

PERCEIVED CROWDING AT BOSTON HARBOR ISLANDS NATIONAL PARK AREA

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Abstract: The increasing popularity of outdoor recreation has led to concerns about the level and types of visitor use that can be accommodated in parks and related areas without causing unacceptable impacts to the recreation experience. Such impacts represent the social component of carrying capacity, and include perceived crowding. Crowding within recreation environments has received substantial research attention. However, most studies have been in wilderness or river recreation settings. Perceived crowding is not free of physical settings. Research indicates that perceptions of crowding do in fact differ by site and therefore exploring crowding perceptions in a diversity of recreation areas. This study focuses on perceived crowding at Boston Harbor Islands National Park Area, a new unit of the national park system in the Boston metropolitan area. During the summer of 2000, randomly selected visitors at the Boston Harbor Islands completed an onsite survey. Results indicate that most visitors to the islands do not feel crowded. However, a number of other impacts that affect the recreation experience were identified. Several management implications are apparent.

Introduction

The increasing popularity of outdoor recreation has led to concerns about the impacts of rising visitation. Initial concerns focused on impacts on environmental resources. However, it soon became clear that the recreation experience was affected too. In his monograph titled "The Carrying Capacity of Wild Lands for Recreation," Wagar (1964) noted that increasing visitor use affected not only environmental resources but the quality of the recreation experience. Concerns over the impacts on the recreation experience led to a growing interest in the issue of crowding. The notion that there is some level of visitor use beyond which the quality of the recreation experience diminishes to an unacceptable degree forms the basis of the concept of social carrying capacity. This concept has

provided a framework for theoretical and empirical research on crowding.

Crowding in parks and related areas is the focus of a large and growing body of scientific literature. Crowding has been defined as "a negative and subjective evaluation that the specified number is too many" (Shelby et al., 1989). Crowding is often interpreted as a normative concept, dependent on a number of factors and circumstances. Most of the early crowding studies were conducted in wilderness or river recreation settings. However, since the early 1990s researchers have begun to study crowding in a variety of other recreation settings such as national monuments (Andereck & Becker, 1993; Manning, Valliere, Wang, Lawson & Treadwell, 1999) and natural history museums (Budruk, 2000).

Factors Influencing Crowding

The literature on crowding in parks and related areas indicates that a variety of factors can influence crowding perceptions (Manning, 1985; Manning, 1999). These can be broadly grouped into three categories: visitor characteristics, characteristics of those encountered and situational variables.

Visitor characteristics such as recreation activity engaged in, motivations for outdoor recreation, preferences and expectations for use levels, experience level and attitudes toward management have been shown to influence crowding perceptions. For example, in their study of visitors at a national park in Alaska, Bultena, Field, Womble and Albrecht (1981), examined hikers' preferences and expectations for seeing others. Respondents indicated feeling more crowded when contacts with others exceeded their preferences or expectations.

The character of others encountered can also influence perceived crowding. Such factors include type and size of group, behavior, and the degree to which groups are perceived to be alike. For example, a study of crowding at an intensively developed outdoor recreation site by Gramann and Burdge (1984), indicated that crowding perceptions were positively related with recreationists' exposure to threatening behavior of other visitors.

The situation in which encounters take place has also been shown to influence perceived crowding. Factors such as type and accessibility of a recreation area, location within an area, time or season, and environmental quality and design can influence crowding perceptions. Results of a study of visitors to a wilderness area in West Virginia by Vaske, Graefe and Dempster (1982) indicate that perceived crowding is influenced by environmental impacts left by others.

Measuring Crowding

Over the years, crowding has been measured in a variety of ways, both as a single composite item as well as a multiple-item scale. Examples of single composite items include a four-level categorical response scale ranging from "no, not

at all" to "yes, very crowded" (Westover & Collins, 1987); a seven-point Likert scale with the following categories: "not at all crowded", "slightly crowded", "moderately crowded", and "extremely crowded" (Bultena et al., 1981); and a qualitative measure asking "how do you feel about the number of others around here tonight" (Absher & Lee, 1981). Other studies have used multiple-item scaling techniques. In a study on use levels and crowding on the Colorado River in the Grand Canyon National Park, Shelby (1976), used a nine-item scale with a 0.91 reliability coefficient (as cited in Shelby, Vaske & Heberlein, 1989). However, the use of multiple-item scales has inherent problems even though such scales can be reliable and allow the researcher to examine multiple dimensions of crowding perceptions. Multiple-item scales can place a substantial burden on respondents. Further, combining multiple items into a single crowding scale score can make comparing of results difficult. Finally, the results themselves may be less intuitively meaningful and therefore less directly useful to decision-makers (Shelby et al., 1989).

Heberlein and Vaske (1977) have attempted to overcome these problems by developing a nine-point single-item measure of crowding that asks respondents to indicate how crowded the site was at the time of their visit. The scale is designed such that seven of the nine points measure varying degrees of crowding, therefore allowing the scale to be sensitive to even slight degrees of perceived crowding. This single-item crowding measure has been used in both experimental as well as theoretical studies. It has been shown to be useful in a variety of recreation activities including hunting, boating, hiking, fishing, museum visitation, and recreation settings such as backcountry, frontcountry, rivers and museums. In a study comparing crowding perceptions at multiple locations (Shelby et al., 1989), this single-item nine-point Likert scale was both useful and reliable. This nine-point, single-item measure of crowding has been widely adopted in the crowding literature.

Boston Harbor Islands National Park Area

Unlike other national parks, Boston Harbor Islands National Park Area is managed by a partnership of a thirteen-member board appointed by the U.S. Secretary of the Interior, representing the National Park Service, a range of federal, state and local agencies, and private organizations. It represents a unique recreation setting for a number of reasons. First, the National Park Area is located adjacent to downtown Boston, a major cultural and economic metropolitan area in New England. Approximately forty million people live within 250 miles of the park. Second, the National Park Area comprises over 30 islands, containing a wide diversity of natural, cultural and historic resources. Finally, the islands offer a variety of recreation experiences including camping, wildlife observation, boating, fishing, historic tours and solitude. Currently, six islands are open seasonally to the public, free of charge, and have park staff or volunteers to welcome visitors. Ferries are used to transport visitors from the mainland to the various islands.

Study Objectives and Methods

The overall purpose of this study was to formulate social-based indicators and standards of quality relevant to the Park's management objectives. Specific objectives were to analyze park use patterns, identify potential indicators of quality and evaluate and select indicators of quality for park management zones. Questionnaires were developed for visitors to six areas within the park: the ferry from Long Wharf to George's Island, the ferry from Hingham to George's Island, World's End, Little Brewster Island, Deer Island and Thompson Island. Data collection was conducted during the summer of 2000 using on-site visitor surveys. A total of 695 visitors were surveyed between the end July and the beginning September. The survey was conducted on 8 weekend days and 9 weekdays between 9:00am and 6:00pm.

Study Findings

Visitor Characteristics

The average age of respondents was 41 years. Most visitors were relatively well educated averaging 16.5 years of formal education. The sample was relatively well balanced by gender with 54.2% of respondents female and 45.8% male. Respondents were primarily white (82.6%), followed by Asians (2.6%), African Americans (2.4%), and American Indian or Alaskan Natives (0.6%). The plurality of respondents were from Boston (22.6%) or surrounding communities (48.3%). International visitors comprised 4.1% of the sample.

Visitation Characteristics

A little over half of the sample (54.1%) were first time visitors. However these results varied among sites. Visitors to Deer Island (77.8%), Little Brewster (96.7%), and Thompson Island (76.5%) were primarily first-time visitors. World's End received a comparatively smaller percentage of first-time visitors (26.9%). Two-fifths of respondents (39.1%) on the ferry from Hingham, and a half of those (54.8%) on the ferry from Long Wharf were first-time visitors. Respondents visited primarily in groups consisting of family (39.8%) or friends (23.4%). Average group size was around 15 people with a median of 5.

Visitor Experiences

Popular recreation activities at Boston Harbor Islands include walking/ hiking (80.1%), sightseeing (73.1%), touring historical/cultural sites (46.2%) and picnicking (45.3%). Visitors on the Hingham ferry reported walking/hiking (24.3%) and sightseeing (23.0%) as their primary recreation activity. Visitors on the Long Wharf ferry reported sightseeing (28.3%) to be their main activity. Each island has a variety of recreation activities to offer, and primary activities reported at other sites included sightseeing (43.2%), and touring historical/cultural sites (32.4%) at Little Brewster Island; walking/hiking (36.4%) and touring cultural/ historical sites (27.3%) at Thompson

Island; sightseeing (81.7%) at World's End; and sightseeing (100%) at Deer Island.

Elements of the experience enjoyed most by respondents included scenery/views (20.2%), Fort Warren (12.9%), specific activities like hiking or beachcombing (9.1%), and peace and quiet (9.0%). Respondents indicated that lack of or poor maintenance of facilities (24.3%), lack of information (7.5%) and infrequent ferry schedules (6.9%) detracted from the enjoyment of the visit.

When asked about what they thought should be changed about the way visitors experience Boston Harbor Islands, two-fifths of respondents (40.5%) indicated that everything was fine the way it is. However, others indicated a need for more information/ education (16.8%), and more facilities and services (15.7%).

Crowding at the islands does not appear to be an important issue. Nearly three-fourths of respondents (72.7%) indicated not feeling crowded at all. Overall crowding perceptions averaged a relatively low 2.1 on the nine-point Likert scale. Nearly all respondents indicated that they were satisfied with their recreation experience.

Visitor Impacts

Overall, a little over a tenth of respondents (14.9%) indicated that visitors are causing negative impacts to the Boston Harbor Islands. Litter, broken glass, trash, garbage, graffiti, vandalism, crowding, unsupervised children and noise were the most commonly cited impacts. Around one-fourth of respondents (23.5%) were unsure if any negative impacts were occurring.

Discussion and Management Implications

The Boston Harbor Islands Partnership is in the process of preparing a general management plan that will provide a foundation to guide and coordinate all subsequent planning and management. The plan suggests that managers desire to increase visitor numbers to the park. Findings suggest that most visitors to the Boston Harbor islands do not consider the area to be crowded. This suggests that carrying capacity at the islands has not yet been approached. Management may therefore appropriately encourage an increase in visitor use.

The literature on crowding indicates that party size affects crowding norms (Manning, 1985). A majority of visitors prefer encounters with more small-sized groups as compared to few large-sized groups (Lime, 1972, Stankey, 1973). Study results indicate that around a third of groups that visit the islands consist of ten or more persons, which is fairly large for an outdoor recreation site. An increase in use at the islands may result in a subsequent increase in large visitor groups, potentially detracting from the visitor experience. Managers might therefore need to vary use levels at different islands to ensure a range of experiences from solitude to group related activities.

Crowding is now not an issue at Boston Harbor Islands National Park Area. With increasing use levels however, this may change. As noted earlier, crowding is a normative concept. It is a value judgment influenced by many factors. The literature on crowding suggests that factors other than the number of visitors can influence crowding perceptions. These factors include situational variables and characteristics of others encountered. When asked about negative impacts, 14.9% of respondents indicated they felt visitors were causing negative impacts to the park area. These impacts include litter, broken glass, trash, garbage, graffiti, vandalism, unsupervised children and noise. Such factors may at some point begin to exacerbate crowding perceptions. Managers may therefore need to monitor and evaluate these potential impacts.

Recreation carrying capacity is a useful concept in outdoor recreation, and includes natural resource and social components. Clearly, resource conditions (litter, graffiti) and social conditions (use levels) are inter-related and affect perceived crowding. Managing for perceived crowding will therefore require an integrated approach that includes both natural resource as well as social considerations.

Research on crowding in outdoor recreation indicates that visitors often have standards by which they judge a situation as crowded or not. Shelby et al. (1989) suggest that "when people evaluate an area as crowded, they have at least implicitly compared the impact that they experienced with their perception of a standard." It is therefore important that managers at the Boston Harbor Islands National Park Area develop indicators and standards of quality for both resource and social conditions. These indicators and standards of quality might vary by island, recreation opportunity and management agency.

Conclusion

Boston Harbor Islands National Park Area is a unique recreation setting that offers a variety of recreation activities. The park does not have a crowding problem at current use levels. However, with increasing use levels, this may change. The normative approach toward crowding suggests that crowding is influenced by a number of factors such as impacts to environmental resources. Managers therefore need to pay attention to problems of litter, graffiti, noise, and vandalism that are present on the islands. Managing for carrying capacities at the islands will require an integrative approach that encompasses both natural resource as well as social considerations. Finally, managers are encouraged to establish indicators and standards of quality for both resource and social conditions. These standards might vary by island, recreation opportunity and management agency.

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