RESIDENTS' ENVIRONMENTALLY RESPONSIBLE BEHAVIOR AND THE CONCEPTS OF CONNECTEDNESS TO COASTAL RESOURCES

By

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ABSTRACT

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Most coastal communities are highly densely populated areas and simultaneously popular tourism and recreation destinations. Accordingly, coastal residents cause negative impacts on the environment through residence and recreation activities. Residents' environmentally responsible behavior (ERB) may be considered trivial but should be thought of as a fundamental step to minimizing negative impacts on the environment. Therefore, it is critical to find important factors that can promote ERB. The purpose of this study is to explore how several attitudinal and psychological variables, such as place attachment, attitudes toward tourism development (ATTD), and beach satisfaction are related to the facilitation of residents' ERB.

For data collection, a mail survey was conducted using a stratified random sample of South Carolina coastal residents. The residents were from three coastal counties known as popular tourism and recreation destinations. Of 3000 households receiving questionnaires, 697 returned them. Factor analysis was conducted first for data reduction and then multiple regression analysis was conducted.

The findings suggest that place attachment and ATTD were significant determinants promoting ERB. However, beach satisfaction and socio-demographic variables were not important. The study's results suggest that resource managers and policy makers need to provide more community participatory programs so residents become more attached to local natural resources and ultimately get more actively involved in ERB. Future research will be beneficial to generalize these findings to other coastal areas.

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I. INTRODUCTION

1. Introduction

Typically, population growth negatively impacts natural resources and the environment. The natural environment that encompasses residential districts is likely to be especially vulnerable to degradation (Wenner, Sanger, Upchurch, & Thompson, 2010). Coastal areas, in particular, are densely populated and easily impacted by human residence as well as recreation and leisure activities. One of the consequences of such densely populated areas is humaninduced marine and coastal pollution. This comes about through waste waters released from human settlements and from poor trash disposal practices (Bird, 1998). Also, a variety of recreation and leisure activities that occur in these areas renders the environment more vulnerable to human-induced impacts (Marafa, 2008). Especially, uncontrolled visitation and overuse of beaches degrade beach conditions and destroy some of the flora and fauna (Kreag, 2001; Priskin, 2003).

These negative human impacts are caused not only by tourists but by coastal residents. Particularly, a majority of coastal residents, who are often avid recreationists, can negatively impact the environment through their residential and recreational activities. Thus, if coastal resources are to be used sustainably, coastal residents are also responsible for conserving natural resources and the environment (Bird, 1998). As individual behavior can either impair or ameliorate environmental problems, it is important for individuals, particularly residents, to engage in environmentally responsible behavior (ERB) as an important step in preserving natural resources and the environment.

ERB refers to an individual's actions that are intended to obviate harmful effects on the environment (Saunders, 2003). To promote residents' ERB, it is important to understand the

mechanism of how an individual adopts ERB. Identifying important factors that lead to longterm behavioral change can effectively contribute to more environmental conservation. For example, if residents' attitudes toward ERB become more positive, they could reveal more consistent ERB. Thus, it is important to find factors that can lead to more consistent ERB. In the present study, several factors are identified as predictors of ERB, including place attachment, attitudes toward tourism development, place satisfaction, and socio-demographic variables.

Conceptual Framework

To explain the formative process of ERB, a number of studies have focused on exploring various factors that contribute to residents' ERB (De Young, 2000; Kaplan, 2000; Nordlund & Garvill, 2002; Vaske & Kobrin, 2001). These include altruism, personal-norm, intrinsic satisfaction, and socio-demographic variables. All of these can be classified largely into internal and external factors. Internal factors indicate psychological variables that are based on values, beliefs, and attitudes (Clark, Kotchen, & Moore, 2003). External factors refer to individuals' external conditions, such as socio-demographic variables (Van Liere & Dunalap, 1980; Vaske & Kobrin, 2001). It has been suggested that rather than focusing on the effects of these factors separately, internal and external factors ought to be integrated into one research framework. This kind of research framework could help researchers examine which determinants are important in facilitating the adoption of ERB (Guagnano, Stern, & Dietz, 1995). Accordingly, this study explores the formative process of ERB using two different sets of explanatory variables, internal and external factors. The internal factors included are place attachment, attitudes toward tourism development, and place satisfaction. The external factors included are socio-demographic variables.

Using a study population of coastal residents living in popular tourism destinations, this

thesis intends to assess how the concept of ERB is empirically associated with these internal and external factors. It is expected that each concept of place attachment and attitudes toward tourism development has a positive relationship with ERB. However, it is hypothesized that residents who are more satisfied with place will show less ERB. Finally, it is expected that different socio-demographic variables also influence residents' ERB.

The study identifies place attachment as an important internal predictor. Place attachment can be defined as an emotional or affective bond between a person and a particular place (Vaske & Kobrin, 2001). The psychological structure of place attachment is complex. It is composed of self-referent cognitions, emotions, and behavioral commitment, causing its structure to vary (Jorgensen &Stedman, 2001). However, place attachment is most commonly measured by two sub-dimensions of place attachment: place identity and place dependence. Place identity is understood as belonging to the cognitive process that expresses emotional attachment to a place. Place dependence is understood as representing functional attachment to a place, formed by experiences with that place (Jorgensen & Stedman, 2001; Williams & Roggenbuck, 1989). This study tries to explain ERB utilizing this two-dimensional approach.

Many studies have demonstrated that place attachment can lead to more robust ERB (Halpenny, 2010; Moore & Graefe, 1994; Scannell &Gifford^b, 2010; Vaske & Kobrin, 2001). For example, Vaske and Kobrin's study (2001) found that children participating in community-based natural-resources based programs were more attached to their local natural environment and more likely to behave environmentally friendly. This relationship can be supported by Fishbein and Ajzen's theory of reasoned action (TRA) (1977). According to TRA, individual behavior can be explained by several important antecedents, such as attitudes toward the behavior, subjective norm, and behavioral intention (Eagly & Chaiken, 1993, p. 169). Place

attachment is also considered to be reflective of environmental attitudes, as it consists of cognitive and affective components (Halpenny. 2006; Jorgersen & Stedman, 2001). Thus, because this attitudinal concept is an antecedent to behavior, it is expected that place attachment is closely connected with ERB. As residents are attached to the natural environment around the community they live in, they are more likely to be concerned about and sensitive to negative environmental impacts (Kyle, Graefe, Manning, & Bacon, 2004; Scannell & Gifford^a, 2010; Schultz, Jennifer, Tabanico, & Khanzian, 2004). Likewise, residents benefitting directly or indirectly from resources and the environment, such as local beaches, are more likely to become attached to those places (Moore & Graefe, 1994). And, attached residents, in turn, are more likely to become concerned about beach conditions and, ultimately, behave in a manner that protects the beaches (Vorkinn & Riese, 2001).

As another internal factor of ERB, this study includes attitudes toward local tourism development. This factor consists mainly of the degree to which residents agree about the positive and negative impacts of local tourism development. Attitudes toward local tourism development deal with two themes: personal and community benefits from local tourism development and concern over local tourism development. The first theme gauges residents' attitudes toward personal and community benefits reaped from local tourism development. The second theme, concern over tourism development, gauges residents' attitudes toward negative impacts caused by local tourism development.

Attitudes toward tourism development and ERB seem to be connected. Indeed, TRA implies that one of the best predictors of behavior is attitude toward that behavior (Eagly & Chaiken, 1993). This study, however, identifies attitudes toward target (i.e., attitudes toward tourism development) rather than attitudes toward behavior (i.e., ERB). This relationship can be

supported by Fazio's relationship of attitudes toward target and behavior (1986). Fazio (1986) applied Ajzen and Fishbein's TRA (1977) to demonstrate how behavior was influenced by attitudes toward the target. Fazio's main framework (1986) explains the relationship between attitudes and behavior in the following order: attitude toward target (here, tourism development) \rightarrow behavioral beliefs \rightarrow attitudes toward behavior \rightarrow behavior. If we apply Fazio's framework (1986) to this study, we might assume that residents' attitudes toward tourism development can influence their beliefs about ERB. In turn, these beliefs can predict their attitudes toward ERB and, ultimately, affects ERB.

The process between attitudes toward target and behavioral beliefs can be further strengthened by Stern's value-belief-norm (VBN) theory (2000). Stern (2000) introduced three value-based environmental concerns—egoistic, social-altruistic, and biospheric. Egoistic values are related to personal benefits derived when a person, threatened by environmental problems, acts to protect the environment. Social-altruistic values are related to the concern a person feels through their own moral norms, for other people (neighbors and community members). If other people suffer from any negative impacts, a person such as this is more likely to take action on their behalf. Biospheric values are based on the concept that all living things are valuable. Anyone holding such values is likely to behave more environmentally responsibly. Each of these values can be connected to residents' attitudes toward tourism development.

Based on the positive attitude items related to personal and community benefits, it can be anticipated that local tourism development produces, in terms of economic and community impacts, benefits for residents. When egoistic and social-altruistic values are applied, it can be assumed that, to maintain such benefits, residents will act out of a deep concern for the local beaches. These positive attitudes toward tourism development should result in behavioral beliefs

that the environment ought to be protected to ensure residents' personal and social-altruistic value. Their beliefs can result in generally positive attitudes toward ERB. Several authors have shown that individuals who have positive attitudes toward tourism development develop a deeper concern for nature-based tourism resources (e.g., Lepp, 2007; Walpole & Goodwin, 2001; Byrd, Cardenas, & Dregalla, 2009).

Second, we contend that residents will also show negative attitudes as a result of negative consequences derived from tourism development. These concerns revolve around environmental and community issues. When biospheric values are applied, we expect that residents' concerns will be positively associated with ERB. A person is more likely to show ERB if he or she holds biospheric values-showing concerns over negative environmental impacts caused by tourism development. Thus, it can also be postulated that negative attitudes about local tourism development will influence residents' behavioral beliefs that ERB is necessary if their community's natural resources and environment are to be protected. And, that belief could result in positive attitudes toward ERB and ultimately more ERB.

Therefore, it can be seen that within Fazio's applied TRA framework, the relationship between attitudes toward target and behavioral beliefs can be supported by Stern's VBN theory (2000). Both negative and positive attitudes toward tourism seem to impact the behavioral beliefs that the natural environment (the local beach) needs to be protected. Such an impact is followed by positive attitudes toward ERB and more ERB.

The last internal variable included is place satisfaction. Place satisfaction mainly indicates the degree of overall satisfaction a resident experiences during a visit to a local beach. Compared to place attachment and attitudes toward tourism development, place satisfaction may be more representative of visitors than of residents. Also, place satisfaction is limited to the

judgment of the perceived quality of a setting. Unlike the other two predictors, place satisfaction is not based on personal values (Stedman, 2002). These facts suggest residents could not have a personally close relationship with place. Thus, the relationship between place satisfaction and ERB may be negative. It is possible that a high degree of place satisfaction with local beaches may indicate less ERB. According to Stedman (2002), high-satisfaction may lead to complacency, the belief that no action is needed to improve beach conditions and the environment. Therefore, this study assumes that a person highly satisfied with the local beaches is less likely to be concerned about the environment and thus less interested in ERB.

In addition to these three internal variables, this study includes as external variables socio-demographic factors. These factors include income, age, gender, distance, and length of residence. A vast amount of the literature is dedicated to identifying socio-demographic variables as important predictors of ERB. The results, however, are not always consistent (Barr, 2003; Cottrell, 2003; Korfiatis, Hovardas, & Pantis, 2004; Larson, Whiting, & Green, 2011; Vaske, Donnelly, Williams, & Jonker, 2001).

While these internal and external factors are identified as predictors of ERB, in this study, general ERB is included rather than site-specific ERB. Typically, site-specific ERB is expected to have carry-over effects (also known as spill-over effects) on general ERB. This implies that if individuals engage in ERB at a specific site, they are more likely to become interested in other types of ERB. Several studies have already demonstrated the existence of carry-over effects when they tested the relationships between various types of ERB. Such behavior includes environmentally friendly behavior and employee's eco-friendly purchase behavior (Rashid, 2007), recycling and packaging waste prevention behavior (Thogersen, 1999), and different types of environmentally friendly consumer behavior (Thogersen & Olander, 2003).

These relationships are supported by two theories: Schwartz's norm-activation theory (1977) and Festinger's theory of cognitive dissonance (1957). Schwartz's norm-activation theory (Schwartz, 1977) implies that beliefs about the consequences of environmental degradation (here, degradation of beach conditions) can encourage residents to participate in conservation behavior in a specific site and sequentially to engage in other types of ERB. Festinger's theory of cognitive dissonance (1957) indicated that to reduce the psychological conflict from holding two or more incompatible beliefs simultaneously, one tries to maintain one's own beliefs. Based on this theory, it can be assumed that individuals who carry out one type of ERB engage in other types of ERB to achieve consonance with their own beliefs that natural resources and the environment need to be conserved. This is so called spill-over effects (Rashid, 2007).

While this study does not explicitly consider residents' beach-specific ERB, through their close relationship with their local beaches, it is logically deduced that residents' general ERB originates from their intention to conserve the beach areas. Based on residents' agreement about their attachment to local beaches and attitudes toward local tourism development, it can be seen how closely they are associated with local beaches. Thus, this assumption suggests that highly attached residents with strong attitudes toward local tourism development will reveal beach-specific ERB and, ultimately, general ERB.

Lastly, to test whether residents in different coastal areas show heterogeneous processes of developing ERB, this study also conducts a segmentation analysis by residential area. Residents of South Carolina were selected as the population of the study. Three coastal tourism destinations, in particular, were chosen: Beaufort, Charleston, and Horry Counties. While all are popular destinations, each presents a different coastal destination type. Beaufort County was chosen because it includes Hilton Head Island, an upscale tourism destination and retirement

community. Charleston County is well known as a destination providing historical, cultural, and natural recreation opportunities for residents and tourists. Lastly, Horry County is famous for Myrtle Beach, representing lower income and family oriented coastal tourism destination. Each county shows a heterogeneous degree of tourism and/or economic development as well as residents' demographic characteristics. As a result, these distinctive features in each region are expected to result in different degrees of place attachment, residents' attitudes toward tourism development, and satisfaction with the local beach. Further, the influences of these variables on ERB will vary by region.

To sum up, this study conducts two main analyses. First of all, it demonstrates the hypothesized relationships between ERB and predictors place attachment, attitudes toward tourism development, place satisfaction, and socio-demographics. Secondly, it tests whether, depending on residential place, each predictor could have different impacts on ERB.

2. Purpose of the Study and Research Questions

The main purpose of this study is to identify important factors that can facilitate the adoption of ERB by coastal residents. Place attachment, attitudes toward tourism development, place satisfaction, and socio-demographic variables are included as important explanatory variables that predict variations in ERB.

ERB may be thought of as a fundamental step to improving environmental conditions. To improve environmental conditions, a large number of people need to change their behavior to improve environmental conditions (Saunders, 2003). Hence, it is sensible and useful to find an effective way to promote community-wide ERB. This study, in several ways, differs from previous ones. First, while several studies have focused on examining visitors' ERB in the context of nature-based tourism destinations (Halpenny, 2010; Vaske & Kobrin, 2010), this

study mainly targets the ERB of residents who live in nature-based tourism destinations. Second, compared to other studies focused solely on place attachment (Budruk et al., 2009; Gosling & Williams, 2010; Scannell & Gifford ^b, 2010), this study additionally includes other important variables such as residents' attitudes toward tourism development and place satisfaction. Because Beaufort, Charleston, and Horry Counties are popular nature-based tourism destinations, residents' attitudes toward tourism development are expected to have a close relationship with their ERB. Also, residents can be considered as active recreationists by visiting their local beaches and using other natural resources in their communities. Thus, the level of residents' satisfaction with to local beaches is also expected to have significant impacts on ERB. Finally, this study makes use of a segmentation approach to assess whether residents of each destination show different patterns of adopting ERB.

Given this, the study is guided by five research questions: (1) what is the predictive relationship between residents' place attachment and ERB, based on the two dimensions of place attachment—place identity and place dependence?; (2) how are the two sub-dimensions derived from attitudes toward tourism development associated with ERB?; (3) what is the relationship between place satisfaction and ERB?; (4) what are the effects of socio-demographic variables (age, distance, length of residence, gender, and income) on ERB? (5) do coastal residents of different tourism destinations show dissimilar patterns of predictive relationships between the predictors and ERB? Hence, the specific hypotheses can be stated as follows:



Figure 1 Conceptual Model

- H1: Residents who are emotionally and functionally attached to local beaches are more likely to behave environmentally responsibly. Further, place identity has more effect on ERB than does place dependence.
- *H2*: Residents who are concerned about the negative impacts of local tourism development on the community are more likely to engage in ERB.
- *H3:* Residents who consider local tourism development as a beneficial tool for their community are more likely to engage in ERB.
- *H4:* Residents who are highly satisfied with recent visits to their local beaches are less likely to participate in ERB.
- H5: Socio-demographic variables will have different impacts on ERB.
- *H6*: Depending on where residents live, each predictor will have different impacts on ERB.

II. LITERATURE REVIEW

1. Environmentally Responsible Behavior (ERB)

Many researchers have studied ERB as a strategy for improving environmental quality (De Young, 2000; Kaplan, 2000; Nordlund & Garvill; 2002; Thapa, 1999; Thogersen, 2004). ERB—also referred to as pro-environmental behavior or environmentally significant behavior can be defined as any behavior that can contribute to environmental conservation, and can result in sustainable natural ecosystems and healthy environmental conditions (Sintov, Desario, & Prescott, 2010). Several studies (e.g., Barr, 2007; Smith-Sebasto & D'Acosta, 1995; Whitmarsh & O'Neill, 2010) have asserted that promoting ERB can contribute to the mitigation of human impact on the natural environment. Some research has focused specifically on predicting a single type of ERB, such as recycling or waste management (Barr, 2007; Schultz, Oskamp, & Mainieri, 1995). Others have measured multiple types of ERB on one scale (Smith-Sebasto & D'Acosta, 1995; Thapa, 1999). Smith-Sebasto and D'Acosta (1995) developed the environmentally responsible behavior index (ERBI). ERBI consists of different types of environment-related behaviors. These behaviors are known to fall under four main themes-consumerism, activism, education, and recycling. Thapa (1999) adopted Smith-Sebasto and D'Acosta's ERBI scale (1995). Using the New Ecological Paradigm Scale (NEP scale) as environmental attitudes, Thapa (1999) found that undergraduate students reported a relatively high rate of environmental attitudes but a lower rate of participation in ERB. Among the four main ERB types, students showed that the highest level of ERB consisted of recycling and the lowest consisted of activism. While Thapa's study (1999) indicated a low rate of ERB, it suggested that Smith-Sebasto and D'Acosta's ERBI (1995) is also applicable for study when measuring individuals' multiple types of ERB.

Various studies adopted varying structures of ERB. However, the main purpose of such studies was to identify factors that could promote ERB. Many researchers have made an effort to find factors of ERB in their specific study context (Clark et al., 2003; Cottrell, 2003; De Young, 2000; Larson et al., 2011; Vaske, Donnelly, Williams, & Jonker, 2001). Several researchers included external factors as predictors of ERB, such as socio-demographic or economic characteristic variables (Cottrell, 2003; Larson et al., 2011; Vaske et al., 2001).

More commonly, studies on ERB include internal variables. Such variables might originate from values, beliefs, and attitudes toward a particular action (Clark et al., 2003; Nordlund & Garvill, 2002; Nordlund & Garvill, 2003; Proshansky, Fabian, & Kaminoff, 1983; Schultz, 2001; Stern, 2005; Van Liere & Dunlap, 1978). Nordlund and Garvill's study (2002) was based on value-oriented variables. Their study was mainly based on Schwartz's normactivation theory (1977). This theory implies that an important determinant of ERB is the activation of a personal norm. A personal norm can be activated when something an individual values is threatened by environmental conditions. This means that an individual is aware of what the consequences are of a poorly protected environment. If an individual places a great deal of importance on general and environmental values, a more personal norm will be activated. Such a norm represents moral obligations to engage in environmentally responsible behavior when an individual starts to feel the environment is being threatened. Thus Nordlund and Garvill (2002) hypothesized that an individual's general and environmental values, indicated by selftranscendence and eco-centrism, will positively predict awareness of environmental problems and that such values will influence one's perceived moral obligations and finally ERB.

Similarly, Stern's value-belief-norm (VBN) theory (2000) was developed based on a value-oriented concept. VBN theory mainly comprises three types of values—egoistic, social-

altruistic, and biospheric. Egoistic values are related to personal benefits; social-altruistic values are related to human concerns about other people, such as the neighborhood and community; biospheric values are based on the concept that all living things are valuable. Personal norms can be activated when an individual becomes aware of adverse effects on individual values caused by violating ERB. Through a sequential process, this activated personal norm can result in ERB.

Thus, to promote ERB, Schwartz's norm-activation theory (1977) and Stern's VBN theory (2000) point to the importance of considering awareness of consequence. Nordlund and Garvill's study (2003) applied both of these theories. The main purpose of their study was to reduce personal car use. The authors found that car owners who knew the environmental consequences of car use were more willing to reduce their use of it. In conclusion, in assessing relationships between different determinants and ERB, value-based theory appears to be highly applicable.

The ultimate goal of studying ERB is to contribute to the sustainability of the natural environment. Previous studies illustrated numerous types of ERB with their own specific themes, such as recycling (Berger, 1997). The best result of an ERB study, however, is one where individuals have positive attitudes toward one type of ERB, which encourages another type of ERB. Recently, several researchers have begun examining whether one type of ERB can predict other types of ERB (Rashid, 2007; Thgersen, 1999; Thogersen, 2004; Thogersen & Olander, 2003; Whitmarsh & O'Neill, 2010). When one type of behavior that leads to the adoption of other, more environmentally beneficial behaviors, it is called a catalyst behavior, also known as the spill-over or carry-over effect. Whitmarsh and O'Neill (2010) reported on catalyst behavior, stating that if people adopt new behavior- in their case recycling behavior- they will also take on

other types of ERB. Seven different types of ERB factors were identified. Correlation analysis showed that some similar ERB were correlated, indicating the possibility of catalyst behavior.

Some other studies (Rashid, 2007; Thgersen, 1999; Thogersen, 2004; Thogersen & Olander, 2003) applied Festinger's cognitive dissonance theory (1957) to demonstrate ERB spillover effect. Cognitive dissonance theory (Festinger, 1957) is based on the idea that when encountering dissonance, an individual tends to try to maintain a balance between their beliefs. Thus, one is uncomfortable about behaving inconsistently. Based on cognitive dissonance theory, Rashid (2007) demonstrated the spill-over effect. Rashid looked at employees of an organization that operated an environmental management system. Such employment affected their attitudes and norms, consequently, resulting in displays of ERB outside the organization. Thogersen (2004) also demonstrated the tendency to behave consistently across different types of ERB (in this case, buying organic and recycling). It can thus be postulated that an individual who conducts one type of ERB will also behave responsibly in other types of ERB.

As predictors of ERB, this study identified one external variable, socio-demographic factors, and three internal variables—place attachment, attitudes toward tourism development, and place satisfaction. This thesis, for study sites, makes use of coastal tourism destinations. As Schwartz's norm-activation theory (1977) and Stern's VBN theory (2000) have been applied to diverse ERB studies within the context of the natural environment, applying these theories to coastal areas could help explain relationships between various predictors and ERB. ERB, in this study, indicates more general types of ERB rather than place-specific ERB (for instance, beach protective action). While, all internal variables are related to local beaches, they are still expected to predict general ERB. Residents' close relationships to their local beach could reveal more

intention to conserve coastal areas and that might influence general ERB. In other words, as found in the literature, this study expects to find a spill-over effect.

2. Place Attachment and Environmentally Responsible Behavior (ERB)

Place attachment is widely used by environmental psychologists. This overarching concept encompasses a vast array of place-related literature (e.g., Kyle et al., 2003; Trentelman, 2009). Shumaker and Taylor (1983) defined place attachment as "a system of interlocked attitudes and behaviors that refer to the home and the household and reflect the intimacy of strength of the individual's tie to the locale" (p. 220). Of the numerous studies on place attachment (Gosling & Williams, 2010; Halpenny, 2010; Kyle et al. 2003; Vorkinn & Riese, 2001), each measures this multi-dimensional concept with a different approach. Researchers base their various approaches on a certain facet of the concept. Some use a single dimension, place attachment (Casakin & Kreitler, 2008; Stedman, 2002; Vorkinn & Riese, 2001). Others include, in addition to place attachment, similar place concepts, such as connectedness to nature (Gosling & Williams, 2010) and place identity (Hernandez, Martin, Ruiz, & Gidalgo, 2010).

Recently, however, researchers have used a two-dimensional approach developed by Williams and Roggenbuck (1992), an approach consisting of place identity and place dependence. Based on this approach, many studies zero in on the fields of leisure and recreation (Budruck, White, Wordrich & Van Riper, 2008; Budruck, Thomas, & Tyrrell, 2009; Bricker & Kerstetter, 2000; Hailu, Boxall, & McFarlane, 2005; Moore & Grafe, 1994; Kyle, Graefe, Manning, & Bacon, 2004; Vaske & Kobrin, 2001; White, Virden, & Riper, 2008). Though they look similar, place identity and place dependence differ in meaning. Kyle et al. (2010) defined place identity as an "individual's cognitions, beliefs, perceptions or thoughts that the self is invested in [a] particular setting" (p. 1081). On the other hand, place dependence is more

concerned with "how well a setting serves goal achievement given an existing range of alternatives" (Jorgensen & Stedman, 2001, p. 234). White et al. (2008) used these two dimensions of place attachment to assess the relationship with visitors' perception of recreational impacts. Place identity and place dependence were positively predicted by prior experience, but perceptions of recreational impact were not.

Hailu et al.'s study (2005) also demonstrated that visitors' place attachment is significantly influenced by previous trips. It implies that the attachment of visitors predicted by the experience of previous trips could result in greater travel demand on recreational areas. Moore and Graefe's research (1994) mainly aimed at finding predictors of place identity and place dependence within a recreational setting. The best predictor of place identity was length of association with the trail. The best predictor of place dependence was distance from home and frequency of visits to the trail. It is apparent that the leisure and recreation studies actively used these two dimensions of place attachment as important variables to explain factors related to leisure and recreation.

There have been numerous research efforts that examine a relationship between place attachment and ERB (e.g., Budruk et al., 2009; Gosling & Williams, 2010; Halpenny, 2010; Kyle, Absher, & Graefe, 2003; Kyle, Graefe, Robert, & James, 2004; Payton, Fulton, & Anderson, 2005; Raymond, Brown, & Robinson, 2011; Scannell & Gifford^b, 2010; Vaske & Kobrin, 2001; Vorkinn & Riese, 2001). These scholars applied diverse dimensions of place attachment, and also, depending on a study's context, employed different types of ERB. Some researchers focused on place-specific ERB (Gosling & Williams, 2010; Kyle et al., 2003; Kyle et al., 2004; Payton et al., 2005; Raymond et al., 2011; Vorkinn & Riese, 2001); others examined

general ERB (Budruk et al., 2009; Halpenny, 2010; Scannell & Gifford, 2010; Vaske & Kobrin, 2001).

Place-specific ERB refers to behavior that is particularly focused on the conservation of a specific place. Raymond et al. (2011) measured ERB that related to the conservation of native vegetation. The authors found no direct relationship with ERB. Instead the authors looked at how four dimensions of place attachment (place identity, place dependence, family bonding, and friend bonding) moderated the relationship between awareness of consequence (AC; specific belief) and personal norm (PN). PN, at last, directly predicted ERB. Also, they found that place attachment was an important concept that moderated this relationship between AC and PN and finally ERB.

Vorkinn and Riese (2001) examined how environmental concerns about the development of a hydropower plant were predicted by place attachment. Place attachment, they found, was significantly related to the subjects' concerns, exposing a negative attitude about the proposed hydropower development. Kyle et al. (2003) measured different types of recreation-user fees as an indicator of concern for the environment conditions. They identified two dimensions of place attachment- place identity and place dependence. Place identity had a positive relationship with fees supporting conservation and restoration of natural resources. Place dependence also had a positive relationship with fees supporting the supporting facility development in the natural resource settings. These results suggest that place-identified visitors are more likely to be concerned about environmental conditions.

Kyle et al. (2004) also confirmed that place identity was more strongly associated with ERB than was place dependence. Their study did not specifically represent ERB or concern for the natural environment. Rather, it identified perceptions of social and environmental conditions

of the Appalachian Trail in the United States. Visitors with strong place identity felt that the Appalachian Trail was more problematic while visitors with place dependence did not. Such a finding suggests that visitors having place identity are more likely than those having place dependence to exhibit narrow latitude about disturbing environmental conditions. It seems that in predicting ERB, place identity outweighs place dependence. Payton et al.'s study (2005) supports this idea. Place identity was significantly related to civic actions, which indicated behavior that supported the conservation of a national wildlife refuge.

Most studies scrutinize place-specific ERB. Some, however, have revealed significant relationships with general ERB (Budruk et al., 2009; Halpenny, 2010; Scannell & Gifford, 2010; Vaske & Kobrin, 2001). Vaske and Kobrin's study (2001) identified two dimensions of place attachment to natural settings—place identity and place dependence. Unlike other studies, ERB was composed of different types of general ERB, such as recycling behaviors. The authors empirically showed that place identity significantly mediated a positive relationship between place dependence and ERB. While no direct relationship between place dependence and ERB was shown, the study indicated that ERB was significantly influenced by place identity. In this study, respondents were children intercepted at a youth, natural-resource-based community work program that also provided environmental education. Vaske and Kobrin (2001) concluded that in addition to environmental education, place attachment assumed a significant role in contributing to ERB.

Scannell and Gifford (2010) tested the relationship between place attachment and proenvironmental behavior using two settings: civic and nature place attachment. In their study, nature place was known as outdoor recreation and tourism areas. Their study also included general ERB. The results showed that people attached to a natural environment exhibited more

engagement in ERB; people attached to a civic place showed no such pattern. The disparity may have been caused by the dominant values of each group. People attached to a natural environment are more sensitive about possible harmful impacts (Kyle, Graefe, Manning, & Bacon, 2004).

Budruk et al. (2009) examined the relationship between residents' attachment to their living place and their attitudes toward urban green space (pro-environmental attitudes). Proenvironmental attitudes were measured using the new environmental paradigm (NEP) scale. The authors identified three particular dimensions of NEP: balance with nature, anthropocentrism, and ecological limits. While the place of attachment was urban green spaces, the NEP scale indicated no relation with this area. Likewise, place attachment was measured via place identity and place dependence. The results show that place identity was strongly related to balance with nature and weakly related to anthropocentrism. However, place dependence was not significantly associated with any dimensions of NEP.

Lastly, Halpenny intended her research (2010) to demonstrate the relationship between place attachment and general ERB. Like the aforementioned studies, Halpenny (2010) found that general ERB was significantly connected with place identity only. Halpenny (2010) also observed place-specific ERB (park protective behavior) and found that all the dimensions of place attachment (place identity, place dependence, and place affect) were significant in explaining the park-protective behavior. Both models place-specific ERB and general ERB indicated the importance of place identity, representing broader applicability as a means of promoting ERB.

In sum, as with place-specific ERB, general ERB has been found to have an important relationship with place attachment. As a result, it is plausible to reason that attachment to natural environment could positively influence not only place-specific ERB but general ERB.

Not all studies, however, have shown a significant relationship between proenvironmental concepts and place attachment (Gosling & Williams, 2010; Hernandez, Marti, Ruiz, & Hidalgo, 2010; Uzzell, Pol, & Badenas, 2002). Gosling and Williams' study (2010) reported that place attachment failed to significantly predict conservation behaviors. Conservation behaviors consisted of two types: on-farm replanting and remnant vegetation protection behavior. Gosling and Williams (2010) assumed that place attachment would not predict these two behaviors, as they designed the measurement items of conservation behaviors so specifically; ERB only indicated farm-related behaviors, and not general environmental behaviors.

Based on the literature, place attachment is identified as an important variable in promoting ERB. Specifically, if the attached place is the natural environment, people are more likely to behave in environmentally responsible ways (Scannell & Gifford^b, 2010). For both place-specific and general ERB, several articles identified place identity as being more important than place dependence. Finally, as with place-specific ERB, general ERB has a positive relationship with place attachment. It can be assumed that place attachment can result in the carry-over effect (spill-over effect) of ERB. Hence, in this study, as residents are attached to a natural environment (the local beach), it is expected that their place attachment can positively predict ERB. Also, based on other studies' findings, place identity is expected to play a more important role than place dependence.

3. Attitudes toward Tourism Development and ERB

Residents living in or around the natural environment feel the impact of tourism development. After all, natural resources are often the source of such development, and coastal beach areas are no exception. Residents in tourism destinations wish, of course, to maximize the benefits from tourism development, but it is also important to protect the natural environment. When these two goals are pursued properly, the desirable result is sustainable tourism development (Choi & Sirakaya, 2006). Much of the literature on sustainable tourism development emphasizes the importance of including community (Gursoy, Jurowski, & Uysal; 2002; Jurowski, Uysal, & Williams, 1997; Zhang & Lei, 2009). Residents can improve beach conditions by behaving more environmentally responsibly. Whether residents are willing to do so may depend on their attitudes toward tourism development.

To measure the residents' attitudes toward tourism development, Lankford and Howard (1993) developed tourism impact attitude scale (TIAS). Based on the literature, the authors developed numerous predictors that appear to influence attitudes toward tourism development. The scale included such items as economic dependency on tourism, resident involvement in tourism decision making, perceived impacts on local outdoor opportunities, and others. Based on these items, Lankford and Howard (1993) conducted a factor analysis, extracting two main factors. Factor 1 indicated personal and community benefits. Factor 2 indicated concern for local tourism development.

A number of articles have measured residents' attitudes toward tourism (e.g., Andereck Valentine, Knopf, & Vogt, 2005; Andriotis & Vaughan, 2003; Jurowski et al., 1997; Liu, Sheldon, & Var, 1987; Wang, Pfister, & Morais, 2006). Some other articles, demonstrated whether individuals' attitudes toward tourism development influenced their support of local

tourism development (Andereck & Nyaupane, 2011; Choi & Murray, 2010; Gursoy et al., 2002). However, no studies have aimed to examine a direct relationship between residents' attitudes toward tourism development and their ERB. Bearing the strongest resemblance to the present study is one by Choi and Murray (2010). These authors pose, however, a different hypothesized relationship. Choi and Murray (2010) mainly demonstrate whether the positive and negative impacts residents felt from tourism were related to their support for tourism development. In addition, the authors also identified other factors that influenced residents' positive or negative attitudes to tourism development. One of these was attitudes toward environmental sustainability. Residents' attitudes toward environmental sustainability mainly imply eco-centric values. Thus, the main research question was whether residents' higher eco-centric values predicted positive or negative attitudes toward tourism. However, the results indicated this relationship was not significant.

While no studies included positive and negative attitudes together as predictors of ERB, two studies did look at the relationship between positive attitudes toward tourism development and behaviors that conserve tourism resources (Lepp, 2007; Walpole & Goodwin, 2001). Based on Lankford and Howard (1993), positive attitudes were related to perceived personal and community benefits from local tourism development. And these personal and community benefits usually accrued from the economic effects of tourism (e.g., employment, investments, and profitable local businesses; Andereck et al., 2005). It is commonly known that people, through their activities pursuing economic development, usually have a negative impact on the natural environment (Nordlund & Garvill, 2003). Typically, tourism development is accompanied with negative impacts on the environment. Andereck and Nyaupane's study (2011) showed that residents regard tourism development as a beneficial economic tool but also as

facilitating the conservation of natural and cultural resources. This seeming paradox appears quite possible as, these days, sustainable tourism development has been highly recommended by the tourism industry and academic researchers (Goodwin, 1996). Residents and the industry were aware that to benefit economically from tourism development, the natural environment would have to be well maintained. Residents and the industry would thus strive to protect the natural environment so as to continue to benefit from it.

This logic can be supported by Stern's VBN theory (2000). When people try to protect the natural environment to secure their own benefits, it is considered, of VBN theory's three types of value, an egoistic value. It may also be considered social-altruistic for considering community benefits. Two studies (Lepp, 2007; Walpole & Goodwin, 2001) demonstrated this value-based relationship. Lepp (2007) conducted his study in the rural village of Bigodi, Uganda, where the primary tourism resources are forested wetland. Most Bigodi residents indicated that they received communal benefits, and half of them cited personal benefits from the tourism development. Briefly, residents had positive attitudes about tourism development and wanted to conserve their natural environment. Walpole and Goodwin's study (2001) also demonstrated the relationship between positive attitudes toward tourism springing from tourism development and intention to support conservation. The study site was Komodo National Park, located in the Lessar Sunda Islands of Indonesia. Overall, residents' positive attitudes were significantly predicted by benefits from tourism.

It is plausible to suppose that residents' ERB can also be predicted by negative attitudes toward tourism development caused by environmental degradation. Despite various efforts to minimize any negative impacts, tourism development can still cause significant environmental damage to the environment (Goodwin, 1996). Such damage includes water pollution, wildlife

destruction, deforestation, as well as destruction of wetlands, soil and beaches (Andereck et al., 2005). One study (Zhang & Lei, 2009) shared the current study's assumption that greater ERB could result from negative attitudes toward nature-based tourism development.

Zhang and Lei (2009) measured residents' environmental attitudes toward tourism development and their ERB. The development was occurring in the Beimen coastal wetland area in Taiwan. Environmental attitudes were developed by the New Environmental Paradigm (NEP) and three types of respondents were identified using a cluster analysis: strong, moderate, and weak environmental attitudes toward tourism development. Environmentally related behaviors consisted of three main factors, willingness to accept change, intention to be volunteers, and participation and empowerment in tourism development. They found that residents with strong and moderate environmental attitudes expressed a greater intention to be volunteers. While their study's structure differed from the present one, what could correspond with this study are the environmental attitudes they discovered toward tourism development.

Some other studies (Gursoy et al., 2002; Jurowski et al., 1997) measured the relationship between residents' biospheric value and attitudes toward tourism development. While Jurowski et al.'s study (1997) measured strong eco-centric values, the residents did not oppose tourism development. However, if one disregards their support for tourism development, it can be concluded that residents within a nature-based tourism site usually have strong biospheric values. Lastly, Byrd et al. (2009) found that in five North Carolina counties (i.e., Alamance, Tyrell, Guilford, Wayne, and Stokes), residents and business owners both opposed tourism development if it threatened any negative impacts to the natural environment. Applying Stern's VBM theory (2000), it can be hypothesized that individuals having biospheric values will behave so as to

maintain their biospheric values, more environmentally responsibly. Thus, this study expects residents having biospheric values to demonstrate greater ERB.

In conclusion, we expect ERB to be closely connected with both positive attitudes derived from tourism benefits and negative attitudes caused by tourism development. Overall, those who perceive more personal and community benefits and those expressing greater concern about tourism development are expected to have greater ERB.

4. Place Satisfaction and ERB

Place satisfaction has been defined as how one judges the perceived quality of a setting (Mesch & Manor, 1998). If the place meets certain basic needs such as sociability, services, and physical needs, then individuals will be satisfied (Fried, 1982; Guest & Lee, 1983; Stedman, 2002). Several studies (e.g., Fried, 1984; Stedman, 2002) have asserted a positive relationship between place satisfaction and place attachment. Theodori (2000) pointed out the similarity in the meanings of place satisfaction and place attachment. At a fundamental level, however, these two concepts differ. Satisfaction is more inclined to be a utilitarian value, as an indicator of an evaluated factor. Attachment is more inclined to be an emotional feeling or a sense of rootedness, based on sentiment (Theodori, 2000).

In contrast to the numerous studies demonstrating the relationship between place attachment and ERB, only three studies explored the relationship between place satisfaction and ERB (Halpenny, 2010; Stedman, 2002; Uzzell et al., 2002). Stedman (2002) included place attachment and place satisfaction as predictors of ERB (here a willingness to protect a lake). The research was conducted mainly in Vilas County, Wisconsin, a tourism-intensive and recreational home landscape. The study targeted primarily property owners. Stedman (2002) found that property owners were highly attached to their lake and highly satisfied with its quality.

Stedman's findings (2002) supported the hypotheses that highly attached property owners would exhibit a higher level of ERB intention and that highly satisfied property owners would exhibit a lower level of ERB intention. His postulation was that people typically start to feel concerned about the environment when they perceive threats to a place; once that happens, people then take different protective actions. Property owners highly satisfied with lake quality would thus feel little need to restore lake conditions.

A similar finding came from Uzzell et al.'s study (2002). Stedman's regression model (2002) treated place attachment and place satisfaction as separate predictors of ERB. Uzzell et al. (2002) designed a different structure based on structural equation models (SEM). Place identity was used as a latent variable, which was explained by place satisfaction, as well as by place identification and social cohesion. In this case, place identification was represented with a different meaning different to place identity. Place identification indicated the attributes of the place that gave it a distinctive identity in the minds of residents. The authors hypothesized that this latent variable, place identity, is an important predictor of ERB. Residents in two neighborhoods in Guildford, England-Onslow village and Stoughton-were interviewed. For Stoughton village, the results indicated that social cohesion and place identification contributed to place identity. Satisfaction also contributed to place identity, though the relationship was found to be weaker. Place identity, however, strongly contributed to environmental sustainability. As for Onslow village, place identification and place satisfaction were important predictors of place identity. A weak negative relationship was found for cohesion. Residents in Onslow differed from those in Stoughton village in that for them place identity had a weak negative relationship with sustainability. Clear differences then were evidenced in the two neighborhoods regarding place satisfaction and ERB. Though no direct relationship existed between place

satisfaction and environmental sustainability, it's plausible to suppose that strong place satisfaction results in less ERB.

Finally, Halpenny's study (2006) also demonstrated the relationship between place satisfaction and ERB. Halpenny's study (2006) mainly targeted visitors of Canada's Point Pelee National Park. This study was inspired by Stedman's (2002) study that mainly developed the structural model with the concepts such as place satisfaction, place attachment, and ERB intention. As with Uzzell et al.'s study (2002), multiple indicators for this latent variable, place satisfaction, were identified. They included natural, social, and an activity-inductive environment. Also, Halpenny's study (2006) included two types of ERB, park-specific and general. The result showed that place attachment was positively related to both types of ERB, though a relationship was stronger with park-specific ERB. Place satisfaction, however, was found to have no direct relationships with either type of ERB. However, when place satisfaction positively predicted place attachment, it then had an indirect effect on both types of ERB. Each indicator of place satisfaction—natural, social, and activity-conducive environments—was also tested to demonstrate the relationship between place attachment and ERB.

Not all the indicators had a direct relationship with the two types of ERB. There were, however, indirect effects, through place attachment, on park-specific behavior and general ERB. Overall, it is reasoned that place satisfaction may not have a direct relationship with ERB. Its indirect relationships, however, allow one to assume that an important mediating variable in promoting ERB is place attachment. Halpenny (2006) concluded that place satisfaction was not significant because satisfaction was measured as that of visitors rather than that of residents. While Stedman (2002) and Uzzell et al. (2002) measured residents' satisfaction, Halpenny (2006) included visitors' satisfaction, which reflected a lack of a close relationship with the park. This

might be why the satisfaction was not significant. She also assumed, because most visitors expressed strong satisfaction, that it was not significant.

The present study, like Stedman's (2002), includes residents—coastal residents. It is expected that the study will find a significant negative relationship between place satisfaction and ERB.

5. Socio-demographic Variables and ERB

Socio-demographic variables are considered important factors for predicting environmental value orientations (Larson et al., 2011). The vast majority of ERB studies have included socio-demographic variables as predictors of ERB. Age, income, and gender are the most commonly used socio-demographic variables (Cottrell, 2003; Korfiatis, Hovardas, & Pantis, 2004; Larson et al., 2011). Some studies, however, have included length of residence (Sheldon & Var, 1984; Vaske et al., 2001) or residential distance from a particular place (Halpenny, 2006; Moore & Graefe, 1994).

However, these socio-demographic variables still fail to lead to consistent results. Cottrell (2003) revealed that younger people are more likely to behave in an environmentally responsible way. Korfiatis et al. (2004) and Ngo, West, and Calkins (2009) revealed that older people are more likely to exhibit environmentally responsible behavior. The income variable also has mixed results, in that some studies have shown it to have a negative relationship with ERB (Cottrell, 2003; Korfiatis et al., 2004); other studies indicate a positive relationship (Ngo et al., 2009; Vaske et al., 2000). Gender, however, has consistently shown that women are more likely to demonstrate ERB (Barr, 2003; Ngo et al., 2009; Zelezny, Chua, & Aldrich, 2000).

Regarding length of residence, Vaske et al. (2000) demonstrated that individuals who have lived in a place longer are more likely to reveal an anthropocentric attitude. This means
they are less likely to behave in an environmentally responsible manner. The authors of that study assumed that this was because long-term residents were typically engaged in agriculture and ranching, which would make them more anthropocentric than bio-centric. Finally, Halpenny (2006) hypothesized that shorter distances would reveal more ERB, yet her study findings showed that visitors residing far from Point Pelee national park were more likely to reveal ERB. The author surmised that this result was due to respondents already being inclined to trying to protect the environment.

Although evidence exists for a demographic basis of ERB, each variable has yielded inconsistent results. Also, whereas Halpenny's (2006) study of the distance variable focused on visitors' ERB, this study will explore residents' distance from a natural area and ERB. Consequently, different results are expected from this study. Accordingly, this study will examine how coastal beach residents' socio-demographic variables are associated with ERB.

6. Place Segmentation Analysis

The present study will carry out, based on the model hypothesized above, a segmentation analysis. Multiple-regression analyses will be conducted for each segmented county- Beaufort, Charleston, and Horry. This step will be taken because each county has unique characteristics regarding economic and tourism development as well as socio-demographic conditions. This fact could result in different degrees of ERB and thus probably produce different predicted relationships among the variables. Several studies have borne out the assumption that predicted relationships will differ according to the place (Ngo et al., 2009; Scannell & Gifford, 2010; Uzzell et al., 2002).

Ngo, et al.'s study (2009) mainly aimed to identify the determinants of ERB for greenhouse gas reduction. The study identified as the dependent variable two types of ERB:

indoor ERB and environmentally responsible automobile behavior. As determinants, the study identified four main themes of predictors: attitude-, value-, knowledge-, and behavior-related variables; policy opinion variables; automobile-related variables; and socio-demographic variables. The results indicated that a mixed relationship was identified; that is, some relationships were significant while others were not. One of the socio-demographic variables, places of residence (Prairie, Atlantic, and the provinces of Quebec or Ontario in Canada), was coded a dummy variable. Ngo and his colleagues found that of these three regions, households in Quebec and Ontario revealed a higher level of indoor ERB than those of the prairie or the Atlantic. As for environmentally responsible automobile behavior, the prairie province revealed a higher level of ERB than the other two provinces. The authors speculated that, because residents of the Prairie Provinces were accustomed to driving cross-country as part of the agricultural business, they had more of a notion of demonstrating automobile behavior that was environmentally responsible.

Scannell and Gifford's study (2010) also assumed that the relationship between place attachment and ERB differed according to whether residents lived in the city or the country. The authors found that while attachment to a place in nature revealed ERB, civic attachment failed to explain ERB.

Overall, it can be seen that the hypothesized relationship between variables and ERB can vary depending on place characteristics, such as whether it is rural or urban, and the degree of economic development or type of tourism development and socio-demographic conditions. In this study, each county (Beaufort, Charleston, and Horry) differs in economic development, type of tourism development and residents' socio-demographic variables. It is thus expected that each

county will have a different relationship between ERB and the predictors (place attachment, attitudes toward tourism, place satisfaction, and socio-demographic variables).

III. METHODOLOGY

1. Introduction

This chapter primarily describes the methodology employed to assess any relationships between ERB and the following explanatory variables: place attachment, attitudes toward tourism development, place satisfaction, and socio-demographic variables. The first part describes both data collection, method and study sites. Measurement instruments, the second part, give an account of the types of scales with the specific items used. The chapter concludes with a description of the data analysis.

2. Setting and Data Collection

The target population for this study is coastal residents of South Carolina. According to Census Bureau data, South Carolina is one of the fastest-growing states in the US (United States Census, 2011). Population growth invariably leads to various human-induced environmental problems, including nonpoint-source pollution, resource depletion, and habitat loss. Such problems are of concern to coastal zone managers, such as in Department of Natural Resources or Department of Environmental Quality (Wenner, Sanger, Upchurch, & Thompson, 2010). These managers need to be better equipped to handle environmental problems by understanding how South Carolina coastal residents think about their coastal areas and how/when these residents will behave in an environmentally responsible way.

Particularly, this study targeted residents in three coastal counties (i.e., Beaufort Charleston, and Horry) recognized for being popular coastal tourism and recreation destinations. Using stratified random sampling, a total of 3,000 household addresses were purchased from

Survey Sampling International; 50% were from Charleston, 30% from Horry, and 20% from Beaufort County. Further, 65% of the sample in each county was drawn from zip codes closer to coastal areas and the remaining 35% were drawn from inland zip codes.

Beaufort County

Beaufort County includes Hilton Head Island, known as one of the most popular coastal tourism destinations in the state. Hilton Head Island features 19 km of beachfront on the Atlantic Ocean and is an upscale coastal tourism destination. It is also known as a retirement community. Primary attractions are beach vacations, golf, dining, shopping, and beach recreation. The year-round population is 162,233, though at its peak during summer vacation it can, as of 2010, balloon to 275,000. Over the past decade, the island's population growth rate was 32% (United States Census, 2010).

Charleston County

The major city in Charleston County is Charleston, located south of the mid-point of South Carolina's coastline. Charleston is the second largest city in South Carolina and is also well known as a popular tourism destination. It provides residents and tourists alike, historical, cultural, and natural recreation opportunities for residents and tourists. The city's historic district is an attraction in its own right, featuring colonial architecture, cobblestone streets, and horsedrawn carriage tours. Also, a variety of accommodations are available, including luxury hotels, hotel chains, inns, and bed and breakfasts. Charleston County's population is 350,209. The population of Charleston County has, over the past decade, gradually increased (United States Census, 2010).

Horry County

Horry County it home to one of America's major tourist destinations- Myrtle Beach. It attracts over 14.6 million visitors annually. Myrtle Beach represents a lower and middle-income and family-oriented coastal tourism destination. The city offers a variety of outdoor recreation opportunities, entertainment attractions, golf courses, and restaurants. Thus, Myrtle Beach's economy is dominated by the tourist industry, which brings in millions of dollars each year. 2010 census data indicates that the county's population is 269,291. Over the past decade, its population has been rapidly increasing (United States Census, 2010).

Residents in Beaufort, Charleston, and Horry Counties seemed appropriate for studying residents' ERB. They were chosen as the study population for several different reasons. First, people who reside near or within a natural environment, in this case coastal areas, value natural resources (Scannell & Gifford, 2010). Second, residents as well as recreationists who tend to be compared to visitors who stay for a short while become attached to their coastal areas and resources (Hay, 1998). Third, it is important to examine how the attitudes toward tourism of residents, as inhabitants of major coastal tourism destinations, are associated with their environmental attitudes and behaviors. Finally, because residents live close to coastal resources such as local beaches, their experience in those areas can be also connected with their environmental attitudes and behaviors.

3. Measurement Instruments

To increase survey response rates, the study utilized a modified Dillman's total survey method with a self-administered questionnaire (Rosenbaum & Lidz, 2007).

ERB was measured with the "Environmentally Responsible Behavior Index Scale"

(ERBI), developed by Smith-Sebasto & D'Acosta (1995). The original ERBI scale consists of 24 items utilizing a 5-point, Likert-type scale response format (from 1 =rarely to 5 = usually). In here, 11 items which were considered more appropriate in the context of coastal tourism and recreation were used.

The scale used to measure place attachment was originally developed by Williams and Roggenbuck (1989). Their items mainly consisted of place identity and place dependence dimensions and have also been used by numerous researchers (Kyle, Graefe, Manning, & bacon, 2004; Moore & Graefe, 1994; Vaske & Korbrin, 2001). In the survey, the place attachment scale is referred to as the "Agreement of Beach Meaning." It is composed of a five-point, Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree.

Residents' satisfaction with local beaches was measured on a five-point, Likert-type scale, ranging from 1 = not at all satisfied to 5 = extremely satisfied. Place satisfaction was derived from a single item that asked about overall satisfaction with local beaches.

Attitudes toward tourism development items were derived from the tourism impact attitudes scale (TIAS) developed by Lankford & Howard (1994). Designed to measure residents' attitudes toward tourism development, the original TIAS had 27 items. This study, however, adopted 12 items which were considered more appropriate in the context of coastal tourism development. The TIAS consists of mainly two categories—concern for local tourism development and personal and community benefits. The questionnaire consisted of a five-point, Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree).

Scale Definition Items Studies Any behaviors I tried to find out what I can do to help the environment that can contribute to I talked to others about environmental environmental issues conservation I watched TV programs about and can result environmental issues Environmentally in sustainable I read articles about current environmental Smith-**Responsible** natural issues Sebasto & **Behavior** ecosystems I donated money/member of conservation D'Acosta, Index and group 1995, scale(ERBI) healthy I joined a community clean effort Thapa, 1999 environmental I switched to environmentally safe brand (Dependent *variable*) conditions items (Sintov. I read labels to see if items are environmentally safe Desario, & Prescott. I separated out recyclable items from trash 2010). I recycled newspapers I recycled glass bottles, jars, or aluminum cans Williams & No other beach can compare to this one Place I feel this beach is part of me Roggenbuck attachment is I go to this beach because it is close by (1989),William & defined as This beach means a lot to me Vaske & **Roggenbuck's** emotional (1989) I wouldn't substitute another beach for this Kobrin bond between (2001),Place one a person and a attachment scale I am more satisfied visiting this beach than Kyle, particular (Independent Graefe, any other place variable) Visiting this beach says a lot about who I Maning, & (Vaske & am Bacon Kobrin, 2001). I am very attached to this beach (2004)Overall degree Place of satisfaction satisfaction Overall, how satisfied are you with your with South (Independent most recent visit to your local beach? Carolina local variable) beach Tourism has led to more spending in our community Residents' Our standard of living has increased **Tourism impact** attitudes attitudes scale considerably because of tourism Lankford & toward South Tourism has changed our precious (TIAS) Howard Carolina local (Independent traditional culture (1994)tourism variable) Local residents have suffered from living in development a tourism-destination area

Table 1 Measurement Instruments

I reschedule activities to avoid tourists

I enjoy having tourism in my town Meeting tourists from other regions is a valuable experience to better understand their culture and society Tourism results in positive impacts on the cultural identity of our community Benefits of tourism are greater than costs to people in the community Governments should control tourism development Construction of tourist facilities have destroyed the natural environment Tourism has resulted in traffic congestion, noise and pollution Tourism provides more parks and recreational areas for local residents Improving public transit facilities is a waste of tax payer money

4. Data Analysis

To assess the mechanism of how residents become more interested in ERB in the context of coastal tourism and recreation destinations, this study used the following explanatory variables: place attachment, attitudes toward tourism, place satisfaction, and various sociodemographic variables. Multiple-regression analysis was employed to examine the relationships between those independent variables and the dependent variable of ERB. A multiple-regression analysis was deemed suitable, for it could determine whether a set of independent variables included could explain a considerable amount of variation in a dependent variable. Moreover, it could provide information on which of these independent variables were more important in explaining variation in the dependent variable (Field, 2009). Before conducting a multipleregression analysis, the author conducted an exploratory factor analysis (EFA) with principle component analysis (PCA) (Field, 2009). EFA facilitates data reduction; it can lessen a group of interrelated items to a smaller set of factors that explain the maximum amount of common variance (Field, 2009).

PCA is a technique of reducing data by identifying groups or clusters of variables. The concepts such as ERB, place attachment, and attitudes toward tourism development cannot be measured directly. Thus, each concept is considered as a latent variable and needs to be measured on a scale consisting of multiple items. However, a regression model consisting of so many items as independent variables would make estimation results hard to interpret. It would also increase the concern about a high level of multicollinearity. A high level of multicollinearity would make it difficult to distinguish individual influences of each independent variable on ERB (Warner, 2007). Thus, for these three variables, data reduction is necessary.

With these factors, a multiple-regression analysis was conducted to identify the predictive relationships between a variety of independent variables (i.e., place attachment, attitudes toward tourism development, place satisfaction, and socio-demographic variables) and the dependent variable, ERB.

In addition, a place-segmented multiple regression analysis was conducted. It examined whether the degree of tourism development or level of economic development in each county was important in affecting residents' engagement in ERB. The original sample data were segmented into the three coastal areas by county—Beaufort, Charleston, and Horry. Each county was expected to show a different degree of tourism development, level of economic development, and socio-demographic conditions. Thus, the segmented regression analysis was to demonstrate whether differences in the three counties affected the relationships between the independent variables and ERB. All of these analyses, including EFA, multiple regression analysis, and ANOVA were conducted using IBM SPSS statistics 19.

IV. RESULTS

1. Introduction

Out of 3,000 questionnaires mailed out, 697 were returned. The gross response rate was 23.2%. The majority (95.5%) of respondents were permanent residents and rests of them were seasonal (4.5 %).

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	2007 Census (%)	2007 Study (%)
Gender		
Male	48.7	57.3
Female	51.3	42.7
Age		
Under 5-under 18	26.9	
18-29	13.6	2.8
30-39	13.1	10.6
40-49	14.4	12.9
50-59	13.5	19.4
60-69	9.4	31.1
70-79	5.6	17.6
80+	3.4	5.6
Income		
<\$10,000	12.5	1.0
\$10,000 -49,999	35.4	24.1
\$50,000-99,999	30.2	41
\$100,000 and above	21.9	34.1

 Table 2 Comparison of Demographic Characteristics

To check the degree of generalizability, the data collected here were compared to 2007 census data. Overall, there were some differences between these two data. First, with respect to the variable of gender, the study data showed that the percentage of males (57.3%) was somewhat higher than that of females (42.7%). However, census data showed that this was different with a higher percentage of females than males (51.3% vs. 48.7% respectively). In term of age, the study data contained a considerably higher percentage of individuals who were 60 years or older (54.4%) compared to the census data (18.4%). Lastly, there was a difference in income. Compared to the general population (21.9%), our respondents (34.1%) generally

reported a higher household income. Accordingly, caution is needed in interpretation of study results.

Based on these questionnaires, this chapter summarizes the data analysis. The following section described the descriptive characteristic of each variable—ERB, place attachment, attitudes toward tourism development, place satisfactions, and socio-demographic variables. Exploratory factor analysis was first used to explore the underlying structure of a latent concept. With respect to ERB, two factors—general ERB and recycling behaviors were identified. Place attachment also had two dimensions—place identity and place dependence. Attitudes toward tourism consisted of two main themes—concern for tourism development and benefits from tourism development. Lastly, multiple-regression analysis was conducted to assess the relationships between these independent variables and ERB. Segmented multiple regression analysis was also conducted based on the respondents' residential counties—Charleston, Beaufort, and Horry.

2. Descriptive Statistics

1) Environmentally Responsible Behavior (ERB)

Table 3	Frequency	of ERB	Categories

	Values given are Percentages (Frequency)
1 (Rarely)	17.5 (111)
2 (Occasionally)	13.2 (84)
3 (Sometimes)	21.6 (137)
4 (Frequently)	22.5 (144)
5 (Usually)	25.0 (160)

Table 4 Frequency Distribution of ERB Items (1=Rarely to 5=Usually)							
Items	n	Mean (SD)	Values given are Percentages				ges
		(3.D.)	1	2	3	<u>y</u>) 4	5
				-	5	•	5
General ERB							
I tried to find out what I can do to	<i>(</i>) <i>Г</i>	3.31	11.2	12.0	29.6	29.1	18.1
help the environment	635	(1.22)	(71)	(76)	(188)	(185)	(115)
I talked to others about	629	3.17	10.5	15.5	34.2	26.2	13.6
environmental issues	038	(1.16)	(67)	(99)	(218)	(167)	(87)
I watched TV programs about	636	3.28	8.8	14.0	31.6	32.1	13.5
environmental issues	030	(1.13)	(56)	(89)	(201)	(204)	(86)
I read articles about current	641	3.42	6.1	13.7	28.1	36.5	15.6
environmental issues	041	(1.09)	(39)	(88)	(180)	(234)	(100)
I donated money/member of	631	2.45	34.1	19.2	24.6	12.5	9.7
conservation group	031	(1.32)	(215)	(121)	(155)	(79)	(61)
Lioined a community clean effort	623	2.03	49.9	17.8	17.7	8.3	6.3
I Joined a community crean entit	025	(1.25)	(311)	(111)	(110)	(52)	(39)
I switched to environmentally safe	636	2.97	14.5	22.3	26.3	25.5	11.5
brand items	020	(1.23)	(92)	(142)	(167)	(162)	(73)
I read labels to see if items are	636	3.02	20.0	15.3	22.2	28.1	14.5
environmentally safe	050	(1.35)	(127)	(97)	(141)	(179)	(92)
Recycling Behavior							
I separated out recyclable items	<i>с</i> 10	4.01	10.9	6.2	8.6	19.2	55.1
from trash	642	(1.37)	(70)	(40)	(55)	(123)	(354)
T	(20)	4.02	14.1	4.5	6.3	16.0	59.2
I recycled newspapers	639	(1.45)	(90)	(29)	(40)	(102)	(378)
I recycled glass bottles, jars, or	642	4.00	12.9	5.6	8.6	14.5	58.4
aluminum cans	042	(1.44)	(83)	(36)	(55)	(93)	(375)
Meen	626	3.24					
Mean	030	(1.27)					

Participants were asked their views on environmental issues, using a five-point, Likerttype scale called Environmentally Responsible Behavior Index (ERBI). One (1) indicated they rarely participated in ERB and five (5) indicated they usually participated in it. The results indicated a mean score of 3.24 (SD = 1.27, n = 636) for ERB. More than one-fifth (21.6%) of the respondents indicated that they sometimes participated in ERB. Similarly, about half (47.5%) of the respondents reported that they have frequently or usually participated in ERB.

The frequency table of ERB items revealed that the lower levels of ERB were "I joined a community clean effort" (M = 2.03, SD = 1.25) and "I donated money/member of conservation group" (M = 2.45, SD = 1.32). The table revealed that the higher levels of ERB were: "I separated out recyclable items from trash" (M = 4.01, SD = 1.37), "I recycled newspapers" (4.02), and "I recycled glass bottles, jars, or aluminum cans" (M = 4.00, SD = 1.44). Performing the lower levels of ERB items usually requires greater effort and more time. In contrast, higher levels of ERB items, such as recycling behaviors, suggest that people can participate in these activities more easily. Therefore, these results were consistent with a priori expectations.

2) Place Attachment

Table 5 Frequency of Place Attachment Categories

	Values given are Percentages (Frequency)
1 (Strongly Disagree)	5.2 (31)
2 (Disagree)	18.2 (107)
3 (Neutral)	29.3 (173)
4 (Agree)	28.6 (168)
5 (Strongly Agree)	18.5 (109)

Table 6 Frequency Distribution of Place Attachment Scale Items

		Maan		Values given are Percentages					
Items	n	n (CD)		(Frequency)					
		(5.D.)	1	2	3	4	5		
Place Identity									
I feel this beach is part of me	588	3.48	3.7	13.9	31.0	33.2	18.2		
Theer this beach is part of the	388	(1.05)	(22)	(82)	(182)	(195)	(107)		
This beach means a lot to me	588	4.08	0.7	2.4	18.7	44.4	33.8		
This beach means a lot to me	300	(0.82)	(4)	(14)	(110)	(261)	(199)		
Visiting this beach says a lot about	500	3.21	5.8	21.0	35.3	22.4	15.6		
who I am	390	(1.11)	(34)	(124)	(208)	(132)	(92)		
I am yory attached to this basch	500	3.52	4.4	13.4	28.6	33.2	20.3		
I am very attached to this beach	390	(1.09)	(26)	(79)	(169)	(196)	(120)		
Place Dependence									
No other beach can compare to this	597	2.88	9.5	32.7	29.1	17.5	11.1		
one	387	(1.14)	(56)	(192)	(171)	(103)	(65)		
I wouldn't substitute another beach	507	3.15	6.5	24.9	30.8	22.7	15.2		
for this one	387	(1.14)	(38)	(146)	(181)	(133)	(89)		
I am more satisfied visiting this	507	3.27	5.8	19.6	32.2	27.1	15.3		
beach than any other	387	(1.11)	(34)	(115)	(189)	(159)	(90)		
Maar	500	3.37							
Iviean	388	(1.06)							

(1=Strongly Disagree to 5=Strongly Agree)

The intensity of place attachment was based on the meaning of their local beach to them. On a five-point, Likert-type scale, one (1) indicated strongly disagree and five (5) indicated strongly agree (most highly attached to the local beach). The results revealed that the mean score of place attachment items was 3.37 (SD = 1.06). And, almost half of respondents (47.1%) possessed a high level of attachment to the local beach. Overall, it can be said that most of the respondents were fairly attached to their local beach. The highest level of place attachment was the item, "This beach means a lot to me" (M = 4.08, SD = 0.82); the lowest was "No other beach can compare to this one" (M = 2.88, SD = 1.14). Of the two dimensions of place attachment, place identity had a slightly higher mean score (M = 3.57, SD = 0.83) than place dependence (M=3.13, SD = 1.13). These results indicated that the respondents were slightly more emotionally attached to their local beaches than they were functionally attached.

3) Attitudes toward Tourism Development

Table / Trequency of Attrades toward Tourism Development Categories				
	Values given are Perc	centages (Frequency)		
	Concerns	Benefits		
1 (Strongly Disagree)	2.86 (20)	3.07 (21)		
2 (Disagree)	16.72 (116)	12.77 (89)		
3 (Neutral)	21.86 (119)	29.84 (208)		
4 (Agree)	32.22 (224)	36.07 (251)		
5 (Strongly Agree)	22.36 (124)	9.78 (68)		

Table 7 Frequency of Attitudes toward Tourism Development Categories

Table 8 Frequency Distribution of Attitudes toward Tourism Development

Items		Maan	Values given are Percentages				
		(CD)		(]	Frequen	cy)	
		(S.D.)	1	2	3	4	5
Concerns for Tourism Development							
Tourism has changed our precious	627	3.41	1.9	13.8	32.6	31.3	34.2
traditional culture	037	(0.96)	(13)	(96)	(227)	(218)	(83)
Local residents have suffered from	(20)	3.08	4.7	27.8	25.4	22.4	11.3
living in a tourism-destination area	639	(1.11)	(33)	(194)	(177)	(156)	(79)
I reschedule activities to avoid tourists	6/1	3.73	2.0	12.5	16.6	37.7	23.1
Treschedule activities to avoid tourists	041	(1.05)	(14)	(87)	(116)	(263)	(161)
Construction of tourist facilities have	625	3.24	4.3	23.0	23.8	26.4	13.6
destroyed the natural environment	035	(1.12)	(30)	(160)	(166)	(184)	(95)
Tourism has resulted in traffic	620	4.02	1.4	6.5	10.9	43.3	29.6
congestion, noise and pollution	039	(0.93)	(10)	(45)	(76)	(302)	(206)
Mean 3.49 (1.03)							
Benefits from Tourism Development							
Tourism has led to more spending in	639	4.08	0.4	3.0	10.2	53.2	24.8
our community		(0.74)	(3)	(21)	(71)	(371)	(173)
Our standard of living has increased	(20)	3.31	2.9	17.1	30.7	30.4	10.2
considerably because of tourism	639	(1.00)	(20)	(119)	(214)	(212)	(71)
Loniou having tourism in my tour	620	3.27	3.0	11.8	40.3	30.4	6.2
I enjoy having tourism in my town	639	(0.88)	(21)	(82)	(281)	(212)	(43)
Meeting tourists from other regions is a		2 25	2 2	10.0	26.6	25.0	6.0
valuable experience to better	639	(0.80)	(22)	(70)	(255)	(244)	(19)
understand their culture and society		(0.09)	(22)	(70)	(233)	(244)	(40)
Tourism results in positive impacts on	620	3.31	3.0	14.1	33.6	33.9	7.2
the cultural identity of our community	039	(0.93)	(21)	(98)	(234)	(236)	(50)
Benefits of tourism are greater than	624	3.25	4.7	15.9	30.0	32.9	7.5
costs to people in the community	034	(1.00)	(33)	(111)	(209)	(229)	(52)
Tourism provides more parks and	640	3.24	4.3	17.5	27.5	36.7	5.7
recreational areas for local residents	040	(.98)	(30)	(122)	(192)	(256)	(40)
Mean		3.40 (0.91)					

(1=Strongly Disagree to 5=Strongly Agree)

Residents were asked what they thought of tourism development in their local community. The scale for attitudes toward tourism development included two overarching themes: concern for tourism development and benefits from tourism development. A five-point, Likert-type scale was designed where one (1) indicated strongly disagree and five (5) indicated strongly agree. For the items mainly representing concern about tourism development, the mean score was 3.49 (SD = 1.03). Over half of the respondents (54.58%) answered they either agreed or strongly agreed. For items representing benefits from tourism development, the mean score was 3.40 (SD = 0.91). Nearly half of residents (45.85%) either agreed or strongly agreed. The residents seemed on average to be neutral in terms of their concern about tourism development and benefits from tourism development and

The respondents reported the highest mean score on the following item: "Tourism has resulted in traffic congestion, noise, and pollution" (M = 4.02, SD = 0.93). They reported the lowest mean score on: "Local residents have suffered from living in a tourism-destination area" (M = 3.08, SD = 1.11). This could imply that residents were concerned about traffic congestion, noise, and pollution as major drawbacks derived from tourism development. The item of highest regard about benefits from tourism development was "Tourism has led to more spending in our community" (M = 4.08, SD = 0.74). The lowest item was "Tourism provides more parks and recreational areas for local residents" (M = 3.24, SD = 0.98). It appears that residents considered tourism a tool that could contribute positively to community economic development.

4) Place Satisfaction

Itom	n	Mean	Values given are Percentages (Frequency)				
Item	11	(S.D.)	1	2	3	4	5
Satisfaction	574	3.8 (0.78)	0.5	3.5	29.4	49.0	17.6
with beach			(3)	(20)	(169)	(281)	(101)

Table 9 Frequency Distribution of Place Satisfaction

(1=Not at all satisfied to 5=Extremely satisfied)

For place satisfaction, residents were asked how satisfied they were with their most recent visit to the local beach. A five-point, Likert-type scale was designed with one (1) representing not at all satisfied and five (5) representing extremely satisfied. The mean score was 3.8 (SD = 0.78) and the largest portion of responses selected 4, very satisfied. The results would suggest that residents were fairly satisfied with their local beach.

5) Socio-demographic variables

This study included socio-demographic characteristics: length of residence,

distance from residential areas to closest beach, gender, age, and income.

Length of Residence	Absolute Frequency (Percent)
Less than 4 years	124 (19.0)
4-6 years	121 (18.6)
7-10 years	123 (18.9)
11-15 years	92 (14.1)
16-20 years	72 (11.1)
21-30 years	61 (9.4)
31-40 years	33 (5.1)
41-50 years	11 (1.7)
More than 50 years	14 (2.2)
No response	46
TOTAL	651 (100.0)
Mean (S.D.)	13.11 (12.21)

Table 10 Frequency Distribution of Length of Residence

The average length of residence was over 13 years. About one-fifth (19.0%) of the residents reported that they had lived in their community for less than four years; 18.6% for 4 to 6 years and 18.9 % for 7 to 10 years. Thus, over half the residents had lived in their community for less than 10 years.

Table 11 Frequency Distribution of Distance to Closest Beach Access

Distance to Closest Beach Access	Absolute Frequency (Percent)
Less than 2 mile	233 (35.6)
2-4.9 miles	150 (22.9)
5-10 mile	187 (28.5)
More than 10 miles	85 (13.0)
No response	42
TOTAL	697 (100.0)

A little over a third of the residents (35.6%) indicated they lived less than two miles from

the nearest beach; 22.9% reported living between 2-4.9 miles, 28.5% lived between 5-10 miles,

and 13.1% over 10 miles. Thus, over half the residents lived within five miles of the nearest

beach.

Table 12 Frequency Distribution of Gender

Gender	Absolute Frequency (Percent)
Female	278 (42.7)
Male	373 (57.3)
No response	46
TOTAL	651 (100.0)

Over half the samples (57.3%) were male; 42.7% were female.

Age	Absolute Frequency (Percent)
18-29	18 (2.8)
30-39	68 (10.6)
40-49	83 (12.9)
50-59	125 (19.4)
60-69	200 (31.1)
70-79	113 (17.6)
80+	36 (5.6)
No response	54
TOTAL	697 (100.0)
Mean (S.D.)	58.59 (14.34)

Table 13 Frequency Distribution of Age

The mean age of the respondents was 58.5 years and nearly a third (31.3%) reported being in the age category of 60-69. The breakdowns of ages consist of: 18-29 (2.8%), 30-39 (10.6%), 40-49 (12.9%), 50-59 (19.4%) and 70-79 (17.6%). The youngest age was 24 and the oldest 94.

Household income **Absolute Frequency (Percent)** <\$10,000 6 (1.0) \$10,000-19,999 19 (3.3) \$20,000-29,999 26 (4.5) \$30,000-39,999 50 (8.6) 45 (7.7) \$40,000-49,999 \$50,000-59,999 63 (10.8) \$60,000-69,999 50 (8.6) \$70,000-79,999 46 (7.9) \$80,000-89,999 52 (8.9) \$90,000-99,999 28(4.8)\$100,000 and Above 199 (34.1) No response 113 TOTAL 697 (100.0)

Table 14 Frequency Distribution of Income

Over a third of the respondents (34.1%) reported household income of over \$100,000; the

median category was between \$70,000 to 79,999.

3. Exploring the Structure of Variables

1) Environmentally Responsible Behavior

Component		Initial Eigenvalues		Extraction Sums of Squared Loadings		Rotation	l
	Total	% of	Cumulative %	Total	% of	Cumulative %	Total
		Variance			Variance		
1	5.63	51.18	51.18	5.63	51.18	51.18	5.29
2	2.01	18.43	69.61	2.03	18.43	69.61	3.51

Table 15 Total Variance Explained

Table 16 Communalities

Items	Initial	Extraction
A. I tried to find out what I can do to help the environment	1.000	.674
B. I talked to others about environmental issues	1.000	.742
C. I watched TV programs about environmental issues	1.000	.676
D. I read articles about current environmental issues	1.000	.718
E. I donated money/member of conservation group	1.000	.546
F. I joined a community clean effort	1.000	.422
G. I switched to environmentally safe brand items	1.000	.593
H. I read labels to see if items are environmentally safe	1.000	.567
I. I separated out recyclable items from trash	1.000	.933
J.I recycled newspapers	1.000	.885
K. I recycled glass bottles, jars, or aluminum cans	1.000	.903

Table 17 Pattern Matrix

Items	Comp	onent
	1	2
B. I talked to others about environmental issues	.867	
C. I watched TV programs about environmental issues	.845	
D. I read articles about current environmental issues	.842	
A. I tried to find out what I can do to help the environment	.809	
E. I donated money/member of conservation group	.752	
G. I switched to environmentally safe brand items	.704	
H. I read labels to see if items are environmentally safe	.699	
F. I joined a community clean effort	.675	
I. I separated out recyclable items from trash		.959
K. I recycled glass bottles, jars, or aluminum cans		.953
J.I recycled newspapers		.936
Cronbach's α	.91	.95

A principle component analysis (PCA) was conducted on the 11 ERB items with oblique rotation. Oblique rotation was used because it was possible the underlying factors were correlated. An ERB scale was composed of different types of behaviors; however, each behavior, at a fundamental level, had the same aim, conservation of natural environment. Hence, the factors may be correlated.

Before factor extraction, preliminary analysis was conducted to check the assumptions of factor analysis. The first assumption was that items needed to be correlated fairly well; however, the correlation coefficients should not be greater than 0.9 so as to alleviate the concern of multicollinearity (Field, 2010). The correlation matrix (Table 29, see Appendix) for ERB indicates that all items were fairly well correlated. Also no correlation coefficients surpassed 0.9. While the sample size is also important for testing the reliability of factor analysis, scholars usually recommend a sample size of 300 or more (Tabachnick and Fidell, 2007). A sample total of over 600 in this study met the minimum sample requirement. Usually, however, for a more precise measure of sampling adequacy, researchers use the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and recommend a value of over 0.5. The KMO measure (KMO = .86) verified the sampling adequacy for the analysis. All KMO values for individual items were greater than 0.78, well above the acceptable limit of 0.5. Barlett's test of sphericity was used mainly to reject the null hypothesis that the original correlation matrix was an identity matrix. This would result in all correlation coefficients being zero (Field, 2010). Barlett's test of sphericity $(x^2 (55) = 5191.215, p < .001)$ was significant, meaning the null hypothesis was rejected. It also indicated that correlation between items was sufficiently large for PCA.

For the factor extraction, an initial analysis was run to obtain eigenvalues for each component. To determine the important particular vector, based on Kaiser's criterion,

eigenvalues greater than one were retained (Field, 2010). Two components had eigenvalues over Kaiser's criterion of 1 and each explained 51.17% and 18.43% of variance. The average communality (7.659/11 = 0.696) also met the recommended value of greater than 0.6 (when the sample size was over 250). These results also demonstrated that each of the two factors explained a considerable amount of variance. Lastly, the scree plot (Figure 2, see Appendix) showed inflexions, which also justified the two factors.

The items that cluster around the same component suggest that Component 1 represents general environmentally responsible behavior and Component 2 represents recycling behavior.

Lastly, to measure internal consistency, a reliability test was conducted for each component. Cronbach's alpha value, between 0.7 and 0.8 is considered acceptable. Both subscales of ERB, the general environmentally responsible behavior and recycling behavior, had high reliability scores ($\alpha = .91$ and a = .95).

2) Place Attachment

Component	Initial Eigenvalues		omponent Initia		Extract Square	ion Sums of d Loadings	Rotation	l
	Total	% of	Cumulative %	Total	% of	Cumulative %	Total	
		Variance			Variance			
1	4.66	66.63	66.63	4.66	66.63	66.63	4.66	
2	0.86	12.26	78.89	0.86	12.26	78.89	0.86	

Table 18 Total Variance Explained

Table 19 Communalities

Items	Initial	Extraction
A. No other beach can compare to this one	1.000	.759
B. I feel this beach is part of me	1.000	.759
C. This beach means a lot to me	1.000	.754
D. I wouldn't substitute another beach for this one	1.000	.818
E. I am more satisfied visiting this beach than any other	1.000	.844
F. Visiting this beach says a lot about who I am	1.000	.753
G. I am very attached to this beach	1.000	.835

Table 20 Pattern Matrix

	Comp	onent
	1	2
C. This beach means a lot to me	.967	
G. I am very attached to this beach	.831	
B. I feel this beach is part of me	.742	
F. Visiting this beach says a lot about who I am	.719	
A. No other beach can compare to this one		893
E. I am more satisfied visiting this beach than any other		887
D. I wouldn't substitute another beach for this one		849
Cronbach's α	.86	.88

A principle component analysis (PCA) was conducted on the seven place-attachment items with oblique rotation. Originally, place attachment items were all eight items, but one item, "I go to this beach because it is close by," was dropped, since it showed low-correlation and the

content was not appropriate for the place attachment scale.

Prior to factor extraction, a preliminary analysis was conducted to check the assumptions of factor analysis. A correlation matrix (Table 30, see Appendix) demonstrated that the overall place attachment was fairly well correlated, with no variable being highly correlated (r > 0.9). The sample size (over 500) for the factor analysis also met Tabachnick and Fidell's (2007) recommended sample size of over 300. For more accuracy, the KMO measure verified the sampling adequacy for the analysis (KMO = .89), and all KMO values for individual items were greater than 0.85, well above the acceptable limit of 0.5. Barlett's test of sphericity (x^2 (21) = 2816.433, p < .001), indicated that correlation between items were sufficiently large for PCA.

An initial analysis was run to obtain eigenvalues for each component. While the ERB scale obtained eigenvalues based on Kaiser' criterion of one, place attachment followed the Jolliffe's recommendation to retain eigenvalues of over 0.7. Based on a scree plot (Figure 3, see Appendix), two inflections were found, while one eigenvalue was lower than the other. It was thus decided that the place attachment scale would follow Jolliffe's criterion of 0.7. Two components were extracted with a variance of 66.62% and 12.25%. It is reasonable to have two components, as several studies (Halpenny, 2006; Kyle et al., 2004) already specified the two-dimensionality of place attachment. The average communality (5.522/7 = 0.788) also met the recommended value of it being greater (when the sample size is over 250) than 0.6. This also demonstrated that each of the two factors explained a considerable amount of variance. Accordingly, it was decided that place attachment would retain two components.

A pattern matrix shows the factor loading after rotation. The pattern matrix table only displayed an absolute value greater than 0.4, which, for interpretation purposes, explained around 16% of the variance in the variable. The items that cluster around the same component suggest that Component 1 represents place identity and Component 2 represents place dependence.

Lastly, to measure internal consistency, a reliability test was conducted for each

component. Place identity and place dependence both had high reliabilities (a = .86 and a = .88).

2) Attitudes toward Tourism Development

Component]	Initial Eigenvalues			nction Sums Loadin	of Squared gs	Rotation
	Total	% of	Cumulative	Total	% of	Cumulative	Total
		Variance	%		Variance	%	
1	4.57	38.04	38.04	4.57	38.04	38.04	4.57
2	1.69	14.06	52.10	1.69	14.06	52.10	1.69

Table 21 Total Variance Explained

Table 22 Communalities

Items	Initial	Extraction
A. Tourism has led to more spending in our community	1.000	.407
B. Our standard of living has increased considerably because of tourism	1.000	.521
C. Tourism has changed our precious traditional culture	1.000	.579
D. Local residents have suffered from living in a tourism-destination area	1.000	.606
E. I reschedule activities to avoid tourists	1.000	.520
F. I enjoy having tourism in my town	1.000	.598
G. Meeting tourist from other regions I as valuable experience to better understand their culture and society	1.000	.443
H. Tourism results in positive impacts on the cultural identity of our community		.585
I. Benefits of tourism are greater than costs to people in the community		.491
J. Construction of tourist facilities have destroyed the natural environment		.532
K. Tourism has resulted in traffic congestion, noise and pollution		.585
L. Tourism provides more parks and recreational areas for local residents		.386

 Table 23 Rotated Component Matrix

Items	Comp	onent
	1	2
K. Tourism has resulted in traffic congestion, noise and pollution	.761	
C. Tourism has changed our precious traditional culture	.761	
J. Construction of tourist facilities have destroyed the natural environment	.704	
D. Local residents have suffered from living in a tourism-destination area	.704	
E. I reschedule activities to avoid tourists	.683	
B. Our standard of living has increased considerably because of tourism		.719
H. Tourism results in positive impacts on the cultural identity of our community		.699
G. Meeting tourist from other regions I as valuable experience to better understand their culture and society		.631
I. Benefits of tourism are greater than costs to people in the community		.618
F. I enjoy having tourism in my town	489	.599
L. Tourism provides more parks and recreational areas for local residents		.589
A. Tourism has led to more spending in our community		.588
Cronbach's α	.81	.79

A principle component analysis (PCA) was conducted on the 12 attitudes-towardtourism-development items with orthogonal rotation. The original 14 items were reduced to 12 because two showed low-correlation—"Government should control tourism development" and "Improving public transit facilities is a waste of taxpayer money."

Preliminary analysis was conducted also to check the assumptions of the factor analysis.

A correlation matrix (Table 31, see Appendix) revealed that items were somewhat correlated and that none were highly correlated (r > 0.9). The sample size (over 600) for the factor analysis also met Tabachnick and Fidell's (2007) recommended sample size of over 300. The KMO measure verified the sampling adequacy for the analysis (KMO = .87), and all KMO values for individual items were > .76, well above the acceptable limit of .5. Barlett's test of sphericity (x^2 (78) = 2453.466, p < .001), indicated that the correlation between items were sufficiently large for PCA.

An initial analysis was run to obtain eigenvalues for each component of the data. Two components had eigenvalues over Kaiser's criterion of one. Each component explained 38.04% and 14.05% of the variance. A scree plot (Figure 4, see Appendix) once more confirmed that the

two factors could be extracted. Even the average communality (6.253/12 = 0.521) was lower than Kaiser's recommended value of 0.6 (when the sample size is over 250). As the sample size of this research (over 600) is larger than that of Kaiser's criterion (250), it may be concluded that items for each factor explained a considerable amount of variance. Overall, it can be concluded that two factors can be extracted from the attitudes toward tourism development scale.

The rotated component matrix shows the factor loading after rotation. The items that cluster around the same component suggest that Component 1 represents concerns about tourism development and Component 2 represents regard for the benefits that come from tourism development.

Lastly, a reliability test was conducted for each component to measure internal consistency. Concerns about tourism development and regard for benefits that come from tourism development all had high reliabilities (a = .81 and a = .79).

4. Hypotheses Testing

Multiple-regression analysis was conducted based on the factors extracted by factor analysis. Regarding ERB factors, only general ERB was used as a dependent variable because it was deemed to be more closely related to the independent variables used here in the context of coastal tourism and recreation destinations than was the other factor, recycling behavior. For the place attachment variable, place identity and place dependence factors were included as subdimensions of the place attachment variable. The attitudes toward tourism development variable was also represented by including two dimensions—concerns about tourism development and regard for its benefits. Also included in the regression model were place satisfaction and sociodemographic variables. The main research question is whether these variables can predict ERB. The following equation is the main regression model in this study:

 $ERB_i = b_0 + b_1 place identity_i + b_2 place dependence_i + b_3 concerns for tourism_i$

+ b_4 benefits from tourism_i + b_5 place satisfaction_i + b_6 income_i + b_7 length_i

+ b_8 distance_i + b_9age_i + $b_{10}gender_i$ + ε_i

	β	t
Place attachment		
Place identity	0.28	4.40*
Place dependence	0.14	1.71**
Attitudes toward tourism development		
Concerns for tourism development	0.22	4.51*
Benefits from tourism development	0.09	1.76***
Place satisfaction	0.09	0.21
Income	-0.01	-0.74
Length of residence	0.01	1.17
Distance	-0.01	-0.15
Age	-0.00	-0.50
Gender	-0.06	-0.56
R square	0.133	
F-ratio	6.16*	

Significance p<.001*, p<0.05**, p<0.1***

Multiple regression analysis was conducted. The model summary indicated that R^2 was .133, indicating this model accounted for 13.3% of the variation in ERB. Next, an ANOVA table represented whether the model significantly predicted the outcome. F-ratio was 6.16 (p < .001), which can be interpreted that the model significantly predicted the outcome variable, ERB. The coefficients table demonstrated that ERB was significantly predicted by the variables of place attachment, attitudes toward tourism.

Both dimensions of place attachment—place identity and place dependence—revealed that they significantly predicted ERB. The positive value of place identity ($\beta = 0.28$, p < .001) indicated that more emotionally attached residents are more likely to behave environmentally

responsibly. The positive value of place dependence ($\beta = 0.14$, p < .1) also revealed that functionally attached residents also behave more environmentally responsibly. Comparing these two factors, the coefficient magnitude of place identity ($\beta = 0.28$) was greater than that of place dependence ($\beta = 0.14$), suggesting that place identity has a greater impact on ERB than place dependence.

Both dimensions of attitudes toward tourism development (concerns about tourism development and regard for its benefits) showed a significant relationship with ERB. The positive value of concerns about tourism development ($\beta = 0.22$, p < .001) implies that those residents more concerned about tourism development are more likely to behave environmentally responsibly. The positive value of benefits from tourism development ($\beta = 0.09$, p < .1) also implies that residents feeling positive about tourism development are more likely to behave environmentally responsibly. While both were significantly related to ERB, the coefficients value of concerns about tourism development ($\beta = 0.22$) was higher than that of regard for its benefits ($\beta = 0.09$). It can be said that ERB is more affected by concerns about tourism than regard for the benefits that tourism development bring.

The place satisfaction variable was not significantly related to ERB. Also, no sociodemographic variables (income, length of residence, distance to beach, age, and gender) were significantly related to ERB.

In conclusion, these results supported the research hypotheses related to the variables of place attachment and attitudes toward tourism development. They did not, however, support those hypotheses related to place satisfaction and socio-demographic variables.

5. Place Segmentation Analysis

Tuble 20 Comparison of Demographic Information across the under counters Comparison of T		
	Chi-Square	Sig.
Length of Residence	5.04	0.01**
Distance	30.00	0.00*
Gender	1.36	0.26
Age	28.50	0.00*
Income	24.24	0.00*
	O 1 skalask	

Table 25 Comparison of Demographic Information across the three counties Using ANOVA

Significance *p<.001, p<0.05**, p<0.1***

Table 26 Multiple Regression Coefficients with Dummy Variables (place of residence)

	β	t
Place Attachment		
Place identity	0.26	4.34*
Place dependence	0.11	1.76***
Attitudes toward Tourism Development		
Concerns for tourism development	0.24	4.99*
Benefits from tourism development	0.10	2.12**
Place satisfaction	0.04	0.56
Income	-0.03	-1.47
Length of residence	0.00	0.51
Distance	-0.08	-1.51
Age	0.00	0.69
Gender	-0.02	-0.17
Charleston vs Horry	-0.55	-4.62*
Charleston vs Beaufort	-0.39	-3.04**
R square	0.182	
F-ratio	7.43*	

Significance *p<.001, p<0.05**, p<0.1***

First of all, to see the difference in the socio-demographic variables of the three counties, ANOVA analysis was conducted. It was found that aside from gender, all variables were significantly different across the three counties.

In addition, to see whether each county revealed a statistically different level of ERB, multiple regression was conducted with dummy variables based on place of residence. This model revealed that residents in different counties show a heterogeneous degree of ERB. Charleston County was used as a reference group. The negative coefficients of those dummy variables indicated that residents of Charleston County were significantly less interested in behaving environmentally responsible compared to those of the other two counties.

Three separate multiple regression analyses were conducted to see whether each variable had a different impact on ERB. The original sample data were segmented according to the residents' county and multiple regression analyses were conducted for each county using the same regression model.

Beaufort County

Table 27 Beaufort County Coefficients Table

	β	t
Place Attachment		
Place identity	0.38	2.21**
Place dependence	0.29	1.56***
Attitudes toward Tourism Development		
Concerns for tourism development	0.12	0.96
Benefits from tourism development	0.25	1.83***
Place satisfaction	-0.16	-0.80
Income	0.06	1.09
Length of residence	-0.02	-0.99
Distance	0.04	0.37
Age	0.02	2.06**
Gender	0.02	0.10
R square	0.211	
F-ratio	1.96**	

Significance p<.001*, p<0.05**, p<0.1***

The model summary for Beaufort County showed that R^2 was .211 indicating this model accounted for 21.1% of the variation in ERB. An ANOVA table addressed whether the model was acceptable. The F-ratio was 1.96 (p < .05), showing the model significantly predicted the outcome variable, ERB. Consistent with the aggregate model above, both dimensions of place attachment—place identity ($\beta = 0.38$, p < .05) and place dependence ($\beta = 0.29$, p < 0.1)—were significantly related to ERB. Thus, the same interpretation can be applied; emotionally attached residents behave more environmentally responsibly ($\beta = 0.38$) than do functionally attached ones ($\beta = 0.29$). However, for the attitudes-toward-tourism-development variable, only one factor was significantly related to ERB—benefits from tourism development ($\beta = 0.25$, p < 0.1). Based on this result, it can be assumed that residents of Beaufort County, who perceived tourism as a beneficial tool, are more motivated to behave environmentally responsibly. Neither was place satisfaction significant in Beaufort County. As for the socio-demographic variables, age ($\beta = 0.02$, p < 0.05) was significant, suggesting that older residents are more likely behave environmentally responsibly.

Charleston County

Table 28 Charleston	County Coefficients

	β	t
Place Attachment		
Place identity	0.16	1.87***
Place dependence	-0.00	-0.01
Attitudes toward Tourism Development		
Concerns for tourism development	0.25	3.49*
Benefits from tourism development	0.08	1.03
Place satisfaction	0.13	1.32
Income	-0.04	-1.48***
Length of residence	0.00	0.68
Distance	-0.16	-2.07**
Age	0.00	0.37
Gender	-0.13	-0.91
R square	0.156	
F-ratio	3.69*	

Significance p<.001*, p<0.05**, p<0.1***

The model summary for Charleston County indicated that R^2 was .156, indicating this model accounted for 15.6% of the variation in ERB. An ANOVA table addressed whether the model was acceptable. The F-ratio was 3.69 (p < .001), showing the model significantly predicted the outcome variable, ERB. For residents of Charleston County, only place identity

($\beta = 0.16$, p < 0.1) was significantly related to ERB. This result demonstrated that only emotionally attached residents behaved environmentally responsibly. In contrast to residents of Beaufort County, Charleston County residents' ERB had a positive relationship to the factor addressing concerns about tourism development ($\beta = 0.25$, p < .001). Based on this result, it can be assumed that residents of Charleston County who perceive the negative impacts of tourism on their community are more likely to behave environmentally responsibly. Again, the place satisfaction variable was not significant in Charleston County either. Among socio-demographic variables, residents of a lower income level ($\beta = -0.05$, p < 0.1) were more likely to behave environmentally responsibly. In Charleston County, the distance variable ($\beta = -0.16$, p < 0.1) was also significant, implying that residents who lived close to a local beach participated in more ERB.

Horry County

Table 29 Horry	County Coefficients

	β	t
Place attachment		
Place identity	0.30	3.05**
Place dependence	0.20	2.19**
Attitudes toward tourism development		
Concerns for tourism development	0.24	3.31*
Benefits from tourism development	0.06	0.85
Place satisfaction	-0.05	-0.42
Income	-0.06	-2.30**
Length of residence	0.01	1.24
Distance	-0.08	-1.08
Age	-0.01	-0.96
Gender	0.07	0.44
R square	0.295	
F-ratio	4.52*	

Significance *p<.001, p<0.05**, p<0.1***

The model summary for Horry County indicated that R^2 was .295, indicating it accounted for 29.5% of the variation in ERB. The ANOVA table addressed whether the model significantly
predicted the outcome. The F-ratio was 4.52 (p < .001), showing the model significantly predicted the outcome variable, ERB. Positively related to ERB were the two dimensions of place attachment—place identity ($\beta = 0.30$, p < 0.05) and place dependence ($\beta = 0.20$, p < 0.05). Thus, like the aforementioned models, place identity ($\beta = 0.30$) was more closely connected with ERB than was place dependence ($\beta = 0.20$). Like residents of Beaufort County, Horry County residents holding negative attitudes toward tourism development were more likely to behave environmentally responsibly ($\beta = 0.24$, p < 0.001). Place satisfaction was unrelated to ERB. Regarding socio-demographic variables, a resident's level of income ($\beta = -.0.06$, p < 0.05) was negatively related to ERB.

While these three place-segmented models indicated that they were significantly predicting ERB, each variable, depending on the county, offered different explanations. Place attachment, place identity, and place dependence were significant in Beaufort and Horry Counties. In Charleston County, however, only place dependence was significant. The benefits from tourism development factor was an important variable in Beaufort County but in the other two counties the concerns about tourism development factor was significant. Regarding sociodemographic variables, it was indicated that in Beaufort County, age was positively related with ERB. In Charleston County, it was revealed that income and distance were both negatively related to ERB. Lastly, ERB in Horry County was also negatively related to income.

V. DISCUSSION

1. Discussion

The aim of this study was to explore factors that can promote ERB. In the aggregate model, several factors such as place attachment, and attitudes toward tourism development were significant. However, none of socio-demographic variables were significantly associated with ERB. For place-segmented analysis, in addition to place attachment and attitudes toward tourism development, several socio-demographic variables, including age, income and distance, were significant.

First of all, concerning the variables of place attachment, over two-thirds of the residents indicated that they were strongly attached to their local beaches. This result was congruent with other place attachment studies—that a certain place can be special to people (Budruk, 2008; Budruk, 2009; Halpenny, 2010; Kyle et al., 2003; Kyle et al., 2004; Raymond et al., 2011; Vaske & Kobrin, 2001; Vorkin & Riese, 2001). According to Raymond et al. (2011), a human's connection with nature is highly influenced by their relationship with the surrounding natural world. Depending on the types and attributes of a place, people will be impacted physically or symbolically by that place. Such impacts can nourish strong connections with nature, represented by place attachment. In the literature, however, what kinds of impacts and factors nourish place attachment is still a controversial topic.

Explanatory factor analysis (EFA) was conducted with place attachment and two factors, place identity and place dependence, were extracted. Such a result demonstrated that place identity and place dependence carried different implications. While the main purpose of this study was to determine the effects of place identity and place dependence on ERB, study results indicated that both were positively connected with ERB. This means that both groups, people

who are highly place-identified and highly place-dependent, are more likely to behave in an environmentally responsible manner. The findings mirror results reported in the literature—place attachment functions to promote behavior related to environmental conservation (Kyle et al., 2004; Payton et al., 2005; Raymond et al., 2011; Vorkin & Riese, 2011).

Why do place attachment and ERB have a significant relationship? Reasons could vary. One might be attributed to Ajzen and Fishbein's (1977) theory of reasoned action (TRA). According to TRA, the best predictor of behavior is individuals' attitudes. Attitudes are typically measured with cognitive, affective, and behavioral dimensions. The measurement of place attachment also taps into these elements. Hence, in this framework, place attachment could possibly be used as a proxy for attitudes. In addition, as those who are attached to the natural environment are usually more concerned about its surrounding conditions, this positive relationship seems to correspond well with the theory (Raymond et al., 2010).

It was also hypothesized that place-identified people would show greater ERB than placedependent people. The finding was also consistent with this hypothesis. Emotionally attached people were more likely to demonstrate ERB than functionally attached people. Several studies have indicated the importance of place identity related to conserving the environment (Hernandez et al., 2010; Kyle et al., 2003; Kyle et al., 2004; Payton et al., 2005; Vaske & Kobrin, 2001). In particular, Raymond et al. (2010) stated that emotional attachment towards nature can be a more powerful predictor of ERB than ordinary place identity. People usually try to protect what they love. Thus, emotional attachment toward nature can bring out a stronger desire to conserve the natural environment. This could be why residents emotionally attached to their local beaches exhibit greater ERB than functionally attached residents.

In conclusion, place attachment is effective in promoting ERB. Such a finding implies that planners and managers who are in charge of protecting natural resources can improve the effectiveness of their coastal management plan by enhancing residents' attachment to their local beaches. Also, given that a good number of residents are recreationists in different coastal areas, recreation and tourism resource managers will need recreation and tourism programs that can encourage residents to build strong place attachment to natural resources in the community (Bricker & Kerstetter, 2000; Hwang, Lee, & Chen, 2005; Kyle et al., 2003). In particular, place identity was more highly related with ERB than was place dependence. Functional attachment could be enhanced by giving incentives that encourage more visitations, such as lowering the price of annual passes. This could also promote emotional attachment (Oh, Lyu, & Hammitt, 2012) and more ERB.

Secondly, South Carolina residents' attitudes toward tourism development were measured according to two main themes: negative attitudes based on concerns about tourism development and positive attitudes based on the perceived personal and community benefits. Regression analysis was conducted to demonstrate whether the two factors positively predicted ERB. The results show that residents, who were concerned about tourism development in coastal areas, are more likely to behave in an environmentally responsible manner. Also, residents, who perceived benefits from local tourism development, are likely to behave environmentally responsibly. A number of reasons may explain the results.

First of all, for the factor related to residents' concerns, it is rational from an environmental perspective, that coastal residents would be highly concerned about local tourism development. Such development could result in negative impacts on the natural environment (Nordlund & Garvill, 2003). In this study, a good number of respondents indicated that traffic,

congestion, noise, and pollution resulting from tourism development have become greater concerns. And, their concern did lead to stronger intention to behave environmentally responsibly. This finding is consistent with Byrd et al.'s study (2009) that revealed residents of North Carolina would, if it negatively impacted the environment, oppose tourism development. Put another way, residents who have higher eco-centric values place more importance on their local environment and become more concerned about harmful environmental impacts caused by tourism development (Zhang & Lei, 2009). Such concern stimulates coastal residents' sensitivity to environmental issues caused by tourism development and helps them engage more in ERB.

For the other factor, perceived personal and community benefits, one plausible interpretation is as follows. Residents might engage in ERB to maintain their personal and community benefits that arise from local tourism development. This finding is consistent with several other studies. In Lepp's study (2007), for example, residents benefited from local tourism. Such personal and community benefits motivated residents to conserve their local resources. Walpole and Goodwin (2001) also found that residents' positive attitudes toward local tourism resulted in a motivation to conserve local resources. Thus, it is reasoned that residents' perceived personal and community benefits could provide them additional incentives to conserve their community resources including local beaches.

In addition, Fazio's applied framework of TRA (1986) and Stern's VBN theory (2000) could further explain the significant relationship between the two attitudes and ERB. Residents' attitudes toward the target, here tourism development, did predict behavior. Every resident would have his or her own specific value, such as egoistic, altruistic or/and bio-centric value, and any harmful impacts on such value, caused by deteriorating beach conditions, would motivate the residents to conserve their local beaches.

While both factors significantly predicted ERB, concerns about tourism development explained more about ERB than did the benefits from tourism development. Less ERB could be caused by residents' lack of awareness of a connection between conservation of local beaches and their personal and community benefits. The positive relationship of perceived benefits and ERB could be achieved based on the premise that residents are aware of the importance of the relationship between conservation and local tourism development. If they are unaware of it, less ERB might result. Zhang and Lei (2012) indicated that residents who have a high level of environmental knowledge are more likely to reveal eco-tourism attitudes and are ultimately more likely to participate in eco-tourism-related programs. Thus, less ERB from perceived benefits could be caused by lack of awareness regarding the important relationship between conservation and local tourism development.

In conclusion, as both attitudes were significantly related to ERB, several implications present themselves. First of all, regarding residents' concerns about tourism development, a positive relationship with ERB could imply that residents were worried about their natural environment. Resource managers and planners could establish public involvement opportunities by including these residents (Lankford & Howard, 1994). Since residents are actively involved in various ERB including protecting community resources, their attitudes and preferences must be considered important to be integrated into sustainable tourism and recreation resource development. Second, residents who perceive positive tourism benefits are more likely to behave environmentally responsibly. This implies that to conserve community resources more effectively, resource managers and planners can provide more campaigns, workshops, and events or monitoring programs to help residents understand this relationship. Numerous researchers have underscored the importance of providing environmental knowledge to residents and other

stakeholders, especially in the tourism development process (Choi & Murray, 2010; Choi & Sirakaya, 2006; Lankford & Howard, 1994). Thus, sustainable tourism development could be helped along by supporting education programs for residents' greater awareness of the connection between their benefits and environmental conservation.

As indicated above, place attachment and attitudes toward tourism development were positively related to ERB. The connection of these concepts with ERB can be further explained using carry-over (spill-over) effects. Unlike many studies that used place-specific ERB (Gosling & William, 2010; Kyle et al., 2004; Raymond et al., 2011), this study used general ERB. It can be assumed that as residents become more attached to certain community resources such as local beaches, they gradually develop stronger environmental responsibility. As a result, site-specific environmental attitudes and ERB will spread to general ERB. This logic has been supported by prior studies (Rashid, 2007; Thogersen, 1999; Thogersen & Olander, 2003), indicating that one type of ERB predicts another.

The carry-over effects can be explained by Schwartz's norm-activation theory. This theory asserts that an awareness of the consequences of negative impacts of resource development positively influences beliefs about ERB, leading to strong engagement in and diffusion through broader types of ERB. In addition, Festinger's theory of cognitive dissonance (1957) indicated that to reduce the psychological conflict from holding two or more incompatible beliefs simultaneously, they try to maintain their own beliefs. According to this theory, individuals who carry out one type of ERB, such as beach-specific ERB here in this study, are more likely to engage in other types of ERB (i.e. general ERB). In other words, people tend to achieve consonance of their own beliefs that natural resources and the environment need to be conserved. This is so called spill-over effects (Rashid, 2007).

Hence, even though beach-specific ERB was not explicitly measured, we can say that, through its close connectedness with the local beaches, beach-specific ERB is expected to influence general ERB.

The last internal factor was place satisfaction. A negative relationship was expected and found, but the result was not significant. This result was contrary to other studies showing negative relationships (Stedman, 2002; Uzzell et al., 2002). This variable was not significant for, perhaps, a couple of reasons. First, a majority of residents were highly satisfied with their recent visits to the local beaches. Perhaps, this skewed level of satisfaction resulted in non-significance. In addition, while previous studies (e.g., Halpenny, 2006; Stedman, 2002; Uzzell, 2002) typically measured place satisfaction with multiple items, this study used a single item—overall satisfaction with the local beaches. The use of a single item to measure place satisfaction might not capture the multi-dimensional aspects of the concept appropriately. A satisfaction and the effects of this concept may have been different.

For an external factor, we measured socio-demographic variables. The results indicated that all socio-demographic variables (income, length of residence, distance, age, and gender) were not significant. First of all, income was not significant. Usually, researchers hypothesize that income is positively related with ERB, as environmental conservation is considered a luxury activity (Larson et al., 2011; Ngo et al., 2009; Scott & Willits, 1994; Van Liere & Dunlap, 1980; Vaske et al., 2001). However, in this study, no relationship was found. Neither was length of residence significant. According to Sheldon and Var (1984), lifelong residents feel more sensitive to environmental changes than do short-term residents. Within the current study, the average length of residence was only 13 years, and a large portion of residents had lived there for

less than 10. This could be why length of residence was not a significant predictor of ERB.

Another non-significant variable was distance from residential area to local beach. Halpenny's study (2006) found no direct relationship between distance and ERB. However, they found that place attachment was an important mediating variable that connected these two variables and distance showed a negative indirect relationship with ERB. In other words, closely residing residents would behave environmentally responsibly when they were attached to a place. However, in this study, distance and place attachment were included together with no testing of mediation effects. Distance itself may not be an important predictor of ERB.

Age was not a significant predictor either. Numerous studies have included age as a predictor of ERB. Some have found a negative relationship (Cottrell, 2003; Scott & Willts, 1994; Van Liere & Dunlap, 1980) and others a positive one (Barr, 2003; Korfiatis et al., 2004; Ngo et al., 2009). The mixed results indicate that the influence of age may depend on the context. Lastly, gender was found to be not significant. Most studies have found that women are more likely to behave in an environmentally responsible way (Barr, 2003; Mobley, Vagias, & DeWard, 2010; Scott & Willits, 1994; Zelezny et al., 2000). However, no such finding was detected here. *Place Segmentation Analysis*

First of all, ANOVA analysis was conducted to find whether socio-demographic characteristics were different across the three counties. Variables, including income, length of residence, distance, and age, differed significantly from one another. Because of these differences, the three counties were dummy coded to help determine whether each county had its own pattern of predicting ERB. The results indicated that Charleston County behaved in the least environmentally responsible way. Lastly, three place-based segmented analyses were conducted to demonstrate whether each factor had a different impact on ERB. All three models showed a

relatively high explanatory power of predicting ERB. However, each factor had a different result according to place of residence.

Residents in Beaufort County (Hilton Head Island)

In Beaufort County, both place identity and place dependence significantly predicted ERB. Further, the coefficient magnitude of place identity was greater than that of place dependence. These results indicated that residents who were emotionally attached were more likely to behave environmentally responsibly than those who were functionally attached. These results were consistent with the hypotheses related to place attachment mentioned above as well as with other place attachment studies (Kyle et al., 2004; Payton et al., 2005; Raymond et al., 2011; Vorkin & Riese, 2011).

For attitudes toward tourism development, only one factor—benefits from tourism development—was significantly related to ERB. This may be because Beaufort County is known as an exclusive resort town. Residents are most likely well-off retirees who own upscale condos or use up-scale time-shares. As they perceived having a great benefit from local beach tourism development, they may have well been aware of the importance of beach quality and followed up with more ERB. Lastly, as with the original model, place satisfaction was not significant here.

Among the socio-demographic variables, only age significantly explained ERB. Age was not significant in the aggregate model; in Beaufort County, however, older residents were more likely to behave environmentally responsibly. Beaufort County was, on average, the oldest of the three counties. According to Linden and Thelander (2001), concern about environmental problems were higher among people aged 55-60. Ngo et al. (2009) also stated that older people were more likely to have such social values as a conservative life style. That could be one reason why age was significant here.

Residents in Charleston County

Residents in Charleston County showed that only place-identified residents were significantly related to ERB. In contrast to the aggregate model, place dependence was not significant in Charleston County. This implies that residents who were emotionally attached to local beaches were more likely to engage in ERB but those who were functionally attached were not interested in ERB.

For the attitudes toward tourism development variable, only one factor—concern about tourism development—was significant. It is plausible, though, that such a significant relationship exists. Residents' concerns for environmental issues could intensify their belief that the environment needed to be protected and that could lead to more ERB. Place satisfaction was not significant here either.

Among socio-demographic variables, income was significant. It was indicated that lower income residents were more likely to behave in an environmentally responsible way. Distance was also a significant predictor of ERB. Residents who lived close to local beaches were more likely to participate in ERB. This might imply that Charleston residents who lived close to the local beach had a stronger notion about the need to behave in more environmentally responsible ways.

Residents in Horry County (Myrtle Beach)

The model with residents in Myrtle Beach showed that place identity and place dependence were significantly related to ERB. Emotionally and functionally attached residents were more inclined to engage in ERB. Similar to the aggregate model, emotionally attached residents were more likely to participate in ERB than were functionally attached residents.

However, only concern about tourism development was significant. Myrtle Beach,

located in Horry County, is a major tourist destination and one of the fastest growing areas in the US (United States Census, 2010). Active tourism development and population growth, unsurprisingly, raise residents' concerns about the quality of local beaches, leading to higher ERB. Fitting the pattern up to now, place satisfaction was not an important variable.

Among socio-demographic variables, income was an important predictor. Less affluent residents were more likely to behave environmentally responsibly. These results were consistent with Charleston County.

The results can provide several important implications related to the policy-making and management of coastal tourism destinations and communities. Resource managers and planners associated with resource management agencies (e.g., Department of Natural Resources, Department of Environmental Quality) could have a better idea of which county behaves less environmentally. The study's finding indicated that residents in Charleston County were less likely than those of the other two counties to exhibit ERB. Resource managers and planners could promote more ERB, targeting this county in particular. Specifically, by identifying which factors are contributing to a lower level of ERB, they could establish different types of management plans catered to each county. Charleston County revealed a non-significant relationship with place dependence and benefits from tourism development. Resource managers and planners and planners may need to develop programs that encourage residents to become functionally attached to a place. Also, providing more information regarding the relationship of residents' perceived benefits from tourism development and conservation could encourage more ERB.

2. Limitations

It is worth noting several limitations of this study. First of all, the independent variables—place attachment, attitudes toward tourism development, and place satisfaction—were measured based on residents' experiences at local beaches. Place-specific ERB was not included in this study; instead, general ERB was used as a final dependent variable. Place-specific ERB could play an important role in mediating relationships between other independent variables such as place attachment and general ERB. It is reasoned that as coastal residents repeatedly use coastal resources and thus become attached to those resources and sites, they are highly connected with the natural environment and gradually engage in place-specific ERB and eventually general ERB.

Second, this study applied a value-based theory suggested by Stern (2000) to explain the relationship between attitudes toward tourism development and ERB. However, the current study did not explicitly determine the residents' specific types of values. Stern's VBN theory (2000) was applied here and three values—egoistic, social-altruistic, and biospheric—were assumed based on residents' attitudes toward tourism development. Thus, it was postulated that based on their close relationship with the local beach, they would have one of these types of value toward the local beach and thus try to behave environmentally responsibly to protect that value.

Third, one other limitation is related to the measurement of attitudes toward tourism development. While, within the TIAS scale, residents' concerns mainly consisted of different types of negative impacts from tourism development, this study mainly focused on environmental issues as the main concern regarding tourism development. Nevertheless, as residents' highest agreement of concern was on environmental issues, it seems plausible to interpret that as being the main concern. Likewise, while there were different types of items that

indicated positive impacts from tourism development, the interpretation of study results were focused on the economic aspect. Among those items, most of them with high mean scores were related with economic benefits. Thus, when interpreting the relationship between residents' perceived benefits and ERB, it would be plausible that their perceived benefits were largely influenced by economic benefits derived from local tourism development.

Lastly, while these conceptual relationships were explained by Fishbein and Ajzen' TRA, this study did not include behavioral intentions. According to TRA, the best predictor of behavior is behavioral intentions. Antecedents of behavioral intentions are attitudes toward the behavior and subjective norms (Eagly & Chaiken, 1993, p. 169). In this study, an individual's observable responses are used because actual behavior encompasses intentions to behavior (Eagly & Chaiken, 1993). Thus, as place attachment also can be considered to be reflective of environmental attitudes, it is expected that place attachment is closely connected with ERB.

3. Future Research

The findings from this study suggest several possibilities for future research. First of all, regarding place attachment, it would be better to distinguish between place attachment and community attachment. The two ideas are distinct, but as they appeared to be similar, they were both used without distinction (Trentelman, 2009). Place attachment is more likely to focus on a particular place, while community attachment reflects individuals' rootedness to community. Banks' study (2010) entangled the two. These two concepts may affect ERB differently. Thus, in a future study, it would be useful to highlight their differences and see whether they impact ERB differently.

Second, this study was conducted in popular coastal tourism destinations in South Carolina and future studies will be required to generalize study findings in other tourism

destinations. It is possible that those three variables, in other tourism destinations, could have different impacts on ERB (Jorgensen & Stedman, 2006).

Third, it is recommended to use multiple items to measure place satisfaction. Place satisfaction was, in this study, measured with only a single item and the result was not significant. However, previous studies with the use of multiple items have shown a significant relationship with ERB (Stedman, 2002; Uzzell et al., 2002). It will, in future studies, be beneficial to use a more comprehensive scale of place satisfaction.

Fourth, it is also suggested to include beach-specific ERB to better explain carry-over effects (spill-over effects). This study only measured general ERB and residents' place-specific ERB was implicitly assumed to be related to general ERB. It is expected that beach-specific ERB will be an important mediating factor that connects other independent variables and general ERB. Thus carry-over effects (spill-over effects) will be explained more accurately. In addition, as coastal residents are highly influenced by local tourism development, beach-specific ERB in the context of tourism can provide better implications to understand residents' ERB within popular tourism destination.

Also, to test the formative process of ERB, it would be beneficial to employ a more sophi sticated method than multiple-regression, say, structural equation modeling (SEM). SEM is a use ful tool that helps examining more complex causal relationships among variables (Halpenny, 200 6, Kyle et al., 2003). In this study, place attachment, attitudes toward tourism development, place satisfaction, and socio-demographic variables were considered independent predictors of ERB. H owever, it is reasoned that these variables are closely interconnected and jointly predict the proce ss of residents' engagement in ERB. Some studies have considered place satisfaction as an antec edent to place attachment (Fried, 1984; Lee, 2001; Mesch & Manor, 1998). Other studies have c

onsidered place attachment as an antecedent to attitudes toward tourism development (Gursoy & Rutherford, 2003; McCool & Martin, 1994; Williams, McDonald, Riden, & Uysal, 1995). Also, place attachment is related to different socio-demographic variables, such as length of residence, distance, and gender (Moore & Grafe, 1994; Rollero & De Piccoli, 2010). While such studies as well as this one examined these multifaceted relationships independently, the use of SEM can hel p examine these relationships in an integrated study framework. Thus, future studies should inclu de all the relevant factors that explain ERB while using more advanced analytical methods such as SEM.

Lastly, as this study only included quantitative data through survey methods, it was difficult to provide more in-depth information such as why and how residents become more attached to community resources. Thus, for future research, the use of qualitative methods such as focus groups or in-depth interviews will be beneficial to provide a better understanding of why residents are attached and lead to more ERB. APPENDICES

APPENDIX A: Survey Scales

Residents' Overall Satisfaction Scale

Overall, how satisfied are you with your most recent visit to your local beach? (*Please Circle one*)

Table 30 Satisfaction Scale

Not at all	Slightly	Moderately	Very	Extremely
Satisfied	Satisfied	Satisfied	Satisfied	Satisfied
1	2	3	4	5

Residents' Place Attachment Scale

Please rate your agreement with the following statements based on your most recent visit to your local beach

 Table 31 Place Attachment Scale

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
No other beach can compare to this	1	2	3	4	5
one	1	2	5	-	5
I feel this beach is part of me	1	2	3	4	5
I go to this beach because it is close by	1	2	3	4	5
This beach means a lot to me	1	2	3	4	5
I wouldn't substitute another beach for this one	1	2	3	4	5
I am more satisfied visiting this beach than any other	1	2	3	4	5
Visiting this beach says a lot about who I am	1	2	3	4	5
I am very attached to this beach	1	2	3	4	5

Residents' Attitudes toward Tourism Development Scale

Please indicate your level of agreement with each of the following statements regarding tourism in your local community.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Tourism has led to more spending in your community	1	2	3	4	5
Our standard of living has increased considerable because of tourism	1	2	3	4	5
Tourism has changed our precious traditional culture	1	2	3	4	5
Local residents have suffered from living in a tourism destination area	1	2	3	4	5
I reschedule activities to avoided tourists	1	2	3	4	5
I enjoy having tourism in my town	1	2	3	4	5
Meeting tourist from other region is a valuable experience to better understand their culture and society	1	2	3	4	5
Benefits of tourism are greater than costs to people in the community	1	2	3	4	5
Tourism results in positive impacts on cultural identity of our community	1	2	3	4	5
Government should control tourism development	1	2	3	4	5
Construction of tourist facilitates have destroyed the natural environment	1	2	3	4	5
Tourism has resulted in traffic congestion, noise and pollution	1	2	3	4	5
Tourism provides more parts and recreational areas for local residents	1	2	3	4	5
Improving public transit facilities is a waste of tax payer money	1	2	3	4	5

Table 32 Attitudes toward Tourism Development Scale

Residents' Environmentally Responsible Scale

Please circle the number corresponding to your opinion about the following statements.

	Rarely	Occasionally	Sometimes	Frequently	Usually
I tried to find out what I can do to help the environment	1	2	3	4	5
I talked to others about environmental issues	1	2	3	4	5
I watched TV programs about environmental issues	1	2	3	4	5
I read articles about current environmental issues	1	2	3	4	5
I donated money/member of conservation group	1	2	3	4	5
I joined a community clean effort	1	2	3	4	5
I switched to environmentally safe brand items	1	2	3	4	5
I read labels to see if items are environmentally safe	1	2	3	4	5
I separated out recycle items from trash	1	2	3	4	5
I recycled newspaper	1	2	3	4	5
I recycled glass, bottles, jars, or aluminum cans	1	2	3	4	5

 Table 33 Environmentally Responsible Behavior Scale

Socio-demographic Variables Scale

Approximately how long have you lived at this residence? (Years)

Which of the following best describes the distance from your residence to the closest beach access?

Less than 2 miles
2-4.9 miles
5-10 miles
More than 10 miles

What is your age?

Are you:

FemaleMale

What is your approximate annual household income before taxes?

<\$10,000
\$10,000-19,999
\$20.000-19,999
\$30,000-39,999
\$40,000-49,999
\$50,000-59,999

\$60,000-69,999
\$70,000-79,999
\$80,000-89,999
\$90,000-99,999
\$100,000 and above

APPENDIX B: Correlation of Items and Scree Plots

	A	B	С	D	E	F	G	Н	Ι	J	K
A. Helpenvieo	1.000										
B.Talkenviriss	.783	1.000									
C.TVenviron	.621	.690	1.000								
D. Readenviro	.622	.702	.804	1.000							
E. Donatmone	.488	.570	.500	.576	1.000						
F. Joincommu	.481	.477	.399	.422	.572	1.000					
G. Switchenvi	.543	.530	.505	.547	.491	.413	1.000				
H. Seeelables	.541	.552	.510	.548	.434	.346	.798	1.000			
I. Recyleitems	.330	.317	.262	.342	.265	.191	.381	.360	1.000		
J. Recyclenew	.318	.307	.252	.327	.256	.209	.355	.332	.871	1.000	
K. Recyglass	.325	.305	.252	.311	.239	.187	.344	.312	.896	.833	1.000

Table 34 Correlations of Items in the Environmentally Responsible Behavior Scale



Figure 2 Scree plot for ERB

	Α	B	С	D	Ε	F	G				
A. Nootherbeach	1.000										
B. Beachmypart	.571	1.000									
C. Meansalot	.386	.613	1.000								
D. Wouldnotsubsti	.664	.582	.479	1.000							
E. Moresatisfied	.681	.578	.443	.807	1.000						
F. SaywhoIam	.536	.720	.571	.586	.617	1.000					
G. Attachedbeach	.520	.737	.681	.618	.611	.770	1.000				

Table 35 Correlations of Items in the Place Attachment Scale



Figure 3 Scree Plot for Place Attachment

	Α	В	С	D	E	F	G	Н	Ι	J	K	L
A. TourismCom	1.000											
B. TourisStandr	.338	1.000										
C. Tourchancult	.096	070	1.000									
D. ResideNssuffe	089	287	.532	1.000								
E. Reschedulacti	029	177	.397	.462	1.000							
F. Enjoytourism	.175	.385	335	502	471	1.000						
G. Meettourisval	.144	.279	149	286	279	.470	1.000					
H. Tourpositicul	.172	.379	242	392	335	.530	.647	1.000				
I. Benefigreatcos	.224	.430	249	425	340	.497	.300	.436	1.000			
J. Tourismdestro	054	238	.429	.516	.400	333	218	296	310	1.000		
K. Tourispollut	.059	154	.410	.426	.493	393	189	266	260	.535	1.000	
L. Tourismpark	.184	.379	146	308	244	.352	.295	.382	.355	270	198	1.000

Table 36 Correlations of Items in the Attitudes toward Tourism Development Scale



Figure 4 Scree Plot for Attitudes toward Tourism Development

REFERENCES

REFERENCES

- Ajzen, I., & Fishbein, M (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5), 888-918.
- Andereck, L. K., & Nyaupane, P. G. (2011). Exploring nature of tourism and quality of life perceptions among residents. *Journal of Travel Research*, *50*(3), 248-260.
- Andereck, L. K., Valentine, M. K., Knopf, C. R., & Vogt, A. C. (2005). Residents' perceptions of community tourism impacts. *Annals of Research*, 32(4), 1056-1076.
- Andriotis, K., & Vaughan, D. R. (2003). Urban residents' attitudes toward tourism development: the case of Crete, *Journal of Travel Research*, *42*, 172-185.
- Banks, E. C. (2010). Disentangling the influence of community and place attachment on resident attitudes toward tourism development. Unpublished doctoral dissertation, North Carolina State University, Raleigh, NC.
- Barr, S. (2003). Strategies for sustainability: citizens and responsible environmental behavior. *Area*, *35*(3), 227-240.
- Barr, S. (2007). Factors influencing environmental attitudes and behaviors: A U.K. case study of household waste management. *Environment & Behavior*, *39*(4), 435-473.
- Berger, I. (1997). The demographics of recycling and the structure of environmental behavior. *Environment & Behavior*, 29, 515-531.
- Bird, A. (1998). *Marine trash: a coastal threat to Southern California*. Retrieved from http://www.dbc.uci.edu/~sustain/suscoasts/amybird.html
- Bott, S., Cantrill, G. J., & Myers, E. O. (2003). Place and the promise of conservation psychology. *Human Ecology Review.* 10(2), 100-112.
- Bricker, K.S., & Kerstetter, D. L. (2000). Level of specialization and place attachment: an exploratory study of whitewater recreationists. *Leisure Science*, 22(4), 233-257.
- Budruk, M., White, D. D., Wodrich, A. J., & Van Riper, J. C. (2008). Connecting visitors to people and place: visitors' perception of authenticity at Canyon de Chelly National Monument, Arizona. *Journal of Heritage Tourism, 3*(3), 185-202.
- Budruk, M., S., Schneider, E. I., & Anderson, H. D. (2011). Differentiating place attachment dimensions among proximate and distant visitors to two water-based recreation areas, *Society & Natural Resources*, 24(9), 917-932.
- Budruk, M., Thomas, H., & Tyrrell, T. (2009). Urban green spaces: a study of place attachment and environmental attitudes in India. *Society & Natural Resources*, 22(9), 824-839.

- Byrd, T. E., Cardenas, A. D., & Dregalla, E. S. (2009). Differences in stakeholder attitudes of tourism development and the natural environment. *e-Review of Tourism Research*, 7(2), 39-51.
- Casakin, H. P., & Kreitler, S. (2008). Place attachment as a function of meaning assignment. *Open Environmental Sciences*, 2, 80-87.
- Choi, C. H., & Murray, I. (2010). Resident attitudes toward sustainable community tourism. *Journal of Sustainable Tourism*, 18(4), 575-594.
- Choi, C. H., & Sirakaya, E. (2006). Sustainability indicators for managing community tourism. *Tourism Management*, 27 (6), 1274-1289.
- Clark, F. C., Kotchen, J. M., & Moore, R. M. (2003). Internal and external influences on proenvironmental behavior: participation in a green electricity program. *Journal of Environmental Psychology*, 23, 237–246.
- Cottrell, P. S. (2003). Influence of socio-demographics and environmental attitudes on general responsible environmental behavior among recreational boaters. *Environment & Behavior*, 35(3), 347-375.
- De Young, R. (2000). Expanding and evaluating motives for environmentally responsible behavior. *Journal of Social Issues*, 56(3), 509-526.
- Eagly, A., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich College Publishers.
- Environmental Engineering Solutions (2008). *Marine pollution due to growing of coastal population*.Retrieved from http://environmentengineering.blogspot.com/2008/06/marinepollution-due-to-growing-of.html
- Festinger, L. (1957). A theory of cognitive dissonance. Stanford, CA: Stanford University Press.
- Fazio, R. H. (1986). How do attitudes guide behavior? In R. M. Sorrentino E. T. Higgins (Eds.), *The handbook of motivation and cognition: Foundations of social behavior* (pp. 204-243). New York: Guilford Press.
- Festinger, L. (1957). A theory of cognitive dissonance. Evanston, IL: Row, Peterson.
- Field, A. (2009). Discovering statistics using SPSS. Thousand Oaks, CA: SAGE publications.
- Fried, M. (1982). Residential attachment: sources of residential and community satisfaction. *Journal of Social Issues*, 38(3), 107-119.
- Fried, M. (1984). Residential attachment: Sources of residential and community satisfaction. *Journal of Social Issues, 38*(3), 107-119.
- Goodwin, H. (1996). In pursuit of ecotourism. Biodiversity and Conservation, 5, 277-291.

- Gosling, E., & Williams, J. H. K. (2010). Connectedness to nature, place attachment and conservation behavior: Testing connectedness theory among farmers. *Journal of Environmental Psychology*. 30, 298-304.
- Guagnano, G. A., Stern, P. C., & Dietz, T. (1995). Influences on attitude–behavior relationships: A natural experiment with curbside recycling. *Environment & Behavior*, 27(5), 699–718.
- Guest, M. A., & Lee, A. B. (1983). Sentiment and evaluation as ecological variables. *Sociological Perspectives*, *26*(2), 159-184.
- Gursoy, D., Jurowski, C., and Uysal, M. (2002) Resident attitudes: A Structural Modelling Approach. *Annals of Tourism Research*, 29(1), 79-105.
- Gursoy, D., & Rutherford, G. D. (2004). Host attitudes toward tourism: an improved structural model. *Annals of Tourism Research*, *31*(3), 495-516.
- Halpenny, W. (2006). Environmental behavior, place attachment and park visitation: a case study of visitors to Point Pelee National Park. Unpublished doctoral dissertation, University of Waterloo, Waterloo, ON, Canada.
- Halpenny, W. (2010). Pro-environmental behaviors and part visitors: the effect of place attachment. *Journal of Environmental Psychology*. 30, 409-421.
- Hay, R. (1998). Sense of place in development context. *Journal of Environmental Psychology*, *18*, 5-29.
- Hernandez, B., Marti, M. A., Ruiz, C., & Hidalgo, C. M. (2010). The role of place identity and place attachment in breaking environmental protection laws. *Journal of Environmental Psychology*, 30, 281-288.
- Hailu, G., Boxall, C. P., & McFarlane, L. B. (2005). The influence of place attachment on recreation demand. *Journal of Economic Psychology*, *26*, 581-598.
- Hwang, S., Lee, C., & Chen, H. (2005). The relationship among tourist's involvement, place attachment and interpretation satisfaction in Taiwan's national parks. *Tourism Management*, 26, 143-156.
- Jorgensen, S. B., & Stedman, C. R. (2001). Sense of place as an attitude: Lakeshore owners attitudes toward their properties. *Journal of Environmental Psychology*, *21*, 233-248.
- Jurowski, C., Uysal, M., & Williams, R. D. (1997). A theoretical analysis of host community resident reactions to tourism. *Journal of Travel Research*, *36*, 3-11.
- Kaplan, S. (2000). Human nature and environmentally responsible behavior. *Journal of Social Issues*, *56*(3), 491-508.
- Korfiatis, J. K., & Hovardas, T., & Pantis, D. J. (2004). Determinants of environmental behavior in societies in transition: evidence from five European countries. *Population and Environment*, 25(6), 563-583.
- Kreag, G. (2001). The impacts of Tourism. Duluth, MN: University of Minnesota.

- Kyle, G. T., Absher, J. D., & Graefe, A. R. (2003). The moderating role of place attachment on the relationship between attitudes toward fees and spending preferences. *Leisure Sciences*, 25(1), 33-50.
- Kyle, G., Gerafe, A., Manning, R., & Bacon, J. (2003). An examination of the relationship between leisure activity involvement and place attachment among hikers along the Appalachian Trail. *Journal of Leisure Research*, 35(3), 249-273.
- Kyle, G., Graefe, A., Manning, R., & Bacon, J. (2004). Effects of place attachment on users' perception of social and environmental conditions in a natural setting. *Journal of Environmental Psychology*, 24, 213-225.
- Kyle T. G., Theodori, L. G., Absher, D. J., & Jun, J. (2010). The influence of home and community attachment on Firewise behavior. *Society & Natural Resources*, 23(11), 1075-1092.
- Lankford, V. S., & Howard, R. D. (1994). Developing a tourism impact attitude scale. *Annals of Tourism Research*, *21*, 121-139.
- Larson, R. L., Whiting, W. J., & Green, T. G. (2011). Exploring the influence of outdoor recreation participation on pro-environmental behavior in a demographically diverse population. *Local Environment*, 16(1), 67-86.
- Lepp, A. (2007). Residents' attitudes towards tourism in Bigodi village, Uganda. *Tourism Management*, 28, 876-885.
- Linden, A. & Thelander, A. (2001). Environmental consumption as a social project. *The European Science Foundation Programme: Consumption, Everyday Life, and Sustainability*. LancasterUniversity, UK.
- Liu, Sheldon, & Var (1987). Resident perception of the environmental impacts of tourism. *Annals of Tourism Research*, 14,17-37.
- McCool, F. S., & Martin, R. S. (1994). Community attachment and attitudes toward tourism development. *Journal of Travel Research*, *32*, 29-34.
- Marafa, M. L. (2008). *Integrating sustainable tourism development in coastal and marine zone environment*. Retrieved from http://etudescaribeennes.revues.org/1373
- Mesch, S. G., & Manor, O. (1998). Social ties, environmental perception, and local attachment. *Environment & Behavior, 30,* 504-519.
- Mobley, C., Vagias, W., & DeWard, S. (2010). Exploring additional determinants of environmentally responsible behavior: the influence of environmental literature and environmental attitudes. *Environment & Behavior*, 42, 420-447.
- Moore, L. R., & Graefe, R. A. (1994). Attachments to recreation settings: The case of rail-trail users. *Leisure Sciences*, 16(1), 17-31.

- Ngo, A., West, E. G., & Clakins, H. P. (2009). Determinants of environmentally responsible behaviours for greenhouse gas reduction. *International Journal of Consumer Studies*, *33*, 151-161.
- Nordlund, M.A., & Garvill, J. (2002). Value structures behind pro-environmental behavior. *Environment & Behavior*, 45(6), 740-756.
- Nordlund, M. A., & Garvill, J. (2003). Effects of values, problem awareness, and personal norm on willingness to reduce personal car use. *Journal of Environmental Psychology*, 23, 339-347.
- Oh, C., & Lyu, S., & Hammitt, E. H. (2012). Predicting linkage between recreation specialization and place attachment. *Journal of Leisure Research*, 44(1), 70-87.
- Payton, A. M., Fulton, C. D., & Anderson, H. D. (2005). Influence of place attachment and trust on civic action: a study at Sherburne National Wildlife Refuge, Society & Natural Resources, *An International Journal*, 18(6), 511-528.
- Pelletier, G. L., & Sharp, E. (2008). Persuasive communication and proenvironmental behaviors: how message tailoring and message framing can improve the integration of behaviors through self-determined motivation. *Canadian Psychology*, 49(3), 210-217.
- Priskin, J. (2003). Tourist perceptions of degradation caused by coastal nature-based recreation. *Environmental Management*, 32(2), 189-204.
- Proshansky, H., Fabian, A., & Kaminoff, R. (1983). Place-identity: physical world socialization of the self. *Journal of Environmental Psychology*, *3*, 57-83.
- Rashid, N. (2007). Employee involvement in ems/iso14001and its spillover effect in creating consumer environmentally responsible behavior. Unpublished doctoral dissertation, University Sains Malaysia, Malaysia.
- Raymond, M. C., Brown, G., & Robinson, M. G. (2011). The influence of place attachment and moral and normative concerns on the conservation of native vegetation: a test of two behavioral models. *Journal of Environmental Psychology*, 31, 323-335.
- Roe, B., Teisl, F., Levy, A., & Russell, M. (2001). US consumers' willingness to pay for green electricity. *Energy Policy*, 29, 917-925,
- Rollero, C., & De Piccoli, N. (2010). Place attachment, identification and environment perception: an empirical study. *Journal of Environmental Psychology*, *30*, 198-205.
- Rosenbaum, J., & Lidz, W. C. (2007). Maximizing results of internet survey. *Center for Mental Health Services Research*, 4(2).
- Saunders, D. Carol. (2003). The emerging field of conservation psychology. *Human Ecology Review*, 10(2), 137-149.
- Scannell, L., & Gifford, R. (2010)^a. Defining place attachment: A triple organizing framework. *Journal of Environmental Psychology*, *30*, 1-10.

- Scannell, L., & Gifford, R. (2010)^b. The relations between natural and civic place attachment and pro-environmental behavior. *Journal of Environmental Psychology*, *30*, 289-297.
- Schultz, W. P. (2001). The structure of environmental concern: concern for self, other people, and the biosphere. *Journal of Environmental Psychology*, *21*, 327-339.
- Schultz, W. P., Jennifer, C., Tabanico, J., & Khanzian, M. A. (2004). Implicit connection with nature. *Journal of Environmental Psychology*, 30, 289-297.
- Schultz, W. P. Oskamp, S., & Mainieri, T. (1995). Who recycles and when? A review of personal and situational factor. *Journal of Environmental Psychology*, *15*, 105-121.
- Schwartz, H. S. (1977). Normative influences on altruism. *Advances in experimental social* psychology, 10, 221-279.
- Scott, D., & Willits, K. F. (1994). Environmental attitudes and behavior: a Pennsylvania survey. *Environment & Behavior*, 26, 239-260.
- Sheldon, J. P., & Var, T. (1984). Resident attitudes to tourism in North Wales. *Tourism Management*,5(1), 40-47.
- Shumaker, A., & Taylor, B. R. (1982). Toward a clarification of people-place relationships: a model of attachment to place. In F. R. Nickolaus & E. S. Geller (Eds.), *Environmental Psychology* (1st eds., pp. 219-256). New York: Praeger Publishers.
- Sintov, D. N., Desario, G., & Prescott, A. C. (2010). Effective of a competition-based intervention in promoting pro-environmental behavior in a university residential setting. *American Council for an Energy Efficient Economy (ACEEE) Summer Study on Energy Efficiency in Buildings Asilomar Conference Grounds*, Pacific Grove, CA.
- Slade, D. (2008). S.C. population growth in top 10: In-migration gives state biggest boost. *The Post and Courier*. Retrieved from http://www.postandcourier.com/news/2008/dec/23/s_c_population_growth_top65942/
- Smith-Sebasto, N. J., & D'Acosta, A. (1995). Designing a likert-type scale to predict environmentally responsible behavior in undergraduate students: A multistep process. *Journal of Environmental Education*, 27(1).
- Stedman, C. R. (2002). Toward a social psychology of place: predicting behavior from place-based cognitions, attitude, and identity. *Environment & Behavior, 34*, 561-581.
- Stern, P. (2000). Toward coherent theory of environmentally significant behavior. *Journal of Social Issues*, *56*(3), 407-424.
- Stern, P. (2005). Understanding individuals' environmentally significant behavior. *The Environmental Law Reporter*, 10785-10790.
- Thapa, B. (1999). Environmentalism: The relation of environmental attitudes and environmentally responsible behaviors among undergraduate students. *Bulletin of Science Technology & Society*, 19(5), 426-437.

- Theodori, L. G. (2000). Level of analysis and conceptual clarification in community attachment and satisfaction research: connection to community development. *Journal of Community Development Society*. *31*(1), 35-58.
- Trentelman, K. C. (2009). Place attachment and community attachment: A primer grounded in the lived experience of a community sociologist. *Society & Natural Resources*, 22(3), 191-210.
- Thogersen, J. (1999). Spillover process in the development of a sustainable consumption patter. *Journal of Economic Psychology*, 20, 53-81.
- Thogersen, J. (2004). A cognitive dissonance interpretation of consistencies and inconsistencies in environmentally responsible behavior. *Journal of Environmental Psychology*, 24, 93-103.
- Thogersen, J., & Olander, F. (2003). Spillover of environment-friendly consumer behavior. *Journal of Environmental Psychology*, 23, 225-236.
- United Nations Environment Programme (2001). *Environmental impacts of tourism*. Retrieved from http://www.gdrc.org/uem/eco-tour/envi/index.html
- United States Census (2010). South Carolina. Retrieved from http://2010.census.gov/2010census/
- Uzzell, D., Pol, E., & Badenas, D. (2002). Place identification, social cohesion, and environmental sustainability. *Environment & Behavior, 34*, 26-53.
- Van Liere, D. K., & Dunlap, E. R. (1978). Moral norms and environmental behavior: an application of Schwartz's norm-activation model to yard burning. *Journal of Applied Social Psychology*,8(2), 174-188.
- Van Liere, K., & Dunlap, R. (1980). The social bases of environmental concern: A review of hypotheses, explanations, and empirical evidence. *Public Opinion Quarterly*, 44, 181–197.
- Vaske, J.J., Donnelly, P. M., Williams, R. D., & Jonker, S. (2001). Demographic influences on environmental value orientations and normative beliefs about national forest management. *Society and Natural Resources*, 14, 761-776.
- Vaske, J.J., & Kobrin, C. K. (2001). Place attachment and environmentally responsible behavior. *The Jouranl of Environmental Education*. 32(4), 16-21.
- Vorkinn M., & Riese, H. (2001). Environmental concern in a local context: the significance of place attachment. *Environment & Behavior*, *33*(2), 249-263.
- Walpole, J. M., & Goodwin, J. H. (2001). Local attitudes towards conservation and tourism around Kmodo National Park, Indonesia. *Environmental Conservation*, 28(2), 160-166.
- Wang, Y., Pfister, E. R., & Morais, B. D. (2006). Residents' attitudes toward tourism development: a case study of Washington, NC. *Proceedings of the 2006 Northeastern Recreation Research Symposium* (pp. 411-418). Bolton Landing, NY.
- Warner, R. (2008). Applied Statistics. Thousand Oaks, CA: Sage Publications.

- Wenner, E., Sanger, D., Upchurch, S., & Thompson, M. (2011). Ashepoo-Combahee-Edisto (ACE) Basin, South Carolina. Retrieved from http://www.nerr. noaa. gov/siteprofile
- White, D. D., Virden, J. R., & Riper, J. C. (2008). Effects of place identity, place dependence, and experience-use history on perceptions of recreation impacts in a natural setting. *Environmental Management*, 42, 647-657.
- Whitmarsh, L. & O'Neil, S. (2010). Green identity, green living? The role of pro- environmental self-identity in determining consistency across diverse pro- environmental behaviors. *Journal of Environmental Psychology*, 30, 305-314.
- Williams, R. D., McDonald, D.C., Riden, M.C., & Uysal, M. (1995). Community attachment, regional identity and resident attitudes toward tourism. *Proceedings of the 26th Annual Travel and Tourism Research Association Conference proceedings* (pp. 424-428). Wheat Ridge, CO: Travel and Tourism Research Association.
- Williams, R. D., & Roggenbuck, W. J. (1989). Measuring Place Attachment: Some Preliminary Result. Session on Outdoor Planning and Management NRPA Symposium on Leisure Research, San Antonio, Texas, October 20-22, 1989.
- Zhang, H., & Lei, S. (2009). Residents' environmental attitudes and behavioral intention of tourism development in Beimen Coastal Wetland area, Taiwan. Annual of International Tourism Journal, 2552.
- Zelezny, C. L., Chua, P., & Aldrich, C. (2000). Elaborating on gender differences in environmentalism. *Journal of Social Issues*, 56(3), 443-457.