

*Assessing the Economic Impact of Ecotourism  
Developments on the Albemarle/Pamlico Region*



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2001*

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**2001**

This report was prepared under an award (Project # 99-06-07459)  
from the Economic Development Administration,  
U.S. Department of Commerce

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United States Department of Commerce  
Washington, D.C. 20230

The Statements, findings, conclusions, and recommendations are  
those of the authors and do not necessarily reflect the views of the  
Economic Development Administration.

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## **Executive Summary**

The Partnership for the Sounds (PFS) is a nonprofit organization chartered in 1993 with the mission to “stimulate sustainable community-driven economic well-being within the Albemarle-Pamlico region through the promotion of responsible eco/heritage tourism, environmental stewardship and education.” Toward this end, PFS has developed several nature/cultural-based attractions focusing on the unique ecological and cultural aspects of the estuarine communities of North Carolina. The purpose of this project was to assess the economic impact of the three PFS development projects on the five-county region of eastern North Carolina consisting of Bertie, Beaufort, Washington, Hyde, and Tyrrell Counties.

Data was collected during the summer 2000 season through on-site intercept surveys and more in-depth mail-back questionnaires. Data collection efforts yielded a total of 338 on-site surveys and 251 mail-back surveys for a response rate of 74%.

Respondents indicated the amount of direct expenditures they made during their trip to the various PFS developments in several different categories. These expenditures were then extrapolated to the total number of annual visitors received at each site. This initial analysis indicated that visitors to the PFS sites spent approximately \$4.2 million in the year 2000. However, when accounting for primary trip purpose and the origin (homes) of visitors, the total amount of new capital brought into the region that can be totally attributed to the PFS developments was reduced to \$1.2 million.

Due to the lack of precision in attributing expenditures to specific attractions or destinations and the difficulty in defining a region’s borders, it is suggested that a range of expenditure figures be used as an estimate of an attractions economic impact on a

region. While not providing a specific economic figure, it will provide a more defensible estimate of attributable impact.

In addition to the measurable economic impact of PFS developments, the data also provides evidence that the developments also supply the region with non-quantifiable benefits. Respondents indicated that they felt the developments made the region a better place to visit, that they would visit similar sites within the region, and that attending environmentally responsible sites was important to them.

Finally, high satisfaction scores were provided by visitors for all items except the availability of dining and shopping opportunities. This suggests that the PFS may wish to pursue their role as a catalyst in encouraging entrepreneurial development designed to take advantage of their presence in the various communities within the region.

There are several implications from this research for other regions with existing or proposed eco-tourism destinations. First of all, it is important to understand visitor purposes/reasons for attending a given site. Secondly, demand and support for eco or sustainable tourism development remains high. In addition, location, in relation to a destination's proximity to population centers and other tourism destinations may act as an important factor in drawing tourists to a region. Finally, the fact that eco-tourists desire support goods, services, and additional attractions similar to mass tourists indicates that opportunities for ancillary businesses can capitalize on the popularity of local eco-tourism development.

**Special Thanks** to the staff of the Economic Development Administration for their helpful suggestions and careful review of earlier drafts of this document. Any errors or omissions are solely the responsibility of the authors.

## **Introduction**

The Partnership for the Sounds (PFS) is a nonprofit organization chartered in 1993 with the mission to “stimulate sustainable community-driven economic well-being within the Albemarle-Pamlico region through the promotion of responsible eco/heritage tourism, environmental stewardship and education.” Toward this end, PFS has developed several nature/cultural-based attractions focusing on the unique ecological and cultural aspects of the estuarine communities of North Carolina. These sustainable economic developments include the North Carolina Estuarium in Washington, NC, Mattamuskeet Lodge in Hyde County, NC, and the Columbia Theater Cultural Resources Center in Columbia, NC.

The PFS developments have helped to create interest in the region between the Pamlico and Albemarle sounds by attracting visitors to the area. The expenditures that these recreational visitors or tourists make within the region encompassing the PFS sites are recycled throughout the region and may sometimes add significantly to the local economy. This is especially important to this region due to its economic disadvantages. All five counties in the PFS region rank in the bottom third of NC counties for median household income, and two of the three poorest counties in the state fall within the region. Furthermore, four of the five counties have a median household income 20% below the state median of \$42,400. Although a few initial projections were made concerning the economic impacts that PFS developments would likely have on the region, these were completed during the construction phase of the projects. Therefore, little is known concerning the current level of economic impacts to the Albemarle/Pamlico region generated by visitors to PFS sites.

The purpose of this project is to assess the economic impact of the three PFS development projects on the five-county region of eastern North Carolina consisting of Bertie, Beaufort, Washington, Hyde, and Tyrrell Counties. The data gathered through this project provide valuable information regarding visitors direct expenditures within the five county region. The analysis helps to describe the impact of the PFS developments on the economy of the study region, provides justification for continued public support of the development projects, imparts incentives for additional sustainable development projects, and helps determine what specific marketing actions or plans will provide the most benefits to the region. The project also provides valuable insights regarding how best to analyze the economic benefits of eco-tourism operations more generally.

### **Literature Review**

Travel and tourism has long been a target of economic studies. In today's environment, where more and more areas are viewing tourism as an important development strategy, economic impact studies are becoming more widely used by agencies interested in maximizing the economic benefits of recreational visits and activities. Economic impact studies provide information on the amount and nature of spending generated by an agency/organization, facility, program, or event and are completed for a variety of purposes. Not only can the figures generated through the analyses help garner public support for proposed developments, but they can also help determine what specific actions or plans will provide the most benefits to a community or region. Additionally, economic impact studies have the potential to provide information that can help local officials to target specific markets to increase economic activity within

a region, determine the financial feasibility of offering different facilities or programs, and project future profits derived from recreational/tourism development projects.

The social, cultural, and economic significance of tourism is growing in the U.S. (Noe, 1999). Tourism is not only economically appealing on the national level, but on the regional and local levels as well, due to its potential of alleviating spatial inequality (Baaijens, Nijkamp, & Van Montfort, 1998). Regions that lack industrial activity, but have an abundance of cultural, natural, or historical resources, can develop strategies to benefit from such possessions. Tourism can benefit a broad spectrum of interests including public service groups, retail stores, private organizations and non-profits. Being able to calculate the economic impact of tourism on an area is necessary for successful planning. Knowing what visitors value most can help tourism developers to tailor facilities, access, and support services so as to increase visitor satisfaction, encourage longer and repeat visits, and ultimately maximize the economic benefits of these sites (Yuan & Moisey, 1992).

In a study by Yuan and Moisey (1992), non-resident visitors to a Montana airport were surveyed on fourteen types of expenditures, as well as the recreational activities they participated in. Upon survey completion, participants were categorized as either wildland or non-wildland visitors based on recreational activity preference. Though activities were broken down individually into backpacking, angling and nature study, they were later combined into one group (wildland-based) to obtain an accurate estimate of economic impact.

Yuan and Moisey's findings suggest that tourists engaging in wildland-based activities most significantly impact tourism in Montana. By including sociodemographic

questions in the survey, a character profile of a preferred visitor was created. Their study further suggests that marketing to certain segments is more beneficial financially, than mass marketing to an entire population.

To create a realistic picture of tourism's economic impact in a specific region, it is important to collect data as accurately as possible. Economic impact dollars are used as major indicators of the vitality of a tourism area. Care must be taken because even apparently small errors can prove significant when extrapolated to a large population of visitors (Yuan 2000). An example of this would be with an average lodging expenditure. A survey may have expenditures grouped in five-dollar increments. Though the average lodging cost per person may actually be \$73, it may be recorded as \$70 or \$75. This small dollar amount, over several hundred people, in addition to various other "incremented" findings, can potentially create errors in thousands of dollars.

Another potential cause for error in calculating economic impact is the visitor's ability to remember their expenditures. However, results from previous research provide mixed results as to how time lag affects benefit estimates. Research by Howard, Lankford, & Havitz (1991) suggested that the longer the period of time between the visit and when the actual questionnaire is received, the more likely the respondent is to underestimate expenditures. A study by Zhou (2000) addresses how lapsed time affects accuracy in reported economic data, as well as the length of time between visiting a location and when a visitor is asked to recall trip expenditures affects the reporting (inflation or deflation) of expenditures on a sample visiting Frankenmuth, Michigan. In Zhou's study, two groups were established by years of participation- 1992/93 and 1993/94. Following the sample visits, a mailback survey was administered in May 1994.

This provided an approximate fourteen-month period since the first group had visited Frankenmuth, and only two months for the second. In contrast to the earlier research, this study finds that the more time between the actual visit and the time established for survey completion, the more likely it is that survey participants will inflate their expenditure numbers. Given the contradicting nature of the evidence, Zhou concludes that collecting expenditure data as close as possible to the time when the money is being spent is the most valid and practical approach.

The number of survey items is also a concern. Since self-responding mail-back questionnaires are the most popular form of personal economic data collection, survey instruments should be informative to the researcher, yet as convenient as possible for the participants to complete. Increased numbers of questions can provide more detailed information on economic purchases. By having detailed data, validity and reliability in a study is increased, and less guesswork and assumptions are needed in data analysis. However, highly detailed, multiple item surveys place increased pressure and difficulty on respondents to keep track of more specific expenditures. This can easily lead to lower response rates and less accurate responses. In turn, this can raise the cost of doing such research by increasing the number of follow-up mailings required to maximize response rates. The challenge is to find an agreement between the two. The average number of items ranges between four and twenty (Yuan & Yuan, 1996).

When determining economic impact one must not just focus on benefits, but costs accrued to the destination as well (Ap & Crompton, 1998). These costs can come in the form of litter and pollution, overcrowding of roads and facilities, vandalism, noise, and increased maintenance. Many of these costs are intangible, which is why they are often

overlooked. The jobs within the tourism industry tend to be labor intensive, and job opportunities often fluctuate seasonally. These seasonal jobs are quite often part-time low paying opportunities with little or no prestige. Economic impact studies are also generally positive projects. Moore and Barthlow (1997) recently summarized the findings from several economic impact studies and found that nearly all of the studies they examined indicated that recreational development and activity resulted in economic benefit to the regions in which they occur. However, the extent and type of economic impact can vary substantially among regions and types of recreational activity. Additionally, these surveys are designed to benefit an area, rather than expose damages and loss, creating a methodological bias (Crompton & McKay, 1994).

Economic impact studies have also been used to study economic effects of unforeseen disasters such as forest fires, floods, earthquakes and hurricanes. Significant impact was seen in the economy in the Yellowstone National Park area following the fires of 1988. A study was conducted on four primary areas of economic impact related to the Yellowstone area. These areas were: government payment to local businesses for goods and services related to fire suppression; effects of changes in tourism expenditures; overall effects of the fires in relation to employment and wages within the communities; and government payments for personal damages (Polzin, Yuan, & Schuster, 1993). Final results of the study show that the fires in 1988 cost the Yellowstone area approximately \$21 million in tourism. Loss in tourism revenue continued in 1989 with a loss of \$13 million, and \$26 million in 1990.

The majority of the studies included in this review have been accomplished through directly collecting expenditure data from visitors to a site, program, or event.

Collecting data on site is the obvious choice when attempting to determine the economic impact of an existing facility, program, or event. In these cases, random samples of visitors are interviewed via on-site and/or mail-back surveys that ask them to report the amount of money they spent related to their visit. These expenditures are then totaled to determine an average per-person expenditure figure. This figure is then multiplied by the total number of users to determine the total direct economic impact resulting from the site or event.

Determining economic impact through the direct collection of data, however, can be a time consuming and expensive endeavor due to the need for collection and analysis of expenditure and behavior data derived from a sample of visitors. This data collection can become increasingly difficult when there is very little time to conduct surveys, or when little or no existing baseline data is available for the specific set of visitors in question. Furthermore, if the economic impact to be assessed is for a project or facility that is in the proposal stage, collection of data from visitors is not possible. One possible solution to this problem is to estimate the economic impact using secondary data sources (Vogelsong & Graefe, 2000).. This involves the extrapolation of spending averages from previous studies to a new site of interest. This methodology does not require that empirical data be collected, however, it does involve an extensive review of existing data and literature, which may still require a significant commitment of time and effort.

Estimating economic impact from secondary sources requires a three-step process. The first step is to conduct a review of previous studies to identify economic impact analyses that have been completed at other areas. It is important that these areas are as similar as possible to the project under investigation to avoid making inappropriate

comparisons. For example, a special event in a small community should not expect to produce an economic impact comparable to a special event in a large city. Similarly, a new softball complex is not likely to produce results similar to those for a recreational trail. The second step in the process is to determine the average expenditure from the studies that were examined in the first step. Although this seems relatively simple, some studies look only at direct expenditures made during visits, while others are more comprehensive and may include spending for durable goods related to recreational use (Moore, Gitelson, & Graefe, 1994). Even within studies of direct expenditures, the spending categories and units of measurement (e.g., per person per day versus per group per trip expenditures) often are not consistent. Thus, determining an average spending pattern from existing data can be complicated and must be done with care to insure that data are comparable. Finally, the average spending data should be extrapolated to an estimate of the number of visitors/users that do or are projected to exist for the facility or event under investigation.

This process should yield a ballpark estimate of economic impact derived from several sources that are similar in scale and attributes. The advantage of this method is that data comes from several sources, which can minimize the effect of extreme situations and provide relatively safe and defensible figures. However, this method does not account for any site-specific attributes that may greatly influence the amount of economic activity that a particular resource, program, or event may generate.

Economic impact created by a variety of recreational activities can be estimated with, or without, collecting on-site data. The raw ingredients include estimates of spending behavior and projected use levels. Several areas of caution should be observed

when choosing a method of determining economic impact. Researchers and managers should make sure that all parties involved in a study are aware of the limitations that a methodology imposes, and agree to its use. As time and financial resources continue to become restricted, estimating economic impacts through analysis of secondary data may gain popularity as a viable alternative. However, when resources and time permit, the on-site collection of data is likely to produce the most accurate and meaningful results. Still, the inherent limitations of the method suggest that this methodology may be best suited for purposes of projecting future economic impacts from non-existing facilities, or justifying an approved action or a favored plan rather than for making decisions on controversial issues.

### **Regional Information**

The PFS developments have occurred in the region between the Pamlico and Albemarle Sounds (Figure 1). These developments are especially important to this region due to its economic disadvantages. Although North Carolina has one of the fastest growing populations in the country, the Albermarle/Pamlico region is in the primarily agricultural coastal plain portion of the state and contains no major metropolitan areas. The five counties served by the PFS are among the poorest in the state. All five counties rank in the bottom third of NC counties for median household income, and two of the three poorest counties in the state fall within the region. Furthermore, four of the five counties have a median household income 20% below the state median of \$42,400. Table 1 provides economic indicators for the region.

Table 1. Economic Indicators of Study Region

County	Population	Median Household Income (1999)	Income Rank Out of 101 NC Counties	Unemployment Rate (1998)
Bertie	44,158	\$27,000	94	5.8%
Beaufort	19,830	\$33,400	77	7.8%
Hyde	5,611	\$25,100	99	7.0%
Tyrrell	4,025	\$23,400	100	8.6%
Washington	12,850	\$34,000	68	7.5%

Source: NC Department of Commerce (1991)

The role that tourism plays in generating economic impact within the region varies considerably between the five counties. Table 2 provides a breakdown of the importance of tourism to the economy of the region

Table 2. Tourism Economic Indicators of Study Region

County	1999 Domestic Tourism Economic Impact (millions)	State Rank (Out of 101)	Travel & Tourism Related Jobs	Tourism Generated Payroll (millions)
Beaufort	\$44.9	50	420	\$7.1
Bertie	\$7.7	79	50	\$.9
Hyde	\$23.2	67	430	\$5.5
Tyrrell	\$2.9	98	20	\$.3
Washington	\$9.5	89	100	\$1.6

Source: NC Department of Commerce (1991)



Figure 1. Eastern North Carolina and the Partnership for the Sounds

## Methods

Data was collected through a combination of on-site interviews and follow-up mail-back questionnaires completed by visitors to the PFS sites. Research assistants and PFS personnel conducted brief on-site interviews with visitors to PFS sites. Data gathered at this stage included demographic information, visitors' points of origin, and their names and addresses. Respondents were also given a self-administered follow-up survey at this time to complete after their trip and mail back to the researchers. The follow-up questionnaire was designed to collect more in-depth information regarding visitors' expenditure patterns and characteristics. To maximize the response rate, a reminder post card was sent to each visitor that did not respond within seven to ten days after his or her initial interviews. Those not returning their questionnaires within another two weeks were sent a second copy of the questionnaire, and a final copy was sent to those who still had not responded after two more weeks. This methodology is based on the Dillman (1978) Total Design Method and yielded an overall response rate of 74%.

Data was collected during a 10 week period from June through August, 2000. During this period, research assistants sampled two of the PFS sites once each weekend and one week day per week. Specific dates and varying days of the week were chosen in an effort to minimize selection bias. Data at the third site was collected continuously by PFS personnel. Although the goal for sampling was to conduct 20 interviews per day, there were far fewer visitors attending the sites during the sampling than anticipated. Furthermore, the PFS personnel who were contracted to collect data at the Columbia Theater Cultural Resources Center site did not meet expectations and only completed 31

on-site interviews during the study period. Table 3 provides a breakdown of the number of on-site and mail-back surveys that were completed at each of the three sites

Table 3. Data Collection and Response Rate

Site	On-Site Surveys	Mail Back	Response Rate
The Lodge at Lake Mattumaskeet	64	44	69%
The North Carolina Estuarium	243	186	77%
The Columbia Theater Cultural Resources Center	31	21	68%
Total	338	251	74%

Despite the fact that the original sampling goals were not met, the overall number of completed mail-back surveys was adequate to allow for statistical analysis and generalization to the population of visitors to PFS sites during the study period. Also, since visitation to the three sites was relatively low during the data collection period and created the need to interview nearly all visitors on sampling days, the percentage of visitors who participated in the survey was very high. Although a true random sample of visitors would be more desirable, the sample chosen for this study is believed to be representative of the population of all PFS visitors during the study time frame. In addition, the relatively high response rate, coupled with the fact that nearly all visitors to the sites were included in the sample, helped to minimize response bias.

## Results

One of the first steps in analyzing the data was to create a profile of visitors to the three PFS sites. Table 4 provides a summary of demographic variables on the visitors to the sites, which can be later used as independent variables in comparing expenditure data. As Table 4 depicts, there was quite a bit of variance in demographic characteristics of visitors to PFS sites. While the sample was evenly split between male and female visitors, other variables were dominated by certain categories of responses. The average

age of the PFS visitors was 49 years old, and there were very few (less than 10%) of visitors under the age of 30. The majority of visitors attended the sites in groups of 2-4 people and were first time visitors. Although almost three-quarters of the visitors were residents of North Carolina who traveled an average of 76 miles to attend the site where they were surveyed, half of the sample traveled less than 30 miles to visit the sites.

Table 4. Visitor Sample Profile

<b>Age</b>	<b>People Surveyed</b>	<b>%</b>
18-22	9	4
23-30	17	4
31-40	38	18
41-50	54	23
51-60	69	29
>50	46	19
Mean age = 48.60		
<b>Gender</b>	<b>People Surveyed</b>	<b>%</b>
Male	157	50
Female	158	50
<b>Group Size</b>	<b>People Surveyed</b>	<b>%</b>
By Self	23	7
2 people	120	37
3-4 people	126	39
5-6 people	34	10
>6 people	22	7
Mean Group Size = 3.98		
<b>State of Residence</b>	<b>People Surveyed</b>	<b>%</b>
North Carolina	245	73
Virginia	19	6
Other	74	21
<b>Travel Distance in Miles</b>	<b>People Surveyed</b>	<b>%</b>
>20	99	31
20-60	134	42
61-120	39	12
121-180	16	5
181-240	9	3
241-300	13	4
301-360	4	1
>360	11	3
Mean Travel Distance = 76 Median Travel Distance = 30		
<b>First Time Visitor</b>	<b>People Surveyed</b>	<b>%</b>
Yes	244	78
No	81	22

Another important component of the study involved trip purpose. This was determined by asking respondents if the visit to the PFS site where they were surveyed was the primary purpose for their trips. Table 5 provides a breakdown of the results of this question for all three PFS sites.

Table 5. Was PFS Site Primary Purpose of Trip

Visit to PFS Site was Primary Purpose	Lake Mattamuskeet		NC Estuarium		Columbia Theater		Total	
	People Surveyed	%	People Surveyed	%	People Surveyed	%	People Surveyed	%
Yes	31	49	143	60	3	10	177	54
No	32	51	94	40	28	90	154	46
Total	63	100	237	100	31	100	331	100

Chi Square = 24.57 (Significant at .000)

Overall, the majority (54%) of respondents indicated that their visit to the PFS site was the primary purpose of their visit. This indicates that, for many people, the PFS sites are acting as true visitor destinations rather than just stopovers or ancillary targets for people who happen to be in the area or are just passing through. However, significant differences were found between the three sites in relation to how respondents answered the question. Although 60% of visitors to the NC Estuarium indicated that their visit to the site was the primary purpose for their trip, just under half (49%) of Lake Mattamuskeet, and only 10% of Columbia Theater visitors reported that their visits to the sites were the primary reason for their trip. Thus, a great deal of variance occurred between the three sites when considering their usefulness in acting as a true destination. More discussion of this issue is provided in the conclusion section of this document. This information is also valuable in that it allows for the clarification of expenditures between those visitors who spent money in the region because of the PFS developments and those who were in the region for other purposes not related to the PFS developments.

A list of questions regarding visitor spending characteristics was developed based on a review of relevant literature and incorporated into the survey instrument. These questions were designed to determine the amount of money visitors to PFS sites spent in the region during their trip (direct impacts) in different expenditure categories such as food, accommodations, gas, souvenirs, etc. These figures can then be extrapolated to the total number of visitors to the PFS developments in order to estimate the total direct economic impact of the PFS on the region's economy. Table 6 summarizes the average spending of visitors to all three sites by the expenditure categories that visitors reported spending money in. These figures are disaggregated by whether or not the visitors' primary trip purpose was to visit the PFS site where they were surveyed.

Table 6. Visitor Expenditures

Types of Expenditures	Visit was Primary Purpose N=139	All Visitors N=250
Admission Fees (includes admission to the Site)	\$7.91	\$7.22
Food and Beverage (includes restaurants, taverns, groceries, etc)	\$30.64	\$35.53
Shopping (includes clothing, personal items, souvenirs, etc)	\$21.19	\$25.80
Lodging (includes hotels, motels, B&Bs, etc)	\$8.07*	\$31.52*
Transportation (includes parking fees, gasoline, etc)	\$11.67*	\$17.32*
Entertainment and Recreation	\$14.80	\$13.29
All Other Expenses	\$13.22	\$18.90
Total	\$108.00*	\$150.02*

\* Indicates significant difference at .05

As the above data shows, the average visitor spent approximately \$150 within the 50 mile region surrounding the site they visited. The largest portion of this was spent on food and beverage (\$35.53), followed by lodging (\$31.52), shopping (\$25.80), other (\$18.90), transportation(\$17.32), entertainment and recreation (\$13.29), and admission fees (\$7.22). An independent t-test was also used to determine if significant differences

exist between visitors whose primary trip purpose was to visit the PFS site where they were surveyed and visitors who reported that their primary trip purpose was something other than to visit the PFS site. The analysis shows that visitors whose primary trip purpose was not to visit the PFS site reported spending more in every category other than admission fees, and that these differences are statistically significant in the lodging, transportation, and total expenditures categories. This analysis provides additional justification for segmenting visitors by their trip purpose when extrapolating expenditure data.

Although the average amount of spending by visitors to all three sites provides an overview of the economic impact resulting from PFS developments, further insights can be achieved by examining each site separately (Table 7). For example, since opportunities for spending are likely to differ across different communities, it follows that actual spending will differ across sites. It is also useful to segment visitors by distance traveled so that spending generated from all visitors, including those within the study region, (economic activity) can be discriminated from spending that has brought new money into the region (Table 8).

The data displayed in Tables 7 and 8 highlights several important findings. First, the amount of spending per visitor is very dependent on the site where the visit took place and the purpose of the visit. Overall, the average visitor spent the most at the Columbia Theater site, followed by Lake Mattamuskeet, and the NC Estuarium respectively. However, when controlling for trip purpose, those visitors whose primary trip purpose was to visit the site spent the most at Lake Mattamuskeet, followed by the NC Estuarium and Columbia Theater respectively. This is especially important when considering the

percentage of visitors who reported that their primary trip purpose was to visit the PFS site. Second, the distance that visitors reported traveling is also dependant on which of the three sites they were surveyed at. While the majority of visitors to Lake Mattamuskeet (73%) and the Columbia Theater (69%) came from outside the region, nearly three quarters of the visitors to the NC Estuarium were from within the 50 mile region surrounding the site. This finding also helps to account for why visitors to the Estuarium spent less than visitors to other sites. Obviously, if travel distance is shorter, then there is not as much need to make expenditures for meals, lodging, souvenirs, etc

Table 7. Spending Comparisons Across Sites and by Trip Purpose

Types of Expenditures	Lake Mattamuskeet		NC Estuarium		Columbia Theater	
	Primary Purpose Visitors.	Other Visitors	Primary Purpose Visitors.	Other Visitors	Primary Purpose Visitors.	Other Visitors
Sample Size	N=22	N=20	N=111	N=71	N=2	N=21
Admission Fees (includes admission to the Site)	3.73	1.40	8.76	7.66	5.00	5.73
Food and Beverage (includes restaurants, taverns, etc)	100.73	43.75	16.96	45.56	3.50	29.79
Shopping (includes clothing, souvenirs, etc)	52.68	11.90	15.08	40.41	13.00	24.89
Lodging (includes hotels, motels, B&Bs, etc)	25.36	36.80	4.72	38.92	0.00	163.11
Transportation (includes parking fees, gasoline, etc)	35.91	27.40	6.97	25.68	0.00	17.43
Entertainment and Recreation	73.90	3.30	3.22	8.79	0.00	23.76
All Other Expenses	40.22	13.00	7.98	24.10	0.00	46.42
Total	332.55	137.55	63.70	191.11	21.50	330.89

Table 8. Distance Traveled by Site

Distance Traveled	Lake Mattamuskeet		NC Estuarium		Columbia Theater		Total	
	n	%	n	%	n	%	n	%
Less than 50 miles	17	27	175	74	8	31	200	61
50 miles or greater	46	73	61	26	18	69	125	39
Totals	63	100	236	100	26	100	325	100

Chi Square = 58.0, Significant at .000

The data displayed in all the previous tables now provides enough information to extrapolate spending figures to the entire population of PFS visitors in order to estimate the economic impact and activity resulting from the presence of the three PFS developments. Admission fee receipts, staff counts, and log books were used to determine that in the year 2000, the three PFS sites attracted a total of 24,580 visitors. Individually, the Lodge at Lake Mattamuskeet attracted 9,374 visitors, The NC Estuarium attracted 13,448 visitors, and the Columbia Theater Cultural Resource Center attracted 1,758 visitors. Table 9 demonstrates how the previous segmentation of visitors was applied to these attendance numbers in order to extrapolate the appropriate expenditure figures to them.

Table 9.  
Total Spending by Visitors Whose Primary Trip Purpose was to Attend a PFS Site

Attendance and Expenditure Categories	Site		
	Lake Mattamuskeet	NC Estuarium	Columbia Theater
Total Attendance (Number of Visitors)	9374	13448	1758
% of Primary Purpose Visitors	49%	60%	10%
Number of Primary Purpose Visitors	4593	8069	176
Per Person Spending by Primary Purpose Visitors			
Admission Fees	\$3.73	\$8.76	\$5.00
Food and Beverage	\$100.73	\$16.96	\$3.50
Shopping	\$52.68	\$15.08	\$13.00
Lodging	\$25.36	\$4.72	\$0.00
Transportation	\$35.91	\$6.97	\$0.00
Entertainment and Recreation	\$73.90	\$3.22	\$0.00
All other expenses related to your visit	\$40.22	\$7.98	\$0.00
<b>Total</b>	<b>\$332.55</b>	<b>\$63.70</b>	<b>\$21.50</b>
Spending by Primary Purpose Visitors			
Admission Fees	\$17,132	\$70,684	\$880
Food and Beverage	\$462,653	\$136,850	\$616
Shopping	\$241,959	\$21,681	\$2,288
Lodging	\$116,479	\$38,086	\$0
Transportation	\$164,935	\$56,241	\$0
Entertainment and Recreation	\$339,423	\$25,982	\$0
All other expenses related to your visit	\$184,731	\$64,391	\$0
<b>Total</b>	<b>\$1,527,402</b>	<b>\$513,995</b>	<b>\$3,784</b>
<b>Total Spending for three sites combined = \$2,045,181</b>			

The data in Table 9 estimates that the three PFS sites combined attracted a total of 12,838 visitors whose primary trip purpose was to visit one of the PFS sites. These visitors spent an estimated \$2,045,181 in the region that can be considered economic activity resulting from the development of the PFS sites. These, of course, are direct expenditures and do not include indirect, induced, or other “multiplier” impacts. Note that, a large portion of the visitors included in these figures originated from within the region defined as within 50 miles of each site. Although the expenditures that these visitors have made contribute to the local economy, the locals probably would have spent this income in the region anyway. Therefore, to determine the amount of new demand for goods and services in the local economy, we need to focus on the visitors coming from outside the region. This can be accomplished by applying the percentages of visitors who travel greater than 50 miles to each site (Table 8) to the number of primary purpose visitors derived from Table 9 and repeating the extrapolation of spending figures. The results of this analysis are presented in Table 10.

This estimation technique is conservative, in that it may underestimate total benefits. It does not, for instance, include the economic gain from local residents who vacation or make trips close to home instead of traveling outside their home region. Nonetheless, the approach is easily defended against critics who are skeptical of large or padded numbers commonly associated with economic impact research. The approach that is accepted by any given agency will vary and is somewhat dependent on the how the estimate will be used. Table 11 compares three separate estimates of economic impact that were derived from this study.

Table 10. Total Spending by Visitors From Outside the Region

Attendance and Expenditure Categories	Site		
	Lake Mattumuskeet	NC Estuarium	Columbia Theater
Number of Primary Purpose Visitors	4593	8069	176
% of Visitors from Beyond 50 Miles	73	26	69
Number of Visitors from Beyond 50 Miles	3353	2098	121
Expenditures Per Visitor			
Admission Fees	\$3.73	\$8.76	\$5.00
Food and Beverage	\$100.73	\$16.96	\$3.50
Shopping	\$52.68	\$15.08	\$13.00
Lodging	\$25.36	\$4.72	\$0.00
Transportation	\$35.91	\$6.97	\$0.00
Entertainment and Recreation	\$73.90	\$3.22	\$0.00
All Other Expenses Related to Visit	\$40.22	\$7.98	\$0.00
Total	\$332.55	\$63.70	\$21.50
Total Expenditures			
Admission Fees	\$12,507	\$18,378	\$605
Food and Beverage	\$33,7748	\$35,582	\$424
Shopping	\$176,636	\$31,638	\$1,573
Lodging	\$85,032	\$9,903	\$0
Transportation	\$120,406	\$14,623	\$0
Entertainment and Recreation	\$247,787	\$6,756	\$0
All Other Expenses Related to Visit	\$134,858	\$16,742	\$0
<b>Total</b>	<b>\$1,115,040</b>	<b>\$133,643</b>	<b>\$2,602</b>
<b>Total New Local Spending by the Three Sites = \$1,251,285</b>			

Table 11. Comparisons of Economic Impact Estimates

Estimate	Lake Mattumuskeet	NC Estuarium	Columbia Theater	Total
<b>Total Spending</b> (includes spending of all visitors regardless of trip purpose or origin)	\$2,185,029	\$1,541,976	\$527,216	\$4,254,221
<b>Total PFS Attributable Spending</b> (includes spending by PFS site primary purpose visitors)	\$1,527,402	\$513,995	\$3,784	\$2,045,181
<b>New Local Economic Activity</b> (includes only spending generated from outside the region visitors whose primary trip purpose was to visit PFS sites)	\$1,115,040	\$133,643	\$2,602	\$1,251,285

As Table 11 depicts, the three estimates vary considerably. However, even the most conservative of the three figures estimates that the PFS developments generated

over a million dollars of economic impact within the region in 2000. While not a huge figure, it remains a significant impact when considering the overall poor state of the economy in the region and that PFS attendance was down slightly (3%) from the previous year. In addition, although not all of the economic activity in the higher figures can be directly attributable to PFS developments, the total expenditures by visitors to the region may well have been lower without the sites. In other words, the existence of the PFS sites has served to make the primary destinations, and the region as a whole, more attractive to visitors. Finally, the inequity of contributions from the individual sites indicates that, with proper marketing to increase attendance, the NC Estuarium and Columbia Theater may have the potential to increase their impacts on the local economy. The NC Estuarium in particular, appears to be an attractive destination to locals and should be marketed to people and groups outside the region. While the possibility exists that potential visitors are aware of the sites and not attending them, the satisfaction and importance data presented in the next section indicate that marketing the sites may increase visitation.

An additional goal of this research project was to determine how this type of sustainable development is perceived, and attempt to understand the values that visitors place on sustainability and eco-tourism. Toward this end, two sets of Likert-scaled questions were asked of respondents. The first of these asked visitors to express their level of agreement to several statements concerning how they felt the PFS sites contributed to the region, whether or not public funds should help support the sites and the importance that they place on supporting environmentally sustainable destinations. The second set of questions asked visitors to indicate how satisfied they were with their

visit to the site, as well as with other local opportunities for visiting attractions, dining and shopping. The responses to these questions are respectively summarized in Tables 12 and 13.

Table 12. Perceptions of “Value Added” Sustainable Development

Statements	Strongly Disagree 1	Somewhat Disagree 2	Neutral 3	Somewhat Agree 4	Strongly Agree 5	Mean
If similar sites were developed in Eastern North Carolina I would attend them	9	6	31	72	127	4.23
Public funds should be used to support this type of development	9	13	45	78	99	4
This site is a better example of sustainable development than other sites in the area	7	4	74	51	57	3.76
This site makes the region a better place to visit	9	3	13	55	165	4.49
Attending sites that are environmental responsible is important to me	6	2	22	66	100	4.29

Table 13. Satisfaction with PFS Sites and Local Opportunities

Question	Very Dissatisfied 1	Somewhat Dissatisfied 2	Neutral 3	Somewhat Satisfied 4	Very Satisfied 5	Mean
How satisfied were you with other local tourism opportunities	2	13	74	78	61	3.8
How satisfied were you with shopping and dining opportunities	6	25	73	78	47	3.59
How satisfied were you with the quality of visitor information	2	4	16	54	167	4.56
What was your overall level of satisfaction	2	1	12	81	142	4.51

Overall, the majority of visitors reported that they would patronize similar sites in the region if they were developed, that the sites made the region a more attractive destination, that they supported public funds be used to sustain the sites, and that it was important to them to attend environmentally responsible sites. Interestingly, visitors were more neutral in responding to whether or not they agreed that the sites were a better

example of sustainable development than other sites in the region. Although the majority of visitors at least somewhat agreed with the statement, over a third of the sample responded as neutral. Possible explanations for this response are that visitors are unaware of other tourism opportunities within the region and thus have no opportunities for comparison, or that since sustainability appears to be a priority for the visitors, that they intentionally seek out and visit only sites that they perceive to be sustainable, or that they are comparing the three sites to one another and believe all three to be good examples of sustainable development. In any case, it appears as if visitors to the three sites perceive them to be a positive and sustainable contribution to the region.

The majority of respondents also reported that they were satisfied with their experiences at the sites. In particular, Over 60% of the sample reported that they were “very satisfied” with their overall experience, and with the quality of visitor information. While still positive, visitors were more likely to express dissatisfaction with other local opportunities and shopping and dining opportunities within the region.

Based on the thought that differences in perceptions and standards between locals and visitors originating outside the region may exist, an independent T-test was used to compare differences in perceptions and satisfactions between these two groups. Although, in most cases, locals provided slightly higher evaluations than visitors from outside the region, these differences were statistically insignificant.

Differences were also examined between the three sites in relation to the satisfaction variables (Table 14). Though not great, they do provide evidence that visitor satisfaction varied across the three sites. While overall satisfaction remained high at all three sites, the largest differences occurred with satisfaction with local shopping and

dining opportunities. Respondents indicated that they were most satisfied with shopping and dining opportunities at the NC Estuarium, which is located in the largest community in the region.

Table 14. Average Satisfaction with PFS Sites and Local Opportunities, By Site

Question	Lake Mattamuskeet	NC Estuarium	Columbia Theater	Total
How satisfied were you with other local tourism opportunities	3.63	3.83	3.95	3.8
How satisfied were you with shopping and dining opportunities	3.25	3.74	3.05	3.59
How satisfied were you with the quality of visitor information	4.10	4.66	4.67	4.56
What was your overall level of satisfaction	4.24	4.57	4.55	4.51

### Conclusions/Recommendations

The Partnership for the Sounds (PFS) has had some success in stimulating the economy of the five county region located between the Albermarle and Pamlico Sounds in Eastern North Carolina. During the year 2000, their three sites hosted nearly 25,000 visitors who were associated with \$4,254,221 in direct expenditures within the county. While a substantial portion of this spending came from within the region, and a sizable percentage of the visitors were not traveling to the area with the primary purpose of visiting a PFS site, the economic activity associated with PFS developments is important when considering the contribution of the agency to the region. However, these two factors contribute to the estimation of a more conservative economic impact of \$1,251,285 that can be directly attributed to PFS development sites. Rather than providing a single estimate of economic impact, researchers may wish to put forth a range of economic figures associated with development activities. Another aspect that contributes to the complexity of determining the type of economic activity that should be

attributed to the sites was defining the scope of the region. While a great many individuals who attended the sites were from the relatively large city of Greenville, which is outside the 5-county region, they remained within the 50 mile radius of the North Carolina Estuarium. This makes it very difficult to determine exactly where their spending occurred, and to what region it should be applied. Future research efforts should strive to create new ways of defining regions that are both meaningful and easily interpreted by visitors providing expenditure data.

Keep in mind that these figures are direct impacts only. Estimates that included indirect and or induced impacts that reflect multiplier rates would certainly be considerably higher. While these are beyond the scope of this project, future examinations of the economic impact of PFS projects may want to include these estimates in order to provide a fuller accounting of the projects' impacts. Despite the fact that the economic impact from PFS developments is substantial, the majority of the direct impacts occur from a single site (the Lodge at Lake Mattamuskeet). This was particularly surprising in that this site is more remote than the other two sites, had far fewer visitors than the NC Estuarium, and does not appear to offer many opportunities for visitors to make expenditures. Efforts should be made to better market the other two sites to potential visitors outside the region. The fact that visitors to all three sites reported high levels of satisfaction with the sites suggests that problems associated with low out-of-region visitation are related to lack of awareness rather than quality or interest problems.

In addition to the direct expenditures, respondents reported that PFS developments benefit the region by providing a quality example of sustainable and

environmentally responsible tourism. Of particular interest was that respondents reported that they felt the developments made the region a better place to visit. Not only does this indicate that the developments are having some important non-cash benefits such as instilling community/regional pride, but that, by improving the regions' image, the number of visitors to the region can continue to grow and increase the economic benefits to the region. This thought is strengthened by the respondents who indicated that they would attend similar sites within the region if they existed. Although visitors responded positively to all questions regarding the satisfaction of their PFS experiences, the lowest scores occurred for satisfaction with additional opportunities for attractions, shopping, and food and beverage availability.

Implications from the lack of these types of opportunities are both promising and troubling. On one hand, they indicate that there may be additional opportunities for entrepreneurial activity that could help boost the economy of the region, and that the region has not yet reached its potential attraction as a destination. Furthermore, if more attractions and opportunities are developed within the region, these should have an agglomerative effect in attracting visitors from further distances to the region and increase its viability as a true destination. On the other hand, if the overall lack of additional opportunities persists, it is likely that the tourism generation of the region will stagnate, and continue to act as only a secondary attraction to visitors who are already in the region for other purposes. In either case, for the PFS to have the greatest sustainable impact on the region, it should actively pursue its role as a catalyst in attempting to spawn additional tourism related development. Ideally, this type of development should remain consistent with the overall theme of eco/cultural-tourism and environmental

sustainability. However, it should also include activities or spending opportunities that are consistent with visitor desires. Just because an individual visits or values an environmentally responsible or sustainable site, does not mean that they do so exclusively. Perhaps future research efforts could focus on what aspects/amenities that eco-tourists desire/value beyond the immediate sites which they attend.

Further recommendations for future research include an examination of the costs associated with tourism development (i.e. increased traffic, noise, prices, etc..) that are experienced by local residents; as well as attempts to further the understanding of how local tourism destinations compete with and complement one another. While some areas clearly attract potential tourists away from other destinations, other sites may serve to draw in tourists to a particular region due to their close proximity or location along a travel route. In any case, little is known concerning the role of geographic location in tourism choice behavior and the possible symbiotic relationships between destinations.

### **Implications for Other Areas**

There are several implications from this study that may be important to other regions with existing or proposed eco-tourism destinations. The first of these is that visitors appear to support destinations that they feel are sustainable and environmentally responsible. This was supported through the Likert scale questions where visitors reported that the eco-tourism sites made the region a better place to visit, they would visit similar sites within the region, and that they support public funds be used to help develop these types of sites. Therefore, despite the growing trend in developing eco- and sustainable tourism attractions, the market does not yet appear to be saturated.

Other areas should also focus attention on the origin of their visitors as well as their location related to other destinations. Although all visitors to sites/destinations spend money, those visitors who come from beyond the local region are providing new demand for tourism destinations and services. Logic also dictates that visitors from outside a given region are likely to spend more than local visitors because they have a greater need for restaurants, overnight accommodations, etc. Therefore, eco-tourism destinations that are attractive enough to draw visitors from outside their local region, or that are located close to other attractions that can have a long distance agglomerative effect are most likely to have the greatest economic impact.

Finally, it is important to recognize that eco-tourists desire support facilities, services and attractions. Although visitors may travel to a destination in order to attend a sustainable attraction or event, this research indicates that they still desire opportunities to shop, dine, and be entertained. Not only can these types of ancillary services or businesses make eco-tourism sites more attractive to potential visitors, but they also provide additional opportunities for visitor spending within the region and should help increase the overall economic impact of tourism within a region.

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Appendix A  
On-Site Survey

2000 Partnership for the Sounds On-Site Survey

Survey Number \_\_\_\_\_ Interviewer \_\_\_\_\_ Time \_\_\_\_\_  
Date: \_\_\_\_\_ Site \_\_\_\_\_ Gender M F

---

1. What is your Zip-Code? \_\_\_\_\_
  2. What state/county do you live? State \_\_\_\_\_ County \_\_\_\_\_
  3. Approximately how far did you travel today to visit this site? \_\_\_\_\_ Miles
  4. Is this your first visit to this site? Yes No
  5. Including yourself, how many people are in your group today? \_\_\_\_\_
  6. Are you here today primarily to visit this site? Yes No  
6a. If no, what is your primary purpose for being here?
- 

7. Have you visited  
The North Carolina Estuarium in Washington? Yes No  
The Lodge at Lake Mattamuskeet? Yes No  
Columbia Theater Cultural Resources Center? Yes No

**Will you take part in a follow-up survey to help us better understand the impact of the PFS developments and how they can be improved?**

\_\_\_\_\_ Yes \_\_\_\_\_ No

Thank You

Appendix B  
Mail-Back Survey

Dear Visitor,

We appreciate your willingness to be interviewed during your recent visit to the North Carolina Estuarium. We hope that you found your visit to be worthwhile and enjoyable.

The questionnaire on the following pages is to be filled out as soon as possible and returned using the pre-postage paid envelope provided. This survey should take no more than 15 minutes of your time. As will be apparent, there are no right or wrong answers, We are interested only in your views and selected items of information. Although surveys that have been totally completed are the most beneficial to this project, you are under no obligation to answer any questions that you are uncomfortable with.

You were selected at random to participate in this survey. The information that you submit will be kept completely confidential, and will be used to help make the North Carolina Estuarium a better place to visit and more beneficial to the region. Your name and contact information will be eliminated from our files as soon as we receive your completed survey. You will not be placed on any mailing lists or receive any advertisements due to your cooperation with this survey.

Thank you in advance for completing this survey. The information you provide will be valuable to the managers of the North Carolina Estuarium, and help provide benefits to the Eastern North Carolina Region.

Thank You,

Dr. Hans Vogel song  
Principle Investigator  
East Carolina University

Partnership for the Sounds Mail-Back Survey

Including yourself, how many people were in your group when you visited the North Carolina Estuarium in Washington? \_\_\_\_\_

In this section, Please indicate how much **you** spent in each of the following categories while visiting the Estuarium. Please include expenditures that **you** made within 50 miles of Washington during your visit to the Estuarium.

Types of Expenditures	Round to nearest dollar
<u>Admission Fees</u> (includes admission to the Estuarium)	
For You	\$ _____
For Others in your group	\$ _____
<u>Food and Beverage</u> (includes restaurants, taverns, groceries, etc)	
For You	\$ _____
For Others in your group	\$ _____
<u>Shopping</u> (includes clothing, personal items, souvenirs, etc)	
For You	\$ _____
For Others in your group	\$ _____
<u>Lodging</u> (includes hotels, motels, B&Bs, etc)	
For You	\$ _____
For Others in your group	\$ _____
<u>Transportation</u> (includes parking fees, gasoline, etc)	
For You	\$ _____
For Others in your group	\$ _____
<u>Entertainment and Recreation</u>	
For You	\$ _____
For Others in your group	\$ _____
<u>All other expenses related to your visit</u>	
For You	\$ _____
For Others in your group	\$ _____

When did you decide to visit the NC Estuarium?

- the day of the visit
- during the week before the visit
- 2 to 4 weeks before the visit
- 5 to 12 weeks before the visit
- more than 12 weeks before the visit

How did you hear about the North Carolina Estuarium (check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Billboards        | <input type="checkbox"/> Road Sign                    |
| <input type="checkbox"/> Shopper Ads       | <input type="checkbox"/> Newspaper Article            |
| <input type="checkbox"/> Pamphlet/Brochure | <input type="checkbox"/> From a friend/Aquaintance    |
| <input type="checkbox"/> School Programs   | <input type="checkbox"/> Other (please specify) _____ |

Approximately how long did you spend at the North Carolina Estuarium?

\_\_\_\_\_ hours & \_\_\_\_\_ minutes

Prior to your visit, had you heard of the following sites?

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| The North Carolina Estuarium in Washington    | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| The Lodge at Lake Mattamuskeet                | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| The Columbia Theater Cultural Resource Center | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

In the last 12 months, approximately how many times have you visited each of the following sites?

- |   |       |
|---|-------|
| The North Carolina Estuarium in Washington    | _____ |
| The Lodge at Lake Mattamuskeet                | _____ |
| The Columbia Theater Cultural Resource Center | _____ |

What was your favorite part of your visit to the Estuarium?

*On a scale of 1 to 5, with 5 being the most satisfied, please indicate your level of satisfaction with the following features/attributes of your trip to the Estuarium*

How satisfied were you with: (please circle the appropriate number for each item)

	Very Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied
a. The Quality of the exhibits	5	4	3	2	1
b. Opportunity to learn something new	5	4	3	2	1
c. Opportunity to relax	5	4	3	2	1
d. Cleanliness of facilities	5	4	3	2	1
e. Condition of facilities	5	4	3	2	1
f. Availability of space	5	4	3	2	1
g. Helpfulness of personnel	5	4	3	2	1
h. Safety and security	5	4	3	2	1
i. Behavior of other visitors	5	4	3	2	1
j. Quality of visitor information	5	4	3	2	1
k. Other local opportunities	5	4	3	2	1
l. Shopping and Dining opportunities	5	4	3	2	1
m. Overall level of satisfaction	5	4	3	2	1

On a scale of one to ten, how would you rate your overall trip to the NC Estuarium, with a rating of 10 being the best possible experience, and a rating of 1 being the worst possible experience you can imagine?

\_\_\_\_\_ Rating

Please indicate the extent to which you agree with the following statements on a scale of 1 to 5, with 5 indicating the highest level of agreement.

Please circle the appropriate number for each item that indicates how much you agree with each statement

<b>Statement</b>	<b>Strongly Disagree</b>	<b>Somewhat Disagree</b>	<b>Neutral</b>	<b>Somewhat Agree</b>	<b>Strongly Agree</b>
If similar sites were developed in Eastern NC, I would visit them	1	2	3	4	5
Public funds should be used to support this type of development	1	2	3	4	5
This site should focus more on the natural resources of the region	1	2	3	4	5
This is a good place for families to visit	1	2	3	4	5
This site has appeal for people of all ages and backgrounds	1	2	3	4	5
The staff at this site was friendly and helpful	1	2	3	4	5
This site makes the region a better place to visit	1	2	3	4	5
This site is a better example of sustainable development than other sites in the area	1	2	3	4	5
Attending sites that are environmentally responsible/sustainable is important to me	1	2	3	4	5

### Visitor Information

Which of the following indicates your level of education (check one)?

- |  |   |
|--|---|
| <input type="checkbox"/> 11th grade or less                | <input type="checkbox"/> 16 years (college graduate)    |
| <input type="checkbox"/> 12th grade (high school graduate) | <input type="checkbox"/> 17+ years (post graduate work) |
| <input type="checkbox"/> 13-15 years (some college)        |   |

Please tell us which of the following best indicates your race or ethnic group?

- |  |  |
|--|--|
| <input type="checkbox"/> American Indian or Alaskan Native | <input type="checkbox"/> Hispanic              |
| <input type="checkbox"/> Asian or Pacific Islander         | <input type="checkbox"/> White                 |
| <input type="checkbox"/> African American                  | <input type="checkbox"/> Other (specify _____) |

Which of the following best describes your household income before taxes?

- |  |  |
|--|--|
| <input type="checkbox"/> Less than \$10,000  | <input type="checkbox"/> \$40,000 - \$49,999 |
| <input type="checkbox"/> \$10,000 - \$19,999 | <input type="checkbox"/> \$50,000 - \$75,000 |
| <input type="checkbox"/> \$20,000 - \$29,999 | <input type="checkbox"/> over \$75,000       |
| <input type="checkbox"/> \$30,000 - \$39,999 |  |

What is your age? \_\_\_\_\_ years

Is there anything else you and your group would like to tell us about your visit to **the North Carolina Estuarium**.

*We appreciate your help with this survey. We have enclosed a postage paid return envelope for your convenience. If you have any questions about the survey or results, please contact Dr. Hans Vogelsong, East Carolina University, 174 Minges Coliseum, Greenville, NC 27858*