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Congruence Among Encounters, Norms, Crowding, and Management in a Marine Protected Area

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Abstract Over the past few decades, recreation and tourism use has increased at many marine protected areas, generating concerns about impacts of this increasing use on experiences and conditions at these areas (e.g., crowding, conflict). This article uses data from Molokini Shoal Marine Life Conservation District in Hawai'i to examine: (a) reported encounters, crowding, normative tolerances for various use levels, and support of use related management strategies at this site; and (b) whether users who encounter higher use levels than their norms feel more crowded and are more supportive of restrictive management strategies. Data were obtained from onsite pre-trip and post-trip questionnaires of 712 passengers on commercial snorkel and dive tours visiting this site. Norms were measured with acceptance of 12 photographs depicting levels of boat use. On average, users would accept seeing no more than approximately 16 boats at one time at Molokini and this number was observed on over 20% of trips to the site. Although the majority of users expected to escape crowds at Molokini, 67% felt crowded and up to 79% supported actions that would directly restrict use at this site (e.g., limit number of boats). Users who encountered more boats than their normative tolerance felt more crowded and were more supportive of these management strategies. Findings suggest that this marine protected area is operating over its capacity and management is needed to improve experiences and conditions.

Keywords Encounters · Norms · Crowding · Management · Marine recreation and tourism

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Introduction

Tropical coastal and marine areas are popular for recreation and tourism activities, and several of these areas that draw people from around the world are marine protected areas (MPAs) where visitation is increasing. The number of people visiting Australia's Great Barrier Reef Marine Park, for example, increased almost tenfold between the early 1980s and end of the 1990s (Inglis and others 1999), and popular MPAs in Hawai'i receive up to 1.75 million visitors per year (e.g., Hanauma Bay; Friedlander and others 2005). This visitation can impact the health of ecosystems (e.g., coral trampling, pollution) and quality of user experiences (e.g., conflict, crowding).

Environmental impacts of marine activities such as scuba diving and snorkeling have been documented extensively (e.g., Kay and Liddle 1989; Hawkins and others 1999; Tratalos and Austin 2001; Barker and Roberts 2004; Dinsdale and Harriott 2004; Lynch and others 2004). Zakai and Chadwick-Furman (2002), for example, found that a use level of 30,000 scuba divers caused extensive coral damage at a site in the Red Sea, and this activity also altered coral species composition at sites in the Caribbean (Hawkins and others 1999). Studies in Hawai'i documented the complete loss of all corals at a dive site averaging more than one person entering the water per minute over an eight month period (Rodgers and Cox 2003).

These types of activities can also have social impacts because people behave in ways that can be viewed as unacceptable by other users. Social impacts include noise (Freimund and others 2002), conflict among activity groups (Graefe and Thapa 2004), and crowding (Manning and others 2000; Vaske and Donnelly 2002; Vaske and Shelby 2008). In tropical marine settings, a few studies have examined concepts such as perceptions of crowding and tolerances for encounters with groups such as snorkelers and scuba divers (Inglis and others 1999; Shafer and Inglis 2000; Roman and others 2007; Lankford and others 2008; Szuster and others 2011).

Research has shown, however, that to understand and manage social impacts of use, it is necessary to identify relationships among the number of people or other objects (e.g., boats, vehicles) that users encounter, degree to which these users feel crowded, and their normative evaluations of conditions (e.g., use levels, encounters) that they feel are acceptable and unacceptable (Shelby and Heberlein 1986; Manning 1999; Vaske and Donnelly 2002). These concepts have typically been studied individually and in isolation in marine areas; less is known about relationships among encounters, norms, and crowding in marine areas, and how these factors influence support or opposition toward management strategies designed to deal with use related impacts. This article addresses these knowledge gaps and focuses on congruence among encounters, norms, crowding, and management at a high use marine protected area in Hawai'i.

Conceptual Foundation

Encounters, Crowding, and Norms

The concepts of encounters, crowding, and norms have received considerable attention in the recreation and tourism literature (see Manning 1999, 2007 for reviews). *Reported encounters* are subjective counts of the number of other people or objects that individuals remember observing in a setting (Vaske and Donnelly 2002). *Perceived crowding* is a subjective negative evaluation that this number of encounters is too many (Vaske and others 1986, 1993). Many studies have examined encounters and crowding in recreation and tourism settings (see Manning and others 1999; Vaske and Donnelly 2002; Manning 2007; Vaske and Shelby 2008 for reviews), and these concepts have also been investigated in tropical coastal and marine areas (Inglis and others 1999; Shafer and Inglis 2000; Lynch and others 2004; Roman and others 2007; Lankford and others 2008; Szuster and others 2011). Understanding reported encounters and perceptions of crowding, however, may not reveal maximum acceptable levels of use or an understanding of how this use should be managed. *Norms* offer a theoretical and applied basis to address these issues. One line of research defines norms as standards that individuals use for evaluating activities, conditions, or environments as good or bad, better or worse (Shelby and others 1996). Norms clarify what people believe conditions should or should not be in a given context. Research suggests that when users perceive a setting as crowded, they have compared conditions that they experienced (e.g., number of encounters) with their normative evaluations of what they feel are acceptable or unacceptable use levels and related conditions for the setting (Vaske and Donnelly 2002).

Norms provide a basis for measuring indicators and formulating standards of quality (Manning 1999). Indicators (e.g., encounters) are social, resource, or managerial variables that define quality settings and experiences (Shelby and others 1996), and can be measured to formulate standards of quality or points where indicator conditions become unacceptable (e.g., no more than 50 people should be encountered per day; Manning and others 2002a). Indicators can be monitored to ensure that standards are maintained and management actions may be necessary if these standards are violated. This approach is central to planning and management frameworks such as limits of acceptable change (LAC; Stankey and others 1985), visitor impact management (VIM; Graefe and others 1990), and visitor experience and resource protection (VERP; Manning 2001). In these frameworks, the traditional carrying capacity question of "how much use or impact is too much" is redefined as "how much use or impact is acceptable or should be allowed?" This focuses attention on desirable conditions rather than just the amount of use and its impact, and basing decisions on how much and what kinds of impact are acceptable and unacceptable can allow managers to better address their clientele's needs and wants.

A simplified example may help to illustrate. The provision of opportunities for solitude is a management goal in many recreation and tourism settings. This goal, however, may be too general to guide management since it does not specify what constitutes solitude and how it should be measured. Indicators and standards of quality may help to resolve these issues. Questionnaires or interviews with users may show that the number of encounters with other people is an important aspect of solitude, suggesting that it may be an important indicator. Normative research may reveal that once most users encounter 10 or more people in an area, they feel crowded and do not achieve an acceptable level of solitude. This suggests that encounters with 10 or more people may be an appropriate standard for the area (Manning 2007).

Most of the normative work in recreation and tourism is based on Jackson's (1965) model that describes norms as

evaluative standards using a graph called a social norm curve (Manning and others 1999) or an impact acceptability curve (Vaske and others 1986). Measurement of a social norm is derived from averages of evaluations provided by individuals in a population. This graph represents the amount of indicator change increasing from left to right along the horizontal axis (Fig. 1). The vertical axis represents evaluative responses often with the most positive evaluation at the top of the axis, most negative on the bottom, and a neutral category in between. The majority of studies have used acceptance as the evaluative response (see Manning and others 1999 for evaluations used in studies). These curves can be analyzed for various structural characteristics including the minimum acceptable condition, intensity/salience or importance of the indicator, and crystallization or degree of consensus about the norm.

The *minimum acceptable condition* is the point where the norm curve crosses the neutral line and indicator conditions become unacceptable, and usually represents a condition that 50% of respondents feel is acceptable and 50% feel is unacceptable. In several studies (see Vaske and others 1993; Shelby and others 1996; Manning 1999, 2007 for reviews), this point represented the standard for the measured indicator. *Norm intensity* or *salience* reveals the importance of the indicator to respondents and is often the relative distance from the neutral line at each point on the curve, independent of the direction of the evaluation (e.g., acceptable, unacceptable; Shelby and Vaske 1991). Intensity can be measured as the sum of these distances across all points on the curve (Shelby and Heberlein 1986; Vaske and others 1986); the greater the cumulative distance from the neutral line, the higher the intensity. A flat curve close to the neutral line suggests that the indicator is not important and few people will be upset if a standard is violated, whereas a curve that declines sharply and remains negative implies that the indicator is important and more people may be concerned (Shelby and others 1996; Freimund and others 2002). *Crystallization* is a measure of normative agreement or consensus among respondents for indicator conditions. In several studies, this has been measured as the average of the standard deviations (i.e., interval around mean containing the majority or 68% of responses) for all points comprising the curve (Shelby and others 1996). If crystallization is high (i.e., small standard deviation), managers may have confidence in using normative data to help formulate standards of quality.

The normative approach has been used in many studies to understand encounter norms, or the maximum number of people that users will accept seeing (see Donnelly and others 2000; Manning 1999; Shelby and others 1996; Vaske and others 1986, 1993 for reviews). Most studies have been conducted in terrestrial parks and protected areas, although there have been some applications of this concept in tropical marine settings. Inglis and others (1999), for example, examined snorkeler norms and found that seeing 14 snorkelers from above the water and six in the water were thresholds where conditions became unacceptable and management attention was needed.

Research has also shown that when encounters exceed an individual's norm for seeing others, perceived crowding is higher compared to those who encounter less than their norm. A comparative analysis of 13 studies involving over 10,000 recreationists and tourists, for example, demonstrated that when people reported fewer encounters than their norm, they felt not at all crowded, whereas those who reported more than their norm felt slightly to moderately crowded (Vaske and Donnelly 2002). This pattern was evident and statistically significant in all 13 studies, suggests that encounters, norms, and crowding are linked, and illustrates the concept of *norm congruence* where respondents judge conditions as less acceptable when they experience conditions that violate their norms (Manning and others 1996a; Needham and others 2004).

Direct and Indirect Management

Although these studies reported percentages of users who encountered more than their normative tolerances and

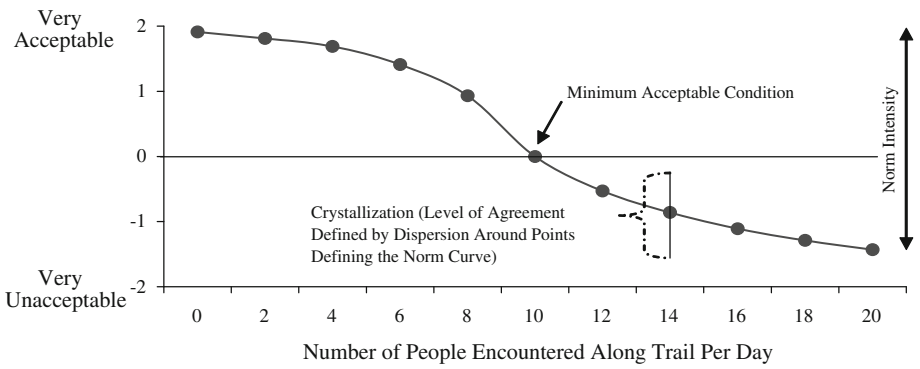

Fig. 1 Hypothetical social norm curve (modified from Manning and others 1999)

showed that these individuals often felt more crowded than those who encountered less than their norm (see Vaske and Donnelly 2002; Needham and others 2004; Vaske and Shelby 2008 for reviews), they seldom included follow-up questions asking how respondents believed these use related issues should be addressed. Manning and others (2002b) and other studies (see Manning 2007 for a review) have included questions asking users how managers could improve the experience and how much impact users might tolerate before managers should implement actions that reduce use levels, but responses have seldom been linked directly to relationships among encounters, crowding, and norms. In most cases, researchers who have found situations where a majority of users encountered more than they would tolerate (i.e., their norm) have simply suggested that management attention is necessary and advocated consideration of approaches such as reservation systems, quotas, fees, or zoning to address overuse and minimize crowding (see Manning 1999; Needham and Rollins 2009 for reviews). It is possible, however, that a majority of users could encounter more than their normative tolerance and feel crowded, but not support these types of management strategies because they would directly restrict use. This article helps to address this knowledge gap.

Recreation and tourism management can be categorized into two general approaches. First, direct management strategies act directly on user behavior leaving little or no freedom of choice. Second, indirect strategies attempt to influence decision factors on which users base their behavior (Manning 1999). To illustrate, direct practices aimed at reducing litter in a coastal area could include a regulation prohibiting littering and then enforcing this policy with fines or other sanctions. An indirect practice could be an education program informing users of undesirable environmental and aesthetic impacts of litter, and encouraging them to stop littering. Additional direct actions include quotas and other methods for limiting use such as zoning, user fees, and prohibiting certain activities. Other indirect strategies include voluntary guidelines and facility upgrades and maintenance (e.g., trash cans, boardwalks; Needham and Szuster 2011).

Questioning users about their support or opposition of direct and indirect strategies for managing use can be beneficial for researchers and managers because it can take the guesswork out of interpreting actions that may and may not be within public tolerance limits (Needham and Szuster 2011). Users who feel that the number of encounters with others is unacceptable, for example, may still oppose restrictions on use. As a result, managers may decide to implement alternative strategies that may be more strongly supported, such as redistributing use to other areas or time periods (e.g., spatial, temporal zoning). In this way, managers are able to consider strategies that are supported by a majority of users and avoid actions that are controversial or strongly opposed while still attempting to mitigate problems of overuse and crowding.

Objectives and Hypotheses

This article builds on this body of research and uses data from Molokini Shoal Marine Life Conservation District (MLCD) in Hawai'i to address three objectives. The first objective is to describe users' reported encounters, norms, and crowding associated with the number of boats at Molokini. The second objective is to compare these reported encounters with the actual number of boats visiting this area. The third objective is to test two hypotheses:

H_1 Users who encounter more boats at Molokini than their norm will feel more crowded at this site than those who encounter less than their norm.

H_2 Users who encounter more boats at Molokini than their norm will be more supportive of possible direct management actions designed to address use levels at this site than those who encounter less than their norm.

Methods

Study Site

Molokini Shoal MLCD is a small offshore islet located off the south coast of the island of Maui, Hawai'i and its crescent shape provides a semi-enclosed area of relatively calm water boasting 48,571 m^2 of coral reef, more than 20 species of fish, and larger marine life such as sharks and rays (Friedlander and others 2005). Molokini receives little rainfall, which also contributes to excellent underwater visibility. This islet is accessed only by boat most often with a commercial tour operator, and its proximity to Maui enables most people to reach it in less than one hour.

Examining encounters and norms at Molokini is relevant for several reasons. This site is visited by approximately 400,000 snorkelers and scuba divers annually, making it the second most heavily visited marine protected area in Hawai'i (Friedlander and others 2005). The state's economic benefits from these activities at Molokini average approximately $20 million annually (Friedlander and others 2005). Over 40 tour boats have permits to operate at this site, ranging from small dive boats that are typically less than 30 feet in length and carry fewer than 15 scuba divers, to much larger boats of 50 feet or more in length and carrying up to 150 snorkelers. There are 26 moorings for boats visiting Molokini, which are intended to prevent boats from anchoring and damaging the site. Most boats

visit Molokini in the morning for a few hours and abandon the site by the early afternoon because wind and ocean conditions often degrade later in the day.

Data Collection

Data collection began with three focus group meetings that were conducted with commercial tour operators, community and environmental interest groups (e.g., boating clubs, conservation organizations), and representatives of agencies managing Molokini. Participants were asked to describe existing conditions and prioritize important indicators for this site. Findings from these focus groups showed that the level of human use, crowding, and visitation at Molokini were among the most common themes and frequently mentioned concerns. Responses from these focus groups were then used to inform the creation of pre-trip and post-trip passenger questionnaires that were administered onsite to people visiting Molokini on tour boats during both potentially higher use (spring break March 2009) and lower use (late April 2009) periods.[1]

To increase the probability of achieving a representative sample of users, sampling occurred on both large and smaller tour boats visiting the site, during high and lower use times, and from multiple harbors and boat ramps. Questionnaires were administered on six tour boats operating out of the three harbors from which tour boats depart for Molokini. Most boats operate from Ma'alaea harbor, where questionnaires were administered on two large boats carrying snorkelers and two smaller boats focusing predominantly on scuba divers. Questionnaires were also conducted on one smaller tour boat carrying scuba divers operating out of Lahaina harbor, and one small tour boat carrying divers from Kihei boat ramp. Boats were chosen to provide a representative cross-section of the types of tour boats visiting the site and researchers attempted to sample as many passengers as possible on 28 trips to the site that were selected for sampling. Pre-trip questionnaires were completed on the dock prior to leaving for Molokini and post-trip questionnaires were completed on the boat by the same individuals immediately after their visit.

In total, 712 pre-trip and 439 post-trip questionnaires were completed (95% response rate). These sample sizes are large enough to ensure a margin of error of $\pm$ 4.7% at the 95% confidence level (Vaske 2008). The discrepancy between numbers of pre-trip and post-trip questionnaires was mainly a result of unfavorable ocean conditions that cancelled several trips to Molokini after the pre-trip questionnaires were already completed by users. Most questions about encounters, crowding, norms, and management analyzed in this article were in the post-trip instrument because people needed to visit the site before providing informed responses. User expectations about crowding conditions, however, were based on pre-trip responses. About 85% of questionnaires were completed on large boats and 15% on smaller boats, which is relatively proportionate to the distribution of use at Molokini (Markrich 2004).

Analysis Variables

Encounter Norms. Most studies have measured encounters, crowding, and norms relative to the number of people at a given site. This study, however, focused on boats because it is extremely difficult to measure crowding and encounters with people at Molokini due to the size of the site and that most people are not visible because they are underwater, on covered boats, or cannot be seen in the water since the line of sight is often blocked by waves or other boats. Encounter norms were measured using image capture technology (ICT), which involves using software to manipulate photographs and create unique scenarios. ICT has become a popular method for depicting indicator impacts associated with recreation and tourism use (see Manning and others 1996b; Manning and Freimund 2004; Manning 2007 for reviews). Users rate their normative acceptance of photographs depicting indicator impacts (e.g., encounters) varied from low to high, and these acceptance ratings can then be plotted on norm curves to reveal minimum acceptable conditions, norm intensity or salience, and crystallization. Visuals provide a realistic and cognitively easier assessment of encounter related indicators, as they allow users to see what conditions would look like (Needham and others 2004). This is especially important in high use areas where it may be challenging for respondents to ascertain from written descriptions of conditions what would be acceptable and unacceptable (Hall and Roggenbuck 2002). There are, however, disadvantages of this approach (e.g., time consuming, increases burden, snapshots of static conditions at one time; see Manning 2007 for a review of advantages and disadvantages).

Two dimensions, number of boats and size of boats, were used to measure encounter norms with 12 different photographs representing scenarios of encounters with boats anchored at Molokini (Fig. 2). The number of boats was depicted using four different levels: 6, 12, 26, and 42 boats. These numbers of boats were chosen because there are currently 26 moorings at Molokini, 42 coincides with

[1] Although there is some variation in visitation to Molokini during the year, use trends show that it is marginal (Hawai'i DBEDT 2002; Markrich 2004; Friedlander and others 2005). In addition, this article focuses on evaluations of the number of tour boats at the site and although the number of people on these boats can vary during the year, the number of boats remains relatively stable. Ancillary analysis also showed that user evaluations of boats did not statistically differ between potentially higher and lower visitation periods ($P > 0.05$).

the number of tour boat permits currently allocated by the state to operate at Molokini, and 12 and 6 were approximately half of 26 and 12, respectively. The size of boats was depicted using three levels based on the proportion of small and large boats: 100% small boats, 100% large boats, and 50% small and 50% large boats. This represents a full factorial design (i.e., 4 levels for number of boats * 3 proportions of boat size = 12 scenarios).

Using Adobe Photoshop software, the photographs containing 26 boats were created first by placing the actual GPS coordinates of current mooring sites at Molokini on the background image and then placing boats on these coordinates. This background image shows Molokini from an aerial perspective at a 25 degree angle above sea level, which was necessary because line of sight is impeded closer to sea level and many boats would not be visible if a lower angle or different perspective was used. Although this approach may not represent the exact perspective from onboard boats in the water, it asks users to take the more global or site perspective that managers typically take when using this type of carrying capacity information or remote sensing and geographic information system data to establish management standards for a site (Kuentzel and Heberlein 2003). This aerial perspective is also similar to approaches used in some other studies (e.g., Inglis and others 1999; Manning and others 2002a). For images depicting 42 boats, boats were added in spaces between those in the original 26 boat picture in locations where additional moorings may be placed. Photographs of six and 12 boats were created by randomly removing boats from the 26 boat image, ensuring that boats remained on the mooring locations.

Size of boat was manipulated by using actual photographs of both large and small boats taken at Molokini from the same or similar vantage point and then populating each photograph with these boats. To ensure that it was easy to distinguish large from small boats, large boats were increased by 50% in size. Although this has the potential to slightly inflate the importance of the boat size dimension and influence normative evaluations of large boats, it was necessary to ensure that respondents were able to distinguish between small and large boats. Slightly altering these characteristics of people or objects in photographs and the perspective of background images is common practice for cueing respondents to indicator impacts and improving accuracy of normative evaluations (e.g., Basman and others 1996; Freimund and others 2002; Manning and Freimund 2004). Research has also shown that these types of minor alterations typically do not substantively change evaluations (e.g., Inglis and others 1999; Manning and others 2002a). The visual approaches used in this study are virtually identical to those used in numerous studies that have rigorously tested validity and reliability of visual methods for measuring normative evaluations of indicator conditions (see Freimund and others 2002; Hall and Roggenbuck 2002; Manning and others 2002a; Manning and Freimund 2004; Manning 2007 for reviews).

The encounter scenario in each photograph is listed in Table 1 and respondents evaluated these scenarios on the common 9-point recoded scale of −4 "very unacceptable" to +4 "very acceptable." Given that encounters, by definition, refer to the number of people or other objects encountered and that the size of boat dimension did not substantively influence norms (partial $eta^2 = 0.03$ or "minimal" [Vaske 2008]), analyses in this article focused on the number of boats.

Reported Encounters. Respondents were asked to specify which one of the 12 photographs most accurately represented conditions that they encountered most often during their visit on the day they were surveyed. This approach for measuring encounters is identical to past studies (e.g., Needham and others 2004; Vaske and Donnelly 2002). In addition, researchers counted the actual

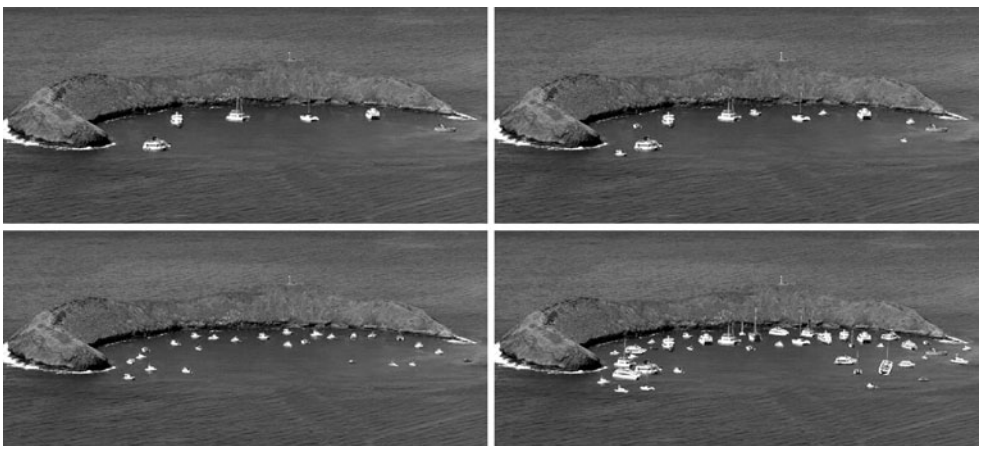

Fig. 2 Sample photographs used for measuring encounter norms at Molokini, Hawai'i

Table 1 Full factorial design for photographs depicting encounter norm scenarios[a]

Photograph/scenario	Number of boats	Size of boats
1	12 boats	50% small, 50% large
2	12 boats	100% small
3	6 boats	100% small
4	42 boats	100% large
5	26 boats	100% large
6	26 boats	50% small, 50% large
7	12 boats	100% large
8	6 boats	50% small, 50% large
9	6 boats	100% large
10	42 boats	50% small, 50% large
11	26 boats	100% small
12	42 boats	100% small

[a] The "number of boats" factor had four levels: 6, 12, 26, 42 boats. The "size of boat" factor had three levels: 100% small, 100% large, 50% small and 50% large. Respondents rated their norms for each image on 9-point recoded scales of −4 "very unacceptable" to +4 "very acceptable."

number of boats at Molokini during the trips on which users were surveyed.

Perceived Crowding. Crowding in response to boats was measured by asking users how crowded they felt by the number of boats at Molokini on the day that they were surveyed, and recording responses on the 9-point perceived crowding scale of 1 "not at all crowded" to 9 "extremely crowded." This scale has been used extensively and tested rigorously in past studies (see Shelby and others 1989; Vaske and Donnelly 2002; Vaske and Shelby 2008 for reviews). User expectations associated with crowding were also examined by asking in the pre-trip questionnaire if they agreed or disagreed that they were expecting to escape crowds at Molokini.

Management Strategies. Respondents were asked their level of support or opposition to four direct strategies for addressing use related encounters and crowding at Molokini: (a) limit the number of boats allowed, (b) limit the number of people allowed, (c) restrict the size of boats allowed, and (d) close Molokini to all recreation and tourism activities. Respondents evaluated each strategy on 5-point scales of 1 "strongly oppose" to 5 "strongly support."

Results

In total, 52% of respondents were female and 48% were male, although the smaller dive boats had a higher proportion of males (61%) and the larger snorkel boats had slightly more females (57%), $\chi^2 = 9.61$, $P = 0.002$. The phi effect size, however, was $\phi = 0.15$ and guidelines from Cohen (1988) and Vaske (2008) suggest that the strength of this difference can be characterized as "small" or "minimal," respectively. The average age of respondents was 40 years old and there was no significant difference in age between those on large ($M = 40.8$) and smaller boats ($M = 38.9$), $t = 1.23$, $P = 0.218$, $r_{pb} = 0.06$. Most respondents (81%) were visiting Molokini for the first time and only 19% were repeat visitors, although the smaller dive boats had a higher proportion of repeat visitors (41%) than the larger snorkel boats (15%), $\chi^2 = 33.18$, $P < 0.001$, $\phi = 0.23$.[2]

The majority of respondents (52%) expected to escape crowds at Molokini. Compared to those on larger snorkel boats (50%), slightly more people on the smaller boats (61%) expected to escape crowds and this difference was statistically significant, but the effect sizes suggested that this difference was "minimal," $\chi^2 = 4.56$, $P = 0.033$, $\phi = 0.08$ (Vaske 2008). Escaping crowds, therefore, was an important pre-trip expectation for the majority of people visiting Molokini.

Encounters with boats at the site are shown in Table 2. Overall, 63% of respondents reported that the photograph of six boats represented what they experienced most often and 36% reported encountering approximately 12 boats. The average number of boats seen by users was 8.49 and although those on small boats reported seeing significantly more boats (9.25) than those on larger boats (8.26), this difference was "minimal," $t = 2.06$, $P = 0.041$, $r_{pb} = 0.11$ (Vaske 2008). However, counts by trained researchers of the actual number of boats at Molokini during the trips on which users completed the questionnaires showed that the average number of boats was actually 11.63 (Table 2). There was no significant difference in counts made by researchers on small versus larger boats, $t = 0.68$, $P = 0.501$, $r_{pb} = 0.14$. This suggests that users underestimated the actual number of boats present at Molokini when reporting their encounters because respondents reported an average of three fewer boats per trip than researchers actually counted at the site.

In total, 67% of respondents felt crowded at Molokini, with most of these users feeling slightly or moderately crowded (Table 2). There was no statistical difference between larger snorkel boats (65%) versus those on small

[2] Some studies have shown that first time visitors report lower levels of crowding and other use related evaluations because they accept what they see as normal, whereas repeat visitors evaluate conditions based on their previous visits. This is known as the "uninitiated newcomer hypothesis" (see Manning 1999 for a review). Ancillary analysis of visitors on large snorkel boats and smaller dive boats, however, showed that there were no statistical differences between first time and repeat visitors to Molokini in their encounters, norms, crowding, and opinions of management ($P > 0.05$).

Table 2 Encounters, observations, norms, crowding, and support of management at Molokini, Hawai'i[a]

	Large boats (Snorkel)	Small boats (Scuba dive)	Total	χ^2 or t value	P value	Effect size (ϕ or r_{pb})
Reported encounters				7.39	0.060	0.14
6 boats	66	53	63			
12 boats	33	44	36			
26 boats	1	3	1			
42 boats	0	0	0			
Average boats	8.26	9.25	8.49	2.06	0.041	0.11
Researcher observations				1.40	0.705	0.23
1 to 6 boats	14	20	17			
7 to 12 boats	29	30	29			
13 to 14 boats	29	40	33			
15 or more boats	29	10	21			
Average boats	12.07	11.00	11.63	0.68	0.501	0.14
Perceived crowding						
Not at all crowded	35	29	33			
Slightly crowded	34	24	31			
Moderately crowded	28	35	29			
Extremely crowded	4	12	6			
Total percent crowded	65	71	67	1.03	0.311	0.05
Average crowding	3.63	4.31	3.80	2.62	0.010	0.14
Encounter norms						
Min. acceptable condition[b]	16.15	15.38	15.96	1.06	0.291	0.06
Norm intensity (max. = 16)	8.74	8.91	8.79	0.36	0.579	0.03
Norm crystallization[c]	1.73	1.45	1.67	2.11[d]	0.273	
Attitudes toward management						
Limit number of boats	82	70	79	5.87	0.015	0.13
Limit number people	75	65	73	3.52	0.061	0.10
Restrict size of boats	66	65	66	0.01	0.782	0.01
Close site	9	10	9	0.02	0.889	0.01

[a] Cell entries are percentages (%) unless specified as averages (means)

[b] Cell entries are mean number of boats

[c] Cell entries are the average standard deviations of the points comprising each norm curve

[d] F value for Levene's test for homogeneity

dive boats (71%) in the percent who felt crowded (3-9 on scale), $\chi^2 = 1.03$, $P = 0.311$, $\phi = 0.05$. There was, however, a significant difference in the average amount of perceived crowding between the large ($M = 3.63$) and small ($M = 4.31$) boats, but these means suggest that users on both types of boats felt slightly to moderately crowded and the effect size showed that these differences were "minimal," $t = 2.62$, $P = 0.010$, $r_{pb} = 0.14$ (Vaske 2008). When 65% to 80% of users perceive a site as crowded, it is considered to be overcapacity and management attention is required (Shelby and others 1989; Vaske and Shelby 2008).

The mean social norm curve for number of boats is shown in Fig. 3 and described in Table 2. The "minimum acceptable condition" (i.e., point where curve crosses neutral point) for all users taken together was 15.96 (i.e., 16) boats and this number is being exceeded at Molokini over 20% of the time (Table 2). There was no statistically significant difference in encounter norms between users on larger snorkel boats ($M = 16.2$) and those on smaller dive boats ($M = 15.4$), $t = 1.06$, $P = 0.291$, $r_{pb} = 0.06$. This suggests that the majority of users would not tolerate encountering more than 15 or 16 boats at any one time at Molokini. "Norm intensity/salience," or the importance of this indicator to respondents, was reasonably high (8.79, maximum = 16), did not differ between those on large versus smaller boats, and suggests that the number of boats is an important indicator at Molokini, $t = 0.36$, $P = 0.579$, $r_{pb} = 0.03$. "Norm crystallization" is the amount of consensus about acceptable and unacceptable conditions, and

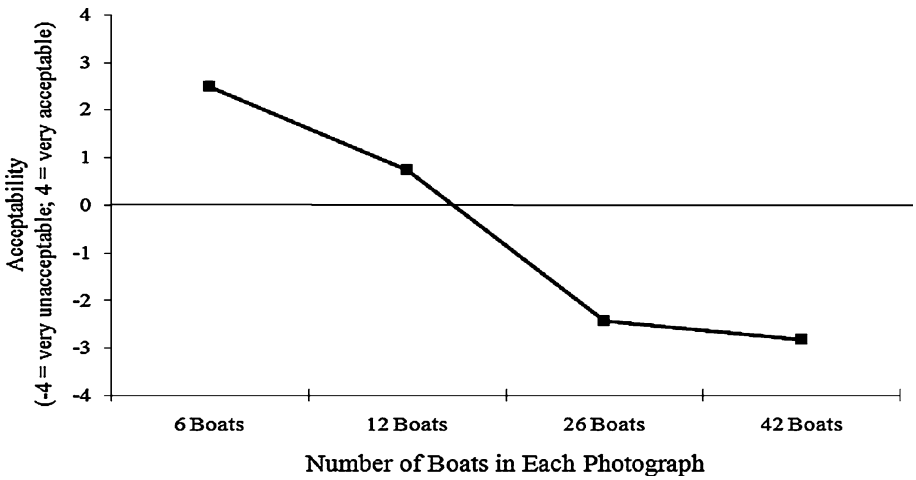

Fig. 3 Norm curve for number of boats at Molokini, Hawai'i. *Note*: Minimum acceptable condition = 15.96 boats (16.15 for those on large boats, 15.38 on smaller boats)

was high as shown by the relatively small standard deviations (large boats $SD = 1.73$, smaller boats $SD = 1.45$). The Levene's test for homogeneity did not reveal any significant differences in crystallization between respondents visiting Molokini on small versus larger boats, $F = 2.11$, $P = 0.273$.

Respondents supported most of the possible management strategies for addressing use related issues at Molokini. Limiting the number of boats was most strongly supported (79%), followed by limiting the number of people (73%) and restricting the size of boats (66%; Table 2). These results imply that users felt that use levels were exceeding the site's capacity and were supportive of direct and restrictive actions to address this issue. Only a few users (9%) supported closing the site to all activities. There were no statistical differences between users on large boats versus small boats ($P > 0.05$), except for limiting the number of boats, $\chi^2 = 0.01$ to 5.87, $P = 0.015$ to 0.889. Effect sizes ($\phi = 0.01$ to 0.13) were also "small" (Cohen 1988) or "minimal" (Vaske 2008).

Relationships among encounters, norms, and crowding at Molokini are shown in Table 3. Only 9% of users encountered more boats than their maximum tolerance (i.e., norm) and 91% encountered fewer than their norm. Compared to those on larger boats (6%), a higher number of users on small boats (17%) encountered more than their norm. Crowding scores were higher for respondents who reported more encounters than their norm ($M = 6.32$) compared to those who encountered less than their norm ($M = 3.51$), $t = 7.15$, $P < 0.001$. This pattern occurred on both large and small boats, and the point-biserial correlation effect sizes of $r_{pb} = 0.34$ to 0.39 suggest that the strength of relationships among encounters, norms, and crowding were "large" (Cohen 1988) or "substantial" (Vaske 2008). Consistent with previous studies (Needham and others 2004; Vaske and Donnelly 2002), these results support the first hypothesis and show that crowding was highest for users who encountered more than their norm. Those who encountered less than their norm, however, still felt crowded and only 9% encountered more than their norm, suggesting that the number of boats may not be the only indicator influencing crowding at Molokini.

Relationships among researcher observations and user norms and crowding are shown in Table 4. In total, researcher counts of the number of boats at Molokini were higher than norms for 26% of respondents, and encounter norms for 74% of users were less than the number of boats counted by researchers. Crowding scores were significantly higher for

Table 3 Relationships among reported encounters, norms, and crowding at Molokini, Hawai'i

	Reported encounters compared to norm[a]		Mean crowding scores[b]		*t* value	*P* value	Effect size (r_{pb})
	Fewer than norm	More than norm	Fewer than norm	More than norm			
Large boats	94	6	3.34	6.14	5.37	<0.001	0.34
Smaller boats	83	17	4.05	6.46	3.61	<0.001	0.39
Total	91	9	3.51	6.32	7.15	<0.001	0.38

[a] Percent of visitors who encountered either fewer boats or more boats than their norm

[b] Mean crowding scores based on 9-point scale from 1 "not at all crowded" to 9 "extremely crowded"

Table 4 Relationships among researcher observations and visitor norms and crowding at Molokini, Hawai'i

	Researcher observation compared to norm[a]		Mean crowding scores[b]		t value	P value	Effect size (r_{pb})
	Fewer than norm	More than norm	Fewer than norm	More than norm			
Large boats	76	24	3.33	4.13	2.26	0.027	0.17
Smaller boats	69	31	3.92	5.70	3.18	0.002	0.35
Total	74	26	3.47	4.64	3.87	< 0.001	0.24

[a] Percent of visitors whose norms for boats were fewer or more than actually observed by researchers

[b] Mean crowding scores based on 9-point scale from 1 "not at all crowded" to 9 "extremely crowded."

users whose norms were more restrictive than the actual number of boats counted, $t = 3.87$, $P < 0.001$, $r_{pb} = 0.24$.

There were significant positive correlations between users' perceptions of crowding at Molokini and their support for limiting the numbers of boats and people, and restricting the size of boats at this site; those who felt more crowded were more supportive of these restrictive management strategies (Table 5). There were also positive correlations between perceived crowding and support for closing Molokini to all recreation and tourism activities, but these were not statistically significant. Relationships between crowding and support for each management action were slightly stronger for users on smaller dive boats than those on large snorkel boats.

Relationships among encounters, norms, and support for management strategies at Molokini are shown in Table 6. Respondents who encountered more than their norm were significantly more supportive of these direct and restrictive management strategies. Users on smaller dive boats who encountered more boats than their norm, for example, were more supportive of limiting the number of boats at Molokini ($M = 4.38$) than those who encountered less than their norm ($M = 3.84$), $t = 2.17$, $P = 0.034$, $r_{pb} = 0.25$. This pattern was evident for all management strategies. The point-biserial correlation effect sizes (r_{pb}) of 0.05 to 0.28 indicate that the strength of relationships among encounters, norms, and support for these management strategies can be characterized as "small or minimal" to "medium or typical" (Cohen 1988; Vaske 2008). These findings support the second hypothesis; users who encountered more boats at Molokini than their norm were more supportive of direct management strategies designed to address use levels than those who encountered fewer boats than their norm at this site.

Relationships among researcher observations and user norms and support for these strategies are shown in Table 7. Similar to findings in Table 6, there was more support for each strategy among respondents whose norms were more restrictive than the actual number of boats present at the site. Overall support for limiting the number of people at Molokini, for example, was significantly higher for users whose norms were exceeded by the number of boats observed at the site ($M = 4.13$) than those whose norms were not exceeded ($M = 3.75$), $t = 3.61$, $P < 0.001$, $r_{pb} = 0.21$. This pattern occurred for all strategies. The effect sizes of $r_{pb} = 0.02$ to 0.33 show that the strength of relationships among researcher observations and user norms and support for these strategies was "small to medium" or "minimal to typical" (Cohen 1988; Vaske 2008).

Table 5 Correlations among perceived crowding and support of management actions at Molokini, Hawai'i

Management actions[b]	Perceived crowding[a]		
	Large boats	Smaller boats	Total
Limit number of boats	0.108*	0.268**	0.138**
Limit number of people	0.164**	0.347***	0.206***
Restrict size of boats	0.113*	0.229*	0.144**
Close site	0.069	0.037	0.041

[a] Perceived crowding measured on 9-point scale from 1 "not at all crowded" to 9 "extremely crowded."

[b] Support for each strategy measured on 5-point scale from 1 "strongly oppose" to 5 "strongly support."

*** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$. Pearson r correlations

Discussion

This article examined encounters, norms, crowding, and support for management at Molokini Shoal MLCD and addressed two issues that have received limited empirical attention. First, this study examined relationships among the concepts of encounters, norms, and perceived crowding in a tropical marine recreation and tourism setting. Second, it examined user support and opposition to direct and restrictive management strategies, and the extent that opinions about these actions were related to encounters and norms associated with boat use. The majority of users expected to escape crowds at Molokini, but more than 65% felt crowded. On average, users would accept seeing no more than approximately 15 or 16 boats at one time at Molokini, and those who encountered more than their normative tolerance felt more crowded and were more

Table 6 Relationships among encounters, norms, and support of management actions at Molokini, Hawai'i

	Reported encounters compared to norm[a]		Mean support of strategy[b]		*t* value	*P* value	Effect size (r_{pb})
	Fewer than norm	More than norm	Fewer than norm	More than norm			
Limit number of boats							
Large boats	94	6	4.07	4.21	1.36	0.175	0.05
Smaller boats	83	17	3.84	4.38	2.17	0.034	0.25
Total	91	9	4.02	4.29	2.00	0.050	0.10
Limit number of people							
Large boats	94	6	3.84	4.14	1.36	0.175	0.09
Smaller boats	83	17	3.70	4.31	2.43	0.018	0.28
Total	91	9	3.81	4.21	2.55	0.011	0.15
Restrict size of boats							
Large boats	94	6	3.76	4.07	1.33	0.184	0.09
Smaller boats	83	17	3.77	4.08	1.14	0.259	0.13
Total	91	9	3.77	4.07	2.04	0.050	0.10
Close site							
Large boats	94	6	1.90	2.29	1.37	0.172	0.09
Smaller boats	83	17	1.48	1.77	1.12	0.268	0.13
Total	91	9	1.80	2.04	1.17	0.243	0.07

[a] Percent of visitors who encountered either fewer boats or more boats than their norm

[b] Support for each strategy measured on 5-point scale from 1 "strongly oppose" to 5 "strongly support"

supportive of restrictive management actions (e.g., limit number of boats) to address these use related issues at Molokini. These findings have implications for management and future research.

Implications for Management

From a management perspective, results showed that before their trip, the majority of users expected to escape crowds at Molokini, but felt crowded at the site during their experience. Shelby and others (1989) and Vaske and Shelby (2008) recommended that when 65% to 80% of users feel crowded at a site, it should be characterized as "more than capacity." At Molokini, 67% of users felt crowded and 66–79% supported restricting use levels, suggesting that the site is currently operating over its capacity and management attention is necessary to ensure that experiences do not deteriorate further. Implementation of any management strategies should be followed by continuous monitoring and periodic empirical research or this site may be destined to become a "sacrifice area" of high use density where the quality of the natural environment and user experiences may be severely compromised (Shelby and others 1989). Had respondents indicated that they expected a crowded setting, less management attention may be necessary because the experience would have likely fulfilled their expectations. This was not the case, however, because user expectations of relatively minimal crowding were not met at Molokini.

The majority of users, regardless of the size of boat they were on, possessed norms that it would be unacceptable to see more than 15 or 16 boats at any one time at Molokini. There was also a high degree of crystallization or agreement among users in their norms for acceptable and unacceptable numbers of boats at this site. Currently, there are 26 boat moorings at Molokini and over 40 boats have permits to visit the site, so there is potential for more than 15 or 16 boats to be at Molokini at any one time. Researchers, for example, counted more than this number of boats at the site over 20% of the time. The majority of users, however, feel that this situation is unacceptable, so one way to ensure that both user experiences and resource characteristics may not be severely compromised would be to establish and consistently monitor a standard of no more than approximately 16 boats at any one time at Molokini.

Although managing standards at levels equal to or better than this "minimum acceptable condition" (e.g., 15 to 16 boats) may help to alleviate impacts such as crowding at Molokini, this represents a double-edged sword for managers. On one hand, establishing standards to reduce encounters and crowding may improve user experiences. On the other hand, these standards may result in many boats and people being restricted or displaced from the area. Although restrictions on the number and size of boats

Table 7 Relationships among researcher observations and visitor norms and support of management at Molokini, Hawai'i

	Researcher observation compared to norm[a]		Mean support of strategy[b]		*t* value	*P* value	Effect size (r_{pb})
	Fewer than norm	More than norm	Fewer than norm	More than norm			
Limit number of boats							
Large boats	76	24	4.03	4.23	1.70	0.091	0.11
Smaller boats	69	31	3.78	4.26	2.30	0.024	0.26
Total	74	26	3.97	4.24	2.60	0.010	0.15
Limit number of people							
Large boats	76	24	3.79	4.09	2.46	0.015	0.16
Smaller boats	69	31	3.63	4.22	2.94	0.004	0.33
Total	74	26	3.75	4.13	3.61	<0.001	0.21
Restrict size of boats							
Large boats	76	24	3.72	3.98	2.15	0.034	0.13
Smaller boats	69	31	3.71	4.09	1.76	0.083	0.20
Total	74	26	3.72	4.01	2.82	0.005	0.15
Close site							
Large boats	76	24	1.81	2.26	2.61	0.011	0.19
Smaller boats	69	31	1.39	1.83	2.04	0.045	0.23
Total	74	26	1.71	2.13	3.19	0.002	0.18

[a] Percent of visitors whose norms for boats were fewer or more than actually observed by researchers

[b] Support for each strategy measured on 5-point scale from 1 "strongly oppose" to 5 "strongly support."

were overwhelmingly supported by users, these actions can be controversial among other stakeholders (e.g., operators) and costly to implement and enforce (Manning 1999). Managers should consider other alternatives such as spatial or temporal zoning that could ensure that fewer than 15 or 16 boats are moored at Molokini at one time. Managers could require that dive boats visit the site in the early morning and leave before snorkel boats arrive in the late morning, or suggest that dive boats visit the back side of the islet and leave the interior for snorkel boats. These techniques would not require directly restricting the number of boats at Molokini, but could prevent more than 15 or 16 boats from mooring in one area or at one time. Temporal and spatial zoning techniques such as these have proven useful at a number of tourism and recreation sites including national parks, alpine ski areas, and marine protected areas (see Manning 1999; Orams 1999; Lück 2008; Needham and Rollins 2009 for reviews).

Although many users felt crowded, encounter norms of only a few users were surpassed. This suggests that the number of boats is only one indicator of crowding at Molokini and other indicators, such as the uneven distribution of boats, may also influence crowding. Several large snorkel boats, for example, moor close together and this may cause users to feel crowded by only a few boats. To potentially reduce crowding, managers could address the spatial arrangement of moorings at Molokini and consider utilizing spatial planning techniques such as minimum distances between boats that minimize the potential for boats to moor close to each other.

Results also showed that passengers on large and small boats gave similar responses to questions about encounters, norms, crowding, and management. In other words, the size of boat on which respondents were traveling had minimal influence on how they evaluated conditions and strategies. Managers, therefore, may not need to differentiate between passengers on small dive boats versus larger snorkel boats when considering future management actions at Molokini.

Implications for Research

From a research perspective, results showed that perceptions of crowding were higher for users who encountered more boats than their norm, which is consistent with past studies (e.g., Needham and others 2004; Vaske and Donnelly 2002). It is important to measure encounters, norms, and crowding to inform and manage indicators and standards of quality related to visitation and use levels. Indicators such as encounters help to describe existing conditions and evaluative dimensions such as perceived crowding can further describe user feelings about existing conditions, but by themselves they do not enable standards to be set based on conditions that are acceptable or unacceptable (Vaske and Donnelly 2002). The normative

approach used widely in recreation and tourism (see Shelby and others 1996; Manning, 1999, 2007 for reviews) facilitates an understanding of acceptable and unacceptable conditions, thereby providing a basis for formulating standards of quality that can be used to inform management. Future research should consider measuring all three of these concepts when addressing capacity related issues.

In addition, although most respondents reported feeling crowded by boats at Molokini, few saw more boats than their norm. This finding is consistent with some previous research, which has shown that users may report feeling crowded even if their encounter norms have not been exceeded (Vaske and Donnelly 2002). There are several possibilities for why the number of users who felt crowded by boats exceeded the number who encountered more boats than their norm. Boats are typically not evenly distributed at Molokini. Instead, they often gather together at preferred moorings, so they are in close proximity to each other. This close proximity of boats may cause users to feel crowded by just a few boats even though there are fewer boats in total than they would tolerate. The boat that an individual is on, for example, may be surrounded by three or four others, making this person feel crowded by boats, but the total number of boats at Molokini may still be fewer than his or her norm of 16 boats. It remains a question of future research to determine if uneven distribution of objects and their proximity influences crowding and norms.

A second possible explanation of why users felt crowded, but did not encounter more boats than their norm is that many underestimated the number of boats at Molokini. On average, users saw approximately eight boats, but researchers counted over 11 boats. Large boats often block the line of sight to other boats, so it can be challenging to see and accurately count the actual total number of boats at the site. Studies have shown that in high use areas, recreationists and tourists often underreport encounters compared to trained observers and this underestimation influences normative standards and management strategies (Shelby and Colvin 1982). A person, for example, may accept seeing no more than 12 boats, but report seeing 11 boats when there are actually 15 boats present. This user's norm would not be surpassed by his or her encounters, and if this trend is consistent across users, managers might erroneously conclude that normative standards are not being violated and that management action is unnecessary, when the opposite is true. In this study, only 9% of users encountered more boats than their norm, but researcher counts of the number of boats were higher than norms for 26% of respondents. It is likely that users were encountering more boats than their norm, but were unable to accurately count all boats at the site. Nevertheless, reported encounters are still important regardless of whether they reflect the exact number of people or objects, because they represent each individual's perceived reality and influence the quality of their experience (Manning 1999). Researchers are encouraged to examine the accuracy of encounters by comparing these responses to researcher observations.

It is also possible that this underestimation of encounters stemmed from the photographs used for measuring encounters and norms in this study. These images depicted 6, 12, 26, and 42 boats to represent a realistic range of possible boat conditions at Molokini, but gaps between these numbers may have generated some error in user responses. A person who encountered 16 boats, for example, would have been forced to choose between the images of 12 boats and 26 boats, causing them to either slightly underestimate or overestimate the actual number of boats present. Given that these reported encounters were used for determining if encounter norms were violated, some respondents may have been slightly misclassified. Those who underestimated their encounters, for example, may have been classified as experiencing less than their norm when they likely experienced more than their norm. This limitation applies to all studies using photographs representing a subset of scenarios, but showing all possible scenarios exponentially increases the number of images needed and dramatically increases response burden. Research should examine effects of subsets of scenarios on measurement of encounters and norms.

In this study, the size of boats (i.e., small dive boat, large snorkel boat) on which respondents were traveling did not substantively influence many of their evaluations of encounters, norms, and crowding. This finding is consistent with other studies measuring these concepts from different perspectives. Manning and others (2002a), for example, used photographs representing two perspectives from a trail (i.e., looking up the trail, down the trail) and there were no differences in normative evaluations. Although major differences were not found here, it seems plausible that encounters with a large boat from the perspective of a small boat could influence norms in that users on small boats may be less tolerant of encountering many large boats. Studies are needed to confirm this finding in other coastal and marine settings.

Photographs in this study manipulated two dimensions of these encounters and norms related to boats (i.e., number, size of boats). These were the most obvious dimensions associated with use levels and boat occupancy and capacity at Molokini, and this method reduced respondent burden given that questionnaires were administered onsite. Onsite questionnaires are typically shorter in length than mail or other survey approaches to minimize disruption to user experiences (Vaske 2008). Adding dimensions and their respective levels exponentially increases the number of possible combinations, so more scenarios usually need

to be included. Given that encounters refer to the number of people or other objects encountered and that the size of boat dimension did not substantively influence encounter norms, this article focused primarily on the number of boats. Future studies, however, should consider other dimensions and levels that may influence encounter norms, such as boat type (e.g., catamaran, zodiac) and proximity. Consistent with most normative research in recreation and tourism (see Manning 1999, 2007 for reviews), this study also assessed user acceptance of indicator conditions depicted in these photographs. Some studies, however, have shown that evaluations such as preferences and absolute maximum tolerances of indicator conditions can differ from acceptance (e.g., Manning and others 2002a). Researchers should continue exploring differences among evaluative response categories.

In addition to confirming the presence of the relationship among encounters, norms, and crowding, this study also revealed an extension of this relationship to support and opposition for use restrictions. This extension of the encounter—norm—crowding relationship to include reactions to management sets this study apart from previous research. Earlier studies showing a majority of users encountering more than their normative tolerance typically suggested that management attention is necessary and then advocated approaches to address overuse and minimize crowding (Vaske and Donnelly 2002; Needham and others 2004). This study showed that users who encountered more than their norm not only felt more crowded, but were also much more supportive of direct management actions that would restrict use levels. Future research should examine whether this relationship among encounters, norms, and support for management generalizes to other activity groups in both marine and terrestrial settings.

Support for direct management actions that would restrict use at Molokini (e.g., limit number of boats) was also substantially greater than levels of support found in studies elsewhere. Although users in other studies have generally supported restrictions when they were deemed necessary (e.g., Fazio and Gilbert 1974; McCool and Utter, 1982; Manning 1999), only a slight majority supported these controversial actions that researchers typically believe should often be implemented as a last resort (Needham and Szuster 2011). An overwhelming majority of people visiting Molokini (66–79%), however, supported use restrictions at this site, suggesting that they believe that something needs to be done to address issues such as crowding at this site. Directly questioning individuals about their support or opposition of management strategies helps take the guesswork out of interpreting actions that may or may not be within public tolerance limits. If these types of management regulations are implemented at Molokini, follow-up research should be conducted to determine if these actions actually improve conditions.

These user evaluations of management, encounters, norms, and crowding at Molokini were measured during different time periods on both large and smaller boats operating from multiple harbors. Results, however, may not generalize to all stakeholders with a vested interest in this site, such as private recreational boaters, native Hawaiians, or environmental interest groups. These stakeholders may not share similar norms and opinions, and incorporation of multiple interest groups allows for more complete evaluations of conditions and how they may help to inform management of activities in coastal and marine settings. Findings are also limited to this one marine protected area and may not generalize to all coastal and marine environments where recreation and tourism activities are common. Applicability of these findings to other interest groups and geographical areas remains a topic for further empirical investigation.

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