

THE ECONOMIC AND FISCAL IMPACTS OF MICHIGAN'S PORTS AND HARBORS

2017

Prepared for:

The Michigan Port Collaborative

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Table of Contents

[Preface and Acknowledgments](#)

[Executive Summary](#)

[Introduction](#)

[Methodology](#)

[Economic Modeling](#)

[Model Inputs](#)

[Model Inputs: Tourism and Recreation-Related](#)

[Model Inputs: Non-Tourism and Recreation-Related](#)

[Findings](#)

[Alpena](#)

[Overview of Alpena's Water-Based Culture](#)

[The Economic Impacts of Alpena's Water-Based Culture](#)

[Key Threats to Alpena's Water-Based Culture](#)

[Conclusions: Alpena](#)

[Detroit](#)

[Overview of Detroit's Water-Based Culture](#)

[The Economic Impacts of Detroit's Water-Based Culture](#)

[Key Threats to Detroit's Water-Based Culture](#)

[Conclusions: Detroit](#)

East Tawas

[Overview of East Tawas' Water-Based Culture](#)

[The Economic Impacts of East Tawas' Water-Based Culture](#)

[Key Threats to East Tawas' Water-Based Culture](#)

[Conclusions: East Tawas](#)

Elk Rapids

[Overview of Elk Rapids' Water-Based Culture](#)

[The Economic Impacts of Elk Rapids' Water-Based Culture](#)

[Key Threats to Elk Rapids' Water-Based Culture](#)

[Conclusions: Elk Rapids](#)

Grand Haven

[Overview of Grand Haven's Water-Based Culture](#)

[The Economic Impacts of Grand Haven's Water-Based Culture](#)

[Key Threats to Grand Haven's Water-Based Culture](#)

[Conclusions: Grand Haven](#)

Les Cheneaux Islands

[Overview of Les Cheneaux's Water-Based Culture](#)

[The Economic Impacts of Les Cheneaux's Water-Based Culture](#)

[Key Threats to Les Cheneaux's Water-Based Culture](#)

[Conclusions: Les Cheneaux](#)

Manistee

[Overview of Manistee's Water-Based Culture](#)

[The Economic Impacts of Manistee's Water-Based Culture](#)

[Key Threats to Manistee's Water-Based Culture](#)

[Conclusions: Manistee](#)

[Marquette](#)

[Overview of Marquette's Water-Based Culture](#)

[The Economic Impacts of Marquette's Water-Based Culture](#)

[Key Threats to Marquette's Water-Based Culture](#)

[Conclusions: Marquette](#)

[Muskegon](#)

[Overview of Muskegon's Water-Based Culture](#)

[The Economic Impacts of Muskegon's Water-Based Culture](#)

[Key Threats to Muskegon's Water-Based Culture](#)

[Conclusions: Muskegon](#)

[Onekama](#)

[Overview of Onekama's Water-Based Culture](#)

[The Economic Impacts of Onekama's Water-Based Culture](#)

[Key Threats to Onekama's Water-Based Culture](#)

[Conclusions: Onekama](#)

[Rogers City](#)

[Overview of Rogers City's Water-Based Culture](#)

[The Economic Impacts of Rogers City's Water-Based Culture](#)

[Key Threats to Rogers City's Water-Based Culture](#)

[Conclusions: Rogers City](#)

Saugatuck-Douglas

[Overview of Saugatuck-Douglas' Water-Based Culture](#)

[The Economic Impacts of Saugatuck-Douglas' Water-Based Culture](#)

[Key Threats to Saugatuck-Douglas' Water-Based Culture](#)

[Conclusions: Saugatuck-Douglas](#)

Sault Ste. Marie

[Overview of Sault Ste. Marie's Water-Based Culture](#)

[The Economic Impacts of Sault Ste. Marie's Water-Based Culture](#)

[Key Threats to Sault Ste. Marie's Water-Based Culture](#)

[Conclusions: Sault Ste. Marie](#)

South Haven

[Overview of South Haven's Water-Based Culture](#)

[The Economic Impacts of South Haven's Water-Based Culture](#)

[Key Threats to South Haven's Water-Based Culture](#)

[Conclusions: South Haven](#)

St. Joseph

[Overview of St. Joseph's Water-Based Culture](#)

[The Economic Impacts of St. Joseph's Water-Based Culture](#)

[Key Threats to St. Joseph's Water-Based Culture](#)

[Conclusions: St. Joseph](#)

[Traverse City](#)

[Overview of Traverse City's Water-Based Culture](#)

[The Economic Impacts of Traverse City's Water-Based Culture](#)

[Key Threats to Traverse City's Water-Based Culture](#)

[Conclusions: Traverse City](#)

[State of Michigan](#)

[Overview of Michigan's Water Culture](#)

[Economic Impacts of Michigan's Water Culture](#)

[Key Threat's to Michigan's Water Culture](#)

[Conclusions: State of Michigan](#)

[References](#)

[Investigator Bios](#)

[Reviewer Bio](#)

[Contributing Authors](#)

[Photo Credits](#)

[Appendices](#)

[Appendix A: Glossary of Terms](#)

[Appendix B: Survey Responses by Location](#)

List of Tables

Table 1: The Economic Impacts of Alpena’s Water-Based Culture: Tourism and Recreation-Related Components

Table 2: The Economic Impacts of Alpena’s Water-Based Culture: Overall

Table 3: The Economic Impacts of Detroit’s Water-Based Culture: Tourism and Recreation-Related Components

Table 4: The Economic Impacts of Detroit’s Water-Based Culture: Overall

Table 5: The Economic Impacts of East Tawas’ Water-Based Culture: Tourism and Recreation-Related Components

Table 6: The Economic Impacts of East Tawas’ Water-Based Culture: Overall

Table 7: East Tawas’ State Dock: 2017 Key Statistics

Table 8: The Economic Impacts of Elk Rapid’s Water-Based Culture: Tourism and Recreation-Related Components

Table 9: The Economic Impacts of Elk Rapid’s Water-Based Culture: Overall

Table 10: Elk Rapid’s Edward C. Grace Memorial Harbor: 2017 Key Statistics

Table 11: The Economic Impacts of Grand Haven’s Water-Based Culture: Tourism and Recreation-Related Components

Table 12: The Economic Impacts of Grand Haven’s Water-Based Culture: Overall

Table 13: The Economic Impacts of Les Cheneaux’s Water-Based Culture: Tourism and Recreation-Related Components

Table 14: The Economic Impacts of Les Cheneaux’s Water-Based Culture: Overall

Table 15: The Economic Impacts of Manistee’s Water-Based Culture: Tourism and Recreation-Related Components

Table 16: The Economic Impacts of Manistee’s Water-Based Culture: Overall

Table 17: The Economic Impacts of Marquette’s Water-Based Culture: Tourism and Recreation-Related Components

Table 18: The Economic Impacts of Marquette’s Water-Based Culture: Overall

Table 19: Marquette’s Cinder Pond and Presque Isle Marinas: 2017 Key Statistics

Table 20: The Economic Impacts of Muskegon’s Water-Based Culture: Tourism and Recreation-Related Components

Table 21: The Economic Impacts of Muskegon’s Water-Based Culture: Overall

Table 22: 10 Marinas in Muskegon: 2017 Key Statistics

Table 23: The Economic Impacts of Onekama’s Water-Based Culture: Tourism and Recreation-Related Components

Table 24: The Economic Impacts of Onekama’s Water-Based Culture: Overall

Table 25: Onekama’s Portage Lake Marina: 2017 Key Statistics

Table 26: The Economic Impacts of Rogers City’s Water-Based Culture: Tourism and Recreation-Related Components

Table 27: The Economic Impacts of Rogers City’s Water-Based Culture: Overall

Table 28: The Economic Impacts of Saugatuck-Douglas’ Water-Based Culture: Tourism and Recreation-Related Components

Table 29: The Economic Impacts of Saugatuck-Douglas’ Water-Based Culture: Overall

Table 30: The Economic Impacts of Sault Ste. Marie’s Water-Based Culture: Tourism and Recreation-Related Components

Table 31: The Economic Impacts of Sault Ste. Marie’s Water-Based Culture: Overall

Table 32: The Economic Impacts of South Haven’s Water-Based Culture: Tourism and Recreation-Related Components

Table 33: The Economic Impacts of South Haven’s Water-Based Culture: Overall

Table 34: 4 Marinas in South Haven: 2017 Key Statistics

Table 35: The Economic Impacts of St. Joseph’s Water-Based Culture: Tourism and Recreation-Related Components

Table 36: The Economic Impacts of St. Joseph’s Water-Based Culture: Overall

Table 37: The Economic Impacts of Traverse City’s Water-Based Culture: Tourism and Recreation-Related Components

Table 38: The Economic Impacts of Traverse City’s Water-Based Culture: Overall

Table 39: The Economic Impacts of Michigan’s Ports and Harbors: Tourism and Recreation-Related Components

Table 40: The Economic Impacts of Michigan’s Ports and Harbors: Overall

List of Figures

Figure 1: Economic Ripple Effects

Figure 2: Survey Screenshot: Visit-Related Spending Categories

Figure 3: Survey Screenshot: Question Used to Discount Visitation Counts

Figure 4: Summary of Economic Modeling Inputs

Figure 5: Delineation of Michigan Counties

Figure 6: Water-Based Tourism and Recreation Components: Direct Spending

Figure 7: Top 5 Michigan Port Export Categories According to Relative Monetary Value

Figure 8: Commercial Fishing: Top 5 Species According to Dockside Value

Figure 9: The Magnitude of Water-Based Tourism and Recreation Economic Impact Relative to Other Components of Port/Harbor Economic Impact

Preface and Acknowledgements

This study was supported through the efforts of numerous entities:

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 - Felicia Fairchild, Michigan Port Collaborative, MPC President
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 - Marci Cisneros, Grand Haven Convention and Visitors Bureau, MPC Treasurer
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East Tawas	Sault Ste. Marie
Elk Rapids	South Haven
Grand Haven	St. Joseph
Manistee	Traverse City
Marquette	

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- ❖ Completing this study would not have been possible without the many individuals who responded to the consumer spending survey.
- ❖ Expert review of this study conducted by Dr. Muzaffer Uysal, Department Chair and Professor, University of Massachusetts (see bio at end of report).

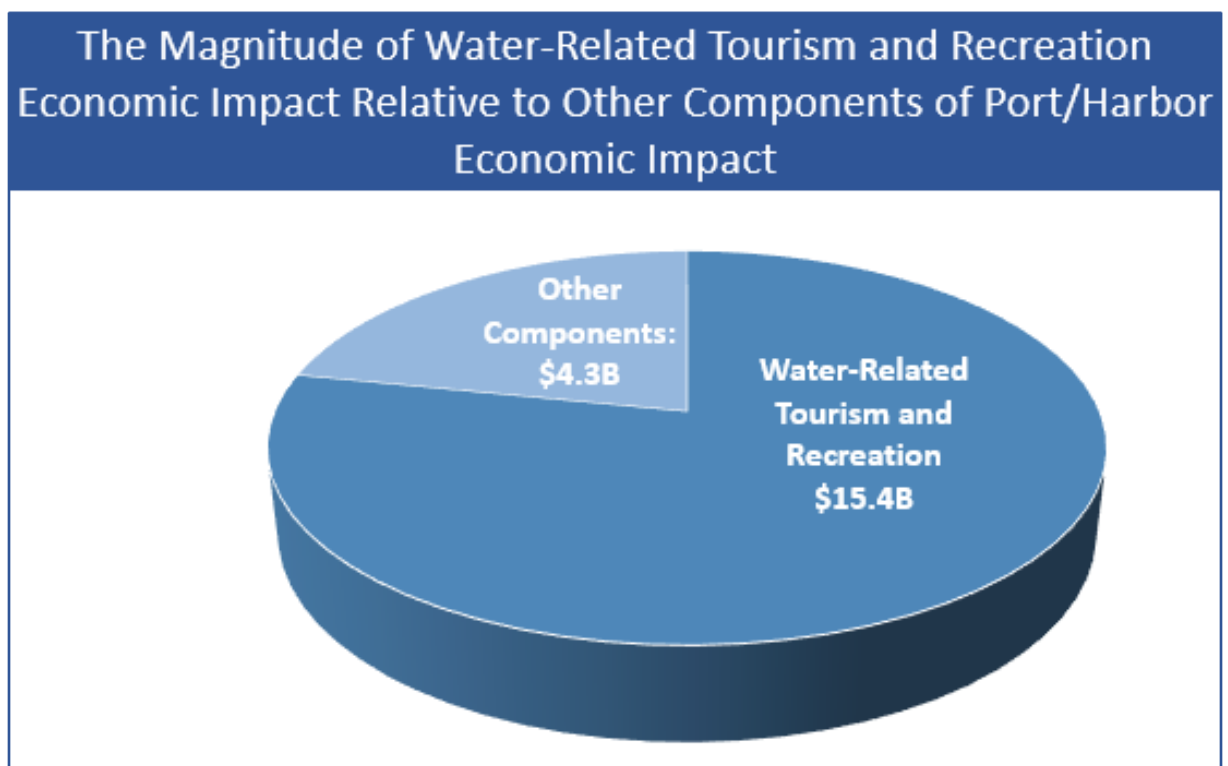
AT A GLANCE - KEY STATISTICS:

- In 2017, Michigan's ports and harbors produced \$19.7B in economic impact.
- Approximately 151K full-time equivalent jobs around the state were supported by the economic activity generated by Michigan's ports and harbors.
- An estimated \$7.7B in labor income can be attributed to the economic activity spawned by the state's ports and harbors.
- On a statewide-level, water-based tourism and recreation economic impacts are nearly 4-times the size of commercial economic impacts.
- The state of Michigan and municipalities within the state collected an estimated \$1B in tax revenues in 2017 due to water-based tourism and recreation in/around Michigan's ports and harbors.
- The federal government witnessed approximately \$1.3B in tax revenues in 2017 as a result of water-based tourism and recreation in/around Michigan's ports and harbors.

Executive Summary

This study builds and analyzes comprehensive economic impact models of Michigan's ports and harbors. These comprehensive models include traditional maritime measures, but also estimate other economic engines in the ports and harbors, most notably, the impacts associated with water-based tourism and recreation.

These analyses find that during 2017, an estimated \$15.4B of the \$19.7B in economic impacts produced by Michigan's ports and harbors were derived from water-based tourism and recreation. As such, on a statewide-level, water-based tourism and recreation economic impacts are nearly 4-times the size of commercial economic impacts. Therefore, when making funding decisions, governmental agencies that rely on funding formulas driven by goods-based gross domestic product (GDP) weighting may under-estimate the economic contributions of Michigan's ports and harbors.



Economic Impacts of Water-Based Tourism and Recreation in Michigan's Ports and Harbors:

An estimated 74 percent of tourist visits in Michigan's port and harbor communities can be attributed to the water-based culture of the area (also termed water-based tourism and recreation). Therefore, in 2017, water-based tourism and recreation associated with Michigan's ports and harbors stimulated an estimated \$8.5B in direct spending within the state.

Direct spending by tourists in Michigan's ports and harbors in 2017 on charter fishing tallied to roughly \$70M and the cruise and ferry industries attracted an estimated \$149.9M. Moreover, non-local recreational boaters in the state's ports and harbors spent approximately \$2.1B on new and used boat / accessory purchases and boat payment installments during 2017. Spending on other boat-related expenses such as maintenance, repair, slip rental, off-season storage, taxes, license and registration totaled to roughly \$3.5B.

When all of the direct spending categories are modeled to also include secondary economic effects, the statewide economic impact of 2017 port/harbor water-based tourism and recreation is estimated at \$15.4B. This economic activity supported approximately 124,892 full-time equivalent jobs around the state with associated labor income of roughly \$5.9B. Significant tax revenues were derived from this water-based tourism and recreation activity in and around Michigan's ports and harbors. Specifically, the state of Michigan and municipalities within the state collected an estimated \$1B in tax revenues in 2017 due to this water-based tourism and recreation. Moreover, the federal government witnessed approximately \$1.3B in tax revenues.

Overall Economic Impacts of Michigan's Ports and Harbors:

When the commercial components of Michigan's water-based culture are incorporated into the modeling, the port/harbor economic impacts grow larger. During 2017, maritime shipping contributed roughly \$4.2B in economic activity to the state's economy (see Martin Associates 2018 report for details). Another example of a key commercial component is Michigan's commercial fishing sector which contributed an estimated \$26M in direct effects.

When a comprehensive model is built to include the commercial components, the 2017 economic impacts of Michigan's ports and harbors totaled an estimated \$19.7B (direct = \$10.3B). Approximately 150,989 full-time equivalent jobs around the state were supported by the economic activity generated by these ports and harbors. The labor income associated with these jobs is estimated at \$7.7B.

Introduction

The purpose of this study is to provide a **comprehensive** economic impact analysis of Michigan's ports and harbors. There are a number of well-crafted existing studies that measure the economic impacts of particular aspects of the state's ports and harbors. For example, a recent study conducted by Martin Associates (Lancaster, PA), modeled the economic impacts of commercial shipping activity during 2017 (Martin Associates, 2018). As another example, Michigan Sea Grant routinely provides economic impact estimates of Michigan's charter fishing sector (<http://www.miseagrant.umich.edu/explore/fisheries/economic-impacts-of-charter-fishing-in-michigan/>).¹

Within the context of this study, what is meant by **comprehensive**? This comprehensive view includes traditional maritime measures in the economic models, but also estimates other economic engines in the ports and harbors, most notably, the economic impacts associated with water-based tourism and recreation. Each of the model inputs that comprise this comprehensive modeling are explained in the methodology section of this report. In summary, this study yields a full-view of the economic impacts of Michigan's ports and harbors on a statewide-level.

In addition to the statewide analyses, the 17 ports/harbors that contributed funding to this project are each afforded dedicated sections in this report, so that the economic impacts of those localities on the state of Michigan can be identified.² As will be seen in the pages of this report, a diverse mixture of ports/harbors financially supported this study. These ports are diverse both in economics and geography. Economically, about 1/3 of the ports move commercial cargo, and, geographically-speaking, the ports are located across Lakes Huron, Michigan, and Superior. Interestingly, as will be described herein, even the commercial ports have strong and vibrant recreational components that support significant economic activity.

Regarding the parameters of this study, all economic impacts identified are at the statewide-level. That is, even in a section of this report in which a particular harbor or port is analyzed, this study models the economic impacts of that locality's water-based culture on the state of Michigan. Both primary data and secondary data were used in estimating these model inputs as accurately as possible given the domain and resources available for this study. Using this

¹ Michigan Sea Grant is a joint program between Michigan State University and the University of Michigan. The program is funded at the state and federal levels (Austin and Steinman, 2015).

² Although 17 municipalities contributed funding, Douglas and Saugatuck, Michigan are combined in the same section of this report because they are both within the coverage area of the Saugatuck-Douglas Convention and Visitors Bureau.

combination of data sources, economic model inputs derived from primary data were adjusted when deemed appropriate by examining secondary data sources. **Lastly, for a reader to understand the domain of this study, it is important to make clear that “water-based tourism and recreation” does not include recreational spending of local residents. “Water-based tourism and recreation” describes the activities of those traveling more than 50-miles one-way to visit the port/harbor (termed “tourist”, “non-local”, or “visitor”).** This approach is taken because true economic impact describes fresh money entering an area’s economy.

In terms of study presentation, the next section of this report details the methodology employed. The findings surrounding the 17 localities supporting this study are then offered in alphabetical sequence. Finally, the results yielded by the statewide economic models are presented and discussed.

{Methodology section on next page}

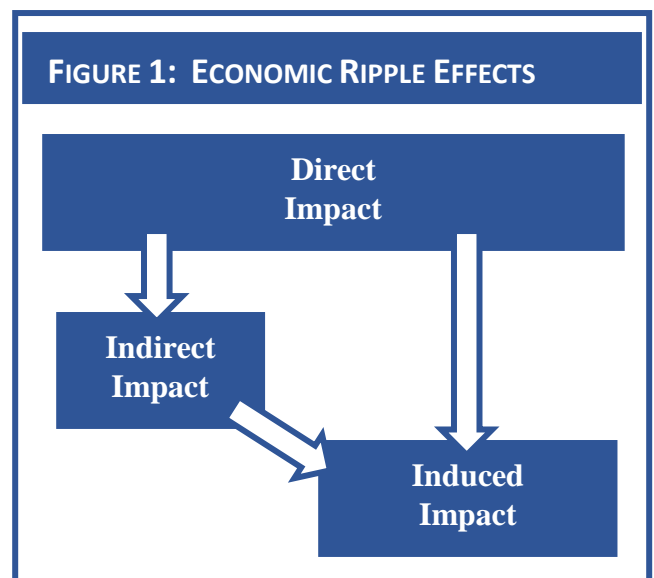
Methodology

Economic Modeling

To aid the readability of this report, an economic impact glossary of terms is provided in Appendix A.

The direct economic impacts of Michigan's ports and harbors derive from numerous sources. Each of these sources is detailed in the subsequent *model inputs* section of this report.

In addition to assessing the direct effects of port and harbor activity, this study also models secondary or ripple effects which comprise economic activity from subsequent rounds of re-spending of money. As shown in Figure 1, there are two types of ripple effects: indirect and induced. Indirect effects entail the changes in sales, income, and jobs of suppliers to entities included in direct impact (Stynes et al., 2000). Induced effects encapsulate the changes in economic activity in the region stimulated by household spending of income earned through direct and indirect effects.



Indirect and induced effects are estimated using economic multipliers. Multipliers reflect the extent of interdependency between sectors in a region's economy and can vary significantly between regions and sectors (Stynes et al., 2000). Here is a simple example of how a multiplier can be interpreted: if the multiplier for the restaurant sector in a given region is 1.27 then it can be estimated that every dollar spent at a restaurant results in 27 cents of secondary economic activity in the region.

The economic multipliers, as well as calculations of jobs supported, tax revenues generated, and value-added effects were custom built by the researchers in this study. A number of secondary sources were referenced while assembling the custom measures for this study. Here are some key sources utilized:

- 1) IMPLAN: Economic multipliers for the State of Michigan are commercially available in an economic impact estimation software titled IMPLAN commercialized by MIG, Inc. Therefore, the most recent IMPLAN multipliers were purchased and used in this study as a reference when estimating indirect and induced economic impacts. Used by more than 1,000 entities, IMPLAN is said to be the most widely adopted regional economic analysis software in the industry for estimating economic ripple effects (Dougherty, 2011).
- 2) MARAD Maritime Administration (United States Department of Transportation): The economic multipliers for this study were developed also by referencing the MARAD website and its many data listings for maritime activity. The MARAD Port Kit, an economic impact calculator through the United States Department of Commerce's National Technical Information Service (<https://www.ntis.gov/>), is no longer available for use, but the MARAD website was useful in informing the economic model and multiplier estimates in the current study.
- 3) MGM2: The excel-based money generating model 2 (MGM2) developed at Michigan State University by the late Professor Daniel Stynes and his colleagues to assess economic impact of park and recreation settings was used as a reference in creating the custom multipliers in this project (Stynes, Propst, Chang and Sun, 2000).
- 4) Charter Fishing Economic Impact Calculator: Michigan Sea Grant's calculator for charter fishing economic activity was referenced in building the multipliers in this study: <https://msu.edu/course/prr/840/econimpact/michigan/ecimpadjavastate.html>
- 5) Other recent studies: In deriving the custom multipliers for this project, the secondary economic effects reported in two other studies were referenced:
 - Martin Associates (2018). Economic Impacts of Maritime Shipping in the Great Lakes – St. Lawrence Region; July 2018; Lancaster, PA.
 - Silverstein and Hansen (2015). Fiscal Benefits of the Port of Muskegon: A Study of the Current Port Benefits and Potential for Increased Economic Activity by 2020. Development Research Partners; Littleton, CO.

Model Inputs

While the economic model inputs for this study were informed by numerous secondary sources, this study collected a large volume of primary data. Primary sources include the following:

Visitor spending survey:

Between May-July 2018 a brief survey was distributed via social media channels and email contact lists of 17 partner municipalities of this study.³ Anyone who had visited a Michigan port/harbor within the past two years was eligible to respond. Respondents were asked to recollect their most recent visit to a Michigan port or harbor and respond in reference to that most recent visit. The survey asked respondents questions regarding their spending and their water-based recreational habits. The responses of those reporting trips between 13-24 months ago were compared to data yielded from more recent trips; no significant differences were found to exist between these two timeframes in the data. The surveying stage of this study yielded data describing 5,088 port/harbor visits. The breakdown of localities around Michigan is provided in Appendix B.

Port / harbor data input sheets:

In April 2018, the 17 partner municipalities of this study were each sent a 22-page data input sheet to be completed by local stakeholders no later than June 15, 2018. The data input sheet asked for many of the items that were needed to build the economic models of this study such as tourist visitor counts, water-based capital improvement expenditures, and municipal boat slip occupancy rates.⁴ The data input sheet also asked for the contact information for those who could provide useful inputs for the modeling such as charter fishing operators, cruise and ferry operators, or agencies such as the U.S. Coast Guard.

³ Approximately 25 percent of completed responses were collected through a call for anyone who visited a Michigan port or harbor county within the past two years on an Internet respondent panel. Post-hoc analyses finds no statistical differences between those who completed surveys as part of the Internet panel versus other communication channels.

⁴ Municipalities were asked to provide their tourist visitor counts. For those locations that did not provide visitor counts, the research team used publicly available reports hosted on the Travel Michigan website to calculate estimated tourist counts (<https://www.michigan.org/industry/research>). When these estimates were made, the ISR research team remained conservative in its assumptions.

Port / harbor interviews:

During May 2018, Bill Boik, Vince Magnini (researchers) and Felicia Fairchild (President, Michigan Port Collaborative) visited each of the 17 partner ports/harbors and conducted a two-hour meeting at each to clarify all data inputs for the economic modeling for that port/harbor.⁵ These meetings were as large as 10-12 stakeholders in some localities. Typically, the meetings included stakeholders such as the city/town manager, the harbormaster, the tourism director, and the economic development director.

Follow-up emails / telephone interviews:

As the economic models were being constructed for this study, dozens of email exchanges and telephone conversations informed the data inputs. Most of these exchanges led to the research team accessing secondary data sources such as the most recent commercial fishing records for the state provided by the Michigan Department of Natural Resources.

Model Inputs: Tourism and Recreation-Related (listed alphabetically)

Charter Fishing:

The model inputs for charter fishing were built by asking visitors on the spending survey whether they participated in charter fishing and, if so, how much money they spent.⁶ This surveying approach is typically more reliable than directly asking charter captains about their revenues.

Cruise and Ferry:

The data inputs for the cruise and ferry sectors were calculated by asking visitors on the spending survey whether they participated in a cruise or ferry experience and, if so, how much they spent. This surveying approach is typically more reliable than directly asking operators about their revenues.

⁵ Vince Magnini and Felicia Fairchild attended all the meetings. Bill Boik attended when possible.

⁶ Only visitors (beyond 50-miles one-way) are included in the models, because spending by locals does not count as “impact” or “fresh-money” entering an economy.

Recreational Boating:

The model inputs for charter fishing were formulated by asking visitors on the spending survey whether they participated in recreational boating and, if so, how much money they spent. Also, an additional section of the survey gauged boat-related spending not associated with a particular harbor visit such as boat purchase price, boat storage costs, etc.

Other Visit-Related Spending Categories:

As depicted in Figure 2, visitors were asked about their spending in a number of categories other than those listed in the previous sections of this report (previous sections: charter fishing, cruise/ferry, and recreational boating). As seen in the survey instructions (see Figure 2), respondents were clearly instructed not to double-list an expenditure.

{Figure 2 on next page}

FIGURE 2: SURVEY SCREENSHOT: VISIT-RELATED SPENDING CATEGORIES

TRAVEL PARTY SPENDING IN MICHIGAN:

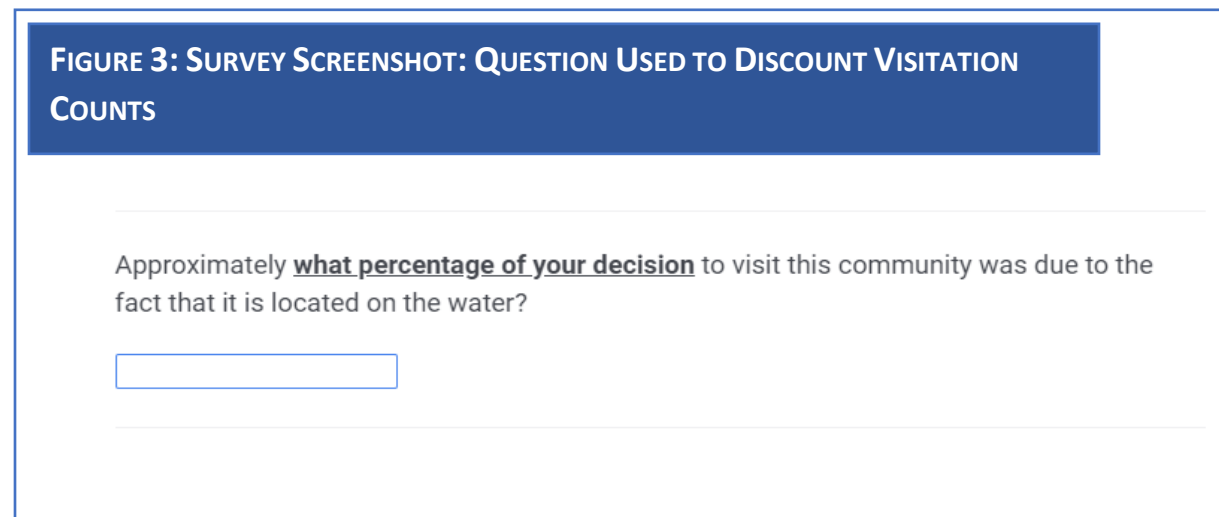
Please enter the dollar amount **spent by your party** during this most recent trip to a Michigan harbor. You can use decimals but don't enter dollar signs (\$). **Only enter a single expenditure in one place.**

	Party spending amount in Michigan:
Lodging: including hotels, motels, vacation rentals, B&B, cabins, etc...	<input type="checkbox"/>
Cruise ship fees and tips	<input type="checkbox"/>
Ferry boat fees	<input type="checkbox"/>
Camping fees and charges	<input type="checkbox"/>
Restaurants and bars	<input type="checkbox"/>
Groceries and convenience items	<input type="checkbox"/>
Gas and oil (auto, RV, boat, etc...)	<input type="checkbox"/>
Transportation expenses (other than gas and oil)	<input type="checkbox"/>
Clothing	<input type="checkbox"/>
Sporting goods (including fishing equipment)	<input type="checkbox"/>
Souvenirs	<input type="checkbox"/>
Fishing license	<input type="checkbox"/>
Charter fishing fees and tips	<input type="checkbox"/>
Other expenses (e.g. attraction admission fees)	<input type="checkbox"/>

Number of visitors to Michigan's Ports and Harbors:

The port/harbor data input sheets collected asked communities to report the number of day trip tourists and the number of overnight tourists that visited their communities during 2017. To reiterate from the previous section, only those traveling more than 50-miles (one-way) were included because these economic impact analyses entail modeling the “fresh-money” entering a community. For harbor/port communities in which data sheets were not collected, the number of tourists to those communities were estimated using reports available on the Travel Michigan research website (<https://www.michigan.org/industry/research>). If a community's 2017 tourism data was not available at the time of modeling in this study, then the 2016 attendance estimates (plus a 3 percent positive adjustment) were used as a proxy for 2017 estimates.

As seen in Figure 3, the visitor survey asked approximately what percentage of the decision to visit this community was due to the fact that it is located on the water. To remain conservative in the economic modeling of this study, the response to this question was used as the discount factor for the number of tourists visiting a port/harbor. For example, statewide, an estimated 29.8M overnight visitors were attracted to Michigan's port/harbor communities during 2017, but the economic modeling in this study includes only 22.2M because only 74.4 percent of visitors' decision to visit was due to the fact that the community was located on the water.⁷



⁷ Due to the commutative property of multiplication, the analyses can model this information as the percentage of people who visit because of the water location [100% of visitors x 74% of their spending = 74 percent of visitors x 100 percent of their spending].

Seasonal Visitors to Michigan's Ports and Harbors:

The economic impacts spawned by seasonal visitors were estimated by using the U.S. Census estimates for the number of households that are “for seasonal, recreational, or occasional use” (U.S. Census Bureau, 2010). To keep the economic estimates conservative, only 30-days of seasonal resident spending were included in the modeling. Also to remain conservative, seasonal residents’ daily spending was modeled at 23.7 percent of overnight tourists’ daily spending.

{Model inputs continued on next page}

Model Inputs: Non-Tourism and Recreation-Related (listed alphabetically)

Capital Improvements (water-based):

Capital improvements for items such as dredging were estimated using the data input sheets collected from the municipalities. Double counting was avoided by deducting capital expenditures paid for by federal agencies or capital expenditures covered by visitor spending.

Cargo and Breakbulk Shipping:

Secondary data from the US Census Bureau (USCB) international trade data and U.S. Army Corps of Engineers was used to estimate the economic impact of cargo and breakbulk (commercial) shipping from the Michigan ports in question. USCB provides precise values of exports leaving each port that are destined to foreign countries as their means to monitor the US balance of trade. The USACE tracks volume of commercial shipping from each port broken out by international and domestic (other US states). Since each port in question is generally focused on a limited number of exports (shippers), it was assumed for this assessment that the ratio of international versus domestic exports could be reasonably used to calculate total exports by NADA category both to other countries and other US states. Where in the case no USCB or USACE data was available for a port, the total direct impact was made based upon individual communications with the port's largest customers (e.g., Port of Alpena, DeTour City).

For the statewide model, as well as the model specific to the Soo Locks (Sault Ste. Marie), the short ton estimates, as well as other metrics such as economic activity, jobs, and labor income per short ton, were adapted directly from Martin Associates (2018): *Economic Impacts of Maritime Shipping in the Great Lakes – St. Lawrence Region*. This direct adaptation was made for two reasons: 1) The publicly available Martin Associates report was the most recent data source available for use in this current study; and 2) Martin Associates is widely regarded as the leading expert at estimating the economic impacts in the commercial maritime shipping sector.

Commercial Fishing:

Commercial fishing data was provided by the Michigan Department of Natural Resources (DNR). At the time that the modeling was run for this study, the 2017 tribal harvest had not yet been released by the Michigan DNR; consequently, the 2016 tribal harvest was inserted as a surrogate in the modeling. The retail value of this commercial fishing was modeled at four times the dockside value.

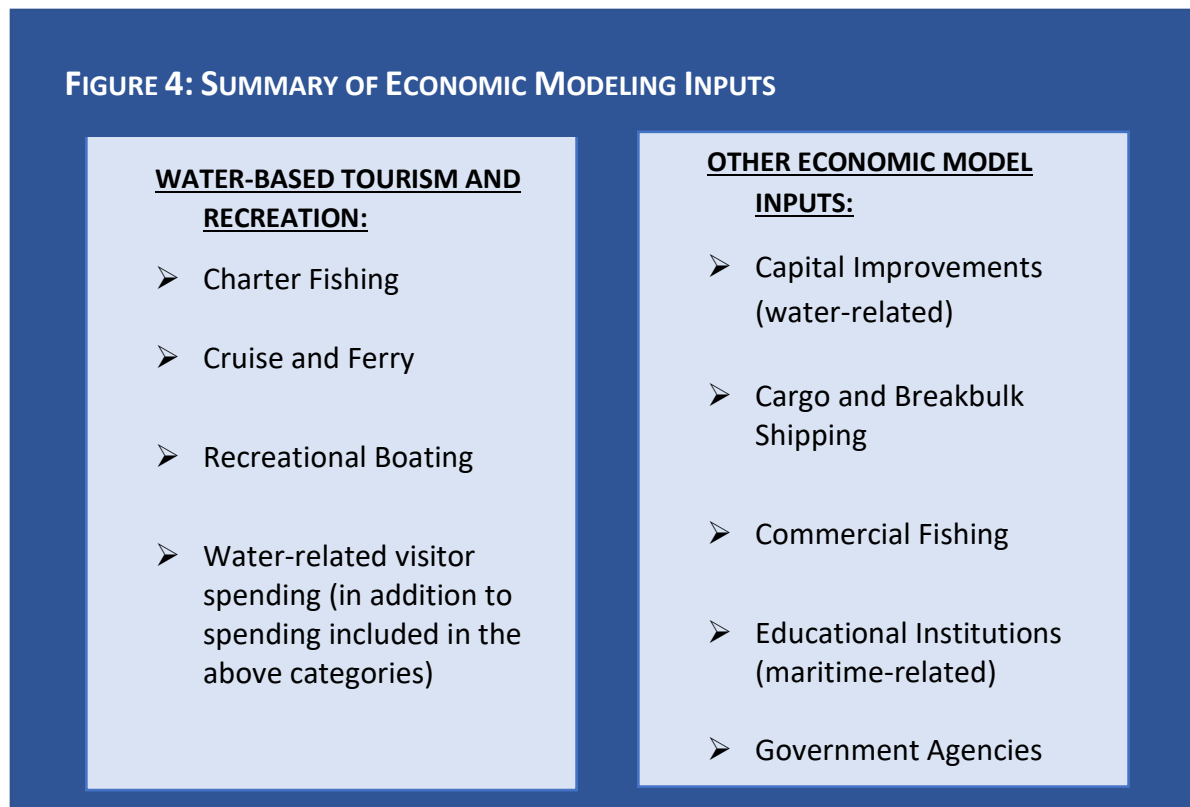
Educational Institutions (maritime-related):

The economic impacts of Michigan’s water research-related educational programs were estimated by contacting the institutions and requesting their fiscal information. In circumstances in which inquiries were not responded to or an institution’s representative responded by stating that an official freedom of information act (FOIA) request would need to be filed before complying with the request, a proxy from secondary research was used in the modeling. That is, a recent statewide study found the total figure to be \$80M (Austin and Steinman, 2015); thus, this total figure was adjusted for inflation and parceled-out to estimate the contribution of an individual entity.

Government Agencies:

The spending in Michigan of the U.S. Army Corps of Engineers, the U.S. Coast Guard, and NOAA was obtained by contacting those entities. When the information could not be obtained, the agency’s national budgets were discounted and used to estimate state-level economic impact. It is important to note that *precise* state of Michigan budgets for these agencies could not be calculated because these agencies do not typically compartmentalize their budgets according to state. For example, the U.S. Coast Guard’s *Sector Lake Michigan* encompasses western portions of the state; whereas, *Sector Detroit* covers eastern portions. The spending of these agencies in the 16 focal areas of this study was estimated by contacting individuals listed on the ports’ data input sheets or by discounting regional budget information.

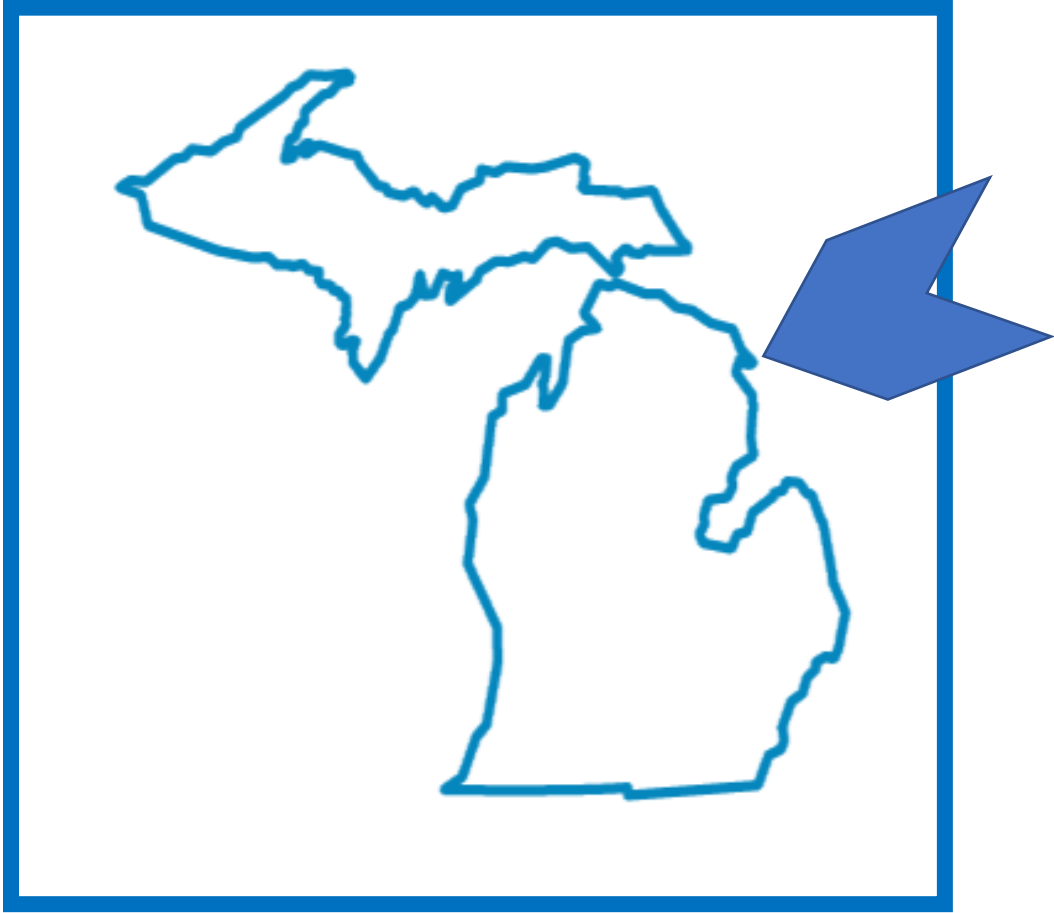
FIGURE 4: SUMMARY OF ECONOMIC MODELING INPUTS



Findings



Alpena



Alpena

Overview of Alpena’s Water-Based Culture

Several narratives in this section were kindly contributed by:

Stephanie Gandulla
Media & Volunteer
Coordinator
Thunder Bay National
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“Between 1830 and 1840, Michigan’s population grew seven-fold... Traffic and trade coming and going on the waters surrounding Michigan was so intense that, for a time, the town of Alpena became one of the busiest port cities in the country” (Austin and Steinman, 2015, pp.5-6). Today, while commercial port activities continue to be robust in Alpena with key players such as LaFarge Corporation, today’s water-based culture balances the many uses and benefits of this bountiful, yet delicate, natural resource.

The historic port city of Alpena is nestled between a lush green forest and a vast blue bay in Northeast Lower Michigan. Known as the Sanctuary of the Great Lakes, Alpena is a culturally rich place to relax and a sanctuary to rejuvenate and inspire the happy, healthy and creative you. A community founded on the fishing and timber industries, Alpena is now the place where

cultural heritage collides with relaxed outdoor adventure. Alpena County is approximately 66% water, with the port situated at the mouth of Thunder Bay River where it meets Lake Huron’s Thunder Bay.

This nature-based community features the modern city of Alpena as the economic hub of a 4-county region. The community is infused with pristine environmental resources and significant historical assets. Alpena’s central location within the region provides access to more than 100 miles of groomed trails, over 300,000 acres of open water, 1,000 miles of shoreline, 7 lighthouses, more than 50 parks and 43,000 acres of State forest land provide a backdrop for a plethora of sport activities like biking, hiking, diving, nature observation, kayaking, fishing, canoeing, snorkeling, free diving, hunting, cross-country skiing, sailing, stand up paddle boarding, kite surfing, and more.

One of the most unique assets in the Alpena area is Thunder Bay National Marine Sanctuary (TBNMS), the nation’s ONLY freshwater marine sanctuary. This underwater park protects a nationally significant collection of nearly 200 marked and newly discovered shipwreck sites in 4,300 square miles of Lake Huron. Wrecks lie in all depths of Lake Huron from shallow water to the very deep and range from wooden schooners to steel-hull freighters. If a visitor is not a diver, s/he can still get up close and personal with these underwater artifacts aboard Lady Michigan, Alpena’s glass-bottom boat; or when lake conditions are calm, via sea kayak or stand

up paddle board. The water is typically crystal clear and shallow wrecks are ideal for snorkeling and free diving.

Through diverse research projects involving multiple state and national partners, and robust educational programs that reach hundreds of students every year, TBNMS has become an integral part of the community. Located just a few blocks from the harbor, in Downtown Alpena, the sanctuary's visitor center welcomes nearly 100,000 visitors each year. The visitor center, free and open year-round, serves as the gateway for locals and visitors to "get into their sanctuary" and experience Great Lakes maritime history through recreational activities.

TBNMS and its partners utilize the harbor for research vessels throughout the season. Other waterborne visitors are also drawn to the rich maritime history of the area, and the local facilities the sanctuary, city, and downtown offer. Such visitors include tall ships, cruise ships, naval cadet training vessels, and even historic wooden rowing vessels. In addition, TBNMS collaborates with Alpena Community College (ACC), supporting summer classes for the college's program in Marine Technology. The program relies on the sanctuary's research vessels and nearby harbor access for on-water working experiences as part of the program's coursework. This unique program is designed for students interested in a career working with the latest underwater technology with emphasis on maintenance, repair, and operations of underwater robots, known to the industry as Remote Operated Vehicles (ROVs). The Marine Technology program at ACC is designed for students interested in careers working on the ocean and Great Lakes.

In addition to the activities hosted by TBNMS, The Alpena Area Convention & Visitors Bureau (CVB) utilizes the harbor as a staging and promotional event venue multiple times each year. The lucrative sport fishing demographic is a key audience target of CVB marketing activities. For example, The Michigan Brown Trout Festival, now in its 42nd year, runs for 10 days and attracts hundreds of anglers for the tournament and hundreds of visitors for the nightly entertainment. Broadly speaking, the harbor and bay are leveraged in promotional projects to increase visitor traffic to the greater Alpena micro-region. Additionally, local ancillary vendor services are utilized to support and complete these projects such as food catering, electrical needs, etc. Below are some examples of such projects:

Major League Fishing television show filming for the Outdoor Channel - This sport fishing show is ranked as the #1 outdoor sport show in the U.S. The show has filmed three times in Alpena (Alpena is the only community the show has filmed in more than once). In 2017, the harbor was featured in the early 2017 season airing of an outdoor sport show in the U.S. on the Outdoor Channel. Another season was filmed at the end of 2017 and aired in 2018. The show brings 24 professional bass anglers to the harbor with a crew of 60. The show airs as an entire season on national television to a U.S audience. Contracting to have just one season filmed in

and feature Alpena is the equivalent of more than \$500K in advertising investment. The show has an estimated dedicated viewership of 1.1 million people.

As a result of featuring Alpena on national TV, dozens of other marketing opportunities have come about that showcase Alpena and the local water resources. Including other television shows like Mark Zona's Awesome Fishing Show, Fishing University (the longest running fishing show on national TV), Timmy Horton Outdoors, and featuring professional anglers like Kevin Van Dam, Shaw Grigsby, Mike Iaconelli, Brandon Palaniuk, and others. Secondly, people have moved to the Alpena area as a result of viewing the programming that highlights the community.

Great Race Road Rally - This cross-country vintage auto road rally used the Alpena Municipal Harbor and surrounding park as the venue for their 2017 pit stop. The race started in Florida and ended in Traverse City, Michigan. More than 450 people utilized the harbor and surrounding downtown area as part of the race. The event also drew spectators who follow the event across the country. The event was filmed and received considerable national media attention with Alpena and the harbor as the venue.

Great Lakes Fishermen's Digest - This partnership involves a collaboration with John Bergsma and his effort to promote fishing in Michigan. Fishing Lake Huron from Alpena was a feature show of John's. He also promotes fishing in Alpena at sport trade shows in neighboring Great Lake states such as Indiana, Wisconsin, Minnesota, etc. His TV show airs on CBS, FOX Sports, and NBC.

Michigan DNR Promotional Partnership - The Alpena CVB partners with the Michigan Department of Natural Resources to promote fishing in Michigan. Part of Alpena's promotion includes promoting Lake Huron charters via the harbor.

Alpena Youth Sailing School – An average of 100 participants go through a variety of week-long sailing programs each summer. It is estimated from sailing school organizers, that the majority of participants are local residents, or visiting grandchildren of local residents. On rare occasions, someone from outside of the area will come specifically for the program.

Summary - Through the generations, the Alpena area has transformed its economic base to evolve and pull from the beneficial industry foundations available as a result of workforce concentration and natural resources; from lumber to limestone, manufacturing and fishing, and now, the evolution of service-based industry and tourism. Tying all of Alpena's economic value together are the water resources available for visitors, for residents, and for industry.

The Economic Impacts of Alpena’s Water-Based Culture

The values listed in Table 1 derive from visitors to Alpena County who visited during 2017 due to the water-based culture of the area. As can be seen in Table 1, in 2017, these water-based visits to Alpena, for example, were associated with \$3.9M in restaurant spending and \$3.5M in lodging-related spending around the state. Overall, this tourism and recreation spending, in these and other categories, contributed \$25.4M to the gross domestic product (GDP) of Michigan, spawned approximately \$3.8M in federal tax income, and roughly \$3.1M in state and local tax income in Michigan. The 2017 economic impact due to water-based tourism and recreation in Alpena is estimated at \$45.5M (see Table 1).

In 2017, this economic activity supported roughly 387 full-time equivalent (FTE) jobs around the state and was associated with approximately \$17.3M in labor income (\$10.5M direct labor income).



{Table 1 on next page}

**TABLE 1:
THE ECONOMIC IMPACTS OF ALPENA’S WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS**

2017 Water-based Tourism and Recreation	Economic Impact:	Total: \$45.5M	Direct: \$25M	Secondary (Indirect and Induced): \$20.5M		
	Visitors’ Largest Spending Categories:	Restaurants: \$3.9M	Lodging / vacation rentals: \$3.5M	Gas: \$1.9M	Groceries: \$1.3M	
	Jobs (FTE):	Total: 387	Direct: 258	Secondary (Indirect and Induced): 129		
	Labor Income:	Total: \$17.3M	Direct: \$10.5M	Secondary (Indirect and Induced): \$6.8M		
	State and Local Tax Revenues:	\$3.1M				
	Federal Tax Revenues:	\$3.8M				
	Value-Added Effect:	\$25.4M				

These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.

When commercial activity, such as the more than 2.1M in short tons handled in the Port of Alpena, is also included in the modeling, the economic impact grows substantially. As seen in Table 2, the total economic impact of Alpena’s water-based culture during 2017 is an estimated \$173.8M. This economic activity supported roughly 1,194 FTE jobs around the state and \$72.2M in associated labor income.

**TABLE 2:
THE ECONOMIC IMPACTS OF ALPENA’S WATER-BASED CULTURE:
OVERALL**

2017 Overall	Economic Impact:	Total: \$173.8M	Direct: \$61.9M	Secondary (Indirect and Induced): \$111.9M
	Jobs (FTE):	Total: 1,194	Direct: 621	Secondary (Indirect and Induced): 573
	Labor Income:	Total: \$72.2M	Direct: \$28.6M	Secondary (Indirect and Induced): \$43.6M

Key Threats to Alpena’s Water-Based Culture

While not a comprehensive list, here are some of the key threats discussed during the harbor / port interview in May:

Regarding threats to Alpena’s vibrant water-based culture, at the top of mind to local officials are invasive species. Mussels, invasive fish and plant species, and cormorant birds all pose threats to the area’s ecosystem. In fact, Friends of the Alpena Wildlife Sanctuary organized an event in summer 2018 in which volunteers worked to remove an invasive species known as frogbit from the water (<http://www.thealpenanews.com/news/local-news/2018/07/getting-rid-of-invasive-species/>). Frogbit was first identified in Lake St. Clair in 2000 and has since spread throughout the area (<http://www.miseagrant.umich.edu/explore/native-and-invasive-species/species/plants/frogbit/>). This floating invasive plant species can form a dense mat on the surface of water inhibiting boat traffic and the growth of other plant species.

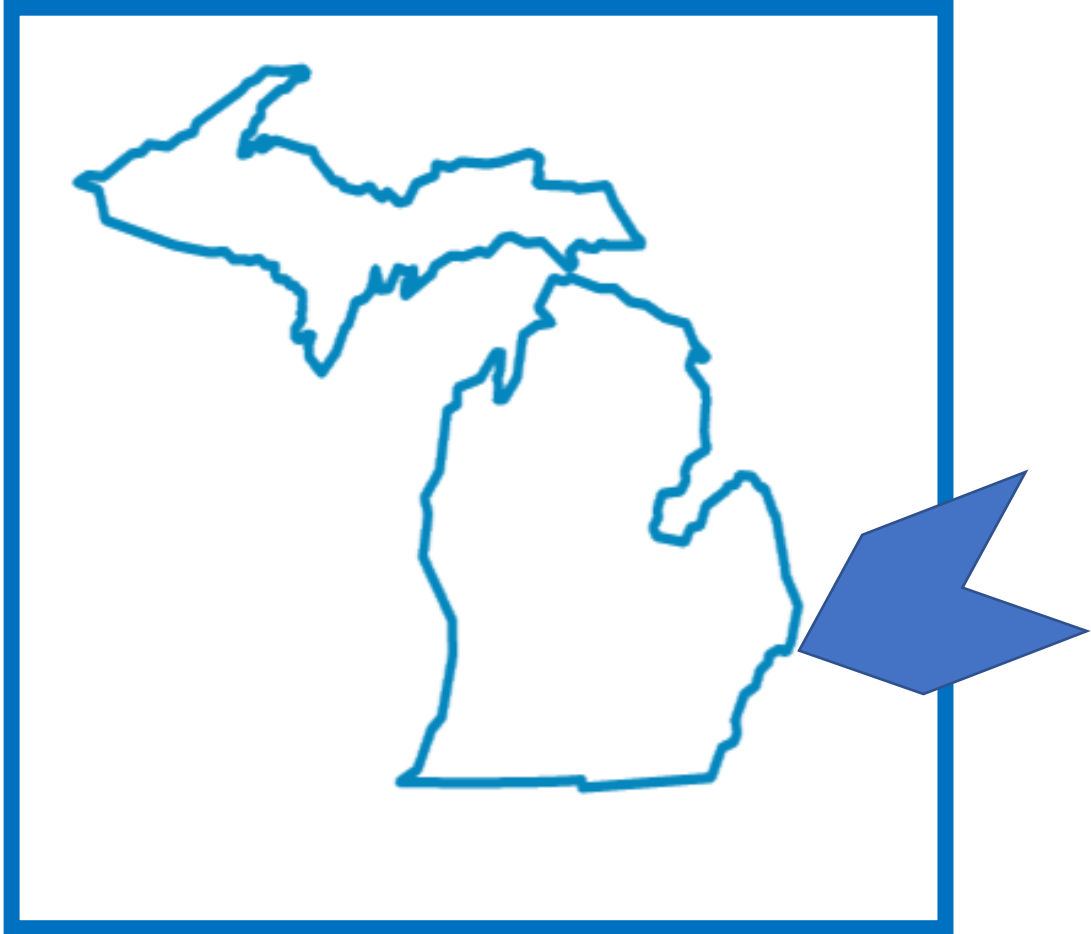
In addition to invasive species, other top of mind threats to Alpena’s water-based culture include deferred maintenance on facilities and river erosion. Both facility maintenance and erosion repair require funding.

Conclusions: Alpena

Alpena harnesses its water-based assets to sustain a complimentary blend of tourist/recreation applications and maritime shipping uses. While not included in these 2017 calculations, the tourist and recreation component will grow even larger with the MS Hamburg making two ports of call in Alpena in 2018. This cruising activity grows annual tourist counts by roughly 800 visitors.

{Detroit section on next page}

Detroit



Detroit

Overview of Detroit's Water-Based Culture

For hundreds of years, the waterways in and around Detroit have played key roles in the economic activity of the area. The fur trade, for example, first brought European settlements to Detroit. Control of the waterways used in this trade led to high-profile naval battles during both the Revolutionary War and the War of 1812 (Austin and Steinman, 2015). Later, beginning during the industrial revolution, Detroit's position on waterways served as a key ingredient to the area's eventual formidable strength in the automotive industry:

Water also enabled Henry Ford's village manufacturing system where small communities on waterways turned out parts for his new auto plants. Water made possible his second great innovation after the assembly line, which was the first vertically integrated production complex, the mighty Rouge Factory. There, 100,000 workers took raw materials (wood, iron ore, coke and sand, shipped from around the Great Lakes) to its yawning entrance at the Rouge and Detroit Rivers. Powered and cooled by waters, iron and steel and glass were forged, and fully assembled automobiles emerged two days later.

*~ Michigan Blue Economy
(Austin and Steinman, 2015)*

Fast forwarding to today, the waterways of Detroit still serve quintessential economic roles in many ways. In the current year, for example, 20 cruise vessel visits are scheduled to call upon Detroit. These 20 visits derive from the Victory I, Victory II, and Hamburg ships.

These cruise-goers are not alone in visiting Detroit's waterfront: approximately 3 million people visit the waterfront each year (Spratling, 2018). Weekly events and activities ranging from yoga to a canine club draw both locals and visitors alike. Larger events include the Detroit Free Press Marathon every October drawing about 77,000 runners and spectators; the Rockin on the Riverfront summer concert series attracting about 250,000 spectators each summer; and, the River Days Festival garnering an even larger crowd.

Such visitors have ample opportunity to enjoy passive recreation opportunities while in Detroit. There are several unique parks along the riverfront. Mt. Elliott Park has a nautical theme, the Milliken State Park and Harbor is Michigan's first urban park within their state park system, and Belle Isle Park is iconic with regard to both its size and offerings.

In terms of natural beauty and magnitude, few urban parks in the U.S. surpass the stature of Detroit's Belle Isle Park. With 982 scenic acres, the park is larger in size than New York City's well-known Central Park. Belle Isle Park is situated on an island in the Detroit River and offers a number of amenities such as an aquarium, conservatory, nature center, and maritime museum. The park attracts thousands of visitors annually, in part, due to the variety of events hosted there including, for example, auto racing and concerts (Brudenell, 2013). According to the Detroit Metro Convention and Visitors Bureau, annual spending on the Riverfront in Detroit is estimated to be \$43.7M. While this spending is associated with many riverfront initiatives, Belle Isle plays a key role.

In addition, just outside Belle Isle Park, visitors can now enjoy about 4 miles of riverfront walking or bicycling spanning from the park to the Ambassador Bridge. This Detroit RiverWalk was made possible largely through the efforts of the Detroit Riverfront Conservancy, Inc. which is a non-profit that works toward making the riverfront more accessible and user-friendly for active and passive recreation (<http://www.detroitriverfront.org/riverfront>). The RiverWalk incorporates many sites of historical and cultural significance along its path.

In summary, anchored with a long history of water-based economic activity, in recent years, Detroit has made a conscious effort to embrace and infuse fresh energy into its water culture. Here is perhaps the best illustration: the restorations along the riverfront are valued at approximately \$1B over the past decade (Gerard and Gerard, 2018). This figure includes both public and private investment in such areas as new businesses and new housing. Moreover, the water-based culture does not lack a creative vibe. In 2018, the Dequindre Cut Freight Yard opened which includes a series of work spaces for entrepreneurs and artists assembled from a series of transformed shipping containers. Whether the investment is in business, recreational offerings, or residential options, the momentum experienced in the past decade will continue as an additional \$1B in investment is expected on the riverfront over the next five years (Gerard and Gerard, 2018).

The Economic Impacts of Detroit's Water-Based Culture

The economic modeling of the water-based tourism and recreation of the Detroit metro area includes those who visited Wayne County for the purpose of enjoying the waterfront and 25 percent of those who visited Macomb County (a suburb of Detroit) due to the water during 2017. As can be seen in Table 3, in 2017, these water-based visits to the Detroit metro area stimulated roughly \$613M in lodging revenues and approximately \$570.3M in restaurant revenues around the state. As detailed in Table 3, this spending supported about 61,873 FTE jobs across Michigan in 2017 and was associated with roughly \$2.8B in labor income.

Significant tax revenues derived from this water-based tourism and recreational activity in Detroit. Specifically, the state of Michigan and municipalities within the state collected an estimated \$511.9M in tax revenues in 2017 due to this water-based tourism and recreation. Moreover, the federal government witnessed approximately \$624.6M in tax revenues.

TABLE 3: THE ECONOMIC IMPACTS OF DETROIT’S WATER-BASED CULTURE: TOURISM AND RECREATION-RELATED COMPONENTS						
2017 Water-based Tourism and Recreation	Economic Impact:	Total: \$7.5B	Direct: \$4.1B	Secondary (Indirect and Induced): \$3.4B		
	Visitors’ Largest Spending Categories:	Lodging / vacation rentals: \$613M	Restaurants: \$570.3M	Gas: \$275.2M	Groceries: \$181.1M	
	Jobs (FTE):	Total: 61,873	Direct: 40,860	Secondary (Indirect and Induced): 21,013		
	Labor Income:	Total: \$2.8B	Direct: \$1.7B	Secondary (Indirect and Induced): \$1.1B		
	State and Local Tax Revenues:	\$511.9M				
	Federal Tax Revenues:	\$624.6M				
	Value-Added Effect:	\$4.2B				
These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.						

Regarding the total picture, when commercial activity, such as the more than 13.3M in short tons handled through the Port of Detroit, is also included in the economic modeling, the impact of Detroit’s position on the water is further illuminated. As depicted in Table 4, the total economic impact of Detroit’s water-based culture during 2017 is an estimated \$8.8B. This economic activity supported roughly 70,137 FTE jobs around the state and \$3.4B in associated labor income.

TABLE 4: THE ECONOMIC IMPACTS OF DETROIT’S WATER-BASED CULTURE: OVERALL				
2017 Overall	Economic Impact:	Total: \$8.8B	Direct: \$4.5B	Secondary (Indirect and Induced): \$4.3B
	Jobs (FTE):	Total: 70,137	Direct: 44,577	Secondary (Indirect and Induced): 25,560
	Labor Income:	Total: \$3.4B	Direct: \$1.9B	Secondary (Indirect and Induced): \$1.5B

[Key Threats to Detroit’s Water-Based Culture](#)

Although not an exhaustive list, here are some of the key threats discussed during the harbor / port interview in May:

Like other Michigan ports and harbors, invasive species pose threats to the water ecosystems in the Detroit area. In addition, overly restrictive border patrol practices can also be viewed as a threat in some ways. While it is evidently the responsibility of our nation to protect borders to help ensure safety and sovereignty, overly restrictive border patrol practices inhibit the region’s cruise industry. In recent years, most cruise activity remains on the Canadian side of waterways due to cumbersome border patrol policies.

Conclusions: Detroit

As seen in the below call-out box, the Port of Detroit is the largest port in Michigan in terms of tonnage handled. As demonstrated in this report, however, the water-based tourism and recreation components in the Detroit metro area also contribute significant economic activity to the region and state. The continued revitalization of the riverfront is proving to be highly successful in attracting visitors. Such success will likely continue. Although not included in these 2017 economic models, in 2018, the Victory I cruise ship is scheduled to make 16 ports of call in Detroit, the Victory II will make two ports of call, and the Hamburg will make two stops as well.

Port of Detroit TOTAL TONS: 13,266,629

The largest seaport in Michigan, the Port of Detroit is located along the Michigan River. The 80-acre port's number-one commodity is steel, and its number-one commodity by tonnage is ore, thanks to the city's auto industry. The Port of Detroit sees over 1300 vessel arrivals annually.

Adapted directly from: Schachter (2018)

East Tawas



East Tawas

Overview of East Tawas' Water-Based Culture

Originally founded by those working in the lumber industry in the mid-1800s, there is little question that the prime location on the water played an integral role in East Tawas' early history. Being situated in close proximity to large forests, the Tawas River, and Tawas Bay, the area served as ideal conditions and a draw for lumber activity in its early years (https://en.wikipedia.org/wiki/East_Tawas,_Michigan).

While the lumber activity has subsided, the key role of East Tawas' water location has not. Ice fishing is a major attraction to the area. A winter event with an almost 70-year tradition is Perchville USA, which involves hundreds of anglers moving their shanties on the Tawas Bay ice to try their luck at catching fish and taking part in the event's festivities. Perchville USA has a significant economic impact and is one of the largest non-land festivals in Michigan.

In addition to fishing, the water-based ecosystem is ideal for birding. The largest birding festival in the Midwest takes place at Tawas Point every May during the migratory season and draws spectators from around the world. During peak migration periods, the area is visited by more than 200 species of birds and thousands of birdwatchers (<http://www.tawasbay.com/birding.shtml>). High concentrations of warblers are some of the main attractions. The area's Tuttle Marsh Wildlife Area and the Sunrise Coast Birding Trail are prime viewing settings.

Kiteboarding also stimulates significant economic activity in the area by drawing kiteboarders from both in-state and out-of-state. The microclimate in Tawas Bay deems the winds very suitable for excellent kiteboarding experiences. Such a microclimate can only be witnessed in a handful of locations in the U.S. These winds are also ideal for traditional kite flying as well. As such, the Breeze by the Bay Kite Festival has been an annual event on the harbor grounds for the past decade.

Needless to say, because of the water location, boating is also an economic engine in the area. For example, it is estimated that the East Tawas State Boat Dock hosts more than 10,000 overnight boat stays per year. One of the unique selling propositions (USPs) of East Tawas for boaters is the town's proximity to the large metro areas of Detroit and Flint. Here is a partial list of some boating and sailing events in Tawas Bay (<http://www.tawasbay.com/>):

Special Events:

Catamaran Racing Association of Michigan Tawas Bay Regatta

Dark Sky Celestial Sails

Full Moon Celestial Sails

Tawas Bay Sail and Row Regatta for Traditional Craft

Tawas Bay Yacht Club weekend races

As seen in the above list, the boating events in Tawas Bay are unique experiences of which some attract tall ships and antique boats. In fact, the Appledore V tall ship has been known to use East Tawas as home port for up to two months each year.

The Economic Impacts of East Tawas' Water-Based Culture

The unit of analysis in these economic models is Iosco County. Analyses were conducted at the county-level for two reasons: 1) being relatively small geographically, visitors to East Tawas likely enjoy other attractions in the county – there is only a distance of 14 miles between Oscoda Township (north end of county shoreline) and East Tawas (south end of county shoreline); and 2) the only visitation estimate that could be obtained for this location was aggregated at the county-level.



As detailed in Table 5, the economic impact of those who were attracted to the East Tawas area in 2017 due to its water location is estimated at \$69.7M. Those visitors spent approximately \$5.7M around the state in restaurants and almost the same amount (\$5.5M) in lodging and vacation rentals. This economic activity supported an estimated 585 full-time equivalent jobs in Michigan in 2017 (direct = 389; secondary = 196). This water-based tourism and recreation activity generated roughly \$4.8M in state and local taxes in Michigan and \$5.8M in federal taxes.

**TABLE 5:
THE ECONOMIC IMPACTS OF EAST TAWAS' WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS**

2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$69.7M	Direct: \$38.3M	Secondary (Indirect and Induced): \$31.4M	
	Visitors' Largest Spending Categories:	Restaurants \$5.7M	Lodging / vacation rentals: \$5.5M	Gas: \$2.8M	Groceries: \$1.9M
	Jobs (FTE):	Total: 585	Direct: 389	Secondary (Indirect and Induced): 196	
	Labor Income:	Total: \$26.4M	Direct: \$16M	Secondary (Indirect and Induced): \$10.4M	
	State and Local Tax Revenues:	\$4.8M			
	Federal Tax Revenues:	\$5.8M			
	Value-Added Effect:	\$38.9M			
	These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.				

When a more comprehensive economic model is constructed that includes the roughly \$3M in capital improvements to the marina (those improvements that were not covered by visitor revenues) and the estimated spending of government agencies such as the U.S. Coast Guard, U.S. Army Corps of Engineers and NOAA, the economic impact grows larger. As seen in Table 6, the 2017 economic impact yielded by the comprehensive model is \$84.8M. This economic activity supported roughly 675 full-time equivalent jobs and an associated \$31.4M in salaries and wages around the state.

**TABLE 6:
THE ECONOMIC IMPACTS OF EAST TAWAS' WATER-BASED CULTURE:
OVERALL**

2017 Overall	Economic Impact:	Total: \$84.8M	Direct: \$48.9M	Secondary (Indirect and Induced): \$35.9M
	Jobs (FTE):	Total: 675	Direct: 450	Secondary (Indirect and Induced): 225
	Labor Income:	Total: \$31.4M	Direct: \$19.5M	Secondary (Indirect and Induced): \$11.9M

Key Threats to East Tawas' Water-Based Culture

While not an exhaustive list, here are some of the most pressing threats discussed during the harbor / port interview in May:

Threats to the area's water-based culture include possible contamination emanating from the former Wurtsmith Airforce Base. The base was closed in 1993. In recent years, however, questions have surfaced regarding whether perfluorinated chemicals, or PFCs — found in the firefighting foam used at the base — have migrated from groundwater under the base to pollute nearby areas

(<https://www.freep.com/story/news/local/michigan/2016/04/16/wurtsmith-air-base-pollution-health/83040138/>). Both the research of such claims, as well as potential remediation, evidently require significant money.

Other hindrances to the expansion of the area's tourism economy include necessary improvements to U.S. highway 23; the need for additional overnight accommodations; and, lack of WiFi at the marina and adjacent RV park.

Conclusions: East Tawas

East Tawas has a solid water-based tourism and recreation economic base. Not a far drive from the Detroit metro area, East Tawas serves as a quick get-away destination for those seeking some relaxation. The statistics in Table 7 serve as evidence of the strength of this popularity. As seen, the slips at the state dock in East Tawas are 50-50 transient versus seasonal and remain above a 60 percent occupancy mark throughout the boating season.

TABLE 7: EAST TAWAS STATE DOCK: 2017 KEY STATISTICS	
Number of days during harbor open season	135 days
Number of days at full occupancy	10 days
Number of days at 60% occupancy	125 days
Number of transient slips	80
Number of seasonal slips	80
Total slips	160

Elk Rapids



Elk Rapids

Overview of Elk Rapids' Water-Based Culture

The Grand Traverse Band of Ottawa and Chippewa Indians who lived in the area before European settlers reaped the many benefits of the fruitful watershed. Sometime later, in the mid and late 1800's, European settlers harnessed the area's natural resources to produce large quantities of iron and cement. In the early 1900's, however, the area's industrial production declined. Economic rebirth came in the 1950's when the water, again, served as an economic engine for the area. More specifically, when highway route US 31 was constructed, recreational boaters increasingly began vacationing in the area (https://en.wikipedia.org/wiki/Elk_Rapids,_Michigan).

Today, in Elk Rapids' Edward C. Grace Memorial Harbor, there are 153 days open for the season (May 15th – October 15th) of which about 120 of those days are at full occupancy in the marina. There are 265 total slips of which about 77 percent are rented seasonally as opposed to transient. These figures underscore the strong demand for boating in the area.

All tourists – boaters and non-boaters alike – enjoy the many events in the community. Harbor Days, the town festival of Elk Rapids, fills the Harbor for four days in late July or early August each year. During the festival, the harbor is the primary viewing location for fireworks. Earlier in the summer, the 4th of July also fills the harbor with the primary event being the Blue Angels Air Show which takes place over Traverse Bay. Keeping the energy of Elk Rapids alive throughout the summer is the Summer Sunset Concert series which occurs every Wednesday night beginning in June in the harbor.



Elk Rapids' water-based culture extends beyond the above summer time events as well, drawing leisure travelers to the area throughout the spring and fall. For instance, the *Chain of Lakes* promotional program attracts water enthusiasts from many locations in-and-out of state. The *Chain of Lakes* is a 75-mile span that connects 14 lakes in Northern Michigan (<http://www.elkrapidschamber.org/pages/chain-of-lakes>). Elk Rapids serves as the launch location for many boaters who come to enjoy all or part of this *Chain of Lakes*.

{Economic impact findings on next page}

The Economic Impacts of Elk Rapids' Water-Based Culture

The values listed in Table 8, derive from visitors to Antrim County who visited during 2017 due to the water-based culture of the area.⁸ As can be seen in Table 8, in 2017, these water-based visits to the Elk Rapids area were associated with \$8.2M in restaurant spending and \$7.8M in lodging-related spending around the state. This water-based tourism and recreation spending, in these and other categories, contributed \$53.9M to the gross domestic product (GDP) of Michigan, spawned approximately \$8.1M in federal tax income, and roughly \$6.6M in state and local tax income in Michigan. The 2017 economic impact due to water-based tourism and recreation in the Elk Rapids area is estimated at \$96.7M (see Table 8).

In 2017, this economic activity supported approximately 815 full-time equivalent (FTE) jobs around the state and was associated with roughly \$36.6M in labor income (\$22.2M direct labor income).

TABLE 8: THE ECONOMIC IMPACTS OF ELK RAPIDS' WATER-BASED CULTURE: TOURISM AND RECREATION-RELATED COMPONENTS					
2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$96.7M	Direct: \$53.1M	Secondary (Indirect and Induced): \$43.6M	
	Visitors' Largest Spending Categories:	Restaurants: \$8.2M	Lodging / vacation rentals: \$7.8M	Gas: \$3.9M	Groceries: \$2.7M
	Jobs (FTE):	Total: 815	Direct: 543	Secondary (Indirect and Induced): 272	
	Labor Income:	Total: \$36.6M	Direct: \$22.2M	Secondary (Indirect and Induced): \$14.4M	

⁸ Analyses were conducted at the county-level for two reasons: 1) being relatively small geographically, visitors to Elk Rapids likely enjoy other attractions in the county – there is only a distance of 13 miles between Torch Lake (north end of county shoreline) and Elk Rapids (south end of county shoreline); and 2) the only accurate visitation data that could be obtained for this location was aggregated at the county-level.

	State and Local Tax Revenues:	\$6.6M
	Federal Tax Revenues:	\$8.1M
	Value-Added Effect:	\$53.9M
These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.		

When non-tourism components are added to the model (for example, government agency spending), the total economic impact of Elk Rapid’s water-based culture grows to \$107.7M (see Table 9). This economic activity supported roughly 882 FTE jobs across the state and associated estimated labor income of \$40.1M (direct = \$24.9M).

TABLE 9: THE ECONOMIC IMPACTS OF ELK RAPIDS’ WATER-BASED CULTURE: OVERALL				
2017 Overall	Economic Impact:	Total: \$107.7M	Direct: \$61.8M	Secondary (Indirect and Induced): \$45.9M
	Jobs (FTE):	Total: 882	Direct: 594	Secondary (Indirect and Induced): 288
	Labor Income:	Total: \$40.1M	Direct: \$24.9M	Secondary (Indirect and Induced): \$15.2m

Key Threats to Elk Rapids' Water-Based Culture

Although not an exhaustive list, here are some of the key threats discussed during the harbor / port interview in May:

When Harbormaster, Mike Singleton, was asked about threats to the area's water-based culture, he discussed the need for additional security equipment at the marina. With millions of dollars of recreational boats at the marina, it is important to take measures to keep them free of vandalism and theft. Second, due to the popularity of fishing and recreational boating, concerns about various types of invasive species are also at top of mind in the community.

Conclusions: Elk Rapids

As demonstrated in Table 10, Elk Rapids is very much a boating community. As previously stated, the 265 slips at the Edward C. Grace Memorial Harbor are nearly always at full occupancy. In fact, due to the high proportion of boaters in the visiting tourist populations, Elk Rapids has high spending profiles among visitors in the economic modeling used in this research: about 12 percent higher than the statewide spending averages.

TABLE 10: ELK RAPIDS' EDWARD C. GRACE MEMORIAL HARBOR: 2017 KEY STATISTICS	
Number of days during harbor open season	153 days
Number of days at full occupancy	120 days
Number of days at 60% occupancy	All
Number of transient slips	62
Number of seasonal slips	203
Total slips	265

Grand Haven



Grand Haven

Overview of Grand Haven's Water-Based Culture

Several narratives in this section were kindly contributed by:

Marci Cisneros
Executive Director
Grand Haven Area
Convention and Visitors
Bureau

Joy Gaasch
President
Chamber of Commerce
Grand Haven, Spring Lake,
Ferrysburg

Grand Haven has demonstrated a water-based culture since the beginning. For centuries the Potawatomi and Ottawa Indians used the Grand River as a means of accessing central portions of Michigan on their trade routes (https://en.wikipedia.org/wiki/Grand_Haven,_Michigan). Later, as European settlers increasingly populated the area, other water-based economic activities such as ship building began gaining prominence.

Today, Grand Haven Harbor serves a vital purpose in the economic and social health of the West Michigan region. It remains a hub of commerce, recreation and social importance. People work, live, and play in and along the edges of Grand Haven's commercial harbor in ever increasing numbers. A 2016 study found that 2.1 million people visit the harbor each year Glupker et al. (2016).

The area's water-culture is also reinforced by the presence of the U.S. Army Corps of Engineers which has a regional headquarters in Grand Haven. In addition to long-standing roles in efforts such as monitoring water levels, the U.S. Army Corps of Engineers has collaborated with other entities on innovative research-based projects. For instance, a program called *Bottoms Up* creates topsoil from silt dredged from rivers and harbors. This *Bottoms Up* initiative with the tagline "All Dredged Up and Nowhere to Go" was a collaborative effort between the Corps of Engineers, several private sector companies, and a few local organizations in the Grand Haven area.

The U.S. Coast Guard also maintains a strong presence in Grand Haven. The U.S. Coast Guard has housed facilities in the Grand Haven area since 1924 (Coast Guard Authorization Act, 1997). In fact, there is an annual Coast Guard Festival. The festival attracts patrons from both Michigan and other states and offers unique water-based entertainment such as the Grand River Water Acrobatics Show.

Grand Haven offers a broad array of water-based recreational activities. In fact, Grand Haven State Park was recognized by *Good Morning America* as having one of the top five beaches in the U.S. (https://en.wikipedia.org/wiki/Grand_Haven,_Michigan). Water recreation, in general, is easily facilitated in Grand Haven, because the downtown shopping and restaurant district is very accessible to the water. In fact, the city was named by *Coastal Living* as the "Happiest Seaside Town."

With regard to water recreation, boating is a popular activity in/around Grand Haven. For example, Freedom Boats is a new business to the lakeshore providing seasonal rentals to residents that wish to rent rather than own larger boats. As another example, Skipper Boats expanded their boat sales facility in Grand Haven about five years ago. A number of kayak, paddle board, and pontoon rental businesses have also been added to the business community over the last 10 years.

Moreover, high-end boat storage is increasingly common in the area. Grand Haven Boat Storage Condominiums continue to expand. They have sold all the boat condo units in their first five buildings and are currently building a 6th building. This business model allows boat owners to purchase boat condominiums that can be used 12 months per year.

The boat condominiums described in the previous paragraph illustrate how Grand Haven’s water culture can spawn entrepreneurship. Thus, the question emerges regarding whether people have visited Grand Haven and liked it so well, that they then returned to open businesses? Evidently, people desire to live, work, and play in nice places; therefore, this is a logical question to ask. Two tourist – to – entrepreneur cases are presented in this sidebar.

***Tourism is often the “first-date”
in economic development:***

Brilliance Audio - Now owned by Amazon:

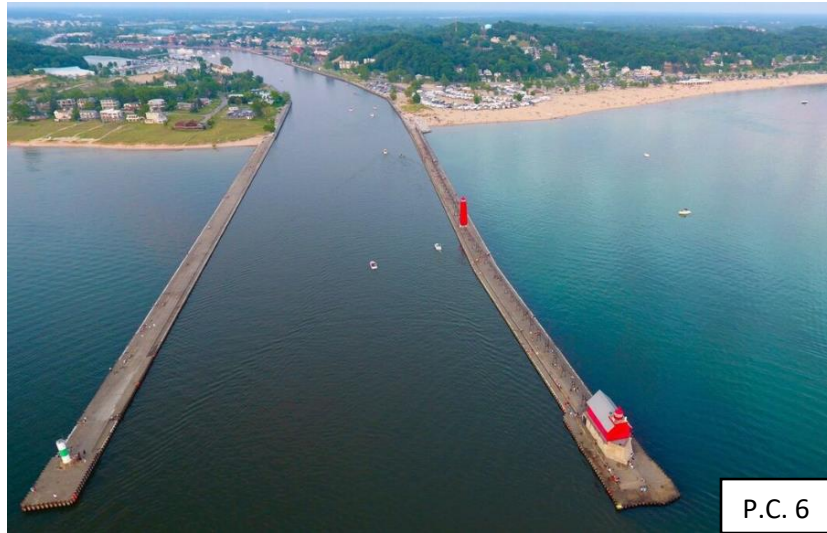
An entrepreneur, and avid boater, vacationed in Grand Haven for a number of years and decided he wanted to make this location his home. He envisioned developing an audio book business and started Brilliance, the company sold to Amazon in 2007 and employs approximately 150 people.

Consider It Done:

Husband and wife entrepreneurs lived in Chicago and were avid boaters. They purchased a small manufacturing company in Grand Haven. They sold that company and started Consider It Done Catering and Desserts by Design.

The Economic Impacts of Grand Haven’s Water-Based Culture

The geographic domain of the figures reported in this section encompasses the Grand Haven metro area (Grand Haven, Ferrysburg, and Spring Lake). Visitor counts for these analyses were adapted from the *Grand Haven Economic Impact, Visitor, and Visitor Count Study* conducted by Glupker et al. (2016).⁹



P.C. 6

The Grand Haven/Spring Lake/Ferrysburg port is a highly active port on Lake Michigan. Federally designated cargo, commercial and recreational, this port also includes Spring Lake and the Grand River which collectively make it a highly sought-after vacation destination due to the various water sports and leisure activities available.

As demonstrated in Table 11, water-based tourism and recreation in the Grand Haven area is strong, accounting for an estimated \$228M in economic impact in 2017. Those traveling to/from Grand Haven spent roughly \$17.4M in restaurants around Michigan and about the same (\$17.6M) for lodging.

Water-based tourism and recreation in the Grand Haven area supported an estimated 1,891 full-time equivalent jobs in Michigan in 2017. In addition to creating and/or sustaining jobs, this economic activity generated state, local, and federal tax revenues: \$15.5M (state and local) and \$19.1M (federal).

⁹ A 3 percent positive adjustment was made to visitor counts to convert from 2016 to 2017.

**TABLE 11:
THE ECONOMIC IMPACTS OF GRAND HAVEN’S WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS**

2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$228M	Direct: \$125.2M	Secondary (Indirect and Induced): \$102.8M		
	Visitors’ Largest Spending Categories:	Restaurants: \$17.4M	Lodging / vacation rentals: \$17.6M	Gas: \$8.5M	Groceries: \$5.7M	
	Jobs (FTE):	Total: 1,891	Direct: 1,249	Secondary (Indirect and Induced): 642		
	Labor Income:	Total: \$86.6M	Direct: \$52.6M	Secondary (Indirect and Induced): \$34M		
	State and Local Tax Revenues:	\$15.5M				
	Federal Tax Revenues:	\$19.1M				
	Value-Added Effect:	\$127M				

These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.

As seen in Table 12, the Grand Haven area also has a robust commercial component that compliments the tourism and recreation sectors. Approximately 1.3M short tons of commercial cargo were handled in Grand Haven during 2017. Moreover, the strong presence of the U.S. Coast Guard in the area further augmented the water-based economy. When such commercial components are added to the economic modeling, the water-based economic impact grows to an estimated \$307.6M (direct = \$149.8M). This economic activity supported roughly 2,382 full-time equivalent jobs in Michigan in 2017 and associated labor income of approximately \$119M.

**TABLE 12:
THE ECONOMIC IMPACTS OF GRAND HAVEN’S WATER-BASED CULTURE:
OVERALL**

2017 Overall	Economic Impact:	Total: \$307.6M	Direct: \$149.8M	Secondary (Indirect and Induced): \$157.8M
	Jobs (FTE):	Total: 2,382	Direct: 1,481	Secondary (Indirect and Induced): 901
	Labor Income:	Total: \$119M	Direct: \$64.7M	Secondary (Indirect and Induced): \$54.3M

Key Threats to Grand Haven’s Water-Based Culture

Several narratives in this section were kindly contributed by:

Pat McGinnis
City Manager
Grand Haven, Michigan

Flood risk is presented by uncertain weather patterns and continuous development of the region. Water quantity is a risk to shoreline development, recreation and drinking water. While low impact development best practices are implemented, regulations and available funds lag behind the need to keep water levels from threatening the shoreline and keep harmful contaminants out of the water.

The harbor continues to fill in with sediment from up river and Lake Michigan. The outer harbor is continually subject to fill from lake influences while the inner harbor fills in with sediment of unknown origin (much of it agricultural runoff). Federal funds to keep the commercial harbor open, and the ongoing classification of the harbor as a commercial harbor are uncertain and unpredictable.

When there are funds available to dredge the inner and outer harbors, the need for a site to deposit the spoils continues to challenge harbor users. The United States Army frequently changes the rules and adjusts funding requirements and guidelines, leaving the future of harbor dredge disposal as uncertain as the availability of funds or the designation of the harbor as “commercial.”

Fluctuating lake (and river) levels present concern for waterfront communities. Marinas and boat launches are subject to a variety of impacts depending on how high (or low) water levels are in a given year. Today's functional boat launch could be rendered obsolete by significant swings in lake levels that are far beyond control. Adjustments are made as needed, but the potential for huge variation could leave docks that are high and dry or underwater.

The condition of the pilings along the City harbor is deteriorating, and there is no source identified to fund the replacement of 3,000 feet of sheet piling. If pilings cost \$1,000 per foot to remove and replace, this would be a \$3M maintenance need for the City.

The condition of the Grand Haven Boardwalk is monitored annually and is an asset that requires significant funding every 15 – 20 years. Boards need to be replaced and underpinnings inspected and repaired on a regular basis. There is no stable source of funding for this work and the effort must be funded by creative community stewards as needed.

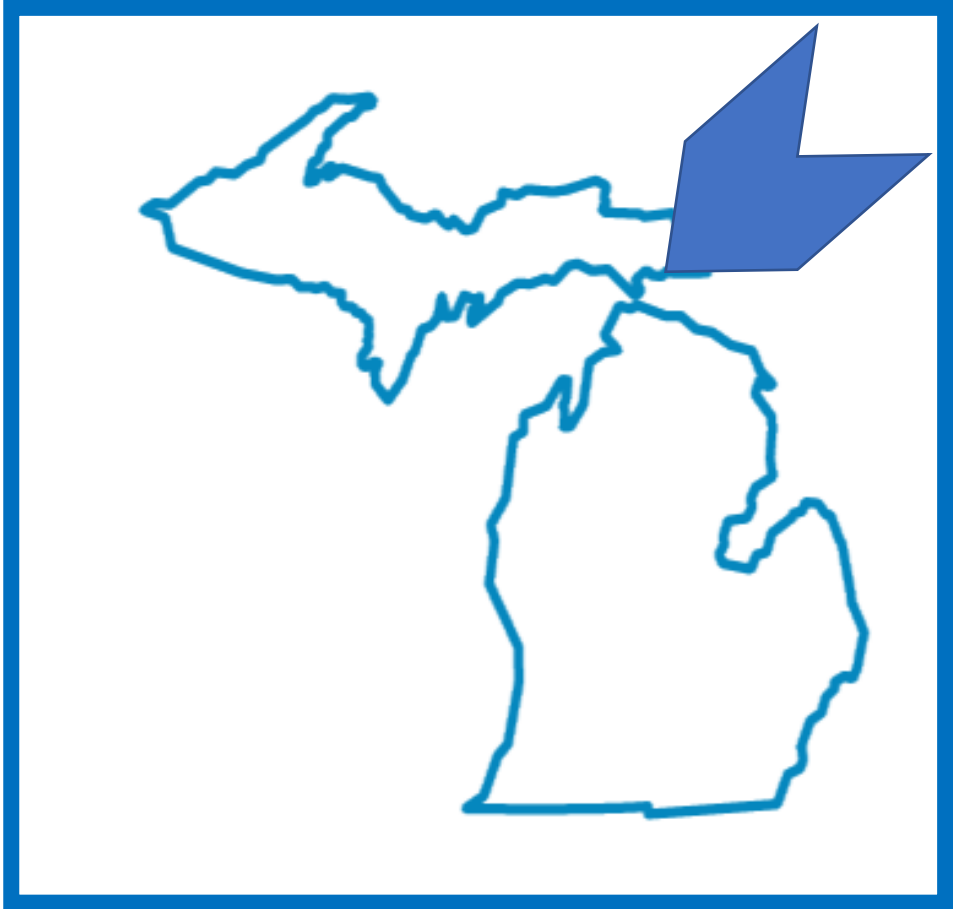
Invasive species, including a variety of vegetation (phragmites, purple loosestrife, etc), threaten access to the water's edge and the many species of mammals, fish, and waterfowl that populate emergent wetlands along the harbor's edges. Asian Carp are also a huge concern and could devastate the area's recreational and commercial fishery if not stopped soon.

Conclusions: Grand Haven

As seen in the previous sections, Grand Haven harnesses its water resources to sustain a complimentary blend of tourism / recreation and commercial applications. The tourism and recreation component will be further fortified going into the future with the newly renovated Waterfront Stadium on the Grand River which opened during summer 2018. There have also been a number of recent capital improvements made to the catwalk, pier, and lighthouse that will be enjoyed by visitors.

{Les Cheneaux Islands section on next page}

Les Cheneaux Islands



Les Cheneaux Islands¹⁰

Overview of Les Cheneaux's Water-Based Culture

For centuries the Les Cheneaux archipelago of islands and surrounding waterways served as an economically significant water route between Sault Ste. Marie and Mackinac Island. A book titled *A Brief History of Les Cheneaux Islands* written in 1911 by Frank Grover underscored the significance of this water route in the following passage:

There is hardly a man of note in American history mentioned in the early annals of New France and the Mississippi Valley who has not been a traveler along this historic highway. Here in their day and generation came all that great and distinguished company of Jesuit missionaries, explorers, and fur traders who both made and wrote the history of New France and the Mississippi Valley in the very eventful years of the Seventeenth and Eighteenth centuries and whose names are stamped indelibly on the maps of all our states.

*~ A Brief History of Les Cheneaux Islands
(Frank Grover, 1911)*

In modern times, the deep-rooted water-based culture is alive and well. The islands are home to the largest fleet of ensigns in the world. Known as Fleet 31, this collection of ensigns typically sails out of Marquette Island and is composed of more than 60 vessels (<http://ensignfleet31.com/fleet-31-member-boat-roster/>).

Also with regard to unique boats, for more than 40 years, the Les Cheneaux Islands Antique Boat Show & Festival of the Arts has been held each August. This is the world's largest antique wooden boat show (https://en.wikipedia.org/wiki/Les_Cheneaux_Islands). The boat show demonstrates the area's rich tradition of boating and boat repair. In fact, many of the wooden boats are still used daily during summer months as the primary mode of transportation for those residing on the local islands (<http://www.lciboatshow.com/>).

Examples of other boating-related amenities and attractions in the area include: 1) Cedarville Harbor which is in the process of expanding current capacity; 2) Les Cheneaux and Lake Huron

¹⁰ The Les Cheneaux area is afforded specific attention in this study due to financial support provided by Cedarville (Clark Township).

Water Trails on which paddlers have the opportunity to traverse more than 75 miles along Lake Huron and the Les Cheneaux Islands; 3) Star Line Ferry Tours of the Les Cheneaux Islands; and, 4) Great Lakes Boat Building School teaching both traditional and modern boat building.

Lastly, an eclectic collection of other events and festivals also showcase the area's rich water-based culture and serve to stimulate economic activity. Such events include, for example, the Aldo Leopold Festival held in late spring in honor of one of the nation's most well-regarded naturalists (<https://www.aldoleopoldfestival.com/>). Snowfest, Art Dockside, and the Slammin' Salmon Derby are other such events that serve both local residents and visitors.

The Economic Impacts of Les Cheneaux's Water-Based Culture

The tourist counts used to tabulate the water-based economic impacts of the Les Cheneaux area were estimated by using 15 percent of the tourism counts for Mackinac county. This level of 15 percent of county visitation was derived because Mackinac Island (also in Mackinac county) receives the majority of the county's tourists (see Gonzalez, 2016; Yob and Porter, 2017).

As can be seen in Table 13, in 2017, these water-based visits to the Les Cheneaux area were associated with \$3.1M in restaurant spending and \$2.9M in lodging-related spending around the state. This tourism and recreation spending, in these and other categories, contributed \$20.1M to the gross domestic product (GDP) of Michigan, spawned approximately \$3M in federal tax income, and roughly \$2.5M in state and local tax income in Michigan. The 2017 economic impact due to water-based tourism and recreation in the Les Cheneaux area is estimated at \$36.1M (see Table 13).

In 2017, this economic activity supported an estimated 305 full-time equivalent (FTE) jobs around the state and was associated with roughly \$13.7M in labor income (\$8.3M direct labor income).

TABLE 13:
THE ECONOMIC IMPACTS OF LES CHENEAUX’S WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS

2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$36.1M	Direct: \$19.8M	Secondary (Indirect and Induced): \$16.3M	
	Visitors’ Largest Spending Categories:	Restaurants: \$3.1M	Lodging / vacation rentals: \$2.9M	Gas: \$1.5M	Groceries: \$1M
	Jobs (FTE):	Total: 305	Direct: 204	Secondary (Indirect and Induced): 101	
	Labor Income:	Total: \$13.7M	Direct: \$8.3M	Secondary (Indirect and Induced): \$5.4M	
	State and Local Tax Revenues:	\$2.5M			
	Federal Tax Revenues:	\$3M			
	Value-Added Effect:	\$20.1M			
	These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.				

In addition to the water-based tourism and recreation detailed above, the water in the area facilitates substantial commercial activity. For example, 3.3 million short tons of limestone moved through Port Dolomite in 2017. In addition, a substantial portion of Michigan’s commercial fishing transpires in the area in the tribal communities. When such commercial components are modeled, in conjunction with the tourism and recreation components, the total water-based economic impact in the Les Cheneaux area in 2017 is estimated at \$189.4M (\$63M direct). This economic activity supported roughly 1,365 FTE jobs around Michigan. The associated labor income is estimated at \$79M (see Table 14).

TABLE 14:
THE ECONOMIC IMPACTS OF LES CHENEAUX’S WATER BASED-CULTURE:
OVERALL

2017 Overall	Economic Impact:	Total: \$189.4M	Direct: \$63M	Secondary (Indirect and Induced): \$126.4M
	Jobs (FTE):	Total: 1,365	Direct: 733	Secondary (Indirect and Induced): 632
	Labor Income:	Total: \$79M	Direct: \$29.5M	Secondary (Indirect and Induced): \$49.5M

Key Threats to Les Cheneaux’s Water-Based Culture

While not a comprehensive list, here are some of the key threats discussed during the harbor / port interview in May:

Cormorants remain a key threat to the water-based culture around the Les Cheneaux islands. The birds can have significant negative impacts on the area’s sport fishing industry because a mature cormorant eats roughly a pound of fish per day (Matheny, 2018). In addition, the birds’ acidic feces can rapidly kill island vegetation (<http://www.interlochenpublicradio.org/post/demand-kill-cormorants-grows-great-lakes>).

Conclusions: Les Cheneaux

Boating is a way of life in the Les Cheneaux islands. Therefore, for many of those visiting, it is the boating and recreation in the unique archipelago setting that is the major attractor. In fact, due to the high proportion of visitors to the area that report boating, the spending profiles built in this study for the Les Cheneaux Islands are 12 percent higher than the statewide spending profiles.

As seen in the previous sections, the limestone handled through Port Dolomite, contributes economic activity to the area, but from a tourism perspective, this is very much a boating-centric community. This stands to reason, being a destination composed of islands.

{Manistee section on next page}

Manistee



Manistee

Overview of Manistee's Water-Based Culture

The bodies of water in and around Manistee have played significant roles throughout Michigan's history. During the lumber era of the 1800's, for example, large white pines were floated down the Manistee River to the port at Manistee and shipped to neighboring states. At one time, there were more millionaires per capita in Manistee than anywhere in the U.S. (Manistee Tourism, 2018).

More than 50 percent of Manistee County is comprised of water, and it is known as the fishing capital of the Midwest (Austin and Steinman, 2015). The county is credited as being the birthplace of Pacific salmon in the Great Lakes basin. Every year, thousands of salmon find their way back to the area to spawn (Austin and Steinman, 2015). Approximately, 40 fishing charters operate out of Manistee to fish not only salmon, but a variety of species including world class brown trout (<http://www.visitmanisteecounty.com>).

When Manistee's City Manager, Thad Taylor, was asked about recent economic development as a result of the area's water-based culture, one area of economic activity that he described was residential development. Chippewa Cottages, River's Edge condominiums, and Joslyn Cove condominiums have each contributed to recent economic development by providing various residential options to permanent and seasonal residents. Each of these developments are in close proximity to water and some have dock frontage.

A number of restaurants and breweries have also cropped up in recent years to serve the anglers, beach-goers, vacationers, and local residents who enjoy the area's 25 miles of shoreline, eight marinas, three harbors, and 1 ½ mile Manistee Riverwalk.¹¹

Manistee County's Explore the Shores Initiative was catalyzed by an Easter Seals foundation grant to provide disabled populations access to water – and today is working to attract 1 million visitors to use and enjoy 50 or more universally accessible sites. These sites are developed to provide unique and superior access opportunities for all – and are marketed to serve the growing numbers of disabled, veterans, seniors, parents with very young children and strollers, who benefit by easy access, use and enjoyment of the county's bounty of water resources.

*~ Michigan Blue Economy
(Austin and Steinman, 2015)*

¹¹ Relating the sidebar narrative, even the City's Riverwalk is handicap accessible.

As summarized by the following excerpt, while Manistee's economy has evolved through the generations, water remains the constant:

*After 150 years, Manistee has both changed and remained the same. The early boom years of lumbering and exhaustive agriculture have evolved into a stable, diversified industrial base and a top fruit-producing agricultural center. It is the beauty and natural wonder that abounds in the region's forests, **lakes and rivers** that remain a constant factor and will always make Manistee County a special place to live and visit.*

~ Manistee.gov

The Economic Impacts of Manistee's Water-Based Culture

The unit of analysis in these economic models is Manistee County minus the tourism counts in the Onekama Township area. Although Onekama lies within Manistee County, from a tourism branding perspective, many facets of Onekama provide that area with its unique identity.

As detailed in Table 15, the economic impact of those who were attracted to the Manistee area in 2017 due to its water location is estimated at \$129.6M. Those visitors, for instance, spent approximately \$10.1M around the state in restaurants and slightly more (\$10.4M) in lodging and vacation rentals. This economic activity supported an estimated 1,076 full-time equivalent jobs in Michigan in 2017 (direct = 712; secondary = 363). This water-based tourism and recreation activity generated roughly \$8.9M in state and local taxes in Michigan and \$10.8M in federal taxes.

**TABLE 15:
THE ECONOMIC IMPACTS OF MANISTEE’S WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS**

2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$129.6M	Direct: \$71.2M	Secondary (Indirect and Induced): \$58.4M		
	Visitors’ Largest Spending Categories:	Lodging / vacation rentals: \$10.4M	Restaurants: \$10.1M	Gas: \$4.9M	Groceries: \$3.2M	
	Jobs (FTE):	Total: 1,076	Direct: 712	Secondary (Indirect and Induced): 364		
	Labor Income:	Total: \$49.2M	Direct: \$29.8M	Secondary (Indirect and Induced): \$19.4M		
	State and Local Tax Revenues:	\$8.9M				
	Federal Tax Revenues:	\$10.8M				
	Value-Added Effect:	\$72.3M				
	These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.					

As seen in Table 16, when the ‘big picture’ economic model is constructed to include water-based commercial components such as government agency spending in the area, the tourism/recreation economic impact previously reported grows slightly. That is, the total water-based economic impact is tabulated at approximately \$139.6M (\$79M direct). This economic activity supported roughly 1,143 FTE jobs around the state in 2017 with associated labor income of an estimated \$52.3M.

**TABLE 16:
THE ECONOMIC IMPACTS OF MANISTEE’S WATER-BASED CULTURE:
OVERALL**

2017 Overall	Economic Impact:	Total: \$139.6M	Direct: \$79M	Secondary (Indirect and Induced): \$60.6M
	Jobs (FTE):	Total: 1,143	Direct: 765	Secondary (Indirect and Induced): 378
	Labor Income:	Total: \$52.3M	Direct: \$32.3M	Secondary (Indirect and Induced): \$20M

Key Threats to Manistee’s Water-Based Culture

Although not an exhaustive list, here are some of the key threats discussed during the harbor / port interview in May:

In April 2018, a seiche event [a very rapid 8-10 feet water rise driven by barometric pressure] caused significant infrastructure damage along the Manistee River. Consequently, a pressing threat in the area is limited funds for needed infrastructure upgrades and repairs to docks and other engineered structures. Similarly, while a number of upgrades have already been implemented to the area’s sanitary and sewer systems, more upgrades are needed to complete the work and fully modernize the infrastructure.

In terms of attracting additional economic activity from tourism, the area has a significant need for more seasonal boat slips. Moreover, while the Riverwalk on the southside of Manistee is popular, a similar asset constructed on the northside of the city would likely aid economic growth.

Conclusions: Manistee

Water-based tourism and recreation are major economic engines in Manistee. Fishing, particularly charter fishing, plays a key role in this economic activity. These fishing experiences are found in both the Big and Little Manistee Rivers. In addition, the steep drop-off only 3-miles offshore in Lake Michigan creates ideal conditions for many types of fishing. Such boating and recreational activity is captured by these economic models. In fact, spending profiles of Manistee visitors are found to be roughly 8 percent higher than statewide averages.

{Marquette section on next page}

Marquette



Marquette

Overview of Marquette's Water-Based Culture

Several narratives in this section were kindly contributed by:

Kevin Dowling
Harbormaster
Marquette, Michigan

While the area was frequented by French missionaries and trappers for many years prior, the village of Marquette was not officially established until 1849. Demonstrating its deep-rooted water-based culture, by the mid-1850's, Marquette became linked by rail to several mines and was the most active commercial port in the Upper Peninsula (https://en.wikipedia.org/wiki/Marquette,_Michigan).

Although Marquette still has a 'working waterfront' and is designated by the federal government as a deep-draft commercial, cargo and recreational harbor, in recent decades, the city has been applauded for successfully maintaining an inviting, picturesque, and recreationally-accessible waterfront that still serves commercial functions. Achieving this balance between the 'work' and 'play' benefits of the waterfront is largely credited to local government and civic engagement (Austin and Steinman, 2015). Through thoughtful planning and coordination, a number of public-private ventures have aided the economic development of the waterfront. In fact, today, more than 90 percent of the shoreline within city limits is owned by the city.

While there has been a gradual population decrease in the Upper Peninsula, the 2010 U.S. Census shows an increase for Marquette. While the city has secured accolades for being a great place to retire, this population increase is not driven solely by retirees: a number of millennials are finding Marquette's water-based culture appealing (Austin and Steinman, 2015).

To accompany the 55 miles of Lake Superior shoreline and 77 scenic waterfalls in Marquette County are many amenities along the waterfront. One such amenity is the Lake Superior Theatre which is a popular community theatre morphed from an old boathouse (<http://www.lakesuperiortheatre.com/history-of-lsyy.html>).

Marquette may not be the first place you think of when it comes to sustainability and placemaking, but you should reconsider. In terms of small cities, it really stands out above the crowd.

*~ Second Wave, Upper Peninsula
Joe Baur, 2014*

Moreover, many festivals and events serve both residents and visitors.

Here are some examples:

International Food Fest & July 4th Fireworks: A celebration of worldwide fare with entertainment. Organized by the Marquette County Exchange Club, the event is planned around the July 4th fireworks display that takes place at the Marquette lower harbor.

Art on the Rocks: A premier art show at Mattson Park immediately adjacent to Cinder Pond Marina. Over 140 artists participate with approximately 10,000 visitors over the two-day event.

Harbor Fest and South Shore Fishing Fall Tournament: Harbor Fest is a family friendly event with live music, food, activities and a car show. This event is organized by the Marquette West Rotary Club and is paired with the South Shore Fishing Association's Fall Fishing Tournament at Mattson Lower Harbor Park.

Blues Fest: A celebration of Blues music with live entertainment, workshops, food and beverages organized by the Marquette Area Blues Society and held at Mattson Lower Harbor Park.

U.P. Fall Beer Fest: A celebration and promotion for Michigan Brewers. This is a one-day event with multiple beer vendors and food. The event is organized by the Michigan brewers and held at Mattson Lower Harbor Park.

South Shore Fishing Association Veteran's Day: Members of the South Shore Fishing Association show appreciation for U.S. Military veterans and take them fishing from Presque Isle Marina around the waters of Marquette. The event concludes with a cookout at the adjacent Presque Isle Park.

The Economic Impacts of Marquette's Water-Based Culture

The values listed in Table 17 derive from visitors to Marquette County who visited during 2017 due to the water-based culture of the area. As can be seen in Table 17, in 2017, water-based visits to Marquette were associated with significant spending around Michigan. For instance, visitors to Marquette spent \$15M in restaurants and \$14.6M in lodging establishments around the state. Such tourism and recreation spending contributed \$107M to the gross domestic product (GDP) of Michigan, spawned approximately \$16.1M in federal tax income, and roughly \$13.1M in state and local tax income in Michigan. The 2017 economic impact due to water-based tourism and recreation in Marquette is estimated at \$192M (see Table 17).

In 2017, this economic activity supported 1,597 full-time equivalent (FTE) jobs around the state and was associated with \$72.9M in labor income (\$44.3M direct labor income).

**TABLE 17:
THE ECONOMIC IMPACTS OF MARQUETTE’S WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS**

2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$192M	Direct: \$105.4M	Secondary (Indirect and Induced): \$86.6M		
	Visitors’ Largest Spending Categories:	Restaurants: \$15M	Lodging / vacation rentals: \$14.6M	Gas: \$7.2M	Groceries: \$4.9M	
	Jobs (FTE):	Total: 1,597	Direct: 1,056	Secondary (Indirect and Induced): 541		
	Labor Income:	Total: \$72.9M	Direct: \$44.3M	Secondary (Indirect and Induced): \$28.6M		
	State and Local Tax Revenues:	\$13.1M				
	Federal Tax Revenues:	\$16.1M				
	Value-Added Effect:	\$107M				

These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.

When commercial activity, such as the more than 1.1M in short tons handled in Marquette, is also included in the modeling, the economic impact grows substantially larger. As seen in Table 18, the total economic impact of Marquette’s water-based culture during 2017 is an estimated \$255.5M. This economic activity supported roughly 1,993 FTE jobs around the state and \$99.5M in associated labor income.

**TABLE 18:
THE ECONOMIC IMPACTS OF MARQUETTE’S WATER-BASED CULTURE:
OVERALL**

2017 Overall	Economic Impact:	Total: \$255.5M	Direct: \$125.7M	Secondary (Indirect and Induced): \$129.8M
	Jobs (FTE):	Total: 1,993	Direct: 1,239	Secondary (Indirect and Induced): 754
	Labor Income:	Total: \$99.5M	Direct: \$53.1M	Secondary (Indirect and Induced): \$46.4M

Key Threats to Marquette’s Water-Based Culture

While not a comprehensive list, here are some of the key threats discussed during the harbor / port interview in May:

Largely due to climate change, algae blooms are increasingly frequent and widespread on Lake Superior (Hauser, 2018). Other problems driven by climate change are also threatening Marquette’s water-based culture. For example, lake evaporation has increased in recent years because the ice caps, which minimize evaporation, are smaller than they once were before climate change. Warmer temperatures are also influencing changes to the lake’s currents (<http://infosuperior.com/blog/2018/05/31/how-is-climate-change-changing-lake-superior/>).

Conclusions: Marquette

While commercial components still play a useful role, as seen in the previous sections, the majority of the water-based economic activity in Marquette is contributed by tourism and recreation components. The fact that most of the waterfront is owned by the municipality creates a unique opportunity to manage these assets “by the people – for the people.” As listed in Table 19, the demand for boat slips in the area is relatively strong in that both Cinder Pond and Presque Ilse marinas remain at greater than 60 percent occupancy for the season. This 184-day season is longer than the 140-150 day seasons reported by some municipalities in this study located further south in Michigan.

**TABLE 19:
MARQUETTE’S CINDER POND AND PRESQUE ISLE MARINAS:
2017 KEY STATISTICS**

Marina Name:	Cinder Pond	Presque Isle
Number of days during harbor open season	184 days	184 days
Number of days at full occupancy	20 days	None
Number of days at 60% occupancy	All	All
Number of transient slips	12	5
Number of seasonal slips	91	48
Total slips	103	53

Muskegon



Muskegon

Overview of Muskegon's Water-Based Culture

Several narratives in this section were kindly contributed by:

Bob Lukens
Director of Visit Muskegon
Muskegon, Michigan

Like many other Michigan coastal areas, Muskegon's water-based culture has roots in the fur trade, followed by lumber, followed by industry. While industry and commercial cargo remain components of Muskegon's economy – being the largest natural deep-water port in West Michigan - the city's water culture today has many other facets as well.

The Port of Muskegon has seen explosive growth in the past five years. Increasing waterfront activity has resulted in new home construction at or near Muskegon Lake, and new festivals and events on Muskegon Lake and Lake Michigan at the Port of Muskegon. Some 1,600 recreational slips are available on Muskegon Lake, the largest natural deep-water port along Michigan's West Coast. Furthermore, increases in recreational activity, including fishing tournaments, sailing regattas, and charter boat operations, are happening at the Port of Muskegon.

Great Lakes cruise ships have begun calling on Muskegon regularly. With the first docking of the Pearl Mist in September 2015, two full seasons of Pearl Mist calls in 2016 & 2017, the Port of Muskegon and the city itself are seeing renewed interest in Muskegon by cruise line operators. The cruise line itself uses the local trolley company (revenues of over \$14K/year) and does extensive shopping trips in Muskegon County during every port-of-call, procuring items like food, kitchen utensils, wine and liquor, furnishings, sundry items, drugstore goods and services, and other crew transportation services. Ship passengers tour the inviting community and patronize museums, restaurants, breweries, distilleries, and gift shops. Local mechanical contractors are sometimes called in to service the ship, and it regularly receives fuel shipments at the Port of Muskegon, in excess of 30,000 gallons per load.

Commercial ship traffic, which was affected by the closure of the Consumers Energy Cobb Generation Plant, has been supplemented by increased aggregate tonnage delivered to the Port of Muskegon.

New festivals and events associated with the water and port have been or are being developed, including the Great Lakes Surf Festival, Burning Foot Beer Festival, and the Stand Up For The Cure stand-up paddleboard fundraiser. Muskegon County's largest festivals are held directly on Muskegon Lake at the Heritage Landing Dock Facility: Rockstock July 4th Festival, Moosefest

Country Music Festival, Unity Christian Music Festival, Lakeshore Jazz Festival, Michigan Irish Music Festival, and other smaller events.

Further evidence of Muskegon’s vibrant water-based culture exists as well. First, the city is home to the world’s largest kayak manufacturer: Hemisphere Design Works. Second, Muskegon serves as the port for the Lake Express Ferry to/from Milwaukee. Third, the city houses the U.S.S. Silversides Submarine and museum. Fourth, Muskegon Lake is home to Grand Valley State University’s Annis Water Resources Institute which is estimated to have an annual economic impact of approximately \$3M (Austin and Steinman, 2015). In summary, these examples serve to underscore Muskegon’s varied and robust water-based culture.

The Economic Impacts of Muskegon’s Water-Based Culture

These economic models were calculated using visitor count estimates of those who visited Muskegon County during 2017 due to its water location. As depicted in Table 20, water-based tourism and recreation is a significant economic engine in Muskegon County. Visitors to/from Muskegon spent roughly \$24.4M on lodging and \$23.3M in restaurants around Michigan. Such economic activity supported 2,540 FTE jobs around the state and \$116.4M in labor income (\$70.6M direct). In addition, this economic activity contributed roughly \$171M to the state’s GDP in value-added effects. In sum, the total water-based tourism and recreation-related economic impact produced by visitors to Muskegon in 2017 is estimated at \$306.8M.

TABLE 20: THE ECONOMIC IMPACTS OF MUSKEGON’S WATER-BASED CULTURE: TOURISM AND RECREATION-RELATED COMPONENTS					
2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$306.8M	Direct: \$168.5M	Secondary (Indirect and Induced): \$138.3M	
	Visitors Largest Spending Categories:	Lodging / vacation rentals: \$24.4M	Restaurants: \$23.3M	Gas: \$11.3M	Groceries: \$7.5M
	Jobs (FTE):	Total: 2,540	Direct: 1,676	Secondary (Indirect and Induced): 864	

	Labor Income:	Total: \$116.4M	Direct: \$70.6M	Secondary (Indirect and Induced): \$45.8M
	State and Local Tax Revenues:	\$20.9M		
	Federal Tax Revenues:	\$25.7M		
	Value-Added Effect:	\$171M		
These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.				

When commercial components such as Muskegon’s commercial cargo (mostly aggregate) is modeled in conjunction with the tourism and recreation components, the modeled economic output grows larger. As seen in Table 21, the total 2017 water-based economic impact for Muskegon is estimated at \$358.3M. This economic activity supported 3,896 FTE jobs around Michigan with associated labor income of \$139.1M (\$79.9M direct).

TABLE 21: THE ECONOMIC IMPACTS OF MUSKEGON’S WATER-BASED CULTURE: OVERALL				
2017 Overall	Economic Impact:	Total: \$358.3M	Direct: \$192M	Secondary (Indirect and Induced): \$166.3M
	Jobs (FTE):	Total: 3,896	Direct: 1,864	Secondary (Indirect and Induced): 2,032
	Labor Income:	Total: \$139.1M	Direct: \$79.9M	Secondary (Indirect and Induced): \$59.2M

Key Threats to Muskegon's Water-Based Culture

While not an exhaustive list, here are some of the key threats discussed during the harbor / port interview in May:

- There might be a past perception that Muskegon is unsafe or overly-industrial. The community is making progress in amending this perception.
- The U.S. Army Corps of Engineers keeps the port dredged because the current criterion for doing so is that a port must move a minimum of one million tons of goods per year. If the federal government ever increases this minimum tonnage cut-off amount, such a change could be problematic for Muskegon.
- Some of Muskegon's competitors for leisure tourists have better pedestrian water access than does Muskegon. Therefore, enhanced access, such as the addition of a pedestrian bridge, would help the city.

{Muskegon conclusions on next page}

Conclusions: Muskegon

The days of Muskegon’s overly industrial-feel are gone. As seen in the previous sections, while maritime shipping augments the water-based economy, Muskegon has a strong water-based tourism and recreation component. The area’s several thousand boat slips are more-often-than-not occupied (see Table 22). Both cruise and ferry operators play integral roles in the area’s economic activity. The Lake Express Ferry offering transportation to/from Wisconsin recorded nearly 700 embarkments in Muskegon during 2017. Likewise, 10 cruise ports of call were made in Muskegon throughout the year. The trolley rental revenue alone from these cruise stops tallied \$14K. In summary, Muskegon’s water-based tourism and recreation is well-rounded with many contributing sectors.

TABLE 22: 10 MARINAS IN MUSKEGON¹: 2017 KEY STATISTICS	
Number of days during harbor open season	200 days
Number of days at full occupancy	45 days
Number of days at 60% occupancy	195 days
Number of transient slips	200
Number of seasonal slips	2,800
Total slips	3,000
<p>1. List of included marinas:</p> <ul style="list-style-type: none"> Bluffton Bay Marina Great Lakes Marina Harbour Towne Marina Hartshorn (City owned) Lakeshore Yacht Harbor Muskegon Conservation Club Muskegon Yacht Club Pointe Marina Terrace Point Marina Torreson Marine 	

Onkama



Onekama

Overview of Onekama's Water-Based Culture

The culture in Onekama has always been centered upon water. In 1871, disputes between sawmill owners and farmers regarding the levels of Portage Lake led to homesteaders digging a ditch to connect Portage Lake with Lake Michigan. When water pushed through the ditch the force caused the ditch to transform into a channel 500 feet wide and 12 feet deep (<https://www.onekama.info/about-onekama>). This event was an integral component in the creation of this *Two Lake Town*.

Further evidence of the deep-rooted water-based culture is that even the name Onekama is derived from an Anishinaabe word meaning "singing water" (https://en.wikipedia.org/wiki/Onekama,_Michigan). In fact, even to this day, Onekama is considered a clean water port and is the first clean water port that can be reached by boaters when traveling from the south.

Tourism and water-based recreation have always been key ingredients in the area's economy. Even as far back as 1883, tourists traveled from all around the country to reap medicinal benefits from the three natural springs at the Glen House Hotel. Today, visitors can still visit the springs, because, in 1916, the property was deeded back to Onekama Township for public access: Glen Park Mineral Springs (www.visitmanistee.com).

Regarding current economic development in Onekama's water-based culture, the town is witnessing the construction of custom-built homes, a new bank, and new restaurants. There are a couple of wineries in the area that produce quality wines and host wine tastings and tours. There are also a number of golf tournaments on local courses.

The largest economic-based tourist pull-factors are boating and fishing. Onekama is located in Manistee County of which more than 50 percent is comprised of water, and it is known as the fishing capital of the Midwest (Austin and Steinman, 2015). There are many salmon and bass fishing tournaments hosted in Onekama. There are ice fishing tournaments as well. As one might anticipate, kayak rentals are also common in the area.

Local residents and visitors alike enjoy the numerous festivals and events in the Onekama area. The Onekama Days (Festival), for example, is in its 45th year. This festival has many activities and attractions including a newly added farmers market and rock painting for children. For the most recent 25 years, Onekama's Main Street is lined with petunias for the festival (<https://www.onekama.info/onekamadays>). Key features of the festival are the parade and fireworks.

It is important to note, however, that the township offers a steady stream of activities and entertainment even when a festival is not happening. Onekama hosts weekly concerts in the park featuring local musicians. Such initiatives not only bolster the quality of life of local residents, but also spawn economic activity in the community.

The Economic Impacts of Onekama’s Water-Based Culture

The economic models in this section include tourists count estimates provided by local officials for Onekama and the immediate area around Portage Lake. As seen in Table 23, for a small community with a permanent population only around 500, Onekama draws a significant amount of water-based tourism and recreation. The 2017 economic impact associated with Onekama’s water-based tourism and recreation is estimated at \$16.1M.

Visitors traveling to and from Onekama, for example, spent roughly \$1.6M in lodging establishments throughout the state in 2017 and about \$1.1M in restaurants. This economic activity associated with Onekama’s water-based tourism and recreation generated about \$1.1M in state and local taxes and \$1.3M in federal tax revenues. Regarding jobs, approximately 131 full-time equivalent jobs around Michigan were supported by this economic activity which was associated with roughly \$6.1M in labor income. The contribution to the state’s GDP in value-added effects is estimated at \$9M for 2017.

TABLE 23: THE ECONOMIC IMPACTS OF ONEKAMA’S WATER-BASED CULTURE: TOURISM AND RECREATION-RELATED COMPONENTS					
2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$16.1M	Direct: \$8.9M	Secondary (Indirect and Induced): \$7.2M	
	Visitors’ Largest Spending Categories:	Lodging / vacation rentals: \$1.6M	Restaurants: \$1.1M	Gas: \$527K	Groceries: \$365K
	Jobs (FTE):	Total: 131	Direct: 86	Secondary (Indirect and Induced): 45	
	Labor Income:	Total: \$6.1M	Direct: \$3.7M	Secondary (Indirect and Induced): \$2.4M	

	State and Local Tax Revenues:	\$1.1M
	Federal Tax Revenues:	\$1.3M
	Value-Added Effect:	\$9M
These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.		

When non-tourism components are added to the model (for example, government agency spending and the money that the township spent on a water-based study), the total economic impact of Onekama’s water-based culture grows to \$21.6M (see Table 24). This economic activity supported roughly 167 FTE jobs across the state and associated estimated labor income of \$8.3M (direct = \$5.1M).

TABLE 24: THE ECONOMIC IMPACTS OF ONEKAMA’S WATER-BASED CULTURE: OVERALL				
2017 Overall	Economic Impact:	Total: \$21.6M	Direct: \$11.8M	Secondary (Indirect and Induced): \$9.8M
	Jobs (FTE):	Total: 167	Direct: 106	Secondary (Indirect and Induced): 61
	Labor Income:	Total: \$8.3M	Direct: \$5.1M	Secondary (Indirect and Induced): \$3.2M

Key Threats to Onekama’s Water-Based Culture

While not a comprehensive list, here are some of the most pressing threats discussed during the harbor / port interview in May:

- Lack of jobs in the area
- The seasonality associated with a tourism-based economy

- The need for various infrastructure improvements, but lack of funding opportunities for the projects
- Invasive species

Conclusions: Onekama

For a small community, Onekama’s water-based tourism and recreation economic impacts are formidable. Most of these economic contributions result from the area’s rich recreational boating and fishing sectors. As seen in Table 25, the boat marina records occupancy rates above 60 percent for the majority of its 180-day season. In fact, because boaters represent such a large proportion of the area’s visitors, the spending profiles in this study were estimated at 8 percent higher than statewide spending profiles.

TABLE 25: MARINAS ON PORTAGE LAKE: 2017 KEY STATISTICS	
Number of days during harbor open season	180 days
Number of days at full occupancy	None
Number of days at 60% occupancy	150 days
Number of transient slips	10
Number of seasonal slips	225
Total slips	235

Rogers City



Rogers City

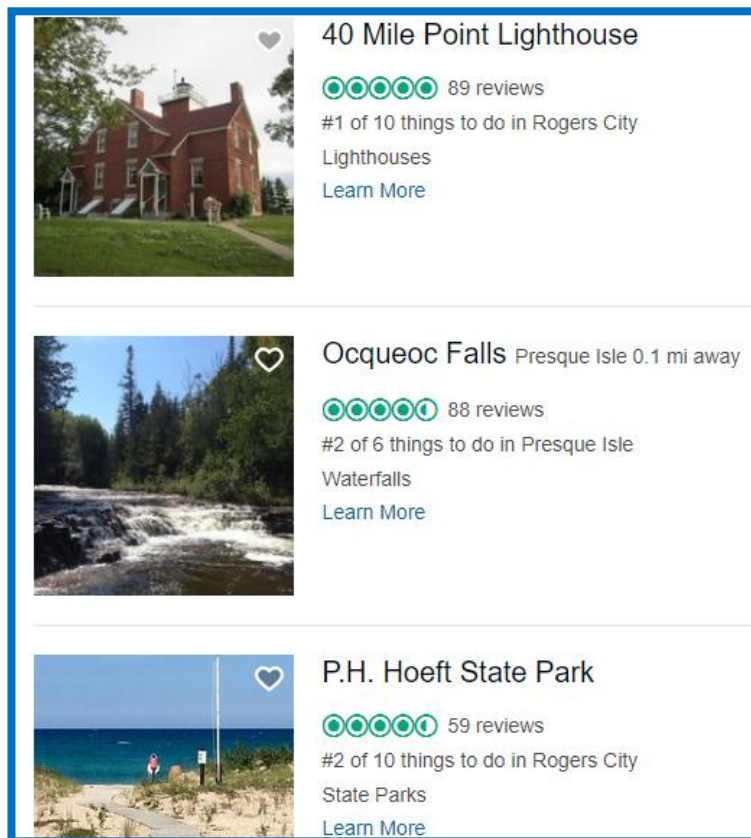
Overview of Rogers City's Water-Based Culture

Several narratives in this section were kindly contributed by:

Joseph Hefele
City Manager
Rogers City, Michigan

Rogers City has a solid industrial foundation. The city is home to the world's largest limestone quarry. Evidently, water transport of industrial products has played, and continues to play, a key role in the area's history and current economy.

If a visitor, however, were to stand at the picturesque and well-maintained Rogers City Municipal Marina and overlook the 123 slips, such industrial activity would seem a thousand miles away. In other words, the city successfully balances the many facets of its water-based culture. In fact, evidence of this balance can be seen when an Internet search is performed seeking information about Rogers City's most popular tourist attractions. As demonstrated on the below screenshot, the top tourism attractions all highlight the City's water-based culture.



When City Manager, Joseph Hefele, is asked about the connection between recent economic development and the city's deep-rooted water-based culture, he points out several recent or prospective initiatives near the city's waterfront. He discusses, for example, a grocery store within walking distance of the marina and a brew pub in development also within walking distance of the marina. City officials are also currently working with developers on commercial and residential projects within sight of, or a short walk from, the marina with the marina a factor in the decision-making process and, in some circumstances, a part of the business plan.

Further emphasizing the area's water-based culture are numerous festivals and events. The Rogers City Nautical Festival, for instance, is held during the first full weekend of August. Soon after, the city hosts a salmon tournament during the second weekend of August. In the fall, Annual Great Lakes Lighthouse Festival is popular when the Forty Mile Point Lighthouse is accessible for tours for four days.

Lastly, to underscore the area's water-culture, Rogers City's Great Lakes Lore Maritime Museum deserves its due attention:

... A maritime museum that specializes in memories and not just artifacts... a place where the rich history of the great waterway comes to life. The generations of men and women who risked life itself to sail and make their livings on these waters are enshrined and remembered here as are their uniforms, personal possessions, navigational and other maritime tools, all waiting to paint vivid memories of life on the Great Lakes for you and your family.

*~ Museum's Website
Joe Baur, 2014*

The Economic Impacts of Rogers City’s Water-Based Culture

The economic estimates in this section were derived using the estimated visitation counts for Presque Isle County. The county visitation counts were used because: 1) Rogers City is located roughly in the middle of the county’s coastline; and 2) Rogers City is the county seat. As seen in Table 26, water-based tourism and recreation in Rogers City contributed approximately \$37.7M in economic impact to the state of Michigan in 2017. Of this tourism and recreation impact, about 55 percent was through direct effects (mostly visitor spending) and the remainder through secondary effects (subsequent circulation of money). The largest visitor spending categories were in the restaurants and lodging sectors: visitors traveling to/from Rogers City spent \$3.1M and \$3M in these sectors, respectively.

The tourism and recreation-related economic impacts described above supported roughly 316 full-time equivalent jobs around the state and an associated \$14.3M in labor income. An estimated \$21M contribution to the GDP of Michigan was made through value-added effects. Moreover, this economic activity stimulated about \$3.2M in federal tax revenues and \$2.6M in state/local tax revenues.

TABLE 26: THE ECONOMIC IMPACTS OF ROGERS CITY’S WATER-BASED CULTURE: TOURISM AND RECREATION-RELATED COMPONENTS						
2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$37.7M	Direct: \$20.7M	Secondary (Indirect and Induced): \$17M		
	Visitors’ Largest Spending Categories:	Restaurants: \$3.1M	Lodging / vacation rentals: \$3M	Gas: \$1.5M	Groceries: \$997K	
	Jobs (FTE):	Total: 316	Direct: 210	Secondary (Indirect and Induced): 106		
	Labor Income:	Total: \$14.3M	Direct: \$8.7M	Secondary (Indirect and Induced): \$5.6M		
	State and Local Tax Revenues:	\$2.6M				
	Federal Tax Revenues:	\$3.2M				

	Value-Added Effect:	\$21M
These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.		

Although the water-based tourism and recreation-related economic impacts described in the previous paragraphs are noteworthy, the figures grow substantially when the commercial cargo activity that transpires in Presque Isle County is also included in the economic modeling. The county's two ports combined (Stoneport / Presque Isle and Calcite) handled more than 20M short tons of product during 2017. Stoneport / Presque Isle move mostly limestone and aggregated; and, Calcite mostly fabricated steel. Thus, when the commercial components are entered into the economic modeling, the total water-based economic impacts for the Rogers City area is estimated at \$971.6M for 2017. As seen in Table 27, this economic activity supported roughly 6,115 FTE jobs in Michigan and had associated labor income of about \$412.7M in 2017.

TABLE 27: THE ECONOMIC IMPACTS OF ROGERS CITY'S WATER-BASED CULTURE: OVERALL				
2017 Overall	Economic Impact:	Total: \$971.6M	Direct: \$272M	Secondary (Indirect and Induced): \$699.6M
	Jobs (FTE):	Total: 6,115	Direct: 2,707	Secondary (Indirect and Induced): 3,408
	Labor Income:	Total: \$412.7M	Direct: \$129.4M	Secondary (Indirect and Induced): \$283.3M

Key Threats to Rogers City's Water-Based Culture

Although not an exhaustive list, here are some of the key threats discussed during the harbor / port interview in May:

- Negotiations with tribal communities regarding commercial fishing rights and territories.
- High gas prices impact the volume of recreational boaters as well as other drive-based tourist groups.
- Currently no customs or border patrol facilities in the area.
- Limited funding for a desired community welcome center that could serve as a shared space for entities such as NOAA.

Conclusions: Rogers City

As seen in the previous sections, most of Rogers City's water-based economic impacts are a result of the tonnage handled in the Presque Isle County's three ports. This is not to imply, however, that Rogers City does not have an active water-based tourism and recreation sector. As detailed in the overview section, the municipality has a number of unique and well-managed tourism assets that draw significant numbers of visitors.

Saugatuck-Douglas



Saugatuck-Douglas

Overview of Saugatuck-Douglas' Water-Based Culture

Like many other localities along Lake Michigan, Saugatuck and Douglas were originally founded upon the lumber industry.¹² Also like many locations along the lake shore, efforts were eventually undertaken by area stakeholders to diversify the economy beyond lumbering and other industrial sectors. Consequently, in the early 1900's, given its natural beauty and position on the water, the area began to increasingly attract vacationers. During the same time period, in 1910, a group of Chicago artists founded the Ox-Bow School of Art (<http://www.ox-bow.org/>). These two key ingredients – art and water – served as the foundation for the area's eventual branding as the *Art Coast of Michigan*.

The Art of Being:

In Saugatuck/Douglas, Michigan, art is far more than an aspect of cultural enrichment, more than a source of passive entertainment. In Saugatuck and Douglas, art is life.

*~ Saugatuck-Douglas
2016 Visitors Guide*

The area touts numerous water assets including one of Condé Nast's top 25 beaches in the world: Oval Beach (Saugatuck/Douglas Visitors Guide, 2016). To accompany Oval Beach, a Michigan Cool Cities grant nearly two decades ago provided funds to convert factory space into an arts center and develop a waterside park (Austin and Steinman, 2015). Through the years, this momentum has continued. The area is part of the West Michigan Water Trail network and a key member of Michigan's Beachtowns™ collaborative (<http://www.beachtowns.org/>). In fact, the confluence of these successful placemaking initiatives has yielded scores of accolades for the destination. For example, in 2015 the *Art Coast of Michigan* was named the *Best Coastal Small Town in the U.S.* by USA Today.

Regarding attractions, long-standing area fixtures such as the Star of Saugatuck sternwheeler and the Saugatuck Chain Ferry underscore the strong water-based culture. Mount Baldhead is also a popular water-based attraction near Oval Beach. Mount Baldhead is a large sand dune that can be climbed with its 282 steps to overlook the harbor and town.

When city managers Kirk Harrier (Saugatuck) and William LeFevere (Douglas) were asked about recent economic development related to the area's water-based culture, they provided numerous examples. A unique manifestation of the area's water-based culture, for instance, is

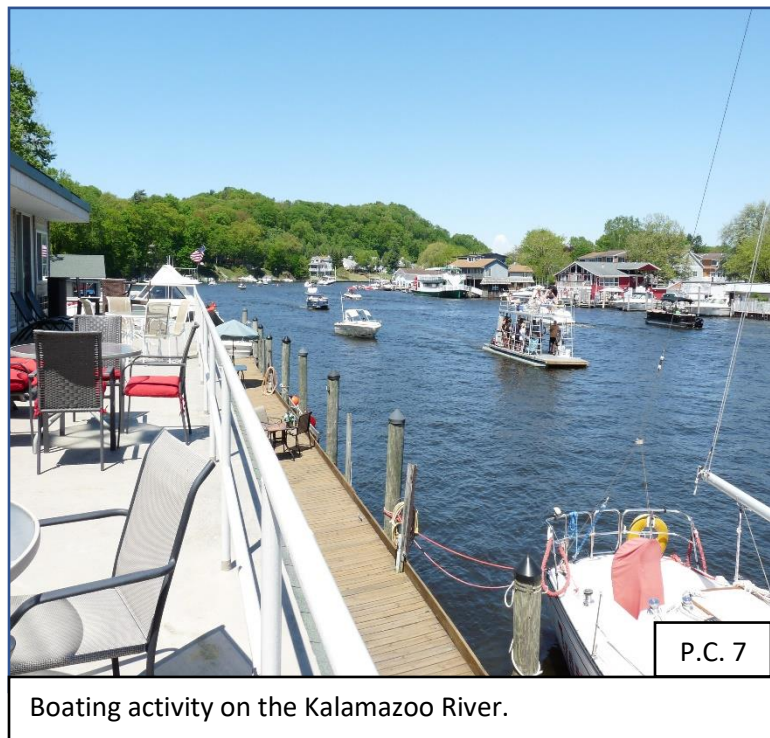
¹² While Saugatuck and Douglas are separate municipalities, they are often joined together and referred to as Saugatuck-Douglas within the context of tourism marketing. Both municipalities fall under the domain of the Saugatuck-Douglas Convention and Visitors Bureau.

the Sea Suites Bed and Breakfast, one of only five floating inns in the country (<http://www.seasuites.com/>). Another example is Retro Boat Rentals which offers vintage boats from the 1950's and 60's retrofitted with modern technologies (<https://retroboatrentals.com/>). In addition, West Michigan Cycle Boat is creating economic activity in the area by offering a new form of entertainment with its 16-passenger pedal-powered charter boat (<https://www.westmichigan cycleboat.com/>). Each of these examples utilizes the area's water resources in creative and sustainable ways.

Each year there are numerous events and festivals to entertain visitors to the *Art Coast of Michigan*. A popular annual event, for example, is the Saugatuck Venetian Fest held each July. Popular features of this event are the dinghy poker run, lighted boat parade, and fireworks over Lake Kalamazoo. Visitors to the area can also enjoy smaller, more frequently held events, such as Music in the Park, now in its 22nd year.

The Economic Impacts of Saugatuck-Douglas' Water-Based Culture

The economic models in this section include the Saugatuck-Douglas Convention and Visitors Bureau trade area.¹³ As listed in Table 28, in 2017, water-based visits to Saugatuck-Douglas were associated, for example, with \$21.2M in lodging-related spending and \$20M in restaurant spending around the state. Such water-based tourism and recreation spending, in these and other categories, contributed \$141.1M to the gross domestic product (GDP) of Michigan. Moreover, the spending spawned approximately \$21.2M in federal tax income, and roughly \$17.5M in state and local tax income in Michigan. The 2017, economic impact due to water-based tourism and recreation in the Saugatuck-Douglas area is estimated at \$253.3M (see Table 28).



¹³ This trade area includes the cities of Douglas, Fennville, Saugatuck, and Saugatuck Township.

In 2017, this economic activity supported approximately 2,109 full-time equivalent jobs around the state and was associated with roughly \$95.9M in labor income (\$58.1M direct labor income).

TABLE 28: THE ECONOMIC IMPACTS OF SAUGATUCK-DOUGLAS' WATER-BASED CULTURE: TOURISM AND RECREATION-RELATED COMPONENTS						
2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$253.3M	Direct: \$139.2M	Secondary (Indirect and Induced): \$114.1M		
	Visitors' Largest Spending Categories:	Lodging / vacation rentals: \$21.2M	Restaurants: \$20M	Gas: \$9.6M	Groceries: \$6.5M	
	Jobs (FTE):	Total: 2,109	Direct: 1,397	Secondary (Indirect and Induced): 712		
	Labor Income:	Total: \$95.9M	Direct: \$58.1M	Secondary (Indirect and Induced): \$37.8M		
	State and Local Tax Revenues:	\$17.5M				
	Federal Tax Revenues:	\$21.2M				
	Value-Added Effect:	\$141.4M				
	These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.					

When non-tourism components are added to the model (for example, government agency spending and capital improvement spending not supported by visitor revenues), the total economic impact of Saugatuck-Douglas’ water-based culture increases to \$261.9M (see Table 29). This economic activity supported roughly 2,161 FTE jobs across the state and associated labor income of \$98.7M (direct = \$60.3M).

TABLE 29: THE ECONOMIC IMPACTS OF SAUGATUCK-DOUGLAS’ WATER-BASED CULTURE: OVERALL				
2017 Overall	Economic Impact:	Total: \$261.9M	Direct: \$146.4M	Secondary (Indirect and Induced): \$115.5M
	Jobs (FTE):	Total: 2,161	Direct: 1,436	Secondary (Indirect and Induced): 725
	Labor Income:	Total: \$98.7M	Direct: \$60.3M	Secondary (Indirect and Induced): \$38.4M

Key Threats to Saugatuck-Douglas’ Water-Based Culture

While not a comprehensive list, here are some of the key threats to be considered:

Silting of the Harbor:

One of the most pressing threats to Saugatuck-Douglas is the silting of the harbor. Being located at the base of the Kalamazoo River, an estimated 36,000 cubic yards of sediment get trapped in the harbor each year. This silting is a complex issue on a number of fronts. First, the wrong type of solution might potentially expose or reposition contaminants currently buried under layers of silt. In the past, activities upstream such as paper milling and agriculture production were suspected to have caused both point source and nonpoint source water pollution that eventually found its way downstream to the harbor. Evidently, being located at the base of a river can often be problematic when pollutants are introduced upstream.

Invasive Species:

Like other harbors along the Michigan lakeshore, the area has just cause to be concerned about the myriad invasive species that threaten its ecosystem. One threat, in particular, is phragmites. This invasive species not only chokes-out recreational boating areas, but also reduces water quality and can be detrimental to silted spawning beds (Bohling, 2013).

Operation of the Chain Ferry:

At times, there appears to be potential challenges keeping the chain ferry operating from a legislative or operational stand point going forward.

Dredging:

The threat exists of the possibility of the Corps of Engineers abandoning responsibility for keeping the channel dredged from Lake Michigan up to the community's harbor. One potential solution that could be pursued would be assistance in dredging the harbor now that the Harbor Maintenance Trust Fund is releasing millions of more dollars for the maintenance of harbors throughout the country. Being trapped on the Superfund list seems to further compound problems associated with dredging funding.

Dredging Spoils:

Difficulty finding and financing dredging spoils locations that meet government standards is an ongoing challenge.

Availability of Transient Slips:

There appears to be a shortage of transient slips because there is no municipal marina.

Potential Over-Development:

There is a possibility that commercialization and over-development will change/destroy the character and charm of the area and drive away tourism which is the community's only industry... especially poor or aggressive waterfront development.

Failing Infrastructure:

Dated/deteriorating water-related infrastructure threatens the ability of the community to provide essential services to such a large water-based tourism industry.

Funding for Critical Visitor Services:

Assistance with problems that often surface when implementing water trails, boardwalks, parks, and other amenities necessary for the development of water-based tourism.

Conclusions: Saugatuck-Douglas

Saugatuck-Douglas' water-based tourism and recreation play vital roles in the area's economy. The *Art Coast of Michigan* branding that was put in place more than two decades ago to accent the area's two major assets - art and water – continues to draw significant numbers of visitors. Moreover, these visitors' spending exceeds statewide averages. In fact, it should be noted that the area has no industrial activity and the economy draws almost entirely upon tourism and recreation as economic engines.



{Sault Ste. Marie section on next page}

Sault Ste. Marie



Sault Ste. Marie

Overview of Sault Ste. Marie's Water-Based Culture

Several narratives in this section were kindly contributed by:

Linda Hoath
Executive Director
Sault Ste. Marie CVB

Sault Ste. Marie is the oldest city in Michigan, and one of the oldest cities in the country (<https://www.saultstemarie.com/soo-area-and-great-waters-region/our-local-history/>). In fact, the area's water-based culture has been evident for centuries. For many years, the Ojibwe (Chippewa) Native Americans termed the area *Baawitigong* which means "at the cascading waterfalls." Later, French colonists began calling the area "Saulteaux" translated as "rapids" (https://en.wikipedia.org/wiki/Sault_Ste._Marie,_Michigan). Eventually, the city was officially named Sault Sainte-Marie which, in French, means "the Rapids of Saint Mary" referring to the Saint Mary's River that connects Lake Superior and Lake Huron.

As "the Rapids of Saint Mary" suggests, the stretch of river is not navigable for cargo ships in its natural condition. Therefore, after years of off-loading and loading ships to circumvent the rapids, a primitive lock was constructed in 1797, but was destroyed during the war of 1812 (<https://www.saultstemarie.com/soo-area-and-great-waters-region/our-local-history/>). The next series of locks, the Soo Locks, were first opened in 1855 with a number of improvements and additions since.

Today, the Soo Locks are the busiest locks in the world (<https://www.saultstemarie.com/soo-area-and-great-waters-region/our-local-history/>). The Soo Locks accommodate 26 million tons of cargo annually (Martin Associates, 2018). An example of this volume: all of the iron ore mined in the U.S. passes through the locks which equates to roughly \$500.4 billion in iron ore (Gordon, 2017). With regard to economic significance, if the Soo Locks were to cease operations for 6 months, approximately 11 million jobs would be lost around the country (Gordon, 2017).



P.C. 9

A portion of the Soo Locks viewing platform.

Each year, millions of tourists visit Sault Ste. Marie to witness, first-hand, the Locks in action. For instance, the Soo Locks Park and Visitors Center attracts about ½ million visitors per year. The Soo Locks boat tours draw roughly 65K tourists per year. In addition, a popular annual event is Engineers Day which is held on the last Friday in June and attracts about 10K attendees each year. On Engineers Day, individuals can walk on the locks walls, tour the Cleveland Hydroelectric Plant, and visit the U.S. Coast Guard Station.

While the Soo Locks are a major draw, it is important to note that the area's water-based culture is also manifested through numerous other water-based amenities and activities. For example, adventure outfitters such as Bird's Eye Adventures serve residents and visitors. Bird's Eye Adventures' main goal is to help individuals experience the great outdoors be it through education, tours, or product demo days. Their objective is to get folks properly geared up and outside. Bird's Eye offers stand-up paddleboard workshops, lessons, and tours on the St. Mary's River. Guided tours throughout the year also include kayaking, paddle boarding, snowshoeing, and cross-country skiing. In addition to these outdoor sports, there are numerous charter fishing operations in the area. Furthermore, visitors enjoy the fact that Sault Ste. Marie is connected to many of the Upper Peninsula's water trails.

The Economic Impacts of Sault Ste. Marie's Water-Based Culture

The economic modeling of the water-based tourism and recreation of the Sault Ste. Marie area includes those who visited Chippewa County due to the water location during 2017. As can be seen in Table 30, in 2017, these water-based visits to the Sault Ste. Marie area stimulated, for example, roughly \$13.2M in restaurant revenues and approximately \$12.4M in lodging revenues around the state. As detailed in Table 30, such spending supported about 1,374 FTE jobs across Michigan in 2017 and was associated with roughly \$62.5M in labor income.

Significant tax revenues derive from this water-based tourism and recreational activity in the Sault Ste. Marie area. Specifically, the state of Michigan and municipalities within the state collected an estimated \$11.2M in tax revenues in 2017 due to this tourism and recreation. Moreover, the federal government witnessed approximately \$13.8M in tax revenues.

**TABLE 30:
THE ECONOMIC IMPACTS OF SAULT STE. MARIE’S WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS**

2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$164.4M	Direct: \$90.2M	Secondary (Indirect and Induced): \$74.2M		
	Visitors’ Largest Spending Categories:	Restaurants: \$13.2M	Lodging / vacation rentals: \$12.4M	Gas: \$6.4M	Groceries: \$4.3M	
	Jobs (FTE):	Total: 1,374	Direct: 911	Secondary (Indirect and Induced): 463		
	Labor Income:	Total: \$62.5M	Direct: \$37.9M	Secondary (Indirect and Induced): \$24.6M		
	State and Local Tax Revenues:	\$11.2M				
	Federal Tax Revenues:	\$13.8M				
	Value-Added Effect:	\$91.6M				

These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.

When commercial activity, such as the approximate amount of 26.1M short tons of cargo that moved through the Soo Locks during 2017 is also included in the modeling, the economic impact grows substantially.¹⁴ As seen in Table 31, the total economic impact of Sault Ste. Marie’s water-based culture during 2017 is an estimated \$2.7B. This economic activity supported roughly 15,194 FTE jobs around the state and \$1B in associated labor income.

¹⁴ This short ton estimate, as well as other metrics such as economic activity, jobs, and labor income per short ton, were adapted directly from Martin Associates (2018): *Economic Impacts of Maritime Shipping in the Great Lakes – St. Lawrence Region*. This direct adaptation was made for two reasons: 1) The publicly available Martin Associates report was the most recent data source available for use in this current study; and 2) Martin Associates is widely regarded as the leading expert at estimating the economic impacts in the commercial maritime shipping sector.

TABLE 31:
THE ECONOMIC IMPACTS OF SAULT STE. MARIE’S WATER-BASED CULTURE:
OVERALL

2017 Overall	Economic Impact:	Total: \$2.7B	Direct: \$710.2M	Secondary (Indirect and Induced): \$2B
	Jobs (FTE):	Total: 15,194	Direct: 6,754	Secondary (Indirect and Induced): 8,440
	Labor Income:	Total: \$1B	Direct: \$332.7M	Secondary (Indirect and Induced): \$695.8M

Lastly, it is important to reiterate, that the purpose of this study is to assess the economic impacts of Michigan’s ports and harbors within the state. As a side note, the Soo Locks evidently have large impacts outside Michigan as well. For example, the Soo Locks account for roughly 17 percent of maritime economic impact in Wisconsin (Kaeding, 2018).

{Key threats section on next page}

Key Threats to Sault Ste. Marie's Water-Based Culture

While not a comprehensive list, here are some of the key threats discussed during the harbor / port interview in May

Several narratives in this section were kindly contributed by:

Oliver Turner
City Manager
Sault Ste. Marie, Michigan

The Carbide Dock is a 1,155' long deep-water docking facility owned by the City of Sault Ste. Marie located within very close proximity of the Soo Locks on the St Mary's River.

A failure of the dock's structural integrity has rendered it closed to commercial utilization. Previously the dock served as a critical asset made available for emergency tie-ups. It was also previously available for stand-off protection for the Soo Locks in the event of required action on credible intelligence.

If reconstructed, the Carbide Dock could serve as a feasible staging area for a major project at the Soo Locks. However, the city cannot bear the entire burden of repairing the structure. The facility has previously been of critical importance to Great Lakes shipping as well as various levels of government, and multiple funding sources must be procured if the facility is to continue to be publicly-owned.

UPDATE #1: New Carbide Dock:

Grant funding has been secured for the revitalization of the carbide dock in the amount of \$21.7M (mostly federal sources; includes approximately \$4M for road repair).

SOURCE: Linda Basista, P.E., City Engineer, Sault Ste. Marie.

UPDATE #2: Progress Toward Construction of a New Soo Lock:

In May 2018, The State of Michigan pledged to set aside \$52M in its 2019 budget to support the construction of a new shipping lock in Sault Ste. Marie. The project provides a much-needed buffer against any potential failures at the two existing locks, which economists anticipate could cost the country 123,000 jobs and \$22.5B in economic activity. Congress reauthorized construction of a new lock in October 2018. The United States Army Corps of Engineers announced in November 2018 that it would begin moving forward with the 10-year project and allocated \$32M to design and construction.

SOURCE: The narrative in the above update #2 is adapted directly from the *Michigan Water Strategy: 2018 Annual Report* (p. 6).

UPDATE #3: Great Lakes Research Center:

Funding in the estimated amount of \$13.1M has been secured for a Lake Superior University: Great Lakes Research Center.

SOURCE: Hulett and Rubenstein (2018).

Conclusions: Sault Ste. Marie

Estimating the economic impacts of Sault Ste. Marie's water-based culture is a unique undertaking because the city is home to the Soo Locks – one of the most economically vital systems of locks in the world. While at first glance, the very large economic impacts attributed to these locks mask the city's tourism-related economic impacts. In actuality, however, the two go hand-in-hand. That is, several of the main tourist attractions are related to the Soo Locks. Therefore, as seen in the previous sections, Sault Ste. Marie very much has an economically robust water-based tourism and recreation sector.

{South Haven section on next page}

South Haven



South Haven

Overview of South Haven's Water-Based Culture

Several narratives in this section were kindly contributed by:

Kate Hosier
Assistant City Manager &
Harbormaster
South Haven, Michigan

Early economic activity in the South Haven area in the mid-1800's was dominated largely by the timber industry. As such, the water-culture of the area was demonstrated as the timber was transported via steamboats and schooners to Chicago and Milwaukee (https://en.wikipedia.org/wiki/South_Haven,_Michigan). Although both commercial and recreational activities have always coexisted in South Haven (and continue to coexist), through time, the area became increasingly known as a resort destination. By the early 1900's, South Haven already had many resort amenities such as theaters, an opera house, a casino, and an amusement park.

Today, the city has further fortified its positioning as a popular water-based resort destination. From a tourism perspective, the unique selling proposition of the city is its walkability. The downtown shopping and restaurant areas are within a short walk of the harbor and beach. In fact, the waterfront can be viewed from most of downtown. In recent years, this connection between the downtown and the water has further increased through the addition of roof-top restaurant dining and improvements to the city's WiFi system. The public WiFi system now offers connectivity at the public marina, along the riverfront and at both the North and South beaches (Austin and Steinman, 2015). Recent improvements have also been made to the physical accessibility of the downtown and waterfront (Austin and Steinman, 2015).

South Haven's water-based culture is evident in many of the area's attractions. Whether it is the Michigan Maritime Museum, the historic lighthouse, or the Tall Ship *Friends Good Will* (from the War of 1812) visitors have ample opportunity to learn about and enjoy the area's tradition as an important harbor. Here are some additional water-based amenities, as well as some key festivals and events:

Harborfest: 3-day festival held in Riverfront Park next to Southside Marina. The festival celebrates the harbor and includes activities such as dragon boat racing. Harborfest is held on Father's Day weekend.

National Blueberry Festival: 3-day festival celebrating local agricultural products. The area has a rich agricultural tradition, because much of the timbered forest in the 1800s was replaced by various types of orchards. The National Blueberry Festival is held on the second weekend of

August each year and is one of the oldest continuously-running fruit festivals in the U.S. (<https://www.blueberryfestival.com/about-us.html>). Many of the festival's events take place at the riverfront.

Queen's Cup: A sailboat race organized by Southshore Yacht Club from Milwaukee to South Haven. South Haven hosts the race every 2-3 years. The finish port is also rotated between Holland and Muskegon. The event typically attracts more than 300 vessels and 1,000 sailors for the weekend.

Other: Lastly, it is prudent to note that South Haven has also witnessed a steady stream of water-based entrepreneurial businesses opening in recent years. Examples include jet ski, kayak, and paddleboard rentals. In addition, there are 5-10 charter fishing operations in the area.

The Economic Impacts of South Haven's Water-Based Culture

The economic models in this section include tourist count estimates provided by the South Haven Convention and Visitors Bureau and include the CVB's trade area in and around South Haven. As seen in Table 32, South Haven attracts a significant amount of water-based tourism. Visitors traveling to and from South Haven, for instance, spent roughly \$15M in lodging establishments throughout the state in 2017 and about \$8.4M in restaurants.

All told, South Haven's water-based tourism and recreation-related economic impact for 2017 is estimated at \$145.8M. This economic activity generated about \$10.3M in state and local taxes and \$12.2M in federal tax revenues. In terms of employment, approximately 1,158 full-time equivalent jobs around Michigan were supported by South Haven's tourism and recreation-related economic activity which was associated with roughly \$54.9M in labor income. The contribution to the state's GDP in value-added effects is estimated at \$81.7M for 2017.

TABLE 32:
THE ECONOMIC IMPACTS OF SOUTH HAVEN’S WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS

2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$145.8M	Direct: \$80.5M	Secondary (Indirect and Induced): \$65.3M		
	Visitors’ Largest Spending Categories:	Lodging / vacation rentals: \$15M	Restaurants: \$8.4M	Gas: \$4 M	Groceries: \$2.9M	
	Jobs (FTE):	Total: 1,158	Direct: 749	Secondary (Indirect and Induced): 409		
	Labor Income:	Total: \$54.9M	Direct: \$33.2M	Secondary (Indirect and Induced): \$21.7M		
	State and Local Tax Revenues:	\$10.3M				
	Federal Tax Revenues:	\$12.2M				
	Value-Added Effect:	\$81.7M				
	These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.					

Moving beyond solely water-based tourism and recreation, when South Haven’s comprehensive water-based economic model is built, the economic impact grows even larger. That is, when items such as the community’s capital improvement spending (not supported by visitor revenues) and government agency spending are added to the model, the total water-based economic impact is estimated at \$154.9M. As detailed in Table 33, this economic activity supported roughly 1,213 FTE jobs around the state in 2017 with associated labor income of \$57.9M (direct = \$35.3M).

TABLE 33:
THE ECONOMIC IMPACTS OF SOUTH HAVEN’S WATER-BASED CULTURE:
OVERALL

2017 Overall	Economic Impact:	Total: \$154.9M	Direct: \$87.5M	Secondary (Indirect and Induced): \$67.4M
	Jobs (FTE):	Total: 1,213	Direct: 789	Secondary (Indirect and Induced): 424
	Labor Income:	Total: \$57.9M	Direct: \$35.5M	Secondary (Indirect and Induced): \$22.4M

Key Threats to South Haven’s Water-Based Culture

While not a comprehensive list, here are some of the key threats discussed during the harbor / port interview in May:

- Declining water quality and varying water-levels.
- Failing structures along the waterfront that require federal funding to replace or repair.
- South Haven would benefit from a boat hull-out on both sides of the Dyckman Avenue Bridge. Such capability would bolster the emergency responsiveness of the community.
- Tourism economics is seasonal. Therefore, the addition of a large meeting space in South Haven would enhance the community’s ability to attract tourism during off-peak seasons.

Conclusions: South Haven

South Haven’s water-based tourism and recreation economic impacts underpin the area’s economy. With excellent walkability, and a seamless connection between the area’s downtown and waterfront, South Haven attracted nearly 1/3 of a million overnight visitors during 2017. As seen in Table 34, the marina remains relatively full during its 183-day season, with seasonal slip demand being slightly stronger than transient slip demand.

TABLE 34: 4 MARINAS IN SOUTH HAVEN¹: 2017 KEY STATISTICS	
Number of days during harbor open season	183 days
Number of days at full occupancy	Transient: 35-50 days Seasonal: 170 days
Number of days at 60% occupancy	Transient: 100 days Seasonal: 183 days
Number of transient slips	40
Number of seasonal slips	180
Total slips	220
<p>1. List of included marinas: Black River Park Marina Museum Marina Northside Municipal Marina Southside Municipal Marina</p>	

St. Joseph



St. Joseph

Overview of St. Joseph's Water-Based Culture

Several narratives in this section were kindly contributed by:

Millicent Huminsky
Executive Director
Southwestern Michigan
Tourist Council

The water-based culture that is evident in present-day St. Joseph has been apparent throughout history. The location of the city at the mouth of the St. Joseph River has long been an integral component of the trade and water route connecting the Great Lakes with the Mississippi River (https://en.wikipedia.org/wiki/St._Joseph,_Michigan). Due to this prime waterway location, the area has attracted a great deal of commerce and industry throughout its history. In addition, largely driven by its proximity to Chicago, the area also attracted its fair share of leisure tourists. While industry (mostly in Benton Harbor which

is a city adjacent to St. Joseph) and tourism (mostly in St. Joseph) coexisted for decades, eventually some of the negative side-effects associated with certain types of industry became increasingly apparent in the region. Therefore, it is appropriate in this section to share a synopsis of the successful revitalization that has occurred in recent years:

By the early 2000's it was evident that the heavy manufacturing practices that had been prevalent for their time had wreaked havoc on the environment in and around Benton Harbor. Throughout much of the 20th century the area had been home to thriving businesses and served as the economic hub of the region. With its bustling waterway and railway access, these hard-working companies had taken in raw materials and produced sleek, highly engineered products. Then suddenly in the mid-1980s, during a severe economic downturn that devastated high-wage manufacturing in the upper Midwest, more than 6,000 jobs were lost over an 18-month period. For the next two decades and as far as the eye could see, the land became littered with dilapidated and abandoned buildings, trash heaps that were dumping grounds for oil sludge and other waste, polluted rivers and streams, and contaminated soil. There was also a no-longer-needed highway interchange that was crumbling from neglect.

It took several years to clean-up the industrial waste and contamination that paved the way for further community restoration such as the Harbor Shores project. This project started with the Jack Nicklaus Signature Golf Course with holes 7, 8 and 9, running along Lake Michigan (Jean Klock Park) and other holes along the Paw Paw River. Today the Harbor Shores Golf Course is home to the KitchenAid Senior PGA Championship, which first played here in 2012, then in 2014, 2016, and 2018. The championship will continue to be played here every other year through at least 2024.

Following the golf course was the construction of three different residential districts and The Inn at Harbor Shores and the adjacent marina on the St. Joseph River. Today condos are being built along the St. Joseph River and the working waterfront continues to thrive and grow.

Fueled by this successful revitalization, as well as other marketing and placemaking initiatives, tourism in the area continues to shine. For example, Silver Beach County Park in downtown St. Joseph attracts hundreds of thousands of visitors each year (<https://www.sjcity.com/home2>). The Amtrak station located in St. Joseph's downtown helps facilitate a portion of this visitation. Moreover, the region's lake climate makes it suitable for agricultural diversity second only to California. This agricultural diversity is manifested by the various fruit orchards, vineyards, and hops farms that contribute to the thriving agritourism sector.

The area hosts approximately 300 events and concerts per year. Here are examples of some of the more well-known of these events:

- BBQ, Blues & Bluegrass Festival on the 3rd Saturday of May
- Krasl Art Fair on the Bluff during the 2nd weekend in July: hundreds of artists and thousands of attendees
- Chalk the Block – 1st weekend in August
- Tri-State Regatta on Labor Day Weekend
- City of St. Joseph Public Outdoor Art: 3rd Friday in May – 3rd Saturday in September
- Magical Ice Carving Festival in February

The Economic Impacts of St. Joseph’s Water-Based Culture

For these economic analyses, the visitor counts for the St. Joseph area were derived by subtracting 10 percent from the Berrien County estimates. This deduction was made so as not to include visitor counts from Hagar Shores and New Buffalo in the modeling for St. Joseph.

As detailed in Table 35, the economic impact of those who were attracted to the St. Joseph area in 2017 due to its water location is estimated at \$344.4M. Those visitors spent approximately \$26.5M around the state on lodging and almost the same amount (\$25.1M) in restaurants during their trips to/from St. Joseph. This economic activity supported an estimated 2,831 full-time equivalent jobs in Michigan in 2017 (direct = 1,861; secondary = 970). This tourism and recreation activity generated roughly \$23.4M in state and local taxes in Michigan and \$28.8M in federal taxes. This economic activity contributed approximately \$191.9M to Michigan’s GDP through value-added effects during 2017.

TABLE 35: THE ECONOMIC IMPACTS OF ST. JOSEPH’S WATER-BASED CULTURE: TOURISM AND RECREATION-RELATED COMPONENTS					
2017 Water-based Tourism and Recreation	Economic Impact:	Total: \$344.4M	Direct: \$189.1M	Secondary (Indirect and Induced): \$155.3M	
	Visitors’ 2 Largest Spending Categories:	Lodging / vacation rentals: \$26.6M	Restaurants: \$25.1M	Gas: \$12.1M	Groceries: \$8M
	Jobs (FTE):	Total: 2,831	Direct: 1,861	Secondary (Indirect and Induced): 970	
	Labor Income:	Total: \$130.9M	Direct: \$79.4M	Secondary (Indirect and Induced): \$51.5M	
	State and Local Tax Revenues:	\$23.4M			

	Federal Tax Revenues:	\$28.8M
	Value-Added Effect:	\$191.9M
These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.		

When non-tourism components are added to the model (for example, government agency spending), the total economic impact of St. Joseph’s water-based culture grows to \$353M (see Table 36). This economic activity supported roughly 2,882 FTE jobs across the state and associated estimated labor income of \$133.7M (direct = \$81.6M).

TABLE 36: THE ECONOMIC IMPACTS OF ST. JOSEPH’S WATER-BASED CULTURE: OVERALL				
2017 Overall	Economic Impact:	Total: \$353M	Direct: \$195.8M	Secondary (Indirect and Induced): \$157.2M
	Jobs (FTE):	Total: 2,882	Direct: 1,900	Secondary (Indirect and Induced): 982
	Labor Income:	Total: \$133.7M	Direct: \$81.6M	Secondary (Indirect and Induced): \$52.1M

Key Threats to St. Joseph's Water-Based Culture

This section does not represent an exhaustive list of threats, but rather summarizes the prevailing discussions from the May 2018 port visit:

Invasive species, particularly the Asian Carp, were discussed as potential threats during the May port/harbor meeting in St. Joseph. Barriers such as electric current, noisemakers, and water jets near Joliet, Illinois are designed to deter the species from entering Lake Michigan (Flesher, 2018). Asian Carp have reportedly, however, breached such barriers in the past (Flesher, 2017). Further efforts against the spread of Asian Carp are underway through a Great Lakes Basin Partnership between Wisconsin, Ohio, Ontario, and the City of Chicago. This partnership is currently working on tactics to prevent the spread of Asian Carp at Brandon Road Lock in Illinois (Michigan Water Strategy: 2018 Annual Report).

Conclusions: St. Joseph

Water-based tourism and recreation are integral components of St. Joseph's economy. As described in these sections, the community has made great strides in not just remedying its over-industrial past, but also in embracing its rich and beautiful water resources. St. Joseph not only serves as a quick getaway for Chicagoans, but also hosts visitors from across the U.S. (and world) for its unique offerings such as the nearby Jack Nicklaus Signature Golf Course at Harbor Shores.

{Traverse City section on next page}

Traverse City



Traverse City

Overview of Traverse City's Water-Based Culture

The deep-rooted water-based culture of what is now Traverse City is demonstrated by the areas' original name given to it by the Ojibwe and Ottawa Indian Tribes: "wequetong" which means "at the head of the bay" (https://en.wikipedia.org/wiki/Traverse_City,_Michigan).

In the days of the early European settlers, the lumber industry was the dominant economic engine. When areas were timbered, often they were replanted with cherry orchards. Consequently, the Traverse City area today is the largest producer of tart cherries in the country (National Agricultural Statistics Service, 2010).

As seen in the "Michigan Blue Economy" sidebar, Traverse City embraces the recreation and tourism components of its water-based culture. In fact, *Boating Magazine* named Traverse City one of its "Ten Best Places to Live and Boat" (<https://www.traversecity.com/outdoors/boating/>). Similarly, the city has also recently been a port of call for two cruise ships: the MV Hamburg and the MS Columbus.

Other water-oriented area attractions include Clinch Park Marina which includes "one of Michigan's greatest urban beaches" and Boardman River Walk which aids in connecting downtown to the water (<https://www.downtowntc.com/events-attractions/attractions-2>). There are also a number of both cycling and water trails in the area.

Regarding events, Traverse City hosts numerous festivals throughout the year. The largest of these events is the National Cherry Festival held during the first full week of July. The National Cherry Festival offers an array of attractions and activities including a popular airshow featuring the United States Navy's Blue Angels. This festival attracts roughly one-half of a million attendees annually (Local Legacies, 2010).

*Michigan communities such as **Traverse City**, which realized first that the industrial uses of their waterfront were growing redundant, and that a higher calling would be to restore their health, and provide access to the water for enjoyment, recreation and community identity – have reaped significant long-term economic benefits from this transformation. Traverse City wiped away their cherry canneries on the lakefront decades ago, and has consistently, and evermore systematically, reconnected to their water, redeveloping its waterfront for use and enjoyment.*

*~ Michigan Blue Economy
(Austin and Steinman, 2015)*

Further demonstrating Traverse City's longstanding water-based culture is the fact that the city is home to the Great Lakes Maritime Academy (GLMA) which is a Division of Northwestern Michigan College. GLMA prepares students for a broad assortment of maritime career paths. This school is one of only seven maritime academies in the U.S. and is the only one specializing in freshwater environments (https://en.wikipedia.org/wiki/Great_Lakes_Maritime_Academy). Moreover, it is the first school in the country to award associate's degrees in freshwater sciences (Austin and Steinman, 2015).

Lastly, it is prudent to note that many of Traverse City's successes are anchored with a culture of community input. The "Your Bay, Your Say" philosophy has guided and informed the city's waterfront planning for more than a decade (<http://www.traversecitymi.gov/downloads/waterfrontplanfinal.pdf>).

{Economic impact findings on next page}

The Economic Impacts of Traverse City's Water-Based Culture

The economic modeling of the water-based tourism and recreation of the Traverse City area includes those who visited Grand Traverse County as well as 35 percent of those who visited adjoining Leeland County due to the water location during 2017. As listed in Table 37, in 2017, these water-based visits to the Traverse City area, for example, were associated with roughly \$38.3M in restaurant revenues and approximately \$37.6M in lodging revenues around the state. As detailed in Table 37, visitor spending, such as these two example categories, supported about 4,016 FTE jobs across Michigan in 2017 and was associated with roughly \$182.8M in labor income.



In terms of tax revenue creation, significant tax revenues derived from this water-based tourism and recreational activity in the Traverse City area. That is, the state of Michigan and municipalities within the state collected an estimated \$32.9M in tax revenues in 2017 due to this water-based tourism and recreation. At the federal level, water-based tourism and recreation in the Traverse City area generated roughly \$40.3M in federal taxes during 2017. In sum, the 2017 economic impact of Traverse City's water-based tourism and recreation is estimated at \$481.5M.

**TABLE 37:
THE ECONOMIC IMPACTS OF TRAVERSE CITY’S WATER-BASED CULTURE:
TOURISM AND RECREATION-RELATED COMPONENTS**

2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$481.5M	Direct: \$264.4M	Secondary (Indirect and Induced): \$217.1M		
	Visitors’ Largest Spending Categories:	Restaurants: \$38.3M	Lodging / vacation rentals: \$37.6M	Gas: \$18.5M	Groceries: \$12.4M	
	Jobs (FTE):	Total: 4,016	Direct: 2,661	Secondary (Indirect and Induced): 1,355		
	Labor Income:	Total: \$182.8M	Direct: \$110.9M	Secondary (Indirect and Induced): \$71.9M		
	State and Local Tax Revenues:	\$32.9M				
	Federal Tax Revenues:	\$40.3M				
	Value-Added Effect:	\$268.4M				
	These figures are derived from spending in the focal destination and around the state of Michigan as the visitors traveled to/from the destination.					

When non-tourism and recreation components are introduced into the analyses, the water-based economic impact of the area grows even larger. Examples of items added to the economic models include estimated government agency spending and educational institution spending. As seen in Table 38, the overall water-based economic impact of the Traverse City area during 2017 is estimated at \$498.2M. This economic activity supported about 4,138 jobs in Michigan and associated labor income of approximately \$189.8M.

TABLE 38:
THE ECONOMIC IMPACTS OF TRAVERSE CITY’S WATER-BASED CULTURE:
OVERALL

2017 Overall	Economic Impact:	Total: \$498.2M	Direct: \$276.3M	Secondary (Indirect and Induced): \$221.9M
	Jobs (FTE):	Total: 4,138	Direct: 2,750	Secondary (Indirect and Induced): 1,388
	Labor Income:	Total: \$189.8M	Direct: \$116.3M	Secondary (Indirect and Induced): \$73.5M

Key Threats to Traverse City’s Water-Based Culture

Although not a comprehensive list, here are some of the focal threats discussed during the harbor / port interview in May:

- The waterfront is in need of various infrastructure improvements.
- The tendering of cruise passengers to shore is a challenge in Traverse Bay.
- There are currently long waits for seasonal boat slips.
- The seasonality of the tourism sector in the area proves challenging to the local economy.

Conclusions: Traverse City

Stimulating nearly ½ billion dollars in economic impacts, water-based tourism and recreation in the Traverse City area is formidable. Not only is recreational boating strong in the area, but cruise ships such as the MV Hamburg and MS Columbus also contribute to the water-based economic impact of the area. In addition, there are a number of North Lake Michigan Ferry services that connect into Traverse City contributing further to the economic activity attributed to water-based tourism. In summary, the revenue streams feeding the economic impacts in Traverse City are diversified across various tourism and recreation components.

{Statewide section on next page}

Statewide Results



State of Michigan

Overview of Michigan's Water Culture

Because a state is the sum of its parts, perhaps the best way for a reader of this report to gain a sense of Michigan's deep-rooted water-based culture would be to read the 16 narratives earlier in this report describing Michigan communities on Lakes Huron, Michigan, and Superior. Each of these 16 narratives describe how Michigan's ports and harbors have played important roles in the very fabric of the state since its inception.

One of the primary contributions of this study is to demonstrate that a critical facet of Michigan's heritage and current economic welfare is water-based tourism and recreation. Recreational boating can be used to illustrate this point.

Recreational boating is big business in Michigan. Of the eight Great Lake states, Michigan has more than double the number of marinas on the Great Lakes (or adjacent zip codes) than any of the other states (Glenn, 2008).¹⁵ In fact, Michigan is second only to California in terms of registered boats, recording more than one million (<https://www.discoverboating.com/resources/california-grabs-top-spot-from-michigan-with-most-boat-registrations>).¹⁶ An additional indicator of the prevailing water culture is the fact that Michigan has more lighthouses than any other state – approximately 120 remaining (Arial America, 2018).

In October 2016, the Michigan Office of the Great Lakes, in collaboration with numerous other state agencies, produced a plan guiding the effective management of Michigan's water resources into the coming years, titled *Sustaining Michigan's Water Heritage: A Strategy for the Next Generation*. That plan outlines a number of important initiatives to protect and preserve Michigan's greatest asset: freshwater. It is hoped that the findings of this economic impact study further underscore the importance of protecting this asset.

Water opened the region to trade. Water powered the rise of our mighty industry. Water defines our Pure Michigan culture and lifestyle. Water innovation positions us for leadership in the coming Blue Economy.

*~ Michigan Blue Economy
(Austin and Steinman, 2015)*

¹⁵ In this 2008 study, Michigan recorded 436 marinas on or adjacent to a Great Lake. The #2 state was Ohio with 176.

¹⁶ State-to-state comparisons vary depending upon state regulations. For example, some states require the registration of small crafts such as canoes and kayaks.

As will be explained in the coming section of this report, even among those who do not participate in recreational boating, the water still plays a key role in many port/harbor visitors' decisions to visit. As such, significant amounts of tourism revenues can be attributed to the water resources in the ports and harbors.

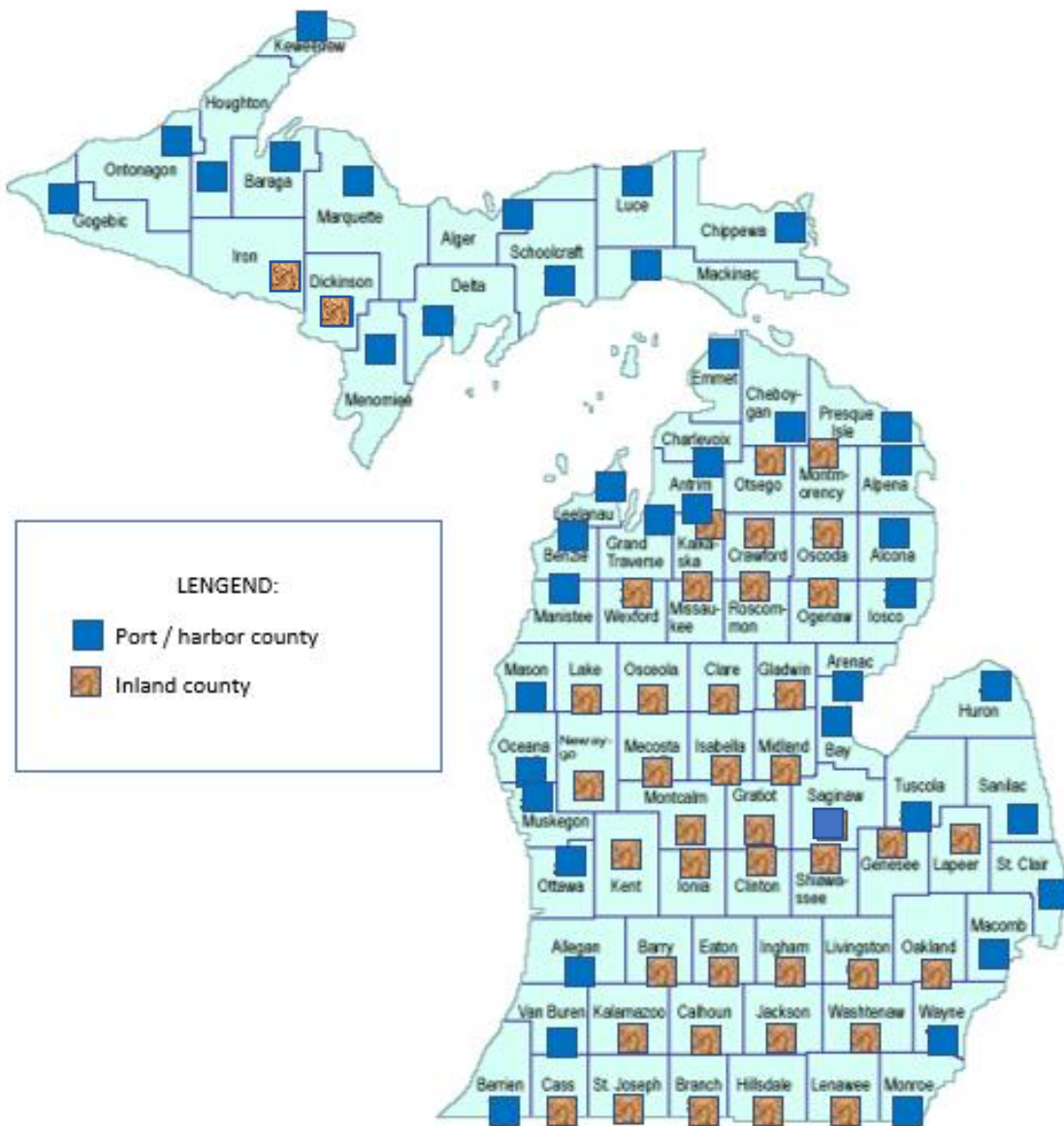
Just as the previous sections of this report did per locality, the coming section estimates the economic contributions of each facet of port/harbor water-based economic contribution on a statewide basis.

{Findings on next page}

Economic Impacts of Michigan's Water Culture

The economic modeling of Michigan's ports and harbors' water-based tourism and recreation was calculated by including those who visited Michigan's port/harbor counties due to the water location during 2017. The delineation of those counties is provided in Figure 5.

FIGURE 5: DELINEATION OF MICHIGAN COUNTIES



Source of underlying map image: http://www-personal.umich.edu/~bbowman/birds/mich_co.html

*Isle Royale also included as a port / harbor community.

This study found that 74 percent of those visiting the port/harbor counties depicted in Figure 5 did so because of the water location.¹⁷ Interestingly, this rate of 74 percent was found for both day (73.95 percent) and overnight visitors (74.41 percent).

TRIP-SPECIFIC SPENDING DUE TO MICHIGAN'S PORTS AND HARBORS

During the port/harbor visits, on average, day visitors spent \$56.61 per person/per day and overnight visitors spent \$100.75 per person/per day.¹⁸ These amounts include all spending within the state associated with the visit to that destination. Because economic impact is a measure of "fresh money" entering an area's economy, only those traveling more than 50-miles (one-way) were included in the modeling.

CHARTER FISHING

This study finds that 10.8 percent of overnight visitors to Michigan's ports and harbors go charter fishing while visiting; the rate is 2.2 percent among non-local day visitors. As seen in Figure 6, these participation rates yield approximately \$70M in direct spending in Michigan's charter fishing sector.

FERRY / CRUISE

Analyses find that 20.8 percent of overnight visitors to Michigan's ports and harbors participate in some type of cruise or ferry experience; the rate is 11.2 percent among non-local day visitors. These levels of participation equate to an estimated \$149.9M in these industries in the state (see Figure 6).¹⁹

RECREATIONAL BOATING

The data points tell us that 24.6 percent of overnight visitors to Michigan's ports and harbors participate in recreational boating (not including charter fishing) while visiting; the rate is 8.7 percent among non-local day visitors. Most recreational boating expenditures are non-trip-specific and will be discussed in this section.

¹⁷ As previously shown in Figure 3, the survey asked each visitor what percentage of decision to visit was due to the water location. Due to the commutative property of multiplication, the analyses can model this information as the percentage of people who visit because of the water location [100% of visitors x 74% of their spending = 74 percent of visitors x 100 percent of their spending].

¹⁸ These spending profiles are lower than those used by Travel Michigan® (<https://www.michigan.org/industry/research>), but are higher than those found in other Michigan studies (e.g. Glupker et al. 2016).

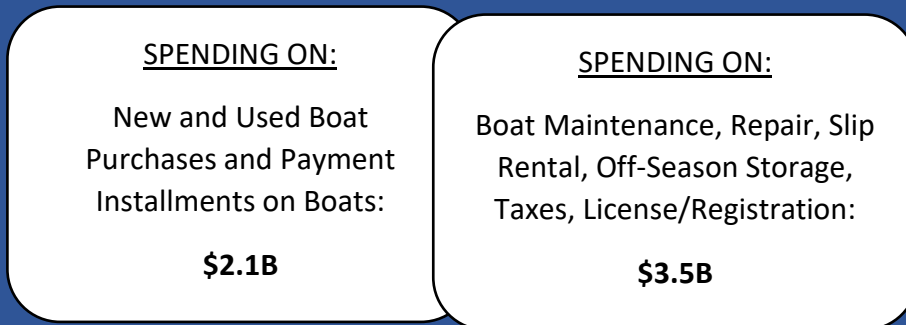
¹⁹ This is a best estimate: the state in which portions of cruise spending can be attributed to is often difficult to determine in the cruise and ferry categories.

FIGURE 6: WATER-RELATED TOURISM AND RECREATION COMPONENTS: DIRECT SPENDING

TRIP-SPECIFIC VISITOR SPENDING DUE TO MICHIGAN'S PORTS AND HARBORS



NON-TRIP-SPECIFIC VISITOR SPENDING DUE TO MICHIGAN'S PORTS AND HARBORS



1. Specific Spending categories listed in Figure 2.

NON-TRIP-SPECIFIC SPENDING DUE TO MICHIGAN'S PORTS AND HARBORS

NEW AND USED BOAT PURCHASES AND PAYMENT INSTALLMENTS ON BOATS

In 2017, those who participated in recreational boating in Michigan's ports/harbors, spent \$2,496 per year (per boating group of 2.8 persons) on boat purchase payments. This figure also includes purchases / payments of trailers and other large accessories. This amount was discounted three times before calculating the direct spending amount in Figure 6: \$2.1B. First, the per person (rather than per boat) cost was calculated. Second, the amount was discounted by 29.3 percent because that was the portion of these purchases made outside of Michigan. Second, the amount was discounted by 27.5 percent because that is the portion of boating by these individuals that did not occur in or around Michigan's ports/harbors.

BOAT MAINTENANCE, REPAIR, SLIP RENTAL, OFF-SEASON STORAGE, TAXES, LICENSE / REGISTRATION

In 2017, those who participated in recreational boating in Michigan's ports/harbors, spent \$2,811 per year (per boating group of 2.8 persons) on boat maintenance, repair, slip rental, off-season storage, taxes, and license/registration. Like in the previous section, this amount was discounted three times before calculating the direct spending amount in Figure 6: \$3.5B. First, the per person (rather than per boat) cost was calculated. Second, the amount was discounted by 29.3 percent because that was the portion of these purchases made outside of Michigan. Second, the amount was discounted by 27.5 percent because that is the portion of boating by these individuals that did not occur in or around Michigan's ports/harbors.

ECONOMIC MODELING: WATER-BASED TOURISM AND RECREATION COMPONENTS

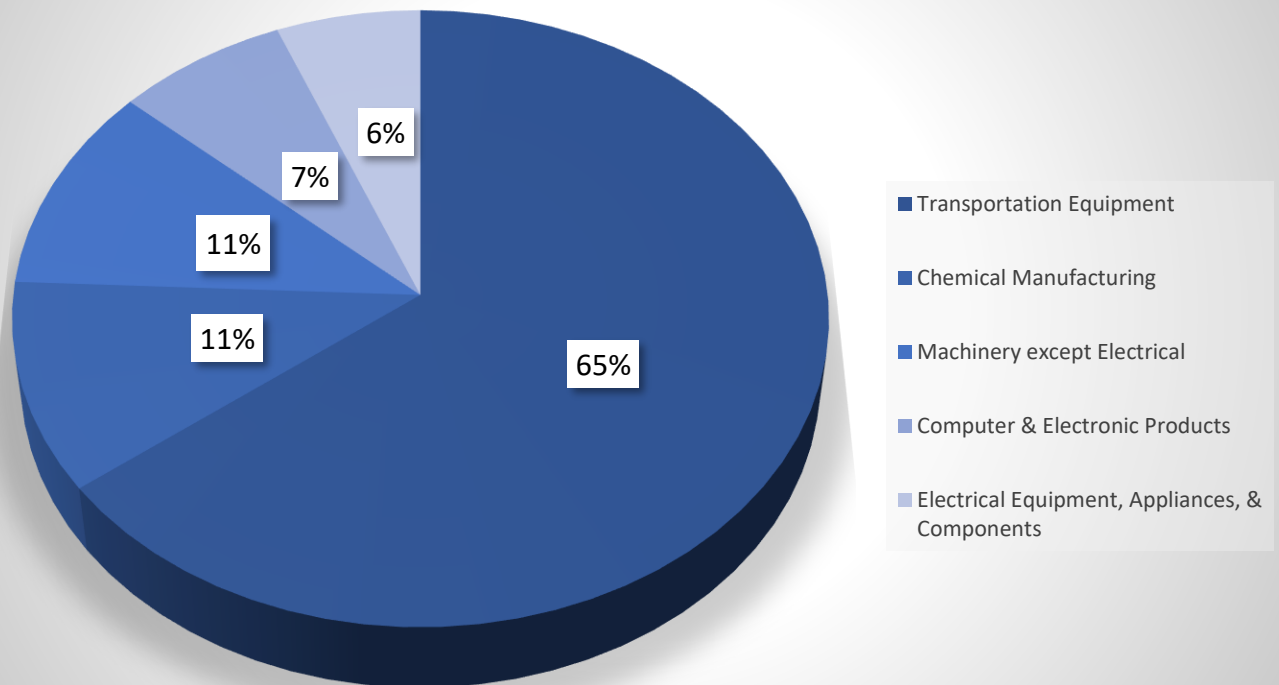
As can be seen in Table 39, in 2017, water-based tourism and recreation in Michigan’s ports and harbors stimulated roughly \$1.1B in lodging spending and approximately \$1B in restaurant spending around the state. As detailed in Table 39, such spending, in these and other categories, supported an estimated 124,892 full-time equivalent jobs across Michigan in 2017 and was associated with approximately \$5.9B in labor income.

Significant tax revenues derived from this water-based tourism and recreational activity in and around Michigan’s ports and harbors. Specifically, the state of Michigan and municipalities within the state collected an estimated \$1B in tax revenues in 2017 due to this tourism and recreation. Moreover, the federal government witnessed approximately \$1.3B in tax revenues.

TABLE 39: THE ECONOMIC IMPACTS OF MICHIGAN’S PORTS AND HARBORS: TOURISM AND RECREATION-RELATED COMPONENTS						
2017 Water- Based Tourism and Recreation	Economic Impact:	Total: \$15.4B	Direct: \$8.5B ¹	Secondary (Indirect and Induced): \$6.9B		
	Visitors’ 2 Largest Spending Categories:	Lodging / vacation rentals: \$1.1B	Restaurants: \$1.0B	Gas: \$499M	Groceries: \$331M	
	Jobs (FTE):	Total: 124,892	Direct: 81,698	Secondary (Indirect and Induced): 43,202		
	Labor Income:	Total: \$5.9B	Direct: \$3.6B	Secondary (Indirect and Induced): \$2.3B		
	State and Local Tax Revenues:	\$1B				
	Federal Tax Revenues:	\$1.3B				
	Value-Added Effect:	\$8.6B				
1. In many spending categories, only retail margins were included in the modeling.						

When the commercial components of Michigan’s water-based culture are incorporated into the modeling, the port/harbor economic impacts grow even larger. For instance, during 2017, maritime shipping contributed roughly \$4.2B in economic activity to the state’s economy (see Martin Associates 2018 report for details). As seen in Figure 7, with regard to monetary value, the top export category for the state is transportation equipment. In fact, transportation equipment is roughly six times larger than any other export category.

FIGURE 7: TOP 5 MICHIGAN PORT EXPORT CATEGORIES ACCORDING TO RELATIVE MONETARY VALUE



2017 Michigan Exports Through All Ports: Source UTrade.Census.Gov
NAICS codes: 336, 325, 333, 334, 335

Another example of a commercial component is Michigan’s commercial fishing sector. Figure 8 displays the relative magnitudes of species harvested in terms of dockside value. These dockside values were increased four times to derive the retail values used in the economic modeling.²⁰ As displayed in Figure 8, whitefish is the most prevalent commercial fishing species. When annual data is analyzed for the past three years, it can be seen that each year between 51-52 percent of commercial whitefish is harvested out of Lake Huron; 34-39 percent comes from Lake Michigan; and, the remainder derives from Lake Superior (Goniaea, 2018).

FIGURE 8: COMMERCIAL FISHING: TOP 5 SPECIES ACCORDING TO DOCKSIDE VALUE

<u>State-Only 2017¹:</u>	<u>State and Tribal 2016:</u>	<u>State and Tribal 2015:</u>
Whitefish: \$2.9M	Whitefish: \$6.9M	Whitefish: \$10.3M
White Bass: \$104K	Lean Lake Trout: \$724K	Lean Lake Trout: \$750K
Yellow Perch: \$104K	Yellow Perch: \$142K	Chub: \$132K
Channel Catfish: \$92K	Walleye: \$137K	White Bass: \$119K
Goldfish: \$87K	Chinook Salmon: \$131K	Yellow Perch: \$107K

1. 2017 tribal data not yet available at the time of this economic modeling (2016 catches were used as a proxy in the models).

²⁰ \$7.9M was deducted in the economic modeling for commercial fishing to avoid the double counting of exports.

As seen in Table 40, including commercial components, the economic impacts of Michigan’s ports and harbors total an estimated \$19.7B (direct = \$10B). Approximately 150,989 full-time equivalent jobs around the state are supported by the economic activity generated by these ports and harbors. The labor income associated with these jobs is estimated at \$7.7B.

TABLE 40: THE ECONOMIC IMPACTS OF MICHIGAN’S PORTS AND HARBORS: OVERALL				
2017 Overall	Economic Impact:	Total: \$19.7B	Direct: \$10B	Secondary (Indirect and Induced): \$9.7B
	Jobs:	Total: 150,989	Direct: 94,129	Secondary (Indirect and Induced): 56,860
	Labor Income:	Total: \$7.7B	Direct: \$4.1B	Secondary (Indirect and Induced): \$3.6B

{Key threats on next page}

Key Threat's to Michigan's Water Culture

The funding of dredging programs continues to be a key priority for Michigan's ports and harbors. Numerous past studies have pointed-out the perils of not adequately dredging. For instance, Mahoney et al. (2003) illustrated that a loss of 12 inches of draft from year 2000 water levels could trigger a negative economic impact (direct) of roughly \$4.75M in two Michigan counties. Two years later, Connelly et al. (2005) estimated that a hypothetical month-long period of low water levels could be associated with roughly \$7.5M in economic loss around Lake Ontario. In summary, dredging is a significant priority for Michigan's ports and harbors.

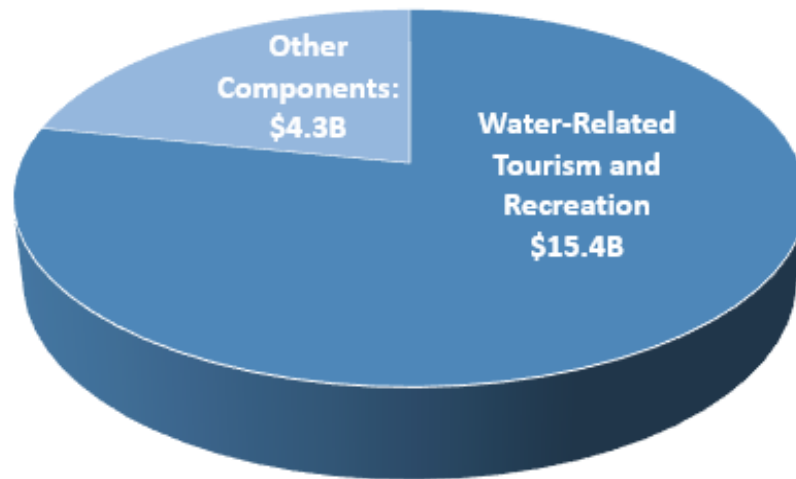
Other than dredging, numerous other key threats to the ports and harbors are detailed in the 16 previous sections of this report. As can be seen in these previous sections, each port has a unique set of challenges it is facing. Other than dredging, invasive species control emerged in the port interviews of this study as a ubiquitous challenge. The nature and type of invasive species evidently vary around the state. There are new invasive species routinely discovered in the Great Lakes; for example, the appearance of bloody red shrimp in Lake Superior recently garnered media attention (<https://www.wpr.org/invasive-bloody-red-shrimp-discovered-lake-superior>). Further research is currently recommended for the study of ballast water treatment methods as a means to reduce occurrences of invasive species (Kaeding, 2018).

{Conclusions on next page}

Key Conclusion #1: In terms of relative magnitude, on a statewide-level, water-based tourism and recreation economic impacts are nearly 4-times the size of commercial economic impacts.

As seen in Figure 9, on a statewide-level, water-based tourism and recreation economic impacts are nearly 4-times the size of the economic impacts deriving from commercial components such as maritime shipping and commercial fishing operations. Evidently, it is possible and desirable for the two to go hand-in-hand. For example, commercial activities can grow a municipality's tax base which can, in turn, be used to improve an area's tourism-related infrastructure and amenities.

Figure 9: The Magnitude of Water-Related Tourism and Recreation Economic Impact Relative to Other Components of Port/Harbor Economic Impact



Key Conclusion #2: Recreational harbors are vital to Michigan’s economy.

As demonstrated in previous sections of this report, the economic impacts of Michigan’s recreational harbors are substantial. It is important to point out that while the economic impacts of recreation-based water activities are significant, Michigan’s shallow draft harbors can serve other important functions as well. First, shallow draft harbors can host ferry operations used for the transportation of both local residents and visitors. Second, they can serve as the home-base for U.S. Coast Guard search and rescue teams. Third, certain shallow draft harbors are designated as harbors of refuge during storms. Fourth, some shallow draft harbors are deemed subsistence harbors to be used to off-load goods and supplies to isolated islands.

Key Conclusion #3: Even in “commercial” ports, economic impacts of water-based tourism and recreation are strong.

Even those ports that have sizable commercial components, in most cases, also have robust non-commercial (tourism and recreation) economic engines. **Therefore, when making funding decisions, governmental agencies that rely on funding formulas driven by goods-based gross domestic product (GDP) weighting may under-estimate the economic contributions of Michigan’s ports and harbors.** As outlined in the previous sections, the value-added portions of the economic impacts of the localities do not tell the full story. This is particularly evident with ports that do engage in commercial cargo transport. Consider, for example, the Port of Detroit which is Michigan’s largest port in terms of shipping volume. While this port plays a key function in the economy, it should be noted that the water-based tourism and recreation economic impacts in Detroit are roughly six-times the economic impacts of the maritime shipping (see Tables 3-4). Evidently, the two do not compete, but instead complement each other (as Detroit is demonstrating).

Key Conclusion #4: Although recreational boating stimulates a large amount of economic impact, predictive analysis should be utilized, so that facilities can be managed prudently.

PREDICTIVE ANALYSIS

It is difficult to develop and maintain a steady stream of visitors to a harbor/port continuously, even in non-winter seasons. As stated earlier in this study, visitors' spending brings additional 'outside' dollars into the community. In order to digest the positive impact presented in this report, the needs and requirements of the harbor/port infrastructure should be understood. Additionally, it must also be recognized that a facility's effective revenue season is approximately 100 days, from Memorial Day to Labor Day. This window of operation is less than a third of the year-round commitment to maintaining the infrastructure.

FACILITY REQUIREMENTS

Because infrastructure has a lifespan, it must be factored into fee structures to prepare for updates and replacements. Replacement costs must be determined and divided by 20 (20 years life expectancy). Then divide that number by the total number of slips. That is the yearly need for replacement, per slip, and should be included in the fee structure.

Yearly maintenance should also be included in the fee structure.

FACILITY RIGHTSIZING

It should be noted that many facilities are over built and stand vacant most of the year without producing revenue. These are drains on the budget and contribute to negative revenue.

To determine the right size for the harbor/port, look at use patterns for the last three years. There are 9 three-day weekends and 3 holiday weekends at 4 days each season. That equals 39 days of the 100-day revenue producing season. If the use patterns show less than 60% occupancy during those weekends, then consideration should be given to reducing the infrastructure to a more manageable size. A couple weekends of special events that fill the facility may not justify a year's worth of maintenance. Rafting is an option for the few times when the facility is full.

SPECIAL EVENTS

Though special events or festivals may generate community visits, they are labor intensive and hard to maintain the steady stream of visitors to the harbor/port. More focus should be spent on recurring mini-events such as weekly music events, farmers markets, flea markets, etc.

VISITOR RETENTION

Visitors are looking for clean, friendly and safe environments to visit and enjoy. Just like road travelers looking for a clean restroom, boaters will respond positively to clean facilities they visit. They want to be greeted as a valued person and treated as you would treat a friend. This will generate more repeat visitors by word of mouth than any marketing could buy. Visitor safety is as important as cleanliness. These three areas (cleanliness, friendliness, and safe environments) are focus areas for training staff and are critical to the success of the harbor/port.

Since we know that visitors bring outside revenue into the community, an effort should be made to maximize the potential visitations. One way is through special community-wide events that would attract visitors. Another way is to provide dock space for visitors. This is where seasonal slip holders need to vacate the harbor/port to make additional room for the visitors or pay an additional fee to keep their slip during special events.

SEASONAL SLIPS

Seasonal slip users are typically local boat owners getting a slip at a reduced rate from transient slip rates. These boaters do not bring “new” money into the community since they are already members of the community.

It is recommended that annual special events and festivals be excluded from seasonal slip contracts. This can add needed revenue from either “outside” sources or an additional fee added to a seasonal contract equivalent to the transient rate during the special event or festival.

SLIP RATES

It is recommended that slip rates be increased 10-25% during special events or festivals.

Key Conclusion #5: There are numerous threats to the water-culture in Michigan’s ports and harbors.

The port interviews conducted in this study highlighted numerous threats to the health of Michigan’s ports. Examples of these threats are listed in each section of this report that covers individual municipalities. Such threats need the continued attention of public officials. The Michigan Office of the Great Lakes pays considerable attention to such threats, particularly those posed by invasive species. For example, according to the *Michigan Water Strategy 2018 Annual Report*, in Fall 2018, a conference was held that brought together key stakeholders from regional law enforcement agencies to derive strategies for enhanced regional coordination to combat aquatic invasive species.

Key Conclusion #6: There are many factors that cannot be measured quantitatively.

BEYOND THE ECONOMIC MODELS:

QUALITY OF LIFE:

Not only do Michigan’s ports and harbors produce economic-related results, but they also help foster a host of other societal benefits that cannot be incorporated in econometric modeling. They each serve as settings for rest, relaxation, recreation, and rejuvenation that increase visitors’ quality of life. The natural and picturesque harbor and shoreline settings serve as medicine for the mind, body, and soul and help reduce the manifestation of many of society’s ailments due to the reduction of stress experienced by visitors.

“BIG WATER” USES:

Michigan’s water resources enable progress and successes in many sectors of the economy including, for example, farming, mining, and energy production. Such big water uses are vital to the state’s prosperity but are not directly included in the economic modeling in this study because links between these sectors and Michigan’s ports and harbors are difficult to quantify with reasonable accuracy.

References

Arial America (2018). <https://www.smithsonianchannel.com/shows/aerial-america/michigan/701/140962>.

Austin, J. and A.D. Steinman (2015). Michigan Blue Economy. Making Michigan the World's Freshwater and Freshwater Innovation Capital. Available at: <http://michiganblueeconomy.org/>

Baur, J. (2014). "How Marquette Became the Livable Walkable City to Follow." *Second Wave: Upper Peninsula*, January 29.

Bohling, M. (2013). "Invasive Phragmites australis: What is it and why is it a problem?" MSU Extension: Michigan State University: East Lansing, MI.

Brudenell, M. (2013-10-28). "Chevrolet, Roger Penske bring 2012 Detroit Grand Prix back to Belle Isle". Freep.com. Retrieved 2013-11-01 (accessed via Wikipedia September 5, 2018).

"COAST GUARD AUTHORIZATION ACT OF 1997". ProQuest Congressional. October 21, 2018. (accessed via Wikipedia November 6, 2018).

Connelly, N. A., Bibeault, J. F., Brown, J., & Brown, T. L. (2005). Estimating the Economic Impact of Changing Water Levels on Lake Ontario and the St. Lawrence River for Recreational Boaters and Associated Businesses.

Dougherty, R. (2011). *2010 Maryland State Parks Economic Impact and Visitor Study*. Maryland Office of Tourism Development: Department of Business and Economic Development; in collaboration with the Maryland Department of Natural Resources; Cecil County Tourism, Office of Economic Development; Maryland Association of Destination Marketing Organizations; Governor's State Park Advisory Commission.

Flesher, J. (2017). "Asian Carp found near Lake Michigan got past barriers." <https://www.jsonline.com/story/news/2017/08/18/asian-carp-found-near-lake-michigan-got-past-barriers/104724270/> (accessed September 23, 2018).

Flesher, J. (2018). "Michigan, Wisconsin, Ohio join battle to strengthen Asian Carp barrier near Joliet." <http://www.chicagotribune.com/news/local/breaking/ct-great-lakes-states-asian-carp-20180131-story.html>. (accessed September 23, 2018).

Gerard, M. and Gerard, C. (2018). "Riverside Stops." *Visit Detroit*; April - September, 2018; p. 37.

Glenn, J. (2008). *Great Lakes Recreational Boating – Main Report – Final*. U.S. Army Corps of Engineers (December).

Glupker, C., Stephenson, P., Janes, P., Chamberlain, L., and Cowie, J. (2016). *Grand Haven Economic Impact, Visitor, and Visitor Count Study*. Grand Valley State University.

Gonia, T. (2018): Commercial fishing data tables emailed to ISR by Thomas Gonia: Biologist, Michigan Department of Natural Resources, Fisheries Division (August 13, 2018).

Gonzalez, J. (2016). Another record year for Mackinac Island as 2016 season comes to a close (October 26):

https://www.mlive.com/travel/index.ssf/2016/10/another_record_year_for_mackin.html.

Gordon, C. (2017). The Perils of Efficiency: An Analysis of an Unexpected Closure of the Soo Locks and its Impact. Association for Public Policy Analysis and Management: Annual Conference: Chicago, IL (November).

Grover, F. (1911). *A Brief History of Les Cheneaux Islands*. Bowman Publishing: Evanston, Illinois.

Hauser, C. (2018). "Algae Blooms in Lake Superior Raise Worries about Climate Change and Tourism." <https://www.nytimes.com/2018/08/29/science/lake-superior-algae-toxic.html> (accessed September 22, 2018).

<http://ensignfleet31.com/fleet-31-member-boat-roster/> (accessed September 6, 2018).

<http://infosuperior.com/blog/2018/05/31/how-is-climate-change-changing-lake-superior/> (accessed September 22, 2018).

<https://www.discoverboating.com/resources/california-grabs-top-spot-from-michigan-with-most-boat-registrations> (accessed October 22, 2018).

<http://www.beachtowns.org/> (accessed September 9, 2018).

<http://www.detroitriverfront.org/riverfront> (accessed September 5, 2018).

<http://www.elkrapidschamber.org/pages/chain-of-lakes> (accessed September 4, 2018).

<http://www.interlochenpublicradio.org/post/demand-kill-cormorants-grows-great-lakes> (accessed September 22, 2018).

<http://www.lakesuperiortheatre.com/history-of-lsyy.html> (accessed September 6, 2018).

<http://www.lciboatshow.com/> (accessed September 6, 2018).

<http://www.miseagrant.umich.edu/explore/native-and-invasive-species/species/plants/frogbit/> (accessed September 22, 2018).

<http://www.seasuites.com/> (accessed September 9, 2018).

<http://www.tawasbay.com/> (accessed September 5, 2018).

<http://www.tawasbay.com/birding.shtml> (accessed September 5, 2018).

<http://www.thealpenanews.com/news/local-news/2018/07/getting-rid-of-invasive-species/> (accessed September 22, 2018).

<http://www.traversecitymi.gov/downloads/waterfrontplanfinal.pdf> (accessed September 12, 2018).

<http://www.visitmanisteecounty.com> (accessed September 6, 2018).

https://en.wikipedia.org/wiki/St._Joseph,_Michigan (accessed September 12, 2018).

https://en.wikipedia.org/wiki/East_Tawas,_Michigan (accessed September 5, 2018).

https://en.wikipedia.org/wiki/Great_Lakes_Maritime_Academy (accessed September 12, 2018).

https://en.wikipedia.org/wiki/Les_Cheneaux_Islands (accessed September 6, 2018).

<https://en.wikipedia.org/wiki/Marquette,-Michigan> (accessed September 6, 2018).

https://en.wikipedia.org/wiki/Onekama,_Michigan (accessed September 8, 2018).

https://en.wikipedia.org/wiki/Rogers_City,_Michigan (accessed September 6, 2018).

https://en.wikipedia.org/wiki/Sault_Ste._Marie,_Michigan (accessed September 10, 2018).

https://en.wikipedia.org/wiki/South_Haven,_Michigan (accessed September 11, 2018).

https://en.wikipedia.org/wiki/Traverse_City,_Michigan (accessed September 12, 2018).

<https://msu.edu/course/prr/840/econimpact/michigan/ecimpadjavastate.html> (accessed September 18, 2018).

<https://retroboatrentals.com/> (accessed September 9, 2018).

<https://www.aldoleopoldfestival.com/> (accessed September 6, 2018).

<https://www.blueberryfestival.com/about-us.html> (accessed September 11, 2018).

<https://www.census.gov/foreign-trade/reference/products/catalog/usatradeonline.html> (accessed August 26, 2018).

<https://www.census.gov/foreign-trade/statistics/state/data/mi.html> (accessed August 17, 2018).

https://www.census.gov/foreign-trade/statistics/state/origin_movement/index.html#2017 (accessed August 20, 2018).

<https://www.downtowntc.com/events-attractions/attractions-2> (accessed September 12, 2018).

<https://www.freep.com/story/news/local/michigan/2016/04/16/wurtsmith-air-base-pollution-health/83040138/> (accessed September 22, 2018).

<https://www.michigan.org/industry/research> (accessed July 13; July 24, 2018).

<https://www.ntis.gov/> (accessed September 18, 2018).

<https://www.onekama.info/about-onekama> (accessed September 8, 2018).

<https://www.onekama.info/onekamadays> (accessed September 8, 2018).

<http://www.ox-bow.org/> (accessed December 8, 2018).

<https://www.saultstemarie.com/soo-area-and-great-waters-region/our-local-history/> (accessed September 10, 2018).

<https://www.sicity.com/home2> (accessed September 12, 2018).

<https://www.traversecity.com/outdoors/boating/> (accessed September 12, 2018).

<https://www.westmichigancycleboat.com/> (accessed September 9, 2018).

<https://www.wpr.org/invasive-bloody-red-shrimp-discovered-lake-superior> (accessed October 25, 2018).

Hulett, S. and Rubenstein, H. (2018). "Lake Superior State University set to break ground on Great Lakes research center." Michigan Radio NPR (July 16, 2018).

Kaeding, D. (2018). "Study: Wisconsin's Great Lakes Ports Generate \$1.4B Economic Impact." <https://www.wpr.org/study-wisconsins-great-lakes-ports-generate-1-4b-economic-impact> (accessed October 25, 2018).

Mahoney, E., Stynes, D., Chang, T., and McCelleis, T. (2003). *The Economic Importance of Michigan's Recreational Boating Industry*. East Lansing, MI: Recreational Marine Research Center: Michigan State University.

Manistee - Manistee County Tourism - Manistee, Michigan. *visitmanisteecounty.com*. Retrieved 17 April 2018. www.visitmanistee.com (accessed September 8, 2018).

Martin Associates (2018): *Economic Impacts of Maritime Shipping in the Great Lakes – St. Lawrence Region* (July 2018). Lancaster, Pennsylvania.

Matheny, K. (2018). "These Birds – and Federal Red Tape – Could Harm Great Lakes Fishing Populations." <https://www.freep.com/story/news/local/michigan/2018/07/19/cormorant-birds-great-lake-fisheries/796866002/> (accessed September 22, 2018).

Michigan Office of the Great Lakes (2016). *Sustaining Michigan's Water Heritage: A Strategy for the Next Generation*. Department of Natural Resources (in collaboration with numerous other state agencies), October 2016.

Michigan Office of the Great Lakes (2018). *Michigan Water Strategy: 2018 Annual Report*. Department of Natural Resources (in collaboration with numerous other state agencies), December 2018.

National Agricultural Statistics Service. June 17, 2010. "Cherry Production" (PDF).

National Cherry Festival. *Local Legacies: Celebrating Community Roots*. Library of Congress. Retrieved October 28, 2010

Saugatuck/Douglas Visitors Guide & Business Directory (2016): The Art Coast of Michigan.

Schachter, T. (2018). "Global Trade Magazine's Top 50 Power Ports." *Global Trade*. <http://www.globaltrademag.com/features/global-trade-magazines-top-50-power-ports> (accessed October 19, 2018).

Silverstein, P. and Hansen, D. (2015). Fiscal Benefits of the Port of Muskegon: A Study of the Current Port Benefits and Potential for Increased Economic Activity by 2020. Development Research Partners; Littleton, CO.

Spratling, C. (2018). "On the Waterfront." *Visit Detroit*; April - September, 2018; pp. 34-40.

Stynes, D. J., Propst, D. B., Chang, W., & Sun, Y. (2000). Estimating national park visitor spending and economic impacts: The MGM2 model. *Report to the National Park Service*. East Lansing, MI: Department of Park, Recreation and Tourism Resources, Michigan State University.

Travel Michigan (2018). *2017 Tourism Economic Impact: Region and County Tables*:
<https://medc.app.box.com/s/ix0a71sp5clhvqmpniwgenw45y8g0kw3> (accessed December 12).

Travel Michigan (2018). <https://www.michigan.org/industry/research> (accessed July 13; July 24, 2018).

U.S. Census Bureau (2010). *Summary Population and Housing Characteristics* (issued January 2013). CPH-1-1.

Yob, C. and Porter, P. (2017). Mackinac State Historic Park: Annual Report 2017.

Investigator Bios

Dr. Vincent Magnini is the Executive Director of the Institute for Service Research. He was recently ranked as one of the top 12 most prolific hospitality researchers worldwide and holds editorial board appointments on all of the top-ranked research journals in the field. Further, he is a U.S. Fulbright Scholar. He has published six books and more than 250 articles and reports. Dr. Magnini has also been featured on National Public Radio's *With Good Reason*, *All Things Considered*, *Pulse on the Planet* and cited in the *New York Times* and *Washington Post*.



Dr. Magnini regularly consults for a number of constituencies in the hospitality and tourism sectors. The consulting activities include projects such as economic impact analyses, strategic marketing plans, feasibility studies, and executive education seminars. Recent economic impact studies or water-recreation studies conducted by Dr. Magnini include:

- The Fiscal and Economic Impacts of Virginia's Agritourism Industry
- Virginia State Parks Economic Impact Report (conducted annually)
- State of Florida Outdoor Recreation Participation Study (with Chuck Wyatt)
- The Economic Impacts of Spearhead Trails (with Chuck Wyatt)
- The Economic Significance and Impacts of West Virginia's State Parks and Forests (with Dr. Muzzo Uysal)

Bill Boik is retired from the State of Michigan Department of Natural Resources after 30 years in the Waterways Program. He managed the acquisition, development, maintenance, and operations of the state's boating facilities. The state's facilities included 2 locks, 19 harbors, and over 1,300 boating access sites across the state. He also managed the Waterways grants program including state administered federal funds. Bill now works as an independent consultant on boating facilities.



Dr. John Crofts holds a Ph. D. in Leisure Studies and Services from the University of Oregon. He is an active consultant with both large and small organizations most recently including Hyatt North America, Starbucks, the South Carolina Ports Authority, US Department of Energy, and the cities of Grand Island, LA, and Charleston, SC. Dr. Crofts is well published in the areas of consumer psychology, sales and negotiation strategy, and the management of cooperative alliances. He also serves as the North American Editor of *Tourism Management*.



From 2005-2010, Dr. Crofts was a Senior Fulbright Specialist. Twice in 2007, he was ranked in the top 20 scholars worldwide for his published research productivity. Recent economic impact studies include:

- Quantifying the economic impact of a proposed arts guild incubator on Lancaster County, SC.
- The economic impact of the BP Oil Spill on Grand Isle and Lafitte, LA (with Michael Wolfe)
- Analysis of the economic contributions of the SC State Port Authority's cruise ship activity to the regional economy (with Frank Hefner)
- Recreational value of near-shore species for different regions in Florida for the Florida Marine Fisheries Commission (with Walter J. Milon, Eric M. Thunberg, Charles Adams, and Stephen M. Holland)

Reviewer Bio

Dr. Muzaffer Uysal holds a Ph.D. in tourism and recreation from Texas A&M University, an MBA from the University of New Haven, and a Bachelor's of Science in accounting and business administration from the Ankara Academy of Economics and Commercial Sciences. He has extensive experience in the travel and tourism field. Dr. Uysal has worked on numerous funded tourism management and marketing projects and has conducted tourism workshops and seminars in more than 30 countries. He is a member of the International Academy for the Study of Tourism, the Academy of Leisure Sciences, and serves as co-editor of *Tourism Analysis: An Interdisciplinary Journal*. He has also authored and co-authored a significant number of articles, five monographs, and eight books related to tourism research methods, tourist service satisfaction, tourism and quality-of-life, creating experience value in tourism, consumer psychology in tourism and hospitality settings.



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More than 200 individuals around the state contributed data and information for this report. This list specifically names those contributors whose contributions were quoted or paraphrased directly.

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Appendices

APPENDIX A: GLOSSARY OF TERMS

{Many of the definitions in this glossary are paraphrased directly from Stynes et al. (2000) MGM2 user manual}

Direct effects – the changes in sales, income and jobs in an area as a result of first-round economic activity such as direct visitor spending or spending on water-based capital improvements.

Full-time equivalent (FTE) job – the equivalent of one employee working full-time or 2,080 hours per year.

Indirect effects – the changes in sales, income and jobs to businesses that supply goods and services to entities experiencing economic direct effects.

Induced effects – the changes in economic activity in the region stimulated by household spending of income earned through direct and indirect effects.

IMPLAN – a computer-based input / output economic modeling system. With IMPLAN, one can estimate 528 sector input / output models for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model.

MARAD Port Kit - an economic impact calculator that was at one time available for purchase through the United States Department of Commerce’s National Technical Information Service.

MGM2 - an excel-based money generating model 2 (MGM2) developed at Michigan State University by Professor Daniel Stynes and his colleagues to assess economic impact of park and recreation settings.

Multipliers – express the magnitude of the secondary effects in a given geographic area and are often in the form of a ratio of the total change in economic activity relative to the direct change. Multipliers reflect the degree of interdependency between sectors in a region’s economy and can vary substantially across regions and sectors.

Ripple effects (AKA secondary effects) – the changes in economic activity from subsequent rounds of re-spending of dollars. There are two types of ripple effects: indirect and induced.

Secondary effects (AKA ripple effects) – the changes in economic activity from subsequent rounds of re-spending of dollars. There are two types of secondary effects: indirect and induced.

Shallow draft harbors – harbors comprised of 14 feet or less of water depth.

Short ton – a unit of weight equal to 2,000 pounds; to be differentiated from a metric ton which weighs 2,240 pounds.

Tourist – an individual who travels more than 50-miles (one-way) to visit a destination (also termed “visitor” or “non-local”).

Value-added (also termed ‘gross regional product’) – the sum of total income and indirect business taxes. Value-added is a commonly used measure of the contribution of a region to the national economy because it avoids the double counting of intermediate sales and incorporates only the ‘value-added’ by the region to final products.

Water-based tourism and recreation – The portion of tourist spending in a community because the community is located on the water. It also includes boat-related expenditures by these tourists. *Water-based tourism and recreation* does not include recreational spending of local residents. *Water-based tourism and recreation* describes the activities of those traveling a minimum of 50-miles one-way to visit the port/harbor (termed “tourists”, “non-locals”, or “visitors”).

APPENDIX B: SURVEY RESPONSES BY LOCATION

LOCATION	COUNT
Algonac	46
Alpena	174
Arcadia	78
Au Gres	23
Baraga / L'anse	33
Bay City	85
Beaver Island	36
Big Bay	38
Black River	40
Bois Blanc Island	10
Bolles Harbor	17
Boyne City	36
Caseville	16
Cedarville	25
Charlevoix	63
Cheboygan City	39
Cheboygan County	18
Clinton River	12
Copper Harbor	47
De Tour	17
Detroit: Erma Henderson	18
Detroit: St. Aubin Park	38
Douglas	75
Eagle Harbor	23
East Jordan	14
East Tawas	62
Elberta	19
Elizabeth Park	11
Elk Rapids	41
Escanaba	41
Fair Haven / Bouvier Bay	8
Fair Haven / Swan Creek	11
Fayette	11
Frankfort	75
George Camp	4
Gidley	9
Gladstone	18

Grand Haven /Spring Lake / Ferrysburg	176
Grand Marais	29
Grand Traverse Bay	86
Grayhaven	7
Greilickville	12
Hammond Bay	11
Hancock	22
Harbor Beach	22
Harbor Springs	44
Harbor View	9
Harrisville	16
Hessel	18
Holland	152
Houghton City	21
Houghton County	17
Isle Royale	8
Keweenaw Waterway	19
Key River	5
Lac LaBelle	12
Lake Erie Metro park	15
Leland	40
Lexington	19
Little Lake	11
Ludington Municipal	82
Mackinac City	157
Mackinac Island	115
Manistee	129
Manistique	28
Marine City / Belle River	18
Marquette: Cinder Pond	24
Marquette: Presque Isle	102
Menominee	20
Metro Beach Metro park	18
Mitchels Bay, Ont ¹	9
Monroe	15
Mt. Clemens: Clinton River	11
Munising	72
Muskegon	161

1. Canadian harbor(s) included so that a deduction can be made for other stops on trip.

Naubinway	11
New Baltimore	14
New Buffalo	58
Northport	23
Onkama / Portage Lake	156
Oscoda / Au Sable	22
Pentwater	31
Petoskey	69
Port Austin	21
Port Huron City	41
Port Huron Municipal	25
Port Inland	8
Port Sanilac	13
Port Sheldon	9
Presque Isle	40
Rogers City	30

Salt River	6
Saugatuck	218
Sault Ste. Marie / Soo Locks	299
South Haven	365
St. Clair	17
St. Clair Shores (Nautical Mile)	23
St. Ignace	101
St. Joseph /Benton Harbor	116
Suttons Bay	29
Toledo Beach	13
Traverse City	144
Wasaga	9
Whitefish Point	48
Whitehall /Montague	47
Other	19
Total	5,088

Corporate Profile

The Institute for Service Research (ISR) is a full-service market research and economic modeling firm headquartered in Virginia Beach. The firm is incorporated in Virginia and trademarked with the U.S. patent office. The firm's founder and Executive Director, Dr. Vincent Magnini, was the lead researcher on this economic impact study.



THE FOLLOWING PORTS PARTICIPATED IN THE MPC ECONOMIC IMPACT STUDY DURING 2018:

Alpena	www.visitalpena.com
Cedarville	www.lescheneaux.org
Detroit	www.visitdetroit.com
Douglas	www.douglasmichigan.com
East Tawas	www.tawas.com
Elk Rapids	www.elkrapidschamber.org
Grand Haven	www.visitgrandhaven.com
Manistee	www.visitmanisteecounty.com
Marquette	www.travelmarquettemichigan.com
Muskegon	www.visitmuskegon.org
Onkama	www.onkama.info
Rogers City	www.rogerscity.com
Saugatuck	www.saugatuck.com
Sault Ste. Marie	www.saultstemarie.com
South Haven	www.southhaven.org
St. Joseph	www.swmichigan.org
Traverse City	www.traversecity.com