Determining the Economic Impact of Beaches: Lake Huron Shoreline from Sarnia to Tobermory

Report Summary

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Importance of Study

If used responsibly and maintained in a sustainable manner, tourism based around beach areas can be a force for positive growth and economic success. Tourism has great importance and economic impact for people and areas near lakes. Lake tourism is defined as a recreational activity (or activities) that involve travel away from one's place of residence and which have as their host or focus the water environment (Miller, 1990). Lake areas are one of the most valuable tourism attractions because of their vivid natural landscape, high quality environment and cultural features (Zhou & Lin, 2003; Bahar & Kozak, 2008). Boating, swimming, relaxation or sunbathing have been identified as the main purposes of visits to beaches. Tourism may become a more important component of local economic development strategies in areas where other sectors such as manufacturing or agriculture have seen an employment. For example, in some areas of the Great Lakes, recreation and tourism are becoming an increasingly important part of the economy, surpassing manufacturing and other activities (The Great Lakes: An Environmental Atlas and Resource Book, 1995).

In 2008, the tourism industry (i.e. international and domestic) generated approximately $15.1-billion for the Canadian economy. It was also estimated that about 79% of Canadians, aged 25 and over, spent at least one night out-of town on leisure purposes (Crompton & Keown, 2009). Ontario is the most visited province in the country with about 853,666 travelers in 2008, accounted for 37% of Canada's tourism revenues. The tourism industry is Ontario's fifth-largest export and is worth about $16.5-billion in revenues each year (Ontario Ministry of Tourism and Culture, 2009). According to an Ontario Regional Tourism Profiles Study conducted in 2007, tourism is one of the most important economic activities in Southwestern Ontario. Tourism receipts (including direct, indirect, and induced expenditures) in the area, which includes the Lake Huron shoreline, were over one million dollars.

Tourism has the capacity to create employment, attract visitors from outside the area and keep local people spending money inside the area, generate opportunities in many areas where other economic activity may be limited, bring earnings and foreign exchange, provide infrastructure, create economic activity that does not threaten the local environment and provide recreational and social opportunities to the local community and tourists. On the other hand, environmental issues such as poor beach water quality, large accumulation of algae, bird excrement from large numbers of birds, as well as other issues, such as the lack of washrooms and lifeguards in an area, may result in a loss of appeal and visitation and ultimately a loss of economic injection into the community as the visitor seeks alternative leisure opportunities.

Visits to beaches are considered key motivations for many leisure travelers worldwide and in many cases, the beach itself may be the primary attraction in the destination. Water quality is a key issue for lake tourism as visitors want an experience which is safe and there are no health concerns. Popular lake destinations generally have water of high quality, without fear of health or safety concerns. Conversely, lakes with water of poor quality are not popular travel destinations because of the uncertainty surrounding the quality of the water (Puczkó & Rátz, 2000). Caulkins, Bishop, Bowes (1986), conducted a study showing that visitation to Shadow Lake in Wisconsin increased as a result of water quality improvement.

Labeling and publically posted environmental quality is also a key motivator for visitation to beaches. In terms of rating water quality in lakes, there are various systems with various labels denoting water quality. One of the most popular labels denoting high water quality is the Blue Flag label. Blue Flag status has gained popularity internationally and there are now over 3200 beaches in 37 countries which have obtained the status. Blue Flags are flying at 11 beaches in Ontario, Canada and three beaches are on their way to achieving the Blue Flag. A study conducted in the United Kingdom showed that 72% of beach users stated that the Blue Flag status was an important basis for their selection (Nelson, Morgan, Williams, & Wood, 2000).

Study Purpose

The purpose of this study is to determine the economic impact of beaches along the Lake Huron Shoreline and to determine motivations for visitors and attitudes about beach attributes. The study area for this research includes the Lake Huron shoreline on the counties of Lambton, Huron and Bruce, from Sarnia in the south to Tobermory in the north.

Methodology

An effective method to determine the economic impact of beach visits is to conduct direct interviews with visitors at the beach through an 'intercept survey'. Based on the desired sample size of 500 completed surveys of visitors, purposive sampling was undertaken. In order to satisfy a 500 response rate taking into account a margin of error and incomplete survey responses, a purposive sample of 550 surveys were administered by staff and volunteers during the summer of 2009. Staff and volunteers were trained in data collection by Ryerson University in May 2009. Surveys were conducted from June 5 to September 6, 2009.

An on-site quantitative questionnaire containing approximately 25 questions was used as the survey tool for this study. The questionnaire design was check-box questions, likert scales, circled responses and short-answer open-ended questions. These styles of questions were used to solicit quick responses from respondents at the same time providing a lower margin of error. The rationale for such questions is to provide ease of administration and reducing surveyor bias and influence. The survey generally took between 10 and 15 minutes to administer. The final number of useable surveys was 528.

In order to present a profile of the beach visitors included in the surveys, as well as characteristics of their visits, frequency analyses were conducted. Questionnaires were coded and entered into a spreadsheet program and then uploaded into SPSS. Data was checked for miscodes or other errors and then analyzed using SPSS for frequencies, cross tabulations, clustering, etc.

Average spending per day in the various categories was determined by dividing the amounts indicated for each category (for the entire trip) by the number of days the participant indicated they would be visiting. From these values means and standard deviations were calculated. In order to assess whether there were statistically significant differences between visitors' satisfaction ratings with various beach characteristics, non-parametric analyses were used. Non-parametric tests are appropriate for use with ordinal data and also in cases where assumptions about the normal distribution of the data do not hold. Specifically, a Kruskal-Wallis test, which is the non-parametric equivalent of an ANOVA test, was used to assess whether significant differences existed between many categories. This test will not, however, identify where the differences lie if they do exist and

therefore, where it was found that there were differences, further analyses were performed. These analyses consisted of pairwise Mann-Whitney tests, which is the non-parametric equivalent of two-independent-sample *t* test, comparing each relevant rating to each other rating. It involves ranking the data in each category and comparing the average ranks. For both of these non-parametric tests there must be at least five observations in each category, and for this reason some cases could not be included in these analyses. Finally the Spearman correlation coefficient, the non-parametric equivalent of the Pearson correlation coefficient, was used to assess the significance and degree of correlation between visitor satisfaction with various beach aspects and overall satisfaction. The closer the coefficient is to 1 the greater the correlation (Norusis, 2006).

Location of Study

In order to determine the economic impact of beach tourism on local and regional economies, beaches from Lake Huron district from Sarnia to Tobermory were surveyed. As per the background draft report (CRH, 2007), the study focused on "those beaches that have an important role in serving visitors" (p.23). The study area for this research includes the Lake Huron shoreline in the counties of Lambton, Huron and Bruce, from Sarnia in the south to Tobermory in the north. The majority of surveys were collected at Grand Bend, Bayfield, Goderich (Rotary Cove), Port Blake, Sauble, Kincardine, Goderich (Main Beach and St. Christopher's Beach), and Ipperwash with the remaining surveys collected at 7 other beach locations (Table 1).

Table 1   *Numbers of Surveys Collected at Lake Huron Beaches*

Beach	Surveys collected	Per cent of total (%)
Grand Bend	130	24.6
Bayfield	73	13.8
Goderich (Rotary Cove)	58	11.0
Port Blake	56	10.6
Sauble Beach	51	9.7
Kincardine	49	9.3
Goderich (Main Beach)	44	8.3
Ipperwash	26	4.9
Pt. Elgin	8	1.5
Sarnia	8	1.5
Bright's Grove	7	1.3
Point Clark	6	1.1
Kettle Point	5	.9
Port Albert	5	.9
Highland Glen CA	2	.4
Total	528	100.0

Estimating number of beach visitors from Sarnia to Tobermory, along the south east shore of Lake Huron is very difficult. There can be thousands of visitors on the long weekends at some area beaches. The Pinery Provincial Park host 600 000 visitors annually. The Pinery

Provincial Park is one of three Provincial Parks. There were more than 40,000 visitors to Huron County's nine Tourism Information Centres.

Key Findings

The survey of respondents found that visitors (and local beach users) felt the health of a beach was a key factor in their satisfaction. The survey revealed that the majority of beach visitors do not check to see if the beach is posted as unsafe for swimming before arriving. A healthy beach with clear water free from algae and clean beaches free from litter and working facilities, affects the potential economic impact. Twenty-six per cent of visitors would leave the beach if they found it unsafe for swimming. Amenities such as garbage and recycling containers, washrooms and change rooms, parking, boardwalks and swimming areas were used by a greater portion of visitors than amenities such as water sport equipment rental, dog-friendly beaches, and access for persons with disabilities. Additionally, visitor ratings for satisfaction with the aforementioned commonly used amenities mentioned generally reflected the ratings for overall satisfaction with the beach (with the exception of parking) indicating that they are important contributors to the overall beach experience. Visitors spent on average $70 (Local) to $160 (Visitors) per day the majority of which was spent locally. The majority of local spending was for accommodations and food and beverage.

A recommendation of this study is to have beaches obtain Blue Flag status that assists with monitoring and publicizing healthy beaches. This would be beneficial from an economic standpoint as it may ensure longer and more satisfied beach stays by visitors and encourage repeat visits. In communities that have not been able to retain the Blue Flag designation, an investment in water quality programs may assist with their efforts to recapture that recognition.

Summary of Research:

Profile of Visitor

Visitors to the beaches were primarily tourists (80 %) with a much smaller portion being local residents (Table 2), however, nearly all resided in south-western Ontario (75%) or central Ontario (15%). Within south-western Ontario, the greatest portion of beach visitors came from London, Ontario and the surrounding region (32%) and Kitchener/Waterloo, Ontario and the surrounding region (17%) with the remaining 51% spread throughout the region. Visitors spent an average of 4.75 days in the area and an average of 3.13 days of their visit to the area at the beach.

Table 2   *Proximity of Visitors' Home to Beach Visited*

Beach visitor type	Frequency	Percent (%)
Local	93	17
Visiting	420	80
No response	14	3
Total	528	100.0

The largest percentage of visitors was between the ages of 35-54 followed by those between the ages of 20-34 and 55-64. Less than 20% of the visitors surveyed were between the ages of 16-19 and over 65 (see Table 3).   The majority of the visitors were female (61%). A large portion of the visitors were either married or common law (68%) and most were on a family visit (69%). The average group size of visitors was between 3-4 people (statistical representation was 4.02 ± 3.31).

Table 3   *Age Ranges of Beach Visitors*

Age range	Frequency	Percent (%)
16-19	45	9
20-34	107	20
35-54	239	45
55-64	80	15
Over 65	48	9
Not specified	9	2
Total	528	100.0

The average household income of visitors was (above the average Canadian income). Twenty nine percent had an annual household income of more than Cdn $80K, 16% had an income of between Cdn $60K - $79.9K and 17% had an income of Cdn $20K -$59.9K and only 5% had an income of less than Cdn $20K. It is worth noting that 33% of respondents opted not to provide income information.

Average Daily Spending

The daily spending of visitors varied greatly. Locals spent approximately $36 per day (mean average) per day locally (within 50 km) and visitors spent $168 per day. For distances greater than 50 km, visitors spent $116 (see Table 4 for a breakdown of the major spending categories). The average values obtained have very large standard deviations due to large variations in the spending indicated by visitors. One potential reason for the large differences may be that visitors were asked to indicate their spending for the entire trip, but it was not specified whether the spending was on an individual basis or a group basis. The main expenditures for visitors were for accommodations (38%), food and beverage (27%) and transportation (19%).   As might be expected the vast majority of accommodation and food and beverage expenditures were local (91% and 85% respectively) whereas only as small portion of transportation expenditures were local (21%). Other expenses such as clothing, recreation and entertainment, miscellaneous costs, parking, marine/boat services (from most spent to least spent) cumulatively accounted for less than 17% of total expenditures.

Table 4 *Average Local and Non-Local Spending on Accommodation, Food and Transportation by Locals and Visitors*

Beach visitor type		Accommodation	Food	Transportation
Local expenditures				
Locals	Mean	$9.84	$18.93	$6.83
	Std. Deviation		$6.95	$3.42
	N	1	6	5
Visitors	Mean	$110.77	$36.24	$21.30
	Std. Deviation	$163.98	$36.12	$18.58
	N	97	274	101
Total	Mean	$109.74	$35.60	$20.56
	Std. Deviation	$163.45	$35.73	$18.24
	N	98	283	108
Non-local expenditures (>50 km)				
Locals	No data		No data	
Visitors	Mean	$51.43	$27.93	$37.20
	Std. Deviation	$34.42	$50.06	$40.09
	N	4	241	30
Total	Mean	$51.43	$27.93	$37.20
	Std. Deviation	$34.42	$50.06	$40.09
	N	4	241	30

Beach Behaviour and Practices

Trip Purpose

The majority of respondents indicated that the main purpose of their trip to the area was either a day trip to the beach or a beach vacation, with far fewer indicating the purpose of their trip to be visiting family and friends, camping, business or cultural (Table 5). It is also noteworthy that 20% of respondents chose not to respond to this question, perhaps due to the fact that they were asked to choose only one of the aforementioned categories and the purpose for their visit may have encompassed more than one category. Visitors were asked to use a scale of 1 to 5 (1 = not very important and 5 = very important) to rate the importance of visiting a beach on a trip and the importance of visiting this particular beach. Visitors' average ratings were 4.31 and 3.87 respectively, indicating that overall it was somewhat important for most to visit a particular beach the greater importance was

placed on visiting a beach in general.   Additionally, 62% of respondents indicated that they did not intend to visit any other beaches on their trip.

Table 5   *Beach Visitors' Purpose for Their Visit to the Area*

Purpose for visit	Frequency	Percent (%)
Day trip to the beach	191	36.2
Beach vacation	120	22.7
Visiting family and friends	66	12.5
Camping	39	7.4
Business	3	.6
Cultural	3	.6
No response	106	20.1
Total	**528**	**100.0**

Importance of Living Near a Beach

Local respondents were asked to rate the importance of living near a beach using the previously noted 1-5 scale, resulting in an average rating of 4.00. Local respondents indicated that they visited the beach on average 3 days per week. The surveys were collected during the summer months, which most likely affected responses, as most respondents probably indicated their summer visiting frequencies which are unlikely to be the same as winter visiting frequencies. Responses may have differed if respondents were asked to specify frequency of visits seasonally.

Usage and Satisfaction with Beach Facilities

Visitors were asked to indicate whether they would "likely use", "might use" or "not use" a selection of amenities.   Amenities that the majority of visitors indicated they would "likely use" or "might use" were garbage and recycling facilities, washrooms and change rooms, parking, boardwalks, designated swimming areas, food concession stands, picnic areas/tables and children's play equipment (Table 6). More than half of beach visitors indicated that they would "not use" dog-friendly beach areas, water sport rental equipment, access for persons with disabilities and volleyball courts (Table 6). The low instance of potential usage of these amenities could be in part due to the characteristics of the visitors and their group.

Table 6   *Visitor Usage of Beach Amenities*

Amenity	Likely use (%)	Might use (%)	Not use (%)	No Respons
Garbage/recycling containers	90.5	5.1	3.2	
Washrooms/change rooms	80.7	10.4	7.6	
Parking	83.4	5.5	10.2	
Boardwalks	65.6	17	14	
Designated swimming area	65.8	14.4	17.6	
Food concession stands	51	28.5	17.8	
Picnic areas/tables	42.9	29.3	25.1	
Children's play equipment	38.4	12.7	45.9	
Volleyball courts	19.5	20.2	56.9	
Access for persons with disabilities	30.1	9.6	56.1	
Water sport rental equipment	16.6	19.5	59.7	
Dog friendly beach areas	27.4	7	60.5	

Visitors were asked to rate their degree of satisfaction with the amenities available at the beach during their visit. There was no statistically significant difference between the overall ratings for the amenities. The average scores (where 1 = not very satisfied and 5 = very satisfied) all fell between 3.71 (washrooms and change rooms) and 4.47 (boardwalks). Kruskal-Wallis tests yielded chi-squared values which indicated that there were statistically significant differences in the ratings of all amenities (except for dog-friendly beach areas and volleyball courts) between beaches ($p \leq 0.05$). The number of surveys collected at some beaches was too small to allow any conclusion to be made about differences in the amenities offered at all beaches, however, those with more than 5 responses in a given category were further analyses for significant differences using pairwise Mann-Whitney tests.

Table 7   *Mean Ratings for Amenities Between Beaches*

Beach	Garbage/recycling containers	Washrooms/change rooms	Parking	Boardwalks	Designated swimming area	Food concession stands	Picnic areas/tables	Children's play equipment	Volleyball courts	Access for persons with disabilities	Water sport rental equipment	Dog friendly beach areas
Bayfield	3.42	3.67	4.33	3.68	4.00	3.40	3.00	3.36	N/A	2.81	2.44	N/A
Bright's Grove	1.60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Goderich	4.47	4.32	4.48	4.68	4.33	4.43	4.11	4.77	4.44	4.48	4.67	4.00
Grand Bend	4.41	4.30	3.63	4.63	4.61	4.27	3.95	4.63	4.02	4.52	4.34	4.15
Ipperwash	2.92	2.29	4.00	N/A	3.81	3.75	3.56	N/A	N/A	3.00	N/A	4.33
Kettle Point	N/A	N/A	5.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kincardine	4.10	4.19	4.53	4.37	4.43	3.89	4.16	3.96	4.31	4.29	4.27	4.10
Point Clark	N/A	3.80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Port Albert	2.20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Port Blake	3.07	2.53	3.53	3.56	4.27	3.30	3.49	3.13	3.67	2.78	N/A	4.00
Pt. Elgin	2.88	2.29	4.43	N/A	3.63	4.20	N/A	4.00	N/A	N/A	N/A	N/A
Rotary Cove	3.65	3.42	3.56	4.69	4.11	3.80	3.95	4.29	4.00	2.86	2.40	3.54
Sarnia	4.00	N/A	4.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sauble	3.91	2.71	3.39	4.17	4.40	4.16	4.17	4.00	4.26	4.29	4.45	4.00

Note: Mean scores are presented only for those beaches with a minimum of 5 responses /category.

Mean ratings for all amenities at the beaches surveyed can be seen in Table 7. Mean scores are presented for all beaches, however, not all differences in scores were significantly

different.   See Appendix A for all statistically significant differences for amenities. Significant differences were also noted for ratings of dog friendly beach areas and access for persons with disabilities between visitors and locals as indicated in Table 8.

Table 8   *Differences in Ratings for Amenities between Visitors and Locals*

Amenity	Visitor	Local	Significance
Washrooms/change rooms	3.72	3.64	NS
Volleyball courts	4.15	4.00	NS
Boardwalks	4.53	4.24	NS
Parking	4.05	4.04	NS
Food concession stands	4.10	3.88	NS
Children's play equipment	4.18	4.27	NS
Water sport rental equipment	4.20	3.20	NS
Picnic areas/tables	3.82	3.86	NS
Dog friendly beach areas	4.12	3.50	0.013
Designated swimming areas	4.35	4.25	NS
Garbage/recycling containers	3.88	3.65	NS
Access for persons with disabilities	3.99	3.13	0.004

Beach Health and Safety

In order to keep and maintain happy visitors, a healthy and safe beach and swimming experience is of key importance. Beach visitors were asked to rate their level of satisfaction with the water clarity/cleanliness, water quality (referring to the level of algae), cleanliness of the beach, lifeguards and beach patrols on a scale of 1 to 5 (1 = not very satisfied and 5 = very satisfied). Kruskal-Wallis tests revealed chi-squared values that indicated that there were statistically significant differences in the level of satisfaction with all of these attributes between beaches ($p \leq 0.05$). The mean scores from each of the beaches (see Table 9) were compared using pairwise Mann-Whitney tests to determine statistical significance. The complete results of these comparisons can be seen in Appendix B. Significant differences were also observed between ratings by locals and by visitors for water clarity, water quality and beach cleanliness (Table 10), with locals having lower ratings for these factors compared to visitors.

Table 9   *Mean Rating for Beach and Health and Safety Between Beaches*

Beach	Water clarity	Water quality	Beach cleanliness	Lifeguards	Beach patrol	Overall satisfaction
Bayfield	3.99	4.05	3.49	2.11	2.17	3.99
Bright's Grove	4.43	4.43	3.71	N/A	N/A	4.29
Goderich	4.00	4.12	4.07	4.07	3.80	4.43
Grand Bend	4.16	4.18	4.34	4.45	4.34	4.49
Ipperwash	2.75	3.08	2.96	2.33	2.40	3.65
Kettle Point	3.20	3.40	3.60	N/A	N/A	4.20
Kincardine	4.35	4.33	4.06	1.80	1.80	4.35
Point Clark	2.33	2.00	2.83	N/A	N/A	3.33
Port Albert	3.80	4.60	3.80	N/A	N/A	3.60
Port Blake	4.02	4.06	3.67	2.33	1.80	4.04
Pt. Elgin	4.50	4.37	3.00	4.87	N/A	4.29
Rotary Cove	3.69	3.73	4.07	4.18	3.09	4.27
Sarnia	4.57	4.40	3.75	N/A	N/A	4.13
Sauble	4.48	4.52	4.34	N/A	3.84	4.47

Note: Mean scores are presented only for those beaches with a minimum of 5 responses/category.

Table 10   *Differences in Ratings for Health and Safety Characteristics between Visitors and Locals*

Health & safety characteristics	Visitor	Local	Significance
Water clarity	4.12	3.58	0.000
Water quality	4.14	3.80	0.016
Beach cleanliness	4.02	3.60	0.005
Lifeguard	4.14	3.97	NS
Beach patrol	3.77	3.08	NS
Overall satisfaction	4.29	4.08	NS

Water Clarity

Overall, beach visitors were fairly satisfied with the water clarity which received a mean rating of 4.02. In terms of water clarity/cleanliness visitors were very satisfied with

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Sarnia, Sauble, and Kincardine, whereas visitors were overall less than satisfied with water clarity at Point Clark and Ipperwash, which scored significantly below all of the other beaches.

Water Quality

Similar trends were observed for visitor satisfaction with water quality, which received an overall mean score of 4.07. Sauble Beach, Bright's Grove, Sarnia, Port Elgin and Kincardine achieved significantly higher ratings than all other beaches and Ipperwash , Kettle Point, Point Clark and Rotary Cove were rated significantly lower than the other beaches.

Beach Cleanliness

Scores for satisfaction with beach cleanliness were much more closely matched, resulting in a slightly lower mean score of 3.94. Sauble and Grand Bend were rated the highest but were not significantly higher than Goderich, Rotary Cove, Kincardine, Bright's Grove, and Kettle Point. Point Clark was rated the lowest for beach cleanliness but was only significantly different from 5 of the other 14 beaches rated.

Lifeguards and Beach Patrols

Only 8 of the 15 beaches examined had over 5 responses for lifeguards and beach patrols, respectively (indicating that most beaches probably did not have lifeguards or beach patrols present) (see page 9 for discussion of pairwise Mann-Whitney tests). The average rating for lifeguards was relatively high at 4.11. Of the beaches rated, Pt. Elgin was rated highest and was statistically significant from 5 of the other beaches and Kincardine, the lowest rated, was rated significantly lower than the 5 of the other beaches. Grand Bend was rated highest and was significantly higher than 5 of the 7 beaches rated and Port Blake and Kincardine were rated lowest and were significantly different from 2 and 4 other beaches respectively.

Overall Satisfaction

Visitors were overall quite satisfied with beaches that they were visiting, awarding them an average rating of 4.25. The overall satisfaction with beaches showed a narrow distribution of scores. The highest rated beach, Grand Bend, differed significantly from only 5 of the other 13 beaches assessed. In contrast, Ipperwash, the lowest rated beach, differed significantly from 4 of the other 13 beaches assessed (Appendix B). There are statistically significant relationships between visitors satisfaction ratings for all of beach amenities (Table 11) and health and safety characteristics (Table 12) and their overall satisfaction ratings, however, the extent of those relationships is strongest for beach cleanliness, water clarity, water quality, washrooms/change rooms, designated swimming areas and boardwalks.

Table 11   *Correlations between Satisfaction with Amenities and Overall Beach Satisfaction*

Amenities	Spearman Correlation	Approximate Significance
Garbage/recycling containers	0.239	0.000
Washrooms/change rooms	0.344	0.000
Parking	0.280	0.000
Boardwalks	0.300	0.000
Designated swimming area	0.319	0.000
Food concession stands	0.203	0.000
Picnic areas/tables	0.178	0.000
Children's play equipment	0.231	0.000
Volleyball courts	0.185	0.000
Access for persons with disabilities	0.186	0.000
Water sport rental equipment	0.182	0.000
Dog friendly beach areas	0.178	0.000
Water clarity	0.476	0.000
Water quality	0.433	0.000
Beach cleanliness	0.607	0.000
Lifeguards	0.194	0.000
Beach Patrol	0.160	0.000

Beaches Unsafe for Swimming

Given that beach satisfaction is so closely linked to water quality and beach cleanliness, this study supports previous work and recommends that beaches pursue Blue Flag in order to ensure water quality. The findings of this report note that there is a statistical significance between satisfaction and water clarity, quality and cleanliness. Of particular interest for this study is that 90% of visitors did not check in advance to see if the beach was posted as unsafe for swimming before they came even though this would affect their beach experience. Upon arriving at a beach marked as unsafe for swimming, the majority of visitors would choose to stay and enjoy the beach (72%), whereas a much smaller portion (26%) would choose to drive to another beach. Those who would choose to stay were asked what activities they would partake in during their stay, the results of which

are shown in Table 12. Those that would choose to drive to another beach indicated that they would drive, on average, 37 ± 29 minutes.

Table 12   *Beach Visitors Activities if Beach Posted Unsafe for Swimming*

Response to Unsafe Posting	Percent
Drive to Another Beach	23.6
Just sit on the beach	36.7
Just walk in the water along the shoreline	23.3
Swim and put your head under water	5.1
Swim but not put your head under water	7.9
Swim only in deeper water	1.3
No Response	2.1
Total	100.0

Even though the majority of visitors would decide to stay at a beach even if it was posted as unsafe for swimming, 34% of visitors indicated that they would be less likely to visit in the future (61% indicated it would have no effect on future visiting and 3% indicated that they would be more likely to visit in the future). There was no statistically significant difference in the reactions of locals when compared to visitors, however, a greater portion of visitors indicated that it would make them less likely to visit in the future, which has implications for tourism related operations.

Table 13. Mean visitor ratings of their awareness of the Blue Flag Program

Beach visitor type	Mean rating
Local	2.50
Visitor	1.67
Total	1.82

Visitors were asked to rate their familiarity with the Blue Flag Program from not very aware (1) to very aware (5) (See table 13).   Sixty-nine percent of visitors indicated that they were not very aware and the mean rating overall was 1.82. Locals were statistically more aware of the Blue Flag Program than visitors (mean ratings 2.50 and 1.67 respectively, $p<0.000$). Additionally, there was a significant difference in the awareness of the Blue Flag Program between different age groups. Visitors between the ages of 55 and 64 (2.05) and over 65 (2.30) were statistically more aware than visitors between the ages of 16-19 (1.47) and 20-34 (1.53) (Table 14). Other demographic categories measured had no significant impact on awareness of the Blue Flag Program.

Table 14   *Significant difference in familiarity with the Blue Flag Program between age groups (age group mean score shown in parenthesis, NS = not significant at p≤0.05).*

	16-19 (1.47)	20-34 (1.53)	35-54 (1.86)	55-64 (2.05)	Over 65 (2.30)
16-19 (1.47)	X	X	X	X	X
20-34 (1.53)	NS	X	X	X	X
35-54 (1.86)	NS	NS	X	X	X
55-64 (2.05)	0.027	0.014	NS	X	X
Over 65 (2.30)	0.011	0.006	NS	NS	X

Areas for Further Study

Although this study outlines some useful findings, it was preliminary and there is a need to further conduct studies which could assist in beach protection and conservation as well as optimise visitor spending. Some areas for further study could include:

- Visitor motivations for protecting beaches

- The feasibility of an ecotax to generate revenues for beach preservation

- What current resources – both public and private – are being spent on environmental protection in the Lake Huron area

- Could obtaining Blue Flag status take responsibility for ongoing data collection for water quality and beach quality management

Conclusion

Research suggests that the most pressing issue currently in lake tourism is water quality. Popular lake destinations generally have water of high quality, without fear of health or safety concerns. Conversely, lakes with water of poor quality are not popular travel destinations because of the uncertainty surrounding the quality of the water. This research supports that environmental considerations are the overwhelming factor in beach satisfaction. It is clear that beaches are an important part of the tourism product and that in order for this resource to be protected, implementing and maintaining programs such as Blue Flag may be the optimal way to ensure quality is maintained and visitation in optimised.

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