"ENVIRONMENTAL SCAN OF HAWAII"

Part 1
Environmental Perceptions Among Visitors to the Hawaiian Islands

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EXECUTIVE SUMMARY

The Hawaii Tourism Authority recently reported that the state's goal of reaching 7 million visitors to the islands was achieved by the end of the 2000 fiscal year. Is it possible that Hawaii has reached its load capacity? Many years as a popular tourist destination may have affected the islands' authenticity. If Hawaii is to continually benefit from tourism, a collective effort with community approval and participation to sustain its environment may need to be implemented – a more suitable question would pose whether or not this is present in Hawaii today.

The purpose of this project was to develop a methodology, collect and analyze data concerning how various affected groups perceive environmental impacts that are potentially associated with tourism. This project was designed to collect not only quantitative, but also qualitative data to identify the perceptions of those surveyed – regarding the impactb of tourism on the environment.

Although the sampling was based on a random selection, the visitor and resident segment was of a representative number – based on the % of visitors/residents in each county per year. The tourist group was sought out at airports and beaches to partake and the other three groups (residents, residents with membership in a conservation group, and industry professionals with membership in Hawaii-Eco Tourism Association) were contacted through mailings

For this part of the study only the visitor segment was analyzed and a total of 501 valid survey responses were entered in Excel and further analyzed using the Statistical Package for the Social Sciences (SPSS). Most of the survey results were interpreted individually by island. Some results, which did not show significant differences among the islands, were interpreted for Hawaii as a whole.

According to this study, the majority of visitors surveyed are environmentally conscious, but not every visitor is aware of the negative impacts that tourism has on the environment when practiced in an irresponsible manner. Moreover, visitors who desire to be environmentally friendly may be helpless when there is a lack of policies adopted and programs implemented in Hawaii.

Most visitors agreed that tourism should be actively encouraged in Hawaii, but felt that the state should not attract more visitors. This indicates that in order to maintain Hawaii's economic health, the tourism industry ought to be nurtured. Setting limitations and implementing long-term planning practices can achieve manageable industry growth.

The majority of respondents supported future developments that are of a nature based origin. All other developments noted in the survey received little support according to the data gathered. It was concluded that according to the sample population, visitors have a major preference towards experiences that are beneficial to the natural environment.

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Chapter 1 – INTRODUCTION

1.1 INTRODUCTION

The Hawaiian Islands define paradise. With the most temperate climate on Earth, its stunning vistas, dramatic mountain ranges, lush rainforests, awe-inspiring volcanoes, crystal clear waters and abundance of wildlife, the Hawaiian Islands have been truly blessed. Hawaii portrays an image of unsurpassable beauty and tranquility – certainly an enviable image by any standard. A unique island paradise located in the mid-Pacific, Hawaii has welcomed visitors for more than one hundred years. Mark Twain and Robert Louis Stevenson visited the Hawaiian Islands when steamship was the common mode of trans-Pacific travel. With the advent of the jet aircraft, travel to Hawaii became more easily attainable for a larger segment of the global population. (Hawaii Tourism Authority, 2000)[1 2]

This statement included in the Hawaii Tourism Authority's Tourism Strategic Plan, portrays an image that was once perceived and marketed as such. Due to the influx of tourists over the years, a toll has been taken on the environment. Ignorance and lack of knowledge on the tourism industry's environmental impacts have caused pollution, destruction of flora and fauna, and damage to the overall aesthetics of the islands.

The state's primary source for revenue into the communities through visitor expenditures and tourism related capital investments, is in danger of depleting the very resources it has depended on since the inception of statehood. Crucially important is the increased demand for an authentic experience in a natural environment within the travel industry, since this is a factor that will contribute to Hawaii's success in the years to come.

From the tourism perspective, the real issue is maximizing visitor satisfaction, with the realization that events popular with the host community are likely to be more pleasing to visitors,

[1] Draft Tourism Strategic Plan, *Ke Kumu,* by Hawaii Tourism Authority, http://www.hawaii.gov/tourism - Inquiry date: 1/31/01

and that authentic cultural performances, settings, food, and merchandise will be enduring attractions……- the real event tourism resource is people, and the community must be given the right to decide for itself. (Getz, 1990)[3]

This statement clearly states that the local community and its inhabitants are of crucial importance to the development of tourism. Without their acceptance and cooperation, it is nearly impossible for a tourist destination to be a success considering the changing trends seen within the industry.

1.2 PURPOSE AND GOAL OF PROJECT

The Hawaii Tourism Authority recently reported that the state's goal of reaching 7 million visitors to the islands was achieved by the end of the 2000 fiscal year. Is it possible that Hawaii has reached its load capacity? Many years as a popular tourist destination may have affected the islands' authenticity.

If Hawaii is to continually benefit from tourism, a collective effort with community approval and participation to sustain its environment ought to be implemented – a more suitable question would pose whether or not this is present in Hawaii today.

The purpose of this project was to develop a methodology and collect and analyze data concerning how residents, conservation group members (Sierra Club of Hawaii), tourists and industry professionals (Hawaii Eco-Tourism Association) perceived environmental impacts that stem from tourism.

[2] Getz. D. (1991). Festivals, special events, and tourism. United States: Van Nostrand Reinhold.

Chapter 2 - LITERATURE REVIEW

2.1 SURVEY DEVELOPMENT

The survey questionnaire for "A Scan of Environmental Perception in Hawaii" consists of five parts: (a) respondents' characteristics; (b) measurement of perception of the Hawaii's environmental quality; (c) measurement of attitudes toward tourism development in relation to the environment; (d) measurement of responsibilities for protecting the environment in Hawaii; and (e) future desire.

Numerous studies on environmental issues, particularly in relation to the tourism development, have been done throughout the world in the past. The survey questionnaire was developed based on the following literature:

- Andereck, Kathleen L. 1995 "Environmental Consequences of Tourism: A Review of Recent Research" *Linking tourism, the environment, and sustainability – topical volume of compiled papers from a special session of the annual meeting of the National Recreation and Park Association*: 77-81

- Boo, E. 1990 "Eco-tourism: The Potentials and Pitfalls Vol. 1" 1990, Washington DC, World Wildlife Fund

- Edgell, Michael C.R. and Nowell, David E. 1989 "The New Environmental Paradigm Scale: Wildlife and Environmental Beliefs in British Columbia" *Society and Natural Resources Vol. 2*: 285-296

- Hashimoto, Atsuko 2000. "Environmental Perception and Sense of Responsibility of the Tourism Industry in Mainland China, Taiwan, and Japan" *Journal of Sustainable Tourism Vol. 8, No.2*: 131-146

- Hamele, H. 1988. "Leisure in Nature: A Major Impact" *Naturopa Vol. 59*: 5-7

- Karan, P.P. and C. Mather 1985 "Tourism and Environment in the Mount Everest Region" *Geographical Review Vol. 95*: 93-95

- Lankford, Jill K., and S.V. Lankford 1995 "Sustainable Practicies: Implications for Tourism and Recreation Development" *Linking tourism, the environment, and sustainability – topical volume of compiled papers from a special session of the annual meeting of the National Recreation and Park Association*: 18-22

- Lankford, Samuel V., Dennis R.H. 1994. "Develooping a Tourism Impact Attitude Scale" *Annals of Tourism Research Vol. 21*: 121-139

- Luzar, Jane E., A. Diagne, C. Gan, and B.R. Henning 1995. "Evaluating Nature-based Tourism Using the Dew Environmental Paradigm*" Journal of Agricultural and Applied Economics Vol. 27 Issue*: 544-555

- Lynne, G.d., C.F. Casy, A. Hodges, M. Rahmani 1994 "Conservation Technology Adoption Decisions and the Theory of Planned Behavior." Unpublished manuscript, Depertment of food and Resource Economics, University of Florida.

- Mathieson, A. and G. Wall 1982 "Tourism: Economic, Physical, and Social Impacts" New York, Longman

- Sierra Club, Maui Group "A Report on Maui's Visitor Population: Why they come. What they enjoy. Why they return…" *A Visitor's View of Paradise: A Sierra Club Report 1998*

- "Summary Report on Environmental Public Opinion Survey in Arab Countries 2000" http://www.mectat.com.lb/wjat/opinion/framedown.htm Inquiry date: 11/8/00

2.2 NEW ENVIRONMENTAL PARADIGM (NEP)

The New Environmental Paradigm (NEP) scale was utilized in order to measure part of the visitors' characteristics.

The NEP scale is a Likert type scale of 12 value statements that Dunlap and Van Liere (1978) developed to measure people's generic environmental dispositions, which would influence people's attitudes and behaviors toward environment. Agreement with the first 8 statements on the NEP scale indicates acceptance of nature and environment, environmental beliefs, and ecological concerns. On the other hand, agreement with the remaining 4 statements indicates beliefs in humanity over nature or humanity's capability to control nature. The NEP also includes three distinct factors: balance of nature (statement 1 through 4), limits to growth (statement 5 through 8), and humanity over nature (statement 9 through 12). The NEP scale's reliability, validity, and ability to differentiate environmental values among different groups

were confirmed by Albrecht et al. (1982) in his study of environmental values of urban and farming populations in Iowa.

Edgell and Nowell (1989) used the NEP in their study to identify environmental beliefs among different natural resource users. Edgell and Nowell (1989) believed that identifying environmental beliefs among different natural resource users could be a mean to resolve their conflicts of interest. The sample populations were selected from Greenpeace, the general public, and the fishers in British Columbia. As a result, both Greenpeace and the general public strongly agreed with statement 1 through 4 (balance of nature) and strongly disagreed with statement 9 through 11 (humanity over nature). Contrary, most of the fishers disagreed with statement 2 and 4 through 8 (balance of nature and limits to growth) and agreed with statement 9 through 12. The result implied that both Greenpeace and the general public emphasizes on the importance of natural environment while the fishers value the natural resources as economical benefits.

The study of nature-based tourism among Louisiana tourists conducted by Luzar, Diagne, Gan, and Henning (1995) utilized the modified NEP scale. The modified NEP scale contained six statements instead of twelve statements. The six statements were selected to elicit both positive and negative attitudes toward two attitudinal domains: human conflicts with nature and the role of humans in nature. The first three statements were addressed in pro-environmental manner with a 5-point Likert type scale: 1 for Strongly Disagree and 5 for Strongly Agree. Therefore, the lower score implied pro-environmental attitudes. As suggested by Lynne, Casey, Hodges, and Rahmani (1994), scales for the remaining three statements, which were addressed in anti-environmental manner, were reversed to achieve a higher total score for a positive environmental attitude. The maximum score on the modified NEP scale was 30 with its neutral score of 18. The score greater than 18 indicated more positive environmental attitudes.

For the Environmental Scan, the modified six statements with a 6-point scale (0 = Strongly Disagree to 5 = Strongly Agree) were used based on the validity of the six statements in

the study by Luzar, Diagne, Gan, and Henning (1995), and due to limitation of the length of the entire survey questionnaire, particularly the one for visitors. Considering the fact that short time is preferred for on-site survey, the survey for visitors needs cannot be too long. The same six statements were used for residents in order to make its score comparable to visitors' score.

2.3 MEASUREMENT OF PERCEPTION OF HAWAII'S ENVIRONMENTAL QUALITY

A 6-point scale 0 (not a problem) to 5 (extremely serious) was utilized to measure how visitors and residents perceive the Hawaii's environmental quality and environmental problems. Items to be scaled are categorized into five sections: (a) pollution; (b) natural resources/nature; (c) aesthetics; (d) growth; and (d) policies and practices.

These five sections were reflected in Andereck's (1995) study, and she concludes that tourism has negative environmental impacts after reviewing the 10 years of research on tourism's environmental impact. She identifies four major areas of environmental impacts by tourism: pollution, flora and fauna, soil and beaches, and aesthetics. The majority of pollution problems are derived from traffic, tourism development, and the activities of tourists (Hamele 1988) such as air pollution resulted from emissions from vehicles, including tour busses and ground transportation for tourists, and water pollution often stems from waste water generated by tourist facilities. Inappropriate drain of sewage from resort hotels into the natural water resources has become serious problem in the Mediterranean (Mathieson and Wall 1982) and near Mount Everest (Karan and Mather 1985). Increased usage of water for washing, swimming pools, and lawn water associated with tourism-related facilities has contributed to water scarcity in some tourism communities. Andereck (1994) also suggests that research provided evidence that tourism affects flora and fauna in numerous different ways. Marine life has been threatened by disposition of waste into the natural water resources, and coral reef has been impacted by beach

visitors, tour boats, and scuba divers. (Boo 1990). Finally, Andereck (1994) addresses negative impacts by tourism development on visual quality and noise levels.

Additionally, the Environmental Public Opinion Survey (2000) conducted in 18 Arab countries by the Environment & Development Magazine in 2000 is integrated into our survey. The survey was formed to measure the magazine readers' perceptions of the Arab's environment quality and addressed population growth and effectiveness of the environmental policies as environmental concerns in addition to the four major environmental problem areas identified by Andereck.

2.4 MEASUREMENT OF ATTITUDES TOWARD TOURISM DEVELOPMENT IN RELATION TO THE ENVIRONMENT

A 6-point scale is utilized to measure the attitudes toward tourism development in relation to the environment. The attitudes were measured by the respondents' degree of agreement or disagreement with a series of statements.

The statements were extracted from the tourism impact attitude scale (TIAS) which was tested and verified by Lankford and Howard (1994). In the process of developing the TIAS, Lankford and Howard (1994) pre-tested generated 72 items in Bend, Oregon and 83 items in Cannon Beach, Oregon among the sample of 400 residents in each community. The pretest was conducted by mailing survey containing the items. The response rates after adjusting non-deliverables were 51.2% (n = 199) for Bend and 46.5% (n = 186) for Cannon Beach. After eliminating items with corrected item-to-total correlations below 0.50 and further elimination of items with 0.30 loading factor coefficient in exploratory factor analysis to asses dimensionality of scale, a total of 50 items survived.

The 50 items were tested among 2,583 randomly selected residents of the Columbia River Gorge, Washington by mailing survey. The response rate after adjusting non-deliverables

was 74.1% (n = 1,436). After cross-validation and consistency analysis of the combined samples of Oregon and Washington, 27 items survived. The 27 items contains two factors. Factor 1, “concern for local tourism development” consists of 18 items, and Factor 2, “personal and community benefits” consists of 9 items. Reliability of Total 27 item TIAS was 0.9643. TIAS was also utilized and verified in the study of sustainable practices in Columbia River Gorge. (J.K. Lankford 1995).

The 27 items were modified for the Scan of Environmental Perception in Hawaii. Factor 2 was also eliminated to make the survey more suitable for visitors since the standardized survey needed to be developed for both visitors and residents. Moreover, two useful questions to measure relations between tourism and environmental awareness and effects of technology in modern society were added from 16 questioned developed by Hashimoto (2000) in her cross-cultural study of environmental perception.

2.5 MEASUREMENT OF RESPONSIBILITIES FOR PROTECTING THE ENVIRONMENT IN HAWAII

Questions about responsibilities are designed not only to ask opinions about who should be responsible for the preservation of environment but also to measure the position of the tourism development or industry in the role of protecting the environment in Hawaii.

2.6 FUTURE DESIRE

What visitors would like to see in the future tourism development of Hawaii is briefly examined in the survey. The items cover broad range from environmental and nature-based development to resort development including gambling. The items were modified from the Maui Visitor Survey conducted by the Sierra Club, Maui Chapter in 1998.

Chapter 3 - METHODOLOGY

3.1 PROJECT METHODOLOGY

This project was designed to collect not only quantitative, but also qualitative (through conversation with visitors, and comments noted on the questionnaires from all four segments) data to identify the perceptions of those surveyed – regarding the impact of tourism on the environment. The survey was conducted on four identified groups: residents, residents with membership in a conservation group (the Sierra club of Hawaii), tourism industry professionals (w/membership in the Hawaii Eco-Tourism Association), and visitors.

Although the sampling were based on a random selection, the number of visitors and residents were of a representative number – based on the % living or visiting each county. The visitor segment was sought out at airports and beaches; while the other three groups was contacted through mailings. The resident's mailing list was based on a random selection (using the following equation: *Population (or total amount of names in telephone book) / sample size + a random number (chosen from a table of random numbers, 3 digits) = a number. This number is divided by the number of names on one page = the page number were the sampling started*) from the most current phone books for each county. The industry professional segment was based on the membership list for Hawaii-Eco Tourism Association in which members were sent a survey – the segment of residents with a membership in the Sierra Club of Hawaii are based on 100 randomly selected names from their database of approximately 4000.

The mailings for the residents were conducted in four steps: a letter with the survey, a reminder postcard, and two reminder letters including a survey. The other two segments will only receive a total of three mailings – since their return rate was estimated to be higher than the resident segment: a letter with the survey, a reminder postcard, and one reminder letter including a survey.

The survey was conducted with two versions of the questionnaire: one for the visitor segment and one for the other three segments. The two versions of the questionnaires include many identical key questions. The total sample size is 1346; as explained in the table below:

TABLE 3.1 SAMPLE SIZE FOR THE ENVIRONMENTAL SCAN OF HAWAII

	Visitors	**Residents**	**Conservation Group Members**	**Industry Professionals**
Hawaii County	Hilo 30 Kona 70	100	9	49
Honolulu City & County	200	300	65	58
Kauai County	100	100	9	18
Maui County	100 (Maui Island)	100	17	21
TOTAL	**500**	**600**	**100** (Sierra Club of Hawaii)	**146** (Hawaii Eco-Tourism Association)

The findings in Chapter 4 are only based on the visitor segment - as the process of repeat mailings for the other three segments are still being conducted. When and where the visitors surveys where conducted are described in Appendix A.8 – table A.1.

Chapter 4 - FINDINGS

A total of 501 valid survey responses were entered in Excel and further analyzed using Statistical Package for the Social Sciences (SPSS). Most of the survey results were interpreted individually by island. Some results, which did not show significant differences among the islands, were interpreted for Hawaii as a whole.

4.1 CHARACTERISTICS OF RESPONDENTS

4.1.1 Demographics

This section summarizes demographics of the respondents. Both sex and age show nearly even distribution in Figure 4.1 and 4.2. It indicates that the results came from balanced distributions between each gender and among each age group. How this balance are comparative to the characteristics of the total number of visitors to the Hawaiian Island – are hard to answer; as the official statistics from Hawaii Tourism Authority not has included a specified analyze of the age and gender aspect the last few years. But the characteristics of the respondents are indicating that it is a varied group, both in regards to age and gender and the findings could therefore be seen as accurate for the segment that was researched.

FIGURE 4.1 GENDER

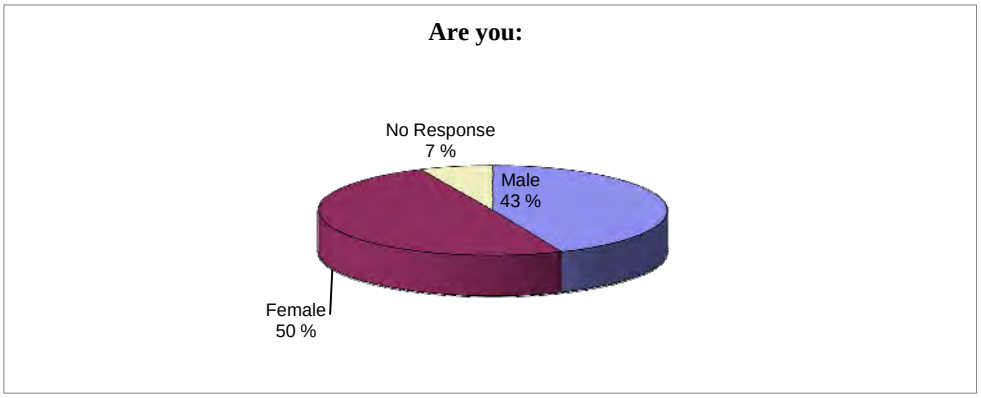
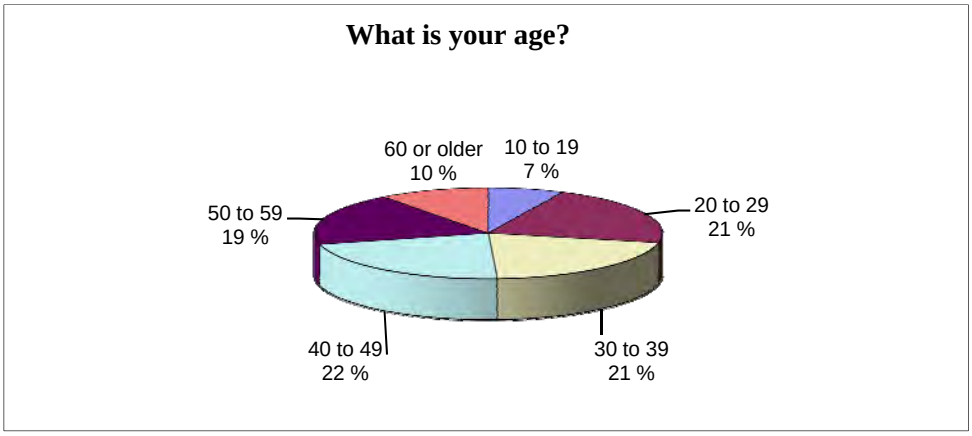
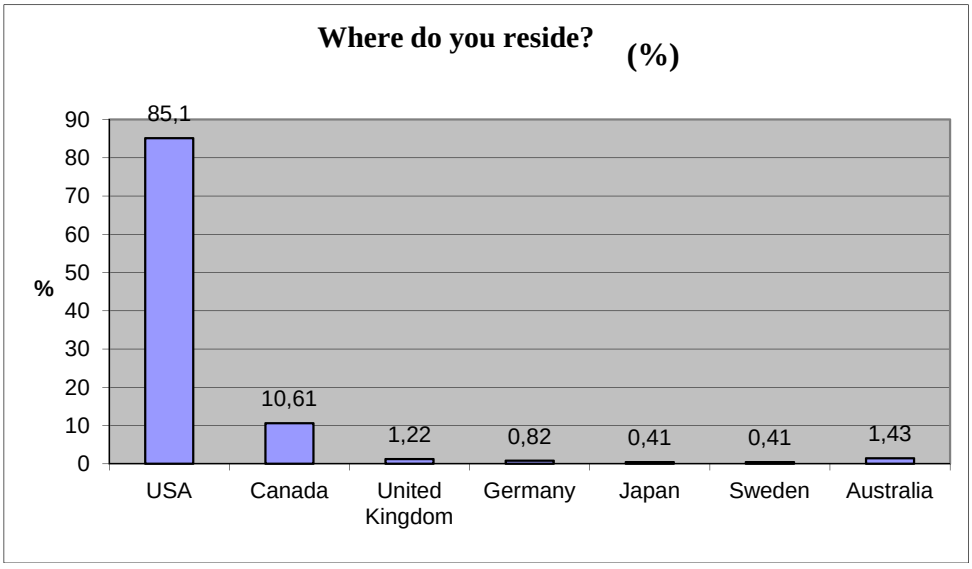


FIGURE 4.2 AGE



Since the survey was designed only for English speakers, the respondents' residencies heavily concentrate in the English speaking countries, especially the United States as shown in Figure 4.3. However, this may be reflecting the recent trend that the number of visitors from the U.S. mainland has been increasing in Hawaii. Based on the statistics from Hawaii Tourism Authorities, approximately 65% of the visitors to Hawaii are from the US Mainland, 25% are from Japan, 4% from Canada and the remaining 6% other nations. The findings in this part of the project can therefore be seen as having a representative status for the visitors to the Hawaiian Islands, although - the Japanese market has to be further researched in regards to the subject.

FIGURE 4.3 RESIDENCY



4.1.2. Familiarity with Hawaii & Experience in Hawaii

The visitors' familiarity with Hawaii was measured by their frequency of visits. Table 4.1 shows more than 60% of the respondents were repeat visitors. More than 60% of the respondents on each island were somewhat more familiar with Hawaii's environment than the rest of the respondents.

TABLE 4.1 IS THIS YOUR FIRST VISIT TO HAWAII?

	Kauai	***Big Island***	***Maui***	***Oahu***
Yes	30.8%	35.5%	30%	35.1%
No	69.2%	64.5%	70%	64.9%

Among the repeaters, nearly half of them came back to Hawaii within one to two years, a relatively short time period. Due to the uniqueness of each island, some respondents visited a different island for each trip to Hawaii. For instance, a respondent who was taking the survey on Kauai had visited Oahu the previous time.

TABLE 4.2 IF NO, WHEN WAS THE LAST TIME YOU VISITED HAWAII? (%)

	Kauai	***Big Island***	***Maui***	***Oahu***
Within the past year	2.7	2.8	1.6	3.2
1 to 2 years ago	52.7	47.9	38.1	49.2
3 to 5 years ago	21.6	23.9	25.4	15.9
6 to 10 years ago	13.5	9.9	6.3	18.3
More than 10 years ago	5.4	14.1	15.9	14.3

The various islands visited, as seen in Table 4.3 could be seen as a representative sample for the tourism activity on the various islands. Fewer visitors have visited Molokai and Lanai due to less tourism promotion on these islands.

TABLE 4.3 WHICH ISLAND (S) HAVE YOU VISITED IN HAWAII IN ALL YOUR TRIPS? (%)

	Kauai	***Big Island***	***Maui***	***Oahu***	***Molokai***	***Lanai***
Never	51.1	52.5	36.1	19.4	94	93.2
Once	29.2	27.5	39.5	41.6	4.4	5.2
2 to 3 times	12.6	12.2	14.4	20.2	1.4	1.4
4 to 5 times	3.0	4.4	5.2	6.6	0.2	0.2
6 to 10 times	2.0	1.8	1.4	5.4		
More than 10 times	1.4	1.6	3.4	6.8		

Both frequency of visits and time lag between their current visit and last visit had significant influences on their answers to some questions. These will be discussed later.

The respondents' activities can indicate their exposure to Hawaii's natural environment particularly through outdoor or nature-based activities they participated in. Table 4.4 shows the proportion of respondents who participated in a particular activity on each island. "Total Sample Population" indicates the proportion of participants of each activity in the total sample population of the four islands.

Throughout the islands, 20-30% of respondents were exposed to the ocean through snorkeling, diving, and whale watching. Kauai and Oahu show a more evenly distribution even though some water activities such as kayaking (33%, Kauai) and surfing (41%, Oahu) indicate slightly higher percentages. On Maui, more respondents participated in biking and camping (41%), and on the Big Island, more respondents participated in diving and hiking. As a whole, snorkeling and hiking indicated high percentages.

TABLE 4.4 RECREATIONAL ACTIVITIES THAT VISITORS PARTICIPATED IN DURING THIS TRIP (%)

	Kauai	***Big Island***	***Maui***	***Oahu***	***Total Sample Population***
Snorkeling	27.3	21.6	20.5	30.6	52.8
Diving	24.3	27.0	24.3	24.3	7
Kayaking	33.3	22.2	11.1	33.3	8.5
Surfing	25.8	13.5	19.1	41.6	16.9
Hiking	27.7	25.9	19.6	26.8	42.4
Biking	17.6	17.6	41.2	23.5	6.4
Camping	29.4	0.0	41.2	29.4	3.2
Whale Watching	27.5	19.0	31.2	22.2	35.8
Other	19.1	26.6	17.3	37.0	32.8

"Other activities" are specified in the next table. Some activities such as bird watching, visiting botanical garden, and visiting volcano/crater are more likely island-specific activities. Golfing, helicopter ride, sightseeing, and swimming were more common activities throughout the four islands.

TABLE 4.5 OTHER ACTIVITIES

	Kauai	***Big Island***	***Maui***	***Oahu***
Bird watching	1			
Boating	1		1	1
Boogie boarding	3		1	2
Botanical garden		2		
Canoe				1
Cruise		1	2	2
Dolphin watch	1			
Driving island roads	2	2	1	
Fishing		3		1
Golfing	4	13	5	4
Helicopter ride	7	8	3	4
Horseback riding		2	1	
Jeeping				1
Jet skiing			1	
Jogging/running	2			3
Kite board				1
Motorcycle		1		
Nature walks	1			
Night clubs				1
Observatory		1		
Orchid farm		1		
Para sailing				2
Photographing		1		
Plane tour		1		
Reading	1			1
Relaxing	2		1	2
Sailing		1	6	3
Shopping		1		3
Sightseeing	3	6	2	18
SPA		1		
Submarine		1		
Sunbathing/beach	1	2	2	7
Swimming	3	2	1	7
Tennis	2	2		1
Valley wagon tour		1		
Van tour			2	
Volcano/Crater		4	5	1
Volleyball		1		
Wake board	1			
Wind surfing		1	1	
Work	1			2
Workout		1		

4.1.3. Degree of Global Environmental Awareness

The results from the NEP scale indicate the degree of environmental awareness of the respondents. Agreement of the first three statements implies the pro-environmental attitudes, whereas agreement of the last three statements implies the anti-environmental attitudes.

The results of the first three statements consistently show high percentages under "*Agree*." Particularly more than 75% of the respondents marked "*Agree*" with the second statement, "humans must live in harmony with nature in order to survive." Kauai shows higher percentage of agreement for the first and second statements. These high percentages verify the strong pro-environmental attitudes among the respondents.

The results of the last three statements consistently show high percentages "*Disagree*." It implies more than half of the respondents had weak anti-environmental attitudes. The percentage of the respondents with weak anti-environmental attitudes was slightly higher on Kauai and the Big Island. More distribution for "*Neutral*" can be observed compared to the first three statements. Some respondents stated that they somewhat disagree with the statements, but humanity's control over the nature could be acceptable only if it is done wisely and not extremely. Some stated humanity over the nature is inevitable. Such comments may reflect the higher distribution for "*Neutral*."

Overall, most of the respondents can be characterized as being environmentally friendly and appreciative of the environment and nature.

TABLE 4.6 PERCEPTIONS ABOUT THE ENVIRONMENT IN GENERAL (%)

	Disagree	Neutral	Agree
The balance of nature is very delicate and easily upset.			
Kauai	4.7	23.6	71.1
Big Island	7.3	26.6	66.1
Maui	8.2	23.5	68.2
Oahu	8.3	26.6	65.1
Total Sample Population	6.8	23.7	62.6
Humans must live in harmony with nature in order to survive.			
Kauai	3.8	14.2	82.1
Big Island	8.3	15.6	76.1
Maui	2.4	21.2	76.5
Oahu	4.2	14.2	81.6
Total Sample Population	4.3	14.5	73.7
When humans interfere with nature, it often produces disastrous results.			
Kauai	6.6	33.0	60.4
Big Island	14.7	22.9	62.4
Maui	3.6	32.5	63.9
Oahu	8.4	28.4	63.2
Total Sample Population	8.0	26.7	57.8
Humans are destined to rule over nature.			
Kauai	53.8	30.8	15.4
Big Island	52.8	33.0	14.2
Maui	42.9	36.9	20.2
Oahu	47.6	27.7	24.5
Total Sample Population	45.3	28.7	18.0
Humans have the right to modify the natural environment to suit their needs.			
Kauai	56.7	32.7	10.6
Big Island	51.4	36.4	12.1
Maui	53.7	30.5	15.9
Oahu	57.4	32.1	10.5
Total Sample Population	50.4	30.2	10.8
Plants and animals exist primarily to be used by humans.			
Kauai	69.9	24.3	5.8
Big Island	65.1	22.0	12.8
Maui	66.7	20.2	13.1
Oahu	60.2	27.7	12.0
Total Sample Population	59.3	22.6	10.2

4.2 PERCEPTION OF HAWAII'S ENVIRONMENTAL QUALITY

4.2.1 General Perceptions

General perceptions of the environmental quality vary according to the islands. Kauai shows a high percentage of respondents (58.9%) who rated "*Excellent,*" while only 30.6% of the respondents on Oahu marked "*Excellent*." 52% of the respondents on the Big Island and Oahu rated *"Good"* whereas about 45% of the respondents rated either *"Excellent"* or *"Good"* on Maui. Some respondents provided different ratings for environmental quality by island such as "*Excellent*" for Kauai and "*Don't Know*" for Oahu.

TABLE 4.7 THE OVERALL QUALITY OF THE ENVIRONMENT ON THIS ISLAND (%)

	Kauai	***Big Island***	***Maui***	***Oahu***	***Total Sample Population***
Excellent	58.9	40.0	45.6	30.6	39.2
Good	33.6	52.7	46.7	52.3	44.9
Fair	3.7	5.5	4.4	8.8	5.9
Poor	0.9	0.9	2.2	1.0	1.1
Very Poor	0.0	0.0	0.0	0.2	0.2
Don't Know	2.8	0.9	1.1	6.7	3.4

Table 4.8 shows the environmental changes compared to their last visit to Hawaii. More than 40% of the respondents answered "*The Same*" on each island. This may, however, reflect the fact that nearly 50% (except for Maui = 38%) of the repeaters returned to Hawaii within only one or two years as Table 4.2. shows. Drastic environmental changes have not occurred in Hawaii in the past year or two. More than 30% answered "*Don't Know*." Some respondents who marked "*Don't Know*" commented on the difficulty of the rating since they visited the different island at their previous visit. As stated earlier, each island of Hawaii has its own unique characteristics, and the degree of development on each island varies. Therefore, it is difficult to

compare the environmental changes if, for instance, a respondent visited Oahu (the most developed island) previously and was currently visiting Kauai (characterized as "garden island"). Most of the first time visitors answered either "*Don't Know*" or did not respond to the question.

Oahu received the most negative comments from the respondents. The respondents noted *"much worse," "over crowded beaches"* and *"busier."* Some stated other islands' environmental quality was better. One respondent commented, "*Waikiki Beach is eroding away – supposed to be one of the most beautiful beaches. Save this beach.*" Nevertheless, some respondents who visited Hawaii last year marked *"cleaner, less litter, and better"* for Oahu. They commented there seems to be more programs to keep the island clean on Oahu now than before.

TABLE 4.8 THE QUALITY OF HAWAII'S ENVIRONMENT HAS BECOME _____ COMPARED TO YOUR LAST VISIT TO HAWAII. (%)

	Kauai	***Big Island***	***Maui***	***Oahu***	***Total Sample Population***
Better	10.9	6.2	10.0	11.9	8.5
Worse	9.8	8.2	11.3	9.7	8.1
The Same	46.7	47.4	48.8	43.2	38.6
Don't Know	32.6	38.1	30.0	35.2	29.0

4.2.2. Pollution

Throughout the islands, air and drinking water pollution were not considered as serious of a problem compared to other pollution issues. Nevertheless, one respondent on the Big Island commented that the water tasted terrible. The results for river/coastal area pollution were similar to the air and drinking water pollution: more respondents think it is a problem or somewhat

problem, but it has not reached a serious level yet. One respondent on Oahu, however, pointed out a particular area, Sand Island, for serious river/coastal area pollution.

More respondents marked "*Somewhat Serious Problem*" for the usage of chemical pesticides and herbicides. Especially on Kauai and the Big Island, 30% of the respondents rated "*Somewhat Serious Problem*." Similar results are observed for hazardous wastes and a solid waste disposal problem. More respondents on the Big Island (30%) compared to other islands rated "*Somewhat Serious Problem*" and 21% rated "*Serious Problem*" for a hazardous wastes problem. Approximately 30% of respondents rated "*Somewhat Serious Problem*" for a solid waste problem on the Big Island.

Several first time visitors took a neutral position because they were not familiar enough with Hawaii to rate these problems. One respondent gave different scores for the different islands for pollution: "*Somewhat Problem*" for Kauai and "*Extremely Serious Problem*" for Oahu.

Throughout the islands, many respondents posed a question about a recycling program in Hawaii. Most of the respondents who marked "*Extremely Serious Problem*" for a solid waste problem pointed out the lack of recycling in Hawaii. One in the Lahaina and Kaanapali area on Maui noted that he was bothered on the beach by the smell of solid waste. A higher distribution for "*Somewhat Problem*" is shown particularly on Kauai and the Big Island for a solid waste problem.

TABLE 4.9 SERIOUSNESS OF POLLUTION ISSUES IN HAWAII (%)

(NP = Not a Problem, SWP = Somewhat Problem, P = Problem, SWSP = Somewhat Serious Problem, SP = Serious Problem, ESP = Extremely Serious Problem)

	NP	SWP	P	SWSP	SP	ESP
Air pollution						
Kauai	31.3	31.3	17.2	14.1	4.0	2.0
Big Island	20.0	34.5	21.8	11.8	8.2	3.6
Maui	27.9	19.8	23.3	19.8	3.5	5.8
Oahu	24.3	27.1	18.2	17.1	8.8	4.4
Total Sample Population	***22.9***	***25.5***	***18.0***	***12.5***	***4.6***	***3.2***
Drinking water pollution						
Kauai	21.6	23.7	19.6	24.7	7.2	3.1
Big Island	21.3	22.2	26.9	17.6	7.4	4.6
Maui	24.1	18.1	20.5	16.9	15.7	4.8
Oahu	24.7	26.4	19.8	15.9	7.7	5.5
Total Sample Population	***20.6***	***20.9***	***23.3***	***11.2***	***6.5***	***4.0***
Pollution in rivers & coastal areas						
Kauai	15.3	25.5	23.5	17.3	13.3	5.1
Big Island	14.2	19.8	31.1	20.8	5.7	8.5
Maui	17.9	19.0	22.6	16.7	13.1	10.7
Oahu	14.4	19.3	23.8	16.6	15.5	10.5
Total Sample Population	***13.4***	***18.4***	***23.3***	***13.3***	***10.6***	***6.3***
Usage of chemical pesticides & herbicides						
Kauai	14.0	12.9	19.4	30.1	17.2	5.4
Big Island	11.4	20.0	19.0	31.4	13.3	3.8
Maui	16.5	17.7	20.3	25.3	12.7	6.3
Oahu	12.3	19.9	25.1	22.8	10.5	8.8
Total Sample Population	***11.2***	***15.4***	***16.1***	***22.8***	***11.0***	***0.8***
Hazardous waste emitted by tourism industry						
Kauai	10.3	17.5	20.6	27.8	15.5	8.2
Big Island	10.4	13.2	18.9	31.1	21.7	4.7
Maui	8.5	19.5	15.9	23.2	19.5	13.4
Oahu	11.9	13.1	26.7	19.9	14.8	13.6
Total Sample Population	***9.3***	***13.3***	***21.8***	***19.7***	***13.7***	***6.8***
A solid waste disposal problem						
Kauai	11.5	13.5	21.9	30.2	14.6	8.3
Big Island	12.3	16.0	14.2	31.1	17.9	8.5
Maui	13.4	15.9	20.7	19.5	19.5	11.0
Oahu	14.0	17.3	20.7	23.5	15.1	9.5
Total Sample Population	**11.4**	**14.0**	**21.2**	**18.6**	**13.2**	**6.6**

4.2.3 Natural Resources/Nature

A relatively higher percentage (approximately 25% - 29%) under "*Not a Problem*" is shown for water scarcity. More respondents marked "*Extremely Serious Problem*" for the introduction of alien plant and animal species and damage to coral reef systems compared to other natural resources problems. Particularly, concerns for coral reef systems are shown. 21% and 25% marked "*Problem*" and 33% and 24.1 % marked "*Somewhat Serious Problem*" on Kauai and the Big Island respectively. 24.4% and 21.5% marked "*Somewhat Serious Problem*" and 26.8% and 20.4% marked "*Serious Problem*" on Maui and Oahu respectively.

Reflecting the fact that nearly half of the respondents participated in either snorkeling or diving on each island, the respondents appeared to be more sensitive to the coral reef system issue. Some particularly noted the bad condition of coral. Others emphasized the necessity of good manners among not only tourists but also tour guides in order to protect the coral reef system.

One respondent on Kauai commented, "*I noticed it is less green, drier, and hotter now,*" as an effect of global climate changes.

TABLE 4.10 SERIOUSNESS OF NATURAL RESOURCE ISSUES (%)

(NP = Not a Problem, SWP = Somewhat Problem, P = Problem, SWSP = Somewhat Serious Problem, SP = Serious Problem, ESP = Extremely Serious Problem)

	NP	SWP	P	SWSP	SP	ESP
Water scarcity						
Kauai	29.3	20.2	19.2	17.2	9.1	5.1
Big Island	26.2	17.8	22.4	16.8	14.0	2.8
Maui	24.7	22.4	18.8	15.3	10.6	8.2
Oahu	29.1	16.5	19.2	15.4	13.7	6.0
Total Sample Population	***24.8***	***16.7***	***21.2***	***11.8***	***9.8***	***3.8***
Introduction of alien plant & animal species						
Kauai	11.0	16.0	24.0	21.0	14.0	14.0
Big Island	15.7	14.8	18.5	18.5	16.7	15.7
Maui	12.3	18.5	19.8	21.0	13.6	14.8
Oahu	15.6	23.9	15.0	16.1	13.9	15.6
Total Sample Population	***12.5***	***16.9***	***20.1***	***12.3***	***13.7***	***10.8***
Global climate changes						
Kauai	17.5	16.5	19.6	22.7	19.6	4.1
Big Island	17.1	21.0	26.7	15.2	16.2	3.8
Maui	16.9	12.0	22.9	21.7	18.1	8.4
Oahu	16.5	25.3	22.0	17.6	12.6	6.0
Total Sample Population	***15.0***	***17.8***	***23.8***	***12.3***	***12.7***	***4.2***
Soil erosion caused by too many hikers						
Kauai	10.3	28.9	21.6	25.8	12.4	1.0
Big Island	17.6	27.8	20.4	23.1	8.3	1.9
Maui	14.5	22.9	21.7	24.1	12.0	4.8
Oahu	16.8	25.7	26.3	19.6	10.6	1.1
Total Sample Population	**13.4**	**23.3**	**24.7**	**14.6**	**7.4**	**1.1**
Damage to coral reef systems from tourists						
Kauai	4.0	16.0	21.0	33.0	17.0	9.0
Big Island	8.3	7.4	25.0	24.1	17.6	17.6
Maui	7.3	15.9	11.0	24.4	26.8	14.6
Oahu	8.3	20.4	14.9	21.5	20.4	13.8
Total Sample Population	***6.4***	***14.1***	***19.5***	***18.9***	***17.5***	***9.7***

4.2.4 Issues derived from Tourism Development

Compared to the previous sections, a higher distribution can be seen under "*Somewhat Serious Problem*" to "*Serious Problem.* 23% marked "*Extremely Serious Problem*" for traffic on Maui. Some respondents commented on lack of infrastructure expansion compared to the rapid growth of population on Maui. Several respondents observed more traffic on Oahu compared to

their previous visit a year or two years ago. One respondent observed more traffic on Kauai compared to his previous visit to Kauai in 1999.

Throughout the islands, more than 20% marked "*Serious Problem*" for energy consumption in tourism facilities. Nearly 20% marked "*Extremely Serious Problem*" on Maui. In fact, some visitors expressed their concerns about water and energy consumption in the hotel industry. They suggested that hotels should give choices to guests for changing sheets. They feel daily change is not always necessary, and as a result water and energy would be conserved.

Scenery changes are a serious concern, especially Maui ("*Extremely Serious Problem,*" 24.7%). One respondent on Kauai said, "Too many hotels have been built, and it has been affecting the scenery changes." She further commented that the architectural design of hotels on Kauai, which can not be higher than four stories are desired. These types of designs incorporate nature better in an effort to minimize scenery changes.

TABLE 4.11 SERIOUSNESS OF ISSUES DERIVED FROM TOURISM DEVELOPMENT IN HAWAII (%)

(NP = Not a Problem, SWP = Somewhat Problem, P = Problem, SWSP = Somewhat Serious Problem, SP = Serious Problem, ESP = Extremely Serious Problem)

	NP	SWP	P	SWSP	SP	ESP
Traffic caused by tourism events						
Kauai	4.0	13.0	20.0	28.0	18.0	17.0
Big Island	6.5	11.1	23.1	27.8	25.0	6.5
Maui	4.6	9.2	13.8	19.5	29.9	23.0
Oahu	6.0	12.6	17.6	20.3	29.1	13.7
Total Sample Population	***4.9***	***10.7***	***20.4***	***20.7***	***22.5***	***9.8***
Energy consumption in tourism facilities						
Kauai	6.2	12.4	20.6	26.8	21.6	12.4
Big Island	10.4	14.2	14.2	27.4	26.4	7.5
Maui	8.1	17.4	14.0	10.5	30.2	19.8
Oahu	7.4	16.6	19.4	25.1	20.0	11.4
Total Sample Population	***7.0***	***13.5***	***18.7***	***20.0***	***18.6***	***8.5***
Scenery changes by tourism facilities						
Kauai	4.0	15.8	21.8	29.7	13.9	14.9
Big Island	11.2	14.0	17.8	26.2	22.4	8.4
Maui	3.5	14.1	11.8	17.6	27.1	24.7
Oahu	8.2	16.4	15.8	22.4	23.5	13.1
Total Sample Population	***6.4***	***13.8***	***17.8***	***20.2***	***16.5***	***11.7***

4.2.5 Growth

Rapid growth of both resort communities and the number of tourists were a serious concern on each island. Maui indicates higher concerns among the respondents compared to other islands. 26.2% responded "*Extremely Serious Problem*" for the rapid growth of resort communities, and 24.1% responded "*Extremely Serious Problem*" for the rapid growth of the number of tourists.

TABLE 4.12 SERIOUSNESS OF GROWTH ISSUES IN HAWAII (%)

(NP = Not a Problem, SWP = Somewhat Problem, P = Problem, SWSP = Somewhat Serious Problem, S = Serious Problem, ESP = Extremely Serious Problem)

	NP	SWP	P	SWSP	SP	ESP
Rapid growth of resort communities						
Kauai	3.0	8.9	19.8	23.8	24.8	19.8
Big Island	6.5	13.1	13.1	28.0	25.2	13.1
Maui	4.8	17.9	17.9	16.7	26.2	26.2
Oahu	6.7	14.4	14.4	22.8	28.3	15.6
Total Sample Population	***4.9***	***10.0***	***16.1***	***20.3***	***23.5***	***12.3***
Rapid growth in the number of tourists						
Kauai	30.	9.1	27.3	27.3	15.2	18.2
Big Island	8.3	11.1	25.0	25.0	19.4	11.1
Maui	7.2	10.8	15.7	15.7	26.5	24.1
Oahu	5.5	10.4	21.9	23.0	24.0	15.3
Total Sample Population	***5.3***	***9.3***	***23.0***	***20.3***	***18.9***	***11.2***

4.2.6 Policies and Practices

The lack of environmental awareness programs was a serious concern. 21% on Kauai, 27.9% on Maui, and 25.4% on Oahu marked "*Extremely Serious Problem.*" 25.9% marked "*Serious Problem*" on the Big Island. This suggests the necessity of environmental awareness programs for tourists. Visitors are willing to learn more about Hawaii's environment if such programs were available.

Failure of developing controls on tourism growth appears to be of a more serious concern on the Big Island and Maui. Failure to adopt effective policies to control environmental problems was also considered a serious problem on the Big Island. A respondent noted that on Maui effective policies were developed, but never implemented.

TABLE 4.13 SERIOUSNESS OF POLICIES AND PRACTICES ISSUES IN HAWAII (%)

(NP = Not a Problem, SWP = Somewhat Problem, P = Problem, SWSP = Somewhat Serious Problem, SP = Serious Problem, ESP = Extremely Serious Problem)

	NP	SWP	P	SWSP	SP	ESP
A lack of environmental awareness programs for tourists.						
Kauai	7.0	8.0	23.0	21.0	20.0	21.0
Big Island	3.7	12.0	16.7	27.8	25.9	13.9
Maui	9.3	17.4	15.1	11.6	18.6	27.9
Oahu	9.7	14.1	13.0	18.4	19.5	25.4
Total Sample Population	***7.0***	***11.7***	***16.6***	***15.4***	***20.3***	***16.9***
Failure of developing controls on tourism growth.						
Kauai	4.1	14.3	26.5	24.5	14.3	16.3
Big Island	7.4	15.7	28.7	17.6	23.1	7.4
Maui	10.6	16.5	10.6	20.0	23.5	18.8
Oahu	12.6	13.7	21.3	20.8	19.1	12.6
Total Sample Population	***8.3***	***13.3***	***24.1***	***14.6***	***18.2***	***9.5***
Failure to adopt effective policies to control environmental problems.						
Kauai	5.1	20.4	21.4	21.4	18.4	13.3
Big Island	9.3	11.1	27.8	25.9	17.6	8.3
Maui	7.2	12.0	21.7	16.9	27.7	14.5
Oahu	10.6	14.4	18.3	25.6	15.0	16.1
Total Sample Population	***7.6***	***12.9***	***23.9***	***15.5***	***16.3***	***10.0***

4.2.7. Summary of Perception of Hawaii's Environmental Quality

Hawaii's environmental quality was rated high by more than 80% of the respondents, and half the respondents answered that the quality remained the same compared to their last visit to Hawaii. Although the environmental quality was perceived as excellent and good, certain areas of environmental problems were identified. Aesthetic problems, rapid growth of tourism, and a lack of policies and practices were identified as concerns among the respondents. On the other

hand, respondents were less concerned with the issues of air/water pollution and natural resources.

4.3 RESPONSIBILITIES IN PROTECTING HAWAII'S ENVIRONMENT

Although tourism outweighed local development activities on each island in Table 4.13, nearly half of the respondents answered "*A Combination*." Among those who marked "*A combination,"* one respondent on Maui indicated "3/4 tourism, 1/4 local development activities." Consequently, on Maui, more respondents believed that environmental changes were caused by tourism development.

Some stated there has been no change to Hawaii's environment or the changes were caused by natural force. The respondents who marked "*other"* specified "*lack of control and actions by the State government and local authorities*" and "*lack of education for the visitors and locals on the islands.*" Some noted "*locals' poor attitude combined with tourist industry corporations,"* and "*uncontrolled coastal development by hotels and condos; therefore, the controlled tourism is necessary."* Others expressed the complicated relationship between tourism's negative impact on the environment and tourism's positive effects on Hawaii's economy. One respondent expressed the difficulty of drawing a line between tourism and local development activities since tourism development often leads to local development (i.e., infrastructure expansion). A few respondents claim that the military needs to take responsibility for Hawaii's environment. These respondents were concerned about sonar operations in Hawaii's water, and the effects on marine life. On Maui, a respondent reported that there have been hearing problems among whales.

TABLE 4.14 HAWAII'S ENVIRONMENT HAS CHANGED MAINLY BECAUSE OF: (%)

	Kauai	*Big Island*	*Maui*	*Oahu*	*Total Sample Population*
Tourism	16.2	20.4	28.1	30.9	23.3
Local Development Activities	8.6	4.6	3.4	3.7	4.5
A Combination	54.3	51.9	21.7	44.5	46.2
Don't Know	20.0	21.3	14.6	18.8	17.6
Other	1.0	1.9	1.1	1.6	1.3

More than 45% of the respondents throughout the island consistently answered that all people in Hawaii, regardless of visiting or living, are responsible for protecting Hawaii's environment. It implies that a collective effort of each stakeholder in tourism is required to protect the environment. Government was ranked next. This reflects that a significant percentage of the respondents believe effective policies and government initiatives are able to solve environmental problems.

TABLE 4.15 WHO HAS A MAJOR ROLE IN PROTECTING THE ENVIRONMENT IN HAWAII? (%)

	Kauai	*Big Island*	*Maui*	*Oahu*	*Total Sample Population*
Government	28.3	23.6	17.0	19.5	20.5
Tourism Industry	7.5	4.5	6.8	12.6	8.1
Society/Citizens	11.3	9.1	11.4	6.8	8.5
Environmental Groups	0.9	4.5	9.1	4.7	4.4
Individuals	2.8	5.5	3.4	6.3	4.5
All	47.2	50.9	47.7	45.3	44.3
Not Sure	1.9	1.8	4.5	4.7	3.2

4.4 ATTITUDES TOWARD TOURISM DEVELOPMENT IN RELATION TO THE ENVIRONMENT

4.4.1 Tourism Promotion in Hawaii

The respondents seemed to take neutral positions for tourism promotion in Hawaii. Previously, the respondents addressed their concerns on the crowding and aesthetic issues derived from the tourism industry. However, they also believed that tourism had been bringing economic benefits to Hawaii. In fact, 42.6% on Kauai, 46.8% on the Big Island, and 46.8% on Oahu supported tourism as having a vital role in Hawaii. Only Maui showed more respondents with a neutral position. Several respondents on Kauai commented that tourism should be encouraged in Hawaii only because it provides jobs, and they support tourism only if it is done properly. Interestingly, more respondents agreed that tourism should be actively encouraged in Hawaii, yet disagreed that Hawaii should attract more tourists.

Despite the negative comments on policies and practices, most of the respondents agreed or took neutral positions for tourism promotion by the government. One respondent who marked "*Disagree*" stated that Hawaii does not need any additional promotions since it would create more crowded areas.

TABLE 4.16 PERCEPTIONS IN REGARDS TO HAWAII'S TOURISM PROMOTION (%)

	Disagree	Neutral	Agree
I believe tourism should be actively encouraged in Hawaii.			
Kauai	10.9	56.4	32.7
Big Island	16.4	49.1	34.5
Maui	13.3	54.2	32.5
Oahu	12.4	57.5	30.1
Total Population Sample	***12.0***	***49.9***	***29.1***
Hawaii should attract more visitors.			
Kauai	30.7	60.4	8.9
Big Island	29.1	50.9	20.0
Maui	30.5	51.2	18.3
Oahu	25.9	56.2	17.8
Total Population Sample	***25.5***	***49.9***	***14.8***
I support tourism as having a vital role in Hawaii.			
Kauai	5.9	50.5	43.6
Big Island	5.5	47.7	46.8
Maui	9.9	54.3	35.8
Oahu	5.9	47.3	46.8
Total Population Sample	***5.9***	***44.5***	***40.0***
The state/city/county governments are right in the promotion of tourism facilities in Hawaii.			
Kauai	10.0	58.0	32.0
Big Island	7.3	51.4	41.3
Maui	12.3	49.4	38.3
Oahu	9.7	53.0	37.3
Total Population Sample	***8.7***	***47.7***	***33.6***

4.4.2. Environmental Concern for Tourism Development in Hawaii

The distribution in this section leans toward agreement. On Maui, 42% and 43.2% on Oahu agreed that tourism increased the noise level, and more than 40% on each island agreed that there is more litter from tourism. One respondent on Kauai observed more trash on lawns and roads. A few respondents on Oahu emphasized that tourists need to be educated. A visitor on Oahu claimed that more local people litter, and that both tourists and residents need education to prevent damage to the natural environment.

However, some respondents noted that tourism does not necessarily need to negatively impact the environment. In fact, 79.2% on Kauai, 68.2% on the Big Island, 80.5% on Maui, and

73.5% on Oahu agreed that long-term planning by Hawaii could control the negative impacts of tourism on the environment. One noted that technology could help protect the environment by inventing alternative energy sources to conserve energy.

TABLE 4.17 PERCEPTIONS IN REGARDS TO THE IMPACTS FROM TOURISM DEVELOPMENT IN HAWAII (%)

	Disagree	Neutral	Agree
Tourism negatively impacts the environment.			
Kauai	16.8	47.5	35.6
Big Island	22.0	40.4	37.6
Maui	13.4	39.0	47.6
Oahu	23.4	39.7	37.0
Total Population Sample	***18.0***	***37.2***	***34.8***
Tourism has increased the noise level in Hawaii's public spaces.			
Kauai	11.1	53.5	35.4
Big Island	22.4	48.6	29.0
Maui	14.8	43.2	42.0
Oahu	17.3	39.5	43.2
Total Population Sample	***15.0***	***40.4***	***34.1***
There is more litter from tourism.			
Kauai	10.1	46.5	43.4
Big Island	18.5	34.3	47.2
Maui	13.4	34.1	52.4
Oahu	17.4	39.7	42.9
Total Population Sample	***13.9***	***34.7***	***41.0***
Tourism has increased pollution.			
Kauai	13.4	52.6	34.0
Big Island	14.0	44.9	41.1
Maui	8.8	38.8	52.5
Oahu	17.8	40.6	41.7
Total Population Sample	***12.7***	***38.2***	***36.8***
Long-term planning by Hawaii can control the negative impacts of tourism on the environment.			
Kauai	3.0	17.8	79.2
Big Island	4.5	27.3	68.2
Maui	6.1	13.4	80.5
Oahu	3.8	22.2	73.5
Total Population Sample	***3.9***	***17.8***	***67.6***
Technology can save the environment.			
Kauai	23.2	49.5	27.3
Big Island	22.7	50.9	26.4
Maui	19.5	45.1	35.4
Oahu	23.1	43.5	33.3
Total Population Sample	***20.3***	***42.2***	***27.8***

4.4.3. Environmental Benefits from Tourism Development in Hawaii

More than 40% of the respondents took a neutral position on the statement, "the benefits of tourism outweigh the negative environmental consequences of tourism development." In addition, more people indicated disagreement with the statement than agreement. Consistently, 63% on Kauai, 48.6% on the Big Island, 63.8% on Maui, and 54.3% on Oahu disagreed that tourism benefits the natural environment.

On Kauai, 43.4% and 41.3% of tourists on Maui disagreed that tourism has raised environmental awareness among tourists reflecting the earlier responses to an issue of a lack of environmental awareness programs. In fact, 21% on Kauai, 27.9% on Maui, and 25.4% on Oahu marked "*Extremely Serious Problem*." 25.9% marked "*Serious Problem*" on the Big Island. It indicated the serious concern for a lack of environmental awareness programs. One respondent on Oahu stated, "*We [visitors] need to learn more about this beautiful island. I would like to be a more island friendly tourist, but Hawaiians and locals need to teach us [how]*." Another on Oahu said, "*More could be done to reinforce environmental concerns among tourists."*

On the other hand, 50-55% of the respondents took a neutral position for the environmental awareness among locals. Nevertheless, some respondents on Oahu observed more litter from locals and a lack of environmental awareness among locals as noted earlier.

TABLE 4.18 PERCEPTIONS IN REGARDS TO HAWAII'S TOURISM DEVELOPMENT (%)

	Disagree	Neutral	Agree
The benefits of tourism outweigh the negative environmental consequences of tourism development.			
Kauai	38.6	44.6	16.8
Big Island	33.6	41.8	24.5
Maui	27.2	49.4	23.5
Oahu	31.7	41.5	26.8
Total Population Sample	***29.5***	***39.1***	***21.2***
Tourism benefits the natural environment.			
Kauai	63.0	27.0	10.0
Big Island	48.6	37.6	13.8
Maui	63.8	31.3	5.0
Oahu	54.3	33.3	12.4
Total Population Sample	***50.7***	***29.4***	***9.7***
Tourism has raised environmental awareness among locals.			
Kauai	15.2	55.6	29.3
Big Island	14.5	54.5	30.9
Maui	15.0	52.5	32.5
Oahu	15.9	50.5	33.5
Total Population Sample	***13.6***	***47.1***	***28.4***
Tourism has raised environmental awareness among tourists.			
Kauai	43.4	37.4	19.2
Big Island	25.7	48.6	25.7
Maui	41.3	40.0	18.8
Oahu	31.3	44.5	24.2
Total Population Sample	***30.3***	***38.4***	***20.1***

4.4.4. Summary of Attitudes toward Tourism Development in Relation to the Environment

Overall attitudes toward tourism development are neutral among the respondents partly because they believe tourism negatively impacts the natural environment, yet tourism plays a vital role in Hawaii's economy.

Strong agreement on increased amount of litter and noise level from tourism facilities was indicated. There was also strong disagreement with the statement, "*tourism benefits the environment.*" However, some respondents stated that tourism does not have negative impacts on the environment. More than 65% on each island agreed that long-term planning could control negative impacts on the environment. In order to overcome negative impacts on the environment, many respondents feel that

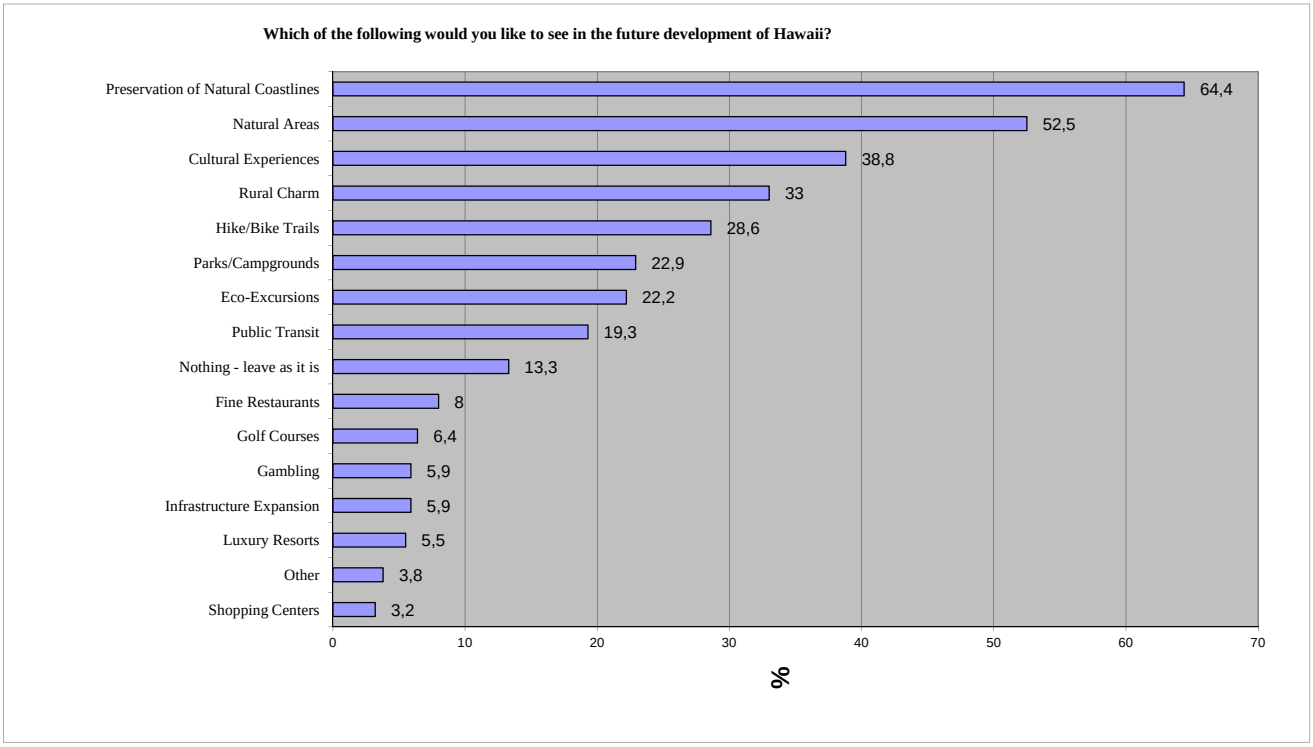
more environmental awareness needs to be raised among tourists through environmental education and programs for tourists.

4.5 FUTURE DESIRE

The graph summarizes what the respondents would like to see in the future. According to the survey, 64.4% of visitors answered they would like to see preservation of the natural coastline, and 52.5% marked natural areas. More than 30% marked cultural experiences and rural charm.

A respondent on Kauai commented that he wanted to see more ways for tourists to enjoy the nature. One on the Big Island commented on protecting indigenous species. On Oahu, a tourist said she would like to continue to see quality of the beach and clean sand in the future. Similarly, one on Maui commented that she wants to continue to see water preservation, and the continued existence of coral, fish, and whales in the future. 13.3% marked "*nothing – leave as it is.*" However, several respondents stated Hawaii is too beautiful to stop all the tourists, and it is difficult to stop the tourism development. They feel that there needs to be more information on natural preservation and environmental protection for tourists as they enter and exit Hawaii. An overwhelming percent of the respondents noted that the future development of Hawaii should have more of an environmental focus.

FIGURE 4.1 FUTURE DESIRE



While 5.5% marked "*luxury resorts*," a few on the Big Island commented that they would rather see moderate priced restaurants such as cafes where visitors can grab a fresh salad and sandwich and economically priced foods. Similarly, a few on Kauai also commented they would like to see more casual restaurants available, and the advent of moderately priced hotels instead of luxurious or cheap hotels. Some on Kauai particularly made notes on "no" for luxurious resorts, shopping, and golf courses since they feel that there are already enough.

More respondents on the Big Island and Kauai marked "*public transit*" as a future development need than on the neighbor islands. One respondent on Kauai suggested that the Kauai Bus should allow bikes, boards, and backpacks, so that more people would have more accessibility to the public transportation. They also believe if more public transit becomes available for tourists, it would alleviate air pollution and traffic.

Throughout the islands, 3.5% of the respondents made particular notes on "absolutely not" for Hawaii's current issues, gambling. This is quite remarkable, since there was no direct

question in regards to being against the developments stated. Were there were further comments, it was noted that; "*it is not necessary in Hawaii"*.

The most comments were made on recycling programs throughout the islands. No recycling of bottle, cans, and papers available in the most of the tourist sites and facilities disturbed many respondents. One commented, "*considering the fact that so many tourists come from areas where recycling is a way of life, it goes against our nature to throw cans, bottles, and newspapers in the regular garbage cans."* Some emphasized importance of education on recycling for both tourists and locals.

Other activities that were mentioned by a few respondents were: theme parks, music, and nightlife. Also, social issues - such as prevention of homelessness and Hawaiian native's preservation status (water rights, fishing rights, and land rights) were noted.

4.6 CORRELATIONS

4.6.1 Question 6. Perception of Environmental Problems

The following shows items under Question 6 in the survey, which indicated strong correlation (.500 or higher) between the items. (Pearson Correlation is shown in parenthesis.)

Air pollution

- Water scarcity (.612)
- Drinking water pollution (.591)
- Pollution in rivers and coastal areas (.617)
- Hazardous waste emitted by tourism industry (.512)

Drinking water pollution

- Water scarcity (.747)
- Pollution in rivers and coastal areas (.718)
- Hazardous waste emitted by tourism industry (.634)
- A solid waste disposal problem (.616)
- Global climate changes (.520)
- Failure to adopt effective policies to control environmental problems (.503)

Pollution in rivers and coastal areas

- Water scarcity (.698)
- Hazardous waste emitted by tourism industry (.675)
- A solid waste disposal problem (.647)
- Global climate changes (.509)
- Failure to adopt effective policies to control environmental problems (.566)

Hazardous waste emitted by tourism industry

- A solid waste disposal problem (.734)
- Introduction of alien plant and animal species (.540)
- Global climate changes (.596)
- Energy consumption in tourism facilities (.578)
- Scenery changes by tourism facilities (.511)
- Failure of developing controls on tourism growth (.525)
- Failure to adopt effective policies to control environmental problems (.587)

Water scarcity

- Global climate changes (.511)

Introduction of alien plant and animal species

- Global climate changes (.614)
- Failure to adopt effective policies to control environmental problems (.512)

Global climate changes

- Energy consumption in tourism facilities (.538)
- Failure to adopt effective policies to control environmental problems (.560)

Damage to coral reef systems

- Rapid growth of resort communities (.515)
- Failure to adopt effective policies to control environmental problems (.512)

Traffic caused by tourism events

- Rapid growth of the number of tourists (.669)

Energy consumption in tourism facilities

- Scenery changes by tourism facilities (.667)
- Rapid growth (.646)
- Rapid growth in the number of tourists (.628)
- A lack of environmental awareness programs for tourists (.572)
- Failure of developing controls on tourism growth (.646)
- Failure to adopt effective policies to control environmental problems (.567)

Scenery changes by tourism facilities

- Rapid growth of resort communities (.694)
- Rapid growth in the number of tourists (.636)
- A lack of environmental awareness programs for tourists (.523)
- Failure of developing controls on tourism growth (.613)
- Failure to adopt effective policies to control environmental problems (.556)

Rapid growth of resort communities

- Rapid growth in the number of tourists (.832)

- A lack of environmental awareness programs for tourists (.615)
- Failure of developing controls on tourism growth (.721)
- Failure to adopt effective policies to control environmental problems (.609)

Rapid growth in the number of tourists

- A lack of environmental awareness programs for tourists (.623)
- Failure of developing controls on tourism growth (.736)
- Failure to adopt effective policies to control environmental problems (.577)

A lack of environmental awareness problem for tourists

- Failure of developing controls on tourism growth (.724)
- Failure to adopt effective policies to control environmental problems (.695)

Failure of developing controls on tourism growth

- Failure to adopt effective policies to control environmental problems (.725)

"*Rapid growth of resort communities*" also indicated correlation .409 to the statement under Q10 "*tourism negatively impacts the environment.*" "*Failure of developing controls on tourism growth*" indicated correlation to Q10 "*tourism negatively impacts the environment* (correlation .443) and "*tourism has increased pollution* (correlation .405)."

4.6.2 Question 10. Attitudes toward Tourism Development

The following shows statements under Question 10 in the survey, which indicated strong correlation (.500 or higher) between the statements. (Pearson Correlation is shown in parenthesis.)

"I believe tourism should be actively encouraged in Hawaii."

- Hawaii should attract more visitors. (.593)
- I support tourism as having a vital role in Hawaii. (.508)
- The state/city/county governments are right in the promotion of tourism facilities in Hawaii. (.533)

"I support tourism as having a vital role in Hawaii."

- The state/city/county governments are right in the promotion of tourism facilities in Hawaii. (.653)

"Tourism has increased the noise level in Hawaii's public spaces."

- There is more litter from tourism. (.532)

"There is more litter from tourism."

- Tourism has increased pollution. (.741)

4.6.3 Question 11. Global Environmental Awareness

Global environmental awareness addressed in six statements under Question 11 in the survey didn't indicate strong correlation to other questions. It can be interpreted that degree of the respondents' global environmental awareness had less influence on their answers to the questions in the survey.

Chapter 5 - CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSION

Visitors are often characterized as being unaware that their actions may have detrimental affects on the local environment. However, this assumption is not necessarily accurate. According to this study, the majority of visitors surveyed are environmentally conscious, but not every visitor is aware of the negative impacts that tourism, when practiced in an irresponsible manner – has on the environment. Moreover, visitors who desire to be environmentally friendly often see themselves helpless when there is a lack of policies adopted and programs implemented in Hawaii.

Most visitors agreed that tourism should be actively encouraged in Hawaii, but felt that the state should not attract more visitors. This indicates that in order to maintain Hawaii's economic health, tourism ought to be nurtured. Manageable industry growth can be achieved by setting limitations. According to the findings, however, several visitors believe that limits have already been broken, damaging and depleting the resources that make Hawaii a popular destination. Above all, the majority supported future development that is nature based. All other development received little support. Visitors prefer experiences that are beneficial to the natural environment.

Tourism can be considered an environmentally altering industry and as a result, changes are inevitable. Stakeholders must recognize these changes, and begin to act more like caretakers to protect their vested interests. The Ojibwe, a Native American tribe, embraces the belief that actions taken today, affect seven generations into the future, far from Hawaii's past and present practices.

5.2 RECOMMENDATIONS

Primary recommendations formulated from the study include a(n) educational video, energy and water consumption program for hotels, and statewide recycling program. The lack of environmental awareness programs for visitors was considered a serious concern indicating support for education. Industry professionals, such as airlines and cruise lines, could contribute in the effort to educate visitors. For instance, before visitors arrive in Hawaii, a sense of personal responsibility could be instilled through a short educational video covering such topics as coral reef protection and littering while in flight and on voyage. This endeavor may positively change visitors' actions. Moreover, once customers/guests apply pressure to businesses that do not consider the environment a primary concern, corporations are more likely to adopt policies and implement programs that sustain the environment in order to satisfy their clientele.

The hotel industry could decrease energy and water consumption if a collective effort involving all levels of employment and guests is made consistently throughout the island chain. Several hotels have adopted policies, but have not implemented programs. Other hotels not taken any type of action. Additional studies might be helpful in addressing this issue.

Several comments were made regarding the lack of recycling facilities and awareness concerning solid waste disposal among the local population. Even though the abstract population in this analyze of the findings only consisted of the visitor segment – the local community plays a vital role in regards to this issue. The question is whether or not the local population is providing an acceptable example for visitors? Do they make it possible for the visiting tourists to exercise environmentally friendly practices? These questions are raised as a summary based on the concern many visitors had in regards to the lack of an effective statewide recycling program.

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APPENDIX

A.1 ANNOTATED BACKGROUND LITERATURE

Tourism has many effects on the environment around us. This article attempts to discuss the aspects of tourism on a global scale. The economic side to tourism is discussed as being a major world industry. The tourism industry is undeniably huge, and according to some, the single largest industry in the world (Richter: 1989:3). It is recognized that developing countries, as well as, developed countries rely upon the tourism industry for large share of their revenues. In 1990, the developing world's share of total international tourism was estimated by George Gazes to be 29.7 percent, with a gross value of U.S. $250 billion (Gazes: 1992:1719). It would be assumed that with tourism accounting for that big of a share of these countries income, that the industry would be viewed in a positive manner. This is not always the case, a native Hawaiian was quoted as saying, "We don't want tourism. We don't want you….We don't want to be degraded as servants and dancers. That is cultural prostitution….There are no innocent tourists." (DeKadt: 1990:1).

The opinions of those who support tourism, and those who oppose it, are all given equal weight in this article. However, the tone of this paper was one of a biased evaluator. The research approach to this paper was opinion, using many citations to support its argument. Economic, Environmental, Cultural, Social, and Political issues represent CIDA's five pillars of sustainable development. Each of these pillars are looked at briefly in relation to promoting alternative types of tourism.

The managing of parks and recreation systems must incorporate safeguards to eliminate or lessen the effects of large-scale tourism on the environment. Tourism development must not damage the very commodity it is trying to sell. We must emphasize smaller scale development or attractions set in communities organized by the residents. Most importantly, we must emphasize cultural sustainability by minimizing damage to and encouraging respect for the host culture (deKadt: 1990:3-4).

This article investigates the community perceptions of the socio-cultural impacts of tourism in a small British coastal tourist resort; the perceptions are examined as to which extent they coincide with classifications made by various academic writers. The research was conducted by Paul Brunt and Paul Courtney from the University of Plymouth, United Kingdom – the research is set in Dawlish, a small seaside resort in South Devon.

As Brunt and Courtney states in their introduction: "…social and cultural impacts of tourism should be considered throughout the planning process and in an environmental impact assessment procedure, so that benefits are optimized and problems minimized" (p.494). To enable this it is important to know the extent of the social and cultural impacts that tourism could bring upon a society. This article presents a theoretical background to the question, as presented by various academic writers, by listing different key aspects of the thoughts. This theoretical background presents the frame to the answers that are drawn out of the research – based on three main themes: tourism development, tourist- host interaction, and culture.

The research was conducted by in-depth interviews consisting of 12 questions, centered on personal feelings affecting the three main themes. The interview was done on 12 people, 3 from each of the four resident types defined by Krippendorf (1987) – a system that appears to offer a commonsense classification system that enabled the conceptualization of certain characteristics, themes, and experiences. I would believe that the sample size is to small, but the article justifies it - based on pragmatic criteria suggested by Brunt (1997).

The results where displayed in conceptually clustered matrixes, as derived from Miles and Huberman (1994). The results that came out showed that the range of negative impacts of tourism matched those frequently cited within relevant literature. When it came to perceived positive impacts the differences is more diverse. The various perceived impacts on the local environment presents range of perceptions and it are in many cases possible to separate these to the four various kinds of resident's types.The study came up with four main conclusions:

1. Tourism has altered the structure of the town's community, with consequential effects on the attitudes of the residents.
2. The change in emphasis from hotel-based accommodation to self-catering had a significant bearing on the host perception of tourism impacts.
3. The cultural impacts of tourism are not perceived as being of any great importance.
4. The perceived socio-cultural impacts of tourism identified by the informants who took part in the study coincided with many of the key impacts that were identified at the outset.

All these conclusions have moderations to go with them, as there is no one accurate answer. Even though there are some specific differences, the general analyses of the socio-cultural impacts of tourism can be applied to the perceptions of residents of this small coastal tourist area in Britain. Brunt, P. & Courtney P. (1999). Host Perceptions of Sociocultural Impacts. Annals of Tourism Research, Vol.26, No.3, pp. 493-515, 1999

This article investigates the perceptions that tourists' have of the historical authenticity of The Rocks, Australia – a heritage precinct fashioned by the Sydney Cove Redevelopment Authority. It argues that overall tourists perceive this representation of history as authentic. But to some extent this is seen as a concern, since the historical reproduction seen here – not necessarily is an authentic version of Australia's past. The research was conducted by Gordon Waitt from the University of Wollongong, Australia.

Through this research project, Waitt tries to answer to a critic generally given to development projects such as The Rocks; projects that create a heritage environment that functions as a 'backdrop' for tourists' spending in regards to entertainment, relaxation, or shopping. This criticism focuses on the representation of only one version of the historical truth in these projects, often bearing only a faint and extremely partial resemblance to past events as documented in various alternative sources. (Ashworth 1990; Ashworth and Tunbridge 1990; Hewison 1987; Philo and Kearns 1993). Waitt wanted to see if this was also the case in The Rocks. For his theoretical background he among others uses the definition behind "Interpretation of Place" which includes: perspective, version, focus and themes.

The research was conducted as a two-stage survey; where the 1st phase sought to identify items (attributes of place and people) that signified the historically authentic to tourists. This phase identified 13 key items as having a contributory significance to the hypothesis. The 2nd stage of the research employed a four-part questionnaire that included: demographic characteristics; respondent motivation; levels of perceived authenticity derived from the items identified in the 1st stage; and respondent's situated or generated knowledge of The Rocks.

This article deals with tourists' perceptions about historical authenticity, a theme similar to that of our project; 'Environmental Scan of Hawaii'. Both projects deals with perceptions, a field that in many cases can be difficult to measure – but on the other hand is the backbone for the tourism industry. As a foundation for the tourism industry, both the tourists' perceptions and the product that is sold – are considered to be intangible. The basic knowledge drawn from this article is that tourists' perceive the destination as we want them to, and that it is possible to create an 'artificial' society that somewhat makes tourists believe something that is not true. In a

way that is what Hawaii is doing – in their presentation of Paradise. But in Hawaii's case, the picture and perceptions created before arrival isn't always what the individual tourist leaves the islands with. Looking closer at research like this; I believe it is possible to create a destination that fulfills tourists' perceptions – without jeopardizing the full truth. Waitt, Gordon (2000). Consuming Heritage, Perceived Historical Authenticity. Annals of Tourism Research, Vol.27, No.4, pp. 835-862, 2000

Ecotourism in Bako National Park, located on the island of Borneo - has afforded Malaysia the opportunity for advancements within this industry. However, development can cause negative impacts on the environment and ultimately affect visitors' experiences. This study was carried out in an effort to identify and manage unfavorable effects on the environment from the visitors' perception. Specifically, the study focused on recognizing undesirable visitor impacts, and possible management practices. Visitors were more concerned with environmental conditions, such as litter and soil erosion, than social conditions, which included the number of park visitors.

This study consisted of two types of research methods, which were a literature review and questionnaire. The literature review pinpointed possible eco-tourism impacts, and a survey was developed from this collection of information. Written in English, the survey consisted of three sections: demographic data; visitor activity; and perceived impacts and management techniques. Between December 1996 and January 1997, 330 surveys were distributed to visitors by one researcher, two volunteer assistants, and park staff. A sum of 236 surveys was returned resulting in a 72% response rate.

The Bako National Park study is similar to the Environmental Scan of Hawaii project because both are investigating visitor's perspectives on the environment. Besides surveying visitors, the project in Hawaii includes residents and industry professionals. Hawaii encompasses several islands, unlike the contained park. Chin and Dowling indicate that even though the park has specific management objectives, the priority being conservation, regulatory matters are complex since various government agencies oversee forest, land, and marine life/fisheries resources. The entire state of Hawaii does not concentrate primarily on environmental issues and other interests often prevail. Although the two investigations have their differences, certain aspects from the park study could be incorporated into the Hawaii project. For instance, an additional phase that focuses on management practices could be undertaken although this would prolong the project. Besides uncovering observed impacts, future problems could be identified if the Hawaii project's survey included potential impacts.

There are three ways that practitioners could benefit from this article. First, identifying potential impacts can assist park managers in preventing adverse effects on the environment. Second, this study offers park managers a variety of management actions that are shown to have visitors' support. Third, insight regarding survey design is provided for researchers. Above all, this article is considered to contain valuable information, since this type of research is the first of its kind carried out in Bako National Park.

Chin and Dowling take appropriate steps to familiarize readers with the topic. Before the research methods are discussed, an extensive amount of research on impact studies is referenced. Additional effort is made to help the audience understand ecotourism, the role it plays in Bako National Park, and the social and biophysical approach taken by the researchers. Since the future of ecotourism relies on the park's resources, the importance of management is recognized and the contribution of these findings is communicated. All in all, the strengths of this article outweigh its weaknesses. Chin, C., & Dowling, R. K. (2000). Ecotourism in Bako National Park, Borneo: Visitors' perspectives on environmental impacts and their management. Journal of Sustainable Tourism, 8, 20-35.

Edgell and Nowell (1989) used the NEP in their study to identify environmental beliefs among different natural resource users. Edgell and Nowell (1989) believed that identifying

environmental beliefs among different natural resource users could be a mean to resolve their conflicts of interest. The sample populations were selected from Greenpeace, the general public, and the fishers in British Columbia. As a result, both Greenpeace and the general public strongly agreed with statement 1 through 4 (balance of nature) and strongly disagreed with statement 9 through 11 (humanity over nature). Contrary, most of the fishers disagreed with statement 2 and 4 through 8 (balance of nature and limits to growth) and agreed with statement 9 through 12. The result implied that both Greenpeace and the general public emphasizes on the importance of natural environment while the fishers value the natural resources as economical benefits.

The study of nature-based tourism among Louisiana tourists conducted by Luzar, Diagne, Gan, and Henning (1995) utilized the modified NEP scale. The modified NEP scale contained six statements instead of twelve statements. The six statements were selected to elicit both positive and negative attitudes toward two attitudinal domains: human conflicts with nature and the role of humans in nature. The first three statements were addressed in pro-environmental manner with a 5-point Likert type scale: 1 for Strongly Disagree and 5 for Strongly Agree. Therefore, the lower score implied pro-environmental attitudes. As suggested by Lynne, Casey, Hodges, and Rahmani (1994), scales for the remaining three statements, which were addressed in anti-environmental manner, were reversed to achieve a higher total score for a positive environmental attitude. The maximum score on the modified NEP scale was 30 with its neutral score of 18. The score greater than 18 indicated more positive environmental attitudes.

These five sections used in 'Environmental Scan of Hawaii' were reflected in Andereck's (1995) study, and she concludes that tourism has negative environmental impacts after reviewing the 10 years of research on tourism's environmental impact. She identifies four major areas of environmental impacts by tourism: pollution, flora and fauna, soil and beaches, and aesthetics. The majority of pollution problems are derived from traffic, tourism development, and the activities of tourists (Hamele 1988) such as air pollution resulted from emissions from vehicles, including tour busses and ground transportation for tourists, and water pollution often stems from wastewater generated by tourist facilities. Inappropriate drain of sewage from resort hotels into the natural water resources has become serious problem in the Mediterranean (Mathieson and Wall 1982) and near Mount Everest (Karan and Mather 1985). Increased usage of water for washing, swimming pools, and lawn water associated with tourism-related facilities has contributed to water scarcity in some tourism communities. Andereck (1994) also suggests that research provided evidence that tourism affects flora and fauna in numerous different ways. Marine life has been threatened by disposition of waste into the natural water resources, and beach visitors, tour boats, and scuba divers have impacted coral reef. (Boo 1990). Finally, Andereck (1994) addresses negative impacts by tourism development on visual quality and noise levels.

Additionally, the Environmental Public Opinion Survey (2000) conducted in 18 Arab countries by the Environment & Development Magazine in 2000 is integrated into our survey. The survey was formed to measure the magazine readers' perceptions of the Arab's environment quality and addressed population growth and effectiveness of the environmental policies as environmental concerns in addition to the four major environmental problem areas identified by Andereck.

A 6-point scale is utilized to measure the attitudes toward tourism development in relation to the environment. The attitudes were measured by the respondents' degree of agreement or disagreement with a series of statements. The statements were extracted from the tourism impact attitude scale (TIAS), which was tested and verified, by Lankford and Howard (1994). In the process of developing the TIAS, Lankford and Howard (1994) pre-tested generated 72 items in Bend, Oregon and 83 items in Cannon Beach, Oregon among the sample of 400 residents in each community. The pretest was conducted by mailing survey containing the items. The response rates after adjusting non-deliverables were 51.2% (n = 199) for Bend and

46.5% (n = 186) for Cannon Beach. After eliminating items with corrected item-to-total correlations below 0.50 and further elimination of items with 0.30 loading factor coefficient in exploratory factor analysis to assess dimensionality of scale, a total of 50 items survived.
The 50 items were tested among 2,583 randomly selected residents of the Columbia River Gorge, Washington by mailing survey. The response rate after adjusting non-deliverables was 74.1% (n = 1,436). After cross-validation and consistency analysis of the combined samples of Oregon and Washington, 27 items survived. The 27 items contains two factors. Factor 1, "concern for local tourism development" consists of 18 items, and Factor 2, "personal and community benefits" consists of 9 items. Reliability of Total 27 item TIAS was 0.9643. TIAS was also utilized and verified in the study of sustainable practices in Columbia River Gorge. (J.K. Lankford 1995).

A.2 QUESTIONNAIRE - Visitors

A SCAN OF ENVIRONMENTAL PERCEPTIONS IN HAWAII

A University of Hawaii, School of Travel Industry Management, research team is examining perceived environmental issues in Hawaii. Please take a few minutes to answer this survey. If you have any questions, please contact Dr. Sam Lankford at (808) 956-8025 or saml@hawaii.edu by e-mail.

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1. Is this your first visit to Hawaii?

□ Yes □ No

1a. If no, when was the last time you visited Hawaii?

_____

1b. Which island(s) have you visited in Hawaii in all your trips?

□ Oahu _____ times
□ Maui _____ times
□ Kauai _____ times
□ Hawaii _____ times
□ Molokai _____ times
□ Lanai _____ times

2. How many days did you spend on this island during this trip?

_____ days

3. What kind of recreational activities did you do on this island during this trip? (Please mark all that apply.)

□ Snorkeling □ Hiking
□ Diving □ Biking
□ Kayaking □ Camping
□ Surfing □ Whale Watching
□ Other (jet skiing, para-sailing, etc. please specify) _____

4. How would you rate the overall quality of the environment on this island?

□ Excellent □ Good □ Fair □ Poor □ Very Poor □ Don't Know

5. The quality of Hawaii's environment has become _____ compared to your last visit to Hawaii.

□ Better □ Worse □ The Same □ Don't Know

6. How serious do you think the following environmental issues are <u>in Hawaii</u>?

Please <u>circle</u> (●) a line which best corresponds to your opinion with each statement.

	Not a Problem 0	1	2	3	4	*Extremely Serious* 5
Air pollution						
Water scarcity						
Drinking water pollution						
Pollution in rivers and coastal areas						
Usage of chemical pesticides & herbicides						
Hazardous waste emitted by tourism industry						
A solid waste disposal problem						
Introduction of alien plant and animal species						
Global climate changes						
Soil erosion caused by too many hikers						
Damage to coral reef systems from tourists						
Traffic caused by tourism events						
Energy consumption in tourism facilities						
Scenery changes by tourism facilities						
Rapid growth of resort communities						
Rapid growth in the number of tourists						
A lack of environmental awareness programs for tourists						
Failure of developing controls on tourism growth						
Failure to adopt effective policies to control environmental problems such as pollution & destruction of habitat						

7. Do you think Hawaii's environment has changed mainly because of:

□ Tourism □ Local Development Activities □ A Combination □ Don't Know

□ Other (please specify) _____

8. Who do you think has a major role in protecting the environment in Hawaii? (Please mark <u>only one</u>.)

□ Government
□ Tourism Industry
□ Society/Citizens
□ Environmental Groups
□ Individuals
□ All
□ Not Sure

9. Which of the following would you like to see in the future development of Hawaii? (Please mark all that apply.)

□ Luxury Resorts
□ Preservation of Natural Coastlines
□ Cultural Experiences
□ Fine Restaurants
□ Hike/Bike Trails
□ Parks/Campgrounds
□ Infrastructure Expansion
□ Nothing - leave as is
□ Golf Courses
□ Eco-Excursions
□ Natural Areas
□ Gambling
□ Shopping Centers
□ Rural Charm
□ Public Transit
□ Other (please specify)
_____

10. How do you agree with the following statement <u>about Hawaii's tourism development</u>?
Please <u>circle</u> (◯) a line that best corresponds to your agreement/disagreement with each statement.

	Strongly Disagree 0	1	2	3	4	5 *Strongly Agree*
I believe tourism should be actively encouraged in Hawaii.						
Hawaii should attract more visitors.						
I support tourism as having a vital role in Hawaii.						
The state/city/county governments are right in the promotion of tourism facilities in Hawaii.						
Tourism negatively impacts the environment.						
Tourism has increased the noise level in Hawaii's public spaces (i.e. parks).						
There is more litter from tourism.						
Tourism has increased pollution.						
Long-term planning by Hawaii can control the negative impacts of tourism on the environment.						
Technology can save the environment.						
The benefits of tourism outweigh the negative environmental consequences of tourism development.						
Tourism benefits the natural environment.						
Tourism has raised environmental awareness among locals.						
Tourism has raised environmental awareness among tourists.						

11. How do you agree/disagree with the following statements about the environment in general?

Please <u>circle</u> (◯) a line which best corresponds to your agreement/disagreement with each statement.

	Strongly Disagree 0	1	2	3	4	5 *Strongly Agree*
The balance of nature is very delicate and easily upset.	|	|	|	|	|	|
Humans must live in harmony with nature in order to survive.	|	|	|	|	|	|
When humans interfere with nature, it often produces disastrous results.	|	|	|	|	|	|
Humans are destined to rule over nature.	|	|	|	|	|	|
Humans have the right to modify the natural environment to suit their needs.	|	|	|	|	|	|
Plants and animals exist primarily to be used by humans.	|	|	|	|	|	|

12. Are you: □ Male □ Female

13. What is your age? _____ years old

14. Where do you reside? (City, State, Country)

_____

Mahalo for your co-operation!

A.3 COVER LETTER - Visitor Survey

A SCAN OF ENVIRONMENTAL PERCEPTIONS IN HAWAII

Dear Travelers to Hawaii:

Thank you for participating in the survey which will take approximately 10 minutes of your time. A student research team from the University of Hawaii is conducting this survey.

We are conducting this survey to gather information, which is not currently available from any other sources. We are establishing a database of perceived environmental issues by island. These issues will be used to identify island and statewide research needs related to the environment. A report will be compiled and posted on the following web site: www.tim.hawaii.edu/step/ during the summer of 2001.

Your response is very important for Hawaii to identify current environmental problems and to help future tourism development in conjunction with environmental preservation. Your responses will be used for statistical purposes only and will be kept strictly confidential.

Thank you for your cooperation. If you need more information, please call or email us at: 808-956-8025 or saml@hawaii.edu

Mahalo!

Aron Schweitzer Hazuki Tokuue Dietra Myers Bodil Lande

Research Assistants
Sustainable Tourism and the Environment Program
University of Hawaii at Manoa

A.4 QUESTIONNAIRE - Residents, Conservation Group Members & Industry Professionals

A SCAN OF ENVIRONMENTAL PERCEPTIONS IN HAWAII

A University of Hawaii, the School of Travel Industry Management research team is examining perceived environmental issues in Hawaii. Please take a few minutes to answer this survey. If you have any questions, please contact Dr. Sam Lankford at (808) 956-8025 or saml@hawaii.edu by e-mail.

---

1. How would you rate the overall quality of the environment on this island?

□ Excellent □ Good □ Fair □ Poor □ Very Poor □ Don't Know

2. The quality of Hawaii's environment has become _____ in the last 5 years.

□ Better □ Worse □ The Same □ Don't Know

3. Do you think Hawaii's environment has changed mainly because of:

□ Tourism □ Local Development Activities □ A Combination □ Don't Know
□ Other (please specify) _____

4. Who do you think has a major role in protecting the environment in Hawaii? (Please mark only one.)

□ Government
□ Tourism Industry
□ Society/Citizens
□ Environmental Groups
□ Individuals
□ All
□ Not Sure

5. Which of the following would you like to see in the future development of Hawaii? (Please mark all that apply.)

□ Luxury Resorts
□ Preservation of Natural Coastlines
□ Cultural Experiences
□ Fine Restaurants
□ Hike/Bike Trails
□ Parks/Campgrounds
□ Infrastructure Expansion
□ Nothing - leave as is
□ Golf Courses
□ Eco-Excursions
□ Natural Areas
□ Gambling
□ Shopping Centers
□ Rural Charm
□ Public Transit
□ Other (please specify)

_____

6. How serious do you think the following environmental issues are <u>in Hawaii</u>?

Please <u>circle</u> (●) a line which best corresponds to your opinion with each statement.

	Not a Problem 0	1	2	3	4	*Extremely Serious* 5
Air pollution						
Water scarcity						
Drinking water pollution						
Pollution in rivers and coastal areas						
Usage of chemical pesticides & herbicides						
Hazardous waste emitted by tourism industry						
A solid waste disposal problem						
Introduction of alien plant and animal species						
Global climate changes						
Soil erosion caused by too many hikers						
Damage to coral reef systems from tourists						
Traffic caused by tourism events						
Energy consumption in tourism facilities						
Scenery changes by tourism facilities						
Rapid growth of resort communities						
Rapid growth in the number of tourists						
A lack of environmental awareness programs for tourists						
Failure of developing controls on tourism growth						
Failure to adopt effective policies to control environmental problems such as pollution & destruction of habitat						

7. How do you agree with the following statement <u>about Hawaii's tourism development</u>?

Please <u>circle</u> (◯) a line that best corresponds to your agreement/disagreement with each statement.

	Strongly Disagree 0	1	2	3	4	5 *Strongly Agree*
I believe tourism should be actively encouraged in Hawaii.						
Hawaii should attract more visitors.						
I support tourism as having a vital role in Hawaii.						
The state/city/county governments are right in the promotion of tourism facilities in Hawaii.						
Tourism negatively impacts the environment.						
Tourism has increased the noise level in Hawaii's public spaces (i.e. parks).						
There is more litter from tourism.						
Tourism has increased pollution.						
Long-term planning by Hawaii can control the negative impacts of tourism on the environment.						
Technology can save the environment.						
The benefits of tourism outweigh the negative environmental consequences of tourism development.						
Tourism benefits the natural environment.						
Tourism has raised environmental awareness among locals.						
Tourism has raised environmental awareness among tourists.						

8. How do you agree/disagree with the following statements about the environment in general?

Please circle (◯) a line which best corresponds to your agreement/disagreement with each statement.

	Strongly Disagree 0	1	2	3	4	5 *Strongly Agree*
The balance of nature is very delicate and easily upset.						
Humans must live in harmony with nature in order to survive.						
When humans interfere with nature, it often produces disastrous results.						
Humans are destined to rule over nature.						
Humans have the right to modify the natural environment to suit their needs.						
Plants and animals exist primarily to be used by humans.						

9. How long have you been living in Hawaii <u>in total</u>? _____

10. How long have you been living <u>on this island</u>? _____

11. Are you: □ Male □ Female

12. What is your age? _____ years old

13. Where do you reside? (City, County) _____

14. Do you consider yourself Hawaiian or Part Hawaiian? □ Yes □ No

Mahalo for your co-operation!

A.5 COVER LETTER 1- Resident, Conservation Group Members & Industry Professionals

A SCAN OF ENVIRONMENTAL PERCEPTIONS IN HAWAII

Dear

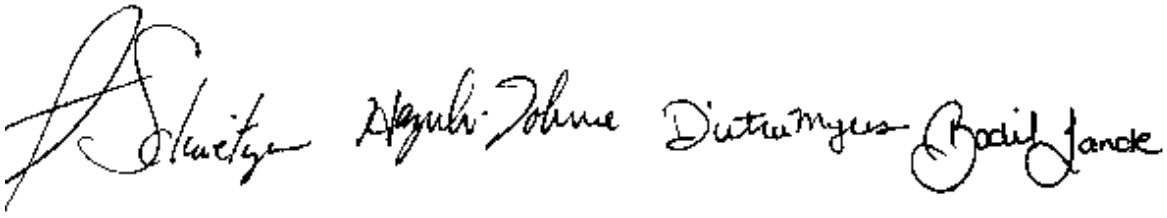
A University of Hawaii, Sustainable Tourism and the Environment Program (STEP, www.tim.hawaii.edu/step/), research team is conducting a survey to gather information on environmental perceptions in Hawaii. The research is aimed at identifying current environmental concerns among different interest groups in Hawaii (residents, visitors, government officials, and business professionals).

We are establishing a database of perceived environmental issues by island. These issues will be used to identify island and statewide research needs related to the environment. A report will be compiled and posted on the following web site during the summer of 2001: www.tim.hawaii.edu/step/

You can help us by filling out this questionnaire. The information we are asking for is not currently available from any other sources; therefore, your input is very important. Your responses will be used for statistical purposes only and will be kept strictly confidential. The return envelope is numbered for tracking purposes, and will ensure that once the survey is returned you will not receive further inquiries from us.

A self addressed, stamped postage free envelope is enclosed for your convenience. Please return the completed questionnaire within a week. Thank you for your cooperation. If you would like more information on this project, please e-mail Dr. Sam Lankford at saml@hawaii.edu or call (808) 956-8025.

Mahalo!



Aron Schweitzer Hazuki Tokuue Dietra Myers Bodil Lande
Research Assistants
Sustainable Tourism and the Environment Program (STEP), University of Hawaii at Manoa

A.6 COVER LETTER 2 - Residents, Conservation Group Members & Industry Professionals

A SCAN OF ENVIRONMENTAL PERCEPTIONS IN HAWAII

Dear

We still have not received your response to the Environmental Scan questionnaire. In the event that you have misplaced the survey, we are taking the time to send you a new one. It would be greatly appreciated if you would respond within one week's time, as we are already in the process of analyzing the data.

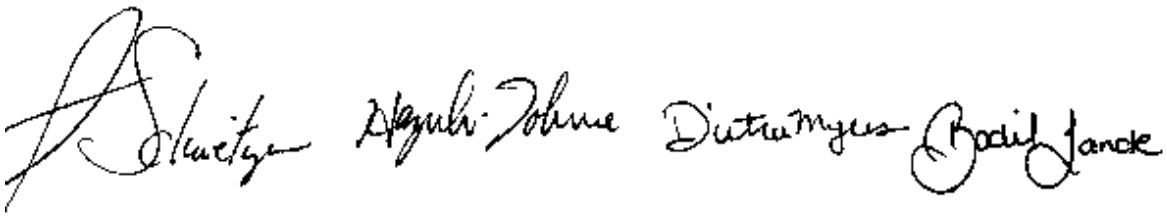
A University of Hawaii, Sustainable Tourism and the Environment Program (STEP, www.tim.hawaii.edu/step/), research team is conducting a survey to gather information on environmental perceptions in Hawaii. The research is aimed at identifying current environmental concerns among different interest groups in Hawaii (residents, visitors, government officials, and business professionals).

We are establishing a database of perceived environmental issues by island. These issues will be used to identify island and statewide research needs related to the environment. A report will be compiled and posted on the following web site during the summer of 2001: www.tim.hawaii.edu/step/

You can help us by filling out this questionnaire. The information we are asking for is not currently available from any other sources; therefore, your input is very important. Your responses will be used for statistical purposes only and will be kept strictly confidential. The return envelope is numbered for tracking purposes, and will ensure that once the survey is returned you will not receive further inquiries from us.

A self addressed, stamped postage free envelope is enclosed for your convenience. Please return the completed questionnaire within a week. Thank you for your cooperation. If you would like more information on this project, please e-mail Dr. Sam Lankford at saml@hawaii.edu or call (808) 956-8025.

Mahalo!



Aron Schweitzer Hazuki Tokuue Dietra Myers Bodil Lande
Research Assistants
Sustainable Tourism and the Environment Program (STEP), University of Hawaii at Manoa

A.7 COVER LETTER 3 - Residents, Conservation Group Members & Industry Professionals

A SCAN OF ENVIRONMENTAL PERCEPTIONS IN HAWAII

Dear

We still have not received your response to the Environmental Scan questionnaire. In the event that you have misplaced the survey, we are taking the time to send you a new one. It would be greatly appreciated if you would respond within one week's time, as we are already in the process of analyzing the data. To create a valid result for our research it is important that the response rate is as high as possible.

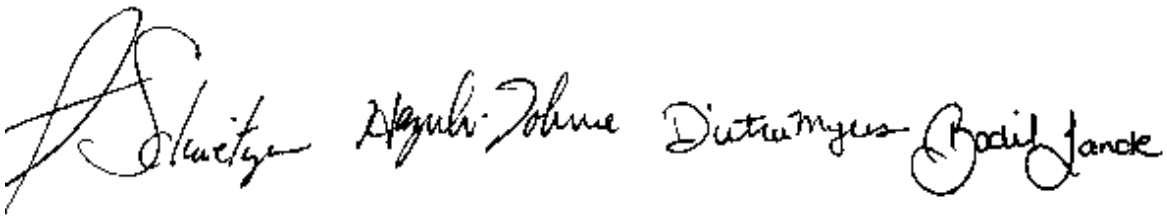
A University of Hawaii, Sustainable Tourism and the Environment Program (STEP, www.tim.hawaii.edu/step/), research team is conducting a survey to gather information on environmental perceptions in Hawaii. The research is aimed at identifying current environmental concerns among different interest groups in Hawaii (residents, visitors, and business professionals).

We are establishing a database of perceived environmental issues by island. These issues will be used to identify island and statewide research needs related to the environment. A report will be compiled and posted on the following web site during the late summer of 2001: www.tim.hawaii.edu/step/

You can help us by filling out this questionnaire. The information we are asking for is not currently available from any other sources; therefore, your input is very important. Your responses will be used for statistical purposes only and will be kept strictly confidential. The return envelope is numbered for tracking purposes, and will ensure that once the survey is returned you will not receive further inquiries from us.

A self addressed, stamped postage free envelope is enclosed for your convenience. Please return the completed questionnaire within a week. Thank you for your cooperation. If you would like more information on this project, please e-mail Dr. Sam Lankford at saml@hawaii.edu or call (808) 956-8025.

Mahalo!



Aron Schweitzer Hazuki Tokuue Dietra Myers Bodil Lande
Research Assistants
Sustainable Tourism and the Environment Program (STEP), University of Hawaii at Manoa

A.8 MAILING LIST – Residents

The mailing list for the resident segment was based on randomly selected names from the most recent phonebooks in each county, as specified below:

- Oahu – July 2000-2001
- Maui – September 1999 - 2000
- Kauai – September 1999 - 2000
- Big Island – November 1999 - 2000

A.9 CONDUCTED SURVEYS – Visitors

TABLE A.1 CONDUCTED SURVEYS – VISITORS

ISLAND	LOCATION	DATE	TIME	# OF SURVEYS COLLECTED	# OF SURVEYS NOT USABLE W/REASON
MAUI	*Kahului Airport*	*3/28/01*	*9am–12pm*	*26*	*5 – Incomplete*
	Kaanapali Beach, Lahaina	*3/28/01*	*2-6pm*	*52*	*5 – Residents of Maui*
	Kahului Airport	*3/29/01*	*9-9:30am*	*22*	
KAUAI	*Lihue Airport*	*3/29/01*	*8:30-9:30pm*	*21*	*1 – Incomplete*
	Poipu Beach (Mariott, Sheraton, Hyatt area)	*3/29/01*	*1-5pm*	*82*	*1- Resident of Kauai*
BIG ISLAND	*Kona Int'l Airport, Aloha & Hawaiian Airlines Terminal*	*3/31/01*	*10am-12pm & 1-4pm*	*83*	*3 – Incomplete*
	Hilo Int'l Airport	*4/1/01*	*12-4pm*	*30*	
OAHU	*Honolulu Int'l Airport, Main Terminal – Gate 14-23*	*4/5/01*	*1-3:30pm*	*27*	*1 – Incomplete*
	Waikiki Beach	*4/5/01*	*12-3pm*	*101*	*2 – Incomplete*
	Honolulu Int'l Airport, Main Terminal – Gate 6-34	*4/6/01*	*12-5:30pm*	*75*	
TOTAL				*519*	*18*

Date: February 14, 2001

TO: Sam Lankford, Ph.D
STEP-UP
School of Travel Industry Management
University of Hawaii at Manoa

FROM: Bodil Lande, School of Travel Industry Management, UH
Dietra Myers, School of Travel Industry Management, UH
Aron Schweitzer, School of Travel Industry Management, UH
Hazuki Tokuue, School of Travel Industry Management, UH

SUBJECT: Proposed work for determining residents, conservation group members, tourists and industry professional's perceptions on tourism's environmental impacts in Hawaii.

> The Hawaiian Islands define paradise. With the most temperate climate on Earth, its stunning vistas, dramatic mountain ranges, lush rainforests, awe-inspiring volcanoes, crystal clear waters and abundance of wildlife, the Hawaiian Islands have been truly blessed. Hawaii portrays an image of unsurpassable beauty and tranquility – certainly an enviable image by any standard.
>
> A unique island paradise located in the mid-Pacific, Hawaii has welcomed visitors for more than one hundred years. Mark Twain and Robert Louis Stevenson visited the Hawaiian Islands when steamship was the common mode of trans-Pacific travel. With the advent of the jet aircraft, travel to Hawaii became more easily attainable for a larger segment of the global population.
> (Hawaii Tourism Authority, 2000)[1]

This statement included in the Hawaii Tourism Authority's Tourism Strategic Plan, portrays an image that was once perceived and marketed as such. Due to the influx of tourists over the years, a toll has been taken on the environment. Ignorance and lack of knowledge on the tourism industry's environmental impacts have caused pollution, destruction of flora and fauna, and damage to the overall aesthetics of the islands.

The state's primary source for revenue into the communities through visitor expenditures and tourism related capital investments, is in danger of depleting the very resources it has depended on since the inception of statehood. Crucially important is the increased demand for an authentic experience in a natural environment within the travel industry, since this is a factor that will contribute to Hawaii's success in the years to come.

> From the tourism perspective, the real issue is maximizing visitor satisfaction, with the realization that events popular with the host community are likely to be more pleasing to visitors, and that authentic cultural performances, settings, food, and merchandise will be enduring attractions……- the real even tourism resource is people, and the community must be given the right to decide for itself. (Getz, 1990)[2]

This statement clearly states that the local community and its inhabitants are of crucial importance to the development of tourism. Without their acceptance and cooperation, it is nearly impossible for a tourist destination to be a success considering the changing trends seen within the industry.

PURPOSE AND GOAL OF PROJECT

The Hawaii Tourism Authority recently reported that the state's goal of reaching 7 million visitors to the islands was achieved by the end of the 2000 fiscal year. Is it possible that Hawaii has reached its load capacity? Many years as a popular tourist destination may have affected the islands' authenticity.

If Hawaii is to continually benefit from tourism, a collective effort with community approval and participation to sustain its environment ought to be implemented – a more suitable question would pose whether or not this is present in Hawaii today.

The purpose of this project is to develop a methodology and collect and analyze data concerning how residents, conservation group members (Sierra Club of Hawaii), tourists and industry professionals (Hawaii Eco-Tourism Association) perceive environmental impacts that stem from tourism.

PROPOSED METHODOLOGY

This project is designed to collect not only quantitative, but also qualitative data to identify the perceptions of those surveyed – regarding the impact of tourism on the environment. The survey will be conducted on four identified groups: residents, residents with membership in the Sierra club of Hawaii - a conservation group, tourists and tourism industry professionals with membership in the Hawaii Eco-Tourism Association.

Although the sampling will be based on a random selection, the number of tourists and residents will be of a representative number – based on the % in each county. Tourists will be sought out at airports and beaches, while the other three groups will be contacted through mailings. The resident's mailing list will be based on a random selection from the most current phone books for each county. The mailings will be conducted in three steps: a letter with the survey, a reminder postcard, and them a last letter with the survey – this is to encourage higher return rates.

The groups will be asked to fill out similar questionnaires, which includes many identical key questions. The total sample size is 1347; as explained in the table below:

	Visitors	**Residents**	**Conservation Group Members**	**Industry Professionals**
Hawaii County	Hilo 30 Kona 70	100	9	49
Honolulu City & County	200	300	65	58
Kauai County	100	100	9	18
Maui County	100 (Maui Island)	100	17	21
TOTAL	**500**	**600**	**100** (Sierra Club of Hawaii)	**147** (Hawaii Eco-Tourism Association)

PROPOSED WORK PROGRAM

Task #1
Identification of Local Environmental Conditions

Using various research materials, both primary and secondary sources in the form of interviews, media resources, and on-sight visits we will assess the environmental state within the island chain.

The key elements in this task include:

- Identify the degree of perception regarding local environmental conditions
- Evaluate and confirm the sample selection and method of survey allocation

Task #2
Development of Surveys

Survey questions will be developed with client and supervisor consultation. Two survey questionnaire forms will be developed, one suitable for the tourist group and one suitable for the resident, resident with membership in a conservation group (Sierra Club of Hawaii), and industry professionals with membership in the Hawaii Eco-Tourism Association.

A database will be designed to hold the collected survey data.

The key elements in this task include:

- Develop a draft survey
- Review and revise the draft survey with clients, students and supervisor

Task #3
Conduct Survey and Collect Survey Data

Students will be assigned to mail the surveys to residents/residents with membership in conservation groups/industry professionals with membership in Hawaii Eco-Tourism Association. Tourists will be asked to fill out questionnaires at airports and beaches throughout the islands.

Data collection will be conducted through a random sample in order to obtain a significant distribution of results. Sample is as determined in the proposed methodology.

Task #4
Analysis of Data

The information collection in the previous tasks will be analyzed and evaluated. Students will enter survey data in Excel, and the data will then be imported to the SPSS statistical program, where it will be analyzed.

A report will be generated, with graphs and tables for each particular section. Analysis will identify and describe the four segments' environmental perceptions and discuss environmental concerns.

Task #5
Presentation of Preliminary Findings

A draft version of the findings will be prepared and distributed to the client. The draft will also be distributed to agencies and people who are specified by the client. The purpose of this step is to provide those involved with the project opportunity to raise questions regarding the report, and to discuss issues in depth for these questions.

Task #6
Final Report

A final report incorporating the changes recommended from Task 5, and an executive summary will be prepared. An unbound master copy will also be provided to the client.

REFERENCE

[1] Draft Tourism Strategic Plan, *Ke Kumu,* by Hawaii Tourism Authority, http://www.hawaii.gov/tourism - Inquiry date: 1/31/01

[2] Getz. D. (1991). Festivals, special events, and tourism. United States: Van Nostrand Reinhold.

Environmental Scan of Hawaii

Dietra Myers
Aron Schweitzer
Bodil Lande
Hazuki Tokuue

OVERVIEW

- PURPOSE & GOALS
- METHODOLOGY
- WORK PROGRAM
- FINDINGS

PROBLEM AREAS!

1) ***Do the Hawaiian Islands still define paradise?***
2) ***Can Hawaii's environment sustain 7 mill. (or more?) visitors a year?***
3) ***How should the Hawaiian Islands be developed?***
4) ***Are the environmental perceptions of visitors, residents and the industry professionals similar?***

PURPOSE & GOAL

“ The purpose of this project is to develop a methodology and collect and analyze data concerning how residents, conservation group members (Sierra Club of Hawaii), tourists and industry professionals (Hawaii Eco-Tourism Association) perceive environmental impacts that stem from tourism.”

TIMELINE

- **TASK 1** ”Identification of Local Environmental Conditions” – **January – mid. February**
- **TASK 2** ”Development of Surveys” – **mid. January – February**
- **TASK 3** ”Conduct Surveys & Collect Survey Data” – **March – mid. April**
- **TASK 4** ”Analysis of Data” – **April**
- **TASK 5** ”Presentation of Preliminary Findings” - **mid. April – May**
- **TASK 6** ”Final Report” - **May**

BUDGET

- Travel $900 (not included air-cost)
- Postage $ 1200
- Material & Copying $ 430

- TOTAL: $2530

PROJECT HOURS

- Review Literature – 50 hours
- Develop Work Plan – 24 hours
- Collect Data/Info – 405 hours
- Present Final Report – 70 hours

- TOTAL HOURS – 549 hours

METHODOLOGY

- Quantitative & qualitative data
- Randomly selected sample groups
- Representative Number
- On-site & mailings

SAMPLE SIZE

	Residents	Visitors	Industry Professionals	Environmental Groups
MAUI	100 (Maui County)	100	21	17
BiG ISLAND	100	30 Hilo 70 Kona	49	9
OAHU	300	200	58	65
KAUAI	100	100	18	9
TOTAL	**600**	**500**	**146 (Hawaii Eco-Tour. Ass.)**	**100 (Sierra Club of Hawaii)**

RETURN RATE (so far)

	Residents	Visitors	Industry Professionals	Environmental Groups
MAUI	16	90 *(10)*	7	10
BiG ISLAND	26	110 *(3)*	21	5
OAHU	85	200 *(3)*	30	37
KAUAI	23	101 *(2)*	4	5
TOTAL	**150**	**501** *(18)*	**62**	**57**

WORK PROGRAM – Task 3

Conduct Survey and Collect Survey Data

On-Site (visitors)

- airports & beaches

WORK PROGRAM – Task 3

Conduct Survey and Collect Survey Data

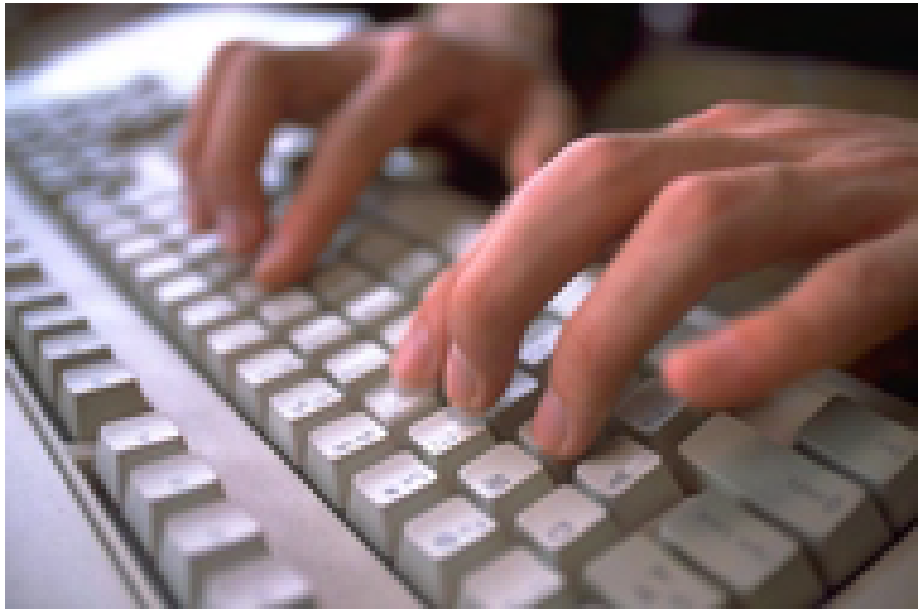
Mailings

- Residents
- Hawaii Eco-Tourism Ass. (industry professionals)
- Sierra Club (conservation)

WORK PROGRAM – Task 4

Analysis of Data

- Excel (coding)
- SPSS system, statistical software (reports)



FINDINGS

Familiarity with Hawaii & Demographics

Is this your first visit to Hawaii?

	Kauai	Big Island	Maui	Oahu
Yes	**30.8**	**35.5**	**30**	**35.1**
No	**69.2**	**64.5**	**70**	**64.9**

FINDINGS

Do the Hawaiian Islands still define Paradise?

How would you rate the overall quality of the environment on this island?

	Kauai	Big Island	Maui	Oahu	Total Sample Population
Excellent	**58.9**	**40.0**	**45.6**	**30.6**	**39.2**
Good	**33.6**	**52.7**	**46.7**	**52.3**	**44.9**
Fair	**3.7**	**5.5**	**4.4**	**8.8**	**5.9**
Poor	**0.9**	**0.9**	**2.2**	**1.0**	**1.1**
Very Poor	**0.0**	**0.0**	**0.0**	**0.2**	**0.2**
Don’t Know	**2.8**	**0.9**	**1.1**	**6.7**	**3.4**

The quality of Hawaii's environment has become _____ compared to my last visit to Hawaii.

	Kauai	Big Island	Maui	Oahu	Total Sample Population
Better	**10.9**	**6.2**	**10.0**	**11.9**	**8.5**
Worse	**9.8**	**8.2**	**11.3**	**9.7**	**8.1**
The Same	**46.7**	**47.4**	**48.8**	**43.2**	**38.6**
Don't Know	**32.6**	**38.1**	**30.0**	**35.2**	**29.0**

How serious do you think the following pollution issues are in Hawaii?

	Not a Problem					Extremely Serious
Usage of chemical pesticides & herbicides Total Sample Population	**11.2**	**15.4**	**16.1**	**22.8**	**11.0**	**0.8**
Hazardous waste emitted by tourism industry Total Sample Population	**9.3**	**13.3**	**21.8**	**19.7**	**13.7**	**6.8**
A solid waste disposal problem Total Sample Population	**11.4**	**14.0**	**21.2**	**18.6**	**13.2**	**6.6**

How serious do you think the following natural resource issues are in Hawaii?

	Not a Problem					Extremely Serious Problem
Global climate changes Total Sample Population	15.0	17.8	23.8	12.3	12.7	4.2
Soil erosion caused by too many hikers Total Sample Population	13.4	23.3	24.7	14.6	7.4	1.1
Damage to coral reef systems from tourists Total Sample Population	6.4	14.1	19.5	18.9	17.5	9.7

FINDINGS

Can Hawaii's environment sustain 7 mill visitors (or more) per year?

How serious do you think the following issues derived from tourism development are in Hawaii?

	NP	SWP	P	SWSP	SP	ESP
Traffic caused by tourism events Total Sample Population	4.9	10.7	20.4	20.7	22.5	9.8
Energy consumption in tourism facilities Total Sample Population	7.0	13.5	18.7	20.0	18.6	8.5
Scenery changes by tourism facilities Total Sample Population	6.4	13.8	17.8	20.2	16.5	11.7

How serious do you think the following tourism growth issues are in Hawaii?

	NP	SWP	P	SWSP	SP	ESP
Rapid growth of resort communities						
Kauai	3.0	8.9	19.8	23.8	24.8	19.8
Big Island	6.5	13.1	13.1	28.0	25.2	13.1
Maui	4.8	17.9	17.9	16.7	26.2	26.2
Oahu	6.7	14.4	14.4	22.8	28.3	15.6
Total Sample Population	**4.9**	**10.0**	**16.1**	**20.3**	**23.5**	**12.3**
Rapid growth in the number of tourists						
Kauai	30.	9.1	27.3	27.3	15.2	18.2
Big Island	8.3	11.1	25.0	25.0	19.4	11.1
Maui	7.2	10.8	15.7	15.7	26.5	24.1
Oahu	5.5	10.4	21.9	23.0	24.0	15.3
Total Sample Population	**5.3**	**9.3**	**23.0**	**20.3**	**18.9**	**11.2**

How do you agree with the following statement about Hawaii's tourism promotion?

	D	Neutral	A
I believe tourism should be actively encouraged in Hawaii. Total Population Sample	12.0	49.9	29.1
Hawaii should attract more visitors. Total Population Sample	25.5	49.9	14.8
I support tourism as having a vital role in Hawaii. Total Population Sample	5.9	44.5	40.0
The state/city/county governments are right in the promotion of tourism facilities in Hawaii. Total Population Sample	8.7	47.7	33.6

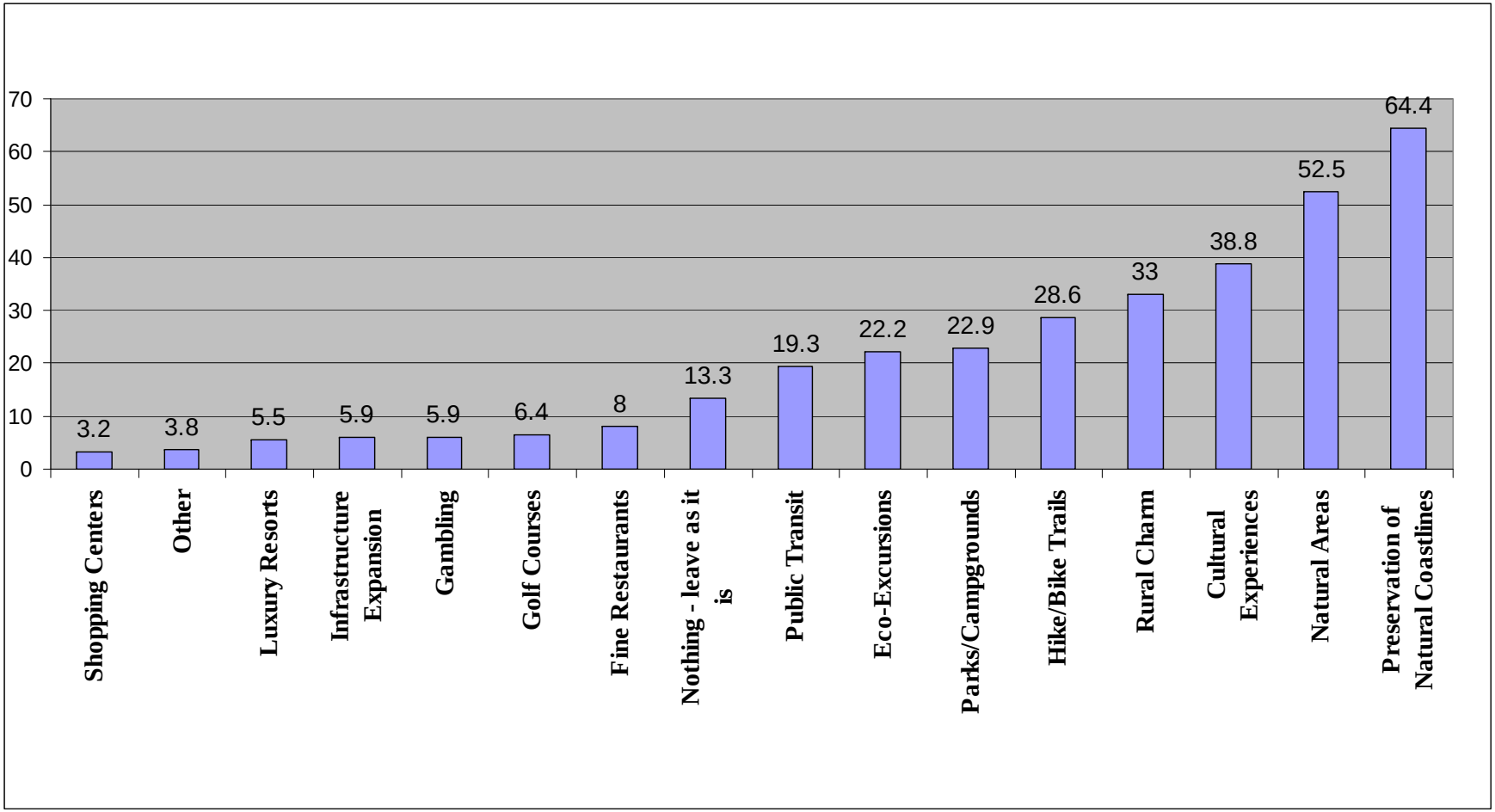
FINDINGS

How should the Hawaiian Islands be developed?

Do you think Hawaii's environment has changed mainly because of:

	Kauai	*Big Island*	*Maui*	*Oahu*	*Total Sample Population*
Tourism	16.2	20.4	28.1	30.9	23.3
Local Development Activities	8.6	4.6	3.4	3.7	4.5
A Combination	54.3	51.9	21.7	44.5	46.2
Don't Know	20.0	21.3	14.6	18.8	17.6
Other	1.0	1.9	1.1	1.6	1.3

Which of the following would you like to see in the future development of Hawaii?



FINDINGS

Are the environmental perceptions of visitors, residents and the industry professionals similar?

COMPARING DIFFERENT GROUPS

- *IN WORKING PROGRESS....coming to a computer near you this summer.....*

CLOSING

SUMMARY

&

RECOMMENDATIONS

Summary

- Majority of visitors are environmentally friendly
  - Not every visitor is aware of the negative impacts that tourism can cause
  - Environmentally friendly visitors may be helpless due to lack of policies and programs
- Changes are inevitable, but why not be responsible?

Recommendations

- Educational Video
- Recycling Programs
- Energy and water conservation programs for hotel industry

A SCAN OF ENVIRONMENTAL PERCEPTIONS IN HAWAII

A University of Hawaii, the School of Travel Industry Management research team is examining perceived environmental issues in Hawaii. Please take a few minutes to answer this survey. If you have any questions, please contact Dr. Sam Lankford at (808) 956-8025 or saml@hawaii.edu by e-mail.

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1. How would you rate the overall quality of the environment on this island?

□ Excellent □ Good □ Fair □ Poor □ Very Poor □ Don't Know

2. The quality of Hawaii's environment has become _____ in the last 5 years.

□ Better □ Worse □ The Same □ Don't Know

3. Do you think Hawaii's environment has changed mainly because of:

□ Tourism □ Local Development Activities □ A Combination □ Don't Know

□ Other (please specify) _____

4. Who do you think has a major role in protecting the environment in Hawaii? (Please mark only one.)

□ Government
□ Tourism Industry
□ Society/Citizens
□ Environmental Groups
□ Individuals
□ All
□ Not Sure

5. Which of the following would you like to see in the future development of Hawaii? (Please mark all that apply.)

□ Luxury Resorts
□ Preservation of Natural Coastlines
□ Cultural Experiences
□ Fine Restaurants
□ Hike/Bike Trails
□ Parks/Campgrounds
□ Infrastructure Expansion
□ Nothing - leave as is
□ Golf Courses
□ Eco-Excursions
□ Natural Areas
□ Gambling
□ Shopping Centers
□ Rural Charm
□ Public Transit
□ Other (please specify) _____

6. How serious do you think the following environmental issues are <u>in Hawaii</u>?

Please <u>circle</u> (⊙) a line which best corresponds to your opinion with each statement.

	Not a Problem 0	1	2	3	4	5 *Extremely Serious*
Air pollution						
Water scarcity						
Drinking water pollution						
Pollution in rivers and coastal areas						
Usage of chemical pesticides & herbicides						
Hazardous waste emitted by tourism industry						
A solid waste disposal problem						
Introduction of alien plant and animal species						
Global climate changes						
Soil erosion caused by too many hikers						
Damage to coral reef systems from tourists						
Traffic caused by tourism events						
Energy consumption in tourism facilities						
Scenery changes by tourism facilities						
Rapid growth of resort communities						
Rapid growth in the number of tourists						
A lack of environmental awareness programs for tourists						
Failure of developing controls on tourism growth						
Failure to adopt effective policies to control environmental problems such as pollution & destruction of habitat						

7. How do you agree with the following statement <u>about Hawaii's tourism development</u>?

Please <u>circle</u> (ⓘ) a line that best corresponds to your agreement/disagreement with each statement.

	Strongly Disagree 0	1	2	3	4	5 *Strongly Agree*
I believe tourism should be actively encouraged in Hawaii.	|	|	|	|	|	|
Hawaii should attract more visitors.	|	|	|	|	|	|
I support tourism as having a vital role in Hawaii.	|	|	|	|	|	|
The state/city/county governments are right in the promotion of tourism facilities in Hawaii.	|	|	|	|	|	|
Tourism negatively impacts the environment.	|	|	|	|	|	|
Tourism has increased the noise level in Hawaii's public spaces (i.e. parks).	|	|	|	|	|	|
There is more litter from tourism.	|	|	|	|	|	|
Tourism has increased pollution.	|	|	|	|	|	|
Long-term planning by Hawaii can control the negative impacts of tourism on the environment.	|	|	|	|	|	|
Technology can save the environment.	|	|	|	|	|	|
The benefits of tourism outweigh the negative environmental consequences of tourism development.	|	|	|	|	|	|
Tourism benefits the natural environment.	|	|	|	|	|	|
Tourism has raised environmental awareness among locals.	|	|	|	|	|	|
Tourism has raised environmental awareness among tourists.	|	|	|	|	|	|

8. How do you agree/disagree with the following statements about the environment in general?

Please circle (ⓘ) a line which best corresponds to your agreement/disagreement with each statement.

	Strongly Disagree 0	1	2	3	4	5 *Strongly Agree*
The balance of nature is very delicate and easily upset.	|	|	|	|	|	|
Humans must live in harmony with nature in order to survive.	|	|	|	|	|	|
When humans interfere with nature, it often produces disastrous results.	|	|	|	|	|	|
Humans are destined to rule over nature.	|	|	|	|	|	|
Humans have the right to modify the natural environment to suit their needs.	|	|	|	|	|	|
Plants and animals exist primarily to be used by humans.	|	|	|	|	|	|

9. How long have you been living in Hawaii <u>in total</u>? _____

10. How long have you been living <u>on this island</u>? _____

11. Are you: □ Male □ Female

12. What is your age? _____ years old

13. Where do you reside? (City, County) _____

14. Do you consider yourself Hawaiian or Part Hawaiian? □ Yes □ No

Mahalo for your co-operation!