td>
<td>21</td>
<td>30</td>
<td>35</td>
</tr>
</tbody>
</table>

Bold items represent responses of day users, italics items represent responses of overnight users. * signifies responses of day users are significantly different (P < 0.05) from those of overnight users.
Table 15. Other important conditions that influence visitor experiences, N = 73.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number of times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access/landing sites</td>
<td>13</td>
</tr>
<tr>
<td>Leave No Trace training of other visitors</td>
<td>8</td>
</tr>
<tr>
<td>Level of noise</td>
<td>6</td>
</tr>
<tr>
<td>Respectfulness of other visitors</td>
<td>5</td>
</tr>
<tr>
<td>Evidence of other visitors</td>
<td>4</td>
</tr>
<tr>
<td>Proximity to populated areas</td>
<td>3</td>
</tr>
<tr>
<td>Place for groups (10–15 people)</td>
<td>3</td>
</tr>
<tr>
<td>Number of people on small islands</td>
<td>3</td>
</tr>
<tr>
<td>Mosquitoes</td>
<td>3</td>
</tr>
<tr>
<td>Campsites with ocean views</td>
<td>2</td>
</tr>
<tr>
<td>Size of other groups</td>
<td>2</td>
</tr>
<tr>
<td>Wildlife</td>
<td>2</td>
</tr>
<tr>
<td>Trails on islands</td>
<td>2</td>
</tr>
<tr>
<td>Campsites with beaches</td>
<td>2</td>
</tr>
</tbody>
</table>

To better understand support for possible management actions, we asked study participants for their opinions concerning a series of management strategies that could be used on the Stonington region islands. Table 16 shows how participants rated each of the management actions on a five-point Likert-type scale, ranging from very much in favor to very much opposed. The only management action for which more than 80% of respondents chose somewhat or very much in favor of was maintaining existing trails on the islands. Between 70% and 80% of the participants indicated some degree of support for three other management actions: posting signs outlining Leave No Trace recommendations; restricting use areas to manage impact and protect the islands; and providing the presence of a roving steward for the Stonington area. Less than
half of the study respondents supported providing

tent platforms on the islands, posting interpr
tive/educational signs on islands, and dismantling

 visitor modifications on the islands (benches, rock
 sculptures, etc.). We also asked participants to list

 other management actions they would like to see

 implemented on the islands (Table 17). Fifty-one

 respondents listed alternative management actions,

 for a total of 27 different actions. Provision of public

 education about island access and recommended use

 was the most popular suggestion (mentioned by 10

 individuals). Re-designing and posting signs more

 discretely (mentioned by five individuals) and en-

 forcing rules against damaging behavior with signs

 (mentioned by four individuals) were other common

 suggestions. Several suggestions were mentioned

 by only one individual, ranging from displacing

 visitors when necessary to providing information at

 put-ins, designating cooking areas, re-naming some

 islands, cleaning islands and campsites, providing

 tables and tarp supports, providing moorings, focus-

 ing management on commercial outfitters, placing

 sheep on islands, providing greater Maine Island
 Trail Association presence, and constructing more

 rock stairs from beaches to campsites/trails.

 To assess overall satisfaction with the recreation

 experience on coastal islands in the Stonington re-

 gion, the survey asked participants how valuable

 experiences like the Maine coast islands are to them

 personally (Figure 44) and also to rate their trip to

 the Stonington region islands (Figure 45). Ninety-

 seven percent of the participants rated experiences

 like the Maine coast islands as extremely valuable

 or very valuable. Ninety percent of the participants

 rated their trip A, very good, and 9% rated it B, good.

 We also asked what it was about their trip that

 made them rate the experience in this

 way, and respondents listed several

 qualities that contributed to overall

 positive evaluations. Table 18 shows

 the key qualities that contributed to

 overall positive evaluations. The most

 frequently mentioned qualities related

 to the scenic beauty of the Stonington

 region islands, being with friends and

 family, the weather, peace and quiet,

 and activity/adventure.

 MANAGEMENT

 IMPLICATIONS

 The Maine Island Trail Association,

 the Department of Conservation, local

 island managers, and local businesses

 should be encouraged by how highly the

 study participants rated their experi-

 ence, where 99% of visitors rated their

 trip to the Stonington region islands

 as very good or good. The responses

 to the survey show that visitors to

 the area share the management plan

 emphasis on high-quality experiences

 that involve enjoyment of the scenic

 quality, distinctive coastline, nature

 and wildlife appreciation, solitude,

 adventure and excitement, and explo-

 ration. These results also demonstrate

 support for the importance of stew-

 ardship in protecting the islands, as

 97% of study participants rated their

 experiences on the Maine coast islands

 as extremely valuable or very valuable.

 Table 17. Suggested island management actions, N = 51.

<table>
<thead>
<tr>
<th>Management action</th>
<th>Number of times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public education</td>
<td>10</td>
</tr>
<tr>
<td>Signs that are more discrete</td>
<td>5</td>
</tr>
<tr>
<td>Fines for damaging behavior</td>
<td>4</td>
</tr>
<tr>
<td>Require site log-ins</td>
<td>3</td>
</tr>
<tr>
<td>Build outhouses</td>
<td>3</td>
</tr>
<tr>
<td>Re-evaluate maximum capacity guidelines</td>
<td>2</td>
</tr>
<tr>
<td>Allow reservations</td>
<td>2</td>
</tr>
<tr>
<td>Signs at landing locations</td>
<td>2</td>
</tr>
<tr>
<td>Encourage visitors to collect litter/trash from islands</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 18. Key qualities that contributed to a positive evaluation, N = 359.

<table>
<thead>
<tr>
<th>Key qualities</th>
<th>Number of times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenic beauty</td>
<td>164</td>
</tr>
<tr>
<td>Friends/family</td>
<td>84</td>
</tr>
<tr>
<td>Weather</td>
<td>80</td>
</tr>
<tr>
<td>Peace and quiet</td>
<td>73</td>
</tr>
<tr>
<td>Activity/adventure</td>
<td>57</td>
</tr>
<tr>
<td>Geographical layout</td>
<td>48</td>
</tr>
<tr>
<td>People met on trip</td>
<td>36</td>
</tr>
<tr>
<td>Wildlife/nature</td>
<td>36</td>
</tr>
<tr>
<td>Less crowded than other places</td>
<td>30</td>
</tr>
<tr>
<td>Opportunity to camp on/visit islands</td>
<td>28</td>
</tr>
<tr>
<td>Clean islands</td>
<td>24</td>
</tr>
<tr>
<td>Other reasons</td>
<td>44</td>
</tr>
</tbody>
</table>
These islands are clearly important to protect for Maine residents and for the many people who visit them from out of state.

This report can be used for studying current visitation to the Maine islands, for planning educational programs, for selecting indicators for limits of acceptable change applications, and for establishing management objectives. Since recreation visitors come with a variety of desired experiences and preferences for social and resource conditions, it is important to select the right indicators of quality experiences and standards.

As this study shows, visitors to the Stonington region islands come with a diversity of interests and preferences for management. For example, 31% of respondents rated the commercial fishery as unimportant in their decision to visit whereas 34% rated it as important. Similarly, the presence of schooners and sailboats were unimportant for 30% of respondents, but important for 36%. Opinions also vary regarding support for several potential management interventions. For example, 32% of the respondents opposed the provision of tent platforms on the islands, while 38% of the respondents were in favor of the idea. Also, our observations of island use demonstrate that visitors are willing to seek out different types of islands to suit their desired experiences. These findings suggest the importance of conserving a range of island characteristics that allow for the combinations of experiences that recreationists desire.

This survey provided a large quantity of data about visitor characteristics, experiences, preferences, along with some information regarding their behaviors while visiting the islands. Based on the data, we have developed a series of five management recommendations for island managers to consider in the upcoming years. Island managers should be encouraged that these recommendations support their current efforts, but suggest potential ways to diversify and expand on existing programs.

1. Continue to focus on visitor education programs. Educational outreach efforts should not be limited to locals or even Maine residents: only 28% of visitors are from Maine (and only 9% are year-round or summer residents). Thirty
percent of respondents were from the other New England states, and 40% of the respondents were from 28 other states. Information should target organizations and small groups that travel in the area regularly; however, the largest proportion of visitors travelled in pairs, suggesting educational outreach should be widespread.

We suggest two main topics of education:

a) **Leave No Trace:** Island managers should be encouraged that 92% of the island visitors reported awareness of Leave No Trace techniques, and that 99% rated them as very important or important. Moreover, 85% of the study respondents indicated they always or often remove litter when they notice it on the islands. Only 10% of the respondents reported disposing of human waste in the intertidal zone or by use of a cathole, which suggests that educational efforts are working and that these efforts should continue to reach the remaining 10%. Approximately three-quarters of respondents are somewhat or very much in favour of posted Leave No Trace recommendations on the islands. Continual efforts to expand efforts are particularly important considering the prediction that demand for water-based recreation will increase (Bureau of Parks and Lands 2003). We suggest the following:

- Implement a visitor education task force to develop new strategies to reach a broader audience, keeping in mind that 60% of the survey respondents who were not familiar with Leave No Trace were either sailors or motor boaters, and that 85% of those unfamiliar with Leave No Trace did not camp overnight.
- Diversify outreach efforts. Consider all the information in the MITA book that non-members do not receive. For example, all island visitors could benefit from the full list of Leave No Trace guidelines including examples on how to dispose of human waste, the list of helpful tips for island visitors including determining alternative camping/lodging options, and the list of coastal travel resources and articles.

b) **Island ownerships and types:** Outreach efforts should focus on educating the recreationists who travel the Maine coast without knowing which islands are publicly or privately owned. An educational outreach program is needed to inform visitors to the Maine coast which islands are open to the public. The survey results demonstrated that 20% of participants did not know what type of island they visited. Many of these people likely visited islands that were not open to the public.

Educating people about island types is particularly important on the Maine coast where MITA manages islands with a spectrum of visitor use recommendations. Island visitors would likely also benefit from understanding the different management concerns island owners have (e.g., certain owners may be particularly concerned about nesting habitat or protecting coastal plants). Also, types of recreation infrastructure such as tent platforms may be identified for certain islands and may also help to reduce environmental impacts. *The Recreation Management Plan for the Public Islands on the Maine Island Trail, 2004–2014* outlines an excellent series of educational programs. We suggest information be available at key access locations and from individuals who are likely to interact with island visitors such as staff at the Old Quarry Campground.

2. Monitor the use and resulting impact of campfires. Thirty-three percent of island visitors built a fire. Dedicate efforts to ensure that fires are being built in the intertidal zone (we observed several that were not) and to monitor the availability of drift wood for building fires. Since downed and decomposing trees are a highly important component of the island ecosystem, it is important that there is enough wood to sustain campfires and to maintain wildlife habitat. Therefore, an assessment of the amount of downed wood surrounding campsites should be included in the island campsite ecological assessments (Cole and Dalle-Molle 1982; Hammitt and Cole 1998).

3. Encourage island visitors to sign log books. Approximately half of the study respondents signed logbooks, with only 40% of visitors who are not MITA members doing so. This suggests that, for islands that have them, they are a useful indicator but not a complete assessment of total island use. We suggest:

- Explain why signing the logbooks is important in the MITA book, in other educational outreach material, and on the logbook containers themselves. Place emphasis on the long-term/big-picture monitoring of the islands. This is particularly important since the logbooks are the only full-time monitors the islands have. Even if MITA’s volunteer monitor stewards could be on the
water every day, there are too many MITA islands, too widely spread out, to be able to monitor with 100% accuracy. For example, our number of total visitor observations was similar to the number of observations collected in the island logbooks for the 2006 summer season. Only half of the survey participants reported signing the logbooks, therefore, it is possible that we observed approximately half of the visitors the islands received.

- Encourage island visitors to write comments in the logbooks regarding the quality of island visitation experiences. This information will provide a way to track visitor experiences during years when a visitor survey is not conducted.

4. Continue to monitor social conditions on the Maine Island Trail. The survey data indicates that the private islands on the Maine Island Trail are alleviating use that would otherwise be focused on the public islands. Eighty-six percent of participant groups camped on public islands, while 53 groups camped on private islands. Nearly two-thirds (64%) of the respondents who camped overnight reported no other groups within sight or sound on an average night. However, the survey data suggest that managers should pay close attention to the social conditions regarding campsites. The finding that 11% of the participants said that the presence of other groups nearby interfered or interfered significantly with and 28% reported other groups somewhat interfered with their camping experiences warrants attention. More research may be needed to identify the nature of this conflict for some visitors. This also highlights the importance of identifying management indicators and standards and of monitoring conditions with a plan in place in preparation for the event that a quality standard is violated. For example, managers might consider reducing the recommended number of parties per island if further social monitoring indicates that visitor interference comes from multi-party islands. It may also be desirable to inform private landowners of the valuable role they play in decreasing the density of visitors on public islands in the area and in contributing to positive experiences and the diversity of recreation opportunities.

5. Continue to motivate individuals to be volunteer island stewards. MITA’s program of volunteer island stewards does an excellent job of caring for the islands, and our findings highlight the importance of these efforts. For example, the presence of litter around a campsite and along a shoreline greatly influenced the quality of visitor experiences (these were very much or extremely influential for at least 90% of island visitors), and MITA’s volunteers play a large role in ensuring the islands are free of litter and serve as role models motivating visitors to remove litter themselves. The presence of litter was much more important than other conditions such as the availability of flat campsites, the availability of single party islands, or having the choice of several different places to pitch a tent. This may be no surprise to the volunteers, many of whom are visitors themselves, but it reinforces the important role they play in contributing to the positive experiences of other visitors.

Overall, the survey data demonstrate MITA is accomplishing its goal of providing a high-quality coastal island recreational experience, as defined in the Recreation Management Plan for the Public Islands on the Maine Island Trail, 2004–2014. Not only have island visitors rated their experiences on the islands very highly, they also have indicated that they feel emotionally attached to Stonington region in particular. Ninety-two percent of the participants indicated that the Stonington region islands mean a lot to them, and three-quarters of the respondents do not think that their time in Stonington could easily be spent someplace else. Not only is MITA a group of devoted island managers, it is supported by volunteer monitors who care deeply for the islands and by visitors who form strong emotional connections to the landscape.

RESEARCH IMPLICATIONS

The study provides baseline data of visitor characteristics, experiences, and perceptions on the Stonington region islands. Trends in recreation activities suggest that there will be an increased demand for these water-based recreational opportunities (Bureau of Parks and Lands 2003; Cordell et al. 2004). Therefore, additional baseline studies are needed for other regions of the Maine islands, and follow-up research is required in the Stonington region to determine trends in recreational visitation and to learn more about the visitors’ experiences.

For this study we used a multi-method approach to gain a sense of the use of the islands, the visitors’ experiences, and the campsite conditions associated with the use. Aside from the visitor observations and survey results presented in this report, we
are developing a campsite-monitoring system for recording and mapping the physical condition of campsites. We have recorded impact parameters and photographic documentation for the study sites, and we continue to refine the campsite-assessment method. We will continue further development of campsite-assessment procedures in the region over the summer of 2007, and managing organizations must commit to continue monitoring the character of the island campsites over time.

Additional information is required regarding the amount of use the islands receive and the effect of human use on the natural character and other species that depend on the islands. While our observations of island use provide an idea of the amount of visitation, one person monitoring 24 islands is insufficient to gain a clear understanding of island visitation. Island managers would benefit from a more in-depth study of island use, and there are several methods of gaining this information. In the Stonington region, it would be most effective to closely monitor island use on two or three of the islands that hosted the greatest number of visitors in this study, such as Hell’s Half Acre, Green Island, and Steves Island. Information gathered by this monitoring then could be used to assess the effectiveness of management strategies such as Leave No Trace. A future visitor survey in the Stonington region might focus on whether visitors are aware of the different types of islands available for camping and whether they purposefully visit islands that match their desired experiences. More research is needed to identify the nature of some conflict identified where people camped in proximity of each other. This would help managers to devise educational strategies and may help in efforts to better disperse visitors to different islands.

Our observations of island use could also be combined with other information, such as nesting bird counts and vegetation inventories to better understand the coexistence of island visitation with the natural processes on the islands. The current observations, combined with future observations and species inventories could provide a highly valuable understanding of the resilience of the islands and changes in the landscape over time.

Finally, further research is required into the assumptions made about the experiences visitors desire on Maine islands and toward developing an understanding of how island users and individuals who do not currently visit the islands weigh the importance of recreational opportunities. The Maine coast is a quickly changing landscape facing a high degree of development pressure and the related loss of coastal access. It is important for island managers to understand the social dynamic of users and non-users in this time of change and to be proactive in facilitating a balance between the diverse needs of these groups. The multitude of islands along the Maine coast make it a place that is capable of satisfying a broad array of needs, and this type of research is important to help managers to select the most effective approach for ensuring access while protecting the natural character of Maine’s beautiful islands.
LITERATURE CITED


APPENDIX A—
SAMPLE EDUCATIONAL SIGN AS ON MITA-MANAGED PUBLIC ISLANDS
HELL'S HALF ACRE ISLAND

Welcome to this public island!

Hell's Half Acre Island is yours to protect and enjoy. It is state-owned and managed by the Maine Island Trail Association for low impact recreation. By following the guidelines listed below you will help to protect the natural integrity of the island and preserve a high quality experience for others.

**Length of Stay:** 2 nights maximum

**Island Capacity:** 14 overnight campers maximum

**Organized Groups:** Maine state law requires that individuals leading trips for compensation hold the appropriate license from the Maine Department of Inland Fisheries and Wildlife (207-287-8000).

*Note: If conditions make it unsafe to follow these guidelines, please do not place yourself or others at risk to adhere to them. Also, please respect the rights of private landowners and access only the islands for which you have been given permission.*

**LEAVE NO TRACE GUIDELINES FOR LOW IMPACT USE**

**Travel & camp on durable surfaces**

**Walking:** Travel on sand, stone, resilient grass and established trails. Avoid vegetation, dirt banks, boggy areas, mosses and lichens.

**Cooking:** Cook on rugged surfaces such as sand, gravel, or ledges below the high tide line.

**Camping:** Tent only in designated campsites; please do not expand existing campsites or establish new ones. In an emergency, try to squeeze in or bivouac on durable surfaces.

**Dispose of waste properly**

**Human waste:** Please carry off all solid human waste and toilet paper and dispose of it properly on the mainland. Do not bury waste or leave it in the woods or intertidal zone.

**Trash:** Pack out all personal trash and remove flotsam from the island when you can.

**Respect wildlife**

**Keep wildlife wild:** Store food securely, observe wildlife from a distance, and leave pets at home. If you bring a pet ashore, keep it on a leash and carry off all solid waste. Never feed wildlife!

**Be considerate of others**

**Island Etiquette:** Preserve the peace and quiet of the island and be respectful of those who live and work in the local area. Set up camp on the day of your overnight, not in advance. Break camp in the morning of your departure day.

**Minimize campfire impacts**

*Fire hazard! Always carry a stove; it is often better than a campfire due to weather, safety considerations and fuel supply. Safe campfires: MITA recommends no fires. If you do plan to kindle a fire, you must first obtain a permit from the Maine Forest Service (1-800-750-9777). A safe, low impact fire is built below the high tide line in a fire pan or on sand or gravel. Use only driftwood gathered from below the high tide line or wood you brought, and burn all wood to a fine ash and douse with sea water. Please do not cut tree limbs or collect downed wood from the island. Please do not create new fire rings. In an emergency use VHF channel 16 or call 1-888-900-FIRE.*

**Leave what you find**

*Allow others a sense of discovery: Please leave all rocks, plants, archaeological artifacts, and other natural objects where you found them.*

**Plan ahead & prepare**

*For your next trip: Familiarize yourself with the regulations, guidelines, potential hazards, and use levels of the islands you intend to visit. Plan for safety and alternative destinations. Thank you for cooperating with these user-developed, voluntary guidelines. For more information on Leave No Trace, please call 1-800-332-4100 or visit www.LNT.org.*

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The goal of the Maine Island Trail Association is to establish a model of thoughtful use and volunteer stewardship for the Maine islands that will assure their conservation in a natural state while providing an exceptional recreational asset that is maintained and cared for by the people who use it.
APPENDIX B—MAINE COASTAL ISLAND VISITOR SURVEY 2006, DEER ISLE/STONINGTON REGION
Maine Coastal Islands
Visitor Survey 2006
Deer Isle / Stonington Region

In Partnership With:

Maine Coast Heritage Trust
A Statewide Land Conservation Organization
Thank you for volunteering to participate in this study. Your information is important in helping determine the best ways to manage the Maine recreational islands. Your name and personal information are confidential. The results will be available in about eight months through the University of Maine. This survey involves the Deer Isle/Stonington region islands, which, for the purpose of simplicity will be referred to as the Stonington region islands.

A. In this first part of the survey, we would like to know why you came to the Stonington islands. We would like to understand what features are important to your Maine coastal island recreation experience.

1. How did you originally learn about or decide to come to the Stonington area for a coastal island recreation experience?
   ___ Own research (ex. internet, travel/outdoor books, TV commercials, etc.)
   ___ Recommended by someone (describe your relationship with them: ________________________)
   ___ Other (describe: ________________________)

2. How valuable are recreation experiences like the Maine Coast islands to you personally?
   ___ Extremely valuable
   ___ Very valuable
   ___ Fairly valuable
   ___ Not very valuable
   ___ Not at all valuable
3. To what extent were the following reasons for your visit to the Stonington islands? Please rate each consideration in terms of importance.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Very Important</th>
<th>Unimportant</th>
<th>Neither</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Scenic quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Nature / wildlife appreciation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Distinctive coastline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Solitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Remoteness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Exploration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Alternative to daily routine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Ocean travel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Adventure / Excitement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Exercise and health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. Skill development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. Working waterfront / commercial fishery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m. Schooners / sailboats</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n. Be with family and/or friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o. Meet new people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p. Fishing / clam digging / mussel picking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q. Picnic outing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r. Other: _____________________</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Which out of the list above were the three most important considerations in your decision to visit the Stonington region islands?
   a. First most important ____________________________________________
   b. Second most important __________________________________________
   c. Third most important __________________________________________
5. We are interested in finding out what conditions on the islands influence the quality of your experience in the Stonington region. For the items listed below, please tell us how much each matters to you.

<table>
<thead>
<tr>
<th>I care about:</th>
<th>Not At All</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very Much</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>The amount of vegetation loss and bare ground around a campsite</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>The availability of flat campsites</td>
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<tr>
<td>The number of trees around a campsite that have been damaged by people</td>
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<tr>
<td>The amount of litter/trash around a campsite</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>The amount of litter/trash along a shoreline</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>The availability of single party islands (where your group is alone on the island)</td>
<td></td>
<td></td>
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<tr>
<td>Having the choice of several different places to pitch a tent</td>
<td></td>
<td></td>
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<tr>
<td>Having small campsites with only one or two places to pitch a tent</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Other: ____________________________

Other: ____________________________
6. Island managers are faced with the challenge of protecting the natural character of the islands while allowing recreational use. Below are examples of actions that might be used on the Stonington region islands. Please indicate your opinion concerning each statement.

<table>
<thead>
<tr>
<th>Action</th>
<th>Very Much in Favor</th>
<th>Somewhat in Favor</th>
<th>Neutral or Undecided</th>
<th>Somewhat Opposed</th>
<th>Very Much Opposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide tent platforms on islands</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Create trails that circumnavigate islands</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Maintain existing trails on islands</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Post interpretive / educational signs on islands</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Post signs outlining Leave No Trace recommendations</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Post signs outlining recommended island and campsite capacities</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Dismantle visitor modifications on the islands (benches, rock sculptures, etc.)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Restrict use areas to manage impact and protect the islands</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Presence of a roving steward for the Stonington area</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Other actions that you feel managers might take: (List below)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

__________________________ ☐ ☐ ☐ ☐ ☐
B. In this section, we would like to know more about your travel during your recent visit. This information will help us document how much use the Islands receive.

1. How many people were in your party on this visit, including yourself? ____
   How many were under 16? ____
   Was your group:
   ___ Family or families  ___ Friends and acquaintances
   ___ Family plus friends  ___ From an organization (scouts, etc.)
   ___ A guided group  ___ Schooner cruise
   ___ Alone    ___ Other (describe ____________________________)

2. How did you travel on the coast? (check all that apply, but if more than one, underline the way you travelled most)
   ___ Powerboat    ___ Canoe
   ___ Sailboat    ___ Kayak
   ___ Other (describe _________________________________________)

3. What point of access to the shore did you use in order to visit the Stonington region islands?
   ___ Stonington town wharf  ___ Naskeag Point
   ___ Stonington boat ramp  ___ Isle au Haut
   ___ Old Quarry Campground
   ___ Travelled through from other region (from where: ________________________________)
   ___ Other (describe: ___________________________)

4. For what reasons did you choose your water route? (check all that apply)
   ___ A new area, variety  ___ Been there before
   ___ Might be less crowded  ___ Advice from steward
   ___ Seeking specific islands  ___ Weather conditions
   ___ Other (describe: ___________________________)

5. What sources of information did you use to learn about the Stonington area? (Please check all that apply)
   ___ NOAA charts  ___ Word of mouth  ___ Newspaper
   ___ DeLorme Gazetteer  ___ Outfitter  ___ Club
   ___ Been there before  ___ Guidebooks  ___ Don’t remember
   ___ Internet / website  ___ MITA membership handbook
   ___ Other (describe: ____________________________________________)

6. Did you visit public, private or islands owned by non-profit organizations on this trip? (check all that apply)
   ___ Public    ___ All
   ___ Private    ___ Don’t know
   ___ Non-profit organization

7. If the island you visited has a log book, did you fill it in?  ___ No  ___ Yes
8. Did your party camp overnight on an island?  
  ___ No - please go to Section C below  
  ___ Yes - please continue

9. What islands did you camp on?  
   Island: # Nights: Other islands visited:  
   ___________________ _____ _________________  
   ___________________ _____ _________________  
   ___________________ _____ _________________  
   ___________________ _____ _________________  
   ___________________ _____ _________________

10. How many other groups camped within clear sight or clear earshot of your campsite?  
    a. On an average night: ___ groups  
    b. On the most busy night: ___ groups

11. How much did the number of other people you could see or hear interfere with your recreation experience in the Stonington region? (Please check one)  
    ___ Did not interfere ___ Do not remember  
    ___ Interfered somewhat  
    ___ Interfered  
    ___ Interfered significantly

12. Did you take the first available campsite you found where you intended to stop each night?  
    ___ No ___ Yes  
    If no, how many nights did you not take the first available campsite? ___; what was the reason for this decision (for example: too small, other party camping nearby, condition of campsite, etc.)?  
    Please describe:  
    ___________________________________________________________________

13. If the island campsite where you had planned to camp was occupied, did you have difficulty finding an alternative campsite?  
    ___ Yes (please explain: ___________________________________________________________________)
    ___ No

C. We are interested in your knowledge and opinions towards minimal impact recommendations. Understanding your awareness of Leave No Trace principles will help island managers design appropriate educational materials.

1. Are you familiar with Leave No Trace techniques?  
   ___ Yes ___ No (please go to Question 3)
2. **Important** did you believe it was to follow Leave No Trace recommendations during your recent visit to the Stonington region islands?

___ Very important ___ Unimportant
___ Important ___ Very unimportant
___ Neutral

3. Do you remove litter/trash when you notice it on the islands?

___ Always ___ Sometimes
___ Often ___ Never

4. How did you dispose of human waste during your recent visit to the Stonington region islands?

______________________________________________________________________________
______________________________________________________________________________

5. How did you dispose of leftover food?

______________________________________________________________________________
______________________________________________________________________________

6. Did you build a wood fire ___; or use a camp stove ___; or both ___?

---

**D. This section will provide us some background information about you and your experiences in this area.**

**Some information about you**

1. In what year were you born? 19___

2. Are you? ___ Male ___ Female

3. What is the highest level of education you have completed?

___ Eighth Grade
___ High school
___ 1-3 years of college (includes 2-year degree)
___ 4-year college degree
___ Graduate degree

4. Are you and/or anyone in your household currently employed in a job directly related to the Gulf of Maine resource (e.g. fishing, ocean-related tourism)?

___ Yes ___ No ___ Not sure / don’t know

5. Are you currently a member of the Maine Island Trail Association?

___ Yes ___ No → Have you been a member in the past? ___ Yes (date: ________) ___ No
6. Did you grow up in a: (Please check one)
   ___ Rural area   ___ Suburban area   ___ Urban area

7. What type of community do you live in now?
   ___ Rural area   ___ Suburban area   ___ Urban area

8. What is your year-round zip code? ________

Your experience with the landscape

1. Was this your first visit to the Stonington region islands?
   ___ Yes - go to question 5       ___ No - continue with question 2

2. Briefly describe your first trip to the Stonington region islands:
   ___________________________________________________________________
   ___________________________________________________________________

3. How many years have you been visiting the Stonington Islands? ____
   How many times did you visit the Stonington islands last year? ____
   Do you come most years? ___ Yes       ___ No

4. Please check other coastal island regions you have visited (refer to map below for locations):
   ___ Casco Bay             ___ Mt. Desert Area
   ___ Western Rivers        ___ East of Schoodic
   ___ Penobscot Area/West   ___ Outside of Maine (describe: ____________________________)

[Map of coastal island regions]
5. How many years have you been visiting any other coastal islands? ____
How many times did you visit other coastal islands last year? ____

6. Please describe your **connection to the Deer Isle/Stonington area**: (Please check one)
   - I am a year-round resident
   - I am a summer resident
   - I am a visitor to this area
   - Other (please continue and describe: ______________________________________)

7. This is a set of questions used consistently in outdoor recreation research about place meanings. Please try your best to answer them by indicating the extent to which each statement below describes your general feelings about the Stonington region of the Maine Coast.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. This place means a lot to me</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>b. I wouldn’t substitute any other area for doing the type of things I did here</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>c. I get more satisfaction out of visiting this place than any other recreation place</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>d. This area is the best place for what I like to do</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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</tr>
<tr>
<td>e. I feel this place is a part of me</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<tr>
<td>f. The time I spent here could have just as easily been spent somewhere else</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>g. I am very attached to this place</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>h. I identify strongly with this place</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<td>□</td>
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</tbody>
</table>
E. Your closing comments and feedback are important to us.

1. How would you rate this trip to the Stonington region islands? (please check one)
   ___ A, very good
   ___ B, good
   ___ C, fair
   ___ D, poor
   ___ E, very poor

   What was it about this trip that made you feel this way?
   ___________________________________________________________________
   ___________________________________________________________________

2. Is there anything else about the Maine Coastal island experience you would like to share with us?

THANK YOU!
Your contribution to this effort is greatly appreciated. Please return your completed questionnaire in the self-addressed stamped envelope as soon as possible.