

# Economic Impact of Non-Commercial Paddling and Preliminary Economic Impact Estimates of Commercial Paddling in the Nantahala and Pisgah National Forests

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Image Credit: Kevin Colburn



# Executive Summary of Study

The Nantahala and Pisgah National Forests (NPNF) is home to well-known rivers such as the Nantahala and the French Broad and includes both commercial and non-commercial paddling opportunities.

Using data from an online survey of outdoor recreation enthusiasts to conduct an economic impact analysis, the research team finds:

- 1. Non-commercial paddler visitors to the NPNF spend an estimated **\$3.2 million annually** across seven rivers.
- 2. Preliminary economic impact estimates suggest commercial paddler visitors may contribute **\$36 million annually** across three rivers in the NPNF.
- 3. Non-commercial paddling tourism supports the presence of **35 full-time jobs and \$827,000 in job income** whereas commercial paddling may support an estimated **446 full-time jobs and \$10 million in job income**.



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# Meet Your Research Team

**DR. JAMES N. MAPLES** is an assistant professor of sociology at Eastern Kentucky University, where he examines the political economy of renewable tourism. His research interests include the economic impact of outdoor recreation, economic development and social change in rural areas, and applied survey design. In his free time, he is conducting an oral history of rock climbing in Kentucky's Red River Gorge.



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**DR. MICHAEL J. BRADLEY** is an associate professor and director of graduate studies in the Department of Recreation and Park Administration at Eastern Kentucky University. His professional and academic interests include human dimensions of natural resource and wildlife management as well as sustainable recreation practices as it relates to outdoor recreation.



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## CONTACT INFORMATION FOR FUTURE STUDIES

Our research team regularly conducts economic impact studies, surveys, assessments, interpretation studies, and other kinds of community-driven studies. If you or your organization is interested in conducting a study, please contact lead researchers Dr. James Maples or Dr. Michael Bradley (emails above) for further information.

# Methodological Notes

## BACKGROUND

The Nantahala and Pisgah National Forests (NPNF) are the combination of two national forests in western North Carolina. The NPNF collectively covers over one million acres and is an important outdoor recreation area in the region.

NPNF includes a high concentration of rivers that house both commercial and non-commercial paddling opportunities. Recent work has examined economic impact of paddling in the region (see Morse 2012 or Ha and Associates 2009, for example), finding that paddling makes an important contribution to local economies. This study builds upon these and other works by expanding analysis to additional rivers in the region located in the NPNF.

## STUDY PURPOSE

Working alongside Outdoor Alliance and American Whitewater, the research team conducted an online survey to collect data on paddling expenditures in the NPNF with the goal of estimating paddling's non-commercial annual economic impact across seven rivers in the NPNF (Nantahala, French Broad, Nolichucky, Cheoah, Wilson Creek, Big Laurel, and North French Broad). As part of this study, the research team also agreed to provide a potential estimate of commercial paddling expenditures across three rivers (Nantahala, French Broad, and Nolichucky).

NPNF includes a high concentration of rivers that house both commercial and non-commercial paddling opportunities. Recent work has examined economic impact of paddling in the region (see Morse 2012 or Ha and Associates 2009, for example), finding that paddling makes an important contribution to local economies. This study builds upon these and other works by expanding analysis to additional rivers in the region located in the NPNF.

## DATA COLLECTION

The researchers collected data using an online survey hosted through Qualtrics. The study population was persons who have paddled in the NPNF in 2017. The survey was open from June 28 through July 10. In all, 716 paddlers responded to the survey. The research team dropped 304 total cases (173 cases that completed less than 1/3 of the survey, 66 cases that paddled outside the study areas, and 65 cases with abnormally high expenditures that would skew and inflate mean expenditures). This left 105 paddlers who lived in western North Carolina (local residents) and 307 paddlers who lived outside western North Carolina (visitors) in the study. As the exact number of unique persons who paddle in the NPNF each year is unknown, this is best treated as a convenience sample.

## ANALYSIS

The research team calculated mean expenditures across thirteen categories such as lodging or restaurant expenditures. The research team utilized IMPLAN to generate economic impact estimates based on an estimated 40,076 annual non-commercial paddling visits across seven rivers in the NPNF and 199,155 annual commercial paddling visits to three rivers in the NPNF. These figures are based on conversations with American Whitewater, the Forest Service, and local commercial paddling operations. The research team is using an estimate of 60% of non-commercial visits and 30% of commercial visits are from persons who reside in western North Carolina. Stata 14 was used to generate additional respondent demographic tables.

# Study Region

This study focuses on seven study regions that generally overlap with seven key rivers in the NPNF: Nantahala, French Broad, Nolichucky, Cheoah, Wilson, Big Laurel, and North French. The research team created each study area with guidance from American Whitewater National Stewardship Director, Kevin Colburn, focusing on the river’s common entry and exit points.

## REGION ONE: NANTAHALA

The Nantahala study region includes major entry and exit points on the Nantahala River. The research team built the region’s economic model around zip codes in Bryson City, Robbinsville, and Wesser as these are the most common areas where paddlers would spend funds while visiting this region. **Table 1A** includes recent economic indicators for the Nantahala region.

## REGION TWO: FRENCH BROAD

The French Broad study region includes major entry and exit points on the French Broad. The research team built this region’s economic model around zip codes in Hot Springs and the surrounding area. **Table 1B** includes recent economic indicators for the French Broad region.

## REGION THREE: NOLICHUCKY

The Nolichucky study region includes major entry points on the Nolichucky River. The economic model for this region is built around zip codes in Poplar, NC and the surrounding area. Note that this river terminates in Erwin, Tennessee, but that this study only examines impact in North Carolina. **Table 1C** includes recent economic indicators for the Nolichucky region.

**Table 1A**

<b>Economic Indicator Summary of Nantahala Region, 2015</b>	
<i>Indicator</i>	<i>Value</i>
Gross Regional Product	\$441,571,837
Total Personal Income	\$461,197,520
Total Employment	7,740
Number of Industries	145
Land Area (square miles)	531
Population	15,307
Total Households	6,430

**Table 1B**

<b>Economic Indicator Summary of French Broad Region, 2015</b>	
<i>Indicator</i>	<i>Value</i>
Gross Regional Product	\$215,830,451
Total Personal Income	\$393,976,556
Total Employment	4,185
Number of Industries	132
Land Area (square miles)	368
Population	13,240
Total Households	5,810

**Table 1C**

<b>Economic Indicator Summary of Nolichucky Region, 2015</b>	
<i>Indicator</i>	<i>Value</i>
Gross Regional Product	\$289,888,136
Total Personal Income	\$538,627,840
Total Employment	6,453
Number of Industries	144
Land Area (square miles)	312
Population	17,587
Total Households	7,375

# Study Region, Continued

## REGION FOUR: CHEOAH

The Cheoah study region includes the major entry and exit points on the Cheoah River. The research team built the region’s economic model around Robbinsville as this is the most likely location paddlers would spend funds while visiting this region. **Table 1D** includes recent economic indicators for the Cheoah region.

**Table 1D**

<b>Economic Indicator Summary of Cheoah Region, 2015</b>	
<i>Indicator</i>	<i>Value</i>
Gross Regional Product	\$169,296,153
Total Personal Income	\$231,068,768
Total Employment	3,113
Number of Industries	118
Land Area (square miles)	265
Population	7,953
Total Households	3,269

## REGION FIVE: WILSON

The Wilson study region includes the major entry and exit points for Wilson Creek. The research team built this region’s economic model around zip codes in Morganton and the surrounding area. **Table 1E** includes recent economic indicators for the Wilson region.

**Table 1E**

<b>Economic Indicator Summary of Wilson Region, 2015</b>	
<i>Indicator</i>	<i>Value</i>
Gross Regional Product	\$1,847,783,241
Total Personal Income	\$1,978,732,928
Total Employment	32,119
Number of Industries	204
Land Area (square miles)	374
Population	60,600
Total Households	23,802

## REGION SIX: BIG LAUREL

The Big Laurel study region includes major entry and exit points for Big Laurel Creek. The economic model for this region is built around zip codes in Hot Springs and the surrounding area. **Table 1F** includes recent economic indicators for the Big Laurel region. Note this study region is identical to the French Broad study region. However, the two have been separated to indicate the individual effects of each river.

**Table 1F**

<b>Economic Indicator Summary of Big Laurel Region, 2015</b>	
<i>Indicator</i>	<i>Value</i>
Gross Regional Product	\$215,830,451
Total Personal Income	\$393,976,556
Total Employment	4,185
Number of Industries	132
Land Area (square miles)	368
Population	13,240
Total Households	5,810

# Study Region, Continued

## REGION SEVEN: NORTH FRENCH BROAD

The North French Broad study region includes major entry and exit points for the northern portion of the French Broad River. The economic model for this region is built around zip codes in Rosman, Brevard, and the surrounding area. **Table 1G** includes recent economic indicators for the Big Laurel region.

Table 1G

Economic Indicator Summary of North French Broad Region, 2015	
<i>Indicator</i>	<i>Value</i>
Gross Regional Product	\$561,622,301
Total Personal Income	\$688,866,212
Total Employment	10,678
Number of Industries	167
Land Area (square miles)	134
Population	20,238
Total Households	8,776

## Economic Impact Categories

This study examines thirteen economic categories in each study region. Expenditures are also separated by visitors and residents in the analysis. These figures account for group size and represent individual expenditures for each visit. The figures are presented as a mean, or average, value. **Table 2A** lists the mean expenditures per visit by non-commercial paddlers visiting western North Carolina.

Table 2A

Mean Expenditure Per Visit By Visitor Non-Commercial Paddlers							
<i>Sector</i>	Nantahala	French Broad	Nolichucky	Cheoah	Wilson	Big Laurel	North French
Lodging	\$61.94	\$35.75	\$8.41	\$27.17	\$6.06	\$18.33	\$16.77
Food & Drink at Restaurants	\$59.54	\$53.00	\$22.50	\$44.40	\$20.14	\$9.17	\$27.42
Food & Drink at Grocery Stores	\$27.97	\$28.38	\$5.23	\$12.38	\$12.03	\$7.08	\$14.85
Food & Drink at Gas Stations	\$9.51	\$10.55	\$7.06	\$8.42	\$5.42	\$2.08	\$6.21
Gasoline	\$34.65	\$32.63	\$18.64	\$25.72	\$15.03	\$8.75	\$10.75
Retail Purchases, Paddling Gear	\$28.70	\$7.88	\$6.82	\$11.47	\$1.11	\$16.67	\$4.40
Other Retail Purchases	\$12.45	\$10.38	\$4.09	\$8.30	\$0	\$0.83	\$3.04
Rental Gear	\$14.90	\$12.13	\$0	\$0	\$0	\$0	\$1.88
Paddling Guides	\$19.49	\$20.50	\$6.30	\$9.09	\$0	\$0	\$1.88
Personal Services	\$0.83	\$0	\$0	\$1.27	\$0	\$0	\$0
Rental Vehicles	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Airplane Tickets	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxi / Public Transport	\$1.44	\$1.00	\$5.68	\$0.89	\$0	\$0	\$0

# Economic Impact Categories, Continued

**Table 2B** lists the mean expenditures per visit by paddlers who reside in western North Carolina. Note that means for residential spending in Cheoah, Wilson, Big Laurel, and North French should be treated with caution due to low responses.

**Table 2B**

<b>Mean Expenditure Per Visit By Resident Paddlers</b>							
<i>Sector</i>	<b>Nantahala</b>	<b>French Broad</b>	<b>Nolichucky</b>	<b>Cheoah</b>	<b>Wilson</b>	<b>Big Laurel</b>	<b>North French</b>
Lodging	\$15.69	\$12.76	\$20.18	\$15.71	\$10.00	\$27.00	\$27.50
Food & Drink at Restaurants	\$6.59	\$5.47	\$6.11	\$9.64	\$5.00	\$12.40	\$7.50
Food & Drink at Grocery Stores	\$3.48	\$4.45	\$5.56	\$6.43	\$8.57	\$6.40	\$1.88
Food & Drink at Gas Stations	\$10.72	\$13.96	\$21.22	\$19.29	\$24.29	\$21.60	\$14.58
Gasoline	\$10.15	\$28.54	\$0	\$7.14	\$14.29	\$0	\$16.67
Retail Purchases, Paddling Gear	\$1.64	\$3.44	\$0	\$3.21	\$10.00	\$3.00	\$0
Other Retail Purchases	\$6.54	\$0	\$0	\$0	\$0	\$0	\$0
Rental Gear	\$3.79	\$0.20	\$0	\$0	\$0	\$0	\$0
Paddling Guides	\$0	\$0.63	\$0	\$0	\$0	\$0	\$0
Personal Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Rental Vehicles	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Airplane Tickets	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxi / Public Transport	\$4.88	\$0.86	\$0.11	\$0	\$0	\$0	\$0



# Economic Impact Categories, Continued

**Table 2C** lists the predicted mean expenditures for commercial paddlers. Means for commercial paddlers utilize mean expenditures for non-commercial paddlers minus specific categories (retail paddling gear purchases, paddling gear rentals, and guides) which are now listed under average ticket prices. Ticket prices are based on common trip options available on each river at local commercial paddling businesses.

Using these means makes the assumption that commercial and non-commercial paddling expenditures are largely similar in lodging, food and drink purchases, retail purchases, and travel costs. As such, these means are estimated expenditures and should be treated with caution.

Only three study areas are included in this portion of the preliminary commercial analysis: Nantahala, French Broad, and Nolichucky.

**Table 2C**

<b>Mean Expenditures Per Visit By Visitor Commercial Paddlers</b>			
<i>Sector</i>	<b>Nantahala</b>	<b>French Broad</b>	<b>Nolichucky</b>
Lodging	\$15.69	\$12.76	\$20.18
Food & Drink at Restaurants	\$6.59	\$5.47	\$6.11
Food & Drink at Grocery Stores	\$3.48	\$4.45	\$5.56
Food & Drink at Gas Stations	\$10.72	\$13.96	\$21.22
Gasoline	\$10.15	\$28.54	\$0
Retail Purchases, Paddling Gear	\$6.54	\$0	\$0
Other Retail Purchases	\$6.54	\$0	\$0
Average Ticket Costs (including gear rental & guide)	\$64.99	\$72.49	\$77.50
Personal Services	\$0	\$0	\$0
Rental Vehicles	\$0	\$0	\$0
Airplane Tickets	\$0	\$0	\$0
Taxi / Public Transport	\$4.88	\$0.86	\$0.11

# Economic Impact Categories, Continued

**Table 2D** lists the predicted mean expenditures for resident commercial paddlers. Means for resident commercial paddlers utilize mean expenditures for non-commercial paddlers minus specific categories (retail paddling gear purchases, paddling gear rentals, and guides) which are now listed under average ticket prices. Ticket prices are based on common trip options available on each river at local commercial paddling businesses.

Using these means makes the assumption that commercial and non-commercial paddling expenditures are largely similar in lodging, food and drink purchases, retail purchases, and travel costs. As such, these means are estimated expenditures and should be treated with caution.

**Table 2D**

<b>Mean Expenditures Per Visit By Resident Commercial Paddlers</b>			
<i>Sector</i>	<b>Nantahala</b>	<b>French Broad</b>	<b>Nolichucky</b>
Lodging	\$18.32	\$12.76	\$20.18
Food & Drink at Restaurants	\$6.39	\$5.47	\$6.11
Food & Drink at Grocery Stores	\$3.37	\$4.45	\$5.56
Food & Drink at Gas Stations	\$11.95	\$13.96	\$21.22
Gasoline	\$59.84	\$46.40	\$0
Other Retail Purchases	\$15.71	\$0	\$0
Average Ticket Costs (including gear rental & guide)	\$64.99	\$72.49	\$77.50
Personal Services	\$0	\$0	\$0
Rental Vehicles	\$0	\$0	\$0
Airplane Tickets	\$0	\$0	\$0
Taxi / Public Transport	\$6.29	\$0.86	\$0.11

# Economic Impact Modeling: Non-commercial Paddling

## REGION ONE: NANTAHALA

**Table 3A** details the economic impact of visitor non-commercial paddlers in the Nantahala region. Here, visiting non-commercial paddlers spend an estimated \$2 million annually. This estimate correlates with supporting 31 full-time jobs and almost \$700,000 in labor income across the direct, indirect, and induced impact levels. Most of these jobs are projected to be in restaurants, lodging, retail paddling stores, and personal services (likely to be paddling guides and instructors). Visiting non-commercial paddlers generate \$1.7 million in business revenues (output) and \$1.1 million to the study area's gross regional product (value added).

Table 3A

Economic Impact Summary of Nantahala Region, Non-commercial Paddling				
<i>Impact Type</i>	<b>Full-time Jobs Supported</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
Direct	27	\$582,249	\$940,943	\$1,262,021
Indirect	2	\$55,279	\$101,003	\$240,938
Induced	2	\$58,621	\$125,943	\$237,744
<b><i>Total Effect</i></b>	31	\$696,149	\$1,167,889	\$1,740,703
<i>Estimates based on estimated annual visits of 7,650 and annual expenditures of \$2 million.</i>				

## REGION TWO: FRENCH BROAD

**Table 3B** details the economic impact of visitor non-commercial paddlers in the French Broad region. In this region, visiting non-commercial paddlers spend an estimated \$700,000 each year. This supports the presence of over \$66,000 in labor income. Non-commercial paddlers also help generate an estimated \$121,000 in business revenues and \$232,000 dollars in the gross regional product.

Table 3B

Economic Impact Summary of French Broad Region, Non-commercial Paddling				
<i>Impact Type</i>	<b>Full-time Jobs Supported</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
Direct	2	\$56,861	\$101,546	\$187,430
Indirect	0	\$5,424	\$10,206	\$27,338
Induced	0	\$4,218	\$9,846	\$18,173
<b><i>Total Effect</i></b>	2	\$66,503	\$121,598	\$232,940
<i>Estimates based on estimated annual visits of 3,340 and annual expenditures of \$700,000.</i>				

# Economic Impact Modeling, Continued

## Non-commercial Paddling

### REGION THREE: NOLICHUCKY

**Table 3C** details the economic impact of visiting non-commercial paddlers in the Nolichucky region. In this region, visiting non-commercial paddlers spend an estimated \$105,000 dollars. This supports an estimated one job and around \$11,000 in job income. In the Nolichucky region, non-commercial paddlers help create an estimated \$44,000 in business revenues and contribute \$20,000 to the gross regional product annually.

Table 3C

Economic Impact Summary of Nolichucky Region, Non-commercial Paddling				
<i>Impact Type</i>	<b>Full-time Jobs Supported</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
Direct	1	\$9,077	\$16,782	\$35,592
Indirect	0	\$1,163	\$1,928	\$5,146
Induced	0	\$832	\$1,857	\$3,689
<b>Total Effect</b>	1	\$11,073	\$20,567	\$44,428
<i>Estimates based on estimated annual visits of 3,100 and annual expenditures of \$105,000.</i>				

### REGION FOUR: CHEOAH

**Table 3D** details the economic impact of visitor non-commercial paddlers in the Cheoah region. In this region, they spend an estimated \$187,000 dollars. This supports \$28,000 in job income. Non-commercial paddlers here help create an estimated \$107,000 in business revenues and contribute \$56,000 to the gross regional product.

Table 3D

Economic Impact Summary of Cheoah Region, Non-commercial Paddling				
<i>Impact Type</i>	<b>Full-time Jobs Supported</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
Direct	1	\$24,289	\$47,100	\$87,412
Indirect	0	\$2,738	\$5,047	\$12,643
Induced	0	\$1,448	\$4,039	\$7,770
<b>Total Effect</b>	1	\$28,474	\$56,186	\$107,825
<i>Estimates based on estimated annual visits of 1,260 and annual expenditures of \$187,000.</i>				

# Economic Impact Modeling, Continued

## Non-commercial Paddling

### REGION FIVE: WILSON

**Table 3E** details the economic impact of visitor non-commercial paddlers in the Wilson region. In this region, visiting non-commercial paddlers spend an estimated \$63,000 dollars. Non-commercial paddlers help support an estimated \$36,000 in business revenues and contribute \$18,000 to the gross regional product in this area.

Table 3E

Economic Impact Summary of Wilson Region, Non-commercial Paddling				
<i>Impact Type</i>	<b>Full-time Jobs Supported</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
Direct	0	\$7,865	\$14,269	\$26,963
Indirect	0	\$1,113	\$1,853	\$4,945
Induced	0	\$1,347	\$2,387	\$4,574
<b>Total Effect</b>	0	\$10,324	\$18,508	\$36,482

*Estimates based on estimated annual visits of 1,060 and annual expenditures of \$63,000.*

### REGION SIX: BIG LAUREL

**Table 3F** details the economic impact of visitor paddlers in the Big Laurel region. In this region, visiting non-commercial paddlers spend an estimated \$44,000 dollars. Non-commercial paddlers help create an estimated \$18,000 in business revenues and contribute \$10,000 to the gross regional product in this area.

Table 3F

Economic Impact Summary of Big Laurel Region, Non-commercial Paddling				
<i>Impact Type</i>	<b>Full-time Jobs Supported</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
Direct	0	\$4,721	\$8,556	\$15,186
Indirect	0	\$453	\$832	\$2,232
Induced	0	\$349	\$815	\$1,505
<b>Total Effect</b>	0	\$5,523	\$10,203	\$18,922

*Estimates based on estimated annual visits of 700 and annual expenditures of \$44,000.*

# Economic Impact Modeling, Continued

## Non-commercial Paddling

### REGION SEVEN: NORTH FRENCH

**Table 3G** details the economic impact of visitor non-commercial paddlers in the North French region. In this region, visiting non-commercial paddlers spend an estimated \$68,000 dollars. In this region, non-commercial paddlers help create an estimated \$35,000 in business revenues and contribute \$18,000 to the gross regional product.

Table 3G

Economic Impact Summary of North French Region, Non-commercial Paddling				
<i>Impact Type</i>	<b>Full-time Jobs Supported</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
Direct	0	\$7,353	\$14,058	\$26,274
Indirect	0	\$942	\$1,916	\$4,488
Induced	0	\$1,154	\$2,270	\$4,375
<b>Total Effect</b>	0	\$9,449	\$18,244	\$35,136

*Estimates based on estimated annual visits of 780 and annual expenditures of \$68,000.*

### TAX GENERATION

**Table 4** lists estimated taxation created by visitor non-commercial paddler expenditures across five common areas. In state taxes, they help create \$140,000 in production taxes and nearly \$21,000 in household taxes. At the Federal level, visiting non-commercial paddler expenditures generate \$98,000 in employee compensation taxes, \$51,000 in household taxes, and over \$34,000 in corporate taxes.

Table 4

Annual Estimated Taxation Generated by Visitor Non-Commercial Paddlers					
<i>Region</i>	<b>State Production Taxes</b>	<b>State Household Taxes</b>	<b>Federal Employee Comp. Taxes</b>	<b>Federal Household Taxes</b>	<b>Federal Corporate Taxes</b>
Nantahala	\$116,459	\$17,853	\$80,134	\$44,281	\$29,523
French Broad	\$12,670	\$1,451	\$9,797	\$3,257	\$2,094
Nolichucky	\$1,957	\$253	\$1,396	\$606	\$381
Cheoah	\$5,198	\$631	\$4,087	\$1,527	\$1,741
Wilson	\$1,516	\$279	\$1,028	\$680	\$508
Big Laurel	\$1,169	\$120	\$838	\$269	\$172
North French	\$1,421	\$219	\$1,216	\$538	\$393
<b>Totals</b>	\$140,390	\$20,806	\$98,496	\$51,158	\$34,812

# Economic Impact Modeling: Commercial Visitor Paddling

## REGION ONE: NANTAHALA

**Table 5A** details the estimated economic impact of visitor commercial paddlers in the Nantahala region. Here, visiting non-commercial paddlers spend an estimated \$29.2 million annually. This estimate correlates with supporting 378 full-time jobs and almost \$9 million in labor income across the direct, indirect, and induced impact levels. Most of these jobs are projected to be in restaurants, lodging, and commercial whitewater paddling guiding companies. Visiting commercial paddlers generate \$24 million in business revenues (output) and \$16 million to the study area's gross regional product (value added).

Table 5A

Economic Impact Summary of Nantahala Region, Commercial Paddlers				
<i>Impact Type</i>	Full-time Jobs Supported	Labor Income	Value Added	Output
Direct	323	\$7,489,416	\$13,692,008	\$1,262,021
Indirect	26	\$723,125	\$1,328,238	\$240,938
Induced	29	\$752,270	\$1,614,912	\$237,744
<b>Total Effect</b>	378	\$8,964,811	\$16,635,158	\$1,740,703
<i>Estimates based on estimated annual visits of 107,106 and annual expenditures of \$29.2 million.</i>				

## REGION TWO: FRENCH BROAD

**Table 5B** details the economic impact of visitor commercial paddlers in the French Broad region. In this region, visiting commercial paddlers spend an estimated \$6.7 million each year. This supports the presence of 59 full-time jobs and \$1 million in labor income. Jobs linked to paddling expenditures here are projected to be in commercial whitewater paddling guiding companies, lodging, and restaurants. Visitor commercial paddlers also help generate an estimated \$3.8 million in business revenues and \$1.8 million in the gross regional product.

Table 5B

Economic Impact Summary of French Broad Region, Commercial Paddlers				
<i>Impact Type</i>	Full-time Jobs Supported	Labor Income	Value Added	Output
Direct	52	\$901,139	\$1,547,289	\$3,059,065
Indirect	5	\$91,798	\$184,739	\$487,006
Induced	2	\$66,985	\$156,282	\$288,513
<b>Total Effect</b>	59	\$1,059,922	\$1,888,311	\$3,834,584
<i>Estimates based on estimated annual visits of 27,504 and annual expenditures of \$6.7 million.</i>				

# Economic Impact Modeling, Continued

## Commercial Visitor Paddling

### REGION THREE: NOLICHUCKY

**Table 5C** details the economic impact of visiting commercial paddlers in the Nolichucky region. In this region, visiting commercial paddlers spend an estimated \$714,000 dollars. This supports an estimated nine jobs and around \$156,000 in job income. In the Nolichucky region, commercial paddlers help support an estimated \$571,000 in business revenues and contribute almost \$268,000 to the gross regional product annually.

Table 5C

Economic Impact Summary of Nolichucky Region, Commercial Paddlers				
<i>Impact Type</i>	Full-time Jobs Supported	Labor Income	Value Added	Output
Direct	8	\$129,345	\$216,933	\$450,829
Indirect	1	\$15,536	\$25,994	\$68,706
Induced	0	\$11,654	\$25,922	\$51,542
<b>Total Effect</b>	9	\$156,535	\$268,849	\$571,077
<i>Estimates based on estimated annual visits of 4,791 and annual expenditures of \$714,000.</i>				

### TAX GENERATION

**Table 6** lists estimated taxation created by visitor commercial paddler expenditures across five common areas. In state taxes, they help create \$1.6 million in production taxes and \$254,000 in household taxes. At the Federal level, visiting commercial paddler expenditures generate \$1.3 million in employee compensation taxes, \$625,000 in household taxes, and almost \$552,000 in corporate taxes.

Table 6

Annual Estimated Taxation Generated by Visitor Commercial Paddlers					
<i>Region</i>	State Production Taxes	State Household Taxes	Federal Employee Comp. Taxes	Federal Household Taxes	Federal Corporate Taxes
Nantahala	\$1,480,803	\$228,014	\$1,120,912	\$565,546	\$515,569
French Broad	\$180,322	\$23,012	\$162,022	\$51,634	\$32,074
Nolichucky	\$23,520	\$3,511	\$23,076	\$8,406	\$4,486
<b>Totals</b>	\$1,684,645	\$254,537	\$1,306,010	\$625,586	\$552,129



# Economic Impact Modeling: Resident Paddlers

**Table 7A** includes estimates of local residents and their funds spent while non-commercial paddling in the NPNF.

Likewise, **Table 7B** lists their potential commercial expenditures. Due to low response rates, figures in both tables should be analyzed with caution. Additionally, remember that commercial estimates are based off means from non-commercial users (see **Table 2D**).

It is important not to mistake local residents who spend money while paddling as economic impact as these funds are already present in the study area and are redirected from other potential expenditures in the study region. However, these amounts are worth noting.

**Additionally, 99% of local residents who completed the survey indicated western North Carolina’s outdoor recreation opportunities was a factor in their decision to move to the state.**

**Table 7A**

<b>Annual Estimated Paddling (Non-Commercial) Expenditures by Western North Carolina Residents</b>	
<i>Region</i>	<b>Annual Redirected Expenditures Estimate</b>
Nantahala	\$728,433
French Broad	\$352,203
Nolichucky	\$98,915
Cheoah	\$116,103
Wilson	\$118,121
Big Laurel	\$73,920
North French	\$79,712
<b>Total</b>	\$1,567,407
<i>Estimates based on estimated annual visits and mean expenditures for each region (see Table 2B).</i>	

**Table 7B**

<b>Annual Estimated Paddling (Commercial) Expenditures by Western North Carolina Residents</b>	
<i>Region</i>	<b>Annual Redirected Expenditures Estimate</b>
Nantahala	\$8,577,378.52
French Broad	\$1,843,462.76
Nolichucky	\$268,312.18
<b>Total</b>	\$10,689,153.46
<i>Estimates based on estimated annual visits and mean expenditures for each region (see Table 2D).</i>	

# Demographics

**Table 6** describes the demographics of all paddling respondents in this study. Note that these statistics also include persons who may have been excluded from the economic impact study. The sample was 76% male. Around 68% of the sample made \$50,000 or more in individual annual income. A notable 39% of the sample had more than a four year college degree. In all, 23% of respondents owned their own businesses, with one in four of those businesses being in outdoor recreation. Around 18% described their job as being in the outdoor recreation industry. The most common age category was between 36 and 50, with 18-34 close behind. Although not listed on Table 6, the sample was largely white and non-Latino/Hispanic.

**Table 6**

<b>Demographics of Sample</b>			
<i>Variable Category</i>	<i>Variable</i>	<i># Of Cases</i>	<i>% Of Cases</i>
Sex	Male	342	76.2%
	Female	105	23.4%
	Other Sex	2	0.4%
Income	\$0 - \$19,999	27	6.5%
	\$20,000 - \$29,999	21	5.0%
	\$30,000 - \$49,999	84	20.2%
	\$50,000 - \$74,999	97	23.3%
	\$75,000 - \$99,999	69	16.6%
	Greater than \$99,999	118	28.4%
Education	Less than BA / BS	82	18.4%
	Greater than BA / BS	174	39.0%
Business owner?	Yes, I do.	102	23.0%
	No, I do not.	342	77.0%
Job in outdoor recreation?	Yes, it is.	78	17.9%
	No, it is not.	365	82.1%
Age	18 - 35	155	34.2%
	36 - 50	167	36.9%
	51 - 64	95	21.0%
	65 and up	36	7.9%

*Do Not Record or Not Sure responses are not reported or included in percentages.*

## **OMISSIONS & CONSIDERATIONS**

During the research process, the research team identified minor issues that should be noted. First, as with all economic impact studies, the findings in this report must be treated as estimations. This economic impact study utilizes mean figures to estimate expenditures that may vary from year to year, visit to visit, and person to person.

Second, the estimates in this report are framed around generalized expenditure categories. For example, lodging is distributed among campgrounds, cabins, and motels, but the survey makes no distinction. Similarly, restaurants include full service (formal dining) and limited service (fast food) restaurants, but the survey makes no distinction. Although economic impact studies often use this approach to save room on the survey, it may, nonetheless, be useful for future research to be more specific in these areas.

Third, this study does not take into account length of visit and how this may alter the economic impact of the mean expenditures per visit. On average, respondents in this sample indicated they spent an average of three nights per visit.

## OMISSIONS & CONSIDERATIONS, CONTINUED

Fourth, this study uses data from an online survey to create economic impact measures. Online surveys are not as effective or as accurate as in-person field surveys. We advise conducting an in-person field study to validate the results of this preliminary study.

Fifth, the inclusion of taxes and fees paid in making purchases may inflate economic impact estimates. For example, renting a cabin for one night may cost \$100 plus \$30 in fees and taxes and be misreported as a \$130 lodging purchase in the survey.

Sixth, as mentioned in the report, commercial paddler means in this report are based largely upon non-commercial paddler means. This makes the assumption that the two are similar and may lead to over or under estimating expenditures. As such, commercial means should be interpreted with caution.

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## STUDY TERMINOLOGY & ABBREVIATIONS

**NPNF:** Nantahala and Pisgah National Forests

**Visitor:** A person who has responded in the survey that they are not a resident of western North Carolina.

**Resident:** A person who has responded in the survey that they are a resident of western North Carolina.

**Commercial:** Paddling solely through the use of a professional paddling service, such as the Nantahala Outdoor Center.

**Non-commercial:** Paddling outside the use of a professional paddling service, but still allowing for the optional use of a paddling guide.

## ECONOMIC IMPACT TERMINOLOGY

**Direct effect** is the economic impact created by the presence of the economic activity. For example, if a local restaurant sells \$1K in food, its direct effect would be \$1K.

**Indirect effect** is economic activity created when local businesses purchase goods and services from other local industries as a result of the direct effect.

**Induced effect** is the estimated local expenditures by local households and employees as a result of income created from the direct effect.

**Labor income impact** is measured by the estimated labor income created by the economic activity in the region. This is a conservative measure of economic impact.

**Value added** is a measure of the increase in the study region's gross domestic product. Gross domestic product is a measure of all goods and services produced in the study area and is treated as a measure of the size of the economy.

**Output** is a measure of the increase in business sales revenue in the study area as a result of the economic impact being studied. It includes business revenues as well as costs of doing business. It includes value added as part of its calculation.