

# **Economic Contribution of The Chesapeake Bay Gateways and Watertrails Network to Local Economies**

## **TECHNICAL REPORT**

**January 2012**

Daniel J. Stynes  
Michigan State University



**First Landing State Park, photo by Starke Jett**

Report to the Chesapeake Conservancy and the National Park Service, Chesapeake Bay Office

## TABLE OF CONTENTS

Introduction.....	2
Study Objectives .....	5
Regional Economic Analysis .....	5
Economic Impact Concepts .....	6
The Impact Region.....	8
MGM2 Model .....	10
Findings .....	11
State and County Tourism .....	11
State and National Parks .....	18
Museums and Historic Sites.....	25
Boating and Fishing .....	28
Visitor Surveys for Gathering Spending and Visitor Characteristics .....	34
Conclusions.....	40
Recommendations.....	41
References.....	43
Appendix A: County Level Tourism Statistics.....	45
Appendix B: Appendix B: Case Study Results – Impacts of Visitor Spending .....	52
Appendix C: Selected Literature.....	66

## Introduction

The Chesapeake Bay Gateways and Watertrails Network (Gateways Network or CBGN) is a partnership of parks, refuges, museums, historic sites and water trails within the Chesapeake Bay watershed. The network encompasses over 170 sites that provide recreational and educational opportunities. By linking the diverse array of facilities and opportunities around the Bay, the Gateways Network connects visitors and residents with the rich natural and cultural heritage of the Chesapeake Bay region.

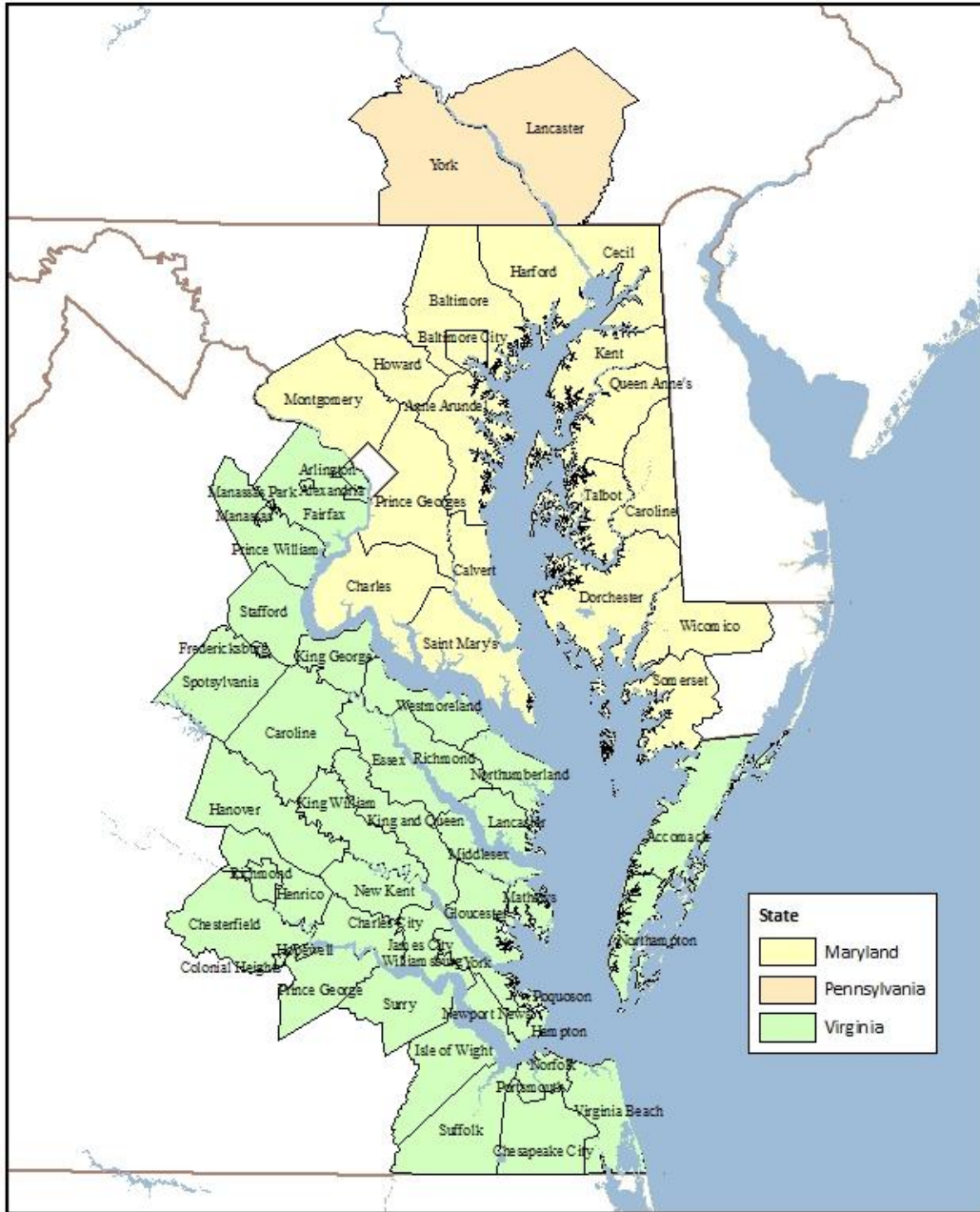
The CBGN also contributes to the economy of the area by attracting visitors. Visitor spending supports jobs and payrolls in a variety of businesses, especially in the lodging, food service, transportation, amusements and retail sectors. Through secondary effects this spending benefits a broad array of businesses in the region. The purpose of this report is to help assess the contribution of CBGN sites to the region's economy in terms of sales, income and jobs. For this report we define the CBGN region to include York and Lancaster counties in Pennsylvania and counties in Maryland and Virginia adjacent to Chesapeake Bay and connecting rivers (Figure 1). The Chesapeake Bay Gateways and Watertrails Network includes partners in other counties, but the intent here is to focus on those counties closest to Chesapeake Bay—where the majority of Gateways sites are located and where tourism might be more reasonably expected to have a relationship to Chesapeake Bay.

It should be noted at the outset that the purposes of CBGN programs and partner facilities are not primarily economic. While economic development and jobs are of significant interest, the primary benefits of these programs are environmental, cultural, social and educational.

The analysis starts broadly examining the importance of tourism to the region. State travel offices annually estimate tourist spending and their contributions to state economies. Tourism is important economically, as it brings in money from outside the region that supports local jobs and income. Tourism includes both leisure and business travel of 50 miles or more. It does not cover quite substantial economic activity associated with spending by local residents on recreation activities like boating and fishing. For example, a study in Hampton, Virginia estimated that boat owners spent \$51 million dollars in the area in 2007, with half of the spending by local residents (Murray et. al. 2009).

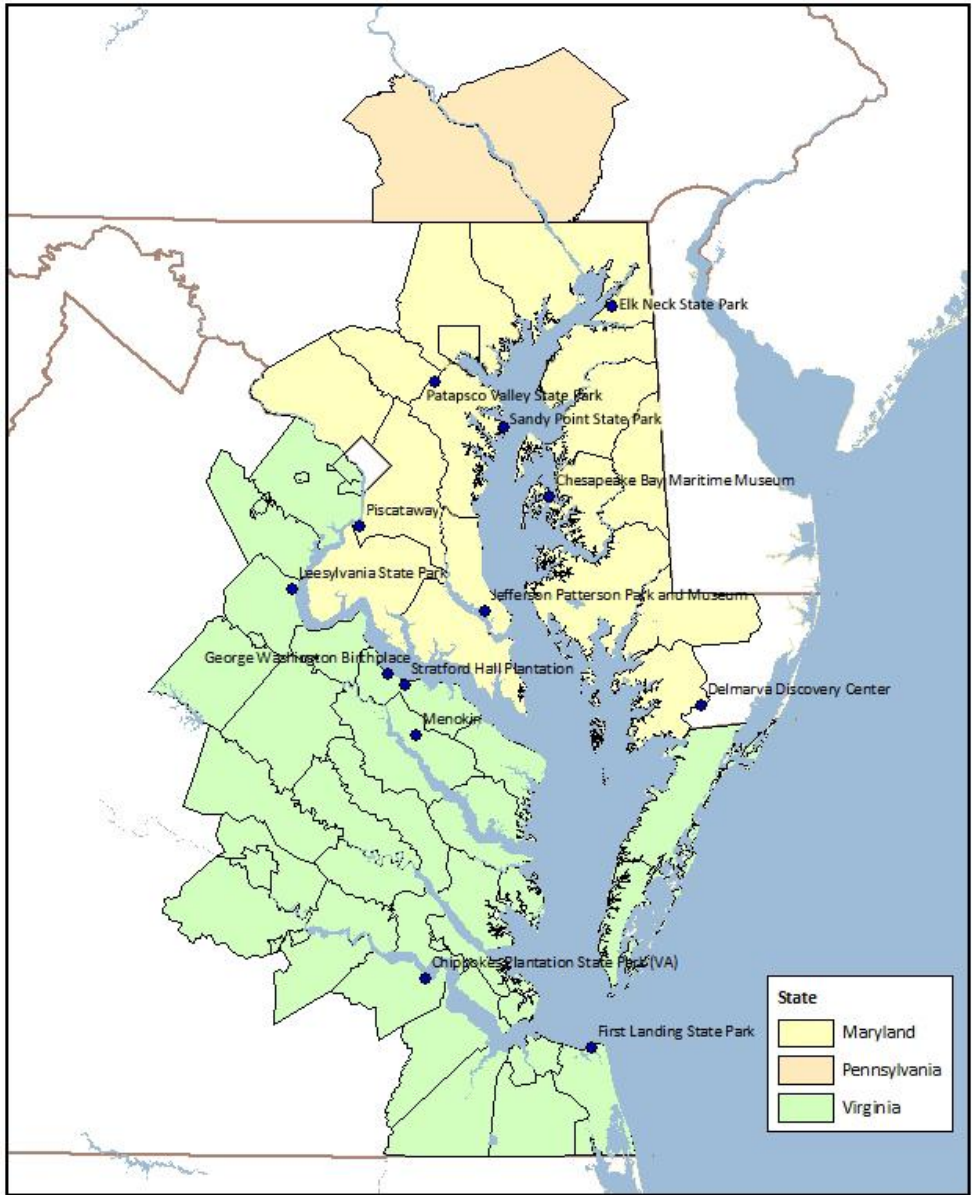
There is no simple way to determine the portion of tourism activity that is related in whatever sense one may choose to Chesapeake Bay, the Gateways Network or their collective partners. However, tourism statistics are a useful starting point as they cover a wide array of activities and illustrate variations across the region in tourism's contribution to local economies.

More concrete estimates of economic impacts can be made for particular facilities. CBGN personnel identified 13 sites within the Gateways Network to serve as case studies (Figure 2). The case studies cover three state parks in Maryland (Elk Neck, Patapsco Valley, and Sandy Point), three Virginia state parks (Chippokes Plantation, First Landing and Leesylvania), two National park units (George Washington Birthplace and Piscataway), and five museums/historic sites (Delmarva Discovery Center, Jefferson Patterson Park and Museum, Menokin, Chesapeake Bay Maritime Museum and Stratford Hall). These sites were selected based on their ability to provide visitor information and to be representative of the range of facilities and settings within the Gateways Network.



**Figure 1. Chesapeake Bay Study Region; CBGN Region**

Estimates of the number of visitors are based on calendar year 2010. Some facilities provided sales, payroll, employment and other data. Visitor spending data was generally lacking, with the exception of a Maryland state park survey conducted in 2010 and a National Park Service visitor survey at George Washington Birthplace National Monument (GEWA) in 2004. Some primary analysis of the MD state park survey dataset was conducted to estimate spending patterns for state park visitors. Spending profiles for museum visitors and boaters were estimated from other published studies.



**Figure 2. Case Study Sites**

Local economic impacts of visitor spending were estimated for each of the case study sites using the NPS’s Money Generation Model (MGM2). The applications demonstrate how the MGM2 model may be applied. Since data does not currently exist to apply the model at a regional scale or for facilities and activities that lack reliable visitor information, we conclude with some guidance on conducting visitor surveys to gather the kinds of data required to estimate economic impacts.

## **Study Objectives**

1. Estimate tourism impacts for counties in the region from state tourism reports.
2. Complete case studies of the economic contributions for selected facilities
  - a. Estimate spending profiles for visitors to these facilities from secondary sources
  - b. Estimate local, state and region-wide economic ratios and multipliers for use in the MGM2 model.
  - c. Estimate economic contributions in terms of spending, jobs, income and value added.
3. Recommend visitor survey options and sample questionnaires for possible future studies.

Since an understanding of regional economic concepts and methods is critical to the proper interpretation and use of the results, we begin with a brief summary of regional economic concepts and the Money Generation Model (MGM2).

## **Regional Economic Analysis**

Economic impact analyses estimate the changes in economic activity in a region resulting from some action. This report will focus on estimating economic impacts of tourism activity and more specifically visitor spending. We will not address impacts of public park facility operations or construction activities.

There are two basic approaches for estimating visitor spending in an area: (1) tourism satellite accounts (TSA), and (2) visitor surveys. With either approach, the estimates of direct visitor spending can be applied to regional input-output models or multipliers derived there from to estimate impacts.

**The Tourism Satellite Accounting (TSA) Approach.** TSA is a supply-side approach, which extracts tourism activity from the standard system of economic accounts for a region. It relies on secondary data capturing sales, employment and income in key tourism-related sectors in a region, usually for a calendar year. Tourism is not a single industry or economic sector but involves lodging, food service, transportation, amusement and retail sectors. Since only a portion of sales in these sectors is to tourists, additional information is needed to determine the percentage of sales (tourism industry ratios) and jobs in tourism-related sectors that is attributed to tourism. For example, nationally 18% of restaurant sales are to tourists (Kern and Kocis 2007). The tourism industry ratios are estimated based on national or state surveys of tourists. TSA methods are most commonly employed at national and state levels.

An advantage of the TSA approach is that it is grounded in the existing system of economic accounts; however, the TSA approach is difficult to apply below the state level. While industry statistics are generally available at the county level, estimating the proportions of sales to tourists in each county are not. These ratios will vary from one state or county to another, as some areas are much more tourism-dependent than others. The ratios will vary from county to county based on the number of tourists compared to local residents. For example in a highly tourism dependent region 50% or more of restaurant sales may be to tourists while in an area with limited tourism activity the share of sales to tourists may be less than 10%.

The TSA approach cannot be used to estimate impacts of particular subgroups of tourists and it also isn't well-suited to smaller geographic regions, individual facilities, or festivals and

special events. Hence, the more common approach involves counting and surveying of visitors. The National Park Service's Money Generation Model (MGM2) is based on this approach.

**Visitor Survey Approach.** To estimate the impacts of a park or program, one must first determine the changes in the number and types of visitors that result from the program. The number of visitors is then multiplied by the average spending per visitor to calculate total spending. Total spending can be applied to input-output models or sets of regional economic multipliers to convert spending into the associated jobs and income and to estimate secondary effects. With this approach, it is useful to divide visitors into a set of distinct visitor segments that explain differences in spending, e.g. day visitors vs overnight visitors.

Visitor spending averages must be estimated in surveys or adapted from other studies. The visitor survey approach can be targeted at particular visitor segments or individual facilities and hence is the usual method for estimating impacts of an individual park, museum, or special event. The method requires good estimates of the number of visitors and preferably some information on the breakdown of visitors into segments, party sizes and lengths of stay. The MGM2 model organizes this information on a spreadsheet and carries out the calculations to determine economic impacts.

The advantage of the visitor survey approach is its flexibility and the ability to target particular subgroups of visitors. Visitor surveys, however, can be expensive, and obtaining reliable spending information via surveys is especially difficult. While visitors can be counted at individual facilities, estimating the number of visitors to a community, county, state or special event is much more difficult.

### **Economic Impact Concepts**

Economic impact analysis involves a number of concepts that must be clearly understood to properly interpret the results. One can estimate the economic activity associated with a particular action or the impacts **with vs without** the action. The former is often termed an economic importance or **significance analysis**. It estimates the contribution to economic activity in an area. The majority of studies of tourism's impact measure tourism's significance or contribution to a region's economy. In estimating impacts of a park, for example, a significance analysis would include all visitors and all of their spending in the region as contributions to the economy. This is not the same as how much economic activity would be lost if the park were closed or how much economic activity would be gained if a park with the given level of visitation were opened in an area. In the absence of the park, local visitors would likely spend money they would have spent to visit the park on something else in the area. Some visitors from outside the region may still have made the trip visiting friends or relatives in the area or visiting a substitute facility in the region.

A true economic impact analysis would take into account substitutes in order to isolate the net changes in economic activity with vs without the park. This requires knowledge of how visitors would respond to any anticipated actions. As all of the information needed to estimate impacts in a with vs without sense generally does not exist or is difficult and costly to acquire, many studies compromise by omitting some of the visitor spending that would likely not be lost in the absence of the park. The most common exclusion is the spending of local residents. Their spending does not represent "new dollars" to the region and would not be lost unless these visitors chose to go outside the region if the park were not available. In that case, they likely

would spend more money on the trip. These dollars leaving the region have the same effect as dollars from non-resident visitors not coming into the region. Note that since tourism studies restrict tourism activity to trips of 50 miles or more away from home, they automatically exclude local visitors. However, virtually all statewide tourism studies include travel by residents of the state when estimating impacts.

Economic impact studies differ widely in terms of which impacts are reported and what impact measures are used. Some studies stop at estimates of visitor spending, while others translate spending into the direct effects on businesses selling to visitors. Still others employ regional economic models (or multipliers) to estimate the secondary effects as visitor spending dollars flow through the region's economy. Secondary effects may be divided into indirect and induced effects. Total effects are the sum of direct, indirect and induced effects.

- **Direct effects** are the sales, income and jobs in businesses selling goods or services directly to visitors, e.g., hotels, restaurants, souvenir shops.
- **Indirect effects** capture economic activity in firms that supply goods and services to the tourism-related firms, for example, purchases of office supplies or business services by hotels and amusements.
- **Induced effects** capture the ripple effects as employees of firms that are directly or indirectly affected by visitor spending spend their wages and salaries in the region on housing, groceries, clothing, utilities, etc.

**Multipliers** are used to estimate secondary effects, generally as a ratio of total effects to direct effects. Multipliers are derived from input-output models of a region's economy. The size of the multiplier depends on the level of economic development and geographic scope of the region. Multipliers are unique to individual economic sectors, although those cited in many published studies are aggregate ones that depend on the proportion of spending going into each sector. Multipliers may be expressed in terms of sales, jobs, income or value added. Sales multipliers are the most commonly reported. The Type I sales multiplier only includes indirect effects, while the Type II multiplier includes indirect and induced effects.

Type I sales multiplier = (direct sales + indirect sales) / direct sales

Type II sales multiplier = (direct sales + indirect sales + induced sales) / direct sales

Aggregate tourism sales multipliers (Type 2) range from 1.2 for rural areas to as high as 1.8 for metropolitan regions. Statewide multipliers generally range from 1.4 to 1.7, while national tourism sales multipliers for the U.S. are in the 2.5 range. As one expands the size of the region a greater share of spending is captured and the secondary effects increase as money circulates within a larger economy. Multipliers and economic ratios for local regions around the thirteen case study sites are reported in Table 1 below.

Equally important as multipliers are **economic ratios** that are used to convert sales to the associated income, jobs, and value added. Economic ratios are unique to each industry and can vary between regions. The job to sales ratio captures the labor intensity of an industry and is generally expressed as the number of jobs per million dollars in sales. The labor income to sales

ratios captures the percentage of sales revenue of the industry that goes toward labor income. For a typical pattern of tourism spending, each million dollars in direct sales supports 14-18 jobs and labor income represents 35-40% of sales. Relative to spending, the ratios are lower as only about 70% of tourism spending is generally captured as direct sales. If the direct job to sales ratio is 15, the number of jobs per million dollars in spending will be about 10.5 ( $70\% * 15$ ).

**Economic Measures.** Job impacts are generally reported consistent with the Bureau of Economic Analysis's employment figures. These include full time and part time jobs. Seasonal jobs are generally adjusted to an annual basis, i.e. four jobs for three months equates to one job. Some reports convert jobs to full time equivalents (FTE's).

There are several potential income measures: wages and salaries, income of sole proprietors, property income (business profits and rents), and total income as the sum of all three. Most studies report **labor income** which is the sum of wages and salaries and sole proprietor income, including payroll benefits.

**Value added** or contribution to gross regional product is the measure preferred by most economists, but it is not reported as frequently as jobs and income, as it is less well understood by non-economists. Value added is total income plus indirect business taxes (e.g. sales and excise taxes). It includes income to households (wages and salaries), to businesses (profits and rents) and to government (indirect business taxes). Value added for an industry can also be defined as total sales minus the cost of non-labor inputs to production. The advantage of value added is that it assigns the contribution that each industry makes without double counting across the economy.

The MGM2 model reports direct and secondary effects (including indirect and induced effects) in terms of output, jobs, labor income and value added. Direct effects are itemized by industry, while secondary effects are reported in the aggregate.

### **The Impact Region**

One should not overlook the importance of defining the region being covered by an impact analysis. One can estimate impacts of tourism on the local community, the state, or the national economy. Studies of local impacts generally define the region to encompass one or more counties within 30-60 miles of the destination facility.

The region defines the scope of spending and businesses that should be included in the analysis. Visitor spending at home or en route outside the defined region does not impact businesses within the study region. Visitor spending surveys must estimate visitor spending within the designated region rather than total spending on the trip.

Local regions for the thirteen case study sites were defined to include counties within roughly 30 miles. Input-output models were estimated for these regions using IMPLAN with 2008 economic data. Economic ratios and multipliers for tourism-related sectors were extracted from these models. The aggregate economic ratios and multipliers in Table 1 are based on the patterns of visitor spending at each site.

**Table 1. Economic Ratios and Sales Multipliers for Case Study Sites**

Case Study Site	Capture Rate	Sales Multiplier	Direct Job/ \$Million sales	Income /sales	Value Added/ Sales
Menokin	72%	1.2	19.9	0.39	0.60
Chippokes Plantation SP	62%	1.2	20.1	0.37	0.57
George Washington Birthplace NM	79%	1.3	17.7	0.36	0.58
Piscataway NP	64%	1.3	17.9	0.39	0.62
Stratford Hall	71%	1.3	17.4	0.38	0.60
Elk Neck SP	69%	1.4	15.8	0.39	0.61
Jefferson Patterson Park and Museum	65%	1.4	16.1	0.41	0.63
Chesapeake Bay Maritime Museum	74%	1.4	14.4	0.36	0.58
Leesylvania SP	62%	1.5	13.8	0.44	0.68
Delmarva Discovery Center	68%	1.5	15.2	0.38	0.59
Sandy Point SP	74%	1.5	12.9	0.39	0.62
First Landing SP	64%	1.6	18.2	0.39	0.62
Patapsco Valley SP	71%	1.8	13.7	0.40	0.63

*Note: These are aggregate multipliers and ratios that are based on the patterns of visitor spending at each site.*

Sales multipliers (Type 2) range from 1.2 for rural regions around Menokin and Chippokes Plantation to 1.8 for the Baltimore metropolitan region around Patapsco Valley. Job to sales ratios tend to be higher in rural areas.

**Margining Issues and the Capture Rate.** One common source of confusion in economic impact studies stems from the way retail purchases are treated in input-output models. When a visitor purchases an item at retail, not all of the spending is treated as local sales. Retail purchases are margined, assigning a portion of the sale to the retail store, a portion to wholesaler, and a portion to the manufacturer. If the wholesaler and manufacturer do not reside within the local region, these shares of spending are treated as imports and not included as local sales. Since goods purchased by visitors are rarely manufactured locally, only about 65%-80% of what visitors spend in an area is usually treated as local sales.

Generally, only the retail margins on gasoline, groceries, clothing, sporting goods and other retail purchases accrue to the local economy. The **capture rate** is the percentage of spending that accrues to the region as direct sales. Capture rates in Table 1 for the case study sites range from 62% at Chippokes Plantation State Park to 79% at George Washington Birthplace. These rates depend largely on the visitor spending profiles and segment mixes assumed for each site, as these determine the proportions of visitor spending going to margined sectors. Studies that report impacts in terms of visitor spending can be somewhat misleading if a high percentage of spending is for retail purchases.

Perhaps the most difficult part of economic impact studies is **attribution**—determining how much of visitor spending to attribute to a particular facility or activity. Many visitors to Chesapeake Bay are on extended trips with multiple destinations, purposes and activities. For a true economic impact analysis one wants to determine what motivation generated the trip and what role different facilities or destinations may play in influencing the amount and types of

spending. If a museum or park visitor is in the area on business or visiting relatives, the trip still would have been made without the museum or park. Much of the spending would still occur unless the particular facility resulted in a longer stay or additional spending.

Museum visitors can generally be divided into those who made the trip primarily to visit the museum, those stating the museum was one of several reasons for their trip, and some who had not planned to visit the museum and may not have even been aware of it prior to arriving in the area. A true impact analysis would usually count all spending in the area if the museum were the primary reason for the trip, perhaps a portion of the spending if a secondary reason, and maybe only spending in the facility itself if not a reason for the trip.

Visitor surveys that ask about trip motivations often find many visitors did not make the trip primarily to visit the site where they were interviewed. The 2008 Maryland state park survey reports that 63% of day visitors and 80% of overnight visitors made the trip primarily to visit the park (Dougherty 2010). Many were visiting friends or relatives in the area, on extended vacation trips, or en route to other destinations. Only 18 % of paddlers on the Northern Forest Canoe Trail stated it was the primary reason for their trip (Pollack 2007). Forty-two percent of visitors to George Washington Birthplace National Monument claimed it was the primary reason for their trip (Stynes 2006). In a statewide study of Michigan museum visitors, 80% of day visitors stated that they made the trip primarily to visit the museum, but only 38% of overnight visitors said so (Stynes et. al. 2004).

Visitors on vacation trips are often focused on a particular destination like Maryland's Eastern shore, Washington D.C. or Virginia Beach. Others may have a particular attraction in mind, but visit other nearby attractions while in the area. Still others are focused on a particular activity like boating, fishing, camping, bird watching, visiting historic sites, or shopping. Lodging and dining facilities in an area may be the primary attraction for some. Visitors on overnight trips are more likely to have multiple activities and destinations in mind. Since these visitors are also the biggest spenders, estimates of spending and impacts depend considerably on how their spending is handled.

### **MGM2 Model**

The MGM2 model was developed for the National Park Service in 2000 (Stynes et al. 2000). The model was designed to estimate impacts of spending by national park visitors on local regions. The model combines counts of the number and types of visitors with visitor spending averages to estimate total spending by economic sector and then applies multipliers for the local region to estimate direct and secondary effects. The model can be readily applied to a variety of recreation and travel facilities or activities including state parks, museums, festivals and special events, or individual activities like boating, golf, or fishing.

As the Chesapeake Bay Gateways and Watertrails Network involves a variety of facilities and activities, the model is well suited here. The model requires three primary inputs:

- Counts of the number and types of visitors,
- Estimates of spending averages for each visitor segment, and
- Multipliers for the local region

As the costs of conducting visitor surveys across such a broad region involving very different kinds of facilities were prohibitive, this study relies on secondary sources for the spending profiles. Case study sites were selected to be somewhat representative of the geographic scope and types of facilities within the Gateways Network, with the limitation that estimates of the number of visitors to the facility had to be available. Multipliers are estimated using the IMPLAN system with 2008 economic data.

Spending profiles for distinct types of facilities were developed from previous studies at similar facilities. Profiles for state park visitors were developed from those used in a recent Pennsylvania state park study (Mowen et. al. 2010) along with further analysis of the 2010 Maryland State Park Visitor survey. For George Washington Birthplace National Monument, spending profiles from a visitor survey in 2004 (Stynes 2006) were price adjusted to 2010. We also draw upon spending profiles of boaters from a recent statewide boater survey in Florida (Mahoney and Stynes 2009). Several studies of spending by museum visitors are used to supplement data provided by case study sites on sales within the museums.

## **FINDINGS**

Findings are presented in four sections:

- State and County Tourism
- State and National Parks
- Museums and Historic Sites
- Boating and Fishing

Summaries of relevant literature in each area are included in Appendix C. The tourism section draws from the most recent state travel impact studies of the three states. Eight case studies of state and national parks are presented in the parks section and five case studies of museums and historic sites are included in the museum section. Estimates of the economic contributions of boating and fishing activity are summarized from secondary sources.

### **State and County Tourism**

**State Level Tourism Estimates.** Travel related to Chesapeake Bay may be viewed as a subset of all travel to the region. State estimates of tourist spending and its economic impact on counties in the region therefore provide a starting point to understanding the economic importance of tourism to the region. According to the U.S. Travel Association (US Travel), tourists spent an estimated \$58 billion in MD, PA, VA and the District of Columbia in 2009, directly supporting about 600,000 jobs and contributing \$14.9 billion in labor income and \$9.4 billion in taxes (Table 2). Tourism accounts for about 5% of private sector jobs in the region.

**Table 2. U.S. Travel Association Tourism Spending and Impact Estimates by State, 2009**

Measure	MD	VA	PA	DC	Total
Visitor spending (\$millions)	12,117	18,147	19,470	8,057	57,791
Direct tourism jobs	116,000	209,600	208,400	61,900	595,900
Payroll (\$millions)	3,407	4,413	5,125	1,915	14,860
Taxes (\$millions)	2,530	2,571	2,955	1,304	9,360
Jobs per \$million spending	9.6	11.6	10.7	7.7	10.3
Payroll per \$ spent	28%	24%	26%	24%	26%
Taxes per \$1 spent	0.21	0.14	0.15	0.16	0.16

Source: U.S. Travel Association, *Power of Travel*. <http://poweroftravel.org/statistics/>

Every million dollars in tourist spending supports about 10 direct jobs and \$260,000 in payroll income. According to the USTA, sixteen percent of the spending accrues to federal, state and local government in the form of taxes.

These tourism spending estimates cover all trips to the region of 50 miles or more away from home. They include both business and leisure travel. A great deal of travel involves multiple activities and multiple destinations, making assignments of impacts to any single activity, provider or location somewhat arbitrary. These numbers therefore do not directly address the impacts of CBGN network sites or programs. There is no easy way to determine the share of this economic activity that can be directly attributed to Chesapeake Bay or the CBGN.

Studies by the individual states for 2009 provide statewide tourism spending and impact results that are in most cases similar to those in Table 2. These studies provide greater detail than what is available from US Travel and some also address secondary effects. Since the methods and coverage differ between states, some caution is required when making direct comparisons between states. However, the three state studies provide tourism spending and impact estimates at the county level, which allow us to better pinpoint tourism activity within the CBGN region.

Maryland (Global Insight, 2010) and Pennsylvania (Tourism Economics, 2010) use tourism satellite accounting (TSA) methods while Virginia (US Travel 2010) uses the U.S. Travel Association's Travel Economic Impact Model (TEIM). Statewide results using TSA methods differ somewhat from the U.S. Travel estimates in Table 2 due to differences in coverage and/or methods.<sup>1</sup>

The TEIM model used by U.S. Travel in the VA study is a variation on the visitor survey method. It estimates traveler spending by applying average costs of each unit of travel activity (e.g. cost per mile by transport mode, cost per night by accommodation type) to estimates of levels of activity in the state. Levels of activity for 18 activities are estimated based on a national travel survey covering lodging, transportation, food, entertainment and retail spending. Tax rates and employment to sales ratios are applied to convert spending to the associated direct jobs and tax revenues.

Based on these state studies, total visitor spending across the four states and District of Columbia in 2009 was \$68 billion (Table 3). This spending supported 684,395 direct jobs and payrolls of \$19 billion. The greatest spending was in Pennsylvania (\$31.2 billion), followed by Virginia (\$18.15 billion), Maryland (\$13.6 billion) and Washington D.C. (5.25 billion). Our focus here will be primarily on the counties and cities of MD and VA around the Bay. In Pennsylvania only York and Lancaster counties are included in the CBGN region.

<sup>1</sup> The TSA estimate for Pennsylvania is 60% higher than the U.S. Travel estimate.

**County Level Tourism Estimates.** Both the TSA and TEIM methods pose challenges in making estimates below the state level. TSA methods can rely on secondary economic data at the county level, but must estimate the portion of total sales in each sector that represents sales to tourists. These proportions must generally be based on travel surveys. The Maryland and Pennsylvania TSA reports do not explain how they estimated industry ratios below the state level. The TEIM model estimates spending more directly from visitor surveys; however, survey sample sizes in these surveys are generally too small to yield reliable estimates at the county level. TEIM therefore estimates tourist activity and spending first at the state level and then allocates statewide activity to counties based on secondary sources like hotel sales and airport activity. This tends to bias the estimates somewhat toward metropolitan areas with airports. One should therefore interpret county level estimates in both approaches with some caution.

**Table 3. State Tourism Estimates, Individual State Studies 2009**

State	MD	VA	PA	DC	Total
Author	Global Insight	US Travel	Tourism Economics	D.K Shifflet	
Approach	TSA	TEIM	TSA	Survey	
Coverage	All travel	US residents	All travel	All travel	
Visitor spending (\$billions)	13.62 <sup>a</sup>	18.15	31.12	5.25	68.14
Direct jobs	134,662	204,500	278,233	67,000	684,395
Direct payroll (\$billions)	3.81	4.31	8.59	2.60	19.00
Federal Tax revenue (\$Millions)	1,776	\$1,230	3,505	313	6,824
<b>State and Local Tax revenue (\$ millions)</b>	1,596	\$1,236	3,392	585	6,809

*a. Includes .7 billion in resident outbound travel spending*

In order to obtain some ballpark estimates of impacts at the regional level, tourism estimates for counties and cities within the CBGN region were extracted from the state reports for MD, VA, and PA. County level tables are included in Appendix A.

CBGN counties account for 85% of Maryland tourism spending, 68% of Virginia tourism spending and 7% of Pennsylvania tourism spending (PA is based on just York and Lancaster counties). Excluding Washington D.C., total visitor spending in the CBGN region is \$25.74 billion, directly supporting 273,000 jobs with a total payroll of \$6.63 billion. This represents 4.9% of private sector employment in the region (Table 4). The largest numbers of tourism-related jobs are in the metropolitan areas around Washington D.C., Baltimore, and Virginia Beach (Table 5, Figure 3).

**Table 4. CBGN Region Tourist Spending, 2009**

	MD	VA	PA	Total
Visitor Spending (\$ Billions)	11.59	12.07	2.08	25.74
Pct of State Total	85%	68%	7%	
Direct jobs	114,725	138,787	19,632	273,144
Direct payroll (\$Millions)	3,237	2,919	474	6,630

*Notes: The CBGN region includes all counties and independent cities within the CBGN region as defined in Figure 1, excluding Washington D.C. MD estimates include some spending by outbound travelers. VA estimates exclude international visitors.*

**Table 5. Counties with the Most Tourism-Related Jobs, 2009**

State	County	Spending (\$000's)	Jobs	Payroll (\$000's)	Pct of Pvt jobs
VA	Fairfax	2,280	27,855	517	3.7%
VA	Arlington	2,319	23,238	764	14.6%
MD	Montgomery	2,172	22,331	711	3.8%
MD	Anne Arundel	2,227	20,170	636	7.4%
MD	Baltimore	1,851	18,026	511	4.1%
MD	Prince George's	1,664	14,596	391	5.0%
MD	Baltimore city	1,264	13,645	354	4.0%
PA	Lancaster	1,365	12,938	315	4.8%
VA	Virginia Beach City	1,061	11,596	204	5.7%
MD	Howard	737	7,409	79	4.1%

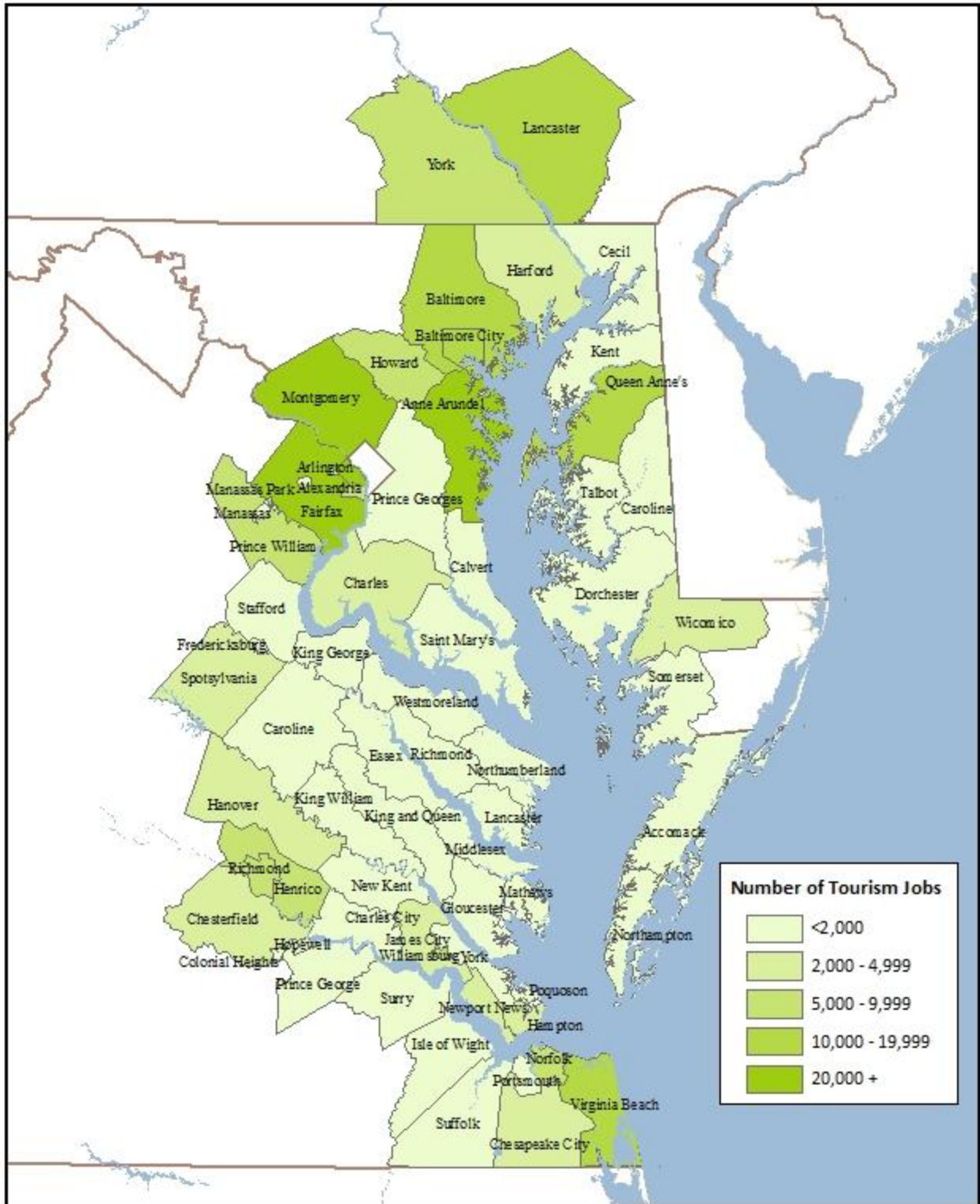


Figure 3. Tourism Jobs by County

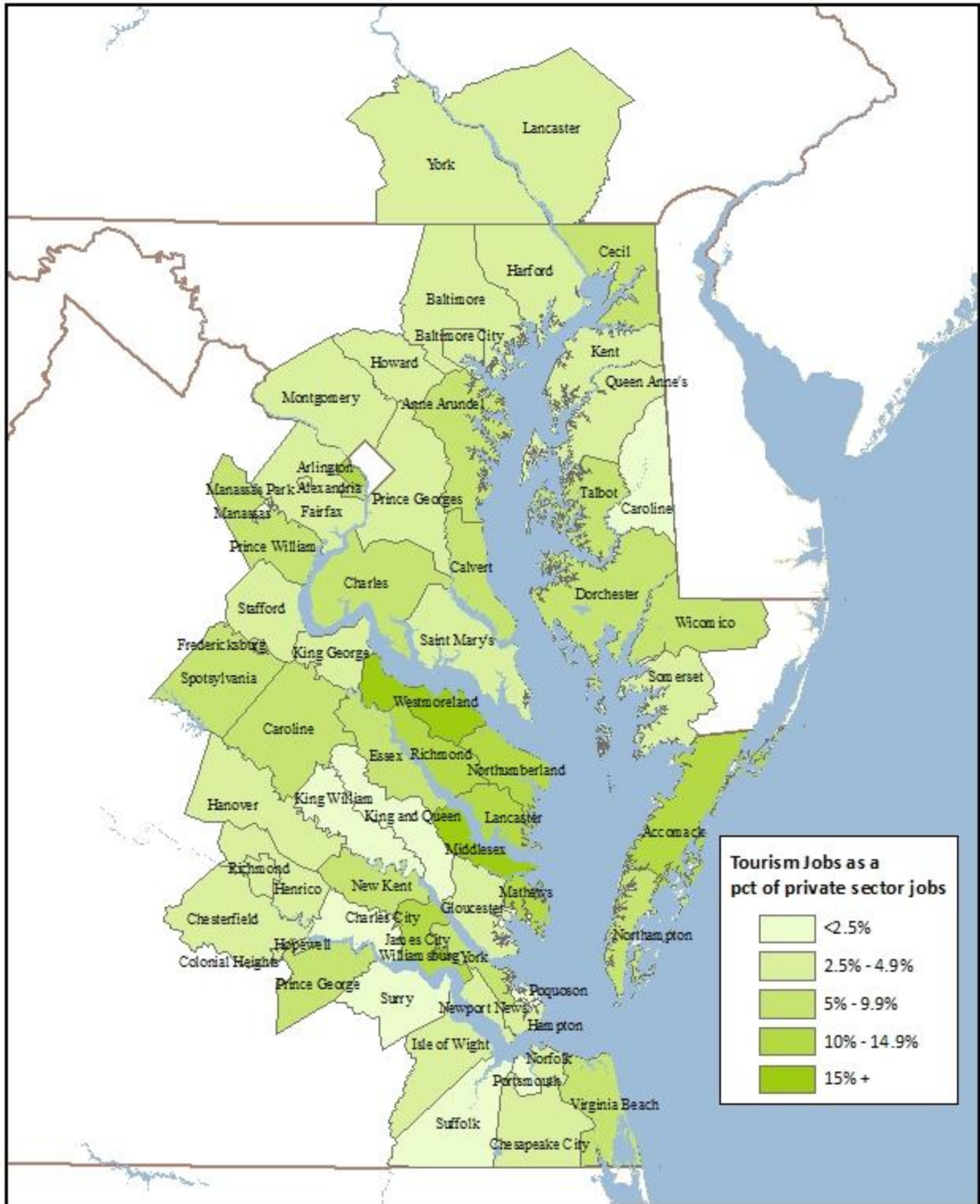
The relative importance of tourism to local economies is better captured by the percentage of jobs related to tourism in each county (Table 6, Figure 4). While the majority of tourism-related jobs are in metropolitan areas, rural areas are much more dependent on tourist spending. The most tourism-dependent areas are Williamsburg city, and Middlesex, Westmoreland, and Northumberland counties, all in Virginia. The top MD counties in terms of the percentage of private sector jobs were Ann Arundel at 7.4% and Calvert at 6.9%.

**Table 6. Counties with Highest Percentage of Private Sector Jobs in Tourism, 2009**

State	County	Spending (\$000's)	Jobs	Payroll (\$000's)	Pct of Pvt jobs
VA	Williamsburg City	437	5,377	91	35.0%
VA	Middlesex	76	1,122	18	31.0%
VA	Westmoreland	48	707	12	15.2%
VA	Northumberland	46	557	10	14.9%
VA	Arlington	2,319	23,238	764	14.6%
VA	Mathews	27	416	7	12.9%
VA	Accomack	137	1,852	31	12.4%
VA	Lancaster	71	740	13	12.2%
VA	James city	313	3,609	61	12.2%
VA	Richmond county	24	342	10	10.2%
VA	Northampton	57	729	12	10.0%

Many of the tourism jobs, particularly in metropolitan areas are associated with business travel and tourism that may not be directly related to Chesapeake Bay or the Gateways Network. If we assign 5% of tourism activity in metropolitan areas and 25% of the activity in rural counties, we get a ballpark estimate of \$2.2 billion in tourist spending and 25,000 direct tourism jobs. This represents about 9% of tourism-related activity in the region. The contribution of CBGN sites themselves is likely less than this, while the portion related to Chesapeake Bay is likely much larger. Any attempt to isolate the portion of tourism activity related to the Bay is inherently somewhat arbitrary; however, the Chesapeake Bay is such an integral part of the history and culture of the region that it is clearly a significant contributing factor in regional tourism. It should be noted again that tourism statistics do not include any trips of less than 50 miles and therefore exclude recreation activity of local residents around the Bay.

Appendix A includes two sets of tables covering (1) tourism spending, jobs and payroll by county for 2009, and (2) 2008 sales and employment data by county for hotels, other accommodations, food service, and recreation/ entertainment sectors. The first set is extracted from state tourism economic reports, while the latter are taken from IMPLAN data for 2008. Together these tables provide a picture of the importance of tourism to each county.



**Figure 4. Tourism Jobs as a Percentage of Private Sector Jobs**

## **State and National Parks**

Economic impacts have been estimated for a number of state park systems over the past few years. Most directly relevant here are studies in Maryland (Dougherty 2010) and Pennsylvania (Mowen et. al. 2010). The contributions of national park visitor spending to local economies are estimated annually for 356 national parks with visitor counts (Stynes 2010). Since only a handful of national parks conduct visitor surveys each year, estimates for most parks involve generalizing spending patterns and visitor characteristics from visitor surveys at similar parks. This is also the approach used here.

## **State Park Case Studies**

Six state park case studies will be used to demonstrate the application of the MGM2 model. The procedures involve five steps: (1) divide visitors into a set of segments, (2) convert the visit data to party days/nights based on party size and length of stay assumptions, (3) develop a spending profile for each segment, (4) multiply spending averages by the number of visits (in party days/nights) to compute total spending, and (5) apply the spending to multipliers for the local region to estimate impacts.

For this report, state park visitors are divided into five segments:

- Local day trips (visitors living within 30 miles)
- Non-local day trips
- Cabin: Visitors staying overnight inside the park in cabins or lodges
- Camp: Visitors staying overnight inside the park in campgrounds
- OVN: Day visitors on overnight trips staying overnight outside the park in the local area

The segments are designed to help explain differences in spending across distinct visitor groups, although they are also, in part, dictated by the extent to which visit data may be broken down into visitor subgroups. State and national parks keep separate counts of day visitors and visitors staying overnight in park accommodations. It is therefore useful to break out the in-park overnight segments from day visitors.

The Maryland and Virginia state park visitation data report park visits for day visitors, campers and cabin users (Table 7). Camp and cabin figures cover visitors staying overnight inside the park. Day visitors consist of visitors on day trips as well as visitors on overnight trips, who are staying outside the park. As the spending of visitors staying overnight in the local area is significantly greater than visitors on day trips, it is useful to distinguish the two. Visitors staying outside the park include some staying in hotels, others in campgrounds, and some staying with friends and relatives or seasonal homes. Spending by overnight visitors depends considerably on the mix across these lodging types.

The MGM2 model recommends that visits involving an overnight stay be put on a party night basis as this captures length of stay in the area. To convert person visits to party nights (Table 8), one multiplies visits by the average length of stay and divides by average party sizes. For MD state parks, we use average party sizes from the 2010 MD state park survey report (Dougherty 2010): 3.0 people per party for day visitors and 4.0 for overnight visitors.

**Table 7. State Park Visits, 2010 (Person Visits)**

	Day	Camp	Cabin	Total
<b>Maryland</b>				
Elk Neck	234,631	57,915	4,675	297,221
Patapsco Valley	764,134	25,713	1,379	791,226
Sandy Point	766,552	2,674	0	769,226
<b>Virginia</b>				
Chippokes Plantation	40,661	15,385	2,155	58,200
First Landing	1,192,556	70,852	14,531	1,277,939
Leesylvania	353,609	0	0	353,609

*Note: Virginia state park visits are adjusted for inflated people per vehicle figures in the official estimates. Party sizes are assumed to be 3.0 for day visits, 3.2 for camp, and 3.6 for cabin.*

Since VA state parks use somewhat inflated party size figures to convert their vehicle counts to person visits<sup>2</sup>, we reverse the calculations here, converting from vehicle counts to person visits using 3.0 people per vehicle for day visits, 3.2 for campers and 3.6 for cabin users. The latter are based on cabin and camp reservation data for Chippokes Plantation and First Landing.

Since visits for the in-park camp and cabin segments were already on a per night basis, a length of stay of 1.0 was used for all segments<sup>3</sup>. Visitors staying outside the park may enter the park on multiple days and are often in the area for multiple purposes. The length of stay for the OVN segment is set to 1.0 in order to count one night of spending for every day they visit the park. This avoids attributing several nights of spending to visitors who may be in the area for several days visiting friends or on business and also avoids double counting spending for those who visit the park on multiple days.

**Table 8. State Park Visits, 2010 (Party Nights)**

	Day	Camp	Cabin	Total
<b>Maryland</b>				
Elk Neck	78,210	14,479	1,169	93,858
Patapsco Valley	254,711	6,428	345	261,484
Sandy Point	255,517	669	0	256,186
<b>Virginia</b>				
Chippokes Plantation	13,554	4,808	599	18,960
First Landing	397,519	22,141	4,036	423,696
Leesylvania	117,870	0	0	117,870

To complete the five segments, day visitors must be divided between local day trips, day trips from outside the local region, and day visitors staying overnight in the area. Since the percentage of day visitors staying overnight outside the park and the mix of lodging types for these visitors is usually not known, one must often make guesstimates of these percentages. This

<sup>2</sup> To convert vehicle counts and room/campsite nights to visits, VA state parks use 4.0 people per vehicle for day visitors, 4.5 for campers and 4.1 for cabin users. This yields somewhat inflated estimates of visitors.

<sup>3</sup> If visit counts for overnight visitors are on a per person trip basis, one must multiply by length of stay to convert to person nights in the area.

is generally preferable to using a day visitor spending average based on an unknown mix of day and overnight trips. Local visitors will spend less than non-locals and visitors staying overnight in the area will spend considerably more than those on day trips. These shares are therefore quite important for estimating spending.

Parks do not generally have good information on the percentage of day visitors from the local area or the percentage on overnight trips. Parks near major metropolitan areas, like Patapsco Valley and First Landing will have a high percentage of locals, while parks in more remote tourism regions like MD’s Eastern Shore will attract more non-locals. The percentage of local visitors also depends on how one defines “local”.

Virginia state park day visitors were allocated 80% to local, 15% to non-local and 5% to the OVN segment. The Maryland state park day visitor segment percents were based in part on the 2010 visitor survey. Patapsco Valley was assigned the same percentages as for Virginia, while Elk Neck and Sandy Point percentages were set at 40% local, 30% non-local and 30% OVN.

This somewhat lengthy discussion of segments is intended to highlight the importance of information about the mix of visitors between locals and tourists, day and overnight trips and across lodging types. One of the basic tenets of the MGM2 approach to estimating spending is that variations in spending across parks are explained to a great extent by the mix of visitors. An advantage of this approach is that spending averages for particular segments can be estimated from visitor surveys with larger samples that are combined across parks, while the mix of segments at a particular park can be estimated separately with secondary data or simpler surveys.

**Table 9. State Park Visits by Segment, 2010 (Party Nights)**

	Local Day	NL Day	Camp	Cabin	OVN	Total
<b>Maryland</b>						
Elk Neck	31,284	23,463	14,479	1,169	23,463	93,858
Patapsco Valley	203,769	38,207	6,428	345	12,736	261,484
Sandy Point	102,207	76,655	669	0	76,655	256,186
<b>Virginia</b>						
Chippokes Plantation	10,843	2,033	4,808	599	678	18,960
First Landing	318,015	59,628	22,141	4,036	19,876	423,696
Leesylvania	94,296	17,680	0	0	5,893	117,870

Once visits are converted to party days/nights, they are ready to apply to spending averages, as these are also on a party day/night basis. It is preferable to estimate spending on a party night basis in order to adjust for different lengths of stay. Spending averages per party per night also are more readily validated against local room or campsite rates.

**State Park Visitor Spending Profiles.** The default state park visitor spending profiles used for the CBGN analysis are reported in Table 10. These are adapted from spending averages used for Pennsylvania state parks in 2007 and price adjusted to 2010. The figures are consistent with spending averages generated from the 2010 MD state park visitor survey (see below). Local day trip visitors are assumed to spend \$39 per party, while visitors from outside the local area on day trips spend \$74 per party. Visitors on overnight trips spend \$100 per night if staying in state park campgrounds, \$178 if staying in state park cabins (including camp and cabin fees) and \$145

per night if staying outside the park<sup>4</sup>. The latter includes a mix of visitors staying in motels, campgrounds or private homes.

The spending on camping and cabin fees for individual parks may be adjusted based on fee schedules. Camper spending on camping fees is consistent with camp revenue data at First Landing and Chippokes Plantation state parks as is the per night lodging expense of \$102 for cabin users. Cabin fees at Elk Neck State Park are adjusted to \$51 per night based on the published fee schedule. Spending averages at Leesylvania were adjusted to account for additional boater expenses for fuel, parking and launch fees under the assumption that 20% of day visitors were boating.

These state park visitor spending profiles are also consistent with spending averages generated from the 2010 MD State park visitor study (Dougherty 2010). The average of \$111 reported for MD state park day visitors statewide in that study covers all spending within MD, not just local spending. The day visitor estimate is also inflated by including visitors staying overnight outside the park. When visitors on overnight trips are excluded from day visitors, the average spending within 20 miles of the park is \$54 per party for day visitors. This falls in between the averages for locals and non-locals in Table 10. A 60:40 split between local and non-local day trips in our spending estimates would yield an overall average of \$54.

**Table 10. State Park Visitor Spending in Local Area, 2010 (\$ Per Party Per Day/Night)**

CATEGORY	L-Day User	NL-Day User	Camp	Cabin	OVN
Motel, hotel cabin or B&B	-		0.00	101.92	33.58
Camping fees	-		26.65	0.00	3.84
Restaurants & bars	11.57	23.14	11.77	22.67	27.67
Groceries, take-out food/drinks	6.80	11.34	19.61	16.67	16.91
Gas & oil	9.54	21.20	21.57	20.78	25.27
Other vehicle	-	-	0.00	0.00	1.41
Local transportation	-	-	0.00	0.00	3.82
Admissions & fees	2.25	4.49	3.43	3.30	7.62
Clothing	2.12	4.25	4.32	3.12	4.75
Sporting goods	2.16	3.24	5.49	3.17	1.22
<u>Souvenirs and other expenses</u>	<u>4.45</u>	<u>6.67</u>	<u>6.79</u>	<u>6.54</u>	<u>18.46</u>
Total	38.89	74.32	99.63	178.18	144.55

Based on further analysis of the MD state park survey, visitors on overnight trips to MD state parks staying outside the park spent \$366 if staying in hotels, \$177 if staying in campgrounds, and \$123 if staying in private homes (note the overnight trip sample sizes are small). On a per night basis the averages are \$147, \$64 and \$39 respectively. For visitors staying overnight inside the park, spending outside the park was \$62 per night. Adding a \$26 per night camping fee and \$12 in other in-park expenses yields the \$100 per night figure we use here for campers.

While it is desirable to use spending averages that are based on surveys of visitors to the park or parks in question, the MD data illustrates some of the difficulties with this approach. First, the sample sizes for individual parks in many surveys are too small to yield reliable

<sup>4</sup> The OVN segment may be split into lodging types if the percentage of visitors staying in hotels, campgrounds or other accommodations is known.

averages. There are also a host of problems with most survey-based spending data. Results depend considerably on how the analyst handles outliers and missing data. The MD state park study used 5% trimmed means to reduce the effects of outliers. However, a fourth of survey respondents did not complete the spending questions. These cases appear to have been omitted when computing spending averages. While some respondents may have chosen to skip the spending question, many others likely did not spend any money on the trip. If these cases are included, it reduces the spending averages by 25%. Local visitors in particular often do not spend any money on state park trips.

The segment spending averages in Table 10 are used for each of the six state parks with adjustments for cabin fees at Elk Neck and boaters at Leesylvania. Table 11 illustrates how the same general averages for state park visitors can explain very different overall spending averages at each park. Per visit spending averages vary from \$27 at Elk Neck and Sandy Point to \$17 at First Landing and Patapsco Valley (Table 11). The higher per visit spending averages at Elk Neck and Sandy Point are explained by a higher percentage of overnight trips. Lower averages at Patapsco Valley, First Landing, and Leesylvania are due to the high percentages of local day visitors at these parks. Spending averages per party per day range from \$51 at Patapsco Valley to \$85 at Elk Neck State Park.

**Table 11. Overall Visitor Spending Averages by Park, 2010**

	Per Visit	Per Party Night
Elk Neck	26.73	84.63
Patapsco Valley	16.82	50.89
Sandy Point	27.06	81.27
Chippokes Plantation	21.58	66.26
First Landing	17.68	53.33
Leesylvania	18.42	55.25

### National Park Case Studies

Nationwide averages have been estimated for national park visitor trip spending based on visitor surveys over the past ten years at over 75 parks (Table 12). These profiles are similar to the state park averages reported above. The National Park Service conducts visitor surveys at roughly a dozen parks each year through their Visitor Survey Project (VSP). Questionnaires and reports for these studies are available at <http://www.psu.uidaho.edu/vsp.reports.htm>. When the surveys include spending information, an economic impact report is produced. Parks with economic studies include Colonial National Historical Park, Harpers Ferry National Historical Park, Chesapeake and Ohio Canal National Historical Park, Monocacy Battlefield, and George Washington Birthplace National Monument.

The survey at George Washington Birthplace National Monument (GEWA) in 2004 provides the visitor characteristics and spending profiles for the analysis of this national park. GEWA reported 128,158 visitors in 2010. Based on the 2004 survey, one third of visitors are staying overnight in the area. Fourteen percent of visitors were local residents on day trips and 53% were day trips from more than 30 miles away.

**Table 12. National Park Visitor Spending by Segment, 2010 (\$ Per Party Per Day)**

Spending category	Visitor Segment						
	Local Day Trip	Non-local Day Trip	NPS Lodge	NPS Camp Ground	Back-country	Motel-Outside Park	Camp-Outside Park
Motel, hotel, B&B	0.00	0.02	157.57	0.83	3.02	104.82	0.16
Camping fees	0.00	0.00	1.24	18.09	1.99	0.24	25.33
Restaurants & bars	12.61	19.37	73.42	13.86	7.35	62.45	16.56
Amusements	4.56	9.25	29.11	9.99	5.75	20.62	15.21
Groceries	6.08	6.86	14.06	16.32	5.71	15.29	12.63
Gas & oil	8.75	18.97	22.27	24.59	12.73	22.60	23.82
Local transportation	0.55	1.97	14.11	4.42	1.20	9.19	2.12
Retail Purchases	<u>7.80</u>	<u>13.16</u>	<u>28.78</u>	<u>13.27</u>	<u>8.94</u>	<u>27.21</u>	<u>19.69</u>
<b>Total</b>	<b>40.36</b>	<b>69.60</b>	<b>340.55</b>	<b>101.39</b>	<b>46.69</b>	<b>262.41</b>	<b>115.51</b>

The 2004 spending profiles were price adjusted to 2010 using Bureau of Labor Statistics (BLS) price indices for each spending category. Visitors in 2010 are assumed to spend \$46 per party if a local day trip, \$49 if non-local, \$99 if camping and \$229 if staying in a motel. Visitors on overnight trips not incurring lodging expenses are classified as “Other OVN” visitors and assigned a spending of \$20 per night (Table 13).

**Table 13. GEWA Visitor Spending by Segment in Local Area, 2010 (\$ Per Party Per Day)**

CATEGORY	L-Day User	NL-Day User	Motel	Camp	Other OVN
Hotel/motel	0.00	0.00	113.60	6.73	0.00
Camping fees	0.00	0.00	0.00	24.41	0.00
Restaurants & bars	14.61	11.30	53.20	18.24	6.33
Groceries	10.88	6.95	14.76	10.50	2.58
Gas & oil	11.78	15.39	20.17	21.91	6.64
Local transportation	0.00	2.52	6.94	8.43	0.00
Admissions & fees	4.55	2.77	5.46	4.34	1.23
<u>Souvenirs</u>	<u>4.13</u>	<u>10.42</u>	<u>14.52</u>	<u>4.65</u>	<u>3.76</u>
<b>Total</b>	<b>45.95</b>	<b>49.36</b>	<b>228.64</b>	<b>99.20</b>	<b>20.55</b>

Piscataway is primarily a local park consisting of lands along the Potomac River across from Mount Vernon, including historic farms as well as fishing and boating access sites on the Potomac. The park appears to be primarily used by local residents including programs for school children at National Colonial Farm and Hard Bargain Farm.

The park recorded 248,314 visits in 2010. We assume 70% are local day trips, 20% non-local day trips and 10% other overnight visitors. An estimated 5,000 children coming in school groups are split out as a distinct segment. Lacking much information about visitors, the state park spending profiles in Table 10 are used for Piscataway Park.

## Total Spending and Impacts for Eight Case Study Parks

Across the eight parks studied here, the greatest spending is at First Landing State Park due to the high levels of visitation. Sandy Point and Patapsco Valley state parks had over 700,000 visitors in 2010, generating \$21 million in spending at Sandy Point and \$13 million at Patapsco Valley (Table 14).

The eight parks hosted a combined total of almost 4.0 million visitors in 2010, generating \$81 million in spending in local communities, supporting 840 direct jobs, and \$21.9 million in direct labor income. Including secondary effects the visitor spending supports over a thousand jobs, \$32 million in labor income and \$53 million in value added. Based on total jobs, the contribution of visitor spending at individual parks to local economies ranges from 17 jobs at Chippokes Plantation to 324 jobs at First Landing State Park.

**Table 14. Impacts of CBGN State and National Park Visitor Spending on Local Economies by Park, 2010**

	Visits	Total Spending (\$000's)	Direct Effects Jobs	Labor Income (\$000's)	Total Effects Jobs	Labor Income (\$000's)	Value Added (\$000's)
<b>MD State Parks</b>							
Elk Neck	297,221	7,943	86	2,132	103	2,791	4,457
Patapsco Valley	791,226	13,307	129	3,727	178	6,377	10,419
Sandy Point	769,226	20,819	198	5,992	248	8,572	14,101
<b>VA State Parks</b>							
Chippokes Plantation	58,200	1,256	16	288	17	345	561
First Landing	1,277,939	22,597	261	5,636	324	8,534	14,065
Leesylvania	353,609	6,513	56	1,793	65	2,462	3,893
<b>National Park Units</b>							
George Wash. Birthplace NM	128,158	3,240	42	854	47	1,090	1,800
<u>Piscataway</u>	<u>248,314</u>	<u>5,553</u>	<u>52</u>	<u>1,485</u>	<u>62</u>	<u>2,065</u>	<u>3,040</u>
<b>Eight Park Total</b>	<b>3,923,892</b>	<b>81,227</b>	<b>840</b>	<b>21,907</b>	<b>1,043</b>	<b>32,237</b>	<b>52,696</b>

The ratios of spending to visits and jobs and income to spending can be useful for applying these results to other parks in the region. The eight parks studied generated roughly \$21 in spending per visit or about \$63 per day for a party of three (Table 15). Spending may be converted to the number of direct or total jobs using the ratios of jobs per million dollars in spending. These parks averaged about 10.4 direct jobs per million dollars in spending and 13 jobs including secondary effects.

Based on these averages, a park with one hundred thousand visitors generates \$2.1 million in spending, supporting 22 direct jobs and another 5 jobs through secondary effects. Parks attracting more overnight visitors staying in hotels or lodges will generate greater spending per visitor and hence more jobs. For example, at \$27 in spending per visitor, Sandy Point state park generates \$2.7 million in spending for every 100,000 visitors, supporting 32 local jobs. With about 770,000 visits the impact of all visitors is thus 7.7 times this or about 250 jobs.

**Table 15. Ratios of Jobs and Income to Spending, 2010**

Park	Spending/ Visit	Jobs/\$Million Spending		Income/Spending		Total Value Added/ Spending
		Direct	Total	Direct	Total	
<b>MD State Parks</b>						
Elk Neck	26.73	10.86	12.94	0.27	0.35	0.56
Patapsco Valley	16.82	9.72	13.35	0.28	0.48	0.78
Sandy Point	27.06	9.51	11.89	0.29	0.41	0.68
<b>VA State Parks</b>						
Chippokes Plantation	21.59	12.46	13.50	0.23	0.27	0.45
First Landing	17.68	11.57	14.36	0.25	0.38	0.62
Leesylvania	18.42	8.58	9.91	0.28	0.38	0.60
<b>National Park Units</b>						
George Wash. Birthplace NM	25.28	12.82	14.61	0.26	0.34	0.56
Piscataway	22.36	9.36	11.17	0.27	0.37	0.61
<b>Eight Park Total</b>	<b>20.99</b>	<b>10.40</b>	<b>12.88</b>	<b>0.27</b>	<b>0.40</b>	<b>0.65</b>

### Museums and Historic Sites

Five area museums/historic homes were selected as case studies. Each museum provided visitor information and in some cases additional information on sales, payroll and employment. The economic impacts of the museums are estimated by combining the impacts from visitor spending outside the museum with the direct and secondary economic effects of the museum operations. The array of programs and services offered varies extensively across these museums, so one should use some caution in generalizing to other museums with different offerings. For example, Jefferson Patterson Park and Museum includes an archaeological conservation lab, receiving revenues from this operation in addition to visitor fees. Stratford Hall includes on-site lodging and dining facilities and hosts weddings.

The direct economic impacts of activity within the museums are best estimated from actual museum sales, employment and payroll data. For many private facilities this information is confidential. Here we report payroll figures as a good indicator of the scale of operations and local job impacts. The MGM2 model is used to estimate impacts of visitor spending outside the museum. This spending benefits nearby businesses within the community. The proportion of visitor spending accruing to the museum itself will depend on fees and offerings. Facilities providing food services or lodging will capture a greater share of visitor spending.

Spending profiles from a 2003 museum study in Michigan (Stynes, Vander Stoep et. al. 2004) were updated to 2010 and used to estimate visitor trip spending outside the museum for day trips. The OVN visitor profile for state park visitors is also used for museum visits that include an overnight stay in the area, as this profile was based on tourists in general staying overnight in an area and represents a mix of visitors in motels, campgrounds or private homes. Spending averages are \$38 per party for local day trips, \$57 per party for non-local day trips, and \$145 per party night for visitors staying overnight in the local area (Table 16). Individuals

coming as part of a school or other group are assigned a nominal expense of \$15 per person to cover meals and souvenirs.

**Table 16. Trip Spending Profiles for Museum Visitors, 2010**

	Local Day Trip	NL Day Trip	Overnight Trip
Motel, hotel cabin or B&B	0.00	0.00	33.58
Camping fees	0.00	0.00	3.84
Restaurants & bars	15.53	19.01	27.67
Groceries, take-out food/drinks	2.07	3.78	16.91
Gas & oil	8.27	16.80	25.27
Other vehicle	0.83	1.80	1.41
Local transportation	0.00	0.00	3.82
Admissions & fees	0.00	0.00	7.62
Clothing	2.23	2.41	4.75
Sporting goods	0.00	0.00	1.22
<u>Souvenirs and other expenses</u>	<u>9.53</u>	<u>13.58</u>	<u>18.46</u>
<b>Total</b>	<b>38.46</b>	<b>57.38</b>	<b>144.55</b>

*Note: Covers spending outside the museum within 30 miles.*

The five museums hosted a combined total of 137,000 visitors in 2010 spending four million dollars in nearby communities or about \$29 per visitor. The number of visitors varied from 2,500 at Menokin Foundation to over 50,000 at the Jefferson Patterson Park and Museum (Table 17). Average party sizes and segment mixes were estimated by museum staff. The Chesapeake Bay Maritime Museum and Stratford Hall served more visitors on overnight trips and fewer local visitors. Jefferson Patterson Park and Museum and Menokin hosted more local visitors. Party sizes were estimated at between 2 and 3 across the five museums.

The four million dollars spent by the museum visitors supported 46 local jobs outside the museum with a total payroll of \$1.1 million. Total visitor spending outside the museum ranged from \$1.8 million for the Chesapeake Bay Maritime Museum to \$44,000 at Menokin (Table 18). One million dollars in visitor spending outside the museums supports about 12 jobs in the local area and \$280,000 in labor income.

**Table 17. Numbers of Visitors and Segment Mixes at Museums, 2010**

	Chesapeake Bay Maritime Museum	Delmarva Discovery Center	Jefferson Patterson Park and Museum	Menokin	Stratford Hall
Visits	48,212	9,704	53,664	2,500	22,709
School children	2,275	2,383	4,025	2,000	1,531
Average party size	2.25	2.5	2.5	2.0	3.0
<b>Assumed Segment Mix</b>					
Local Day Trip	25%	30%	55%	60%	20%
NL Day Trip	25%	60%	35%	15%	40%
Overnight trip	50%	10%	10%	25%	40%

**Table 18. Economic Impacts of Visitor Spending Outside the Museum, 2010**

Museum	Visitor Spending (\$000's)	Jobs	Labor Income (\$000's)	Value Added (\$000's)
Chesapeake Bay Maritime Museum	1,808	20	507	802
Delmarva Discovery Center	214	2	62	96
Jefferson Patterson Park and Museum	1,176	13	341	526
Menokin	44	1	12	19
<u>Stratford Hall</u>	<u>775</u>	<u>10</u>	<u>209</u>	<u>329</u>
<b>Five Museum Total</b>	<b>4,017</b>	<b>46</b>	<b>1,131</b>	<b>1,773</b>

Note: Impacts include direct and secondary effects

Museums provided information on their own employment and payrolls (labor income) for 2010. In total, the five museums employed 116 people on an annual basis with a total payroll of \$5.4 million (Table 19). Impacts of museum operations are estimated using multipliers for IMPLAN sector 406 covering museums, historical sites, zoos and parks. Including secondary effects, these museum operations supported a total of 139 local jobs and \$6.8 million in labor income. Approximately one secondary job is supported in the local area for every five museum jobs. Total effects of museum payroll and operations range from 55 jobs and \$2.25 million value added at Stratford Hall to 2.4 jobs and \$140,000 in value added at Menokin (Table 19).

Combining the impacts of museum operations and payrolls with visitor spending outside the museum yields a total impact for these five museums of 185 jobs, \$8 million in labor income, and \$9.3 million value added.

**Table 19. Impacts of Museum Payroll/Operations and Total Impacts, 2010**

Museum	Jobs <sup>a</sup>	Labor Income (\$000's)	Value Added (\$000's)
<b>Museum Payroll - Direct Effects</b>			
Chesapeake Bay Maritime Museum	32.0	1,593	1,593
Delmarva Discovery Center	3.1	128	128
Jefferson Patterson Park and Museum	33.0	1,980	1,980
Menokin	2.0	100	100
<u>Stratford Hall</u>	<u>46.0</u>	<u>1,608</u>	<u>1,608</u>
Five Museum Total	116.1	5,410	5,410
<b>Museum Operations and Payroll - Total Effects</b>			
Chesapeake Bay Maritime Museum	38.4	2,007	2,230
Delmarva Discovery Center	3.7	162	180
Jefferson Patterson Park and Museum	39.6	2,503	2,773
Menokin	2.4	126	140
<u>Stratford Hall</u>	<u>55.2</u>	<u>2,026</u>	<u>2,251</u>
Five Museum Total	139.3	6,824	7,574
<b>Total Impacts (Visitor Spending and Operations)</b>			
Chesapeake Bay Maritime Museum	58.4	2,514	3,032
Delmarva Discovery Center	6.2	224	276
Jefferson Patterson Park and Museum	53.0	2,844	3,299
Menokin	3.0	138	159
<u>Stratford Hall</u>	<u>64.7</u>	<u>2,235</u>	<u>2,581</u>
<b>Five Museum Total</b>	<b>185.4</b>	<b>7,955</b>	<b>9,347</b>

*a. Seasonal jobs were converted to annual equivalents.*

More detailed tables covering direct and secondary effects of visitor spending at each of the 13 case study sites are presented in Appendix B.

### **Boating and Fishing**

While not included in the case studies, the importance of recreational boating and fishing to the economies of the CBGN region should be noted. In addition to the traditional tourism industries supported by visitor spending, boating and fishing activities support jobs in a variety of marine trades including the charter boat industry, marinas, boat dealers and manufacturers, outfitters and guides, and boating and fishing equipment retailers and manufacturers.

These recreation activities are directly tied to Chesapeake Bay. The Gateways Network includes 24 designated watertrails focusing on paddlers. Information about canoeists and kayakers is quite limited as these boats are generally not registered and activity is highly dispersed. Craft-related spending by kayakers and canoeists will be less than that of larger

powerboat owners, but other than spending on boat fuel, paddler spending on trips will be comparable to other boaters.

Boating and fishing economic estimates are particularly difficult to compare across studies. Boater studies may include any combination of trip spending, annual craft-related expenses (such as storage, repairs, and insurance), or sales of new and used boats. Fishing studies similarly include some mix of trip spending along with equipment purchases that may range from bait and tackle to purchases of boats, camping equipment and even cars. Big ticket items significantly skew the results.

The majority of boating economic studies are based on surveys of registered boat owners. These studies do not cover smaller unregistered craft such as canoes or kayaks, as these boats are generally not registered. Some assumptions are generally needed to identify the portion of statewide boating or fishing activity associated with Chesapeake Bay. For fishing, breakdowns between saltwater and freshwater fishing can be used. It should also be noted that fishing and boating statistics will overlap as a high percentage of fishing involves use of a boat and many boats are used at least part of the time for fishing. Therefore one should not simply add boating and fishing figures together without accounting for the overlap.

**Fishing.** The primary source for economic statistics on fishing is the National Survey of Fishing, Hunting, and Wildlife-associated recreation (USDI, 2006). This study uses a household telephone survey design focusing on annual expenditures rather than individual trips. Reports are produced for each state. Sample size limitations preclude estimates below the state level. The survey produces high spending figures due to the inclusion of purchases of boats, RV's and a host of other equipment that is not readily related to individual trips or attributed to particular destinations. While one can generate per trip or per day averages from the data, the survey does not distinguish between day or overnight trips or separate out local trips. The spending averages therefore cannot be readily applied to particular locations or types of trips. The inclusion of durable equipment makes even the state totals somewhat unreliable.

The 2006 national survey estimated that anglers spent \$546 million in Maryland including \$293 million in trip-related expenses and \$254 million on equipment (Table 20). In Virginia, anglers spent \$734 million including \$395 million on trips. Over half of the trip spending in the two states was by saltwater anglers. The study also reports over a million "away-from-home wildlife watchers" in the two states, spending over \$300 million on trips. Birdwatchers are a significant subgroup of Chesapeake Bay visitors.

The American Sportfishing Association (2008) generated estimates of jobs and income resulting from the angler expenditures. They report 5,500 jobs in each state resulting from saltwater fishing in 2006 (including secondary effects). The MD figure is consistent with the 4,518 jobs reported by Southwick Associates (2004) for all saltwater fishing in Maryland's Chesapeake Bay waters in 2001.

**Table 20. Angler Spending in Maryland and Virginia , 2006**

	Total Spending (\$ Millions)		Annual Average per Participant	
	MD	VA	MD	VA
<b>All Fishing</b>				
Total spending	546	734	875	851
Trip Spending	293	395	453	461
Fishing equipment	98	96	147	109
<b>Saltwater Fishing</b>				
Food and lodging	43	48	115	137
Transportation	26	32	69	92
Other trip expenses	94	127	253	360
<u>Equipment</u>	<u>138</u>	<u>27</u>	<u>366</u>	<u>71</u>
Total Saltwater	300	235	804	660
Wildlife Watcher Trip spending	70	248	162	330

*SOURCE : 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation.*

**Boating.** Boaters are one of the most significant Chesapeake Bay region recreational subgroups in terms of spending and economic impacts.

- There currently are roughly 190,000 registered boats in MD and 250,000 in VA. About sixty percent of registered boats in Virginia are in CBGN counties, while 93% of registered boats in MD are in the CBGN region.
- The MD Department of Natural Resources reports approximately 550 marinas, 41,000 wet boat slips, and 196 public boat ramps and access points in 2008.
- Based on Dunn and Bradstreet data there were over one thousand boating-related businesses in MD and VA in 2007 employing 6,800 people. Boating businesses included manufacturers of boats, engines and equipment, boat dealers, marinas, and boatyards (NMMA, 2009).
- In 2006 owners of registered boats spent \$2.36 billion in MD including boat purchases as well as annual and trip-related boating expenses. The impacts of this spending including secondary effects were 31,755 jobs and \$1.14 billion in income. Transient boater spending in Maryland added another 2,797 jobs (Lipton 2007).

Across the two states of Maryland and Virginia, the National Marine Manufacturers Association (NMMA) estimated over a billion dollars in craft-related boater spending and 864 million in boater trip spending in 2007. This spending supported over 7,000 direct jobs in each state (Table 21). Based on boat registrations, boating facility locations, and the higher spending of larger boats used on Chesapeake Bay, the vast majority of this spending is in the CBGN region.

**Table 21. Economic Contribution of Boating in MD and VA, 2007**

Measure	Maryland	Virginia
Craft Spending (\$ Millions)	504	519
Trip Spending (\$ Millions)	388	476
Direct Sales (Craft + Trip)	655	734
Direct Jobs	7,184	8,003
Direct Labor Income (\$ Millions)	221	247
Direct Value Added (\$ Millions)	364	404

Source: NMMA, 2009

Studies by the Marine Recreation Resource Center (MRRC) at Michigan State University provide spending profiles and models for estimating boater spending and impacts. The most recent models are based on a statewide survey of registered boat owners in Florida (Mahoney and Stynes, 2009). An on-line model, developed from the study, can be used to estimate impacts of boating in an area (see <http://www.floridaboatingeconomics.com>).

Spending patterns from the Florida study should apply reasonably well to Chesapeake Bay boaters. Distinct spending patterns were developed for different size boats and for boats that are trailered or stored in the water. These profiles can be used to estimate impacts associated with all registered boats in an area or for a particular launch site or marina.

**Launch Sites.** Florida boaters on day trips using a launch site averaged \$63 in spending, the majority for boat or auto fuel. Boaters using a launch site on an overnight trip spent \$656 on their trip, or \$187 per day for an average trip lasting 3.5 days. Using these averages, a launch site with 20,000 launch trips generates \$1.25 million in spending creating a direct local impact of 9.4 jobs and \$244,000 in labor income (Table 22). Including secondary effects for a region with a sales multiplier of 1.5, this spending yields an economic contribution of \$334,000 in labor income, \$653,000 in value added and 13 jobs. These impacts only cover trip-related spending.

**Marinas.** Marinas have even greater impacts due to the higher trip spending associated with larger boats and also the additional annual expenses to maintain and store the boat. Based on the MRRC model, a typical 100 boat marina generates \$462,000 in trip spending and \$1.6 million in annual craft-related expenses per year, not including boat sales (Table 23). Trip spending for a marina with 100 boats supports 4.8 jobs (Table 22). Economic impacts increase significantly when craft-related expenses are included (slip rental, storage, insurance, maintenance and repairs, equipment). Craft-related expenses for a typical 100 boat marina support 17.8 jobs (Table 24). Including both trip and craft-related spending raises the total employment impact of a 100 boat marina to 22.6 jobs.

**Table 22. Sample Economic Impacts of Marinas and Launch Sites: Trip Spending, 2007**

	20,000 Launches			100 Boat Marina		
	Sales (\$000's)	Jobs	Income (\$000's)	Sales (\$000's)	Jobs	Income (\$000's)
<b>Direct Effects</b>						
Lodging	69	0.8	25	20	0.2	7
Marina services	29	0.3	10	39	0.4	14
Restaurant	194	3.5	70	71	1.3	26
Recreation	28	0.3	10	14	0.1	5
Grocery stores <sup>a</sup>	48	0.8	21	15	0.3	6
Gas service <sup>a</sup>	168	2.2	52	47	0.6	15
Sporting goods <sup>a</sup>	41	0.9	17	15	0.3	6
Other retail trade <sup>a</sup>	6	0.1	3	4	0.1	2
Wholesale trade <sup>a</sup>	87	0.5	33	27	0.2	10
<u>Local manufacturing</u>	<u>17</u>	<u>0.1</u>	<u>3</u>	<u>6</u>	<u>0.0</u>	<u>1</u>
<b>Total direct effects</b>	<b>687</b>	<b>9.4</b>	<b>244</b>	<b>258</b>	<b>3.5</b>	<b>92</b>
<u>Secondary effects</u>	<u>384</u>	<u>3.4</u>	<u>89</u>	<u>145</u>	<u>1.3</u>	<u>37</u>
<b>Total effects</b>	<b>1,072</b>	<b>12.8</b>	<b>334</b>	<b>403</b>	<b>4.8</b>	<b>129</b>

a. Margins on retail purchases

**Table 23. Total Spending, 100-Boat Marina, 2007**

<u>Trip Spending (\$000's)</u>		<u>Craft-Related Spending (\$000's)</u>	
Lodging	\$20	Slip	\$376
Marina services	39	Loan payments	246
Restaurant	71	Insurance	117
Groceries	59	Repairs	312
Boat fuel	192	Equipment/accessories	527
Auto fuel	18	Taxes	<u>22</u>
Marine supplies	36	Total	1,599
Recreation/entertainment	14		
<u>Shopping</u>	<u>13</u>		
Total	462		

These impact models are linear so a launch site serving 40,000 boats or a marina with 200 occupied slips would have twice the impact reported in Tables 22-24. For example, the Fort Washington Marina along the Potomac River just south of Alexandria has 300 slips and therefore would generate approximately \$1.4 million in trip spending and \$4.8 million in craft-related expenses. This spending has an overall impact on the local area of 68 jobs.

**Table 24. Economic Impacts of Craft Expenses, 100-Boat Marina, 2007**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Labor income \$000's</b>	<b>Value added \$000's</b>
<b>Direct effects</b>				
Slip	376	3.6	133	238
Repairs	312	3.8	116	151
Insurance	117	0.9	50	100
Credit intermediaries	16	0.1	6	10
Retail trade	205	3.5	87	122
<u>Wholesale trade</u>	<u>71</u>	<u>0.4</u>	<u>27</u>	<u>48</u>
<b>Total direct effects</b>	<b>1,097</b>	<b>12.3</b>	<b>420</b>	<b>667</b>
<u>Secondary effects</u>	<u>607</u>	<u>5.5</u>	<u>211</u>	<u>377</u>
<b>Total effects</b>	<b>1,704</b>	<b>17.8</b>	<b>630</b>	<b>1,044</b>
Multiplier	1.6	1.5	1.5	1.6

If there are 40,000 wet boat slips in Maryland's Chesapeake Bay waters, the overall spending and economic impact would be 400 times the marina estimates in Tables 22-24. That would amount to \$184 million in trip spending and \$640 million in craft-related spending for a total impact including secondary effects of about 9,000 jobs.

The on-line models at <http://www.floridaboatingeconomics.com> permit users to adjust boater spending averages or to alter the mix of boats between power and sail or by size class. Economic impacts can be estimated for a given number of boats in an area, a marina with a given number of occupied slips, or a boat launch site serving a given number of boats.

**Paddlers.** The only economic study of paddlers we could surface, was a study of the Northern Forest Canoe Trail (Pollack 2007). This 740 mile trail across four northern states is more remote than the Chesapeake Bay water trails, but still generated \$8.8 million in spending of some 90,000 paddlers in 2006. The average paddler spent \$39 per person per day within 25 miles of the waterway. Spending was minimal for local users (\$5 per person), but substantial for overnight trips, and especially for guided trips and hotel stays. The overall group spending average per trip was \$400 with the greatest spending for lodging (\$128), restaurants (\$55), groceries (\$49), transportation (\$54), and guides/outfitters (\$57). It only took 85 non-local paddler groups spending roughly \$37,000 in local communities to support one job.

## Visitor Surveys for Gathering Spending and Visitor Characteristics

Economic estimates in this report are limited by the available information. Many assumptions were required to complete the analysis. The Chesapeake Bay Gateways and Watertrails Network was originally interested in conducting visitor surveys to gather the data required to make economic impact estimates, but the costs and complexity of such an endeavor were prohibitive. Instead we have estimated spending and impacts based on reported visitor counts, manager judgments about party sizes and the mix of visitors, and primarily secondary spending data.

Extending estimates to other facilities or improving the estimates should begin with steps to improve estimates of the number of visitors along with visitor surveys to measure party size, length of stay, and the mix of visitors across segments. It is easier to justify a visitor spending survey if the survey gathers useful marketing information. Understanding market segments, visitor characteristics and trip patterns have many important uses beyond their role in the MGM2 model in estimating spending.

One should only use visitor surveys to gather spending data if they will yield better estimates of spending than what can be obtained from secondary data. In some cases an engineering approach may be preferred to conducting a spending survey<sup>5</sup>. In that approach, one identifies the mix of goods and services a visitor must purchase to produce a trip and assigns a cost to each item. Average local room and campground rates, gas prices, and an assessment of local restaurant, entertainment and retail spending opportunities in an area can be used to determine a typical spending profile for a particular segment.

When narrowed to specific visitor segments, trip spending patterns are fairly similar across empirical studies. Differences in survey-based spending estimates are often due as much to sampling errors or differences in question formats or analysis procedures than to actual differences in spending. Handling of missing spending data, spending outliers and cases not reporting any spending can significantly influence the results. One should therefore carefully evaluate alternatives and consider the intended uses of spending data before embarking on a visitor spending survey.

The data requirements of the MGM2 model are:

- Counts of the number of visitors
- Percentage of visitors by segment along with average party size and length of stay by segment.
- Spending profiles for each segment
- Economic multipliers and ratios for the study region/impact area.

Visitor counts and regional economic multipliers must generally come from secondary sources. Multipliers for regions down to a county level may be obtained from MIG Inc. based on IMPLAN models or the Bureau of Economic Analysis's RIMS II model.

---

<sup>5</sup> See Appendix D of the MGM2 user manual (Stynes et. al. 2001) for guidance on the engineering approach.

## Visitor Counts

Visitor counts must usually be obtained from recreation and tourism providers. Visitor counts are available for most state and national parks, although the quality of these data varies widely. One must be especially cognizant of the units of measurement and counting methods. Many parks estimate visitors through vehicle counters at entrances. Numbers of vehicles are multiplied by an average number of people per vehicle to obtain an estimate of person visits. Be aware that many parks do not regularly update their party size estimates. These have been declining over time. In that case, one should use the people per vehicle figures the park employs to estimate visits. This will recover the correct number of vehicles (parties) from their estimates of person visits. In addition, there are frequently problems of counter malfunctions, commercial traffic or multiple entries by each visitor that may or may not be taken into account. Visitors arriving in groups on buses must be added in separately along with walk-in visitors.

Overnight stays in park campgrounds or cabins are often estimated independently of park entries or day visitors. These counts are often based on reservation data. The number of campsite or room nights may be multiplied by a party size to obtain the number of person nights. The number of party trips by overnight visitors can be measured by the number of reservations. Multiplying this by party size will yield person trips (visits), while multiplying reservations by length of stay will yield visits in party nights.

State and national parks often do not adjust their day visitor estimates for visits represented by overnight stays. Unless there are separate traffic counters for camping areas, campers vehicles will be counted along with day visitors at entrances. In this case, one should determine the number of park entries by campers from the camping use data and subtract these from the overall vehicle count. In our MGM2 analyses for national parks, park entries by visitors staying overnight in the park are computed as:

$$\text{Camper park entries} = \frac{(\text{Campsite (party) nights} * \text{camp party size} * \text{park entries per trip})}{\text{Camp length of stay}}$$

Museums and other facilities that count visitors use a variety of methods of varying reliability. Many smaller museums use hand counts of entering visitors, door swings, or guestbook entries. Facilities with admission fees generally have more reliable counts of visitors. In some cases one must divide overall admission revenues by an average entry fee. There are usually some visitors who may not be counted.

Visitor counts for special events and festivals are notoriously poor. They are often “crowd estimates” that may count the same visitors at different locations or times during the event. Estimates are better if there are a small number of entrance gates or even better if there are admission fees or registration requirements. Many special events do not gather data on the proportion of attendees from the local area or how many are staying overnight.

The above methods are all useful for estimating impacts of individual facilities or events. More difficult is the problem of estimating the number of visitors to a community or region. States usually have estimates of the number of trips of 50 miles or more to or within the state, but very few have reliable estimates below the state level. The problem is that state tourism estimates are generally based on national travel surveys, where sample sizes are too small to make reliable estimates at the county level.

Usually the only reliable local indicator of tourism activity is the room tax. This only captures visitors staying overnight in commercial lodging covered by the tax. Room tax

collections may be converted to room sales by dividing by the tax rate. Dividing room sales by an average nightly room rate yields an estimate of the number of room nights. Multiplying room nights by an average party size produces the number of person nights in commercial lodging. Local areas rarely have much information on the number of day trips or stays with friends or relatives.

One must be careful in adding up visitor counts or spending across multiple facilities as they may be counting some of the same visitors. It is helpful to know how many and which attractions in an area a tourist may visit on a given trip. Such information can be especially useful for organizations like the CBGN that link information about different attractions in an area to create a greater critical mass of attractions and more rewarding experiences.

### **Visitor and Trip Characteristics**

Characteristics beyond simply the number of visitors are often required to make reliable economic estimates. The MGM2 model recommends information to break visitors down into segments and to convert between different units of measurement. Party sizes are needed to convert between travel parties and individuals. Length of stay is used to convert between trips and days/nights. Information to break visitors into subgroups with distinct spending patterns is also critical. Generally we recommend dividing tourists into at least five segments:

- Local day trips
- Non-local day trips
- Overnight stays in hotels, cabins, or B&B's
- Overnight stays in Campgrounds
- Overnight stays in private homes (seasonal homes or stays with friends and relatives)

Recreation activities can also be useful bases for segmenting visitors, although to estimate spending one should also distinguish between the five trip types above when focusing on boaters, anglers or other activity groups. Trip spending tends to vary more with these trip types than across activities. The percentage of visitors from these segments can be estimated in surveys that gather the zipcode or region of residence, whether on a day or overnight trip, and lodging types. The survey must, of course, be based on a representative sample of visitors of adequate size to properly profile the segments.

**Sample Questions to Gather Segment, Spending and Visit Conversion Data**

1. Are you staying overnight away from home in the local area (within **30 miles** of the park) on this trip? *(May vary distance to reflect the local area of interest)*

No

Yes



1a. How many nights are you staying  
 Inside the Park \_\_\_\_\_  
 Outside the Park in the Local Area \_\_\_\_\_

1b. What type of lodging are you using (check all that apply)  
 Inside the Park  
 Lodge, motel or cabin  
 Campground  
 Backcountry site

Outside the Park  
 Motel, cabin, B&B, rented condo or home  
 Campground or Trailer park  
 Owned seasonal home  
 Stay with friends or relatives in the area

1c. (optional) How many total nights will you be away from home on this trip? \_\_\_\_\_

2. How many times have you entered the park during your trip to this area? \_\_\_\_\_

3. How many people are in your travel party (vehicle) on this trip?

\_\_\_\_\_ Adults 18 and older

\_\_\_\_\_ Children (under 18 years of age)

4. What is the zip code of your primary residence? \_\_\_\_\_ OR

4a. Do you live within **30 miles** of the park? Yes or No

*(may help distinguish permanent and seasonal residences, if desired)*

Many visitor surveys gather trip spending information. This is much more complicated to gather and analyze than the basic trip and demographic information. For use with the MGM2 model spending must be itemized in 6-12 categories and be specific to the region of interest. To estimate impacts on a particular region, visitors must report just the spending that took place in that region. There are frequently recall and telescoping problems in reports of spending.

**SAMPLE QUESTIONS FOR ESTIMATING VISITOR SPENDING ON TRIPS**

5A. Did you spend any money within 30 miles of this park on this trip? Yes No

5B. If yes, Please report all spending by **you and other members of your party** inside the park (Column A) or outside the park within **30 miles of this destination** (Column B). Include all spending for goods and services during your stay in the local area including pre-paid hotel deposits, and all other payments whether by cash, credit card, or check. Enter spending to the nearest dollar in each category below. Enter 0 (zero) if you did not spend any money in a particular category.

	<b>Column A</b>	<b>Column B</b>
	<b>Inside the PARK</b>	<b>In the Local Area</b>
<b>Lodging</b>		
Hotels, motels, cabins, B&B...	_____	_____
Camping fees and charges	_____	_____
<b>Food and Beverages</b>		
Restaurants and bars	_____	_____
Groceries and take-out food	_____	_____
<b>Transportation</b>		
Gas and oil (auto, RV, boat, etc)	_____	_____
Other auto expenses (repairs, parking, tolls, etc.)	_____	_____
Airfares, Rail, Bus, Taxi, Car rental, shuttles...	_____	_____
<b>Recreation and Other Expenses</b>		
Admissions, recreation, entertainment fees	_____	_____
Sporting goods	_____	_____
Clothing	_____	_____
Other goods (film, books...)	_____	_____
Other services (haircuts, etc.)	_____	_____

A shorter form of the spending table may be preferred.

**Shorter form**

	<b>Inside the PARK</b>	<b>In the Local Area</b>
Hotels, motels, cabins, B&B...	_____	_____
Camping fees and charges	_____	_____
Restaurants and bars	_____	_____
Groceries and takeout food	_____	_____
Gas and oil (auto, RV, boat, etc)	_____	_____
Other transportation expenses	_____	_____
Admissions, recreation, entertainment fees	_____	_____
Other purchases (souvenirs, film, books, sporting goods, clothing etc....)	_____	_____

Spending categories are designed to bridge easily into economic sectors in order to estimate impacts. Hence, grocery purchases should be separate from restaurant meals and auto fuel should be separate from airfares or other auto-related services. Spending categories may be modified to fit a particular situation. For example, specialized studies may include distinct categories for equipment rentals, specific fees (golf, ski, boat launch), and other unique spending categories. Airfares are difficult to allocate between origins and destinations and so are often excluded.

Instead of the suggested two columns, some studies have three for at home, en route and at the destination. Others use only a single column for spending in the local area or all spending on the trip or in the state. Which is most appropriate depends on the area(s) for which impacts are desired and the ability of respondents to recall spending in particular categories and at particular locations.

The problem of attributing spending to a particular park or facility may be broached in several ways:

### **Optional Trip Purpose/Multi-Destination Questions:**

6. (Version A) : Was visiting this park (or museum)...
  - a. The primary purpose of your trip to this area
  - b. One of several reasons for the trip
  - c. Not an important reason for the trip
6. (Version B): Would you have made the trip to this area if this park (or museum) were not open?
6. (Version C): What was the primary reason for making the trip to this area?
  - a. To visit this park (or museum)
  - b. To visit other attractions in the area
  - c. Visiting friends or relatives in the area
  - d. Business or other reasons
7. Multi-destination question: Is your stop in this area...
  - a. Your only destination on this trip
  - b. Part of a longer trip involving several destinations,
  - c. A side trip while staying overnight elsewhere

### **Guidelines for Analysis and Use of Data with the MGM2 Model**

The basic analysis of these data is to form visitor segments using questions 1-4 (see page 37) and then estimate average spending, length of stay, party size and park entries for these subgroups. Segment shares may be estimated directly from the survey (percentages) if the sample is representative. In some cases overnight stay data and other sources may be used to estimate the percentage of visits by some subgroups. Total visitor spending is estimated by expanding from the sample to all visitors in a given period (usually a year). Impacts can then be estimated by applying economic ratios and multipliers for the study area to the spending totals.

The general approach is to divide total park visits by re-entries to obtain the number of person trips, then multiply by length of stay in the area to convert to person nights and divide by party size to yield total party nights. Spending must then also be estimated on a party night basis. Compute trip spending averages from the sample paying careful attention to zeros,

missing data and outliers. Also compute average length of stay and then divide the trip spending averages by the average length of stay in nights to yield spending per party per night. This figure can be multiplied by party nights to get total spending. All of the above should be carried out segment by segment to yield nights and spending for each segment. Then sum across segments to get totals.

Segments with small sample sizes should be combined with other segments with similar patterns of use and spending. The overall park visit total should be carefully evaluated, as it forms the basis for expanding to totals. The re-entry question in the survey can theoretically correct for multiple counting of visitors who enter and leave the park several times during a stay in the area. However, visitors may not be fully aware of when they are entering or leaving the park and the park visit counting procedures may not fully account for all visits. Park visits may also be contaminated by commercial and commuting traffic and a host of other problems. The party size factors used in park visit counting procedures also may not coincide with those estimated in the survey. School groups and buses often need to be handled separately.

Finally, in computing economic impacts, one must decide which spending and visitors to include. Local visitors are often excluded and one must also address how to handle visitors whose primary trip purpose was not to visit the park. These visitors may also be excluded or one may attribute only a portion of their trip spending to the park visit. For example, one may count only a half day's spending or a single night's spending for visitors in the area on extended stays for multiple purposes.

More extensive guidance on sampling and alternative survey designs are provided in a guidebook developed for the Alliance of National Heritage Areas (Stynes and Sun 2003).

## Conclusions

This study has estimated the overall contribution of tourism activity to the Chesapeake Bay Gateways and Watertrails Network region, documented tourism's relative importance to counties around the Bay, and estimated local economic impacts of visitor spending for thirteen case study sites.

Tourists spent \$25.7 billion in the CBGN region in 2009, supporting 273,000 direct jobs and \$6.6 billion in direct payroll income. Tourism statistics include business and convention travel, trips to visit friends and relatives, and other activities not directly associated with Chesapeake Bay or the CBGN. There remains the question of how much of this activity to attribute to Chesapeake Bay or the Gateways Network. If we assign 5% of tourism activity in metropolitan areas and 25% of the activity in rural counties, we get a ballpark estimate of \$2.2 billion in tourist spending and 25,000 direct tourism jobs. This represents about 9% of tourism-related activity in the region. The contribution of CBGN sites themselves is likely less than this, while the portion related to Chesapeake Bay is likely much larger. Any attempt to isolate the portion of tourism activity related to the Chesapeake Bay is inherently somewhat arbitrary; however, the Bay is such an integral part of the history and culture of the region that it is clearly a significant contributing factor in regional tourism.

While more precise statements can be made about the economic contributions of individual facilities, extrapolating from the case study sites to all CBGN partner sites is more problematic. Since many trips to the region involve multiple activities and destinations, it is difficult to assign spending and impacts to individual facilities or to isolate the impacts of CBGN

partner facilities from the many other attractions in the region. Smaller museums and historic sites are often not the primary generator of trips, but instead are additional activities for tourists to do once in an area. By linking these facilities around locations, activities or themes CBGN programs create a larger critical mass to attract tourists and help generate visits to lesser-known sites. However, evaluation studies are needed to quantify these effects.

A simple extrapolation from the 13 case studies to 170+ sites yields visitor spending of approximately \$1.1 billion of which as much as 40% is spending by local residents. However, the case studies do not include major attractions like Baltimore's Inner Harbor or the National Aquarium. In addition, neither the tourism spending figures nor the case studies cover over \$2 billion in spending associated with boating and fishing on Chesapeake Bay.

## Recommendations

Recommendations can be divided into suggestions for further research and ideas for enhancing the economic contributions of the programs of CBGN and their partners.

Research specific to the programs of CBGN and their partners is limited. More precise estimates of economic impacts require better information about the number and types of visitors and the role of the CBGN in attracting these visitors. For many of the smaller museums, the economic impact of museum operations themselves exceeds the impact of spending by their visitors in the surrounding communities. A useful initial research project would be a survey of all Gateways Network partners to obtain basic information about the number of visitors along with payrolls and operating budgets. This would be similar to the short survey sent to the five museums included in the case studies. Such a study would be much less expensive than a visitor survey, while providing the basic information to estimate economic impacts for individual CBGN partners. Additional questions about marketing activities or programming suggestions could be included.

The CBGN could also provide technical advice for facilities interested in conducting visitor studies or improving their visitor counting methods. Sample questions for estimating economic impacts are included in this technical report. Facilities conducting visitor surveys should be encouraged to include questions about visitor awareness of the CBGN and their use of the website and other materials as information sources. CBGN information programs could also be evaluated more directly using coupon conversion approaches.

Several recommendations for increasing the economic contributions of CBGN facilities and programs can be advanced. Economic impacts are directly related to spending which in turn depends on the number and types of visitors and their spending patterns. So the first recommendation is to expand efforts to increase the number of visitors and especially visitors on overnight trips. Promotional programs and offerings should be evaluated in terms of their success in attracting visitors and lengthening their stay in the region. The CBGN informational programs that link facilities and present themes for travelers certainly contribute to these objectives. Evaluation of these programs can be helpful in determining which approaches are most effective.

Encouraging overnight stays is a consistent theme of travel marketers. The longer a visitor remains in an area, the greater the economic impact. Overnight stays may be encouraged by developing packages with lodging providers and jointly marketing these opportunities. Attractions and activities are the focus of the CBGN website and informational materials. The CBGN should consider ways of linking this information with lodging and dining opportunities,

likely in cooperation with state, regional or local tourism organizations. Another strategy to encourage overnight stays is to schedule morning and evening events that will encourage visitors to stay an extra night in the area.

Efforts to increase spending opportunities for visitors are often overlooked. While there are ample places to spend money in urban settings, the variety of goods and services available in rural areas is more limited. Visitor spending depends directly on the variety of goods and services available for sale in the area. Some activities like water trails and bike trails require specialized services for tourists to participate. If there are no canoe/kayak rental facilities in an area, water trail use will be limited to local residents and those tourists who bring canoes or kayaks. The same is true for bike trails. The availability of outfitters and shuttle services can significantly increase use of these trails and associated local economic impacts.

Special events and festivals can be effective in attracting visitors and generating short-term economic activity. They generate additional income for some businesses and overtime pay for their employees, but don't generally increase the number of year-round jobs. If the event attracts mostly local visitors, it may not bring much new money into the community. To have a significant economic impact, the event should attract large numbers of visitors from outside the area, fill otherwise vacant hotel rooms, and stimulate first time visitors to return again. Special events frequently provide fundraising opportunities for local organizations and bring communities together, so they should not be justified solely on economic grounds. This point applies more generally to the CBGN and their partners as the environmental, cultural, social and educational benefits of the programs will generally exceed their economic significance.

## References (Summaries and links to on-line reports are included in Appendix C)

- American Sportfishing Association (2008). Sportfishing in America. Alexandria, VA: American Sportfishing Association.
- Center for Creative Community Development. Brief Summary of the Economic Impact of the Chesapeake Bay Maritime Museum in St. Michael's, Maryland. Williams College.
- Chmura Economics and Analytics. 2010. Economic Impact of the Expansion of the Virginia Fine Arts Museum. Richmond, VA: Chmura Economics and Analytics
- D.K. Shifflet. 2010. Washington D.C.'s 2009 Visitor Statistics.
- Dougherty, Rebecca. 2010. 2010 Maryland State Park Economic Impact and Visitor Study. Maryland Office of Tourism Development.
- Florida Fish and Wildlife Commission. 2009. Florida Boating Access Facilities Inventory and Economic Study.
- Global Insight. 2010. 2009 Tourism Satellite Account for the State of Maryland and its Counties. Powerpoint Presentation by Shane Norton.
- Kern, P.V. and Kocis, E.A. 2007. U.S. Travel and Tourism Satellite Accounts for 1998-2006. Survey of Current Business (June): 14-28.
- Lipton, D. 2001. Boating 2000: A Survey Of Boater Spending In Maryland. College Park, MD: Maryland Sea Grant Program.
- Lipton, Douglas. 2007. Economic Impact of Maryland Boating in 2006. University of Maryland Sea Grant Program.
- Mahoney, E. and Stynes, D.J. 2009. Florida Boating Study: An Economic Analysis. Marine and Recreation Research Center, Michigan State University: East Lansing, MI. Report to Florida Fish and Wildlife Conservation Commission.
- McKendry, Jean E. 2009. A Socioeconomic Atlas for the Chesapeake Bay Watershed and Its Region. Moscow, ID: University of Idaho.
- Mowen, A., Stynes, D.J. et. al. 2010. The Economic Significance and Impact of Pennsylvania State Parks: An Assessment of Visitor Spending on the State and Regional Economy. Dept. of Recreation, Park and Tourism Management. Penn State University. Report submitted to Dept. of Conservation and Natural Resources, Commonwealth of Pennsylvania
- Murray, Thomas, Kirkley, James, and Lipton, Doug. 2009. Assessment of the Economic Impact of Recreational Boating in the City of Hampton. VIMS Marine Resource Report # 2009-2. Virginia Sea Grant Program: Gloucester Point, VA.
- National Marine Manufacturers Assoc. 2008 Recreational Boating Statistical Abstract. NMMA: Chicago, IL.
- Pollack, N., Chase, L.C., Ginger, C., and Kolodinsky, J. 2007. The Northern Forest Canoe Trail: Economic Impacts and Implications for Sustainable Community Development. Vermont Tourism Data Center, University of Vermont.
- Southwick Associates. 2004. Potential Economic Losses Associated With Uncontrolled Nutria Populations in Maryland's Portion of the Chesapeake Bay. Report to Maryland Dept. of Natural Resources.
- Stynes, D.J. 2005a. Economic Significance of Recreational Uses of National Parks and Other Public Lands. National Parks Social Science Research Review 5(1): 1-35.

- Stynes, D.J. 2005b. Impacts of Visitor Spending on the Local Economy: Chesapeake and Ohio Canal National Historical Park, 2003. Department of Park, Recreation and Tourism Resources, Michigan State University.
- Stynes, D.J. 2006. Impacts of Visitor Spending on the Local Economy: George Washington Birthplace National Monument, 2004. Department of Park, Recreation and Tourism Resources, Michigan State University.
- Stynes, D.J. 2007. Impacts of Visitor Spending on the Local Economy: Harpers Ferry National Historical Park, 2005
- Stynes, D.J. 2008. Impacts of Visitor Spending on the Local Economy: Monocacy National Battlefield, 2006.
- Stynes, D.J., Propst, D.B., Chang, W.H., and Sun, Y. 2000. Estimating Regional Economic Impacts of Park Visitor Spending: Money Generation Model Version 2 (MGM2). East Lansing, MI: Department of Park, Recreation and Tourism Resources, Michigan State University.
- Stynes, D.J., Vander Stoep, G.V., and Sun, Y. 2004. Economic Impacts of Michigan Museums. Department of Community, Agriculture and Recreation Resource Studies, Michigan State University.
- Stynes, D.J. and Sun, Y. 2003a. Impacts of Visitor Spending on the Local Economy: Colonial National Historical Park, 2001. Department of Park, Recreation and Tourism Resources, Michigan State University.
- Stynes, D.J. and Sun, Y. 2003b. Alliance of National Heritage Areas Visitor Survey Guide. East Lansing, MI: Michigan State University.
- Stynes, D. J. and Sun, Y. 2004. Summary Results of Seven National Heritage Area Visitor Surveys. East Lansing, MI: Michigan State University.
- Stynes, D.J. 2010. Economic Benefits to Local Communities from National Park Visitation and Payroll, 2009. Natural Resource Report NPS/NRPC/SSD/NRR—2011/281. USDI, National Park Service.
- Tourism Economics. 2010. The Economic Impact of Visitor Spending and the Travel and Tourism Industry in Pennsylvania. Wayne, PA: Tourism Economics.
- U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, U.S. Census Bureau. 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation: Maryland.
- U.S. Travel Association. 2010. The Economic Impact of Domestic Travel Expenditures on Virginia Counties 2009. Washington D.C. USTA.
- Vander Stoep, G.V., Stynes, D.J., and Sun, Y. 2004. Visitor Awareness and Economic Impacts of MotorCities Hub Sites. East Lansing, MI: Department of Community, Agriculture, Recreation and Resource Studies, Michigan State University.
- Yochum, Gilbert R. and Agarwal, Vinod B. 2010. 2009 Virginia Beach Tourism Economic Impact Study. Norfolk, VA: Old Dominion University Research Foundation.

## **APPENDIX A: County Level Tourism Statistics**

### **Tourism Impact Estimates for CBGN Counties, 2009**

Table A1. Tourism Impacts for Maryland and Pennsylvania Counties, 2009

Table A2. Tourism Impacts for Virginia Counties, 2009

Table A3. Tourism Impacts for Virginia Independent Cities, 2009

### **County Level Sales and Employment Data for Selected Tourism Sectors, 2008**

Table A4. Tourism Output and Jobs by Sector 2008, MD and PA Counties

Table A5. Tourism Output and Jobs by Sector 2008, Virginia Counties

Table A6. Tourism Output and Jobs by Sector 2008, Virginia Independent Cities

Note: Tables A1-A6 include counties and Virginia independent cities within the CBGN region. IMPLAN Sectors covered in Tables A4-A6 are:

Hotels and Motels	Sector 411
Other Accommodations	Sector 412
Food Services and Drinking Places	Sector 413
Recreation/Entertainment	Sectors 402-410
402	Performing arts companies
403	Spectator sports companies
404	Promoters of performing arts and sports and agents for public figures
405	Independent artists, writers, and performers
406	Museums, historical sites, zoos, and parks
407	Fitness and recreational sports centers
408	Bowling centers
410	Other amusement and recreation industries

**Table A1. Tourism Impacts for Maryland and Pennsylvania Counties, 2009**

County	Spending (\$Millions)	Jobs	Payroll (\$Millions)	Pct of Pvt Jobs
Anne Arundel	2,227	20,170	636	7.4%
Baltimore	1,851	18,026	511	4.1%
Baltimore City	1,264	13,645	354	4.0%
Calvert	127	1,665	48	6.9%
Caroline	19	259	7	2.2%
Cecil	149	1,532	40	5.0%
Charles	265	2,991	87	6.6%
Dorchester	53	668	19	5.6%
Harford	362	4,295	132	4.9%
Howard	737	7,409	79	4.1%
Kent	50	505	22	4.0%
Montgomery	2,172	22,331	711	3.8%
Prince George's	1,664	14,596	391	5.0%
Queen Anne's	66	876	24	4.8%
Saint Mary's	163	1,680	23	4.4%
Somerset	21	159	5	2.5%
Talbot	117	1,294	29	5.3%
<u>Wicomico</u>	<u>282</u>	<u>2,624</u>	<u>119</u>	<u>5.6%</u>
<b>MD CBGN Region Total</b>	<b>11,588</b>	<b>114,725</b>	<b>3,237.0</b>	<b>4.6%</b>
<b>Pennsylvania</b>				
Lancaster	1,365	12,938	315.2	4.8%
<u>York</u>	<u>717</u>	<u>6,694</u>	<u>158.6</u>	<u>3.6%</u>
<b>PA CBGN Region Total</b>	<b>2,082</b>	<b>19,632</b>	<b>473.8</b>	

Sources: Global Insight (2010) *Tourism Satellite Account for the State of Maryland and its Counties*. *Tourism Economics* (2010) *Economic Impact of Visitor Spending and the Travel and Tourism Industry in Pennsylvania*.

**Table A2. Tourism Impacts for Virginia Counties, 2009**

County	Spending (\$Millions)	Jobs	Payroll (\$Millions)	Pct of Pvt Jobs
Accomack	137	1,852	31	12.4%
Arlington	2,319	23,238	764	14.6%
Caroline	69	608	11	9.3%
Charles City	2	29	1	1.4%
Chesterfield	335	4,129	70	3.1%
Essex	26	365	6	8.3%
Fairfax	2,280	27,855	517	3.7%
Gloucester	37	452	8	4.4%
Hanover	166	2,252	38	4.4%
Henrico	604	7,052	152	3.5%
Isle of Wight	30	362	6	2.8%
James City	313	3,609	61	12.2%
King and Queen	3	44	1	1.8%
King George	17	217	4	2.8%
King William	7	85	2	2.0%
Lancaster	71	740	13	12.2%
Mathews	27	416	7	12.9%
Middlesex	76	1,122	18	31.0%
New Kent	26	392	6	8.9%
Northampton	57	729	12	10.0%
Northumberland	46	557	10	14.9%
Prince George	61	715	12	9.2%
Prince William	415	5,636	114	5.6%
Richmond	24	342	10	10.2%
Spotsylvania	199	2,667	46	7.9%
Stafford	97	1,206	20	4.7%
Surry	8	101	2	2.1%
Sussex	48	707	12	15.2%
Westmoreland	188	1,954	35	8.0%
York	137	1,852	31	12.4%

Source: U.S. Travel (2010) *The Economic Impact of Domestic Travel Expenditures on Virginia Counties 2009*. Excludes international visitors.

**Table A3. Tourism Impacts for Virginia Independent Cities, 2009**

County	Spending (\$Millions)	Jobs	Payroll (\$Millions)	Pct of Pvt Jobs
Alexandria City	616	6,017	111	6.3%
Chesapeake City	248	2,833	48	2.7%
Colonial Heights City	31	493	8	4.7%
Fairfax City	98	1,263	21	4.7%
Falls Church City	29	482	9	3.8%
Fredericksburg City	130	1,469	25	5.0%
Hampton City	188	2,173	37	4.3%
Hopewell City	19	220	4	2.5%
Manassas City	51	518	9	2.0%
Manassas park City	1	13	0	0.4%
Newport news City	241	2,899	57	3.2%
Norfolk City	606	6,703	164	5.0%
Poquoson City	3	29	0	1.5%
Portsmouth City	68	797	14	2.3%
Richmond City	495	5,894	118	3.8%
Suffolk City	53	579	10	1.8%
Virginia Beach City	1,061	11,596	204	5.7%
Williamsburg City	437	5,377	91	35.0%
<b>Counties and Ind. Cities Combined</b>				
<b>VA CBGN Region Totals</b>	<b>12,068</b>	<b>138,787</b>	<b>2,919</b>	<b>4.6%</b>
<b>VA STATE TOTALS</b>	<b>\$17,705</b>	<b>204,481</b>	<b>\$4,310</b>	<b>5.2%</b>

Source: U.S. Travel (2010) *The Economic Impact of Domestic Travel Expenditures on Virginia Counties 2009*. Excludes international visitors

**Table A4 . Tourism Output and Jobs by Sector, 2008, MD and PA CBGN Counties**

	Output (\$Millions)				Employment			
	Hotels	Camp/ B&B	Food Service	Recr/ Ent	Hotels	Camp/ B&B	Food Service	Recr/ Ent
Anne Arundel	199.8	10.4	1,393	281.3	1,808	115	21,641	4,858
Baltimore	110.0	19.0	1,541	518.5	1,107	203	26,945	6,384
Baltimore City	240.9	180.6	1,354	767.5	2,097	1,302	19,829	17,694
Calvert	14.4	0.4	131	34.1	206	6	2,528	418
Caroline	0.5	2.2	17	7.9	10	36	352	105
Cecil	8.0	10.3	129	54.9	130	111	2,478	704
Charles	13.9	2.3	261	19.4	186	28	4,880	409
Dorchester	40.5	0.5	33	11.6	416	6	654	152
Harford	23.6	4.2	370	73.2	332	50	6,947	1,555
Howard	98.4	9.3	680	118.0	803	105	11,295	2,427
Kent	3.7	12.0	40	44.3	42	132	673	420
Montgomery	600.3	38.2	2,122	524.8	3,268	348	33,880	10,755
Prince George's	245.6	12.9	1,195	223.4	2,181	170	20,815	5,684
Queen Anne's	11.6	1.2	108	34.6	130	16	1,879	514
Saint Mary's	11.3	1.4	148	14.3	139	19	2,997	323
Somerset	1.0	0.3	17	0.7	8	4	389	27
Talbot	32.7	8.7	106	23.2	311	92	1,921	285
<u>Wicomico</u>	<u>21.2</u>	<u>2.1</u>	<u>193</u>	<u>18.0</u>	<u>231</u>	<u>23</u>	<u>3,773</u>	<u>436</u>
<b>MD Region sum</b>	<b>1,677</b>	<b>316</b>	<b>9,838</b>	<b>2,770</b>	<b>13,404</b>	<b>2,767</b>	<b>163,876</b>	<b>53,150</b>
Lancaster	126.3	45.0	834	193.0	1,723	631	15,861	3,623
York	42.7	10.4	658	139.9	595	129	13,033	2,146
<b>PA Region sum</b>	<b>169</b>	<b>55</b>	<b>1,492</b>	<b>333</b>	<b>2,318</b>	<b>761</b>	<b>28,894</b>	<b>5,770</b>

Source: IMPLAN, 2008 data

**Table A5. Tourism Output and Jobs by Sector, 2008, Virginia CBGN Counties**

	Output (\$Millions)				Employment			
	Hotels	Camp/ B&B	Food Service	Recr/ Ent	Hotels	Camp/ B&B	Food Service	Recr/ Ent
Accomack	11.0	7.7	41.8	5.4	159	93	900	102
Arlington	338.6	20.1	824.9	124.1	2,866	174	11,879	2,361
Caroline	2.3	1.0	16.8	7.2	32	16	323	115
Charles city	0.0	0.1	0.6	4.6	0	1	12	61
Chesterfield	41.8	1.9	523.7	126.5	577	28	10,140	3,224
Essex	1.3	0.4	23.4	4.7	22	8	451	39
Fairfax	444.1	11.2	2,357.6	696.2	4,095	143	36,996	16,458
Gloucester	2.1	4.7	46.1	12.9	32	67	942	139
Hanover	14.8	4.8	170.2	32.4	218	59	3,296	538
Henrico	97.7	2.2	694.1	147.0	1,229	25	12,900	3,224
Isle of Wight	7.6	0.4	32.7	5.5	97	6	700	157
James City	0.0	0.6	1.3	0.1	0	12	30	7
King and Queen	2.7	0.0	17.9	2.5	37	0	366	57
King George	0.1	0.0	9.8	2.6	3	0	209	42
King William	10.4	4.7	19.5	6.0	100	56	381	118
Lancaster	0.2	1.3	6.2	3.5	3	23	147	68
Mathews	0.7	0.3	11.5	10.9	10	5	224	105
Middlesex	0.0	0.7	13.3	16.6	1	12	261	415
New Kent	80.1	18.2	498.0	103.4	1,063	160	9,527	2,197
Northampton	4.2	8.7	17.4	17.3	70	99	379	793
Northumberland	0.0	0.4	8.0	10.1	1	6	175	118
Prince George	9.0	0.2	19.6	9.1	154	3	408	156
Prince William	41.2	3.7	558.2	150.5	548	42	10,119	2,432
Richmond	0.5	0.2	5.8	4.6	12	3	118	105
Spotsylvania	13.7	2.6	146.7	32.9	189	36	2,826	464
Stafford	9.4	1.0	95.2	18.2	127	14	2,011	246
Surry	1.6	0.0	5.0	4.2	17	0	104	232
Sussex	2.7	0.0	11.5	0.5	53	1	224	5
Westmoreland	0.8	0.1	16.0	10.4	14	1	345	188

Source: IMPLAN, 2008 data

**Table A6. Tourism Output and Jobs by Sector, 2008, Virginia CBGN Independent Cities**

	Output (\$Millions)				Employment			
	Hotels	Camp/ B&B	Food Service	Recr/ Ent	Hotels	Camp/ B&B	Food Service	Recr/ Ent
Alexandria City	140.5	2.0	490.8	68.7	1,249	23	6,671	1,167
Chesapeake City	50.1	3.1	463.8	43.5	638	42	9,502	721
Colonial Heights City	5.5	0.1	84.1	4.3	98	1	1,693	111
Fairfax City	13.1	0.5	108.9	14.6	144	6	1,835	367
Falls Church City	2.9	0.0	58.4	4.4	33	1	963	80
Fredericksburg City	21.6	2.2	214.8	24.7	269	33	3,986	565
Hampton City	42.2	13.9	259.9	23.0	580	115	5,007	562
Hopewell City	4.7	0.1	31.1	1.2	82	1	687	28
Manassas City	110.4	1.6	146.4	85.2	1,016	21	2,594	1,205
Manassas park City	3.6	3.2	88.7	3.4	49	28	1,508	70
Newport news City	0.0	0.0	5.1	0.0	0	0	77	0
Norfolk City	49.2	0.9	328.3	60.3	684	10	6,461	803
Poquoson City	0.0	0.0	11.0	0.3	0	0	266	7
Portsmouth City	14.9	0.2	108.4	20.4	199	2	2,206	247
Richmond City	82.8	17.2	478.2	131.2	952	140	8,615	1,878
Suffolk City	15.3	1.7	140.0	16.2	227	23	2,778	373
Virginia Beach City	209.2	16.5	1,030.2	201.7	2,688	180	19,789	4,231
Williamsburg City	97.2	12.7	208.4	101.7	1,146	147	3,566	1,368
<b>Counties and Ind. Cities Combined</b>								
VA Region sum	2,065	175	10,593	2,389	22,547	1,894	187,266	48,265

Source: IMPLAN, 2008 data

## **APPENDIX B: Case Study Results – Impacts of Visitor Spending**

**Note: Case Studies are presented in alphabetical order**

### **Table 1 reports visitor and spending information**

- Visits and party nights by segment for 2010
- Average spending per party per day/night
- Total spending in the local area

### **Table 2 reports impacts of this spending on the local region**

- Direct effects by sector – sales, jobs, labor income and value added
- Secondary and Total effects – sales, jobs, labor income and value added

## Chesapeake Bay Maritime Museum

Location: St. Michaels, MD.

Region: Talbot, Queen Anne, Dorchester and Caroline counties, MD.

Population: 148,000

**Table 1. Visitors and Spending Outside the Museum**

	Local Day Trip	NL Day Trip	School Groups	OVN	Total
Visitors	11,484	11,484	2,275	22,969	48,212
Party Days/Nights	4,594	4,594	2,275	9,187	20,650
Pct of Party Days/Nights	22%	22%	11%	44%	100%
Avg. Spending (\$ per party day)	39.00	57.96	15.00	144.55	92.67
Total spending (\$000's)	179.1	266.2	34.1	1,328.0	1,807.6

**Table 2. Economic Impacts of Visitor Spending Outside the Museum**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Labor Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	308	2.8	99	176
Camping fees	35	0.5	15	17
Restaurants & bars	429	7.6	156	222
Admissions & fees	96	1.7	41	62
Other auto	25	0.4	13	16
Local transportation	35	1.2	14	18
Grocery stores	46	0.8	24	38
Gas stations	77	1.0	40	64
Other retail	169	3.6	86	141
Wholesale Trade	57	0.5	17	39
<u>Local Production of goods</u>	<u>112</u>	<u>0.0</u>	<u>2</u>	<u>8</u>
<b>Total Direct Effects</b>	<b>1,390</b>	<b>20.0</b>	<b>507</b>	<b>802</b>
<u>Secondary Effects</u>	<u>546</u>	<u>4.6</u>	<u>169</u>	<u>298</u>
<b>Total Effects</b>	<b>1,936</b>	<b>24.6</b>	<b>677</b>	<b>1,100</b>
Multiplier	1.39	1.23	1.33	1.37

## Chippokes Plantation State Park

Location: Surry County, VA.

Region: Isle of Wight, Prince George's and Surry counties, VA.

Population: 79,000

**Table 1. Visitors and Spending**

	Local Day Trip	NL Day Trip	Camp	Cabin	OVN	Total
Visits	32,528	6,099	15,385	2,155	2,033	58,200
Party size	3.0	3.0	3.2	3.6	3.0	3.1
Party Days/Nights	10,843	2,033	4,808	599	678	18,960
Pct of Party Days/Nights	57%	11%	25%	3%	4%	100%
Avg. spending (\$ per party per day)	38.89	74.32	99.63	178.18	144.55	66.26
Total spending (\$000's)	422	151	479	107	98	1,256

**Table 2. Economic Impacts of Visitor Spending**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Labor Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	84	1	25	45
Camping fees	131	2	42	56
Restaurants & bars	261	5	85	121
Admissions & fees	57	1	19	29
Other auto	1	0	1	1
Local transportation	3	0	1	1
Grocery stores	54	1	27	44
Gas stations	62	1	32	52
Other retail	100	3	49	78
Wholesale Trade	26	0	8	18
<u>Local Production of goods</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total Direct Effects</b>	<b>779</b>	<b>16</b>	<b>288</b>	<b>445</b>
<u>Secondary Effects</u>	<u>194</u>	<u>1</u>	<u>57</u>	<u>116</u>
<b>Total Effects</b>	<b>973</b>	<b>17</b>	<b>345</b>	<b>561</b>
Multiplier	1.25	1.08	1.20	1.26

## Delmarva Discovery Center

Location: Delmarva Peninsula, Pocomoke City, MD.

Region: Dorchester, Somerset, Wicomico and Worcester counties, MD.

Population: 201,000

**Table 1. Visitors and Spending Outside the Museum**

	Local Day Trip	NL Day Trip	School Groups	OVN	Total
Visitors	2,196	4,393	2,383	732	9,704
Party Days/Nights	879	1,757	2,383	293	5,311
Pct of Party Days/Nights	17%	33%	45%	6%	100%
Avg. Spending (\$ per party day)	39.00	57.96	15.00	144.55	49.65
Total spending (\$000's)	34.3	101.8	35.7	42.3	214.2

**Table 2. Economic Impacts of Visitor Spending Outside the Museum**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Labor Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	9.8	0.1	3.2	5.6
Camping fees	1.1	0.0	0.5	0.6
Restaurants & bars	71.8	1.3	26.3	37.4
Admissions & fees	9.9	0.2	4.1	6.2
Other auto	4.3	0.1	2.3	2.8
Local transportation	1.1	0.0	0.5	0.7
Grocery stores	3.4	0.1	1.7	2.8
Gas stations	9.9	0.1	5.1	8.2
Other retail	29.1	0.6	14.9	24.2
Wholesale Trade	9.0	0.1	2.8	6.2
<u>Local Production of goods</u>	<u>14.6</u>	<u>0.0</u>	<u>0.5</u>	<u>1.3</u>
<b>Total Direct Effects</b>	<b>164.0</b>	<b>2.5</b>	<b>61.8</b>	<b>96.1</b>
<u>Secondary Effects</u>	<u>83.2</u>	<u>0.7</u>	<u>26.5</u>	<u>46.1</u>
<b>Total Effects</b>	<b>247.2</b>	<b>3.2</b>	<b>88.3</b>	<b>142.2</b>
Multiplier	1.51	1.27	1.43	1.48

## Elk Neck State Park

Location: Cecil County, MD.

Region: Kent, Harford and Cecil counties, MD.

Population: 360,000

**Table 1. Visitors and Spending**

	Local Day Trip	NL Day Trip	Camp	Cabin	OVN	Total
Visits	93,852	70,389	57,915	4,675	70,389	297,221
Party size	3.0	3.0	4.0	4.0	3.0	3.2
Party Days/Nights	31,284	23,463	14,479	1,169	23,463	93,858
Pct of Party Days/Nights	33%	25%	15%	1%	25%	100%
Avg. spending (\$ per party per day)	38.89	74.32	99.63	127.25	144.55	84.63
Total spending (\$000's)	1,217	1,744	1,443	149	3,392	7,943

**Table 2. Economic Impacts of Visitor Spending**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Labor Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	847	11	272	484
Camping fees	476	6	204	244
Restaurants & bars	1,751	32	625	888
Admissions & fees	408	7	181	277
Other auto	33	0	19	23
Local transportation	90	2	46	57
Grocery stores	298	6	151	247
Gas stations	385	6	196	320
Other retail	648	14	332	541
Wholesale Trade	332	3	101	229
<u>Local Production of goods</u>	<u>179</u>	<u>0</u>	<u>5</u>	<u>13</u>
<b>Total Direct Effects</b>	<b>5,447</b>	<b>86</b>	<b>2,132</b>	<b>3,322</b>
<u>Secondary Effects</u>	<u>1,976</u>	<u>17</u>	<u>659</u>	<u>1,135</u>
<b>Total Effects</b>	<b>7,423</b>	<b>103</b>	<b>2,791</b>	<b>4,457</b>
Multiplier	1.36	1.19	1.31	1.34

## First Landing State Park

Location: Virginia Beach, VA.

Region: Virginia Beach metro area—Isle of Wight and Surry counties; Chesapeake, Norfolk, Portsmouth, Suffolk, and Virginia Beach cities, VA.

Population: 1.1 million, metropolitan region

**Table 1. Visitors and Spending**

	Local Day Trip	NL Day Trip	Camp	Cabin	OVN	Total
Visits	954,044	178,883	70,852	14,531	59,628	1,277,939
Party size	3.0	3.0	3.2	3.6	3.0	3.0
Party Days/Nights	318,015	59,628	22,141	4,036	19,876	423,696
Pct of Party Days/Nights	75%	14%	5%	1%	5%	100%
Avg. spending (\$ per party per day)	38.89	74.32	99.63	178.18	144.55	53.33
Total spending (\$000's)	12,367	4,432	2,206	719	2,873	22,597

**Table 2. Economic Impacts of Visitor Spending**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Labor Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	1,079	13	330	588
Camping fees	666	8	265	352
Restaurants & bars	5,960	114	2,054	2,919
Admissions & fees	1,223	22	500	765
Other auto	28	0	15	19
Local transportation	76	2	37	47
Grocery stores	930	20	467	761
Gas stations	1,196	23	601	996
Other retail	2,004	46	1,015	1,655
Wholesale Trade	1,130	15	338	780
<u>Local Production of goods</u>	<u>74</u>	<u>0</u>	<u>12</u>	<u>19</u>
<b>Total Direct Effects</b>	<b>14,368</b>	<b>261</b>	<b>5,636</b>	<b>8,900</b>
<u>Secondary Effects</u>	<u>9,200</u>	<u>63</u>	<u>2,898</u>	<u>5,165</u>
<b>Total Effects</b>	<b>23,568</b>	<b>324</b>	<b>8,534</b>	<b>14,065</b>
Multiplier	1.64	1.24	1.51	1.58

## George Washington Birthplace National Monument

Location: Northern Neck of VA, Westmoreland County, VA.

Region: Caroline, Essex, King George, Richmond, and Westmoreland counties; Fredericksburg City, VA.

Population: 233,000

**Table 1. Visitors and Spending**

	Local Day Trip	NL Day Trip	Camp	Motel	Other OVN	Total
Visits	17,942	67,924	14,097	10,253	17,942	128,158
Party size	3.1	2.8	2.5	3.0	2.6	2.8
Party Days/Nights	5,759	24,677	5,580	3,418	6,945	46,380
Avg. spending (\$ per party per day)	45.95	49.36	228.64	99.20	20.55	69.86
Total spending (\$000's)	265	1,218	1,276	339	143	3,240

**Table 2. Economic Impacts of Visitor Spending**

Sector/Spending category	Sales \$000's	Jobs	Labor Income \$000's	Value Added \$000's
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	657	8.1	200	355
Camping fees	83	1.4	27	36
Restaurants & bars	766	14.3	268	381
Admissions & fees	148	2.8	56	86
Local transportation	130	5.6	44	55
Grocery stores	94	1.6	49	79
Gas stations	152	2.6	77	126
Other retail	202	4.0	104	170
Wholesale Trade	97	1.1	29	67
<u>Local Production of goods</u>	<u>12</u>	<u>0.0</u>	<u>1</u>	<u>2</u>
Total Direct Effects	2,341	41.5	854	1,356
<u>Secondary Effects</u>	<u>810</u>	<u>5.8</u>	<u>236</u>	<u>444</u>
Total Effects	3,151	47.3	1,090	1,800
Multiplier	1.35	1.14	1.28	1.33

## Jefferson Patterson Park and Museum

Location: St. Leonard, MD.

Region: Calvert, Charles, Prince George's and St. Mary counties, MD.

Population: 1.1 million

**Table 1. Visitors and Spending Outside the Museum**

	Local Day Trip	NL Day Trip	School Groups	OVN	Total
Visitors	27,252	17,423	4,025	4,964	53,664
Party Days/Nights	10,901	6,969	4,025	1,986	23,880
Pct of Party Days/Nights	46%	29%	17%	8%	100%
Avg. Spending (\$ per party day)	39.00	57.96	15.00	144.55	53.12
Total spending (\$000's)	425.1	403.9	60.4	287.0	1,176.4

**Table 2. Economic Impacts of Visitor Spending Outside the Museum**

Sector/Spending category	Sales \$000's	Jobs	Labor Income \$000's	Value Added \$000's
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	67	0.6	21	38
Camping fees	8	0.1	3	4
Restaurants & bars	385	6.7	141	200
Admissions & fees	66	1.0	32	48
Other auto	24	0.3	14	17
Local transportation	8	0.2	4	5
Grocery stores	21	0.3	11	18
Gas stations	57	0.9	29	48
Other retail	138	2.9	71	116
Wholesale Trade	39	0.4	12	27
<u>Local Production of goods</u>	<u>21</u>	<u>0.0</u>	<u>4</u>	<u>6</u>
<b>Total Direct Effects</b>	<b>834</b>	<b>13.4</b>	<b>342</b>	<b>527</b>
<u>Secondary Effects</u>	<u>321</u>	<u>2.1</u>	<u>104</u>	<u>195</u>
<b>Total Effects</b>	<b>1,155</b>	<b>15.5</b>	<b>446</b>	<b>722</b>
Multiplier	1.38	1.16	1.30	1.37

## Leesylvania State Park

Location: On Potomac River south of Washington, DC. Prince William County, VA.  
 Region: Arlington, Prince William and Stafford counties; Manassas, Manassas Park cities and Washington D.C.  
 Population: 1.3 million

**Table 1. Visitors and Spending**

	Local Day Trip	NL Day Trip	Camp	Cabin	OVN	Total
Visits	282,887	53,041	0	0	17,680	353,609
Party size	3.0	3.0	3.2	3.6	3.0	3.0
Party Days/Nights	94,296	17,680	0	0	5,893	117,870
Pct of Party Days/Nights	80%	15%	0%	0%	5%	100%
Avg. spending (\$ per party per day)	45.55	77.24	99.63	178.18	144.55	55.25
Total spending (\$000's)	4,295	1,366	0	0	852	6,513

**Table 2. Economic Impacts of Visitor Spending**

Sector/Spending category	Sales \$000's	Jobs	Labor Income \$000's	Value Added \$000's
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	198	1	64	115
Camping fees	23	0	13	12
Restaurants & bars	1,671	23	722	985
Admissions & fees	508	8	231	353
Other auto	103	1	59	72
Local transportation	23	1	11	14
Grocery stores	263	4	139	226
Gas stations	389	5	198	324
Other retail	532	10	281	457
Wholesale Trade	231	2	70	159
<u>Local Production of goods</u>	<u>103</u>	<u>0</u>	<u>5</u>	<u>13</u>
<b>Total Direct Effects</b>	<b>4,043</b>	<b>56</b>	<b>1,793</b>	<b>2,731</b>
<u>Secondary Effects</u>	<u>1,866</u>	<u>9</u>	<u>669</u>	<u>1,162</u>
<b>Total Effects</b>	<b>5,909</b>	<b>65</b>	<b>2,462</b>	<b>3,893</b>
Multiplier	1.46	1.15	1.37	1.43

## Menokin

Location: Northern Neck of VA, Warsaw, VA.

Region: Lancaster, Northumberland, Richmond, and Westmoreland counties, VA.

Population: 51,000

**Table 1. Visitors and Spending Outside the Museum**

	Local Day Trip	NL Day Trip	School Groups	OVN	Total
Visitors	300	75	2,000	125	2,500
Party Days/Nights	120	30	2,000	50	2,200
Pct of Party Days/Nights	5%	1%	91%	2%	100%
Avg. Spending (\$ per party day)	39.00	57.96	15.00	144.55	25.65
Total spending (\$000's)	4.7	1.7	30.0	7.2	43.6

**Table 2. Economic Impacts of Visitor Spending Outside the Museum**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Labor Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	1.7	0.0	0.5	0.9
Camping fees	0.2	0.0	0.1	0.1
Restaurants & bars	17.8	0.4	5.9	8.4
Admissions & fees	0.8	0.0	0.3	0.5
Other auto	0.2	0.0	0.1	0.1
Local transportation	0.2	0.0	0.0	0.0
Grocery stores	0.3	0.0	0.2	0.2
Gas stations	0.6	0.0	0.3	0.5
Other retail	9.4	0.2	4.8	7.7
Wholesale Trade	0.8	0.0	0.2	0.5
<u>Local Production of goods</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<b>Total Direct Effects</b>	<b>32.0</b>	<b>0.6</b>	<b>12.4</b>	<b>18.9</b>
<u>Secondary Effects</u>	<u>7.8</u>	<u>0.1</u>	<u>2.3</u>	<u>4.4</u>
<b>Total Effects</b>	<b>39.8</b>	<b>0.7</b>	<b>14.7</b>	<b>23.3</b>
Multiplier	1.24	1.12	1.19	1.23

## Patapsco Valley State Park

Location: Anne Arundel County, in Baltimore metro area south of Catonsville, MD.

Region: Anne Arundel, Baltimore, and Howard counties; Baltimore City, MD.

Population: 2.2 million

**Table 1. Visitors and Spending**

	Local Day Trip	NL Day Trip	Camp	Cabin	OVN	Total
Visits	611,307	114,620	25,713	1,379	38,207	791,226
Party size	3.0	3.0	4.0	4.0	3.0	3.0
Party Days/Nights	203,769	38,207	6,428	345	12,736	261,484
Pct of Party Days/Nights	78%	15%	2%	0%	5%	100%
Avg. spending (\$ per party per day)	38.89	74.32	99.63	178.18	144.55	50.89
Total spending (\$000's)	7,924	2,840	640	61	1,841	13,307

**Table 2. Economic Impacts of Visitor Spending**

Sector/Spending category	Sales \$000's	Jobs	Labor Income \$000's	Value Added \$000's
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	463	4	149	264
Camping fees	220	2	108	129
Restaurants & bars	3,677	57	1,434	2,039
Admissions & fees	750	13	326	501
Other auto	18	0	10	12
Local transportation	49	1	26	32
Grocery stores	548	9	288	468
Gas stations	718	10	365	598
Other retail	1,217	24	632	1,030
Wholesale Trade	869	8	263	600
<u>Local Production of goods</u>	<u>903</u>	<u>2</u>	<u>126</u>	<u>226</u>
<b>Total Direct Effects</b>	<b>9,432</b>	<b>130</b>	<b>3,727</b>	<b>5,898</b>
<u>Secondary Effects</u>	<u>7,766</u>	<u>48</u>	<u>2,650</u>	<u>4,521</u>
<b>Total Effects</b>	<b>17,198</b>	<b>178</b>	<b>6,377</b>	<b>10,419</b>
Multiplier	1.82	1.37	1.71	1.77

## Piscataway Park

Location: On the Potomac River south of Washington, DC. Prince George's County, MD.

Region: Anne Arundel and Prince George's counties, MD

Population: 1.3 million

**Table 1. Visitors and Spending**

	Local Day Trip	NL Day Trip	School	OVN	Total
Visits	170,320	48,663	5,000	24,331	248,314
Party size	2.5	2.5	1.0	2.5	2.5
Party Days/Nights	68,128	19,465	5,000	9,732	102,326
Avg. spending (\$ per party per night)	38.89	74.32	10	144.55	54.27
Total spending (\$000's)	2,649	1,447	50	1,407	5,553

**Table 2. Economic Impacts of Visitor Spending**

Sector/Spending category	Sales \$000's	Jobs	Labor Income \$000's	Value Added \$000's
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	327	3	104	187
Camping fees	37	0	15	20
Restaurants & bars	1,533	24	601	854
Admissions & fees	315	6	129	198
Other auto	14	0	8	10
Local transportation	37	1	19	23
Grocery stores	215	3	114	186
Gas stations	292	4	148	243
Other retail	509	10	265	433
Wholesale Trade	237	2	72	164
<u>Local Production of goods</u>	<u>69</u>	<u>0</u>	<u>10</u>	<u>17</u>
<b>Total Direct Effects</b>	<b>3,585</b>	<b>52</b>	<b>1,485</b>	<b>2,333</b>
<u>Secondary Effects</u>	<u>1,740</u>	<u>10</u>	<u>579</u>	<u>1,067</u>
<b>Total Effects</b>	<b>5,325</b>	<b>62</b>	<b>2,064</b>	<b>3,400</b>
Multiplier	1.49	1.19	1.39	1.46

## Sandy Point State Park

Location: Western end of Bay Bridge. Anne Arundel County, MD.

Region: Anne Arundel County, MD

Population: 513,000

**Table 1. Visitors and Spending**

	Local Day Trip	NL Day Trip	Camp	Cabin	OVN	Total
Visits	306,621	229,966	2,674	0	229,966	769,226
Party size	3.0	3.0	4.0	4.0	3.0	3.0
Party Days/Nights	102,207	76,655	669	0	76,655	256,186
Pct of Party Days/Nights	40%	30%	0%	0%	30%	100%
Avg. spending (\$ per party per day)	38.89	74.32	99.63	178.18	144.55	81.27
Total spending (\$000's)	3,975	5,697	67	0	11,081	20,819

**Table 2. Economic Impacts of Visitor Spending**

Sector/Spending category	Sales \$000's	Jobs	Labor Income \$000's	Value Added \$000's
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	2,574	21	830	1,469
Camping fees	312	4	134	160
Restaurants & bars	5,085	77	2,015	2,865
Admissions & fees	1,161	18	556	851
Other auto	108	1	60	73
Local transportation	293	4	163	202
Grocery stores	727	11	382	623
Gas stations	1,015	16	514	845
Other retail	1,765	33	923	1,505
Wholesale Trade	1,154	12	348	796
<u>Local Production of goods</u>	<u>1,164</u>	<u>1</u>	<u>67</u>	<u>157</u>
<b>Total Direct Effects</b>	<b>15,357</b>	<b>198</b>	<b>5,992</b>	<b>9,545</b>
<u>Secondary Effects</u>	<u>7,867</u>	<u>50</u>	<u>2,580</u>	<u>4,556</u>
<b>Total Effects</b>	<b>23,224</b>	<b>248</b>	<b>8,572</b>	<b>14,101</b>
Multiplier	1.51	1.25	1.43	1.48

## Stratford Hall

Location: Northern Neck of VA, Westmoreland County, VA.  
 Region: Westmoreland, Stafford, Richmond, King George, Essex, Caroline counties;  
 Fredericksburg City, VA.  
 Population: 233,000

**Table 1. Visitors and Spending Outside the Museum**

	Local Day Trip	NL Day Trip	School Groups	OVN	Total
Visitors	4,236	8,471	1,531	8,471	22,709
Party Days/Nights	1,694	3,388	1,531	3,388	10,002
Pct of Party Days/Nights	17%	34%	15%	34%	100%
Avg. Spending (\$ per party day)	39.00	57.96	15.00	144.55	83.83
Total spending (\$000's)	66.1	196.4	23.0	489.8	775.2

**Table 2. Economic Impacts of Visitor Spending Outside the Museum**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Labor Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	114	1.4	35	61
Camping fees	13	0.2	4	6
Restaurants & bars	195	3.7	68	97
Admissions & fees	41	0.8	15	23
Other auto	12	0.2	7	8
Local transportation	13	0.6	4	5
Grocery stores	19	0.3	10	16
Gas stations	35	0.6	18	29
Other retail	77	1.5	40	64
Wholesale Trade	27	0.3	8	18
<u>Local Production of goods</u>	<u>2</u>	<u>0.0</u>	<u>0</u>	<u>0</u>
<b>Total Direct Effects</b>	<b>547</b>	<b>9.6</b>	<b>209</b>	<b>329</b>
<u>Secondary Effects</u>	<u>190</u>	<u>1.3</u>	<u>55</u>	<u>105</u>
<b>Total Effects</b>	<b>737</b>	<b>10.9</b>	<b>264</b>	<b>434</b>
Multiplier	1.35	1.14	1.27	1.32

## APPENDIX C: Selected Literature

**Virginia Tourism:** U.S. Travel Association. 2010. The Economic Impact of Domestic Travel Expenditures on Virginia Counties 2009. Washington D.C.

The U.S. Travel Association estimated tourism spending and associated direct employment, payroll, and tax revenue for Virginia counties and independent cities for 2009. The report covers spending by U.S. residents on trips of 50 miles or more away from home. Statewide, USTA estimates tourists spent \$17.7 billion in Virginia in 2009, supporting 204,500 private sector jobs in Virginia. This represents 5.6% of non-agricultural employment in the state. One job was supported for every \$86,586 in spending. Tax revenues from tourist spending in 2009 were \$2.5 billion. On average each travel dollar spent in Virginia produced 13.9 cents in federal (6.9 cents), state (4.1 cents) and local taxes (2.9 cents). Tourist spending was divided 29.2% to food service, 20.0% to auto transportation, 19.8% lodging, 13.6% public transportation (primarily air travel), 7.6% entertainment and recreation, and 9.7% retail trade. Estimates of spending are made using US Travel's Travel Economic Impact Model (TEIM). Estimates are first made at the state level and then allocated to counties based upon county level business activity. The TEIM model does not estimate secondary effects. Impacts reported at the county level are travel expenditures, payroll, employment, and state and local tax receipts.

<http://www.vatc.org/research/economicimpact.asp>

**Maryland Tourism:** Global Insight. 2010. 2009 Tourism Satellite Account for the State of Maryland and its Counties. Powerpoint presentation by Shane Norton.

Economic impacts of tourism in Maryland were estimated in 2009 by Global Insight (2010) using Tourism Satellite Accounting (TSA) methods. Global Insight estimated tourist spending in Maryland at \$14.32 billion in 2009. The impact on the state was \$9.14 billion in value added of which \$6.14 billion is direct value added and \$2.73 billion is from secondary effects. Tourist spending supported 134,662 direct jobs (5.3% of non-farm employment, 6.6% of private sector employment) and 36,166 indirect jobs (does not include induced effects). Direct wages and salaries were \$3.81 billion. Tax revenues were \$3.37 billion in federal taxes, \$1.6 billion in state and local taxes. Only 24% of the visitor spending was by Maryland residents, 73% was by visitors from other states and 2% was international travelers. Travel spending was broken down as 26% transportation, 25% food, 18% accommodations, 13% entertainment, and 18% shopping. The \$6.14 billion in direct value added is divided 26% to food services, 18% hotels and motels, 18% automotive equipment rental and leasing, 14% amusement, gambling and recreation. In terms of tourism-related direct employment, the three largest industries are food services (43%), amusements (16%) and hotels (14%). Visitor spending is reported at the county level in five categories, in addition to estimates of impacts in terms of employment, wages and taxes.

[http://www.mdifun.org/AboutMDTourism/Documents/2008\\_Tourism\\_Economic\\_Impact.pdf](http://www.mdifun.org/AboutMDTourism/Documents/2008_Tourism_Economic_Impact.pdf)

**Pennsylvania Tourism:** Tourism Economics. 2010. The Economic Impact of Visitor Spending and the Travel and Tourism Industry in Pennsylvania. Wayne, PA: Tourism Economics.

Visitor spending in Pennsylvania was estimated at \$31.2 billion in 2009 (Tourism Economics 2010). Spending estimates are based on national travel surveys of Longwoods International.

Leisure travel accounted for \$26 billion in spending. The direct economic effects were 278,233 jobs and \$12.8 billion in value added, accounting for 2.2% of state GDP. Including indirect and induced effects, the total impact was \$25.8 billion in value added constituting 4.5% of the state economy. Secondary effects were estimated at the state level using IMPLAN. Overnight leisure trips accounted for \$12.3 billion in spending with overnight visitors averaging \$232 per trip (per visitor). Overnight spending was divided 27% transportation, 24% food and beverage, 21% lodging, 18% shopping and 13% recreation. Leisure day trips accounted for \$10.5 billion in spending with per visitor spending averaging \$100. Day trip spending was divided fairly evenly between transportation, food and beverage, shopping and recreation. Per person per day spending varied regionally from \$70 to \$155, presumably due to regional differences in the mix of day trips vs overnight trips, business vs leisure travelers, and prices. This report provides breakdowns of leisure and business travel and day vs overnight trips as well as regional comparisons. Direct effects are reported by region and county.  
<http://www.pacvb.org/membersonly/files/TourismImpact.pdf>

**2009 Virginia Beach Tourism Economic Impact Study:** Yochum, Gilbert R. and Agarwal, Vinod B. 2010. 2009 Virginia Beach Tourism Economic Impact Study. Norfolk, VA: Old Dominion University Research Foundation.

Yokum and Agarwal estimated the economic impact of visitors to Virginia Beach in 2009. They estimate that visitors to Virginia Beach in 2009 spent \$816 million generating 9,000 direct jobs, \$186 million in direct earnings and \$77.9 million in local taxes and fees. Secondary effects include 1,400 indirect jobs and 1,787 induced jobs for a total private sector employment effect of 12,143 jobs. Each \$1 million of additional visitor spending in Virginia Beach creates 15 new jobs, \$374,000 in earnings and \$1.59 million in added sales. Overnight visitors are divided 60.3% to those staying in hotels, 30.6 % for stays with friends or relatives, 4.7% for campgrounds and 4.4 % cottages. Visitors staying in hotels account for 69.6% of all spending, while day visitors from outside the MSA account for only 3.3%.  
[http://bpa.odu.edu/forecasting/2008\\_vbecon\\_impact.pdf](http://bpa.odu.edu/forecasting/2008_vbecon_impact.pdf)

**Maryland State Park Visitor Study:** Dougherty, Rebecca. 2010. 2010 Maryland State Park Economic Impact and Visitor Study. Maryland Office of Tourism Development.

The Maryland Office of Tourism Development (2010) estimated the economic impact of spending by Maryland State Park visitors in 2010. According to the report, Maryland State Park visitors spent \$567 million on trips to MD state parks in 2010, supporting over 10,000 jobs. Seventy percent of the spending and impacts occur in neighboring communities within a 20 minute drive of a state park. Average spending outside the park per visitor group was \$111 for day visitors and \$213 for overnight visitors. Visitor spending averages are based on a survey of 1,701 day users and 1,638 overnight visitors. Day users were sampled at the parks and asked to either take a mailback questionnaire or to provide an e-mail address to receive an electronic survey. Overnight visitors were sampled from the overnight registration system database. Total visitor spending was estimated by applying the spending averages to the numbers of day and overnight visitors in each of four regions (western, central, eastern and southern). Sample sizes were not large enough to make estimates for individual parks. Impacts of the spending, including indirect and induced effects, were estimated using the IMPLAN system with 2008 economic

data. Of the 10,000 jobs supported by visitor spending, 8,000 are in businesses selling directly to visitors (direct effects) and 2,000 stem from indirect or induced effects as the spending circulates through the state economy. In addition to spending information, the survey gathered demographics, party and trip characteristics, activities, information sources, and evaluations of their experience at the park. The park visit was the main reason for the trip for 63% of day users and 80% of overnight visitors. About a third of day visitors were on overnight trips staying outside the park. Day visitors on overnight trips tended to be on extended trips (34% lasting 5 or more days), while those staying overnight in the park were mostly shorter stays (43% spent two nights). Overnight visitors came in larger groups averaging 3.8 people, while the median group size for day visitors was 3.0. Seventy-one percent of day visitors and 51% of overnight visitors were MD residents. <http://www.dnr.state.md.us/publiclands/pdfs/economicimpactstudy2010.pdf>

**Pennsylvania State Park Study:** Mowen, A., D.J. Stynes, et. al. 2010. The Economic Significance and Impact of Pennsylvania State Parks: An Assessment of Visitor Spending on the State and Regional Economy. Dept. of Recreation, Park and Tourism Management. Penn State University. Report submitted to Dept. of Conservation and Natural Resources, Commonwealth of Pennsylvania.

Economic impacts of Pennsylvania State Park visitors were estimated for 2008 using the MGM2 model. Visitors were divided into nine segments covering local, in-state and out-of-state day and overnight visitors. Estimates were made for each park and system-wide using state park visit and overnight stay data. Spending profiles were adapted from other state park studies. Spending averages for day visitors on a per party day basis were \$35 for local visitors and \$70 for non-local PA residents and \$74 for non-resident. Spending averages for overnight visitors ranged from \$85 for resident campers to \$189 for non-resident cabin users. These averages were adjusted by as much as 25% for each park based on local spending opportunities and prices. A total of 33.6 million state park visitors spent \$738 million on trips in 2008. The direct contribution to the state economy was 8,439 jobs, \$174 million in labor income and \$258 million value added. Including secondary effects, the total impact was over ten thousand jobs and \$465 million in value added. The statewide sales multiplier associated with visitor spending was 1.76. [http://www.dcnr.state.pa.us/ucmprd1/groups/public/documents/document/dcnr\\_007019.pdf](http://www.dcnr.state.pa.us/ucmprd1/groups/public/documents/document/dcnr_007019.pdf)

**Colonial National Historical Park.** Stynes, D.J. and Sun, Y. 2003a. Impacts of Visitor Spending on the Local Economy: Colonial National Historical Park, 2001. Department of Park, Recreation and Tourism Resources, Michigan State University.

Colonial National Historical Park hosted 3.28 million recreation visits in 2001. Visitors spent \$310 million within an hour's drive of the park. A typical visitor party spends three nights in the area and \$400-\$800 on lodging, meals, admissions and souvenirs. Since visiting the park was not the primary reason for most of the trips, only \$40 million of the spending was attributed to the park. A half day's spending was counted for most park visitors and one night of spending was counted for 10% of the visitors staying overnight in the area. The impact of the \$40 million in spending was \$17.8 million in labor income supporting 1,122 jobs. [http://35.8.125.11/mgm2\\_new/parks/COLO.pdf](http://35.8.125.11/mgm2_new/parks/COLO.pdf)

**Chesapeake and Ohio Canal National Historical Park.** Stynes, D.J. and Sun, Y. 2005. Impacts of Visitor Spending on the Local Economy: Chesapeake and Ohio Canal National Historical Park, 2003.

Chesapeake and Ohio Canal National Historical Park hosted 2.8 million visitors in 2003. On average, park visitors spent \$31 per party per day in the local area. Park visitors spent a total of \$46.9 million within a half-hour drive of the park of which \$30.2 million was attributed to the park visit. The impact of this spending including secondary effects was \$15 million in labor income supporting 741 jobs in the area. [http://35.8.125.11/mgm2\\_new/parks/CHOH.pdf](http://35.8.125.11/mgm2_new/parks/CHOH.pdf)

**George Washington Birthplace National Monument.** Stynes, D.J. 2006. Impacts of Visitor Spending on the Local Economy: George Washington Birthplace National Monument, 2004.

George Washington Birthplace NM hosted 74,525 visitors in 2004. Based on a visitor survey in 2004, 14% are local residents, 53% are non-local visitors on day trips, and 33% are staying overnight in the area. A third of overnight visitors were staying in motels, 25% were camping and 42% stayed with friends or relatives. The average visitor party spent \$93 in the local area; \$40 for local residents and \$42 for non-local day trips. Overnight visitors spent \$199 per night if staying in motels and \$83 if camping. Total visitor spending within 50 miles was \$2.6 million of which \$1.35 million was attributed to the park visit. The impact on the local region was 26 jobs and \$464,000 in labor income. The park itself employed 24 people with a total payroll of \$1.32 million. [http://35.8.125.11/mgm2\\_new/parks/GEWA2004.pdf](http://35.8.125.11/mgm2_new/parks/GEWA2004.pdf)

**Harpers Ferry National Historical Park.** Stynes, D.J. 2007. Impacts of Visitor Spending on the Local Economy: Harpers Ferry National Historical Park, 2005.

Harpers Ferry National Historical Park hosted 241,807 visits in 2005. Twenty percent of visitors were local residents, 42% were non-locals on day trips and 38% were on overnight trips. Two-thirds of overnight visitors stayed in motels. Average spending per party was \$127. On a per night basis visitors in motels spent \$204 per party, campers spent \$111, and other overnight visitors spent \$18. Total visitor spending was \$8.6 million with 32% for lodging, 27% for restaurant meals, and 17% for souvenirs. Half of the non-local visitors indicated the park visit was the primary reason for the trip. Spending attributed to the park visit was \$5.9 million supporting 128 jobs and \$3.1 million in labor income. The park itself employed 103 people in FY2005 with a payroll of \$5.5 million. Including secondary effects, the local impact of the park payroll was 153 jobs and \$6.7 million in labor income. [http://35.8.125.11/mgm2\\_new/parks/HAFE2005.pdf](http://35.8.125.11/mgm2_new/parks/HAFE2005.pdf)

**Monocacy National Battlefield.** Stynes, D.J. 2008. Impacts of Visitor Spending on the Local Economy: Monocacy National Battlefield, 2006.

Monocacy National Battlefield hosted 18,579 visitors in 2006. A third of visitors were local residents, 26% are visitors from outside the area who did not stay overnight in the region, and 40% were staying overnight in the area. The average visitor party spent \$159 in the local area. Local visitors spent \$29 per party while nonlocal visitors on day trips spent \$40. Overnight visitors spent \$212 per night if staying in motels, \$66 if in campgrounds, and \$25 if staying in

private homes. Total spending in 2006 was \$1.25 million with \$759,000 attributed to the park visit. The local economic impact of this spending was \$438,000 in labor income supporting 10 jobs. [http://35.8.125.11/mgm2\\_new/parks/MONO2006.pdf](http://35.8.125.11/mgm2_new/parks/MONO2006.pdf)

**Michigan Museum Study:** Stynes, D.J., Vander Stoep, G.V., and Sun, Y. 2004. Economic Impacts of Michigan Museums. Department of Community, Agriculture and Recreation Resource Studies, Michigan State University.

A 2002 Michigan study included surveys of museum visitors as well as museum administrators. Visitor spending and impacts were estimated based on the visitor survey. The administrator survey gathered both visit count data used in the estimation of visitor spending impacts as well as financial and employment data to estimate the contribution of museum operations. The visitor survey covered 35 cooperating museums that administered short on-site surveys to random samples of visitors. The on-site survey obtained information to estimate segment mixes, party sizes, and lengths of stay. Respondents were sent a longer follow-up survey gathering spending, evaluation and other data. Results are based on 6,417 on-site surveys and 1,280 mailback follow-ups. Forty-one percent of visitors were on overnight trips and 67% of visitors made the trip primarily to visit the museum where they were contacted. Forty-four percent of visitors were local residents (live within 30 miles) on day trips, 15% were non-locals on day trips, 24% were staying in hotels in the area, and 17% were on overnight trips staying in other accommodations (camping or private homes). The segment mixes varied considerably between northern and southern Michigan. Local day trippers averaged \$49 per party in spending within 30 miles, \$30 outside the museum and \$19 in the museum. Non-local day trip spending was \$70 with \$25 spent inside the museum. Overnight visitors spent \$237 per party per night if staying in a hotel and \$104 if staying in other accommodations. The average party size was around 3.0 for all segments. Overnight visitors spent an average of 2.4 night if in hotels and 3.4 otherwise. Extrapolating to roughly 20 million museum visits statewide in 2001, total museum visitor spending in local areas was estimated at \$733 million. This spending directly supported 14,250 jobs in the state providing \$253 million in wage and salary income. Secondary effects added another 4,600 jobs statewide. The study examined several approaches to isolating how much of the spending to attribute to the museums. Spending impacts ranged from \$84 million counting only spending within the museums to \$733 million counting all spending within a 30 miles radius of each museum. An estimate of \$370 million was obtained by counting all spending in the museums, all spending within 30 miles if the museum visit was the primary trip purpose, and 25% of spending in local communities for non-primary purpose trips. Extrapolating operations impacts from 128 museums providing financial data to 371 museums statewide, the study estimated total museum operating expenses in 2001 at \$265 million with about half going to payrolls. Michigan museums provided 7,600 paid jobs with a total payroll of \$130 million. Another 2,000 jobs were supported statewide through secondary effects of the museum payroll and operating expenses. The study also estimated impacts for a typical museum based on 25,000 visitors and an operating budget of \$700,000 of which \$200,000 comes from visitor spending in the museum. If in a metropolitan area, the impact would be 68 jobs, 51 from visitor spending and 17 from museum operations. Direct effects are 56 jobs, 14 in the museum and 42 in the community. For museums in non-metro regions, secondary effects would be smaller. [http:// 35.8.125.11/mgm2\\_new/econ/miteim/MIMuseum\\_Report.pdf](http://35.8.125.11/mgm2_new/econ/miteim/MIMuseum_Report.pdf)

**Chesapeake Bay Maritime Museum, 2007:** Center for Creative Community Development. Brief Summary of the Economic Impact of the Chesapeake Bay Maritime Museum in St. Michael's, Maryland. Williams College.

The Center for Creative Community Development estimated impacts of the Chesapeake Bay Maritime Museum in 2007. They estimate impacts of museum operations (based on an annual budget of \$3.35 million) and visitor spending (based on 61,000 visitors). Spending averages of \$19 per person for local residents and \$40 for non-residents were taken from a national survey of visitors to arts and cultural organizations. Our visitor spending figures in this report for the museum are based on similar spending averages, but a lower number of visitors in 2010. Including secondary effects, total job impacts were estimated at 54 jobs from visitor spending and 73 jobs from museum operations. The Williams College estimates of budgetary impacts are likely inflated as the study did not appear to isolate the portion of budgetary expenditures within the local area (Talbot county) and a rather high multiplier was used for secondary effects (1.8). Our estimates of the museum's payroll impacts do not include secondary impacts of museum operations or any budgetary expenses beyond the payroll. The IMPLAN sales multipliers for the county for 2008 are in the 1.2-1.4 range and those for the broader 4 county region that we use as the impact area are also in this range. Job estimates in the 2007 study are likely based on an older set of job to sales ratios. Job to sales ratios have dropped substantially in the past few years. The study illustrates some of the difficulties of comparing overall impact estimates without a careful examination of the assumptions and input data.

<http://web.williams.edu/Economics/ArtsEcon/library/pdfs/ChesapeakeBaySummary.pdf>

**Virginia Museum of Fine Arts Expansion:** Chmura Economics and Analytics. 2010. Economic Impact of the Expansion of the Virginia Fine Arts Museum. Richmond, VA: Chmura Economics and Analytics

The Virginia Museum of Fine Arts Foundation commissioned a study of the economic impacts of a \$150 million dollar expansion project that began in 2005. Chmura Economics and Analytics estimated impacts of the increased sales within the museum as well as impacts of visitor spending outside the museum. It is estimated that the expansion will attract an additional 282,794 visitors to the Richmond location and 260,257 visitors to other sites around the state. Visitor spending was estimated in a 1997 study during the Faberge exhibit at the museum. Forty-three percent of visitors to that exhibit were from outside the Richmond MSA who came to the area to visit the museum. The average out-of-region overnight visitor spent \$172, while day trip visitors spent \$41. The overall average spending including locals was \$29 per day for all visitors. Adjusted to 2010, the average spending per visitor was \$41 of which \$16.7 was spent inside the museum and \$24.5 was spent outside the museum. Spending outside the museum is divided \$6.1 food, \$8.2 shopping, \$9.0 lodging, and \$1.1 recreation. Total additional visitor spending in the Richmond MSA is \$6.9 million annually. This supports 111 jobs. Including indirect and induced effects, the total impact on the Richmond MSA is \$12 million in sales and 149 jobs. In addition, the expansion will generate an additional 74 jobs in the museum in 2010 and an additional \$7.4 million in annual sales. The study uses the same approach as the MGM2 model. Spending averages from a survey are applied to the estimated change in visitors to calculate total spending. This, in turn, is applied to an input-output model (IMPLAN) for the region to estimate impacts. The study illustrates how to estimate impacts of an action that results in an increase in visitors.

[http://www.vmfafa.state.va.us/Press\\_Room/Expansion/Economic\\_Impact\\_of\\_the\\_Expansion\\_of\\_the\\_Virginia\\_Museum\\_of\\_Fine\\_Arts.aspx](http://www.vmfafa.state.va.us/Press_Room/Expansion/Economic_Impact_of_the_Expansion_of_the_Virginia_Museum_of_Fine_Arts.aspx)

**National Heritage Areas:** Stynes, D. J. and Sun, Y. 2004. Summary Results of Seven National Heritage Area Visitor Surveys. East Lansing, MI: Michigan State University.

Stynes and Sun estimated economic impacts for seven national heritage areas in 2003. Survey procedures documented in a general guidebook (Stynes and Sun 2003) were administered by the heritage areas between June 2003 and 2004. Estimates of visitor spending and economic impacts were estimated for each area along with visitor demographics, trip patterns, and visitor awareness of the heritage area. Fifty-seven percent of visitors reported that one or more of the attractions in the heritage area were the primary destination of their trip. Twenty-two percent of the combined sample of heritage area visitors were local residents on day trips, 29% were visitors on day trips from outside the local area, 34% were overnight visitors staying at hotels/bed & breakfast, and 14% were overnight visitors staying with friends and relatives or camping. However, the mix of visitor trip types varied widely across the seven heritage areas. Overnight visitor length of stay was 2.2 for hotel and 3.2 for other overnight. Party size was 2.6 for overnight trips and 2.8 for day trips. Local day visitors averaged \$56 in spending per party while non-local day visitors spent \$85. Locals spent relatively less on restaurants and local transportation compared to non-locals. Hotel stayers spent \$523 per party on the trip or \$227 per night. Other overnight visitors spent \$234 per party per trip or \$75 per party on a per night basis. Spending averages vary somewhat across heritage areas based on local prices and spending opportunities with typically higher spending in metro areas or regions with extensive tourism development. Spending by heritage area visitors is slightly higher than that of national park visitors, but similar to spending of tourists more generally. Compared to park visitors, heritage visitors tend to spend more on admissions, shopping and restaurant meals.

[http:// 35.8.125.11/mgm2\\_new/ Anha/NHASummary.pdf](http://35.8.125.11/mgm2_new/Anha/NHASummary.pdf)

**Michigan Autoheritage NHA museums:** Vander Stoep, G.V. D.J. Stynes, and Y.Sun. 2004. Visitor Awareness and Economic Impacts of MotorCities Hub Sites. East Lansing, MI : Department of Community, Agriculture, Recreation and Resource Studies, Michigan State University.

A companion study to the Michigan museum study focused on eight museums within the MotorCities National Heritage Area around Detroit. Results are based on 1,049 on-site survey responses and 244 mailback surveys. Two-thirds of visitors made the trip primarily to visit the museums. The mix of visitors varied considerably across the eight museums. At the popular Henry Ford Museum/Greenfield Village site, 42% of visitors were staying in hotels, 20% other overnight accommodations (mostly stays with friends or relatives), 28% were local residents and 10% were non-locals on day trips. At lesser-known sites like Nankin Mills 87% of visitors were local. Across the eight museums, 39% of visitors were local, 13% non-local day trips, 38% hotel, and 10% other overnight. The average party size was 2.7, length of stay was 2.3 nights for hotel, 3.0 for other overnight. The spending average per party per trip ranged from \$53 for locals to \$72 for non-local day trips to \$591 for hotel stays and \$285 for other overnight visitors. The overall average was \$283 per party per trip of which \$43 was spent inside the museum split about equally between gift shops and admissions. On a per night basis spending was \$252 for the

hotel segment and \$93 for other overnight visitors. Across all visitors the average was \$135 per party per day/night. Total spending was \$123 million in 2002 including \$19 million inside the museums. Impacts on the region were 2,748 jobs, \$67 million in labor income and \$104 million in value added. Of the 2,107 direct jobs, 683 are in hotels, 657 in restaurants, 348 in museums and other amusements, and 302 in retail trade. The impacts of 10,000 additional trips or roughly 25,000 visitors with the current mix of visitors at these museums would be \$3.1 million in spending, 69 jobs and \$1.7 million in labor income. Ten thousand additional trips involving hotel stays would generate \$5.9 million in spending 132 jobs, and \$3.3 million labor income. [http://35.8.125.11/mgm2\\_new/Anha/Motorcities.pdf](http://35.8.125.11/mgm2_new/Anha/Motorcities.pdf)

**Hampton VA boating study:** Murray, Thomas, Kirkley, James, and Lipton, Doug. 2009. Assessment of the Economic Impact of Recreational Boating in the City of Hampton. VIMS Marine Resource Report # 2009-2. Virginia Sea Grant Program: Gloucester Point, VA.

Hampton, VA is home to more than 4,000 recreational boats including 1,400 in-water slips and 620 dry stack spaces. A boater survey in 2007 covered trip and annual craft-related spending of Hampton resident and non-resident boaters. Nonresident boaters took an average of 43 trips to Hampton in 2007 staying on average 2 days. According to the study resident boaters in Hampton spent \$25 million on boating in Hampton in 2007, while non-resident boaters spent \$26 million. This spending created a direct impact of \$37.1 million in sales and 475 FTE jobs. Including secondary effects, resident and non-resident boaters generated \$55 million in sales, \$22.2 million in income and 698 jobs. [http://web.vims.edu/adv/econ/MRR2009\\_2.pdf](http://web.vims.edu/adv/econ/MRR2009_2.pdf)

**Northern Forest Canoe Trail:** Pollack, N., Chase, L.C., Ginger, C. and Kolodinsky, J. 2007. The Northern Forest Canoe Trail: Economic Impacts and Implications for Sustainable Community Development. Vermont Tourism Data Center, University of Vermont.

Pollack conducted a fairly comprehensive study of the Northern Forest Canoe Trail (NFCT). The 740 mile trail crosses the states of New York, Vermont, New Hampshire and Maine. Based on visitor surveys, an estimated 90,000 paddlers used the trail in 2006, spending \$8.8 million in the local area for an overall economic impact of \$12 million in total sales supporting 283 jobs. The study breaks visitors into segments similar to those in the MGM2 model. Thirty-five percent of visitors were on day trips and half of these were local residents living within 25 miles. Overnight visitors were divided between canoe campers, and those using developed campgrounds, hotels/cabins, or seasonal homes. Canoeing or kayaking was an activity for almost half of visitors staying overnight in area lodging establishments. Yet only 18% of visitors cited the NFCT as a reason for their trip. The average paddler spent \$39 per person per day within 25 miles of the waterway. Spending varied from \$5 per person for local day trips, \$46 for non-local day trips. Groups staying overnight averaged \$750 per trip if part of a guided camping trip, \$771 if staying in hotels, \$332 if staying in developed campgrounds, and \$203 if camping in undeveloped areas along the NFCT. Twelve percent of paddlers reported using a guide or outfitter. The overall group spending average per trip was \$400 with the greatest spending for lodging (\$128), restaurants (\$55), groceries (\$49), transportation (\$54), and guides/outfitters (\$57). It takes 85 non-local paddler groups spending roughly \$37,000 in local communities to support one job. <http://www.uvm.edu/~snrvtdc/NFCT/>

**Maryland Boating** : Lipton, D. 2001. Boating 2000: A Survey Of Boater Spending In Maryland. College Park, MD: Maryland Sea Grant.

In a survey of registered boats in MD in 2000, Lipton estimated that registered boaters spent an average of \$8,165 per boat split \$5,254 for trip spending and \$2,911 in annual craft expenses. Boaters averaged \$200 in spending per trip on an average of 26 trips per year. Trailered boats spent only slightly less than power boats on trips, but substantially less in annual craft expenses. Boater spending varies directly with the size of the boat. In-water power boats spent \$4,000 in annual expenses for storage, insurance, etc. compared to \$1,600 for smaller trailered boats. Total registered boater spending in MD excluding boat sales in 2000 was \$1.8 billion, generating an impact of 20,000 direct jobs and 28,000 jobs when secondary effects are included. Only seven percent of the spending was in the four western MD counties, so 93% may be assigned to the CBGN region. <http://nsgl.gso.uri.edu/mdu/mdus01001.pdf>

**Maryland Boating**: Lipton, Douglas. 2007. Economic Impact of Maryland Boating in 2006. University of Maryland Sea Grant program.

Lipton updates the 2001 report based on 208,837 registered boats in 2006. Total spending including purchases of new and used boats increased to \$2.5 billion. Including secondary effects the total impact on the state was 31,755 jobs and \$1.14 billion in income. [ftp://ftp.mdsg.umd.edu/Public/MDSG/rec\\_boat06.pdf](ftp://ftp.mdsg.umd.edu/Public/MDSG/rec_boat06.pdf)

**National Survey of Fishing, Hunting and Wildlife-Associated Recreation (FHWAR)**: U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. State Reports for Maryland and Virginia.

A national survey covering fishing, hunting and wildlife-associated recreation. The most recent study was conducted in 2006. It includes a national report and reports for each state providing estimates of the numbers of participants, days of participation, and spending on equipment and trips. The angler tables includes breakdowns for saltwater fishing. <http://www.census.gov/prod/www/abs/fishing.html>

**Sportfishing Impacts**: American Sportfishing Association (2008). Sportfishing in America. Alexandria, VA. American Sportfishing Association.

The American Sportfishing Association generated state estimates of retail sales, jobs, income, and state and local taxes based on angler activity and spending reported by the U.S. Fish and Wildlife Service in the national survey of hunting and fishing. They appear to apply state level multipliers to the spending totals and then convert total sales and the associated jobs and income. <http://www.asafishing.org/images/statistics/resources/Sportfishing%20in%20America%20Rev.%207%202008.pdf>