Journal of Sustainable Tourism

ISSN: 0966-9582 (Print) 1747-7646 (Online) Journal homepage: http://www.tandfonline.com/loi/rsus20

The implications of differing tourist/resident perceptions for community-based resource management: a Hawaiian coastal resource area study

Mehana Blaich Vaughan & Nicole M. Ardoin

To cite this article: Mehana Blaich Vaughan & Nicole M. Ardoin (2014) The implications of differing tourist/resident perceptions for community-based resource management: a Hawaiian coastal resource area study, Journal of Sustainable Tourism, 22:1, 50-68, DOI: 10.1080/09669582.2013.802326

To link to this article: http://dx.doi.org/10.1080/09669582.2013.802326

Journal of Sustainable Tourism, 2014
Vol. 22, No. 1, 50–68, http://dx.doi.org/10.1080/09669582.2013.802326

Routledge
Taylor & Francis Group

The implications of differing tourist/resident perceptions for community-based resource management: a Hawaiian coastal resource area study

Mehana Blaich Vaughan[a*] and Nicole M. Ardoin[b]

[a]*Department of Natural Resources and Environmental Management, University of Hawai'i at Mānoa, Honolulu, HI, USA;* [b]*Graduate School of Education and Woods Institute for the Environment, Stanford University, Stanford, CA, USA*

(*Received 30 December 2011; final version received 15 April 2013*)

Despite globally increasing interest in restoring local-level management of natural resources, few studies examine differences between residents' and tourists' place connections and implications for community-based natural resource management. This article reports findings from a survey ($n = 264$) in Haena, Kauai, Hawaii, where resource management is shifting from state-level government to local residents. Tasked with creating new, local-level rules governing use of coastal resources, Haena community members must consider the perspectives, resource use, and values of residents as well as of multiple, diverse user groups including the burgeoning tourist population. We found significant differences in how residents and tourists learn about the area; the activities in which they engage; their perceptions of resource health; who they think is responsible for caretaking of resources; and their views of personal responsibilities to the place. The findings have implications for local-level resource management and use of popular tourist destinations including the importance of guidebooks in mediating visitor perceptions of a place, the possibility of concurrent but separate visitor and resident use of the same area, visitors' and residents' sense of responsibility to mitigate impacts of their actions, and the potential of engaging residents' place caretaking preferences toward more organized community-based resource management efforts.

Keywords: community-based natural resource management; indigenous; sense of place; sustainable tourism; Hawaii

Introduction

Pawehe ke kai ao Haena: beautifully patterned is the sea at Haena

Many researchers and natural resource professionals postulate that the residents of an area may be well positioned to manage local resources (Berkes, Colding, & Folke, 2003; Menzies, 2007; Olsson, Folke, & Berkes, 2004; Ostrom, 2009; Poteete, Janssen, & Ostrom, 2010; Scott, 1998). In much of the world, natural resources were once managed collectively at the local level and, though much formal management responsibility has since moved to government or private entities, local, community-based solutions are widely seen as a key component in addressing environmental issues (Berkes, 2009; Ostrom & Cox, 2010; Poteete et al., 2010).

However, the restoration of local management is challenging. The groups of people using the resources – and how they use those resources – may be altered by changing environmental and economic conditions, global tourism development, or the passage of

*Corresponding author. Email: mehana@hawaii.edu

time (Ostrom et al., 2002). Often users have grown in number and shifted in character from small, homogenous resident populations using resources for subsistence, to transient, global tourist populations using the same resources for recreation (Berkes et al., 2003).

This study explores implications of changes in the users of in-shore marine resources in the ahupuaa of Haena on the island of Kauai.[1] Ahupuaa are traditional Hawaiian land divisions that typically stretched from the mountains to the ocean, often following watershed boundaries, encompassing a range of natural resources necessary for their residents to survive (Maly & Maly, 2003; McGregor, 1996). In Hawaii, natural resource management once occurred at the local ahupuaa level, with residents devising community-specific rules and limiting their harvest to the resources of their own ahupuaa (McGregor, 2007; Jokiel et al., 2011). However, natural resource management gradually shifted from the local level to centralized governance as land was privatized beginning in 1848. Hawaii became a territory of the United States in 1898, and today the state Department of Land and Natural Resources (DLNR) holds formal management authority for all of Hawaii's natural resources (Jokiel et al., 2011; Higuchi, 2008). However, in the twenty-first century, many communities in Hawaii, including Haena, are advocating returning resource management to the ahupuaa (Higuchi, 2008).

Haena encompasses a three-mile stretch of coast including beach areas, coral reef, and accompanying fisheries. Over the past century, the population of resource users in Haena has grown from 60 Native Hawaiian residents – primarily depending on the ahupuaa's coastal resources for subsistence – to over 430 residents with more than 700,000 tourists visiting per year (Hawaii Department of Land and Natural Resources [DLNR], 2001; U.S. Census Bureau, 2010). Against this backdrop of shifting demographics, changes in land-holding, and increasing tourist traffic, the state of Hawaii is returning some management of Haena's in-shore marine resources to the community. Collaborative management agreements between the state's DLNR and Haena community groups provide for new local-level policies for use of in-shore marine resources and a coastal public park (Vaughan & Vitousek, 2013).

Because local natural resource management no longer affects only residents, differences in resident and tourist perspectives – particularly in highly trafficked tourist destinations with a history of deep local ties and resource dependence – are essential to understanding whether and how local management schemes, including proposed community rules to regulate the coastal use of Haena, will be effective. To that end, we investigated differences in how residents and tourists develop and strengthen connections with Haena, specifically by considering several key aspects related to the formation of place attachments: we examined the type of activities in which respondents engage in Haena, how they learn about the place, perceptions of resource health and caretaking, and sense of responsibility to the place.

Because of links with environmental behavior and stewardship, we view place connections – and in particular, perceived responsibility to a place – to be a critical precursor to effective community-based natural resource management (CBNRM).[2] Differences in how place connections develop and manifest among user groups can affect implementation and success of CBNRM. Our research addresses three questions: (1) How do residents and tourists learn about and use the coast of Haena? (2) How do residents and tourists perceive resource health and caretaking, and what do they see as their own responsibilities to the place? (3) If differences exist between resident and tourist perspectives, what are the implications for restoration of local-level resource management? We address the first two questions using survey data. We address the third question through analysis and discussion of those survey results.

Theoretical framing and review of related literature

This study draws on existing literature in two areas: place connections and CBNRM. First, we consider the development of connections, or attachments, to place through length of residence, activities, and environmental learning, and examine how place connections among residents and tourists may differ. We also examine how place connections might influence pro-environmental behavior. Second, we address common property and CBNRM, and the potential of place connections to influence the participation of various user groups within a CBNRM scheme.

Place connections: place attachment, responsibility, and behavior

This study explores people–place relationships (Lewicka, 2011), or place connections, through the frame of place attachment, the personal, internal processes developed and maintained through contact with both the physical and social aspects of a place (Altman & Low, 1992; Hidalgo & Hernández, 2001). Attachment to place can be a powerful emotional sentiment that influences how people perceive, experience, and value physical resources of a place (Cheng, Kruger, & Daniels, 2003; Ramkissoon, Smith, & Weiler, 2013). Therefore, understanding how place attachments differ among user groups, as well as the relationship between place attachment and various environmentally related behaviors (Ramkissoon et al., 2013), may help contextualize management implications of various governance structures, including those designed and implemented at the community level.

A number of scholars have reported that lengthy or meaningful associations among residents as well as visitors may foster deep place attachments (Hay, 1998; Lewicka, 2011; Stedman, 2003; Theodori & Luloff, 2000; Tuan, 1977). For scholars who emphasize the importance of residency as a significant variable in developing place attachments, the role of place meanings, neighborhood ties, and cultural capital, among others, have been found to be the key factors (Beckley, 2003; Klanicka, Buchecker, Hunziker, & Muller-Boker, 2006; Lewicka, 2005). In one example of resident place attachments, Kerstetter and Bricker (2009) found that Fijian residents expressed the importance of protecting the physical environment as central to continued maintenance of their traditions and lifestyle as well as tourism. Given these findings, we postulated that residents might be more likely than tourists to engage in caretaking or place-protective behavior in Haena.

However, other studies suggest avenues other than residency through which people, and particularly tourists, may develop strong place attachments, such as through frequent recreational use (Moore & Graefe, 1994; Moore & Scott, 2003; Williams, Patterson, Roggenbuck, & Watson, 1992). Viewing a particular place as important to engaging in certain activities is critical to developing place attachment through use (Hwang, Lee, & Chen, 2005; Kyle, Graefe, Manning, & Bacon, 2003; Stokols & Shumaker, 1981; Williams & Vaske, 2003). The social aspect of interacting with family and friends in these places can also be important to developing place attachment (Ardoin, 2009; Eisenhauer, Krannich, & Blahna, 2000; Hidalgo & Hernández, 2001). Environmental learning and education may also provide influential avenues toward place attachment, helping people better understand the ecological and sociocultural aspects of a place (Ardoin, 2006; Kudryavtsev, Stedman, & Krasny, 2011).

The literature suggests that positive place attachments correlate with engagement in pro-environmental and place-protective behaviors (Ardoin, 2009; Lee, 2011; Lukacs & Ardoin, in press; Vaske & Kobrin, 2001; Vorkinn & Riese, 2001). In particular, sense

of responsibility is an important antecedent to taking action (Hungerford & Volk, 1990). Researchers (e.g. Moore & Scott, 2003; Vorkinn & Riese, 2001) suggest that this sense of responsibility can be enhanced by perceived threat to a place or resources with residents more likely to become politically activated if they perceive risk to that place (e.g. Ardoin, 2009; Gustafson, 2009; Lukacs & Ardoin, in press).

Studies also document ways that place attachments and sense of responsibility correlate with resident engagement in community-level decision-making and caretaking of resources. Kaltenborn (1998) found that people with stronger place attachments were more likely to be active in addressing environmental issues at a community level. Moore and Scott (2003) suggested that residents' proximity to a nearby park, and the resulting sense of ownership, provided an opportunity and motivation for taking on volunteer roles as interpreters, educators, or wildlife monitors. In contrast, Ballantyne, Packer, and Hughes (2009) found that tourists are more frequently engaged in individual conservation actions (e.g. recycling) than community-level conservation actions (e.g. volunteering).

In summary, the literature suggests that residents and tourists develop place connections based on a variety of factors, including length and frequency of interaction, recreational use, shared experiences with family and friends, and learning about the place. Furthermore, one manifestation of place connection is a sense of responsibility, which may encourage resource users to become involved in place protection and resource management, particularly when there is a sense that that place may be under threat.

Community-based natural resource management

CBNRM describes collective management of common pool resources by local resource users who apply place-specific, adaptive knowledge to devising and enforcing rules within a set area (Ostrom, 2005). CBNRM systems, sometimes referred to as common property regimes, provide an alternative to either government or private management. In CBNRM, local users collectively devise and enforce rules to govern resources that none own, but all share. Research documents the ability of CBNRM systems to manage resources sustainably for long periods of time across a range of contexts across the globe from forests (Agrawal, Chhatre, & Hardin, 2008; Persha & Chhatre, 2011), to farmland (Verdery, 2003), to fisheries in the Pacific (Cinner & Aswani, 2007), including Hawaii (Poepoe, Bartram, & Friedlander, 2006). The literature also highlights instances where local systems were ineffective, unable to sustain either themselves or the natural resources they were meant to protect (Berkes & Folke, 2000; Ostrom, 2005).

Many factors impact effectiveness and implementation of CBNRM schemes. These may include, but are not limited to, the characteristics of natural resources themselves; the degree to which resource users depend on the resource; the types of rules users create to regulate them; the degree of recognition of CBNRM by external authorities such as government; and how representative those involved in CBNRM may be of wider groups of users (Gruber, 2010; Ostrom, 1990, 2009; Menzies, 2007; Poteete, 2010). In the past decade, the presence of shared perspectives about resources and opportunities to develop shared perspectives through learning have also been recognized as critical for collaborative resource management (Biedenweg & Monroe, 2013; Keen, Brown, & Dyball, 2005; Schusler, Decker, & Pfeffer, 2003). This paper investigates this last factor, the diversity of perspectives toward resources among different user groups. In particular, this study considers how diversity in sources for learning and perspectives about resource health and management responsibilities relate to differing place connections among local residents and tourists, and the possible implications of these differences for CBNRM.

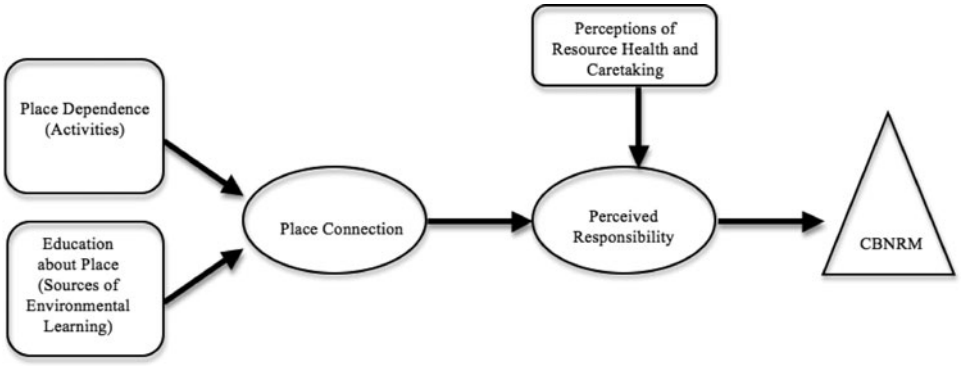

Figure 1. Relationship between place connection, perceived responsibility, and engagement in CBNRM.

The theoretical framework for this paper, drawing upon the concepts of place connections and CBNRM outlined above, and hypothetical relationships between them, are illustrated in Figure 1. CBNRM can be an important tool in addressing pressing environmental issues (Berkes et al., 2003; Olsson et al., 2004; Scott, 1998). Growing from established relationships between local communities and natural resources, CBNRM depends on people's connections to a place and their collective sense of responsibility to care for it. As the community shifts from mainly residents using resources for subsistence, to a combination of residents and tourists using a place for recreation and tourism, people's connections with that place, and their sense of responsibility to care for it, may also change in ways influential for restoration of local management. Drawing from the literature on place attachment and dependence (e.g. Kelly & Hosking, 2008; Kerstetter & Bricker, 2009; Stedman, 2006), place education (e.g. Ardoin, 2006; Kudryastev et al., 2011; Vaske & Kobrin, 2001), and our own field work and experience in this particular site (Vaughan & Vitousek, 2013), we postulated that both place dependence and learning about place would influence residents' and visitors' connections to place. In turn, those place connections have the opportunity to contribute to a sense of responsibility for caretaking of the place, as some studies have suggested that a positive relationship exists between place connections and place-protective or conservative actions (e.g. Ardoin, 2009; Perkins, Brown, & Taylor, 1996; Scannell & Gifford, 2010; Vaske & Kobrin, 2001). This sense of responsibility, which may also be affected by individuals' perceptions of resource health (Lukacs & Ardoin, in press), is an important influence in the extent and form of participation in community-based resource management.

Methods

Study site

Eena Haena i ka ehu kai: Haena is fearsome in the sea spray.

(This saying, common in mele [songs] celebrating Haena, describes the extreme and variable conditions of the area. Calm summer seas give way to pounding winter surf, bathing the cliffs in sea spray.)

We conducted this study in the ahupuaa of Haena, a rural fishing community on the island of Kauai's North Shore. Haena, meaning "the intense breath of the sun," encompasses 1800 acres including two valleys and dramatic mountains eroded into pinnacles, rising over

a large coastal plain and fringing reef (Andrade, 2008). Inhabited by native Hawaiians since before 1000 A.D., Haena has historically been known as a cultural site sacred to hula (Hawaiian dance) and for self-sufficient residents who fish and farm taro (Andrade, 2008).[3] The nearest grocery store is a 20-minute drive from Haena, with the nearest shopping center over an hour away. The area is located at the end of Kauai's only highway; driving north to "the end of the road" brings one to Haena.

The Haena area and residential community have changed dramatically over the past century. The 1910 census identified 67 residents of Haena (97% Native Hawaiians), living in 15 different houses (Hawaii DLNR, 2001). Even after Hawaiian land was privatized in 1850, Haena residents organized a Hui, or association, and continued to hold and manage land in common (Andrade, 2008). Nonresidents began to buy the land when the Hui dissolved in 1960 (Andrade, 2008) and this privatization of land, along with accompanying coastal development of vacation and luxury homes, has led many long-time Haena families to move from the area (Vaughan & Vitousek, 2013). Today, only half of Haena's 322 homes are occupied, with half of the area's 431 residents having moved to the area within the last 10 years (U.S. Census Bureau, 2010). These changes reflect Haena's increasing popularity as a visitor destination, drawing over 700,000 tourists annually (Juran, 2007), with area beaches hosting up to 2000 tourists per day (Haena Lifeguards, unpublished data, 2009; Stepath, 2006). Haena is also frequented by Kauai residents, many of whom continue to fish in Haena, even if their families no longer live there. Haena's reefs provide fish as a source of daily protein for many Hawaiian and other local families, as well as for luau (feasts commemorating events including weddings, birthdays, funerals, and graduations) and other celebrations on Kauai (Vaughan & Vitousek, 2013).

In 2006, Hawaii designated Haena as a Community Subsistence Fishery – the first in the state. This designation allows residents to work with the state Division of Aquatic Resources to develop and enforce laws regulating the Haena coastline from the shoreline to

Table 1. Description of survey items.

Item	Response type
Residence and number of years in current location	Open-ended, categorical
Activities respondents participate on the coast of Haena	Open-ended
Importance of Haena for being able to participate in these activities*	Likert-type scale indicating level of importance
Frequency of visits to Haena	Open-ended, categorical
How respondents learned about Haena initially, and how they learn about it once there	Open-ended
Perceptions of health of marine resources	Likert-type scale
Perceptions of who is caring for Haena and how well they are doing so	Open-ended, Likert-type scale
Perceptions of their own responsibilities to Haena while there	Open-ended
Whether they would categorize Haena as special, and if so why	Closed-ended yes/no response, Open-ended
Demographic information including age, gender, and ethnic/racial background; occupation and occupational status	Open-ended

*Adapted from Williams and Vaske (2003).

one mile out to sea, or the edge of the coral reef, based on traditional management practices *(S.B. 2501, 23rd Leg., Reg. Sess. [HI 2006])*. These regulations affect not only fishing, but all coastal use, including recreational activities such as kite surfing, scuba and kayak tours, and snorkeling, which area fishers believe negatively impact fish populations. In addition, Haena residents are working with the state parks division to increase local involvement in managing a coastal state park, a focal point of tourist activity in Haena.

The survey on which we report here is part of a larger study examining community-based coastal resource management through a partnership of state agencies and Haena residents. Other aspects of this study focus on past, present, and proposed community management regimes in Haena; incorporating traditional values and practices into law; and assessing collaborative rule-making within government–community resource management partnerships (Vaughan & Caldwell, in press; Vaughan & Thompson, in press). We designed the survey to better understand existing coastal use in Haena prior to the implementation of a CBNRM system. This survey's findings are related to user demographics, self-reported use patterns, and perceptions of responsibility that complement user counts conducted by community groups and other studies to provide baseline data on resource use (Vaughan & Vitousek, 2013).

Survey design

The study's guiding questions included the following: (1) How do residents and tourists learn about and use the coast of Haena? (2) How do residents and tourists perceive resource health and caretaking? (3) What do they see as their own responsibilities to the place? To address those, we developed survey items related to sources of environmental learning and patterns of resource use among residents and visitors. We also drew from other instruments related to place attachment (Stedman, 2006; Williams & Vaske, 2003) and environmental responsibility (Hungerford & Volk, 1990) (Table 1).

We first piloted survey questions with a team of seven colleagues and community members during July 2009. We revised three survey items, then re-piloted the revised instrument with 15 beach-goers, a sample representing a full-day sampling every 10th person on one study site beach. Based on the pilot results, we clarified wording and reordered items to improve ease of administration. We also used pilot testing to identify surveyor-training needs and refine the introductory statement read aloud to tourists participating in the survey.

The pilot also generated categories for coding multiple open-ended questions such as, "How did you learn about Haena?" in which surveyors solicited free-response answers rather than reading a list of options. We provided surveyors with a list of expected responses, training them to categorize these free-response answers. Throughout the one-year survey period, over 95% of responses fell into the pre-designated categories. Surveyors recorded other responses verbatim. Three times during the survey, we reviewed all uncategorized, or "other", responses and included new categories for those responses occurring more than five times.[4] When we created new categories, we reviewed all responses previously coded as "other" and re-coded those as appropriate.

Survey implementation

The survey team, six of whom grew up near Haena, included six university students (five undergraduates and one doctoral level), and one Haena community member. The team worked with community members to conduct beach-user counts, then selected three survey

sites with the highest use on Haena's three-mile coast. We conducted surveys between 7:00 am and 7:00 pm, 7 days per week. We conducted 72% of the surveys during summer (July and August) 2009 and 28% during winter (December 2009 and January 2010), which are characterized by rainy weather and higher surf.[5]

Because of characteristics and constraints of the site, we were not able to use a true random sampling methodology; rather, surveyors systematically approached every third, fifth, or tenth person on the beach, depending on crowd density. We achieved more than a 90% response rate. Surveyors recorded data on individuals who refused to participate, noting observable traits such as sex, a rough estimate of age, and apparent race. We conducted cross-tab analyses to compare characteristics of those refusing to participate with those of respondents, and found no significant differences in these two populations.

Researchers surveyed 264 beach users, including 77 residents and 187 tourists. We defined "residents" as individuals who reside part-time or full-time on the island of Kauai (not just Haena).[6] As the site description notes, few people live full-time in Haena because of rising property values and the demand for vacation rentals. However, residents from other parts of the 500-square-mile island of Kauai use Haena. Including all Kauai residents in our "resident" count, rather than only those who live in Haena, allowed us to survey individuals who frequently use or have lengthy associations with Haena.

However, we had difficulty finding Kauai residents on the beach to survey. Anecdotal sources such as lifeguards and community monitoring counts estimate that, at any given time, 90–95% of the people on the beach at the three study sites were tourists (Haena Lifeguards, unpublished data, 2009). To increase the resident sample, we targeted residents (identified by markers such as surfboards, dogs, or vehicle type) even if they did not fall within the systematic-count selection process. We also conducted 20 resident surveys at a Haena community meeting, adapting surveys so that residents could complete them independently. We administered the other 244 surveys, which took approximately 15 minutes to complete, on the beach with surveyors reading the questions aloud and marking responses on the survey sheet. To control for differences in survey population and administration, we conducted all analyses both including and excluding the 20 meeting surveys; the same findings were significant. Because of surveyor error, 15 beach respondents were not asked the learning-related questions; therefore, the sample size for residents on those items is lower than on others.

We analyzed survey data using SPSS (version 17.0), producing frequency distributions for all data and using cross tabs to compare resident and tourist responses. The significance level for all analyses was set at $p < 0.05$. Tables display significant findings for each question, with nonsignificant findings noted below. All findings discussed in the text were significant unless stated otherwise. In the tables, we have noted the instances where the number of responses was too low to meet chi-square requirements.

A copy of the research instrument can be found as a supplementary file on the web-based version of this paper at www.tandfonline.com/JOST.

Respondent demographics

Table 2 displays demographic information for survey respondents ($n = 264$), including residents (29%) and tourists (71%). We found significant differences in race (Pearson's $\chi^2 = .62.67$, p value $= 0.000$, d$f = 7$) and occupational status (Pearson's $\chi^2 = 71.284$, p value $= 0.001$, d$f = 12$) between residents and tourists. Tourists were more likely to be white (82% of tourists vs. 54% of residents) and residents to be Hawaiian (26% of residents vs. 0% of tourists) or Asian (11% of residents vs. 7% of tourists). Regarding occupational

Table 2. Respondent demographics.

Variable	Residents' percentage ($n = 187$)	Tourists' percentage ($n = 77$)	Total survey population ($n = 264$)
Racial group			
White	54	82	74
Asian	11	7	8
Hawaiian	26	0	8
African-American	0	2	1
Hispanic	2	4	6
OPI	0	2	1
Other	3	0	1
Age			
19–34	34	34	34
35–44	30	32	32
45–64	20	27	25
65+	16	7	9
Gender			
Male	58	46	50
Female	42	54	50
Occupational status			
Managers or professionals	28	68	60
Administrative support staff or technicians	11	9	9
Service workers/sales	13	6	7
Physical laborers	32	1	8
Students	9	5	5
Retirees	4	8	7
Unemployed	2	1	1
Other	2	2	2

status, tourists were more likely to be managers or professionals (68% of tourists vs. 28% of residents).

Of the 187 tourist respondents, 52% were from the US West Coast; 62% were on their first or second trip to Kauai; and 61% planned to stay on the island for over a week. Tourists reported visiting Haena an average of three to four times during their Kauai stay. Of the 77 residents surveyed, 22% lived in Haena and 43% lived in neighboring ahupuaa within the same district. The Hawaiian community of Anahola, where many of the Haena families have relocated, was home to 9% of our resident respondents. Residents reported visiting Haena an average of 158 times per year at a rate of about 13 times per month. Many of the 17 residents of the immediate Haena area reported visiting the beach daily.

Findings

Question 1: how do residents and tourists use and learn about Haena?

Activities and use

We inquired about respondents' activities in Haena and the importance of Haena for participating in those activities. Both residents and tourists considered Haena an important place to pursue favorite activities. Among respondents, 88% of tourists ($n = 179$) and 85% of residents ($n = 74$) ranked Haena as either "important" or "very important" for engaging in their preferred activities while on the island. This supports the potential for tourists and

Table 3. Activities in Haena.

Activities	Residents' number	Residents' percentage ($n = 77$)	Tourists' number	Tourists' percentage ($n = 187$)	Pearson's χ^2 (d$f = 1$)	p value
Snorkeling	28	36	142	76	37.251	0.000
Picnicking	15	20	17	9	5.527	0.019
Camping	10	13	1	1	21.18	0.000
Surfing	40	52	22	12	49.010	0.000
Shelling	22	29	3	2	46.267	0.000
Holoholo (Fishing)	32	42	1	1	84.099	0.000

Note: Differences in the following activities were not significant ($p > 0.05$): swimming, hiking, sunbathing, sightseeing, scuba diving, kayaking, boating, walking/running on the beach, hanging on the beach, and watching sunset. Kite-boarding and windsurfing had too few responses for statistical comparison.

residents to develop strong place attachments based on the concept of functional place dependence (Moore & Graefe, 1994). However, besides swimming, the popular activities pursued by each group in Haena differed. Tourists were more likely to snorkel (Pearson's $\chi^2 = 37.21$, p value $= 0.000$, d$f = 1$), while residents were more likely to fish and surf (Pearson's $\chi^2 = 84.099$, p value $= 0.000$, d$f = 1$). The most common activities for residents were swimming (66%), surfing (52%), and fishing (42%); the most common for tourists were snorkeling (76%), swimming (60%), and hiking (40%) (see Table 3).

Although tourists and residents both frequent Haena, our findings suggest that they are unlikely to meet and interact on a regular basis because they are largely engaged in different activities. This separation is enhanced by spatial and temporal differences. Research team and community user counts revealed few residents on the beach at peak tourist locations and times (mid-morning and mid-afternoon). Residents tended to frequent less-crowded parts of the coast in the early morning or evening, before and after work. Therefore, although activities in Haena provide residents and tourists with the opportunity to develop place attachments, differences in activity type, as well as when and where activities take place, may mean that tourists and residents develop connections in different ways and to different elements of the place (Stedman, 2003).

Learning about the place

We asked residents and tourists how they learned – and continue to learn – about Haena, because researchers have suggested that the process and avenues for learning about a place can be important in forming place attachments and the relationship with stewardship behavior (Kudryavstev et al. 2011; Stedman & Ardoin, in press). We included two items related to learning about Haena: (1) "How did you first learn about Haena?" (2) "What sources of information do you rely on to learn about the place once here?" (see Tables 4 and 5).

Both items indicated significant differences in residents' and tourists' learning sources. Residents mainly learned from one another, as well as from first-person experience in Haena. Residents initially learned about Haena by growing up there (31%), learning from family (24%), and learning from other locals (14%) (see Table 4). Once in Haena, residents still reported learning from experience and from one another. By contrast, 53% of tourists reported using guidebooks to learn about Haena prior to their visit, and 48% continued using guidebooks once on site. No single other source of initial learning about Haena (e.g.,

Table 4. Initial sources of learning about Haena.

Source	Residents' number	Residents' percentage ($n = 67$)	Tourists' number	Tourists' percentage ($n = 185$)	Pearson's χ^2 (d$f = 1$)	p value
Guidebook	2	3	98	53	51.068	0.000
Grew up here	21	31	0	0	63.256	0.000
Family	16	24	14	8	12.481	0.000
Locals	8	14	10	5	4.353	0.037
Other	16	24	17	9	9.329	0.002

Note: Differences in the following sources of initial learning were not significant ($p > 0.05$): brochures, Internet, tourism workers, maps, driving to the end of the road, and other tourists.

family, the internet, tour guides, or presentations at visitor accommodations) was used by more than 10% of tourists. Only 5% of tourists indicated learning about the place initially from local residents. Once in Haena, 29% of tourists consulted locals, 27% relied upon observation, and 48% continued to rely on guidebooks (see Table 5).[7]

The difference in learning patterns exacerbates separation between the groups' means of connecting with the place. Fewer than 5% of residents reported reading guidebooks; thus, they had little knowledge of the perspectives or guidance tourists received regarding the place. In addition, since less than one-third of tourists reported inquiring of locals, it appears that tourists rarely learn of local perspectives on Haena. Interviews and observations conducted along with our survey suggest that many Haena tourists do not recognize it as having a local community. For example, when asked to describe the Haena community, one couple who visits annually responded, "The Haena community? Is there one here? We don't see a church or a school or store or anything here in Haena. They're all down the road in Hanalei. There is a community there for sure, but here, in Haena? There's no community here."

Question 2: how do residents and tourists perceive resource health and caretaking, and what do they see as their own responsibilities to the place?

We are interested in perceptions of responsibility to place as a precursor to environmental behavior and participation in CBNRM. Two factors that may affect development of a sense of responsibility to place are perceptions of resource health in an area and of who is currently caring for it.

Table 5. On-site sources of learning about Haena.

Source	Residents' number	Residents' percentage ($n = 65$)	Tourists' number	Tourists' percentage ($n = 184$)	Pearson's χ^2 (d$f = 1$)	p value
Guidebook	3	5	89	48	39.471	0.000
Family/friends	6	14	4	2	11.287	0.001
Locals	38	59	53	29	18.218	0.000

Note: Differences in the following sources of on-site learning were not significant ($p > 0.05$): observation, exploring, lifeguards, and signs.

Perceptions of resource health and caretaking

Our findings suggest that residents and tourists have different views of resource health and caretaking in Haena. On average, residents' perceptions of the health of coastal resources were more negative than tourists' perceptions, although both groups perceived the resources to be less than perfectly healthy. On a scale of 1–5, with 1 being "not at all healthy" and 5 being "very healthy", residents' mean rating was 3.49, whereas tourists' mean rating was 3.96. Cross-tab analysis shows this difference to be significant (Pearson's $\chi^2 = 12.897$, p value $= 0.012$, d$f = 4$).

We asked residents and tourists about their perceptions of who takes care of Haena based on the hypothesis that these perceptions may affect feelings of personal responsibility toward the place. Residents and tourists had significantly different perceptions of who was taking care of Haena: 71% of residents ($n = 72$) answered "locals", compared with 25% ($n = 183$) of tourists (Pearson's $\chi^2 = 46.931$, p value $= 0.000$, d$f = 1$) selecting the same response ("locals"). In contrast, 34% of tourists perceived that the government ("the state") was caring for Haena, while only 17% of locals (Pearson's $\chi^2 = 7.432$, p value $= 0.006$, d$f = 1$) selected this response.

Responsibilities

Studies suggest that residency may be a significant variable in developing place attachments (e.g., Hay, 1998; Tuan, 1977), which may, in turn, affect sense of responsibility and be related to environmental behavior (Ardoin, 2009; Lewicka, 2005). Thus, we postulated that residents might be more likely than tourists to express a sense of responsibility toward Haena.

We asked respondents about their responsibilities to Haena. Nearly all responses to this item indicated significant differences between the groups (see Table 6). In general, tourists felt responsible to clean up after themselves, with the majority answering, "Leave it as you found it" (65% of tourists vs. 44% of residents, Pearson's $\chi^2 = 9.794$, p value $= 0.002$, d$f = 1$) or "Pick up your own trash" (69% of tourists vs. 51% of residents, Pearson's $\chi^2 = 8.1$, p value $= 0.004$, d$f = 1$). Although residents described minimizing their own impacts, they also described responsibilities that affect others, such as picking up other people's trash

Table 6. Responsibilities to Haena.

Responsibility	Residents' number	Residents' percentage ($n = 75$)	Tourists' number	Tourists' percentage ($n = 186$)	Pearson's χ^2 (d$f = 1$)	p value
Leave it as you found it	33	44	121	65	9.794	0.002
Pick up your own trash	38	51	129	69	8.1	0.004
Show respect	39	52	34	18	30.166	0.000
Pick up others' trash	31	41	32	17	16.994	0.000
Educate others	31	41	5	3	67.131	0.000
Enforce rules and laws	14	19	1	1	32.429	0.000[a]
Help keep others safe	8	15	1	1	24.118	0.000[b]
Other	23	31	29	16	7.614	0.006

Note: All resident/tourist responses were significantly different except: "Follow rules", "Don't touch or harm marine animals", and "Stay off the coral reef".

[a,b] These responses do not meet chi-square requirements for number of cells because of the small number of tourists selecting them.

(41% of residents vs. 17% of tourists, Pearson's $\chi^2 = 67.131$, p value $= 0.000$, d$f = 1$); educating others on the beach (41% of residents vs. 0.03% of tourists); enforcing informal rules and state laws in Haena, such as those related to overfishing or not standing on the reef (19% of residents vs. 0.01% of tourists, Pearson's $\chi^2 = 32.429$, p value $= 0.000$, d$f =$ 1); and keeping others safe (15% of residents vs. 0.01% of tourists, Pearson's $\chi^2 = 24.11$, p value $= 0.000$, d$f = 1$).[8]

In sum, residents were more concerned about resource health and more likely to feel responsible for taking care of marine resources. In contrast, tourists perceived caretaking of Haena to be the government's responsibility. Tourists were more likely to focus on their own behaviors (e.g. picking up one's own trash), while residents were more likely to take actions (e.g. education and enforcement) to influence others' behavior. These findings support those of prior studies (e.g. Morgan, 2009; Lewicka, 2005) suggesting the importance of residence and direct interaction with a resource in developing place connections and a sense of responsibility to the place.

Discussion

Tourists and residents consider Haena a special place for its beauty, undeveloped wilderness character, and coastal resources (Vaughan & Vitousek, 2013). Numerous nonprofits, government agencies, and community groups express interest in local-level collaboration to protect Haena and its resources (Andrade, 2008). Our survey findings suggest that differences in place connections among user groups, namely residents and tourists, do indeed exist, and here we consider how those differences may affect the restoration of local resource management.

Activities and learning: local-level interpretation and education

In exploring the activities pursued, and the timing of those activities, we found that residents and tourists rarely interact with each other in Haena: they visit different areas of the coast at different times of day and engage in different activities. Thus, regulations affecting recreational activities may differentially impact residents and tourists – a finding with implications for local resource management. Traditional coastal management in Haena, for example, relied on protecting key spawning and feeding areas for fish (Vaughan & Thompson, in press).[9] Draft community rules incorporate traditional principles by closing these areas to fishing and all recreational use. Community members argue that certain fish species only feed in particular places on particular tides, and that snorkeling or surfing may disrupt their feeding patterns. However, closing areas to snorkeling would affect tourists tremendously, as snorkeling is their primary activity in Haena, whereas fishing or surfing regulations would more heavily impact residents. Local residents may regulate their own use of the resources through normative influences and informal education, yet regulating tourist activities may entail formalized enforcement and educational outreach, requiring enhanced funding and government support.

Regarding education, tourists and residents report different avenues of learning about the place, with tourists primarily relying on guidebooks (secondhand, printed information sources) and locals relying on one another (firsthand, personal information sources). Thus, local perceptions about the place tend to be perpetuated internally among local residents. For tourists (who comprise more than 90% of users), guidebooks – and the information or misinformation they contain – are the primary source of education, in effect serving as the "host" in Haena.

The importance of guidebooks has implications for local natural resource management. Because guidebooks are a critical avenue for reaching tourists prior to arrival, they may offer an opportunity for local resource managers to collaborate with authors to shape content, ensuring that it is correct and aligned with local management principles. Examples of past misinformation published in Kauai guidebooks include listing beaches as excellent for year-round swimming and snorkeling, when, in reality, those beaches can be hazardous in winter.

Despite their potential importance, guidebooks have been largely ignored in the CBNRM literature, possibly because CBNRM often takes place in nontourist destinations or areas such as safari parks where tourism is strictly controlled. This line is becoming blurred as destination and recreation tourism increase the reach of self-guided tourism. Co-authorship, community certifications, and other forms of partnership implying community approval and inclusion of firsthand local knowledge might improve guidebook accuracy and engage community members in knowledge production and dissemination related to their place.

Additionally, the prevalence of guidebooks suggests that more consistent information flow between tourists and residents could benefit both groups. Residents might learn from tourist perceptions of what makes Haena special or from their opinions on the quality of their visit and how it could be improved. Tourists might benefit from a resident-hosted orientation in which residents provide information about cultural practices and significance, the existing community, beach safety, how to protect Haena's marine and coastal resources, and cultural norms such as the impoliteness of approaching fishermen at their catch.

Resource health, caretaking, and responsibilities: engaging residents and tourists

Residents and tourists also have divergent perceptions regarding the health and caretaking of area resources. Tourists perceive marine resources as healthier than do residents and credit the state of Hawaii with caring for the resources. Although tourists feel responsible for leaving the area as they found it, they rarely go beyond self-focused activities. In contrast, residents perceive marine resources as less healthy and more threatened. They feel personally responsible for Haena and suggest that locals are the caretakers. Many report undertaking place-protective actions and also attempting to influence others' actions.

Differing perceptions of resource health among residents and tourists also have potentially important implications. At high-volume tourist destinations, the level of tourist traffic is sometimes used as a proxy for environmental health, based on the assumption that the resources must be healthy because many people desire to visit them. Yet resource health perceptions are highly subjective and depend on the baseline to which the observer is comparing: a healthier past state of the same area or a more degraded state elsewhere. Local monitoring is important as residents can provide perspective or collect data on resource health over time.

Finally, this study finds that Haena residents have a stronger sense of responsibility, which may connect with place-protective behaviors, such as cleaning up trash, monitoring resource use infractions, and teaching others about Haena. An additional implication for local-level management may be the likelihood of engaging residents in stewardship activities. Residents in our study reported feeling responsible to educate about resources and enforce regulations in Haena with no formal CBNRM structure in place. Residents might become more involved when rallying around common educational messages and supporting community-developed, agreed-upon regulations. While some residents would be formally employed in local-level management, others might voluntarily participate in its implementation. Moreover, because locals generally rely on other locals for information,

training residents to educate others about their area could have widespread effects within the resident population.[10]

However, our findings also suggest ways that effective CBNRM may be difficult in popular tourist destinations as increased tourist traffic can deter residents from frequenting an area. Rising property prices and a high cost of living often associated with increased tourism and development may force out-migration of long-term residents. Our study hints that these socioeconomic dynamics, common in tourism-dependent economies, may displace the very people most likely to become engaged in active stewardship of natural resources. Examples of avenues for community engagement already implemented or proposed for Haena include participatory monitoring of resource use and health, engagement in collaborative rule-making processes to create coastal use zones and fishing regulations with state agencies, as well as enhancing enforcement of these rules through informal education of visitors and other users (Vaughan & Vitousek, 2013).

Limitations

We endeavored to explore the relationships manifested in Haena's residents and tourists with regard to coastal resources. Our findings reflect several limitations. First, similar to many tourist and visitor studies, we did not conduct a random sample but, rather worked within the logistical constraints of the site to be as systematic as possible in selecting participants. Second, because of the skewed ratio of tourists to residents – with thousands more tourists than residents visiting the sites – our resident sample was relatively small. Surveying additional residents would allow for more robust comparison between the groups. Third, literature suggests that part-time residents may have different perspectives than full-time residents (Kaltenborn & Williams, 2002; Stedman, 2006), but our small sample size ($n = 11$) did not allow for separate comparison. We recommend more research to explore how part-time residents – a distinct, influential, and growing demographic on the island – interact with, perceive, and value the resources, as well as how they view their responsibilities toward Haena.

Conclusion

This article expands the literature on place connections and community-based resource management, drawing in consideration of differences between user groups, specifically visitors and residents. Our findings support past research showing that residents' place connections differ in quality and content from those of visitors (e.g. Kaltenborn & Williams, 2002; Klanicka et al., 2006; Scannell & Gifford, 2010; Stedman, 2006). This is particularly true with respect to their sense of responsibility to the place, which is associated with place-protective behaviors and engagement in caretaking of resources at the local level (Lukacs & Ardoin, in press; Wiliams & Vaske, 2003). This work then supports the importance and potential of local-level initiatives that engage residents in resource management and decision making. Our findings also support prior research pointing to avenues other than residency, including participation in recreation (Hwang et al., 2005; Moore & Scott, 2003) and educational activities (e.g. Kudryastev et al., 2011; Vaske & Kobrin, 2001) through which visitors can develop and strengthen place connections. This study goes further by illuminating ways in which separate avenues of place connection, such as different activities and learning sources, may result in entirely separate visitor and resident experiences and connections, even to the same, small place.

CBNRM may offer a means of bridging this divide through learning-related avenues, for example, resident input into guidebook content or resident-hosted visitor orientations, which may bridge the user groups. Local-level management initiatives have the potential to leverage residents' sense of responsibility to strengthen visitor connections and engagement. Ultimately, such initiatives may enrich the experiences of all users and enhance both resident and visitor contributions to caring for a place.

Notes

1. Hawaiian language includes two diacritical marks guiding pronunciation: a macron over vowels to lengthen them and an okina between vowels, which causes a break in the voice. For example, if using diacriticals, Hawaii would be Hawai'i. The place name Haena should be pronounced with a long vowel sound on the first A, and a slight break in the voice between that A, and the E. This paper follows the style of twentieth-century Hawaiian texts, omitting diacriticals.
2. Community-based natural resource management (CBNRM) is also referred to as community-based resource management (CBRM) or community-based resource governance (CBRG). We use the term CBNRM, but acknowledge the inadequacy of the term "management" when referring to natural resources in Hawaii, where members of the indigenous culture view these resources as kin (Andrade, 2008; McGregor,1996; Poepoe et al., 2006). When referring to natural resources, Hawaiians use the term "malama", which means to "take care of, protect, preserve, and serve" a place and its resources (Pukuʻi & Elbert, 1971).
3. Taro, called "kalo", is a Hawaiian staple crop and is a root vegetable similar to a potato. Taro is grown in dry-land garden beds and irrigated paddies. It is used to make poi and figures prominently in Hawaiian creation stories.
4. We originally aimed to complete 250 surveys and chose five responses as our threshold for adding an answer to our code list in order to analyze all answers given by 2% or more of survey respondents.
5. Cross-tab analysis revealed that findings regarding resident and tourist perspectives were the same in winter and summer, despite different weather and surf conditions as well as differing tourist demographics with more international and East Coast tourists in the winter months versus more domestic and West Coast tourists during the summer.
6. We conducted 11 surveys with part-time residents. Because of the small group size, we combined part-time resident responses with resident responses for all analyses.
7. Reliance upon observation to learn about Haena once there is the only finding reported in the text that was not significantly different between resident and tourist populations, and is therefore not included in Table 5.
8. These two responses (enforcing rules and helping to keep others safe) do not meet chi-square requirements for number of cells because of the small number of tourists selecting them.
9. One elder recalls being taught to walk high up the beach, in the tree line, rather than along the shore, to avoid disrupting fish (personal communication, July 2007).
10. An additional survey question not discussed in this article indicates a possible revenue source of CBNRM-related activities in Haena such as monitoring, interpretation, and education. We asked respondents if they would be willing to pay $5 per person to visit Haena. Tourists were more willing than residents to pay, but for both the groups, willingness to pay increased substantially if the majority of that fee was used to care for the area. These findings are consistent with other willingness-to-pay studies in protected areas, such as Kyle et al. (2003), who found willingness to be based on individuals' relationships with the place as well as intended use of the fees.

Notes on contributors

Mehana Blaich Vaughan is an assistant professor in the Department of Natural Resources and Environmental Management at the University of Hawai'i at Mānoa, Honolulu, HI, United States. Her research interests are natural resource policy, collaborative and community-based resource management, and place-based education.

Nicole M. Ardoin is an assistant professor in the Graduate School of Education and Woods Institute for the Environment at Stanford University, CA, United States. Her research interests are in environmental learning, sense of place, and environmental behavior.

References

Agrawal, A., Chhatre, A., & Hardin, R. (2008). Changing governance of the world's forests. *Science, 320*, 1460–1462.

Altman, I., & Low, S.M. (Eds.). (1992). *Place attachment. Vol. 12 of human behavior and environment: Advances in theory and research*. New York: Plenum Press.

Andrade, C. (2008). *Haena: Through the eyes of the ancestors*. Honolulu, HI: University of Hawaii Press.

Ardoin, N. (2006). Toward an interdisciplinary understanding of place: Lessons for environmental education. *Canadian Journal of Environmental Education, 11*(1), 112–126.

Ardoin, N. (2009). *Sense of place and environmental behavior at an ecoregional scale* (Doctoral dissertation). New Haven, CT: Yale University. Available from Proquestdatabase. (Publication No. [3395751]).

Ballantyne, R., Packer, J., & Hughes, K. (2009). Tourists' support for conservation messages and sustainable management practices in wildlife tourism experiences. *Tourism Management, 30*(5), 658–664.

Beckley, T.M. (2003). The relative importance of sociocultural and ecological factors in attachment to place. In L.E. Kruger (Ed.), *Understanding community forest relations* (pp. 105–125). Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Berkes, F. (2009). Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management, 90*, 1692–1702.

Berkes, F., Colding, J., & Folke, C. (Eds.). (2003). *Navigating social-ecological systems: Building resilience for complexity and change*. Cambridge, MA: Cambridge University Press.

Berkes, F., & Folke, C. (Eds.). (2000). *Linking social and ecological systems: Management practices and social mechanisms for building resilience*. Cambridge, MA: Cambridge University Press.

Biedenweg, K., & Monroe, M. (2013). Cognitive methods and a case study for assessing shared perspectives as a result of social learning. *Society and Natural Resources*. doi:10.1080/08941920.2012.725455

Cheng, A.S., Kruger, L.E., & Daniels, S.E. (2003). "Place" as an integrating concept in natural resources politics: Propositions for a social science research agenda. *Society and Natural Resources, 16*, 87–104.

Cinner, J.E., & Aswani, S. (2007). Integrating customary management into marine conservation. *Biological Conservation, 140*(3–4), 201–216.

Eisenhauer, B.W., Krannich, R.S., & Blahna, D.J. (2000). Attachment to special places on public lands: An analysis of activities, reasons for attachment, and community connections. *Society and Natural Resources, 13*(5), 421–441.

Gruber, J.S. (2010). Key principles of community-based natural resource management: A synthesis and interpretation of identified effective approaches for managing the commons. *Environmental Management, 45*(1), 52–66.

Gustafson, P. (2009). Mobility and territorial belonging. *Environment and Behavior, 41*(4), 490–508.

Haena Lifeguards. (2009). [Daily Use Count Forms] Unpublished data.

Hawaii Department of Land and Natural Resources. (2001). *Haena State Park master plan*. Unpublished report.

Hay, R. (1998). Sense of place in developmental context. *Journal of Environmental Psychology, 18*(1), 5–29.

Hidalgo, M.C., & Hernández, B. (2001). Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology, 21*, 273–281.

Higuchi, J. (2008). Propagating cultural kipuka: The obstacles and opportunities of establishing a community-based subsistence fishing area. *University of Hawai'i Law Review, 31*, 1–30.

Hungerford, H.R., & Volk, T. (1990). Changing learner behavior through environmental education. *Journal of Environmental Education, 21*(3), 8–21.

Hwang, S.N., Lee, C., & Chen, H.J. (2005). The relationship among tourists' involvement, place attachment and interpretation satisfaction in Taiwan's national parks. *Tourism Management, 26*(2), 143–156.

Jokiel, P.L., & Brown, E.K. (Eds.). (2000). *Hawaii coral reef initiative coral reef assessment and monitoring program (CRAMP) final report 1998–1999*. Silver Springs, MD: National Ocean Service, National Oceanic and Atmospheric Administration.

Jokiel, P.L., Rodgers, K.S., Walsh, W.J., Polhemus, D.A., & Wilhelm, T.A. (2011). Marine resource management in the Hawaiian archipelago: The traditional Hawaiian system in relation to the Western approach. *Journal of Marine Biology,* doi:10.1155/2011/ 151682

Juran, M. (2007). *Community-based marine management, Haena Ahupuaa, Kauai, Hawaii: Listening to community members and respected scientists to better understand the implications of community-based marine management on our near shore fisheries*. Unpublished manuscript.
Kaltenborn, B. (1998). Effects of sense of place on responses to environmental impacts. *Applied Geography, 18*(2), 169–189.
Kaltenborn, B.P., & Williams, D.R. (2002). The meaning of place: Attachments to Femundsmarka National Park, Norway, among tourists and locals. *Norsk Geografisk Tidskrift, 56*, 189–198.
Keen, M., Brown, V.A., & Dyball, R. (2005). Social learning: A new approach to environmental management. In M. Keen, V. Brown, & R. Dyball (Eds.), *Social learning in environmental management: Towards a sustainable future* (pp. 3–21). London: Earthscan.
Kelly, G., & Hosking, K. (2008). Nonpermanent residents, place attachment, and "sea change" communities. *Environment and Behavior, 40*(4), 575–594.
Kerstetter, D.L., & Bricker, K.S. (2009). Exploring Fijian's sense of place after exposure to tourism development. *Journal of Sustainable Tourism, 17*(6), 691–708.
Klanicka, S., Buchecker, M., Hunziker, M., & Muller-Boker, U. (2006). Locals' and tourists' sense of place: A case study of a Swiss alpine village. *Mountain Research and Development, 26*(1), 55–63.
Kudryavtsev, A., Stedman, R.C., & Krasny, M.E. (2011). Sense of place in environmental education. *Environmental Education Research, 18*(2), 229–250.
Kyle, G., Graefe, A.R., Manning, R., & Bacon, J. (2003). An examination of the relationships between leisure activity involvement and place attachment among hikers along the Appalachian trail. *Journal of Leisure Research, 35*(3), 249–225.
Lee, H.L. (2011). How recreation involvement, place attachment and conservation commitment affect environmentally responsible behavior. *Journal of Sustainable Tourism, 19*(7), 895–915.
Lewicka, M. (2005). Ways to make people active: The role of place attachment, cultural capital, and neighborhood ties. *Journal of Environmental Psychology, 25*, 381–395.
Lewicka, M. (2011). Place attachment: How far have we come in the last 40 years? *Journal of Environmental Psychology, 31*(3), 207–230.
Lukacs, H., & Ardoin, N. (in press). *The relationship of place-remaking and watershed group participation in Appalachia*. Manuscript submitted for review.
Maly, K., & Maly, O. (2003). Hana Ka Lima, 'Ai Ka Waha: A collection of historical accounts and oral history interviews with Kama'aina residents and fisher-people of lands in the Halele'a-Na Pali region on the Island of Kaua'i. *The Nature Conservancy and The National Tropical Botanical Gardens – Limahuli Gardens, Hui Maka'ainana o Makana*. Hilo: Kumu Pono Associates. [online] Retrieved from http://ulukau.org/elib/cgibin/library?c=maly4&a=q&q=haena+lima+maly&summarise=1&l=haw&w=utf-8&t=1
McGregor, D.P. (1996). An introduction to the Hoa aina and their rights. *Hawaiian Journal of History, 30*, 1–27.
McGregor, D.P. (2007). *Na Koa 'Aina: Living Hawaiian culture*. Honolulu, Hawaii: University of Hawaii Press.
Menzies, N.K. (2007). *Our forest, your ecosystem, their timber: Communities, conservation, and the state in community-based forest management*. New York: Columbia University Press.
Moore, R.L., & Graefe, A. (1994). Attachments to recreation settings: The case of rail-trail users. *Leisure Sciences, 16*(1), 17–31.
Moore, R.L., & Scott, D. (2003). Place attachment and context: Comparing a park and a trail within. *Forest Science, 49*(6), 877–884.
Morgan, M. (2009). Interpretation and place attachment: Implications for cognitive map theory. *Journal of Interpretation Research, 14*(1), 47–59.
Olsson, P., Folke, C., & Berkes, F. (2004). Adaptive co-management for building resilience in social-ecological systems. *Environmental Management, 34*(1), 75–90.
Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. New York: Cambridge University Press.
Ostrom, E. (2005). *Understanding institutional diversity*. Princeton, NJ: Princeton University Press.
Ostrom, E. (2009). Beyond markets and states: Polycentric governance of complex economic systems. Paper presented at the Nobel Prize Lecture, Stockholm.
Ostrom, E., & Cox, M. (2010). Moving beyond panaceas: A multi-tiered diagnostic approach for social-ecological analysis. *Environmental Conservation, 37*(4), 451–463.
Ostrom, E., Dietz, T., Dolsak, N., Stern, P.C., Stonich, S., & Weber, E.U. (Eds.). (2002). *The drama of the commons*. Washington, DC: National Academy Press.

Perkins, D.D., Brown, B.B., & Taylor, R.B. (1996). The ecology of empowerment: Predicting participation in community organizations. *Journal of Social Issues, 52*, 85–110.
Persha, L.A. Agrawal, & Chhatre, A. (2011). Social and ecological synergy: Local rulemaking, forest livelihoods, and biodiversity conservation. *Science, 331*, 1606–1608.
Poepoe, K.K., Bartram, P.K., & Friedlander, A.M. (2006). The use of traditional knowledge in the contemporary management of a Hawaiian community's marine resources. In N. Haggan, B. Neis, & I.G. Baird (Eds.), *Fishers' knowledge in fisheries science and management* (pp. 117–141). Paris: UNESCO.
Poteete, A.R., Janssen, M.A., & Ostrom, E. (2010). *Working together: Collective action, the commons and multiple methods in practice*. Princeton, NJ: Princeton University Press.
Ramkissoon, H., Smith, L., & Weiler, B. (2013). Relationships between place attachment, place satisfaction, and pro-environmental behavior in an Australian national park. *Journal of Sustainable Tourism, 21*(1): 454–457.
Scannell, L., & Gifford, R. (2010). The relations between natural and civic place attachment and pro-environmental behavior. *Journal of Environmental Psychology, 30*, 289–297.
Schusler, T., Decker, D., & Pfeffer, M.J. (2003). Social learning for collaborative natural resource management. *Society and Natural Resources, 15*, 309–326.
Scott, J.C. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. New Haven, CT: Yale University Press.
Stedman, R. (2003). Is it really just a social construction? The contribution of the physical environment to sense of place. *Society and Natural Resources, 16*, 671–685.
Stedman, R.C. (2006). Understanding place attachment among second home owners. *American Behavioral Scientist, 50*, 187–205.
Stedman, R.C., & Ardoin, N.M. (in press). Mobility, power, and scale in place-based environmental education. In M.E. Krasny, & J. Dillon (Eds.), *Trading zones in environmental education: Creating transdisciplinary dialogue*. New York: Peter Lang.
Stepath, C.M. (2006). *Kee Lagoon and reef flat user's baseline study*. Unpublished report for Save Our Seas. Retrieved from http://www.docstoc.com/docs/48718264/DRAFT-Kee-Lagoon-and-Reef-Flat
Stokols, D., & Shumaker, S.A. (1981). People in places: A transactional view of settings. In J.H. Harvey (Ed.), *Cognition, social behavior, and the environment* (pp. 441–488). Hillsdale, NJ: L. Erlbaum.
Theodori, G.L., & Luloff, A.E. (2000). Urbanization and community attachment in rural areas. *Society and Natural Resources, 13*(5), 399–420.
Tuan, Y. (1977). *Space and place: The perspective of experience*. London: Edward Arnold.
U.S. Census Bureau. (2010). Demographic profile, Hawaii, Haena CDP. Retrieved from http://www.census.gov/popfinder/?s = 15
Vaske, J.J., & Kobrin, K.C. (2001). Place attachment and environmentally responsible behavior. *Journal of Environmental Education, 32*(4), 16–21.
Vaughan, M.B., & Caldwell, M. (in press). *Challenges and lessons for early phases of comanagement*.
Vaughan, M.B., & Thompson, B. (in press). *Integrating informal local norms of coastal management into state law*.
Vaughan, M.B., & Vitousek, P. (2013). Mahele: Sustaining communities through small-scale inshore fishery catch and sharing networks. *Pacific Science, 67*(3).
Verdery, K. (2003). *The vanishing hectare*. Ithaca, NY: Cornell University Press.
Vorkinn, M., & Riese, H. (2001). Environmental concern in a local context: The significance of place attachment. *Environment and Behavior, 33*(2), 249–263.
Williams, D.R., Patterson, M.E., Roggenbuck, J.W., & Watson, A.E. (1992). Beyond the commodity metaphor: Examining emotional and symbolic attachment to place. *Leisure Sciences, 14*, 29–46.
Williams, D.R., & Vaske, J.J. (2003). The measurement of place attachment: Validity and generalizability of a psychometric approach. *Forest Science, 49*(6), 830–840.