



Impacts of Visitor Spending on the Local Economy

Big Hole National Battlefield, 2013

Natural Resource Report NPS/NRSS/EQD/NRR—2014/834



ON THE COVER

Visitors at Big Hole National Battlefield

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Executive Summary

Big Hole National Battlefield hosted 38,092 recreation visits in 2013. Adjustments for visitor group size and re-entries resulted in 13,236 visitor group trips to the park in 2013. Based on a 2013 Visitor Services Project survey conducted July 30 – August 8, 24% of these visitor group trips were made by local residents or non-locals on day trips, not including an overnight stay within a 90 miles of the park.¹ Thirty-six percent of visitor group trips involved an overnight stay in a lodge, hotel, motel, cabin, B&B, etc. in the local area, and 20% were overnight camping stays in the local area. Twenty-one percent of visitor group trips were overnight stays in non-paid lodging, such as private homes.

Visitors reported their group's expenditures in the park and within 90 miles of the park. Visitor groups spent an average of \$177 on their trips. Ninety-six percent of visitor spending took place in the area outside the park.

Total visitor spending in 2013 in the park and within 90 miles of the park was \$2.3 million. The greatest proportion of expenditures was for overnight accommodations (35%). Overnight visitors staying in a lodge, hotel, motel, cabin, B&B, etc. in the local area accounted for 65% of total spending, while those camping in the local areas accounted for 20% of total spending.

Twenty-one percent of visitor groups indicated that visiting the park was the primary reason for their trip to the area. Counting only a portion of visitor expenses if the park visit was not the primary reason for the trip yields \$1.4 million in spending attributed directly to the park.

The economic impact of park visitor spending was estimated by applying the spending to an input-output model of the local economy. The local region was defined as a six-county area around the park including Beaverhead, Ravalli, Silver Bow, Deer Lodge, and Granite counties in Montana, and Lemhi County, Idaho. This region roughly coincides with the 90-mile radius around the park for which expenditures were reported.

Including direct and secondary effects, the \$1.4 million in visitor spending attributed to the park generated \$1.5 million in direct sales in the region, which supported 22 jobs. These jobs paid \$0.5 million in labor income, which was part of \$0.8 million in value added to the region.²

Local Economic Impacts of Big Hole National Battlefield

	<u>Sales</u>	<u>Jobs</u>	<u>Labor Income</u>	<u>Value Added</u>
Park Visitor Spending	\$1,456K	22	\$471K	\$791K

¹ Results in this study sometimes differ from those reported in the VSP study report (Manni et al. 2014) because of the omission of cases considered to be outliers in the current analysis. See Study Limitations and Errors section.

² Jobs include fulltime and part-time jobs. Labor income consists of wages and salaries, payroll benefits and income of sole proprietors. Value added includes labor income as well as property income (dividend, royalties, interest and rents) to area businesses and indirect business taxes (sales, property, and excise taxes).

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Introduction

Big Hole National Battlefield (NB) preserves and commemorates the site where the Nez Perce and the U.S. Army 7th Infantry fought in August 1877. The 1,011-acre park is located in Beaverhead County, Montana. Big Hole NB received 38,092 recreation visits in 2013 (Table 1).

Table 1. Recreation visits, Big Hole NB, 2013

Month	Recreation visits
January	276
February	438
March	574
April	766
May	4,688
June	5,689
July	10,577
August	8,885
September	5,032
October	446
November	423
<u>December</u>	<u>298</u>
Total	38,092

Source: NPS Visitor Use Statistics 2013.

The purpose of this study is to estimate the annual, local economic impacts of visitors to Big Hole NB in 2013. Economic impacts were measured as direct and secondary sales, income, and jobs in the local region resulting from spending by park visitors. (See Appendix A: Glossary for definitions of terms.) This study does not estimate the economic impacts of NPS park payroll or park operations and construction spending on the local region.

The local economic region defined for this study included Beaverhead, Ravalli, Silver Bow, Deer Lodge, and Granite counties in Montana, and Lemhi County, Idaho. This six-county region had a population of 103,955 (USCB 2013), gross regional product of \$3.4 billion (MIG, Inc. 2008), median household income of \$39,405, and family poverty rate of 11.0% (USCB 2013). Food and drinking establishments and state and local governments were the major employers in the region (MIG, Inc. 2008), and the region experienced a 6.4% unemployment rate in 2013 (BLS 2013).

Methods

The economic impact estimates were produced using the Money Generation Model 2 (MGM2) (Stynes et al. 2007). The three main inputs to the model were:

1. number of visits broken down by lodging-based segments;
2. spending averages for each segment; and
3. economic multipliers for the local region.

Inputs were estimated from the Big Hole NB Visitor Services Project (VSP) survey data (Manni et al. 2014), National Park Service Visitor Use Statistics (2013), and Impact Analysis for Planning (IMPLAN) input-output modeling software (MIG, Inc. 2008). The MGM2 model provides a spreadsheet template for combining park use, spending, and regional multipliers to compute changes in sales, labor income, jobs, and value added in the region.

The VSP visitor survey was conducted at Big Hole NB from July 30 – August 8, 2013.³ The VSP survey measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a systematic, random sample of 349 visitor groups. Visitors returned 227 questionnaires resulting in a response rate of 65%.

Spending and economic impact estimates for Big Hole NB are based in part on the 2013 VSP survey data. Visitors were asked to report expenditures inside the park and within 90 miles of the park. The local region for determining economic impact was defined as a six-county area around the park including Beaverhead, Ravalli, Silver Bow, Deer Lodge, and Granite counties in Montana, and Lemhi County, Idaho. This area roughly coincides with the 90-mile radius around the park for which visitors reported expenditures.

The MGM2 model divides visitors into segments to help explain differences in spending across distinct user groups. Five segments were established for Big Hole NB visitors based on reported trip characteristics and lodging expenditures:

Local: Visitors who were residents of the local region, i.e., lived within 90 miles of the park.

Day trip: Visitors from outside the local region who did not stay overnight in the local region.

Motel: Visitors who reported motel expenses in the local region.⁴

Camping: Visitors who reported camping expenses in the local region.

Other overnight (Other OVN): Non-local visitors who stayed overnight in the local region, but did not report any lodging expenses. This segment included visitors who stayed in private homes, with friends or relatives, or in other unpaid lodging.⁵

³ Results in this study sometimes differ from those reported in the VSP study report (Manni et al. 2014) because of the omission of cases considered to be outliers in the current analysis. See Study Limitations and Errors section.

⁴ The questionnaire asked about expenditures for “Lodge, hotel, motel, cabin, B&B, etc.” For convenience, these expenditures are referred to as “motel” in this report.

⁵ Visitors reporting multiple lodging types and expenditures were classified based on the greatest reported lodging expense. Some visitors listing motels or campgrounds as lodging types did not report any lodging expenses and were classified in the other overnight (Other OVN) category.

The VSP survey data were used to estimate the percentage of visitors from each segment as well as spending averages, lengths of stay, and visitor group sizes for each segment.

Results

Visits

Based on VSP survey data, 35% of park entries were classified as day visits either by residents or by visitors from outside the local region, and the remaining 65% were classified as overnight visits including an overnight stay in the local region (Table 2). The average visitor group size ranged from 2.2 to 3.0 people across the five segments with an average visitor group of 2.3 people.⁶ The average length of stay in the local region on overnight trips was 2.3 nights. Twenty-one percent of visitor groups indicated that visiting the park was the primary reason for their trip to the area.

Table 2. Selected visit/trip characteristics by segment, 2013

Characteristic	Segment					All visitors
	Local	Day trip	Motel	Camping	Other OVN	
Visitor segment share (park entries)	5%	30%	28%	17%	20%	100%
Average visitor group size	3.0	2.2	2.2	2.3	2.7	2.3
Length of stay (days or nights)	1.0	1.0	2.1	2.4	2.7	2.3
Re-entry rate (park entries per trip)	1.0	1.0	1.0	1.0	1.0	1.0
Percent primary purpose trips	100%	8%	20%	17%	24%	21%

The 38,092 recreation visits in 2013 were allocated to the five segments using the visit segment shares in Table 2. Because spending was reported for the stay in the area, recreation visits were converted to visitor group trips to the area by dividing recreation visits by the average number of times each visitor entered the park during their stay and the average visitor group size. The 38,092 recreation visits represented 13,236 visitor group trips (Table 3).

Table 3. Recreation visits and visitor group trips by segment, 2013

Measure	Segment					All visitors
	Local	Day trip	Motel	Camping	Other OVN	
Recreation visits	1,943	11,351	10,780	6,361	7,656	38,092
Visitor group trips	618	2,500	4,718	2,670	2,731	13,236
Percent of visitor group trips	5%	19%	36%	20%	21%	100%

⁶ Visitor group size reported herein is based on the number of people covered by expenditures reported in the VSP survey.

Visitor Spending

The VSP survey collected data about expenditures of visitor groups inside the park and within 90 miles of the park.⁷ Spending averages were computed on a visitor group trip basis for each segment. The average visitor group spent \$177 on the trip, including expenditures inside the park and within 90 miles of the park (Table 4). On a visitor group trip basis, average spending was \$49 for day trips by local residents and \$24 for day trips by non-local visitors. Visitor groups staying in motels spent an average of \$320 on their trips, and those camping spent an average of \$172 on their trips. Visitor groups spent about 96.5% of their total spending outside the park.

Table 4. Average spending by segment (dollars per visitor group per trip)

	Segment					All visitors*
Expenditures	Local	Day trip	Motel	Camping	Other OVN	
Inside Park						
<u>Souvenirs & other expenses</u>	<u>3.33</u>	<u>3.95</u>	<u>6.03</u>	<u>5.68</u>	<u>9.64</u>	<u>6.19</u>
Total Inside Park	3.33	3.95	6.03	5.68	9.64	6.19
Outside Park						
Motels	0.00	0.00	150.65	0.00	0.00	53.70
Camping fees	0.00	0.00	0.38	40.91	0.00	8.39
Restaurants & bars	15.62	4.50	66.52	20.29	21.08	33.73
Groceries & takeout food	0.48	2.23	21.27	22.84	9.69	14.63
Gas & oil	27.62	7.87	51.15	68.25	23.69	39.66
Local transportation	0.00	0.00	0.00	0.00	17.59	3.63
Admission & fees	0.00	0.00	6.84	2.17	1.20	3.12
<u>Souvenirs & other expenses</u>	<u>1.90</u>	<u>5.61</u>	<u>17.38</u>	<u>11.91</u>	<u>18.55</u>	<u>13.57</u>
Total Outside Park	45.62	20.21	314.17	166.38	91.81	170.43
Total Inside & Outside Park	48.95	24.16	320.21	172.06	101.45	176.62

*Weighted by percent visitor group trips.

The relative standard error at a 95% confidence level for the overall spending average was 18%. A 95% confidence interval for the overall visitor group spending average was therefore \$177 plus or minus \$32 or between \$145 and \$209.

On a per night basis, visitor groups staying in motels spent \$154 in the local region, and campers spent \$71 (Table 5). The average reported per-night lodging expense was \$72 for motels and \$17 for camping fees.

⁷ Some expenditure categories in the VSP questionnaire were combined for reporting herein and MGM2 analysis. See Appendix B.

Table 5. Average spending per night for visitor groups on overnight trips
(dollars per visitor group per night)

Expenditures	Segment		
	Motel	Camping	Other OVN
Motels	72.31	0.00	0.00
Camping fees	0.18	16.99	0.00
Restaurants & bars	31.93	8.43	7.93
Groceries & takeout food	10.21	9.49	3.65
Gas & oil	24.55	28.35	8.91
Local transportation	0.00	0.00	6.62
Admission & fees	3.28	0.90	0.45
<u>Souvenirs & other expenses</u>	<u>11.24</u>	<u>7.31</u>	<u>10.61</u>
Total per visitor group per night	153.70	71.47	38.18

Total spending was estimated by multiplying the number of visitor group trips for each segment by the average spending per trip and summing across segments. Big Hole NB visitors spent a total of \$2.3 million in the local region in 2013 (Table 6). Visitors who stayed in motels accounted for 65% of the total spending. Motel expenses represented 30% of total spending (Figure 1).

Table 6. Total visitor spending by segment, 2013 (thousands of dollars)

Expenditures	Segment					All visitors
	Local	Day trip	Motel	Camping	Other OVN	
<u>Inside Park</u>						
<u>Souvenirs & other expenses</u>	<u>2</u>	<u>10</u>	<u>28</u>	<u>15</u>	<u>26</u>	<u>82</u>
Total Inside Park	2	10	28	15	26	82
<u>Outside Park</u>						
Motels	0	0	711	0	0	711
Camping fees	0	0	2	109	0	111
Restaurants & bars	10	11	314	54	58	447
Groceries & takeout food	0	6	100	61	26	194
Gas & oil	17	20	241	182	65	525
Local transportation	0	0	0	0	48	48
Admission & fees	0	0	32	6	3	41
<u>Souvenirs & other expenses</u>	<u>1</u>	<u>14</u>	<u>82</u>	<u>32</u>	<u>51</u>	<u>180</u>
Total Outside Park	28	51	1,482	444	251	2,256
Total Inside & Outside Park	30	60	1,511	459	277	2,338
Segment Percent of Total	1%	3%	65%	20%	12%	100%

Note: Totals may not equal sum of individual categories due to rounding.

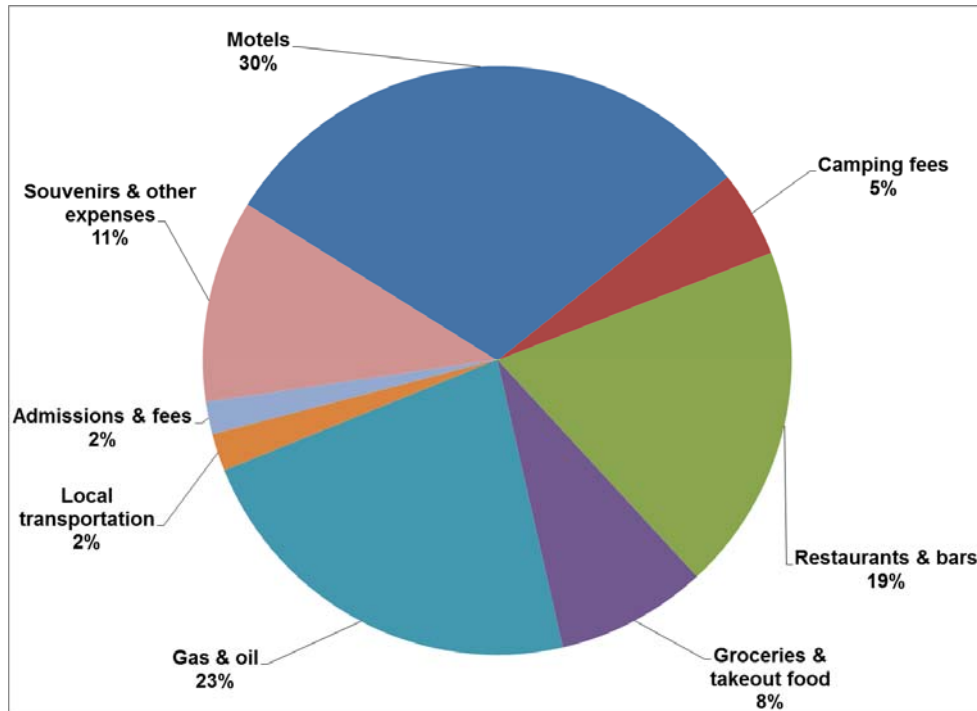


Figure 1. Big Hole NB visitor spending by category

Because visitors would come to the region whether or not the park existed, not all visitor spending can be attributed to the park. Seventy-nine percent of visitor groups did not make the trip primarily to visit Big Hole NB. Spending directly attributed to park visits was estimated by counting all spending on trips for which the park was the primary reason for the trip. If the park was not the primary trip purpose, one night of spending was counted for overnight trips and half of the spending in the region was counted for day trips. With these assumptions, a total of \$1.4 million in visitor spending was attributed to the park visit (Table 7). This represented 58% of the overall visitor spending total.

Table 7. Total spending attributed to park visits, 2013 (thousands of dollars)

Expenditures	Segment					All visitors
	Local	Day trip	Motel	Camping	Other OVN	
Motels	0	0	416	0	0	416
Camping fees	0	0	1	64	0	65
Restaurants & bars	0	6	189	32	36	262
Groceries & takeout food	0	3	59	31	14	107
Gas & oil	0	11	141	94	34	280
Local transportation	0	0	0	0	25	25
Admission & fees	0	0	19	3	2	24
Souvenirs & other expenses	2	17	76	32	53	180
Total Attributed to Park	2	37	902	256	163	1,360
Percent of Spending Attributed to the Park	7%	62%	60%	56%	59%	58%
Percent of Attributed Spending	0%	3%	66%	19%	12%	100%

Economic Impacts of Visitor Spending

The economic impacts of Big Hole NB visitor spending on the local economy were estimated by applying visitor spending to a set of economic ratios and multipliers in MGM2 representing the economy of the six-county region—Beaverhead, Ravalli, Silver Bow, Deer Lodge, and Granite counties in Montana, and Lemhi County, Idaho.⁸ Economic ratios and multipliers for the region were estimated using IMPLAN (version 3, MIG, Inc. 2008) with 2008 data.⁹ Multipliers were adjusted to 2013 based on structural changes in the national IMPLAN models between 2008 and 2009 and price changes between 2008 and 2013 (see Study Limitations and Errors section below).

Not all visitor spending was counted as direct sales to the region. The amount a visitor spends for a retail good is made up of the cost of the good from the producer, a markup by a wholesaler, and a markup by a retailer. In MGM2, retail and wholesale margins for grocery & takeout food, gas & oil, and souvenirs & other expenses were applied to visitor spending to account for mark-ups by retailers and wholesalers. The retail margins for the three sectors were 25.3%, 22.3%, and 50.0%, respectively, and the wholesale margins were 12.3%, 8.3%, and 11.4%. In addition, regional purchase coefficients from IMPLAN for all sectors were used to account for the proportion of demand within the region satisfied by imports into the region.

The tourism output sales multiplier for the region is 1.45. Every dollar of direct sales to visitors generated another \$0.45 in secondary sales through indirect and induced effects.¹⁰ (See Appendix A: Glossary for further explanation of terms.)

The economic impacts to the local region are presented in two ways: (1) based on all visitor spending and (2) based only on visitor spending attributable to the park. The first estimate—including all visitor spending—shows the overall contribution park visitors make to the local region. The second estimate—including only visitor spending attributable to the park—shows the impact or contribution the park makes to the economy of the local region.

Impacts of All Visitor Spending

Using all visitor spending and including direct and secondary effects, the \$2.3 million spent by park visitors generated \$2.5 million in sales, which supported 37 jobs in the local region (Table 8). These jobs paid \$0.8 million in labor income, which was part of \$1.3 million in value added to the region.¹¹

⁸ Economic ratios convert between various economic measures, e.g., direct spending to the directly associated jobs, labor income, and value added in each sector. Economic multipliers capture the secondary effects of economic measures.

⁹ See Appendix C: Economic Ratios and Multipliers for the region.

¹⁰ Indirect effects result from tourism businesses buying goods and services from local firms, while induced effects stem from household spending of income earned from visitor spending.

¹¹ Jobs include fulltime and part-time jobs. Labor income consists of wages and salaries, payroll benefits and income of sole proprietors. Value added includes labor income as well as profits and rents to area businesses and sales and excise taxes.

Table 8. Impacts of all visitor spending on the local economy, 2013

Sector/Expenditure category	Sales (thousands of dollars)	Jobs	Labor Income (thousands of dollars)	Value Added (thousands of dollars)
Direct Effects				
Motels	711	12	203	361
Camping fees	111	1	33	62
Restaurants & bars	447	10	142	200
Groceries & takeout food	41	1	16	24
Gas & oil	48	1	23	29
Local transportation	49	1	25	41
Admission & fees	117	1	61	97
Souvenirs & other expenses	131	3	67	109
Wholesale trade	50	0	18	31
<u>Local production of goods</u>	<u>6</u>	<u>0</u>	<u>1</u>	<u>2</u>
Total Direct Effects	1,710	30	590	957
<u>Secondary Effects</u>	<u>765</u>	<u>7</u>	<u>209</u>	<u>385</u>
Total Effects	2,475	37	799	1,342

Note: Impacts of \$2.3 million in visitor spending reported in Table 6. Totals may not equal sum of individual categories due to rounding.

Value added is the preferred measure of the contribution of visitors to the local economy as it includes all sources of income to the area—payroll benefits to workers, profits and rents to businesses, and sales and other indirect business taxes that accrue to government units. Value added impacts are also comparable to Gross Regional Product, the broadest measure of total economic activity in a region. The largest direct effects are in motels.

Impacts of Visitor Spending Attributed to the Park

Using only visitor spending attributable to the park by including only some spending on trips where the primary trip purpose was not to visit Big Hole NB reduced the overall impacts by about 41% (Table 9; see spending inclusion assumptions in previous section). Including direct and secondary effects, the \$1.4 million spent by park visitors and attributable to the park generated \$1.5 million in sales, which supported 22 jobs in the local region. These jobs paid \$0.5 million in labor income, which was part of \$0.8 million in value added to the region.

Table 9. Economic impacts of visitor spending attributed to the park, 2013

Sector/Expenditure category	Sales (thousands of dollars)	Jobs	Labor Income (thousands of dollars)	Value Added (thousands of dollars)
Direct Effects				
Motels	416	7	119	212
Camping fees	65	1	19	36
Restaurants & bars	262	6	84	118
Groceries & takeout food	24	0	9	14
Gas & oil	25	1	12	15
Local transportation	27	1	14	23
Admission & fees	62	1	33	52
Souvenirs & other expenses	90	2	46	76
Wholesale trade	29	0	11	18
<u>Local production of goods</u>	<u>4</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total Direct Effects	1,005	18	347	564
<u>Secondary Effects</u>	<u>451</u>	<u>4</u>	<u>123</u>	<u>227</u>
Total Effects	1,456	22	471	791

Note: Impacts of \$1.4 million in visitor spending attributed to park reported in Table 7. Totals may not equal sum of individual categories due to rounding.

Study Limitations and Errors

The accuracy of the MGM2 estimates rests on the accuracy of three inputs: visits, spending averages, and multipliers. Visits were taken from NPS Visitor Use Statistics (2013). Recreation visit estimates rely on counting procedures at the park, which may miss some visitors and count others more than once during their visit. Re-entry rates are important to adjust the park visit counts to reflect the number of visitor group trips to the region rather than park entries. Re-entry rates were estimated based on visitor responses to a VSP survey question about the number of times the visitor entered the park.

Spending averages were derived from the 2013 Big Hole NB VSP survey data (Manni et al. 2014). Estimates from the survey are subject to sampling errors, measurement errors, and potential seasonal biases. The overall spending average is subject to a sampling error of 18%.

Spending averages are also sensitive to decisions about outliers and treatment of missing data. In order to estimate spending averages, incomplete spending data were filled with zeros. Visitor groups of more than 8 people (2 cases), visiting the local region for more than 14 nights (3 cases), or spending more than \$1,061 (the mean plus two times the standard deviation of the mean for spending, 2 cases) were omitted from the analysis. These are conservative assumptions about outliers and likely result in conservative estimates of economic impacts.

The sample only covers visitors for a week in late July and early August. To extrapolate to annual totals, it was assumed that this sample represented visitors throughout the year.

Multipliers were derived from an input-output model of the local economy using IMPLAN (MIG, Inc. 2008). The basic assumptions of input-output models are that sectors have homogeneous, fixed and linear production functions, that prices are constant, and that there are no supply constraints. The IMPLAN system uses national average production functions for each of 440 sectors based on the NAICS system (see Appendix B, Table B2). The most recent local IMPLAN dataset available for this analysis was 2008. National IMPLAN multiplier data were available for 2009, so local employment, labor income, and value added multipliers were updated to 2009 using 2008/2009 national ratios. In addition, local employment multipliers were updated to 2013 based on changes in consumer price indices.

Sorting out how much spending to attribute to the park when the park is not the primary reason for the trip is somewhat subjective. Because 79% of visitors to Big Hole NB did not make the trip primarily to visit the park and 96% of spending occurs outside the park, adjustments for non-primary purpose trips have a significant effect on the overall spending and impact estimates.

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Appendix A: Glossary

Term	Definition
Direct effects	Changes in sales, income and jobs in those business or agencies that directly receive visitor spending.
Economic multiplier	Captures the size of secondary effects and are usually expressed as a ratio of total effects to direct effects.
Economic ratio	Converts various economic measures from one to another. For example, direct sales can be used to estimate direct effects on jobs, personal income, and value added by applying economic ratios. That is: • Direct jobs = direct sales * jobs to sales ratio • Direct personal income = direct sales * personal income to sales ratio • Direct value added = direct sales * value added to sales ratio.
Indirect effects	Changes in sales, income and jobs in industries that supply goods and services to the businesses that sell directly to visitors, i.e., businesses in the supply chain. For example, linen suppliers benefit from visitor spending at motels.
Induced effects	Changes in economic activity in the region resulting from household spending of income earned through a direct or indirect effect of visitor spending. For example, motel and linen supply employees live in the region and spend their incomes on housing, groceries, education, clothing and other goods and services. IMPLAN's Social Accounting Matrix (SAM) multipliers also include induced effects resulting from local/state/federal government spending.
Jobs	The number of jobs in the region supported by visitor spending. Job estimates are not full time equivalents, but include both fulltime and part-time positions.
Labor income	Wage and salary income, sole proprietor (business owner) income and employee payroll benefits.
Regional purchase coefficient (RPC)	The proportion of demand within a region supplied by producers within that region.
Retail margin	The markup to the price of a product when a product is sold through a retail trade activity. Retail margin is calculated as sales receipts minus the cost of goods sold.

Term	Definition
Sales	Direct sales (retail goods and services) of firms within the region to park visitors.
Secondary effects	Changes in the economic activity in the region that result from the re-circulation of money spent by visitors. Secondary effects include indirect and induced effects.
Total effects	Sum of direct, indirect and induced effects. • Direct effects accrue largely to tourism-related businesses in the area. • Indirect effects accrue to a broader set of businesses that serve these tourism firms. • Induced effects are distributed widely across a variety of local businesses.
Value added	Labor income plus property income (rents, dividends, royalties, interest) and indirect business taxes. As the name implies, it is the net value added to the region's economy. For example, the value added by a motel includes wages and salaries paid to employees, their payroll benefits, profits of the motel, and sales, property, and other indirect business taxes. The motel's non-labor operating costs such as purchases of supplies and services from other firms are not included as value added by the motel.
Visitor group	A group of people traveling together to visit the park. Visitor group is the basic sampling unit for VSP surveys; each visitor group receives only one questionnaire.
Wholesale margin	The markup to the price of a product when a product is sold through wholesale trade. Wholesale margin is calculated as wholesale sales minus the cost of the goods sold.

Appendix B: Expenditure Sector Assignments

Table B1 shows expenditure categories visitors were asked to estimate in the Big Hole NB VSP questionnaire. Some expenditure categories were combined and renamed for MGM2 analysis.

Table B1. Expenditure categories in Big Hole NB questionnaire and MGM2 sector assignment

Questionnaire expenditure categories	Inside park	Outside park	MGM2 sector
Lodge, hotel, motel, cabin, B&B, etc.		X	Motels
Camping fees and charges		X	Camping fees
Guide fees and charges		X	Admissions & fees
Restaurants and bars		X	Restaurants & bars
Groceries and takeout food		X	Groceries & takeout food
Gas and oil (auto, RV, boat, etc.)		X	Gas & oil
Other transportation expenses (rental cars, taxis, auto repairs, but NOT airfare)		X	Local transportation
Admission, recreation, entertainment fees		X	Admissions & fees
All other purchases (souvenirs, books, postcards, clothing, donations, etc.)	X	X	Souvenirs & other expenses

X = category included in questionnaire.

MGM2 sector names correspond to similar sector names and numbers in IMPLAN (Table B2). IMPLAN sectors also correspond to 2007 North American Industry Classification System (NAICS) sectors.

Table B2. MGM2 sector correspondence to IMPLAN and 2007 NAICS sectors

	IMPLAN		
MGM2 sector	No.	Name	2007 NAICS
Motels	411	Hotels and motels, including casino hotels	72111-2
Camping fees	412	Other accommodations	72119, 7212-3
Restaurants & bars	413	Food services and drinking places	722
Groceries & takeout food	324	Retail - Food and beverage	445
Gas & oil	326	Retail - Gasoline stations	447
Local transportation	336	Transit and ground passenger transportation	485
Admissions & fees	410	Other amusement and recreation industries	71391-3, 71399
Souvenirs & other expenses	329	Retail - General merchandise	452
Local production of goods	69	All other food manufacturing	31199
	88	Men's and boys' cut and sew apparel manufacturing	31522
	115	Petroleum refineries	32411
	311	Sporting and athletic goods manufacturing	33992
	317	All other miscellaneous manufacturing	339993,
			339995, 339999
Wholesale trade	319	Wholesale trade	42

Source: IMPLAN (MIG, Inc. 2008).

Appendix C: Economic Ratios and Multipliers

Table C1. Economic ratios and multipliers for selected tourism-related sectors, Big Hole NB region, 2013

Sector	Direct effects			Total effects multipliers				
	Jobs/ \$MM sales	Income/ sales	Value added/ sales	Sales I	Sales SAM	Job II/ \$MM sales	Income II/ sales	Value added II/ sales
Motels	17.08	0.29	0.51	1.27	1.47	21.23	0.42	0.74
Camping fees	10.16	0.29	0.55	1.26	1.43	13.93	0.41	0.77
Restaurants & bars	21.28	0.32	0.45	1.25	1.44	24.94	0.44	0.67
Groceries & takeout food	18.52	0.52	0.84	1.21	1.46	22.56	0.64	1.07
Gas & oil	10.60	0.52	0.83	1.18	1.37	13.85	0.62	1.03
Local transportation	24.44	0.48	0.60	1.11	1.34	27.74	0.58	0.78
Admission & fees	18.80	0.37	0.57	1.34	1.49	23.04	0.51	0.83
Souvenirs & other expenses	20.46	0.51	0.84	1.21	1.46	24.52	0.64	1.08
Local production of goods	6.67	0.21	0.33	1.16	1.30	7.12	0.22	0.38
Wholesale trade	7.89	0.37	0.63	1.20	1.42	11.75	0.49	0.85

Source: IMPLAN (MIG, Inc. 2008), updated to 2013.

Explanation of table

Direct effects are economic ratios to convert sales in each sector to jobs, income and value added.

Jobs/\$MM sales is jobs per million dollars in sales.

Income/sales is the percentage of sales going to wages, salaries, and employee benefits.

Value added/sales is the percentage of sales that is value added. (Value added covers all income, rents and profits and indirect business taxes.)

Total effects are multipliers that capture the total effect relative to direct sales.

Sales I captures only direct and indirect sales.

Sales SAM is the SAM sales multiplier = (direct + indirect + induced sales) / direct sales.

Job II/\$MM sales = total jobs (direct + indirect + induced) per \$ million in direct sales.

Income II /sales = total income (direct + indirect + induced) per \$ of direct sales.

Value added II/sales = total value added (direct + indirect + induced) per \$ of direct sales.

Using the Motels sector row to illustrate

Direct Effects: Every million dollars in Motels sector sales (i.e., short-term lodging room rentals) creates 17.1 jobs in the Motels sector. Fifty-one percent of Motel sector sales are value added, including 29% that goes to wages and salaries of motel employees. That means 49% of Motels sector sales goes to purchase inputs by motels (e.g., linens, cleaning supplies). The wage and salary income creates the induced effects, and the 49% of sales spent on purchases by motels starts the rounds of indirect effects.

Multiplier effects: There is an additional 27 cents of indirect sales in the region for every dollar of direct Motels sector sales (type I sales multiplier = 1.27). Total secondary sales are 47 cents per dollar of direct sales, which means 27 cents in indirect effects and 20 cents in induced

effects. An additional 4.1 jobs are created from secondary effects of each million dollars in Motels sector sales (21.2 total jobs – 17.1 direct jobs per \$million). These jobs are distributed across other sectors of the local economy. Similarly, the secondary effects on income for each dollar of Motels sector sales are 13% (42%-29%), and the secondary effects on value added for each dollar of Motels sector sales are 23% (74%-51%). Including secondary effects, every million dollars of Motels sector sales in the region yields \$1.47 million in sales, \$420,000 in income, and \$740,000 in value added.

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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