ANALYSIS OF PRE- AND POST-EXPERIENCE PREFERENCES AND PRE-AND POST-EXPERIENCE BENEFITS IN A MARINE PARK

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ABSTRACT

This study focuses on an exploration of pre- and post-experience preferences as well as pre- and post-experience benefits of visitors to Hanauma Bay Marine Park (Hawaii). Managers of the Bay face the difficult task of managing both the physical environment and the diverse recreation uses within the site. This study intends to provide resource managers with the data that can be used to influence public policy. The survey was conducted from July 6, 2000 to June 24, 2002 at the Hanauma Bay. It focused on identification of visitor issues and values relative to coastal and marine recreation impacts in Hawaii. The survey was conducted on random months, days, and time of days. Users of the Bay were contacted at the admission gate to the Bay as they entered (pre-test). The same individuals were asked to submit the post-part of the survey upon leaving the Bay (enabling the researchers to conduct a matched design t-test). The sample totaled 628 respondents, 628 of pre-test and 498 of post-test.

BACKGROUND

Competition for and use of coastal and marine recreation resources and opportunities has become a major resource management issue within many coastal communities. Specifically, both the environmental and social carrying capacity of these areas are being exceeded. Yet, decision-makers are usually limited to only environmental data available, and are therefore unable to fully utilize scientific data due to the lack of social and economic valuations.

This poster intends to delineate user issues and values relative to the visitors' pre-and post-experience preferences and pre-and post-experience benefits at Hanauma Bay, Hawaii.

RATIONALE

While the public and policy makers may not understand the range of values in a community with regard to recreation resources, this lack of understanding of values and attitudes may hinder public debate about ocean recreation related issues. Secondly, the lack of studies which examine ocean recreation resource use (attitudinal, value clarification, social carrying capacity, and contingent valuation of the resource), limits resource managers ability to convey to decision-makers a range of options. Once decision-makers understand not only the environmental aspects of a study, but also the attitudinal, value clarification, and contingent valuation, they can begin to balance the information related to multiple and competing goals for the resource.

STUDY SITE

Located on the southeast corner of the island of Oahu, Hanauma Bay evolved into a tourist "must see" destination during the 1970s and 1980s. The Bay was designated as the State first Marine Life Conservation District (MLCD) in 1967 ("Hanauma Bay Site," n.d.). Since then, the number of visitors to Hanauma Bay had been rapidly increasing, reaching the annual number of visitors of 3 million in 1988 ("Hanauma Bay Time Line," n.d.). Overwhelmed by commercial diving and snorkeling tours, as well as increasing numbers of visitors which peaked around 15,000 per day, the City and County of Honolulu took actions to reduce visitation, improve facilities, ban fish feeding, and educate users about the Bay's resources and appropriate behavior in the water. Commercial activities are now limited, however, Bay users still number about 3,000/day and continue to impact the Bay's natural resources by walking on the inshore reef, feeding fish, handling organisms, and stirring up silt.

RESEARCH METHODS AND APPROACH

Two matched design questionnaires were used to measure variables regarding users' experiences and benefits, adopting pre- and post-administration (Mitra and Lankford 1999). Pilot test of the survey questionnaire was conducted at a site similar to the study site.

Random samples of users were approached over a 12-month period of time. Random subjects were approached at the site for inclusion in the study. The survey for Hanauma Bay comprised of two sets of questionnaires with 27 subjects including three sets of matched pre-and-post-test questions about perceived benefits and preferences. The pre- and post-test design was possible because there was only one access to the Bay. During the on-site intercept, respondents were asked to fill out a survey that identified expected experience benefits from visiting the site that day, activities pursued, and questions on the priority and preference of the site/activity as compared to other Oahu opportunities.

RESPONSE RATE

628 pre-test questionnaires were collected during the total of 40 survey days. 498 post-test questionnaires were returned and matched to the pre-test questionnaires. Of 102 resident pre-test questionnaire respondents, 92 individuals (90.2 %) returned the post-test survey; of 526 visitor respondents, 406 (77.2 %) returned the post-test survey. The valid post test response rate of the sample was 79.3 %. This occurred because some of pre-respondents did not return their post-questionnaires upon the exit from the Bay.

Table 1: Sample Size and Response Rate for Hanauma Bay

	Residents	Visitors	Total
Sample	102	526	628
Pre-	102	526	628
Post-	92	406	498
Post-Response	90.2	77.2	79.3

ANALYSIS OF PRE- AND POST-EXPERIENCE PREFERENCES

Experiences were defined as types of natural resources, facilities, and activities that the visitor expected to see and do while in the Bay. Eleven experience preferences were measured on a three-point scale and coded as 1 = "not expected to see/do," 2 = "not sure," and 3 = "expect to see/do." The coding in the post-test questionnaires was 1 = "less than expected," 2 = "what I expected," and 3 = "better than expected." The total sample expressed relatively high level of expectations, and the expectations were generally met. Although the results indicated user expectations were generally met, the Bay may need to focus their management efforts on meeting user expectations in order to attract repeat users.

Items were categorized into four factors: Natural Resources & Snorkeling (five items), Physical Facilities (two items), Fee & Number of People (two items), and Activities (two items).
In the pre-test questionnaires, the majority of the sample said that they expected to see / do most of the experiences indicated. Experiencing the natural resources & snorkeling appeared to be the most supported by the sample, followed by activities, physical facilities and fee & number of people.

Paired t-tests were used to examine the mean differences between the matched pre-experience and post-experience preference items. Pre-experience preference test items were coded as 1 = "not expected to see/do," 2 = "not sure," and 3 = "expect to see/do." Post-experience preference test items were coded as 1 = "less than I expected," 2 = "what I expected," and 3 = "better than I expected." In order to avoid misinterpretation, the scale of items in the post-test Fee & Number of People was reversed: "saw lots of people" and "entrance fee" were recoded as 1 = "more than I expected," 2 = "what I expected," and 3 = "less than I expected."
As Table 2 depicts, all the experience preferences' factors achieved significant pre- and post-differences (p = 0.000). Mean values of all the items indicated that the sample expected these experiences, yet their expectations were not met.

Table 2: Paired t-test on Differences between Pre-Experience and Post-Experience Preferences

Variable	n	X Pre [a]	X Post [b]	t-value	Prob.
Factor 1: Natural Resources & Snorkeling [c]	446	14.5	9.8	47.284	0.000 [f]
Abundant marine life	475	2.9	1.9	35.071	0.000 [f]
Great reefs and corals	470	2.8	1.9	30.656	0.000 [f]
Beautiful Scenery	472	2.9	2.1	42.420	0.000 [f]
Clean ocean water	475	2.9	2.0	35.888	0.000 [f]
Snorkeling	469	2.9	2.0	34.125	0.000 [f]
Factor 2: Physical Facilities [d]	448	5.1	3.9	21.258	0.000 [f]
Clean facilities	467	2.7	2.0	25.148	0.000 [f]
Adequate parking	461	2.4	1.9	11.899	0.000 [f]
Factor 3: Fee & Number of People [e]	453	5.1	4.1	19.402	0.000 [f]
Entrance fee	466	2.5	2.0	13.941	0.000 [f]
Lots of people	460	2.6	2.1	15.804	0.000 [f]
Factor 4: Activities [d]	455	5.6	4.0	34.553	0.000 [f]
Swimming	465	2.9	2.0	38.274	0.000 [f]
Sunbathing	460	2.7	2.0	23.504	0.000 [f]

[a] 1= not expected to see/do, 2 = not sure and 3 = expect to see/do.

[b] F1, F2, and F4: less than I expected, 2 = what I expected and 3 = better than I expected; and F3: 1 = more than I expected, 2 = what I expected and 3 = less than I expected.

[c] Due to five collapsed variables, mean value 1 to 5 = not expected to see/less than I expected, 6 to 10 = not sure/what I expected and 11 to 15 = expect to see/better than I expected.

[d] Due to two collapsed variables, mean value 1 & 2 = not expected to see/less than I expected, 3 & 4 = not sure/what I expected and 5 & 6 = expect to see/better than I expected.

[e] Due to two collapsed variables, mean value 1 & 2 = not expected to see/more than I expected, 3 & 4 = not sure/what I expected and 5 & 7 = expect to see/less than I expected.

[f] Significant at p < 0.01.

ANALYSIS OF PRE- AND POST-EXPERIENCE BENEFITS

Similar to experience preferences, users of the Bay were asked to indicate which type of personal benefits they sought while at the Bay. These statements were asked in the pre-experience (pre-test) questions and again in the post-experience (post-test) questions.
Benefits were measured on a five-point Likert scale with 1 being "strongly agree" and 5 being "strongly disagree". In both pre-test and post-test questionnaires, respondents were asked to indicate their level of agreement with ten items that they intended to experience (items were matched).
Experience benefits were categorized into three factors: Learning Benefits (three items), Leisure and Bonding Benefits (four items), and Environmental Benefits (three items).
Paired t-test was generated to examine the mean differences between the matched pre- and post-test items. There were significant pre-post differences: learning benefits (p = 0.032); escape life and leisure and bonding benefits (p = 0.010) and environmental benefits (p = 0.000) whereas all the mean values stayed within "agree" to "strongly agree" (Table 3). Mean values of learning benefits and environmental benefits increased (Mean = 6.7 to 6.9, Mean = 5.0 to 5.8 respectively), indicating less of a benefit attainment.

Table 3: Paired t-test on Differences between Pre-Experience and Post-Experience Benefits

Variables	n	X Pre	X Post	t-value	Prob.
Factor 1: Learning [b]	438	6.7	6.9	-2.156	0.032 [c]
Increase environmental awareness	453	2.4	2.3	2.055	0.040 [c]
To learn about nature	456	2.1	2.4	-5.623	0.000 [c]
Expand my world view	448	2.2	2.3	-0.966	0.335
Factor 2: Leisure & Bonding [c]	414	8.8	8.5	2.587	0.010 [e]
Gain a sense of freedom	453	2.1	2.1	1.117	0.265
To change mood positively	453	2.1	1.9	3.261	0.001 [c]
Socially bond with friends	437	2.3	2.3	1.128	0.260
Bond with your family	451	2.3	2.2	2.097	0.037 [c]
Factor 3: Environmental Attributes [b]	450	5.0	5.8	-6.461	0.000 [c]
See abundant marine life	465	1.4	1.9	-9.446	0.000 [c]
View natural sites	466	1.6	1.8	-4.640	0.000 [c]
To be adventurous	460	2.0	2.1	-1.142	0.254

[a] Five-point Likert wheel 1 = strongly agree and 5 = strongly disagree.

[b] Due to three collapsed variables, mean value 1 to 3 = strongly agree, 4 to 6 = agree, 7 to 9 Neutral, 10 to 12 = disagree

[c] Due to four collapsed variables, mean value 1 to 4 = strongly agree, 5 to 8 = agree, 9 to 12 = Neutral, 13 to 16 =

[d] Significant at p < 0.01.

[e] Significant at p < 0.05.