

AN EXPLORATION OF PLACE MEANINGS AMONG RESIDENTS IN
CENTRAL WISCONSIN

By

Jennifer A. Simoni

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APPROVED BY THE GRADUATE COMMITTEE OF:

Dr. Kristin Floress, Committee Chair
Assistant Professor, Human Dimensions of Natural Resource Management

Dr. Laura Anderson, Assistant Professor of Forestry

Dr. Melissa Baker, Honorary Associate

Dr. Aaron Thompson, Assistant Professor
Human Dimensions of Natural Resource Management

ABSTRACT

A survey was conducted with 685 residents as part of the Eastern Marathon County Lakes Project in central Wisconsin. Eleven lakes included in the project have undergone complete biological, ecological, and social assessments. Lake management plans along with education and outreach plans and programs will be developed based on these assessments. The mail survey, a component of the social assessment, aimed to gather information about the residents' attitudes, behaviors, awareness of issues relating to the lakes, and attachment to the lakes. Understanding the residents' place attachment to the lakes can provide insights to their involvement in their communities, and expectations in the lake management planning process and implementation (Manzo & Perkins, 2006).

Place attachment is a complex concept composed of many dimensions to describe an individual's relationship to a place. One dimension of place attachment is place meaning, or the values or meanings that an individual ascribes to a specific place. It is becoming clearer the importance of understanding place meanings in order to better understand place attachment. However, collecting this type of qualitative data is difficult to capture, and is often very specific to the setting and context. One objective of this study was to test the dimensional structure, validity, and transferability of a place meanings scale developed by Davenport, Baker, Leahy, & Anderson (2010). The place meanings scale was then further tested to see if any differences existed between lakefront property owners and non-lakefront property owners in the level of meanings assigned to the lakes; in addition, to testing if any relationships existed between place meanings and specific property characteristics such as year round resident versus seasonal resident, and size of property.

The mail survey received a response rate of 44% (296). Exploratory factor analysis was conducted to see how the place meanings scale held up against the resident population. The exploratory factor analysis confirmed the dimensional structure and overall, the place meanings scale proved to be well-developed. Independent t-test was used to determine if any significant differences existed between lakefront and non-lakefront property owners. The analysis revealed that lakefront property owners assigned a higher level of meaning to three out of the five place meaning domains. Further linear regression analyses revealed that although there is a positive correlation between year-round residents versus seasonal residents and three of the place meaning domains, the correlation is weak and only explains 8% of the total variance. The same is true for size of property and the place meaning domains except the correlation is negative and only explains 12% of the total variance. Therefore, as size of property increased, place meaning decreased. This study demonstrated that a previously developed place meanings scale can be used on a different population in a different setting. However, when using the scale to determine if any relationships existed between other study variables the results while significant, do not have a strong influence on the meanings the residents assign to the lakes.

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CHAPTER 1: INTRODUCTION

Study Area

Marathon County is located in the central part of the state of Wisconsin and is the largest of the 72 counties. According to the U.S. Census Bureau 2012 estimate, the population in Marathon County has increased 6.5% since 2000 where 134,735 people now reside in Marathon County. The majority of the population is concentrated within the Wausau Metropolitan Area including the City of Schofield and The Village of Rothschild. Even though these urban areas anticipate moderate growth over the next few decades, it is expected that population will decline in the northwest part of the county.

Marathon County has expansive river, stream and lake systems; as well as forested land and farmland that contributes not only to the historical and economical foundation of the county, but also targeted efforts of resource management and protection. The county is divided by the Wisconsin River where changes in soil quality, land use and population demographics are remarkably different between the western and eastern portions of the county. In general, the western portion of the county is more suitable for agricultural uses with a high percentage of farmland; whereas, the eastern portion has retained a more wooded character and is less desirable for farmland. Dairy farming and cultivation of forage in Marathon County rank number one in the state and primarily originate in the western half of the county.

The eastern half of the county has a number of small lakes that residents and visitors enjoy for their recreational and aesthetic opportunities. In recent years, large-

scale lake protection efforts have been implemented in adjacent counties to help address water quality issues including, but not limited to aquatic invasive species, shoreline development, nutrient management, and wildlife habitat. These lake protection efforts include a multi-year assessment of the project lakes that result in lake management plans to help guide land use and management decisions. The Eastern Marathon County Lakes Project, in partnership with the eastern Marathon County citizens and communities, the Marathon County government and the University of Wisconsin Stevens Point, was initiated to gather data to inform management decisions and policies, and to develop strategies that focus resources on the improvement and protection of the lakes.

Eleven lakes are included in the Eastern Marathon County Lakes Project to undergo a complete biological, ecological, and social assessment in order to develop comprehensive lake management plans. The study lakes are Bass, Big Bass, Lost, Mayflower, Mission, Mud, Norrie, Wadley, Lily, Rice, and Pike (Figure 1). These lakes fall into one of two distinct river basins: The Wisconsin River basin and the Wolf River Basin where the surface water is primarily groundwater fed with surface runoff inputs often originating nearby. The social assessment of the communities surrounding the lakes aimed to determine resident attitudes, attachment to the lakes, awareness of issues relating to the lakes, barriers to and capacity for change, and behaviors that impact the quality of the lakes. The information collected through the social assessment will be used to develop education and outreach plans.

Research Problem

One component of the Eastern Marathon County Lakes Project social assessment is understanding the attachment, the feelings, and values that the residents hold for the local lakes. The relationship that develops between people and a specific place or setting has commonly been described as “place attachment”. This complex concept of place attachment encompasses a variety of types of bonds that differ in their origins, and purposes (Low & Altman, 1992). Earlier works in place-based research through the geography and sociology disciplines looked at individuals’ connections to home, neighborhoods, communities, and cities (Williams, Patterson, & Roggenbuck, 1992; Low & Altman, 1992; Proshansky, 1978), where the meanings people assign to places occur through repeated experiences and the process of living in it (Stedman, 2003). However, as the concept of “place attachment” and the importance of the human-environment relationship began to become more prevalent in environmental psychology and natural resources research, many of the studies focused on the bonds that existed and strengthened between visitors and outdoor recreation areas. While the visitor’s relationship to a recreation area can help to identify key attributes necessary to support their recreational needs and inform resource management (Williams & Roggenbuck, 1989), the relationship between the local residents and the resource may be more complex or fundamentally different (Davenport & Anderson, 2005).

In recent, place attachment scales have simplified the human-environment relationship by concentrating on the two-dimensional model of place attachment; place identity and place dependence (Davenport & Anderson, 2005). While this two-dimensional model of place attachment is valid, it fails to recognize if other dimensions

exist. Place attachment scales, while useful in identifying the extent of attachment, neglects to identify the factors that foster the attachment (Wynveen, Kyle, Absher, & Theodori, 2011). Wynveen, et al. (2011), also suggest that people do not directly identify with a place, but rather the meanings or values they ascribe to it. The lack of incorporation of place meanings to the traditional place attachment scales, denies researchers the opportunity to better understand the multidimensionality of place attachment and the nature of the human-place bond.

Research Objectives

This study focuses on a resident population in central Wisconsin currently involved in an assessment and subsequent management planning of the local lakes. How the lakes will be managed can have serious impacts on the types of benefits people attain, their place relationships, and even the overall quality of life in their communities (Davenport, Baker, Leahy, & Anderson, 2010). The relationships that the local residents have with the lakes are critical to their participation in their communities and subsequently, the lake management planning process and implementation (Manzo & Perkins, 2006). The research objectives of this study include:

1. Using the place meanings scale developed by Davenport, et al. (2010) to test its validity and confirm its dimensional structure against a resident and potentially, a non-recreating population.
2. Testing if lakefront property owners hold a higher level of meaning to the surrounding lakes than non-lakefront property owners.
3. Exploring property characteristics such as size of property and length of time spent on the property each year, and their effect on place meaning.

Importance of Study

According to Brehm, Eisenhauer, & Stedman (2013), “place meanings are crucial foundations of place attachment, and that each is necessary to understand the range of place-related behaviors” (p.523). Understanding place meanings assigned by the tested population requires qualitative data collection methods such as in-person interviews, oral histories, and analyzing open-ended survey questions (Davenport & Anderson ,2005; Wynveen, et al. 2011; Brehm, et al. 2013). These methods are labor, time and cost intensive, and while the importance of place meanings in addition to understanding place attachment is clear, researchers may not have the ability or capacity to collect both. Unfortunately, due to the strong influence of context in place-based research, findings tend not to be generalizable across settings; however, the findings may provide insights about the meanings held in other similar settings based on key characteristics (Brehm, et al., 2013).

This study aims to build upon the current understanding of place attachment research by not only utilizing a resident population, but also testing the validity and transferability of a previously developed place meanings scale. The increase in the diversity of studies gives us the increased ability to test new, multidimensional instruments, but also provides a greater understanding of the nature of the human-place bond (Kyle, Graefe, & Manning, 2005).

Definitions

The term “place attachment” and “sense of place” are commonly used synonymously to describe the same concept, an affective or emotional bond between an individual and a place. However, it’s been argued by many that these are actually two

distinct concepts and should be treated as such. Because an individual's connection to a place is so complex and includes many dimensions, for the purposes of this study "sense of place" will refer to a broader connection to place, with "place attachment" being one of those dimensions. Traditionally, place attachment is comprised of two constructs, place identity and place dependence. Place identity referring to the importance of a place in shaping self-identity including values, beliefs and feelings, and place dependence being the functional aspect of place and how it meets an individual's goals (Proshansky, 1978; Stokols & Shumaker, 1981). Place meanings differs from place attachment in that it refers to the values or meanings an individual ascribes to a place, where place attachment is the intensity of the bond to those values, meanings or place (Wynveen, et al. 2011).

Limitations

This study used the place meanings scale developed by Davenport, et al. (2010) for the purposes of confirming its dimensional structure and validity with a resident and potentially, non-recreating population. However, the scale was modified to better fit this study, thus is not a direct comparison to the original study. Modifications to the scale included the removal of the "regional economy" domain, and the absence of five scale items designed to specifically measure place attachment. While the removal of the "regional economy" domain was intentional, the exclusion of the place attachment scale items was an unfortunate oversight. In retrospect, the "regional economy" domain, then seeming irrelevant, now seems like a missed opportunity to understand the landscape perspective the residents have towards the local lakes. The accidental omission of the place attachment scale items, causes analysis issues when attempting to explain the

relationship between place meaning and place attachment, and how meanings are reflected in varying levels of attachment (Wynveen, et al. 2011).

CHAPTER 2: LITERATURE REVIEW

Social science researchers often face the challenge of measuring abstract, intangible concepts derived from multiple, evolving theories they are interested in studying (DeVellis, 2012). Most of the variables of interest to social and behavioral scientists such as beliefs, values, needs, emotions, and attitudes are not directly observable (DeVellis, 2012). To better understand and measure these elusive constructs derived from psychological and social phenomena; psychometrics or psychometric scaling has evolved as a means to quantify these concepts and their relationships to each other. Since these variables are not directly observable, and vary between individuals, groups and communities, we use measurement scales composed of tested, reliable scale items to reveal the magnitude of the underlying construct that we're trying to test, often on a large-scale and across a population. Early uses of psychometric scales emerged in the behavioral sciences, psychology, and sociology as philosophies, speculations, and theories needed to be rooted in empirical research and not rational analysis (Proshansky, 1978). Amidst the environmental crisis of the 1960's, the field of environmental psychology took interest in this emerging work and use of psychometric scales, and began more closely examining the relationships between humans and their physical settings (Proshansky, 1978; Stokols & Shumaker, 1981).

Place Attachment

As the human-environment relationship has evolved, it has developed into a variety of different yet very similar concepts including topophilia, insidedness, sense of place, and rootedness (Low & Altman, 1992). All ideas are analogous in that they are “associated with an emotional or affective bond between an individual and a particular

place”; although, this bond may vary in intensity, origin, purpose and meaning (Williams, et al. 1992, p.31). This basic definition or broader concept of place attachment later led to two primary conceptualizations common in the literature, place identity and place dependence. Place identity described by Proshansky (1978) includes “those dimensions of self” (ideas, beliefs, preferences, feelings, values, goals and behaviors) “that define an individual’s personal identity in relation to the physical environment” (p.155); whereas, place dependence is associated with how a place can meet personal goals and activities and how its compares to alternative places (Stokols & Shumaker, 1981) . The proposed two-dimensional framework to describe place attachment was first tested using a psychometric scale of self-reported items developed by Williams & Roggenbuck (1989) to further explain the identity and dependence dimensions. Place attachment scales enable researchers to “assess the nature of place attachment, measure the strength of attachments, and correlate attachments to other variables” (Davenport & Anderson, 2005, p.628). From there, numerous studies have explored the importance of place attachment in predicting environmentally responsible behavior (Vaske & Kobrin, 2001), developing environmental concerns (Vorkinn & Riese, 2001), and perceptions towards social and environmental conditions (Kyle, Graefe, Manning, & Bacon, 2004). Although each study utilized different methods and populations, these studies all reveal the multidimensionality of place attachment, as well as the significant role it plays in human-environment relationships. Williams & Vaske (2003) later confirmed the two-dimensional structure, identity, and dependence, as distinct dimensions of place attachment. However, the focus on the two-dimensional structure of preliminary studies, fails to explore if other dimensions exists. Early theorists argue that attachment to place

can only exist and strengthen through personal experiences, while others have found that attachment to place can exist beyond the place itself to categories of place for example, wilderness areas (Williams, et al. 1992). The emotions, feelings or values assigned to all wilderness areas, even if one has not visited them specifically, shifts the previous localization of place attachment to a larger, landscape-level focus perhaps hinting at other dimensions of place attachment (Gunderson & Watson, 2007). It becomes more apparent that most people experience feelings of place attachment that go beyond the usefulness or a particular place or setting and cannot be solely explained by its functional properties (Williams & Roggenbuck, 1989). The conceptualization of the place attachment construct continues to evolve from the two-dimensional framework presented by Williams, et al. (1992).

The shift in ecosystem management also brought with it a shift away from the utilitarianism of the human-environment relationship to include a more holistic perspective often incorporating place attachment dimensions (Williams & Stewart, 1998). The ways in which society values natural resources is not easily captured through the traditional approaches and commodity and production metaphors of use and yield (Williams & Vaske, 2003; Williams, et al. 1992). It extends beyond understanding how people use the resource, but how they think and feel about the resource and its implications in natural resource management. Emotional bonds developed by residents or visitors can intensify resource management conflicts because different people assign different meanings to the same place (Williams & Vaske, 2003) and only when one's sense of place is threatened that he or she becomes aware of it (Proshansky, et al. 1983). Earlier works in outdoor recreation in natural areas among visitors demonstrates the

importance of place attachment in resource management (Borrie, Freimund, & Davenport, 2002; Kyle, Absher, & Graefe, 2003; Kyle, et al. 2004; Davenport, et al. 2010). As Kyle, et al. (2003) discovered, visitors who scored high on the place identity dimension were more supportive in the funding of preservation and restoration activities; whereas, visitors who scored high on the place dependence dimension were more supportive in the funding of infrastructure development and expansion. It's evident the differences in place attachment and associated values and attitudes among users of recreational settings are important for natural resource managers to recognize. However, little research has been done that holistically examines the multitude of emotional and functional connections people have with places such as those between residents and nearby landscapes that may or may not be linked to recreational activities (Davenport, et al. 2010; Gunderson & Watson, 2007). Looking back at the early conceptualizations of "sense of place" and the human-environment relationship, attachments to settings often included individuals with an longstanding history to a specific area where the strongest sense of place was reported by individuals who held generational, social and cultural ties over those with limited residency (Kyle, et al. 2004). This would suggest that not only do the attachments differ between recreational and residential settings, but the attachments to residential settings may be stronger (Kyle, et al. 2004).

Few studies have looked at the attachments to place among residents. Examples of studies focused on residential settings have looked at place attachment as an indicator of environmental concern or attitudes among Norway residents and the proposed development of hydropower infrastructure (Vorkinn & Riese, 2001), and potential predictor variables of place attachment among lakeshore property owners in northern

Wisconsin including the number of days spent on the property, attitudes towards lakeshore development and retaining native vegetation, and the importance attributed to the lakes (Stedman, 2002). Both studies found that the role of place attachment could not be explained by a set of variables alone; whether that be sociodemographic or property characteristics. The concept of place attachment among residential settings is much more complex, requiring more integrated models (Vorkinn & Riese, 2001).

Place Meanings

In an attempt to better capture all the connections people have with places, Davenport & Anderson (2005) introduced the use of qualitative research methods to “expand beyond the tangible and instrumental to include the symbolic and emotional” (p. 629). Place meanings encompass the symbolic and emotional connections, along with the values and meanings that an individual ascribes to a place (Brehm, et al. 2013). Place meaning differs from place attachment in that meanings reflect the value and significance of the place to the individual, where place attachment represents the intensity of the bond (Wynveen, et al. 2011). The quantitative methods which had been traditionally used in the form of scales have limitations in understanding these relationships. Although the place attachment scale items have been tested and confirmed to accurately represent or define human-environment relationships in the two-dimensional framework, researchers could leave out a critical subset of values or meanings that may be unique to an individual, group, community or place (Gunderson & Watson, 2007).

Through an interpretive research design, Davenport & Anderson (2005) interviewed key informants and community members to gain an in-depth understanding of the meanings they attributed to a local river rich in cultural and historical importance. As a

result, the meanings that the participants ascribed to the river converged along four dimensions: river as sustenance, river as tonic, river as nature, and river as identity (Davenport & Anderson, 2005). Two of these dimensions “river as identity” and “river as tonic”, closely resemble the place identity and place dependence constructs in which we are familiar with. However, “river as sustenance” and “river as nature” emerged as new meanings or dimensions ascribed by the local community members. This study not only expanded upon the current conceptualizations of place attachment, but also recognized that the complexities of community members’ connections to local areas may fail to appear using the traditional place attachment scales (Davenport & Anderson, 2005).

Following this, Davenport, et al. (2010) adapted the four-dimensional place meanings model that resulted from the Davenport & Anderson (2005) study and developed a place meanings scale using existing scale items and generating new ones. The four dimensions, sustenance, nature, tonic and identity also were expanded into six dimensions to more accurately define and reflect the different levels embedded within the four dimensions. The new identity dimensions include “self-identity”, “community character” and “family legacy”; and the dimensions nature, tonic, and sustenance were relabeled “nature and natural processes”, “experience achievement” and “economic stability”, respectively (Davenport, et al. 2010). Scale items were generated both on the emergent themes that resulted from the Davenport & Anderson (2005) study as well as tested scale items from previous place attachment studies. The survey of local and non-local visitors to an Illinois state park revealed through analysis several differences to the original six-dimensional model. Statements from the “self-identity”, “family legacy” and “experience

achievement” dimensions were re-grouped to create the new “emotional identity” and “onsite experiences” dimensions. The theorized “economic stability” dimension was also divided into two new factors, “income” and “regional economy”. The dimensions “community character” and “nature and natural processes” remained consistent with the original model (Davenport, et al. 2010). The resulting place meanings scale is significant because this study, while recognizing the place identity and dependence constructs through the “emotional identity” and “onsite experiences” dimensions, respectively, it also reveals other dimensions that have not been previously considered. Another important result to note is the difference between local and non-local visitors in the meanings they held for the state park. As one would expect, local visitors felt a greater connection between the park and the community as well as between the park and themselves. While both local and non-local visitors were at the park to recreate, onsite experiences and natural and nature processes were held at similar levels. One implication of this study includes testing the place meanings scale on a resident and potentially non-user population similar to the Davenport & Anderson (2005) study in which the emerging themes provided the foundation in which the place meanings scale was developed (Davenport, et al. 2010).

Place Model

The conceptualization of place attachment continues to evolve and become more complex as research continues to expand upon our current understanding. Therefore, place models tend to vary from researcher to researcher and study to study. For this study, the model, while simplistic, uses the schematic of place as illustrated by several place writers and summarized by Cheng, Kruger, & Daniels (2003), as its foundation. In

this schematic, place is described as the intersection of social and political processes, biophysical attributes and processes, and social and cultural meanings, being the locus of forces affecting human action (Cheng, Kruger, & Daniels, 2003) (Figure 2). As with sense of place or place attachment, many of these concepts overlap and have roots in each of these forces. I feel this model can be modified slightly to represent the relationship between place identity, dependence, meanings, and attachment. The relationship between the place concepts presented below is the underlying model for this study (Figure 3).

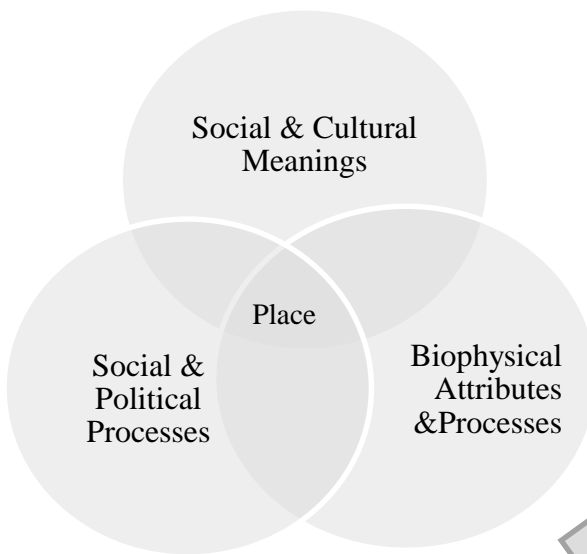


Figure 2. Schematic of Place

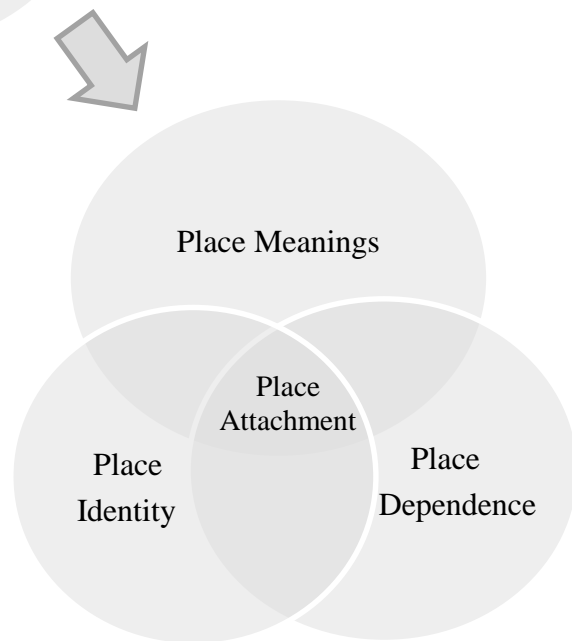


Figure 3. Study Model of Place Attachment

CHAPTER 3: METHODS

A mail survey was administered in the spring of 2012 to all 685 households located within the surface and groundwater watersheds containing the eleven project lakes. To increase response rates, the survey was administered using Dillman's tailored design method (2000). Following the initial letter and option to complete the survey using the online survey tool Survey Monkey, a hard copy of the survey was sent; followed by a reminder postcard, and finally, a second copy of the survey, for a total of four waves.

Questionnaire

The mail survey questionnaire (Appendix A) was primarily developed using the Social Indicator Planning and Evaluation System (SIPES). The SIPES handbook is designed as a step-by-step system to using social indicators to help communities and resource managers plan, implement and evaluate projects relating to nonpoint source and water quality projects (Genskow & Prokopy, 2008). Social indicators are described in the handbook as being “measures that describe the capacity, skills, awareness, knowledge, values, beliefs and behaviors of individuals, households, organizations and communities.” (Genskow & Prokopy, 2008, p.8). From the broader social indicators category, a core set of questions have been identified to focus more specifically on the awareness, attitudes, constraints, capacity and behaviors of individuals, households, organizations and communities.

In addition to the social indicator questions, the modified place meanings scale developed by Davenport, et al. (2010) was included (Table 1). The original place meanings scale is comprised of six domains and their associated scale items; “community character”, “emotional identity”, “nature and natural processes”, “onsite experiences”,

“income”, and “regional economy”. The “regional economy” domain as well as the statements “I feel like this place is a part of me” from the “emotional identity” domain and “This place is important in protecting air quality” from the “nature and natural processes” domain were omitted from the questionnaire. The domain and statements were removed because they were either not relevant to the study, project area or communities or too closely resembled another statement. Similarly, the five statements used in the original study as part of a separate place attachment scale were not included due to an unfortunate oversight. The exclusion of the “regional economy” domain and the two abovementioned statements were an effort to keep the scale as consistent with the original, but to also not confuse respondents or generate “false” responses, and keep the survey at a manageable length. The complete scale from the original study can be found in Appendix B. Statements were modified replacing “Giant City State Park” with “these lakes” to make the statements applicable to the study. Residents were asked to indicate the extent in which they agreed or disagreed with each statement on a 5-point Likert scale from “Strongly Disagree” to “Strongly Agree”. A “Don’t Know” option was given. A contributing author and developer of the place meanings scale approved the reduction of the original 7-point scale to a 5-point Likert scale to conserve space and provide clear and distinct answer choices.

Table 1. Place Meanings Scale

Place Meaning Scale Domains/Items
<i>Community Character</i>
<p>These lakes are a special place for my family</p> <p>These lakes contribute to the character of my community</p> <p>These lakes represent a way of life in my community</p> <p>These lakes have helped put my community on the map</p> <p>My community's history is strongly tied to these lakes</p> <p>My community's economy depends on these lakes</p>
<i>Emotional Identity</i>
<p>Many important family memories are tied to these lakes</p> <p>Few people know these lakes like I do</p> <p>I have spent more time on these lakes than most people</p> <p>These lakes are like home to me</p> <p>These lakes link the generations of my family together</p> <p>I really miss these lakes when I am away from them too long</p>
<i>Nature and Natural Processes</i>
<p>These lakes are important in protecting water quality</p> <p>These lakes are important in protecting the landscape from development</p> <p>These lakes are important in providing habitat for wildlife</p>
<i>Onsite Experiences</i>
<p>I would prefer to spend more time here if I could</p> <p>I feel that I can really be myself at these lakes</p> <p>These lakes are the best places to do the things I enjoy</p> <p>I feel a sense of pride in my heritage when I am here</p> <p>When I am here others see me the way I want them to see me</p>
<i>Income</i>
<p>My income or livelihood depends on these lakes</p> <p>My family's income or livelihood depends on these lakes</p>

Questions relating to property characteristics included “Do you live in Marathon County “year-round”, “3-6 months out of the year”, “more than 6 months, but less than 12 months” or “less than 3 months out of the year?” This question gathers information about the length of time property owners spend on their property in a given year. The

second question to gather physical information about the resident's property was size of property. Respondents were given the ranges less than ¼ of an acre, ¼ - 1 acre, 1-5 acres, and greater than 5 acres.

Statistical Analysis

In the original Davenport, et al. (2010) study, the “Don't Know” responses were removed from the statistical analyses. Although, the “Don't Know” responses did not affect scale reliability or the exploratory factor analysis in this study, it did moderately skew the data, causing further analyses to be affected. Therefore, the “Don't Know” responses were removed from all statistical analyses, keeping consistent with the original study. All returned questionnaires were entered into the online survey tool Survey Monkey and then imported into the Statistical Package for Social Sciences program (SPSS) for analysis. Scale reliability of the five place meaning domains identified by Davenport, et al. (2010); “community character”, “emotional identity”, “nature and natural processes”, “onsite experiences”, and “income” was determined using Cronbach's Alpha test of internal consistency. A mean composite score for each domain was also calculated. The full sample was used for the reliability and factor analysis.

Exploratory factor analysis (EFA) conducted by Davenport, et al. (2010) revealed the original dimensional structure of the place meanings scale based on visitors' participation. Using SPSS, exploratory factor analysis using the principal component extraction method and varimax rotation with Kaiser normalization included all scale items to confirm this dimensional structure. Keeping consistent with the SPSS program defaults, standard statistical indices and the original analyses, factors with a eigenvalue

greater than 1.0 were extracted regardless of the percentage of variance explained (Reise, Waller, & Comrey, 2000).

Spearman's rho was used to determine if there were any correlations between tested variables. Unlike Pearson's coefficient, Spearman's rho is used on ordinal data (Urdan, 2010). Independent sample t-tests was used to determine if differences existed between lakefront property owners and non-lakefront property owners among the five place dimensions. Non-lakefront property owners included respondents who identified themselves as agricultural producers or those who identified themselves as neither lakefront property owners nor agricultural producers. To identify if any differences existed between the means of each place dimension and length of time spent on the property each year and size of property, a one-way ANOVA was conducted for each variable. Finally, linear regression was used to determine to if any predictive relationships existed between the tested variables.

CHAPTER 4: RESULTS

This chapter covers specific findings from the data collected from the mail survey of the Marathon County residents in the project area. First, an overview of the resident demographics is presented including age, gender, education, and property characteristics. Following demographics, a look at how residents enjoy the lakes and how they view certain lake characteristics as being signs of a healthy or an unhealthy lake are explored along with the participation or non-participation in land use practices that affect lake water quality.

Found later in this chapter are the results of the place meanings scale reliability and the exploratory factor analysis, the differences that exist between lakefront and non-lakefront property owners and place meanings, an examination of the correlations between place meanings and property characteristics, and finally, the linear regression analyses to determine if type of property owner and property characteristics have any predictive relationships to place meanings.

Resident Characteristics

Out of the 674 deliverable questionnaires, 296 or 44% of the residents completed the survey. Of those respondents that answered the question, 53% (140) own lakeshore property where 65% (91) identified themselves as owning lakeshore property along one of the project lakes and the remaining 35% (49) owning lakeshore property either along a lake not included in the project or they did not answer the question. Nine percent (24) of respondents identified themselves as agricultural producers and 37.8% (100) of respondents were neither lakeshore owners nor agricultural producers. Seventy-one percent (189) of respondents are year-round residents; whereas, 21% (56) reside in

Marathon County fewer than 3 months out of the year or are considered “absentee” landowners. In general, the survey respondents tended to be male, older than 60, hold a high school degree or an equivalent, are year-round Marathon County residents, and own 5 acres or more of lakefront property (Table 2).

Table 2. Resident Demographics

Age (n=255)	
under 30	0.8%
30-39	6.9%
40-49	15.9%
50-59	29.0%
60 or older	47.4%
Gender (n=261)	
Male	73.9%
Female	27.2%
Education (n=263)	
Less than high school degree	4.6%
High school degree or equivalent (GED)	30.4%
Some college but no degree	23.2%
Associate degree	13.7%
Bachelor degree	16.0%
Graduate degree	8.7%
Doctoral degree	3.4%
Resident Type (n=264)	
Lakefront property owner	53%
Agricultural producer	9.1%
Resident of Marathon county, who is neither of the above	37.8%
Resident Length (n=265)	
Year Round Resident	71.3%
Less than 3 months out of the year	21.1%
3 - 6 months out of the year	6.8%
More than 6 months but less that 12 months	0.8%
Approximate Size of Property (n=266)	
1/4 acre or less	9.0%
More than a ¼ acre but less than 1 acre	24.8%
1 acre to less than 5 acre	26.3%
More than 5 acre	39.8%

Lake Activities

Residents were asked to check all the lake activities that they enjoy doing from family events, motorized and non-motorized activities such as boating or canoeing, respectively, relaxing, fishing or to write-in any other activity they enjoy not listed. Fishing was the leading activity that 77% of the respondents indicated they enjoyed, followed by non-motorized activities (65%), family events (58%), relaxing (55%), and motorized activities (50%) (Table 3). Other activities listed by residents included photography and wildlife viewing.

Table 3. Lake Activities Residents Enjoy

Lake Activities	Percentage (n=296)
Family Events	58%
Motorized Activities	50%
Non-motorized Activities	65%
Relaxing	55%
Fishing	77%
Other	4%

Resident Awareness

Adopted from the SIPES handbook, two questions were asked of residents to gauge their awareness of lake characteristics and their impact on water quality. Questions included “Tell us whether you think the following is a sign of a healthy lake”, and “Tell us whether you think the following might cause a lake to become unhealthy and to what extent you feel it is a problem”. A majority of respondents feel that the presence of wildlife (95%), good fishing opportunities (94%), native plants in the water (88%), clear water, or being able to see a long way down (80%), and the presence of insects (80%) are among the greatest indicators of a healthy lake (Figure 4).

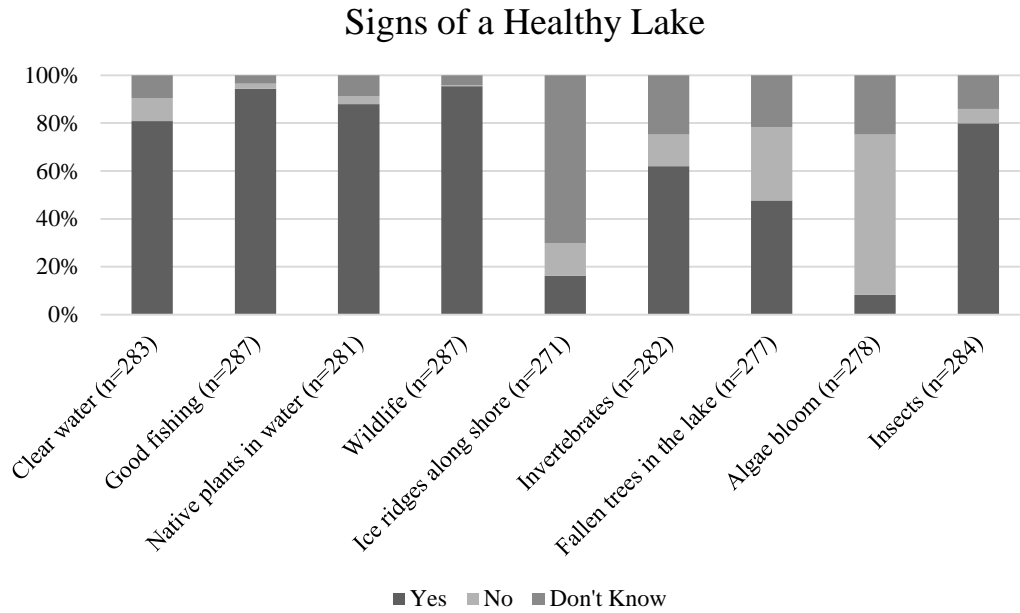


Figure 4. Percentage of Signs that Indicate a Healthy Lake

Conversely, respondents identified foreign aquatic species like Eurasian water milfoil or zebra mussels (83%), leaky septic systems (73%), and disposing of yard waste into the lake (70%) as being the most severe problems causing a lake to become to unhealthy (Figure 5).

Signs of an Unhealthy Lake and To What Extent

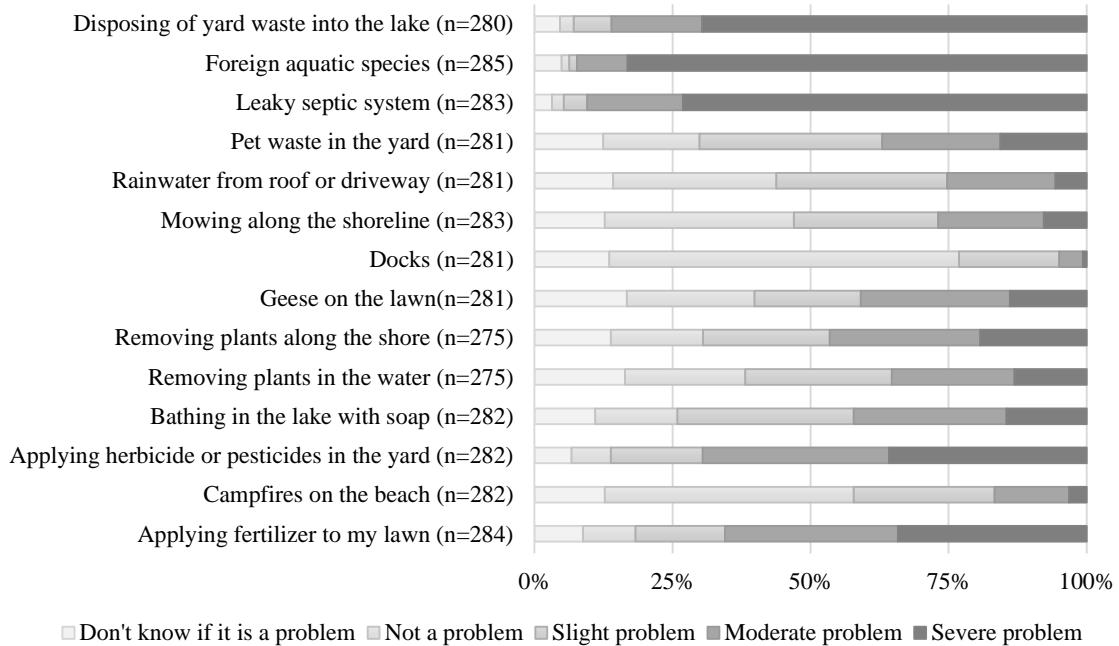


Figure 5. Percentage of Signs that Indicate an Unhealthy Lake and To What Extent.

Current Land Use Practices

Residents were given a list of practices that aim to improve water quality and were asked to indicate which statement most accurately described their level of experience with each practice. Levels of experience ranged from “Never heard of it” to “Somewhat familiar with it”, “Know how to do it, but not doing it”, “Currently do it”, and “Does not apply to me”. The practices that a majority of the residents indicated that they currently do included disposing of household waste (88%), recycling automotive oil (71%), planting trees and shrubs (70%), inspecting septic systems (58%), and repairing or servicing home sewage treatment systems (54%) (Figure 6). The one practice that 41% of the residents indicated they knew how to do, but were not doing that practice was using rain barrels. The practices residents reported that they were not familiar with or never

heard of included planting vegetated riparian buffers (34%), creating rain gardens (32%), and using grass swales (27%).

Familiarity with Land Use Practices

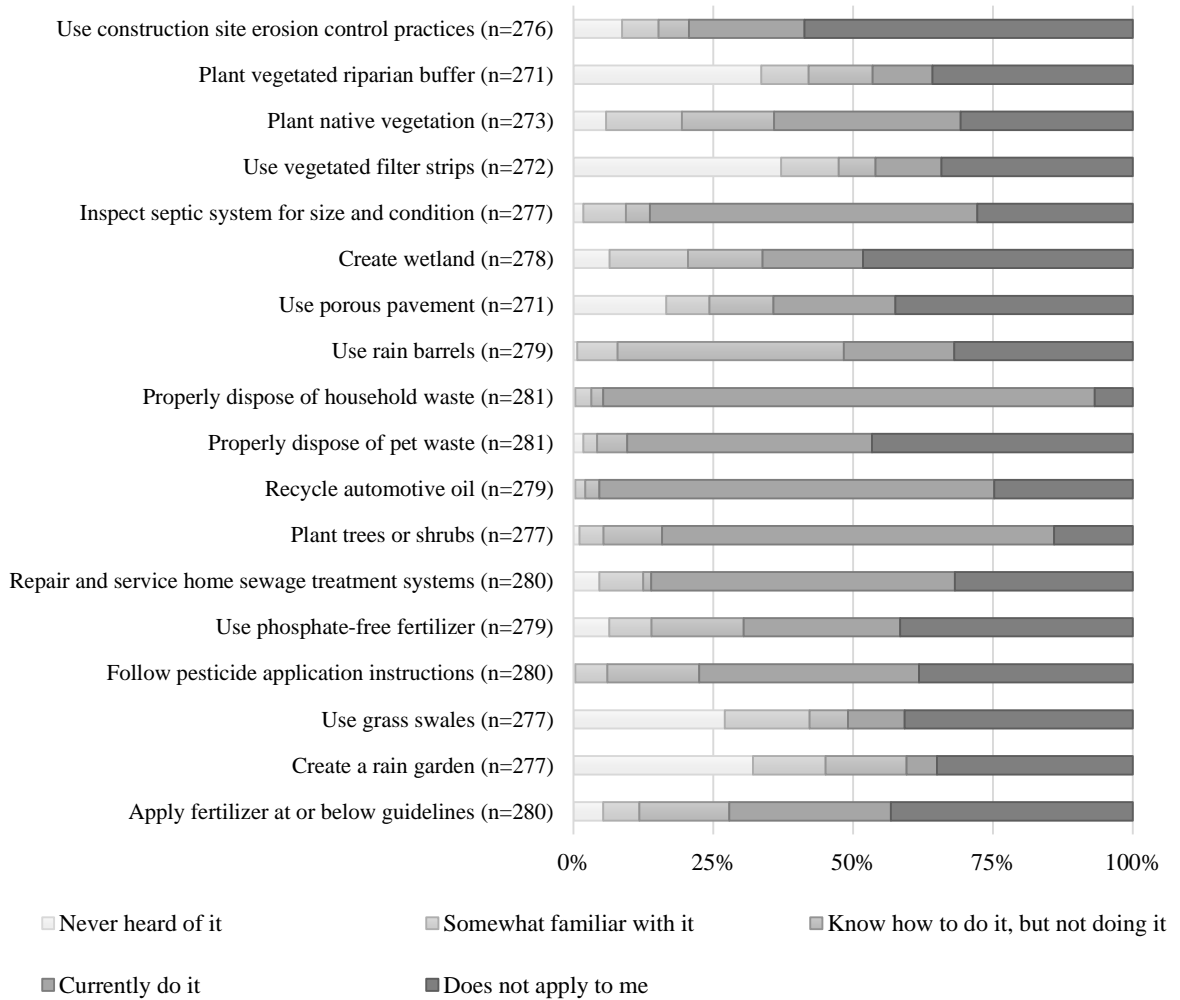


Figure 6. Residents' Familiarity with Land Use Practices.

Lakefront Property Owner Characteristics

Lakefront property owners were asked a series of questions specific to them because of the increased opportunities they have to directly impact lake water quality.

Questions included their awareness of changes in their lake water quality, participation in

lake organizations, associations, districts or sportsmen clubs, and their attitudes about how a healthy lake affects property values. In general, lakefront property owners feel that the quality of fishing as decreased (42%), there has been an increase in the amount of aquatic plants present (55%), and there has been no change in water clarity (41%), the amount of shoreline plants present (50%) or wildlife present (57%) (Table 4).

Table 4. Changes in Specific Lake Characteristics

Lake Characteristics	Increase	Decrease	No Change	Don't Know
Quality of Fishing (n=101)	9.9%	41.6%	30.7%	17.8%
Water Clarity (n=100)	29.0%	26.0%	41.0%	4.0%
Amount of Aquatic Plants (n=101)	54.5%	12.9%	26.7%	5.9%
Amount of Shoreline Plants (n=100)	39.0%	1.0%	50.0%	10.0%
Wildlife (n=101)	27.7%	7.9%	57.4%	6.9%

When lakefront property owners were asked whether or not their lake had a lake association, organization, district or sportsmen club, 81% of respondents indicate “yes”, their lake had a resident group, 12% indicated “no”, and 7% indicated that they “Don’t know” (Table 5). Of those that responded “yes”, 67% were members of the lake group; although only 52% actually attend meetings or functions.

Table 5. Lake Group Involvement

Lake Group Involvement Questions	Yes	No	Don't Know
Does your lake have a lake organization, association, district, or sportsmen club? (n=114)	80.7%	12.3%	7.0%
Are you a member? (n=113)	67.3%	31.9%	0.9%
Do you attend meetings or functions? (n=113)	52.2%	47.8%	N/A

The condition or quality of a lake can impact the value of lakefront property. Almost all (92%) of lakefront property owners feel that a healthy lake increases property values; whereas, 5% don't feel it affects property values at all and 3% don't know.

Place Meanings Scale

All 22 scale items were included in the reliability and exploratory factor analyses to see if the same factors, domains, or dimensional structure emerged using this new population. Cronbach's Alpha (α) was used to test the internal consistency of the full scale. A Cronbach's Alpha (α) greater than .70 is considered acceptable (Urdan, 2010). Cronbach's Alpha (α) for the full scale was .94 and did not increase if any of the statements were deleted, indicating excellent reliability. The exploratory factor analysis was first conducted using the principal component extraction method and varimax rotation with Kaiser normalization, allowing SPSS to decide how many factors to extract based on Eigenvalues greater than 1. The results of this EFA produced a four-factor solution, different from the original five-factor scale. The domains "income" and "community character" were clear; however, several statements found within the "onsite experiences", "emotional identity" and "nature and natural processes" domains cross-loaded between the remaining two factors, making it difficult to interpret. The EFA was conducted again and forced to produce a five-factor solution.

Exploratory Factor Analysis

The results of five-factor solution mirrored the original place meanings scale where all but one statement fell under the appropriate domain (Table 6). The statement "These lakes are a special place for my family" moved from the "community character" domain to the "onsite experiences" domain.

Table 6. Results of the Exploratory Factor Analysis

Rotated Component Matrix^a					
Scale Items	Component				
	1	2	3	4	5
	<i>Emotional Identity</i>	<i>Onsite Experiences</i>	<i>Community Character</i>	<i>Nature & Natural Processes</i>	<i>Income</i>
Many important family memories are tied to these lakes	.586	.445	.222	.165	-.033
Few people know these lakes like I do	.756	.149	.241	.059	.168
I have spent more time on these lakes than most people	.819	.194	.155	.172	.197
These lakes are like home to me	.749	.271	.241	.300	.071
These lakes link the generations of my family together	.682	.382	.245	.081	.114
I really miss these lakes when I am away from them too long	.653	.357	.257	.188	.129
These lakes are a special place for my family	.395	.603	.334	.063	-.122
I would prefer to spend more time here if I could	.211	.751	.061	.081	.222
I feel that I can really be myself at these lakes	.301	.770	.134	.197	.113
I feel a sense of pride in my heritage when I am here	.427	.616	.190	.252	.095
These lakes are the best place to do the things I enjoy	.384	.516	.228	.453	.153
When I am here others see me the way I want them to see me	.209	.599	.087	.371	.192
These lakes contribute to the character of my community	.182	.372	.689	.268	-.013
These lakes represent a way of life in my community	.133	.301	.714	.195	.096
My community's history is strongly tied to these lakes	.208	.180	.771	.149	.110
My community's economy depends on these lakes	.251	.020	.758	.047	.142

These lakes have helped put my community on the map	.240	-.034	.753	.123	.211
These lakes are important in protecting water quality	.190	.269	.188	.758	.005
These lake are important in protecting the landscape from development	.187	.007	.117	.819	.144
These lakes are important in providing habitat for wildlife	.068	.342	.214	.630	.000
My family's income or livelihood depends on these lakes	.170	.142	.186	.085	.932
My income or livelihood depends on these lakes	.176	.178	.208	.086	.918
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 7 iterations.					

Forcing the EFA into five factors also caused the extraction of the fifth factor with an Eigenvalue of .975 which is slightly below the standard index of 1 (Table 7).

Table 7. Total Variance Explained by Factor

Total Variance Explained						
Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.872	44.873	44.873	4.054	18.425	18.425
2	1.847	8.394	53.268	3.635	16.523	34.948
3	1.564	7.111	60.379	3.438	15.625	50.574
4	1.389	6.316	66.694	2.454	11.154	61.728
5	.975	4.431	71.125	2.067	9.397	71.125

This five-factor solution was kept due to the increased clarity of the scale's dimensional structure.

Cronbach's Alpha (α) was then used again to test the internal consistency of the five scale domains. The "emotional identity" (.91) domain had excellent reliability. Community character (.85) and "onsite experiences" (.87) both have very good reliability and "nature and natural processes" (.73) had acceptable reliability. Income (.99) seems to have near perfect internal consistency, but because there are only two items within the scale the reliability test is not an appropriate measure. With that being said, the "income" domain was retained to be consistent with the original study that extracted this factor based on their analyses. Across all five domains, no statements were removed to increase Cronbach's Alpha. Of the five domains tested, the highest mean composite score (4.20) resulted from the "nature and natural processes" domain, followed by "community character" (4.04), "onsite experiences" (3.81), "emotional identity" (3.36), and "income" (2.04) (Table 8).

Table 8. Place Meanings Scale Results & Reliability

Place Meaning Scale Domains, Items, and Reliability			
Scale Domains/Items	Mean	SD	α
<i>Community Character (n=263)</i>	4.04*		0.85
These lakes are a special place for my family	4.45	0.64	
These lakes contribute to the character of my community	4.45	0.58	
These lakes represent a way of life in my community	4.19	0.75	
These lakes have helped put my community on the map	3.97	0.88	
My community's history is strongly tied to these lakes	3.45	1.00	
My community's economy depends on these lakes	3.61	0.96	
<i>Emotional Identity (n=259)</i>	3.36*		0.91
Many important family memories are tied to these lakes	4.09	0.86	
Few people know these lakes like I do	2.95	0.99	
I have spent more time on these lakes than most people	2.92	1.11	
These lakes are like home to me	3.50	1.07	
These lakes link the generations of my family together	3.32	1.14	
I really miss these lakes when I am away from them too long	3.39	1.12	
<i>Nature and Natural Processes (n = 264)</i>	4.20*		0.73
These lakes are important in protecting water quality	4.25	0.73	
These lakes are important in protecting the landscape from development	3.95	0.98	
These lakes are important in providing habitat for wildlife	4.40	0.71	
<i>Onsite Experiences (n = 261)</i>	3.81*		0.87
I would prefer to spend more time here if I could	4.07	0.81	
I feel that I can really be myself at these lakes	3.86	0.83	
These lakes are the best places to do the things I enjoy	3.62	0.91	
I feel a sense of pride in my heritage when I am here	3.88	0.89	
When I am here others see me the way I want them to see me	3.55	0.81	
<i>Income (n = 236)</i>	2.04*		0.99
My income or livelihood depends on these lakes	2.04	0.84	
My family's income or livelihood depends on these lakes	2.03	0.84	
*indicates composite mean score for domain			

The Effects of Resident & Property Characteristics on Place Meanings

Two objectives of this study were to determine if different characteristics of the residents themselves or characteristics of their properties had any effect on the level of place meanings they assigned to the lakes. Looking at the distribution of type of property owner, size of property and length of time spent on the property each year, we see that lakefront property owners generally own more than $\frac{1}{4}$ acre, but less than 1 acre, and are year-round residents; although seasonal residency among lakefront property owners is also high. On the other hand, non-lakefront property owners own more than 5 acres and are largely year-round residents (Table 9 and Table 10).

Table 9. Distribution of Type of Owner and Size of Property

Type of Property Owner		What is the approximate size of your property?				Total
		<i>1/4 acre or less</i>	<i>More than a 1/4 acre but less than 1 acre</i>	<i>1 acre to less than 5 acres</i>	<i>More than 5 acres</i>	
Are you a lakefront property owner in Marathon County?	Yes	20	54	35	23	132
	No	4	12	30	74	120
Total		24	66	65	97	252

Table 10. Distribution of Type of Owner and Length of Residency

Type of Property Owner		Do you live in Marathon County...		Total
		<i>Not Year-round</i>	<i>Year-round</i>	
Are you a lakefront property owner in Marathon County?	Yes	63	77	140
	No	21	103	124
Total		84	180	264

Lakefront versus Non-lakefront Property Owners

The results of the independent samples t-test revealed that there is a significant difference between lakefront property owners and non-lakefront property owners on the “community character”, “emotional identity”, and “onsite experiences” domains (Table 11).

Table 11. Results of t-test between lakefront and non-lakefront property owners.

Type of Resident	Place Meaning Domains (Mean)				
	<i>Community Character</i>	<i>Emotional Identity</i>	<i>Onsite Experiences</i>	<i>Nature and Natural Processes</i>	<i>Income</i>
Lakefront Owner (n= 137)	4.16	3.66	3.96	4.25	2.07
Non-lakefront Owner (n=112)	3.92	3.04	3.66	4.18	1.97
<i>t</i>	3.044	5.85	3.413	0.906	0.844
<i>p</i>	.003**	.000*	.001*	0.366	0.4

* $p < .001$, ** $p < .01$

Due to these significant differences, a simple linear regression analysis was conducted to see if any predictive relationship existed between being a lakefront property owner or non-lakefront property owner and each of the five place meaning domains. The regression analysis produced similar results as the t-test where a significant relationship exists between being a lakefront owner and the “emotional identity” domain ($F(1, 242) = 34.227, p < .001$) with a R^2 of .124, the “community character” domain ($F(1, 245) = 9.265, p < .05$) with a R^2 of .036, and the “onsite experiences” domain ($F(1, 243) = 11.647, p < .001$) with a R^2 of .046 (Table 12). The negative relationship between being a lakefront property owner on the “emotional identity”, “community character”, and

“onsite experiences” domains explains 12.4%, 3.6%, and 4.6% of the variance, respectively.

Table 12. Results of Type of Property Owner Regression Analysis

Type of Resident	Place Meaning Domains				
	<i>Community Character</i>	<i>Emotional Identity</i>	<i>Onsite Experiences</i>	<i>Nature and Natural Processes</i>	<i>Income</i>
<i>R-squared</i>	0.036	0.124	0.046	0.003	0.003
<i>Beta</i>	-0.191	-0.352	-0.214	-0.058	-0.057
<i>p</i>	0.003**	0.000*	0.001*	0.366	0.4

p* <.001, *p* <.01

Further t-tests and correlation matrices revealed that no significant differences existed between lakefront and non-lakefront property owners on the lake quality awareness scales or familiarity in land use practices presented earlier.

Differences between Lakefront Property Owners

It is clear from these results that differences between lakefront and non-lakefront property owners exists, but is there any difference between lakefront property owners on place meanings? An independent samples t-test was conducted between lakefront property owners who are members of their lake group and those who are not on place meanings. There were significant differences between members and non-members on the “community character” and “emotional identity” domains (Table 13).

Table 13. Results of t-test between Members and Non-members of Lake Groups

Member of Lake Group	Place Meaning Domains (Mean)				
	<i>Community Character</i>	<i>Emotional Identity</i>	<i>Onsite Experiences</i>	<i>Nature and Natural Processes</i>	<i>Income</i>
<i>Member (n= 74)</i>	4.27	3.84	4.06	4.24	2.13
<i>Not a Member (n=36)</i>	3.95	3.46	3.79	4.25	2.02
<i>t</i>	2.553	2.473	1.879	-.068	.597
<i>p</i>	.012*	.015*	.063	0.946	0.552

*p < .02

Looking at the distribution among lakefront property owners who are members and who are not members of a lake group, we see that members own more than ¼ acre, but less than 1 acre and are year-round residents; although again, seasonal residency is high; whereas, non-members are almost evenly distributed between owning more than a ¼ acre, but less than 5 acres and are also year-round residents, but seasonal residency is high (Table 14 and Table 15).

Table 14. Distribution of Membership in Lake Group and Size of Property

Membership in Lake Group		What is the approximate size of your property?				Total
		<i>1/4 acre or less</i>	<i>More than a 1/4 acre but less than 1 acre</i>	<i>1 acre to less than 5 acres</i>	<i>More than 5 acres</i>	
Are you a member of the lake organization, association, district or sportsmen club?	Yes	14	32	19	10	75
	No	2	11	13	4	30
	Don't Know	0	0	0	1	1
Total		16	43	32	15	106

Table 15. Distribution of Membership in Lake Group and Length of Residency

Membership in Lake Group		Do you live in Marathon County...		Total
		<i>Not Year-round</i>	<i>Year-round</i>	
Are you a member of the lake organization, association, district or sportsmen club?	Yes	34	42	76
	No	15	21	36
	Don't Know	0	1	1
Total		49	64	113

Similarly, a simple linear regression was also conducted to see if being a member of a lake group had any predictive relationship with place meanings assigned by lakefront property owners. The results of the regression revealed that no significant relationship exists.

Property Characteristics and Place Meanings

To first see if any relationship existed between place meanings and size of property and year-round versus seasonal residents, Spearman rho correlation coefficient (ρ) was used. Length of time spent on the property each year was positively correlated with the “emotional identity” ($\rho = .182$) and “onsite experiences” ($\rho = .134$) dimensions; whereas, a negative correlation exists between the size of property and the “emotional identity” ($\rho = -.259$), “onsite experiences” ($\rho = -.150$), and “community character” ($\rho = -.186$) domain (Table 16). While the correlations are significant, correlation coefficients less than 0.3 are considered weak (Urdan, 2010); therefore, all correlations found between length of time spent on the property each year and size of property with the “emotional identity”, “onsite experiences”, and “community character” domains are weak.

Table 16. Correlation Matrix of Property Characteristics and Place Meanings

Property Characteristics	Place Meaning Domains				
	<i>Community Character</i>	<i>Emotional Identity</i>	<i>Onsite Experiences</i>	<i>Nature and Natural Processes</i>	<i>Income</i>
<i>Year-round vs. Seasonal Resident</i>	0.086	0.182*	0.134**	0.034	0.012
<i>Size of Property</i>	-0.186*	-0.259*	-0.150**	-0.067	0.039

* $p < .01$, ** $p < .05$

Although there was a positive weak correlation between length of time spent on the property each year across two domains, further ANVOA and Post Hoc tests using Tukey’s HSD were conducted, and revealed no significant differences among the groups and the place domains. However, after conducting ANVOA and Post Hoc tests using Tukey’s HSD, significant differences were found among the different size property owners and the “emotional identity”, and “community character” domain. Significant differences were found among different size property owners within the “emotional identity” domain ($F(3, 245) = 5.255, p < .05$). Tukey’s HSD was used determine the nature of the differences between different size property owners. The analysis revealed that property owners who own “less than ¼ of an acre” (mean = 3.75, $s = .767$), and those that own “more than ¼ of an acre to 1 acre” (mean = 3.52, $s = .808$) scored higher than those that own “5 or more acres” (mean = 3.10, $s = .859$). There was also a significant difference between property owners who own “more than ¼ of an acre to 1 acre” (mean = 4.18, $s = 6.05$) and those that own “5 or more acres” (mean = 3.89, $s = .589$) also on the “community character” domain ($F(3, 246) = 3.063, p < .05$).

Further regression analysis of size of property and the place domains revealed that a significant relationship exists between size of property and the “onsite experiences” domain ($F(1, 247) = 6.394, p <.001$) with a R^2 of .059, the “community character” domain ($F(1, 248) = 8.438, p <.01$) with a R^2 of .033, and the “emotional identity” domain ($F(1, 247) = 15.584, p <.05$) with a R^2 of .025 (Table 17). The relationship between size of property on the “emotional identity”, “community character”, and “onsite experiences” domains explains 5.9%, 3.3%, and 2.5% of the variance, respectively.

Table 17. Results of Size of Property Regression Analysis

Size of Property	Place Meaning Domains				
	Community Character	Emotional Identity	Onsite Experiences	Nature and Natural Processes	Income
<i>R-squared</i>	0.033	0.025	0.059	0.004	0.001
<i>Beta</i>	-0.181	-0.159	-0.244	-0.064	0.032
<i>p</i>	0.004**	0.012***	0.000*	0.311	0.632
* $p <.001$, ** $p <.01$, *** $p <.05$					

Even though length of time spent on the property each year produced no significant results among the different groups through the ANOVA and Post Hoc tests, a linear regression was conducted. The regression analysis revealed that a significant relationship exists between the “emotional identity” domain ($F(1, 257) = 11.579, p <.001$) with a R^2 of .043, the “onsite experiences” domain ($F(1, 259) = 5.335, p <.05$) with a R^2 of .022, and the “community character” domain ($F(1, 261) = 4.119, p <.05$) with a R^2 of .016 (Table 18). The relationship between the length of time spent on the property each year on the “emotional identity”, “onsite experiences”, and “community character” domains explains 4.3%, 2.2%, and 1.6% of the variance, respectively.

Table 18. Results of Length of Time Spent on Property Regression Analysis

Year- round vs. Seasonal Resident	Place Meaning Domains				
	<i>Community Character</i>	<i>Emotional Identity</i>	<i>Onsite Experiences</i>	<i>Nature and Natural Processes</i>	<i>Income</i>
<i>R-squared</i>	0.016	0.043	0.022	0.004	0
<i>Beta</i>	0.125	0.208	0.142	0.066	0.009
<i>p</i>	0.043**	0.001*	0.022**	0.283	0.891
* <i>p</i> <.001, ** <i>p</i> <.05					

A multiple linear regression was conducted to see separately if size of property and length of time spent on the property each year, in addition to being a lakefront property owner, helped to explain greater variance. The significant results produced from being a lakefront property owner and size of property included the “emotional identity” dimension ($F(2, 233) = 17.707, p <.001$) with a R^2 of .132, the “community character” dimension ($F(2, 233) = 6.176, p <.01$) with a R^2 of .050, and the “onsite experiences” dimension ($F(2, 232) = 5.839, p <.01$) with a R^2 of .048 (Table 19). The combination of size of property and being a lakefront property owner on the “emotional identity”, “community character”, and “onsite experiences” domains explains 13.2%, 5.0%, and 4.8% of the variance, respectively.

Table 19. Multiple Linear Regression Results

Type of Resident & Size of Property	Place Meaning Domains				
	<i>Community Character</i>	<i>Emotional Identity</i>	<i>Onsite Experiences</i>	<i>Nature and Natural Processes</i>	<i>Income</i>
<i>R-squared</i>	0.05	0.132	0.048	0.002	0.006
<i>Beta</i>					
<i>Type of Resident</i>	-0.155	-0.316	-0.186	-0.036	-0.092
<i>Size of Property</i>	-0.103	-0.082	-0.057	-0.016	0.061
<i>p</i>	0.002**	0.000*	0.003**	0.781	0.502
* <i>p</i> <.001, ** <i>p</i> <.01					
Type of Resident & Year-round vs. Seasonal Resident					
<i>R-squared</i>	0.044	0.139	0.053	0.004	0.003
<i>Beta</i>					
<i>Type of Resident</i>	-0.164	-0.315	-0.189	-0.049	-0.057
<i>Length of Residence</i>	0.093	0.13	0.087	0.031	-0.003
<i>p</i>	0.004**	0.000*	0.001*	0.596	0.702
* <i>p</i> <.001, ** <i>p</i> <.01					

The significant results produced from being a lakefront property owner and length of time spent on the property each year included the “emotional identity” dimension ($F(2, 241) = 19.528, p <.001$) with a R^2 of .139, the “onsite experiences” dimension ($F(2, 242) = 6.729, p <.001$) with a R^2 of .053, and the “community character” dimension ($F(2, 244) = 5.667, p <.01$) with a R^2 of .044 (Table 19). The combination of length of time spent on the property each year and being a lakefront property owner on the “emotional identity”, “community character”, and “onsite experiences” domains explains 13.9%, 5.3%, and 4.4% of the variance, respectively.

Although, 23% of the total variance explained when size of property and lakefront owner and length of time spent on property each year and lakefront owner are both higher when the two variables are included in the analysis, it is not dramatically higher from the total variance explained by being a lakefront property owner alone, 20.6%. These results would suggest that there are other variables not captured in the survey that would greater contribute to explaining the variance and relationships with the place domains.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

The place meanings scale developed by Davenport, et al. (2010) proved to be a well-developed scale that not only explores the multidimensionality of place attachment, but holds true when tested using different populations. Replicating the original dimensional structure on a separate and adequate sample contributes to the generalizability of the scale (DeVellis, 2012). Although, there were modifications to the original scale in this study, the results of both the tests of internal consistency and the exploratory factor analysis were overall consistent with the original study.

Place meaning differences between lakefront property owners and non-lakefront property owners were observed; however, when further analysis was conducted incorporating property characteristics, the results were significant, but had very small influence on place meanings. Place meaning differences were also observed between lakefront property owners and their involvement or membership in their local lake association, organization, district or sportsmen clubs.

Place Meanings Scale

Comparing the mean composite scores of the domains “community character”, “emotional identity”, “nature and natural processes”, “onsite experiences”, and “income”, the findings between the Davenport, et al. (2010) and this study are similar. The domain mean composite scores ranged from 4.20, the highest scoring domain being “nature and natural processes” to 2.04, the lowest scoring domain being “income”. Although, the original study used a 7-point scale instead of a 5-point scale in this study the scores are comparable and the domains rank out almost exactly with the exception of “onsite

experiences”, which ranks second in the original study and third in this study after “community character”.

The exploratory factor analysis was overall consistent with the findings of the Davenport, et al. (2010) study except for the “community character” domain where one statement loaded more heavily on the “onsite experiences” domain. The statement, “These lakes are a special place for my family” could be interpreted in a variety of ways. Being a special place could be viewed as a dependence especially if family activities and events are held at the lakes, and if those activities or events involve other families in the community it could easily be seen as contributing to the character of the community. Although, the original study found this statement to best fit within the “community character” domain, for this population, it best described their “onsite experiences”.

Similar to the findings in the Davenport, et al. (2010) study where visitors reported low community economic dependence and even lower individual economic dependence on Giant City State Park, the residents also attributed lower scores to individual, family, and community-level income or economic dependence on the lakes. Besides a few campgrounds and restaurants, the livelihood of the residents is not dependent on the lakes as many of them are retired and moved to the area later in life or are seasonal residents. In a state of 15,000 lakes, most lakes included in this study are smaller; more secluded, and are not seen as having unique recreational opportunities that would attract distant tourists. However, visitors to Giant City State Park did attribute higher regional economic dependence on the park. Perhaps if the “regional economy” domain was kept in this study, the same results might be true for the residents and the lakes. The exclusion of the “regional economy” domain while seeming irrelevant at the

beginning now may have neglected to incorporate landscape-level dependencies seen or felt by the residents. It is recommended to include the “regional economy” domain in future studies. The overall consistency and results using this place meanings scale on a new population has provided evidence for the transferability of place meanings scales in similar settings.

Place Meanings and Resident Characteristics

To summarize, the residents that participated in this study tended to be male, older than 60, hold a high school degree or an equivalent, are year-round Marathon County residents, and own 5 acres or more of lakefront property. The residents enjoy their lakes most for the recreational opportunities and the sense of community and family that the lakes represent. No significant differences were found between lakefront and non-lakefront property owners in their awareness of characteristics that define a healthy or unhealthy lake. The same is true for familiarity with and participation in land use practices that aim at improving lake water quality. Although, the lakes in Eastern Marathon County are considered to be in good condition now, awareness and participation in certain land use practices should be emphasized to prevent future degradation. The use of rain barrels and using native vegetation to buffer run-off into the lakes or storm water systems were among the practices being adopted least by residents, and have a direct impact on water quality. One suggestion would be to incorporate more education and awareness of these practices when developing the outreach plans.

One objective of this study was to determine if lakefront property owners assigned a higher meaning to the local lakes than non-lakefront property owners. The independent t-test revealed that indeed lakefront property owners assigned a higher

meaning or more strongly identified with the “community character”, “emotional identity”, and the “onsite experiences” domains. According to Jorgensen & Stedman (2006), “lakes have an important influence on the way that lakefront property owners integrate their properties into their self-concepts” , and those that more strongly identified with their lakefront properties where those whose lifestyles where more closely tied to the lakes (p.325). These findings are also present in this study where lakefront property owners scored higher on the place meaning domains relating to self, families, communities and recreational opportunities than non-lakefront property owners or those who do not interact or have access to the lakes on a daily basis. There were no significant differences between type of property owner and the “nature and natural processes” or the “income” domains. Further linear regression analysis supported these findings with 20.6% of the variance being explained by type of property owner, lakefront versus non-lakefront.

Additionally, an independent t-test was conducted to see if place meanings differed between lakefront property owners who were members of a lake group and those who were not. Significant differences on the “community character” and “emotional identity” domains were observed between members and non-members. This is not surprising. As one would expect, lakeshore property owners who become members of their lake group more strongly identify with the meanings held by the group. Sense of community and place attachment or in this case, stronger community and emotional connections or meanings, complement each other in that they have been linked to citizen participation (Manzo & Perkins, 2006). It is also been found that year-round residents are more likely to see their lake as a community of neighbors, and that this attachment is

fostered through social networks and increased participation (Stedman, 2006). Although, the residency of members was fairly even between year-round and seasonal residents, Stedman (2006) also found that no differences exist between the level of social interaction and year-round versus seasonal residents, but that these social interactions play a greater defining role in place meanings for year-round residents.

Place Meanings and Property Characteristics

The final objective of this study was to determine if property characteristics such as year-round residents versus seasonal residents, and the size of one's property had any effect on place meanings. As mentioned earlier, the analyses did produce significant results; however, the degree in which these characteristics influenced place meanings was small. There is a positive, but weak correlation between lengths of time spent on the property each year and the "emotional identity" and "onsite experiences" domains. This weak correlation supports current research that challenges the notion that those who have only one residence or are year-round residents are more attached to that place than those that have multiple residences (Stedman, 2006). While the strength of attachment may not differ between lengths of residency, it is fostered through different outlets and predicated on a different set of place meanings (Stedman, 2006; Van Patten & Williams, 2008). This along with the majority of respondents (71%) being year-round residents can help to explain this weak relationship or small distinction between the two types of residents.

Size of property also had a weak correlation with the "community character", "emotional identity", and "onsite experiences" domains, but the relationship is negative. Therefore, as property size increases, place meanings decreased. Research around non-industrial private forest landowners through the Sustainable Family Forest Initiative,

shows that landowner values change as size of property increases. The values shift from the amenity-centered values such as wildlife and scenery to include financial concerns, goals, and participation in programs to relieve financial burden. This suggests that larger size property holdings do mean something different to their owners than owners of small holdings. The results from the ANOVA and Post Hoc tests demonstrated that a significant difference exists between the two smallest property size categories, “less than 1 acre” and “more than ¼ of an acre to 1 acre” and the property owners who own “5 or more acres” on the “emotional identity” domain. There was also a significant difference between the owners who own “more than ¼ of an acre to 1 acre” and the property owners who own “5 or more acres” on the “community character” domain. While the significance is not consistent across all the place meanings, it does hint at the notion that there may be either other values or meanings that the scale failed to capture for the larger size property owners, or this category of property owners are largely non-lakefront property owners.

Multiple linear regression analyses were conducted to determine if any predictive relationships existed between being a lakefront property owner and year-round or seasonal resident, and being a lakefront property owner and size of property. Both analyses support the above findings and significance of the “community character”, “emotional identity”, and “onsite experiences” domains. Although the results were significant, both analyses only increased the total variance explained from 20.6%, being a lakefront property owner, to 23% with the addition of the property characteristics. Therefore, length of time spent on the property each year and size of property do not have a strong predictive relationship with place meanings.

Conclusions

The place meaning scale developed by Davenport, et al. (2010) transferred well to this study because the foundation and themes in which the scale was developed was based upon place meanings assigned by community members to a wild and scenic river (Davenport & Anderson, 2005). This study looked to not only confirm the dimensional structure of the scale, but look at its validity and applicability to a new population in a new landscape setting. In an open-ended survey question, participants were asked to describe why they valued the Marathon County lakes. While the question was not formally analyzed, the values that were repeated most often by residents included family, home, nature, wildlife, recreation and beauty. Many of these values were captured in the place meanings scale, helping to account for the comparable results across studies and support the transferability. Understanding the meanings the residents assign to the lakes involved in the Eastern Marathon County Lakes Project, will provide insights pertaining to their environmental concerns (Brehm, et al. 2013) as well as their commitment to, and participation in, community activities and processes (Manzo & Perkins, 2006).

In conclusion, the place meanings scale developed by Davenport, et al. (2010) is reliable when used to better capture the multidimensionality of place attachment across different populations. As it becomes clearer the importance of place meanings and how they differ with varying levels of place attachment, researchers face the challenge of better understanding and gathering information about place meanings due to their specificity to the landscape, context, and population. Future research should continue to embrace the multidimensionality of the human-place bond and look deeper into place attachment beyond the intensity of the bond to the underlying meanings and factors that

foster that attachment. Therefore, further development and testing of place meanings scales on different populations and in different landscape settings will only continue to gather more evidence for this multidimensionality and transferability to similar settings.

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APPENDIX A

Eastern Marathon County Mail Survey

Eastern Marathon County Lakes Project Your Views on the Local Lakes and Water Quality

Dear Marathon County Resident,

Two weeks ago, you received a letter about the enclosed survey. The Eastern Marathon County Lakes Project is working to improve and protect water quality by gathering information from residents to help direct outreach and educational efforts. As a resident in the project area (shown below), your insights are particularly important to us. We would greatly appreciate your participation in this survey to help us learn how we might best serve the needs of the local communities.

You still have the opportunity to complete this survey online by visiting the following website: <https://www.surveymonkey.com/s/MCLakes> to provide your responses securely online. Please enter the code: **1487** if you choose to do so.

If you choose not to complete the survey online, please complete the questionnaire and return it in the enclosed addressed and postage-paid envelope. The survey should take no longer than 20 minutes to complete and you will not be required to answer all the questions. Please read each question carefully.



This is a fact-finding survey to collect baseline data about awareness, attitudes, and behaviors as they relate to lake management and water quality. Your voluntary participation in this survey is very important to help inform the ongoing efforts to improve local water quality and address the needs and interests of the communities surrounding the lakes in Marathon County. This is your chance to be heard. If you have any questions about the survey please contact Dr. Kristin Floress at (715) 346-4135. Survey results will be available fall 2012 at www.co.marathon.wi.us. Thank you in advance for your help!

Dr. Kristin Floress
Assistant Professor
University of Wisconsin-Stevens Point



University of Wisconsin-Stevens Point
College of Natural Resources

Gary Wyman
Marathon County Board Chairman and
County Board Supervisor District 15



Section 1: General Information

To get started, please tell us what you enjoy most about Marathon County's lakes.

1. Which of the following lake experiences do you enjoy? Please check all that apply.

- | | |
|--|--|
| <input type="checkbox"/> Family Events (picnics, BBQ, volleyball, parties, etc.)
<input type="checkbox"/> Motorized activities (boating, jet-skiing, snowmobiling, etc.)
<input type="checkbox"/> Non-motorized activities (canoeing, swimming, viewing nature etc.) | <input type="checkbox"/> Relaxing (reading, napping, etc.)
<input type="checkbox"/> Fishing, hunting or trapping
<input type="checkbox"/> Other (please specify) |
|--|--|

2. Tell us whether you think the following is a sign of a healthy lake.

	Yes	No	Don't know
a. Clear water (can see a long way down)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Good fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Native plants in the water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Wildlife (loons, frogs, waterfowl etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Ice ridges along the shore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Invertebrates (snails, clams, crayfish, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Fallen trees in the lake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Algae bloom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Insects (dragonflies, water bugs etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Tell us whether you think the following might cause a lake to become unhealthy and to what extent you feel it is a problem.

	Don't know if it is a problem	Not a problem	Slight problem	Moderate problem	Severe problem
a. Applying fertilizer to my lawn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Campfires on the beach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Applying herbicide or pesticides in the yard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Bathing in the lake with soap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Removing plants in the water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Removing plants along the shore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Geese on the lawn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Docks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Mowing along the shoreline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Rainwater from roof or driveway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Pet waste in the yard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Leaky septic system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Foreign aquatic species like Eurasian water milfoil or zebra mussels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Disposing of yard waste into the lake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Eastern Marathon County Lakes Project

4. Please indicate which statement most accurately describes your level of experience with each practice listed below.

	Never heard of it	Somewhat familiar with it	Know how to do it, but not doing it	Currently do it	Does not apply to me
a. Apply fertilizer at or below manufacturer guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create a rain garden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Use grass swales (vegetated ditches used for storm water management)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Follow pesticide application instructions for lawn and garden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Use phosphate-free fertilizer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Repair and service home sewage treatment systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Plant trees or shrubs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Recycle automotive oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Properly dispose of pet waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Properly dispose of household waste (chemicals, light bulbs, batteries, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Use rain barrels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Use porous pavement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Create wetland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Inspect septic system for size and condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Use vegetated filter strips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Plant native vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Plant vegetated riparian buffer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r. Use construction site erosion control practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Eastern Marathon County Lakes Project

<i>Section 1: The Removal of Weeds from Watercrafts</i>		
5. Do you now or have you ever removed weeds from your watercraft before entering and leaving a lake?	6. How familiar are you with the practice of removing weeds from your watercraft?	7. Are you willing to remove weeds from your watercraft before entering and leaving a lake?
<input type="checkbox"/> Currently remove weeds <input type="checkbox"/> Don't currently remove weeds <input type="checkbox"/> Have never removed weeds <input type="checkbox"/> Keep watercraft in same lake <input type="checkbox"/> Don't own a watercraft → <i>(Please skip to Question #9)</i>	<input type="checkbox"/> Never heard of it <input type="checkbox"/> Somewhat familiar with it <input type="checkbox"/> Know how to, but not doing it <input type="checkbox"/> Currently do it	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe

8. How much do the following factors limit your ability to remove weeds from your watercraft?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Section 1: The Removal of Garbage from Lakes and Shorelines</i>		
9. Do you now or have you ever removed garbage from a lake or shoreline?	10. How familiar are you with the practice of removing garbage from lakes or shorelines?	11. Are you willing to remove garbage from lakes or shorelines?
<input type="checkbox"/> Currently remove garbage <input type="checkbox"/> Don't currently remove garbage <input type="checkbox"/> Have never removed garbage <input type="checkbox"/> Don't visit lakes or shorelines → <i>(Please skip to Question #13)</i>	<input type="checkbox"/> Never heard of it <input type="checkbox"/> Somewhat familiar with it <input type="checkbox"/> Know how to, but not doing it <input type="checkbox"/> Currently do it	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe

12. How much do the following factors limit your ability to remove garbage from lakes or shorelines?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Access to disposal sites (i.e. garbage cans)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Eastern Marathon County Lakes Project

<i>Section 1: The Disposal of Pet Waste</i>		
13. Do you now or have you ever cleaned-up your pet's waste when outdoors?	14. How familiar are you with the practice of cleaning-up your pet's waste when outdoors?	15. Are you willing to clean-up your pet's waste when outdoors?
<input type="checkbox"/> Currently do it <input type="checkbox"/> Don't currently do it <input type="checkbox"/> Have never cleaned-up pet waste <input type="checkbox"/> Don't have a pet → <i>(Please skip to Question #17)</i>	<input type="checkbox"/> Never heard of it <input type="checkbox"/> Somewhat familiar with it <input type="checkbox"/> Know how to, but not doing it <input type="checkbox"/> Currently do it	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe

16. How much do the following factors limit your ability to clean-up your pet's waste when outdoors?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Access to disposal sites (i.e. garbage cans)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Complimentary bags available at public areas to put waste in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Eastern Marathon County Lakes Project

Section 1: Place Dimensions

<i>Please think about the lakes in Marathon County that you frequent often, live close to or live on and indicate the extent to which you agree or disagree with the following statements.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Don't know
17. Community Character						
a. These lakes are a special place for my family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. These lakes contribute to the character of my community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. These lakes represents a way of life in my community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My community's history is strongly tied to these lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. My community's economy depends of these lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. These lakes have helped put my community on the map	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Place Importance						
a. Many important family memories are tied to these lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Few people know these lakes like I do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I have spent more time on these lakes than most people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. These lakes are like home to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. These lakes link the generations of my family together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. I really miss these lakes when I am away from them too long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. My income or livelihood depends on these lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. My family's income or livelihood depends on these lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Experiences and Nature						
a. I would prefer to spend more time here if I could	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I feel that I can really be myself at these lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I feel a sense of pride in my heritage when I am here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. These lakes are important in protecting water quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. These lakes are important in protecting the landscape from development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. These lakes are the best places to do the things that I enjoy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. When I am here others see me the way I want them to see me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. These lakes are important in providing habitat for wildlife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 1: Information Sources

Please tell us about the resources you use to gather information about lake and water quality issues.

20. To which of the following sources do you go for lake information and to what extent do you trust that source to provide lake or water quality information?

Please check all that apply	Not at all	Slightly	Moderately	Very Much	Don't know
<i>For Example: I seek lake information from:</i> <input checked="" type="checkbox"/> <i>My local church</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Lake organization, association, or district	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sportsmen club	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Neighbor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Marathon County Department of Conservation, Planning and Zoning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Natural Resources Conservation Service (NRCS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Farm Service Agency (FSA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> University of Wisconsin-Extension (UWEX)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Wisconsin Department of Natural Resources (WDNR)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Newspaper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> I don't seek lake information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 2: Residency Information

Please answer the following questions about your residency in Marathon County.

1. Do you live in Marathon County...?

- Year-round
- Less than 3 months out of the year
- 3 – 6 months out of the year
- More than 6 months but less than 12 months out of the year

2. How long have you lived at your current residence in Marathon County?

_____ Years

3. Are you a lakefront property owner in Marathon County? Do you own shoreline along a lake?

- Yes → *(Please skip to Section 3 - Page 8)*
- No

4. Are you an agricultural producer in Marathon County? Do you grow crops or raise livestock for meat or dairy as part of or your entire livelihood?

- Yes → *(Please skip to Section 4 – Page 10)*
- No

5. Are you a resident of Marathon County who is neither a lakefront property owner nor an agricultural producer?

- Yes → *(Please skip to Section 5 – Page 13)*
- No → *(Please skip to Section 5 – Page 13)*

Section 3: Lakefront Owner Information

The questions in this section should only be answered by residents that own shoreline along a lake.

1. Which lake do you live on? _____

2. Have you noticed an increase, decrease or no change in the following of your lake? Please check all that apply.	Increase	Decrease	No Change	Don't know
a. Quality of fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Water clarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Amount of aquatic plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Amount of shoreline plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Wildlife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<p>3. Does your lake have a lake organization, association, district or sportsmen club</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know</p>	<p>4. Are you a member of the lake organization, association, district, or sportsmen club?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know</p>	<p>5. Do you attend lake organization, association, district or sportsmen club meetings, or functions?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	--	--

<i>Section 3: The Use of Buffers along Shorelines</i>		
<p>6. Do you now or have you ever utilized natural plants & grass buffers along your shoreline?</p> <p><input type="checkbox"/> Currently use them <input type="checkbox"/> Don't currently use them <input type="checkbox"/> Have never used buffers <input type="checkbox"/> Don't have shoreline to buffer → <i>(Please skip to Question #10)</i></p>	<p>7. How familiar are you with the practice of using buffers along your shoreline?</p> <p><input type="checkbox"/> Never heard of it <input type="checkbox"/> Somewhat familiar with it <input type="checkbox"/> Know how to, but not doing it <input type="checkbox"/> Currently do it</p>	<p>8. Are you willing to use natural plants & grass buffers along your shoreline?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe</p>

9. How much do the following factors limit your ability to use buffers along your shoreline?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Section 3: Regular Servicing of Septic System</i>						
<p>10. Do you now or have you ever had your septic system regularly serviced by a licensed professional?</p> <p><input type="checkbox"/> Currently service</p> <p><input type="checkbox"/> Don't currently service</p> <p><input type="checkbox"/> Have never serviced</p> <p><input type="checkbox"/> Don't have a septic system → <i>(Please skip to Question #14)</i></p>	<p>11. How familiar are you with regularly servicing your septic system?</p> <p><input type="checkbox"/> Never heard of it</p> <p><input type="checkbox"/> Somewhat familiar with it</p> <p><input type="checkbox"/> Know about, but not doing it</p> <p><input type="checkbox"/> Currently service</p>	<p>12. Are you willing to try to regularly service your septic system?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Maybe</p>				
<p>13. How much do the following factors limit your ability to regularly service your septic system?</p>		Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Section 3: Minimizing the Use of Impermeable (solid, non-porous) Surfaces</i>						
<p>14. Do you now or have you ever re-routed your gutter downspouts from draining on impermeable surfaces to more permeable surfaces? <i>For example, from concrete to grass.</i></p> <p><input type="checkbox"/> Currently do it</p> <p><input type="checkbox"/> Don't currently do it</p> <p><input type="checkbox"/> Have never re-routed downspouts</p> <p><input type="checkbox"/> Don't have downspouts to re-route → <i>(Please skip to Question #18)</i></p>	<p>15. How familiar are you with the practice of re-route your gutter downspouts from draining on impermeable surfaces to more permeable surfaces?</p> <p><input type="checkbox"/> Never heard of it</p> <p><input type="checkbox"/> Somewhat familiar with it</p> <p><input type="checkbox"/> Know how to, but not doing it</p> <p><input type="checkbox"/> Currently do it</p>	<p>16. Are you willing to re-route your gutter downspouts from draining on impermeable surfaces to more permeable surfaces?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Maybe</p>				
<p>17. How much do the following factors limit your ability to re-route your gutter downspouts?</p>		Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 3: Attitudes about Property Values

18. How do you feel a healthy lake affects property values?

- Increases property values Does not affect property values Other (please specify)
 Decreases property values Don't know

19. When buying lakefront property, please rank only ONCE the following types of shoreline from 1 – being the most appealing to 4 – being the least appealing.

- Natural (not mowed, natural plants & grasses) _____
 Lawn (mowed, short grass) _____
 Beach (sandy shoreline) _____
 Rock (shoreline lined with rocks) _____

STOP: This ends the Lakefront Owner Information Section – Please proceed to Section 5: Lawn and Garden Maintenance on Page 13.

Section 4: Agricultural Producer Information

The questions in this section should only be answered by agricultural producers in Marathon County. Please answer the following questions about your farm and home.

1. Please select the option that best describes who generally makes the management decisions for your operations.

- Me alone or with my spouse Me with my tenant Someone else makes the decisions for the operations
 Me with my family partners (siblings, parents, children) Me and my business partners
 Me with the landowner Other (please specify)

2. This year, how many acres of the following do you manage? If none, please enter a zero.

Corn _____ acres	Pasture _____ acres
Soybeans _____ acres	Conservation/CRP _____ acres
Small grains _____ acres	Forest/Woodland _____ acres
Canning crops _____ acres	Non-row crops for energy _____ acres
Clover/Alfalfa _____ acres	Other _____ acres

3. How many of the following animals are part of your farming operation? If none, please enter a zero.

Dairy cattle including heifers and young stock	_____
Beef cattle including young stock	_____
Hogs	_____
Poultry	_____
Other (please specify)	_____

<i>Section 4: The Use of a Nutrient Management Plan</i>		
4. Do you now or have you ever followed a nutrient management plan?	5. How familiar are you with nutrient management plans?	6. Are you willing to follow a nutrient management plan?
<input type="checkbox"/> Currently have one <input type="checkbox"/> Don't currently have one <input type="checkbox"/> Have never had one <input type="checkbox"/> Don't need one → <i>(Please skip to Question #8)</i>	<input type="checkbox"/> Never heard of it <input type="checkbox"/> Somewhat familiar with it <input type="checkbox"/> Know about it, but not doing it <input type="checkbox"/> Currently have one	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe

7. How much do the following factors limit your ability to follow a nutrient management plan?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Section 4: The Utilization of a Winter Manure Spreading Plan</i>		
8. Do you now or have you ever used a winter manure spreading plan to identify the best areas for winter applications?	9. How familiar are you with winter manure spreading plans?	10. Are you willing to follow a winter manure spreading plan?
<input type="checkbox"/> Currently use one <input type="checkbox"/> Don't currently use one <input type="checkbox"/> Have never used one <input type="checkbox"/> Don't need one → <i>(Please skip to Question #12)</i>	<input type="checkbox"/> Never heard of it <input type="checkbox"/> Somewhat familiar with it <input type="checkbox"/> Know about it, but not doing it <input type="checkbox"/> Currently use one	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe

11. How much do the following factors limit your ability to use a winter manure spreading plan?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Section 4: The Utilization of Hazardous Waste Drop-off Sites</i>		
12. Do you now or have you ever utilized Marathon County's Clean Sweep program or hazardous waste drop-off sites to dispose of agricultural chemicals?	13. How familiar are you with hazardous waste drop-off sites to dispose of agricultural chemicals?	14. Are you willing to use hazardous waste drop-off sites?
<input type="checkbox"/> Currently use them <input type="checkbox"/> Don't currently use them <input type="checkbox"/> Have never used them <input type="checkbox"/> Don't need to dispose of agricultural chemicals → <i>(Please skip to Question #16)</i>	<input type="checkbox"/> Never heard of them <input type="checkbox"/> Somewhat familiar with them <input type="checkbox"/> Know about them, but not using them <input type="checkbox"/> Currently use them	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe

15. How much do the following factors limit your ability to use hazardous waste drop-off sites?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed (i.e. ability to transport chemicals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Section 4: The Use of the Wisconsin Irrigation Scheduling Program (WISP)</i>		
16. Do you now or have you ever used the Wisconsin Irrigation Scheduling Program (WISP)?	17. How familiar are you with WISP?	18. Are you willing to use WISP?
<input type="checkbox"/> Currently use it <input type="checkbox"/> Don't currently use it <input type="checkbox"/> Have never used it <input type="checkbox"/> Don't need to use it → <i>(Please skip to Question #20)</i>	<input type="checkbox"/> Never heard of it <input type="checkbox"/> Somewhat familiar with it <input type="checkbox"/> Know about it, but not using it <input type="checkbox"/> Currently use it	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe

19. How much do the following factors limit your ability to use WISP?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Eastern Marathon County Lakes Project

Section 4: The Use of Buffers to Reduce Run-off		
20. Do you now or have you ever used buffers around fields, feedlots or feed storage areas?	21. How familiar are you with buffers?	22. Are you willing to use buffers around fields, feedlots or feed storage areas?
<input type="checkbox"/> Currently use them <input type="checkbox"/> Don't currently use them <input type="checkbox"/> Have never used them <input type="checkbox"/> Don't have fields, feedlots or feed storage areas to buffer → <i>(Please skip to Section 5)</i>	<input type="checkbox"/> Never heard of them <input type="checkbox"/> Somewhat familiar with them <input type="checkbox"/> Know about them, but not using them <input type="checkbox"/> Currently use them	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe

23. How much do the following factors limit your ability to use buffers around these areas?	Not at all	A little	Some	A lot	Don't know
a. The need to learn new skills or techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Lack of equipment needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Don't know where to get information and/or assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Time required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. No one I know is doing this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Physical or health limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Desire to keep things the way they are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Section 5: Lawn and Garden Maintenance</i>

Please answer the following questions about your home's lawn and garden

1. Do you make the lawn care decisions in your household?	2. Who maintains your <u>lawn</u> ? Who does the majority of the lawn care?	3. Who maintains your <u>garden</u> ? Who does the majority of the garden maintenance?
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> I do and I enjoy it <input type="checkbox"/> I do and I don't enjoy it <input type="checkbox"/> Other member of household <input type="checkbox"/> Landscape professional <input type="checkbox"/> I don't have a lawn	<input type="checkbox"/> I do and I enjoy it <input type="checkbox"/> I do and I don't enjoy it <input type="checkbox"/> Other member of household <input type="checkbox"/> Landscape professional <input type="checkbox"/> I don't have a garden

4. If you answered "Landscape professional" for Questions #2 or #3, what services does your landscape professional provide for your lawn or garden? Please check all that apply.

- | | |
|---------------------------------------|---|
| <input type="checkbox"/> Mowing | <input type="checkbox"/> Landscape Design |
| <input type="checkbox"/> Fertilizing | <input type="checkbox"/> Planting of trees, shrubs or flowers |
| <input type="checkbox"/> Pest control | <input type="checkbox"/> Other (please specify) _____ |

Section 6: About You

Please tell us a little about yourself.

1. Please indicate your gender. 2. In what year were you born? _____

- Male
 Female

3. What is the highest level of school you have completed or the highest degree you have received?

- | | |
|--|---|
| <input type="checkbox"/> Less than a high school degree | <input type="checkbox"/> Associate degree |
| <input type="checkbox"/> High school degree or equivalent (G.E.D.) | <input type="checkbox"/> Bachelor degree |
| <input type="checkbox"/> Some college but no degree | <input type="checkbox"/> Graduate degree |
| <input type="checkbox"/> Associate degree | <input type="checkbox"/> Doctoral degree |

4. What is the approximate size of your property?

- ¼ acre or less
 More than ¼ acres but less than 1 acre
 1 acre to less than 5 acres
 More than 5 acres

5. How important is it to you to be a good steward of your property?

- Very Important Important Neutral Not Important

6. In your own words, what do you value most about Marathon County's lakes?

Thank you for your participation! Please place your completed questionnaire in the enclosed addressed and postage-paid envelope and mail it back it as soon as possible. If you have any additional comments or questions, please use the space provided or the back of this page. If you would like to stay updated on the Marathon County Lakes Project, please leave your email address below. Your information will not be sold or shared outside of the project and will not be attached to your survey responses.

Thank you again and have a great day!

APPENDIX B

Giant City State Park

Davenport et.al (2010) Original Place Meaning Scale

The Role of Giant City State Park

7. Giant City State Park may play many different roles in people's lives. Please indicate the extent to which you agree or disagree with each statement below. (Circle one number for each statement)

	Strongly disagree	Moderately disagree	Slightly disagree	Neither disagree nor agree	Slightly agree	Moderately agree	Strongly agree	Don't know/not applicable
Few people know Giant City State Park like I do	1	2	3	4	5	6	7	0
I am very attached to Giant City State Park	1	2	3	4	5	6	7	0
I feel that I can really be myself at this place	1	2	3	4	5	6	7	0
I feel a sense of pride in my heritage when I am here	1	2	3	4	5	6	7	0
This place contributes to the character of my community	1	2	3	4	5	6	7	0
I would prefer to spend more time here if I could	1	2	3	4	5	6	7	0
My income or livelihood depends on this place	1	2	3	4	5	6	7	0
This place is important in protecting the landscape from development	1	2	3	4	5	6	7	0
Southern Illinois's economy depends on this place	1	2	3	4	5	6	7	0
No other place compares to this place	1	2	3	4	5	6	7	0
When I am here others see me the way I want them to see me	1	2	3	4	5	6	7	0
Giant City State Park is a special place for my family	1	2	3	4	5	6	7	0
This place represents a way of life in my community	1	2	3	4	5	6	7	0
This area is the best place to do the things I enjoy	1	2	3	4	5	6	7	0
Southern Illinois could easily find economic revenue somewhere else	1	2	3	4	5	6	7	0
This place is important in providing habitat for wildlife	1	2	3	4	5	6	7	0
This is a special place in Southern Illinois	1	2	3	4	5	6	7	0
I feel like this place is a part of me	1	2	3	4	5	6	7	0
Many important family memories are tied to this place	1	2	3	4	5	6	7	0
My community's history is strongly tied to this place	1	2	3	4	5	6	7	0
I have spent more time in this place than most people	1	2	3	4	5	6	7	0
My community's economy depends on this place	1	2	3	4	5	6	7	0
This place is important in protecting air quality	1	2	3	4	5	6	7	0
This is a special place in the world	1	2	3	4	5	6	7	0
This place is like home to me	1	2	3	4	5	6	7	0
This place ties the generations of my family together	1	2	3	4	5	6	7	0
This place has helped put my community on the map	1	2	3	4	5	6	7	0
I really miss Giant City State Park when I am away from it too long	1	2	3	4	5	6	7	0
My family's income or livelihood depends on this place	1	2	3	4	5	6	7	0
This place is important in protecting water quality	1	2	3	4	5	6	7	0