

## Lake impacts on annual business revenues in Kosciusko County

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### ***Abstract***

With more than 100 lakes in Kosciusko County, local water resources are a huge economic driver for the cities of Syracuse, North Webster, Warsaw, and many small, neighboring communities. Many area businesses would not have the customer base or the proper location to make a profit without the presence of local lakes. The lakes provide direct business opportunities for lake-specific businesses such as boat marinas and manufacturers, as well as a summer influx of customers for lake-related businesses such as restaurants and grocery stores. This study identifies lake impact on lake-specific and lake-related businesses within Kosciusko County as specific indicators of economic impact. Information was collected for 314 businesses throughout the county and accounted for \$298,383,000 in revenue that enters Kosciusko County annually as a direct result of the presence of local lakes. When combined with additional property taxes generated due to lake presence, the total identified economic impact of Kosciusko County lakes was \$313,383,000 annually. A positive or negative shift in the water quality of these lakes could enhance or severely harm the businesses that are located around these lakes. Major industries that would suffer dramatic revenue losses as a result of water quality degradation include boat retailers, marinas, restaurants, and construction companies. Many business owners, executives, and managers who contributed to the study stated that they would do much less business or would need to close or relocate their businesses if there were no lakes or poor quality lakes in Kosciusko County. Therefore, the efforts of the Center for Lakes & Streams are vital in the county for future economic development, funding of public services, and personal wealth considerations.

**Keywords:** lake economic impact, Kosciusko County, lake quality, business, tourism

## ***Introduction***

Water is an important component in the global economy. Water shortages are estimated to cost the global economy nearly \$500 billion per year (Global Water Partnership, 2015). The United States experiences a part of this impact annually, especially in western states that experience droughts and water usage limitations. However, in the Midwest, water is more plentiful. Kosciusko County, Indiana is home to over 100 lakes, many of them kettle lakes formed by glaciers that carved large pockets into the earth which later filled with water. Because of these abundant natural resources, the local focus is more on water quality rather than water quantity.

These lakes bring in thousands of tourists and seasonal visitors each year. In addition, many residents locate their homes and businesses in Kosciusko County in order to serve the large amount of summer visitors. While city planners and community members across the nation are starting to recognize the value of economic impact studies, very little work has been done to fully understand how the lakes in Kosciusko County affect the county's economy, especially during peak season summer months when lake traffic is high.

In this study, the Center for Lakes & Streams seeks to show the economic impact, and thus overall financial value, of the lakes in Kosciusko County; this includes both direct and indirect economic influence due to the presence of local lakes. To accomplish this, we focus on businesses that serve customers based solely on lake-specific services or products, as well as businesses that serve more customers during summer months based on annual population increase of seasonal visitors. In addition, we summarize the importance of maintaining lake quality and the dangerous effects degrading lake quality would have on area businesses and the county economy as a whole.

## ***Methods***

### **Business Selection**

All businesses that sold lake-related services or products were selected to be part of the study as well as businesses located on or near the lakes.

Businesses selected were divided into the following categories so industry-based revenue amounts could be collected and used to compare different business sectors of the economy:

#### Lake-specific Services and Products

- **Bait and Tackle**  
Bait and tackle shops throughout Kosciusko County.
- **Boat Sales**  
Boat retail businesses throughout Kosciusko County.

- **Boat Manufacturers**  
Includes boat manufacturing plants based in Kosciusko County.
- **Boat Repair**  
Includes both boat-specific repair shops as well as auto shops that also repair boats. Does not include marinas that also offer boat repair— these businesses are included in Marina industry category.
- **Recreation Equipment**  
Retailers that primarily sell or rent lake-related recreation equipment such as water skis, wakeboards, rental boats, etc.
- **Marinas**  
Includes marinas located on different lakes throughout Kosciusko County.
- **Pier Installation**  
Companies that specialize in pier installation primarily in Kosciusko County.
- **Other Business**  
Includes guides, tours, clubs, and other lake-centered recreation and entertainment businesses.

#### Lake-related Services and Products

- **Auto and Gas**  
Combined auto and gasoline sales for Kosciusko County.
- **Construction**  
Companies that specialize primarily in construction or excavation.
- **Food and Dining**  
Combined grocery and restaurant revenue for Kosciusko County.
- **Health and Medical**  
Includes medical revenue at various doctor offices and other health facilities in Kosciusko County.
- **Home Care**  
Home maintenance companies such as hardware stores, pest control, and landscaping companies.
- **Lodging**  
Includes hotel revenue for Kosciusko County, as well as private rental homes and campgrounds.
- **Professional Services**  
Law firms, accounting, and insurance companies.
- **Entertainment**  
Includes art galleries, concert and theater venues, and performers.
- **Real Estate**  
Real estate companies throughout Kosciusko County.
- **Youth and Retreats**  
Includes youth centers, camps, community centers, education, and retreat centers.
- **Specialty Business**  
Includes other businesses specializing in communication, manufacturing, retail, and specialty products.

## **Data Collection Methods**

Researchers identified 451 businesses in Kosciusko County that could have lake-specific or lake-related revenue. Data was collected for 314 of these businesses. Data collection included business surveys, public data sources, and corporate estimates. Of the other 137 businesses not included in the study, a majority chose not to respond and revenue information could not be found in public data sources, while a few could not be contacted due to a lack of contact information available. Therefore, the total county business revenue accounted for in the present study can be considered a conservative measure due to lack of data availability in some cases.

### **Survey Data Collection**

Businesses were contacted in one or more of several forms of communication and on several dates throughout the course of the study to collect survey data. First, an online economic impact study survey was drafted and sent directly to selected area businesses through email. Additionally, the survey link was included in the Syracuse-Wawasee Chamber of Commerce newsletter, the Kosciusko Chamber of Commerce newsletter, and the Kosciusko County Convention and Visitors Bureau and Visitor Center newsletter. This additional effort was undertaken to give any businesses that were not contacted initially the opportunity to respond if they wished to be part of the study. Emails were sent throughout the months of May, June, and July with a cover letter and a link to the online survey.

### *Economic Impact Survey Questions*

- **Name of Business:**
- **How would your business be different if the lakes were not here?**
- **Without our local lakes, what percentage of your annual sales would be lost?**
- **About how much revenue does your business generate annually?**

Businesses surveyed were given the option to include an exact annual revenue dollar amount or choose from a list of bracketed options for annual revenue (i.e. \$500,000-1,000,000; \$1,000,000-2,000,000; etc.). For businesses that selected the latter, the midpoint of the bracketed amount was used as a typical year for the purpose of the present study. This was done to reflect the average fluctuation in annual revenue from year to year and allowed a more accurate picture of a business's annual revenue to be included.

Many business owners did not have email accounts or check their accounts regularly, and, as a result, needed to be contacted through a different media of communication. During the months of July and August, a hardcopy form of the economic impact study survey was hand-delivered to many area businesses to offer the chance to provide the data in a face-to-face, hardcopy form. Data received was immediately entered into the same spreadsheet as online survey responses.

During the months of July and August, businesses for which annual revenue information had been found through public data sources were contacted via telephone and asked to estimate what percentage of their sales would be lost if Kosciusko County contained no lakes. Percentage amounts were recorded and applied to total revenue amounts to produce a lake-related revenue value. Public data sources utilized included the Dun & Bradstreet Business Directory and the Manta Business Directory (see further explanation below). Of the 451 businesses initially identified, information was collected for 128 businesses throughout Kosciusko County through these surveying methods. The survey had a 65% response rate among businesses.

#### Public Data Collection

In order to maintain the quality, precision, and scope of the study, an accurate representation of each business's revenue needed to be obtained. Business owners who did not respond to multiple attempts to contact them with the economic impact study survey were researched using the Dun & Bradstreet Business Directory or the Manta Business Directory in an attempt to find an annual revenue amount. The Dun & Bradstreet Business Directory annual revenue amount was given preference over the Manta Business Directory annual revenue amount because the dollar amount was found to be more precise. The Manta directory was used as a backup database to fill in values not provided by the Dun & Bradstreet business directory.

Some businesses that did not respond to the survey but sell lake-specific services or products were marked as 100% affected by the lakes and the full revenue amount of the business was recorded as being directly related to the presence of local lakes. This included businesses such as marinas, boat sales, bait and tackle shops, etc.

There were a few additional key businesses which were unresponsive to attempts to include them in the surveying process or chose not to disclose their annual revenue, and were also not listed in public data sources. Because these were key businesses in this research, it was necessary to estimate annual revenue based on other factors. This was done by looking at one or more businesses of similar size and location, and applying an approximate revenue for the business. The estimation process allowed reasonable values to be included in order to make the study as accurate as possible. It is also important to note that this revenue approximation was only employed as a last resort if businesses were unresponsive, would not disclose annual revenue, or could not be found in public data sources. This method was only used for nine businesses in the study.

#### Large Business and Corporation Estimation

Many large businesses and corporations were not able to disclose annual revenue information based on corporate policies. However, in order to include these businesses and better understand how they affect the economy of Kosciusko County, it was important that the information be estimated.

Of the 314 total businesses for which data was collected, 71 were included in the innkeeper tax estimation method, 44 were included in the gas estimation, and 62 were included in the restaurant estimation. The remaining number responded to survey requests or were estimated as described above (with duplicates thrown out if they fell into estimation categories).

Annual revenue estimations for county gas stations, grocery stores, and chain restaurants were calculated by subtracting the off-season population for the Town of Syracuse and Tippecanoe Township (contains North Webster) from the peak season population in order to find the number of summer visitors. This number was applied to the average amount that Americans spend on gas (Huffington Post, 2012) and food (Mendes, 2012) in a typical week. The amount was multiplied by thirteen to account for the thirteen weeks of summer between the beginning of June and the end of August.

Hotel annual revenue was estimated by considering the total innkeeper tax collection totals for each month. In order to establish an off season baseline, the tax amounts for the months of January, February, March, and April were averaged. Then the amounts for June, July, and August were averaged to establish an amount for peak lake season and the baseline tax amount was subtracted from this amount to determine change due to increased lake traffic. Because the innkeeper tax rate is 5%, the amount was multiplied by twenty to find the total amount of sales due to increased lake traffic during the summer months.

## **Results**

The lake-specific industry total was found to be \$150,722,000 (Table 1) and the lake-related industry total was found to be \$147,661,000 (Table 2). Including \$15,000,000 of additional property taxes generated due to lake presence (Bosch et al., 2013) produces a grand total of \$313,383,000. Boat sales, boat manufacturing, and marinas had the largest total revenues of the lake-specific industry categories. These industries account for more than 90% of total dollars entering the economy through lake-specific businesses.

Other lake-specific industries included bait and tackle shops, businesses that offered boat repair, and businesses that sold or rented lake-specific recreation equipment (Figure 1). The pier installation category was found to have a relatively large total revenue despite the fact that only a few pier installation businesses operate in Kosciusko County.

The auto and gas, food and dining, and construction categories accounted for a large portion of the lake-related industry category (Figure 2). Other lake-related industries expected to have high totals included home care, lodging, and real estate. Many of the businesses in these categories do a large amount of business with summer visitors or during summer when lake traffic is high. However, these industries were relatively low compared to the auto and gas, food and dining, and construction categories. While many of these businesses were found to

take advantage of the inflow of summer customers, many also participated in some degree of year-round business that lake-specific and other lake-related businesses do not.

The professional services, health and medical, and entertainment industries were found to have very low totals compared to other industries. Owners of these businesses explained through their survey answers that they rely on year-round, local customers to provide business rather than a large influx of summer visitors.

### **Improving Lake Quality**

According to a home value study completed by the Ohio Sea Grant College Program at Ohio State University, an improvement in water clarity of two meters can lead to a 5% increase in the average property value (Banicki, 2006). Assuming that an increase in the average home value would also reflect a similar increase in the local economy, we can apply a 5% increase to the current total of \$313,383,000. A 5% increase (Figure 3) would increase the local economic impact of lakes by over \$10 million to a new total of \$323,902,000. Boat manufacturer revenues were held constant for this estimated increase since their current scope of sales exceeds Kosciusko County.

It may be beneficial to think of this increase in terms of a period of years. For instance, over a three-year period, an excess of over \$30,000,000 would be entering the economy due to improved water quality in area lakes. In ten years, the increased economic impact would be over \$1 billion.

### **Degrading Lake Quality**

Grand Lake St. Marys, the largest inland lake in Ohio, has been decimated by blue-green algae over the past several years. Around the lake, home values and the local economy have suffered greatly. A 30-50% decrease in the local economy has been reported and businesses have closed down, adding to the number of jobs lost as a result of the degraded water quality (Arenschild, 2015). Applying an average of 40% to the current total economic impact for Kosciusko County's lakes (Figure 3), the county could anticipate a loss of \$84,153,000 under similar conditions, producing a new grand total of \$229,230,000. Boat manufacturer revenues were held constant for this estimated change as well.

Over a period of three years, the economy would bypass \$252,459,000 of potential revenue generated by the presence of lakes in Kosciusko County. Over a ten-year period, these lost revenues would amount to \$841,530,000 not collected because of degraded lake quality.

### **Anecdotal Evidence**

While most data can be easily quantified by looking at annual business revenues and percentage of business lost, there is no quantitative method to measure answers to survey question one: "How would your business be different if the lakes were not here?"

Answers received from survey responses included:

- “May not be headquartered here.”  
*Large manufacturing company*
- “From our annual sales, 80% is between Memorial Day and Labor Day.”  
*Lakeside Restaurant*
- “We would not be here. I am sure the site was chosen because of access to water.”  
*Lakeside Retreat Center*
- “Not enough business to sustain. Would have to close doors.”  
*Lake-related professional services business*
- “We would not exist. The lakes fuel 100% of our company goals and missions.”  
*Lake-specific recreation equipment business*

While the businesses that gave these responses and others like them can share annual revenue amounts and percentage of business lost, perhaps a more striking result is seeing how much these businesses rely on the lakes for more than just sales and what effect degrading lake quality would have on these local businesses.

## **Discussion**

As expected, the presence of lakes and the seasonal visitors these lakes draw has a large impact on the economy of Kosciusko County and local businesses. More than half of the dollars found to be entering the economy from lakes are as a result of lake-specific businesses like boat manufacturing companies, boat retailers, and marinas. However, it is also significant to understand that some boat manufacturers may have located in Kosciusko County because of the presence of local lakes. Historically, the area was a successful market for boat dealers and may have drawn in manufacturers who primarily sold to private citizens on nearby lakes before expanding their businesses to sell outside to other cities and states.

Visitors to Kosciusko County also spend a large portion of their money on groceries, dining out, buying and maintaining vehicles, and purchasing gas. Lodging, including hotels and campsites, was initially expected to be lower than reported totals in present study results since many visitors stay at private cottages.

The construction category was also relatively large compared to other lake-related industries. Many residents are tearing down small cottages or adding on to existing homes to make better use of their lakefront properties. These new homes and additions account for the large number in this category and would also account for the large total in the Home Care category which included painting, landscaping, and hardware businesses.

## **Intangible Economic Impact**

Many businesses that were included in the study expressed through their answers to survey question number one that they would not be in business or would do significantly less business



if there were no lakes or poor quality lakes in Kosciusko County. Some business owners stated that they would need to relocate or would never have started their companies without the presence of local lakes and the seasonal traffic they attract. Some business owners also stated that they knew of businesses that were opened in Kosciusko County simply because the owners vacationed at one or more of the area lakes regularly and wanted to become members of the community. Throughout the course of this study, stories of intangible economic impact were shared by business owners who stated that they would not have considered settling their businesses in Kosciusko County if there were no lakes in the area.

### **Study Limitations**

This study was primarily limited by whether business owners chose to communicate with researchers. While the Center for Lakes & Streams was able to collect data from enough businesses to gain an understanding of lake economic impact, a few businesses could not be contacted or chose not to respond and were not listed in public data sources. Because these businesses were not able to be included, the numbers in this report can be considered conservative estimates of the economic impact of lakes in the county. When owners were unresponsive or would not share information, values were taken from public data sources in order to fill in annual revenue amounts for local businesses. When these results were not available in public data sources, estimations based on other businesses of similar size were taken when possible. It is important to note that estimations of this kind were only taken for nine businesses of the 314 for which results were collected. While the Dun & Bradstreet Business Directory and the Manta Business Directory are both well-known and respected sources, annual revenue amounts taken directly from business owners may be more accurate.

While marina and boat repair revenues stay primarily in Kosciusko County, revenue from boat manufacturers may be spent outside the county as well as inside. Employees that live outside Kosciusko County or suppliers located outside the county receive dollars from these manufacturers that would most likely be spent in other county economies. These businesses were included in this study since the local lakes are the reason they are located here, but we did not include these businesses for future projections of improved or degraded water quality because of this uncertainty.

An important industry that was not accounted for in the study was the banking industry in Kosciusko County. Many banks do business in the county, especially during summer months when there is a higher concentration of personal wealth in the area. Multiple methods were tested in order to gain an understanding of how much total bank revenue is due to seasonal visitors entering the county and lake-related residents conducting personal and business banking. However, no method tested was successful in determining what amount of lake-related revenue enters the county through the banking industry and its interaction with seasonal visitors. Because this industry was not included, the total amount of lake economic impact dollars found to be entering the economy can be once again considered a conservative estimate.

## **Future Implications**

Year-round schooling was identified as a potential threat to businesses that market their products and services to seasonal lake visitors. As more schools switch to a year-round school academic calendar, summers become shorter and consequently limit available sales for local businesses selling primarily to seasonal visitors. Some businesses could lose up to a month of selling to visiting families who move back to primary residences before the start of the school year.

A downward turn in the national and state economies could also negatively affect businesses who primarily rely on visiting customers. Many homes located on local lakes in Kosciusko County are second homes for business executives from Chicago, Indianapolis, and Fort Wayne. A shrinking economy may cause some visitors to consider selling their lake cottages or may cause others to re-enter the workforce. An increase in the portion of visitors who must regularly work would decrease the average population of summer visitors and may only allow them to visit on weekends or during a few weeks of summer. This would shrink the number of available customers for local businesses in a time of economic downturn.

A positive or negative shift in the quality of local lakes would certainly affect the economy of Kosciusko County. A positive shift in water quality may raise home values, bring in more seasonal visitors, grow both lake-specific and lake-related business annual revenues, and expand the county economy. A negative shift in water quality could lower home values, as seen near Grand Lake St. Marys, as well as bring in fewer seasonal visitors and lower annual revenues for local businesses.

## **Conclusion**

The total amount of revenue generated by the presence of lakes in Kosciusko County is conservatively estimated to be \$313,383,000. Boat retailers, marinas, restaurants, and construction companies make up a large percentage of this total, as do auto and gasoline sales, grocery store revenues, and annual property taxes. This total value would be subject to change based on water quality improvement or degradation. In addition, poor water quality would not only affect business profits, especially for lake-specific businesses, but would also affect where these businesses might locate. Should water quality degrade, many business owners may be forced to relocate or close their businesses based on a lack of available seasonal customers. Therefore, the efforts of the Center for Lakes & Streams to make our lakes clean, healthy, safe, and beautiful are vital in the county for future economic development, funding of public services, and personal wealth considerations.

## ***Acknowledgements***

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<<http://www.gwp.org/gwp-in-action/News-and-Activities/New-Report-Water-Insecurity-a-Drag-on-Global-Growth/>>.

## Tables

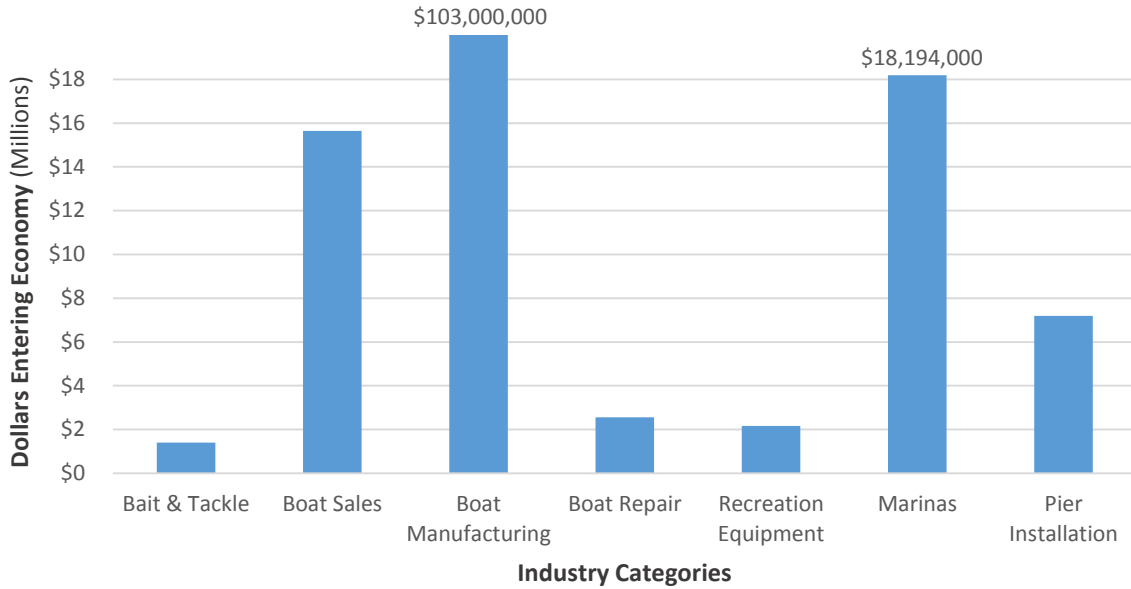
**Table 1:** Total annual lake-generated business revenues for lake-specific industries in Kosciusko County.

Industry	Industry Total
Bait & Tackle	1,401,000
Boat Sales	15,650,000
Boat Manufacturing	103,000,000
Boat Repair	2,555,000
Recreation Equipment	2,157,000
Marinas	18,194,000
Pier Installation	7,197,000
Other Business	568,000
<b>Total</b>	<b>\$150,722,000</b>

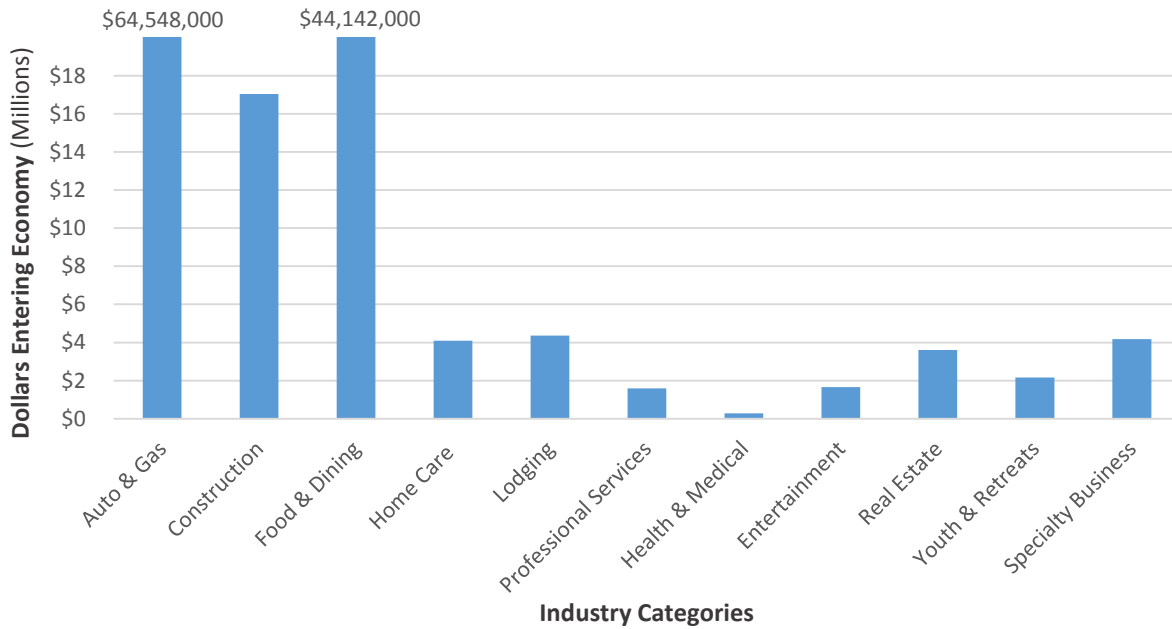
**Table 2:** Total annual lake-generated business revenues for lake-related industries in Kosciusko County.

Industry	Industry Total
Auto & Gas	64,548,000
Construction	17,039,000
Food & Dining	44,142,000
Home Care	4,088,000
Lodging	4,356,000
Professional Services	1,600,000
Health & Medical	285,000
Entertainment	1,656,000
Real Estate	3,601,000
Youth & Retreats	2,172,000
Specialty Business	4,174,000
<b>Total</b>	<b>\$147,661,000</b>

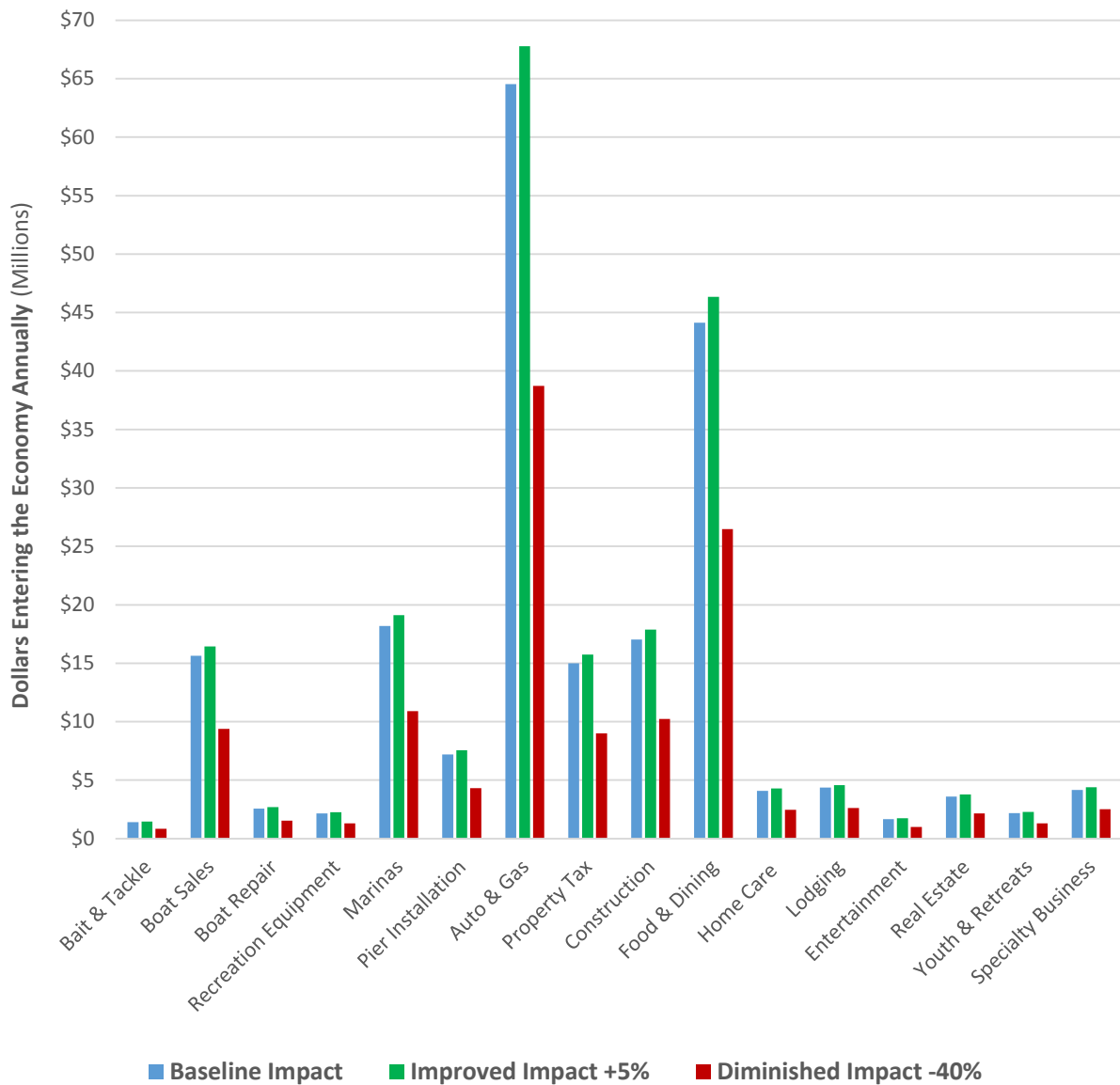
**Figures**



**Figure 1:** Total annual lake-generated business revenues (in millions of dollars) for lake-specific industries in relation to other lake-specific industries in Kosciusko County.



**Figure 2:** Total annual business revenues (in millions of dollars) for lake-related industries in relation to other lake-related industries in Kosciusko County.



**Figure 3:** Annual revenue impact (in millions of dollars) of improving or degrading lake quality on specific industries. Baseline impact, improved impact (+5%), and diminished impact (-40%) are included. *The boat manufacturing industry and other industry categories which were too small to be seen on the graph were omitted.*