

CASE STUDIES

Michigan Coastal Community Working Waterfronts VALUE AND CONTEXT

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OVERVIEW

This section provides context information about some of the drivers of change, economic value, and status and trends of water-dependent uses and activities to better understand some of the strengths in coastal communities, perceived and actual threats to working waterfronts and value of working waterfronts to the local and regional economy. Key points from this context information research are summarized below.

- Coastal population change impacts working waterfronts. Both an increase and decline in population can threaten working waterfronts.
- There are slight differences between populations in coastal communities, coastal counties, and all counties in Michigan. Generally, and as a whole, coastal communities in Michigan have a slightly higher education and unemployment rate than the state average. Coastal communities also have a higher median age than the state average and a lower household income.
- Total residential construction declined significantly in coastal counties and all counties between 2000 and 2010. The percent of unoccupied housing units is greater in coastal communities than coastal counties and non-coastal communities.
- One study of the value of the ocean and Great Lakes related economy found that economic activity contributed 3.41 percent to total Gross Domestic Product (GDP). Great Lakes related economic activity supported 4,310 business establishments and over 62,000 jobs, provided \$1.3 million in wages and contributed over \$1 million to GDP, roughly 50 percent less than the average contribution to GDP between 1997 and 2009. According to this analysis, the tourism and recreation sector was the largest contributor to Michigan's Great Lakes related economy. Shipping tonnage and economic trends differ between the west and east side of the state and have generally increased on the west side and decreased on the east side.
- There are over 140 federally authorized navigation projects on the U.S. side of the Great Lakes-St. Lawrence Seaway, including 27 commercial and 43 recreational harbors in Michigan.
- Overall, recreational boating in Michigan has declined since 2000, however the state has one of the highest numbers of registered boats in the country. Charter fishing, sportfishing and coastal tourism are valuable to the recreation and tourism industries and culture in Michigan.
- Aging harbor infrastructure, harbor sedimentation and a lack of funding for dredging threaten working waterfronts and the local economy in coastal communities.

TRENDS IN COASTAL COMMUNITIES

POPULATION CHANGE

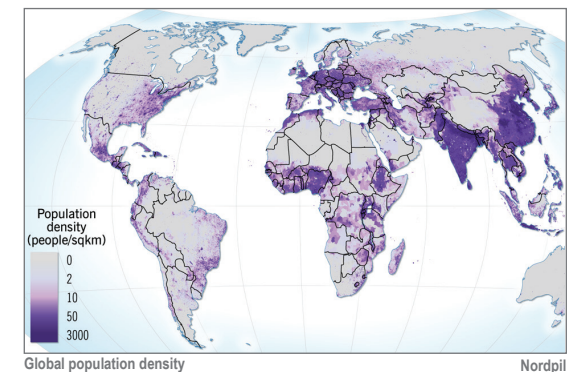
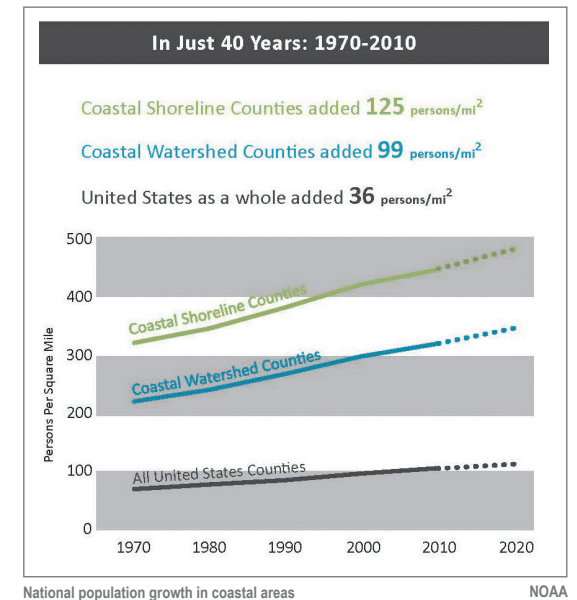
Nationally, the number of people living in coastal areas is increasing. Between 1970 and 2010, the percent of the U.S. population living in coastal counties increased by 34.4 million people to over 123 million people, or 39 percent of the country's population (1). Over half of the 308.7 million people in the U.S. live in a coastal watershed (2). By 2020, the population in coastal watersheds is projected to increase by 10 percent (2). Between 2000 and 2030, the U.S. population is projected to increase by 28.9 percent (3). During this period, Michigan's population is projected to increase by 7.6 percent (3). The increase in competition for and cost of coastal land and additional stress on coastal resources associated with this projected population growth is likely to have negative implications for working waterfronts.

Michigan's population as of the 2010 Census was 9,883,640, the lowest it has been in 100 years. The percent of the U.S. population living in Michigan has decline every year since 1970 — with the second largest decline during this period between 2007 and 2008 — due to a number of factors including international immigration, long-term westward population movement and a resurgence of the sunbelt states as well as a decline in automotive industry jobs (4). Exemplifying typical settlement and development patterns along bodies of water, many of the state's population centers are located along the Great Lakes: in 2010, one quarter of the Metropolitan Statistical Areas and half of the Micropolitan Statistical areas in Michigan were adjacent to the coast (Figure 1) (8,21).

The number of people living in Michigan's 41 coastal counties grew at a lower rate than the statewide growth rate between 1990 and 2000 (6,7,8).

- Over the next decade, the total population in coastal counties declined by a greater rate (1.2%) than the statewide decline rate (0.6%) (Figure 1) (9,10).
- Excluding Wayne County, however, the population growth in coastal counties (2.1%) increased slightly less than the statewide population growth (2.4%) between 2000 and 2010 (9,10).
- The population of coastal subdivisions or cities and townships adjacent to the coast (coastal communities) declined 11.2 percent during this time period.
- When the City of Detroit is excluded, coastal subdivision population declined by 0.7 percent between 2000 and 2010 (11,12).

Overall, the percent of Michigan's population living in coastal counties declined by approximately 6 percent from 1990 to 2010 (6,7,8). As a whole, cities and townships adjacent to the coast (or 'coastal communities') experienced a greater population loss than coastal counties (12%) during this period and an 11 percent population loss between 2000 and 2010 (11,12).



While high population growth in coastal areas can be a challenge to maintaining access to water resources for water-dependent uses and the public, communities that experience a significant population loss are at risk for decreased local government and citizen capacity. Among other things, this can impact a community's ability to dedicate time and resources to waterfront planning. In addition, a loss of population and jobs impacts local businesses and is a hurdle to attracting new talent and jobs. However, there is opportunity as well. Strategic waterfront planning that leverages locations on the Great Lakes and protects waterfront assets can serve as a point of intervention in the negative feedback loop.

POPULATION CHARACTERISTICS

Comparing population characteristics in coastal communities, coastal counties, and all counties in Michigan provides a general understanding and snapshot of some of the ways communities located near or adjacent to the coast differ from non-coastal communities.

One factor that can influence the viability of traditionally family-run businesses such as fishing and farming — as well as the vibrancy of a community — is ageing population. The median age in Michigan is increasing, and it is increasing at a greater rate in coastal communities than statewide (Figure 1) (9,10,11,12). People living in coastal communities are also older; the median age (as of 2010) was approximately 48 years in coastal communities in Michigan, compared to the statewide average of just over 42 years.

While recent trends indicate there are fewer young people moving to or staying in coastal communities, the average unemployment rate is lower in coastal communities than statewide. Additionally, coastal communities also have a higher education rate, on average. The population over age 25 with a bachelor's degree or higher in coastal communities is approximately 23 percent as compared to 19 percent in all counties in Michigan. The median household income in coastal counties was, on average, greater in coastal counties than in coastal communities, but less than the median income of all counties in Michigan from 2006-2010.

HOUSING AND DEVELOPMENT

At a national level, non-water-dependent uses — including but not limited to residential development — are increasingly replacing water-dependent uses along the waterfront. Over the last decade, however, in Michigan and many other areas of the country, the economic recession impacted construction and development. Between 2000 and 2010, total housing rates increased at lower rate in coastal communities than coastal counties.

In 1990, 2000 and 2010, residential construction in coastal counties accounted for roughly 38-55 percent statewide residential construction. Statewide, residential construction was approximately 80 percent less in 2010 than 1990. The rate of housing occupancy also declined over the last decade. Housing occupancy was both lower and declined at a greater rate between 2000 and 2010 in coastal communities than in coastal counties and all counties in Michigan (Figure 1) (14,15).

While trends indicate that residential development may not pose as great an immediate threat to water-dependent uses today, residential construction rates will likely rebound with the return of more favorable economic conditions.

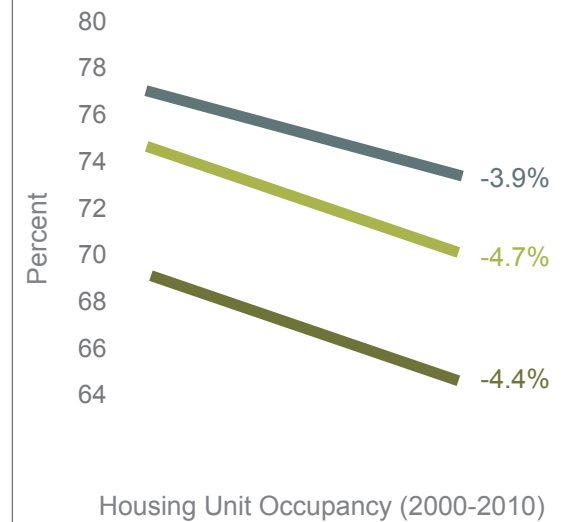
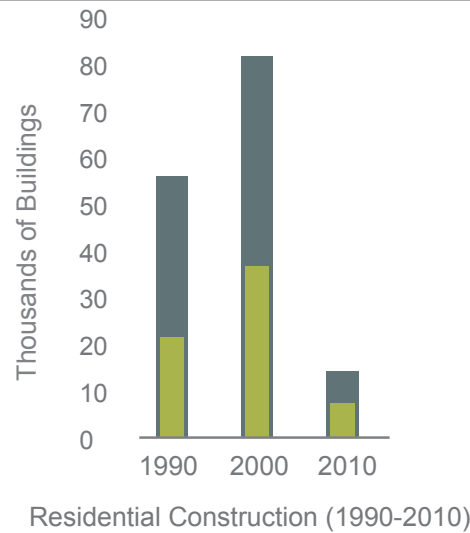
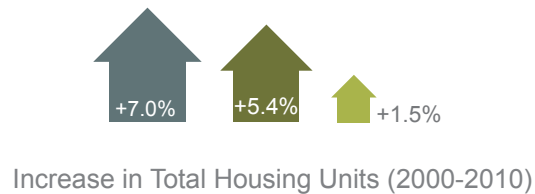
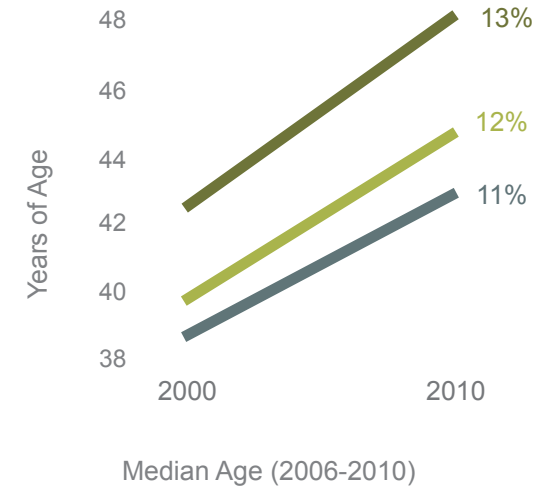
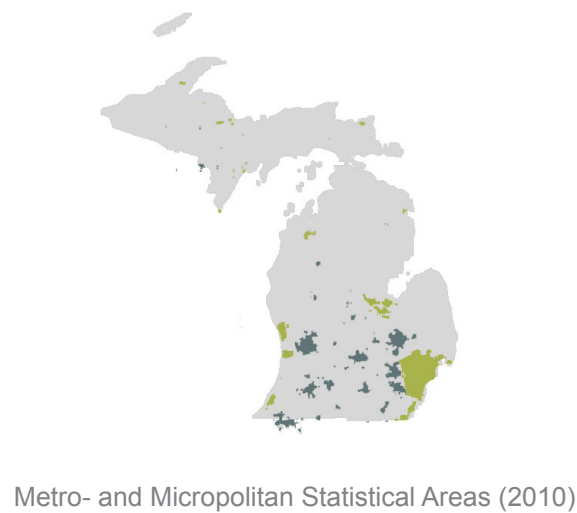
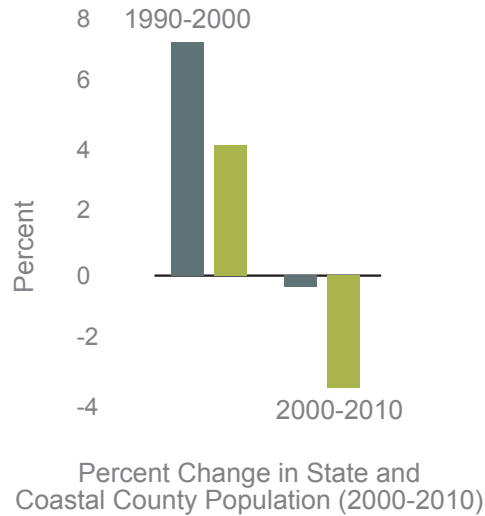
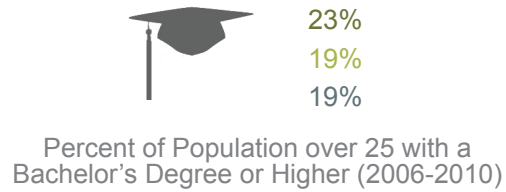


FIGURE 1. SNAPSHOT OF POPULATION, AGE, INCOME, EMPLOYMENT, HOUSING AND CONSTRUCTION TRENDS IN COASTAL COMMUNITIES, COASTAL COUNTIES AND ALL MICHIGAN COUNTIES (7,8,9,10,11,12,13,14,15,16,17,18,19,20,21).

GREAT LAKES ECONOMY

The National Working Waterfront Network conducted an economic analysis of ocean- and Great Lakes-related economic activity based on the industry sectors (NAICS codes) used by the National Ocean Economic Program. Six industry groups were used to characterize the ocean and Great Lakes economy: marine construction, marine living resources, offshore mineral, ship and boat building, coastal tourism and recreation, and marine transportation (32). Economic data including wages, employment and value added or gross domestic product (GDP) was compiled for 11 coastal regions representing 444 counties within the coastal zone in 30 states. Trends were analyzed from 1990-2010, and forecasts were made through 2020 at the county level or by industry, with the exception of the of coastal tourism and recreation group, which accounted for businesses and establishments located within ZIP codes adjacent to the coast. Multiplier effects were calculated using IMPLAN economic analysis data and software (32).

In this analysis, the State of Michigan was split between the Great Lakes East and Great Lakes West Regions. The Great Lakes-East Region consisted of Michigan (Lake Huron and Erie coast), New York (Lake Erie and Ontario coast), Ohio and Pennsylvania (Lake Erie coast). The Great Lakes-West Region consisted of Michigan (Lake Michigan and Superior coast).

Table 1 displays the number of business establishments, jobs, wages and GDP for Michigan, the Great Lakes Region and the total for all U.S. regions. Nationally, ocean- and Great Lakes-related economic activity directly accounted for 130,855 businesses that employed 2.4 million employees, produced \$217.78 billion in GDP and contributed to 3.41 percent of total GDP and 4.85 percent of total employment in 2009 (32). The Great Lakes Regions accounted for approximately 11 percent of business establishments, 11 percent of employment, 7 percent of wages and 5 percent of GDP of the total coastal economy of all regions. Michigan accounted for approximately 31 percent of business establishments, 23 percent of employment, 23 percent of wages and 21 percent of GDP in the Great Lakes regions (32).

Direct and Indirect Contributions and Percent Change from 1997-2009 in Major Ocean and Great Lakes Sectors in 2009						
Region - State	Business Establishments	Employment (full and part time jobs)	Wages (\$ million)	GDP 2009 (\$ million)	GDP Average 1997-2009 (\$ million)	1997-2009 change (%)
Michigan	4,310	62,346	1,273	1,992	2,319	
MI Great Lakes-East	946	17,469	449	770	1,168	-38%
MI Great Lakes-West	3,364	44,877	774	1,222	1,151	28%
Great Lakes	14,122	259,790	5,515	10554	10,255	
Great Lakes-East	5,665	92,062	1,774	3,266	3,437	2%
Great Lakes-West	8,457	167,728	3,741	7,288	6,818	23%
Total All U.S. Regions	130,885	2,398,233	84,246	200,447	163,359	64%

TABLE 1. GREAT LAKES ECONOMY DIRECT CONTRIBUTIONS AND PERCENT CHANGE IN DIRECT CONTRIBUTIONS FROM 1997-2009 FOR MICHIGAN, THE GREAT LAKES REGION AND THE U.S.

Note: Refer to the Sustainable Working Waterfronts Toolkit report Appendix B Economic Analysis of Working Waterfronts in the United States for more information about methodology and limitations of this analysis.

Between 1997 and 2009, there was a 38 percent decline in Great Lakes-related GDP in the Michigan Great Lakes-East region and a 28 percent increase in Great Lakes-related GDP in the Michigan Great Lakes-West region (Table 1). The change in ocean- and Great Lakes-related GDP for all U.S. coastal regions during this time period was 64 percent. The ocean- and Great Lakes-related economic contribution is predicted to increase by a total of 59 percent in U.S. regions from \$164,359 million in 2009 to \$319,271 million in 2020 (32).

The total contributions of the ocean and Great Lakes economy, including indirect/induced multiplier effects from ocean-related activities in 2009 was 6.75 million jobs, \$284 billion in wages and \$645 billion in value added or GDP. Total economic contributions were 2.8 to 3.4 times greater than direct contributions. The national average of economic contributions of ocean-related sectors was 15,238 jobs, \$642 million in wages and \$1.46 billion in GDP per county, with significant variation across the 444 counties (32).

By sector group, tourism and recreation (61%) and transportation (25%) accounted for the greatest percent of Great Lakes-related GDP in Michigan (Figure 2). Similarly, tourism and recreation (71%) and transportation (22%) dominated the Great Lakes related economic activity in the Great Lakes Region (Table 2). Figure 3 displays Michigan's Great Lakes economy by county in 2009.

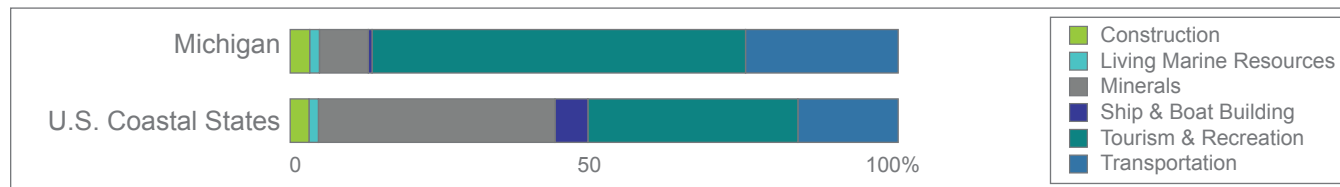


FIGURE 2. GDP IN MICHIGAN AND U.S. COASTAL STATES BY OCEAN AND GREAT LAKES SECTORS IN 2009 (32).

GDP (million \$) for Major Ocean and Great Lakes Sectors in 2009, Direct and Indirect Contribution														
Region - State	Construction		Living Marine Resources		Minerals		Ship & Boat Building		Tourism & Recreation		Transportation		TOTAL	
	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect
Michigan	72.4	259	31.5	94	218.9	657	11.0	42	1,433	4,815	585.6	2,265	2,352.3	8,132
MI Great Lakes-East	22.0	79	3.3	10	9.1	26	0	0	367.4	1,239	378.8	1,452	780.6	2,806
MI Great Lakes-West	50.4	180	28.2	84	209.8	631	11.0	42	1065.6	3,576	206.8	813	1,571.7	5,326
Great Lakes	233.4	837	111.7	411	464.7	1181	28.3	83	7,858.7	26,406	2,499.8	8,910	11,196.7	37,829
Great Lakes-East	74.9	271	34.8	122	106.0	309	0	0	2,231.6	7,535	930.8	3,486	3,378.1	11,724
Great Lakes-West	158.5	566	76.9	289	358.7	875	28.3	83	5,627.1	18,871	1,569.0	5,424	7,818.6	26,724
Total All U.S. Regions	5,396	18,961	2,532	11,249	85,324	186,422	13,320	39,360	76,195	253,736	35,318	135,073	218,085	644,803

TABLE 2. DIRECT AND TOTAL CONTRIBUTION TO GDP BY ECONOMIC SECTORS IN MICHIGAN, THE GREAT LAKES REGION AND THE U.S. IN 2009 (32).

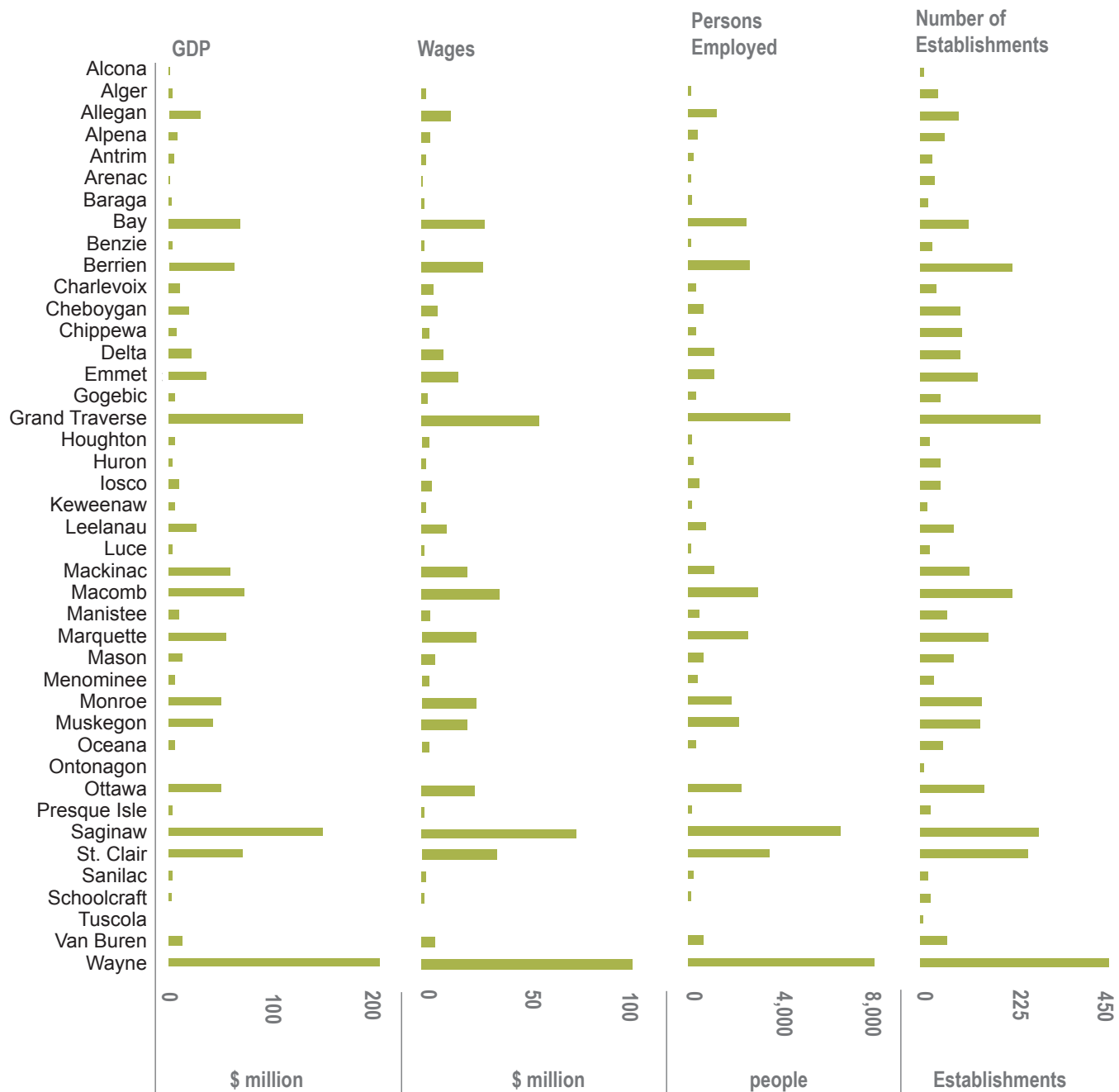


FIGURE 3. GREAT LAKES ECONOMY IN MICHIGAN BY COASTAL COUNTY IN 2009 (33).

GREAT LAKES-ST. LAWRENCE SEAWAY AND MICHIGAN PORTS

Marine transportation reduces transportation cost and generates significant economic activity on the Great Lakes-St. Lawrence Seaway and in Michigan's ports. Marine transportation depends on adequate channels waterways, navigational aids, and harbor infrastructure and well-functioning ports. In the U.S., marine commerce and transportation is managed by a number of federal agencies including the Department of Transportation, Coast Guard, Army Corps of Engineers, National Oceanic and Atmospheric Administration, Customs and Border Protection and Environmental Protection Agency (22). More than \$1.5 billion is invested annually to ensure that transportation and commerce on U.S. waterways is safe, efficient and minimizes environmental impacts (23).

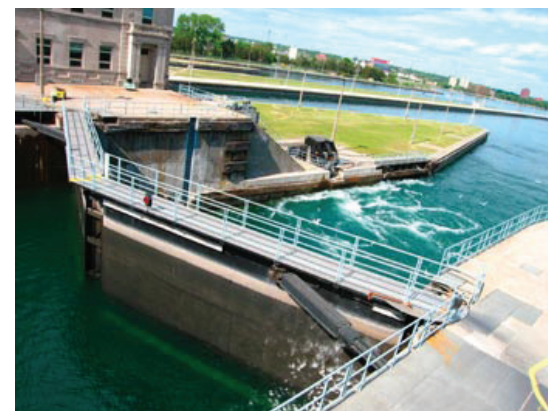
The opening of the Erie Canal (1825), Welland Canal (1829), Illinois and Michigan Canal (1848) and construction of the Soo Locks in 1855 made it possible to easily and efficiently transport cargo from the Midwest to the East and Gulf Coasts. The Great Lakes-St. Lawrence Seaway accounts for approximately 10 percent of all U.S. waterborne domestic travel (24). The Great Lakes Navigation System is a 27-foot deep draft waterway that extends over 2,400 miles through all five Great Lakes from Duluth, Minn. to the Gulf of the St. Lawrence River.

Twenty-two of the U.S.'s top 100 harbors (by tonnage) are located in the Great Lakes-St. Lawrence Seaway system (24). Every year, water-borne transportation saves an estimated \$3.6 billion in transportation and handling costs compared to all-land transportation alternatives (24). In addition, maritime activity on the Great Lakes Navigation System generates over \$33.5 billion in business revenue (24).

Approximately 21 percent of households in the U.S. are within four hours and 52 percent are within 10 hours of Great Lakes ports. Nearly 25 percent of U.S. manufacturing is within four hours of Great Lakes ports and 55 percent is within 10 hours of Great Lakes ports (27,28).

PORTS AND HARBORS

The U.S. side of the Great Lakes Navigation System includes 60 commercial and 80 recreational federally authorized navigation projects as well as three navigational lock facilities, over 600 miles of federal navigation channel, 20 active confined disposal facilities and 104 miles of federal navigation structures, breakwaters, piers and jetties (24). Michigan has 27 commercial and 43 recreational federally authorized harbors (Figure 4) as well as over 20 additional recognized ports. Twelve of Michigan's harbors are designated harbors of refuge. There are 137 private marine terminals located in Michigan's commercial harbors that typically handle nearly 100 million tons of cargo annually. Within Michigan's Coastal Zone Management boundary, there are approximately 500 marinas (25), 90 public boating access sites and 490 public access sites (26).



Soo Locks, Sault Ste. Marie, Mich. *SuperiorTrails*



Great Lakes freighter. *BoatNerd.com*



Muskegon, Mich. *Marge Beaver, Photography Plus*

SHIPPING TRENDS AND FORECAST

According to the National Working Waterfront's economic analysis, between 1997 and 2010, the total tonnage of marine port shipments in waterfront counties in the U.S. increased approximately 30 percent to 1.51 billion tons. The value of these shipments was \$1.551 billion in 2010 — an increase of more than 70 percent since 1997. The forecast for shipping tonnage in the U.S. in 2020 is 1.89 billion tons and valued at \$2.216 (in 2010 dollars) (32).

While the total national value and tonnage of shipping increased between 1997 and 2010, the value and tonnage of shipping did not increase in all regions of the Great Lakes. The Great Lakes-East region experienced a decline in shipping value and tonnage of 20 and 23 percent respectively, and the Great Lakes-West region experienced an increase in value of 6 percent and a decrease in tons of 19 percent during this time period. Similarly, shipping value and tonnage declined in the Michigan Great Lakes-East region and increased in the Michigan Great Lakes-West region (Table 3) (32).

Marine Port Shipments in Michigan, the Great Lakes Region and all U.S. Coastal Regions, 1997-2010								
Region - State	1997		2010		1997-2010 Average		1997-2010 change (%)	
	Tons (million)	Value (billion \$)	Tons (million)	Value (billion \$)	Tons (million)	Value (billion \$)	Tons (million)	Value (billion \$)
Michigan								
MI Great Lakes-East	7.2	5.6	4.3	3.9	5.9	5.9	-40%	-30%
MI Great Lakes-West	8.8	1.6	13.1	2.0	12.9	1.5	49%	29%
Great Lakes								
Great Lakes-East	28.8	8.4	22.2	6.8	28.1	8.6	-23%	-20%
Great Lakes-West	26.6	5.2	21.6	5.5	27.6	5.3	-19%	6%
Total All U.S. Regions	1,160.1		1,507.5		1,385.1		30%	

TABLE 3. VALUE AND WEIGHT OF MARINE PORT SHIPMENTS IN MICHIGAN, THE GREAT LAKES REGION AND ALL U.S. COASTAL REGIONS FROM 1997-2010 (32).

GREAT LAKES ST. LAWRENCE SEAWAY SYSTEM IMPACT STUDY

In 2011, a coalition of U.S. and Canadian Great Lakes-Seaway marine industry stake holders sponsored an analysis of the impact of the Great Lakes-St. Lawrence Seaway System. According to this analysis, nearly 20 percent of the 322.1 million metric tons of cargo handled on the Great Lakes-St. Lawrence Seaway in 2010 were handled by Michigan ports and marinas in 2010. In Michigan, maritime commerce on the Seaway in 2010 generated: 26,819 jobs, \$1.88 billion in personal income, \$3.91 billion in in-state revenue and \$637.55 million in local purchases (34).

Major commodities shipped on the Great Lakes include iron ore, coal, coke, salt, stone, steel, agricultural products, and manufactured and processed products (35). The majority of this cargo is inter-lake cargo moving to and from other ports on the Great Lakes System. Only 3 percent moves through the St. Lawrence Seaway for international shipping (36).



FIGURE 4. GREAT LAKES-ST. LAWRENCE SEAWAY WITH COMMERCIAL AND RECREATIONAL FEDERALLY AUTHORIZED HARBORS.

RECREATIONAL HARBORS AND BOATING

Recreational harbors and boating are interdependent and important components of Michigan's water-based tourism and recreation industries. Recreational harbors provide key services. Of the 43 federally authorized recreational harbors in Michigan:

- 16 are harbors of refuge that provide shelter and safety.
- 10 house ferry operations and provide transit services.
- 5 host U.S. Coast Guard search and rescue stations.
- 5 are subsistence harbors that isolated island communities rely on for goods and services (44).

In addition to these services, recreational boating supports a variety of water-dependent businesses and non-water-dependent businesses.

A 2009 Great Lakes Commission report found that spending on boats and activities in Great Lakes states was approximately \$16 billion in 2003. This spending supported 107,000 jobs directly and as many as 244,000 when secondary impacts such as watercraft manufacturing and sales and charter fishing were included (44). In addition to supporting jobs, boating activity has a significant economic impact on the region as well, including \$19 billion in sales, \$6.4 billion in personal income and \$9.2 billion in value added (44). Recreational harbors are an anchor for new, upscale development along the Great Lakes and are important to the restoration of former industrial waterfronts (44). Figure 5 displays annual recreational boating spending in Michigan, where trip spending is the amount boaters spend on each trip, and craft spending is the amount boaters spend to maintain their boats over the year as well as the secondary impacts of this spending (44).

TRENDS

Although recreational boating contributes significantly to the local and regional economy, trends indicate that this industry is not as strong as it was a decade ago. Nationally, the number of registered boats in the U.S. increased from 1980 to the early 2000s, stabilized, then declined from 2008-2011. In Michigan, all boats (except privately owned non-motorized canoes, kayaks or rowboats less than 16 feet) require a permit. Michigan ranked fourth in the nation in 2011 with 803,391 registered boats or 6.6 percent of the total number of registered boats in the U.S. (45). The number of registered boats in Michigan has declined since 2002 (Figure 6).

Annual Recreational Boating Spending in Michigan			
	Trip	Craft	Trip + Craft
Sales \$ million	2,362	1,543	3,905
Jobs	34,064	17,265	52,329
Personal Income \$ million	796	546	1,342
Value Added \$ million	975	937	1,913

FIGURE 5. ECONOMIC IMPACT OF ANNUAL RECREATIONAL BOATING SPENDING BY TRIP AND CRAFT (44).

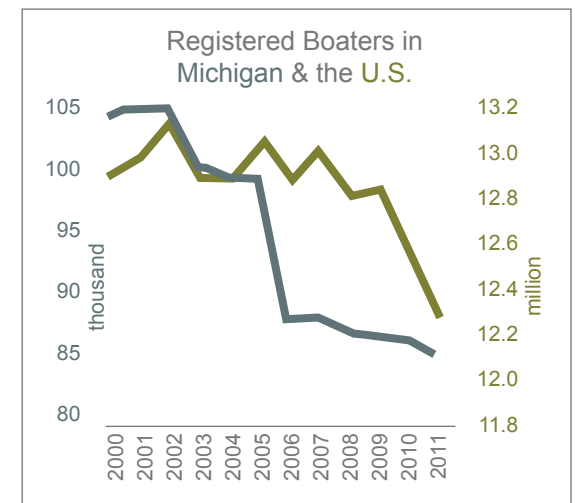


FIGURE 6. NUMBER OF REGISTERED BOATS IN MICHIGAN AND IN THE U.S. FROM 2000-2010 (45).

FISHING

Fishing is another valuable industry that is dependent on working waterfronts. The following information is not meant to serve as a comprehensive analysis of the value of all fishing in Michigan and the Great Lakes, but to summarize some of economic data and statistics available.

CHARTER FISHING

Charter fishing is a popular recreational activity in Michigan. Michigan Sea Grant and Michigan State University's Center for Economic Analysis analyzed the economic impact of charter and commercial fishing in Michigan. Since 1985, charter fishing parties spent an average of \$1,262 per trip (48). In 2009, charter fishing contributed \$14.9 million and more than 343,000 labor hours to coastal communities. Out-of-state tourists made nearly 3,000 charter fishing excursions, generating more than \$2 million in labor income in Michigan in 2009. This represents a 34 percent decline in the number of trips made by out-of-state tourists since 1990. With the exception of trips booked out of the Detroit and Flint metro areas (where reservations declined by 75%), charter fishing trips made by Michigan residents have increased by 15 percent since 1990 (49).

The Great Lakes Sea Grant Network conducted a comprehensive survey of the Great lakes charter fishing industry to better understand the status, characteristics and economy of charter fishing in the Great Lake. The study showed that in 2002, there were 468 licensed Michigan captains — almost 14 percent fewer than the 543 captains identified in a similar study in 1994 (49). The majority of charter fishing businesses are located on Lake Michigan (Figure 7). Charter captains make an average of 18.3 full day and 40.9 half day paid charter trips per year. Approximately 80 percent of customers travel more than 50 miles for charter trips. The approximately 27,7000 charter trips made by captains in 2002 generated approximately \$10.1 million in gross sales, which represents an increase from 1994 sales (49).

Nearly 20 percent of survey respondents rely on charter fishing as their primary source of income and almost all respondents indicated that they owned their own business. The average captain has been licensed for 14 years. The most significant problems facing the charter industry include the economy, the impacts of invasive species, boating equipment and operating costs, and the lack of fish or reduced fish abundance. Almost 18 percent of captains reported that they plan to leave the industry in the next five years (49).



Fishtown, Mich. Elizabeth Durfee



Manistee, Mich. Elizabeth Durfee

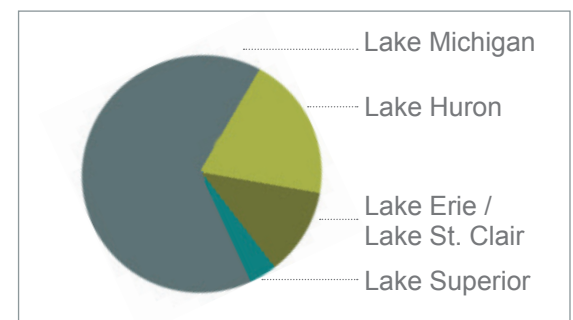


FIGURE 7. HOME PORT OF MICHIGAN CHARTER FISHING CAPTAINS (49).

SPORTFISHING

The American Sportfishing Association found that 1.5 million anglers in the Great Lakes contribute \$2.5 billion in expenditure/retail sales with a total multiplier effect, or economic output, of \$7.1 billion. Sportfishing in the Great Lakes annually contributes \$2.2 billion to salaries, wages and business earnings, 58,291 jobs and \$910 million in federal, state and local taxes (50).

With a total expenditure of \$2.1 billion in 2006, Michigan ranks among the top 10 states for angler expenditures (50). The ripple effect of this expenditure was \$3.7 billion. Sportfishing contributed \$1.1 billion in salaries, wages and business earnings and 27,348 jobs. In addition, sportfishing contributed a total of \$227 million in state and local tax revenues and \$251 million in federal taxes (50). In 2006, there were nearly 1.4 million anglers in Michigan, 318,000 of whom were non-residents. Approximately 33 percent of these anglers fished a total of almost 7 million fishing days on the Great Lakes (50).

Great Lakes salmon and trout tournaments provide an economic boost to coastal communities, attracting tourists and creating a festive atmosphere. A study of 2009 Lake Michigan Tournament Fishing found that the spending of captains and their fishing and travel parties generated an average of more than \$53,000 in output per tournament. The 16-tournament Lake Michigan Tournament Trail resulted in \$310,189 in personal income and 21,368 employment hours in coastal communities along Lake Michigan in 2009 (51).

The one-weekend Grand Haven Salmon Festival, for example, resulted in \$578,000 in non-tournament activity economic output and more than \$33,000 in economic output from a fishing contest (51).

COMMERCIAL FISHING TRENDS

Commercial fishing was once a thriving industry in Michigan. Today the few commercial businesses that remain are typically small, family-run operations. Although catch and the value of fish caught has declined, commercial fisheries in the Great Lakes harvest millions of pounds of fish. In 2010, U.S. commercial fishers harvested 17.8 million pounds of fish from the Great Lakes at a value of \$17.2 million (47). This represents a 71 percent decline in pounds of fish caught from 1975. Michigan commercial fishers caught 9.2 million pounds of fish at value of \$7.9 million in 2010, which is approximately 28 percent less than catch in 1975 (47).



Fishermen displaying their catch. *MichiganSportfishing.com*



Charterboats in Manistee Harbor. *Michigan Sea Grant*

COASTAL TOURISM

Tourism is one of the many ecosystem services that the Great Lakes provide. Many people visit the coast to sightsee, visit historical sites, explore small coastal towns and enjoy the numerous recreational opportunities. Coastal communities have a unique opportunity to capitalize on the value of a healthy, bustling waterfront by creating waterfronts where visitors and working waterfront activity coexist. Beaches, coastal parks, boat launches, historical sites and places where people can view freighters or a commercial fisher's catch, for example, attract visitors.

While it is challenging to capture the value of these coastal tourist activities, available data and statewide studies on tourism, park visitation and the economic impact of beach closures, for example, can be used to supplement the ocean- and Great Lakes-related tourism and recreation data from the National Ocean Economics Program.

Tourism and recreation are important to Michigan's economy and quality of life. The most common pleasure trips to Michigan involve driving or general touring, outdoor recreation, shopping and dining or visiting a small city or town (37).

One indication of the strength of the tourism industry is the fact that the economic recovery of tourism is outpacing the recovery of the rest of the economy. In 2012, global tourism grew by 3.2 percent, whereas the world economy grew by 2.3 percent (38). Travel spending in Michigan increase by 6 percent in 2012 and is projected to increase by 5.5 percent in 2013. Travel volume in Michigan is projected to increase by 3 percent in 2013 (38).

Research on the value of tourism and recreational boating in the Upper Great Lakes for the International Joint Commission found that 60 percent of the \$16 billion of tourist spending in Michigan was spent in coastal counties in 2007 (39).

One study of tourism volume and spending in Michigan found that in 2010 (40):

- There were 187 million person days.
- 82% of visits were for leisure.
- 47% of visits were from non-residents.
- Visitors spent \$12.6 billion for leisure.
- Non-resident visitors spent \$9.3 billion.
- Tourism supported 152,000 jobs.



Grand Haven, Mich. Cory Morse



Fishtown, Mich. Elizabeth Durfee



Thunder Bay National Marine Sanctuary, Alpena, Mich. MichiganTrails

COASTAL NATIONAL PARKS

Visitation to Michigan's Sleeping Bear Dunes and Pictured Rocks National Lakeshores increased by 14 and 6 percent, respectively, from 2011 to 2012. Similarly, there were 5 percent more visitors to Isle Royale National Park in 2012 than 2011 (38). Approximately 60,000 people visit the Thunder Bay Marine Sanctuary Great Lakes Maritime Heritage Center annually (41).

STATE PARKS

There are nearly 100 state parks in Michigan, with a total area of approximately 292,000 acres (41). Approximately 22 million people visit Michigan State Parks annually. State park tourism is growing: there were approximately 6 percent more camping visits at Michigan state parks and 9 percent more visits to KOA Recreational Vehicle sites in 2012 than 2011 (38). Approximately 65 percent of state parks and recreational areas are in coastal counties and 50 percent are in coastal communities (42). State parks in communities adjacent to the coast account for approximately 57 percent of the total statewide area of state parks and recreational areas (292,000 acres)(Figure 8)(42).

BEACHES

Michigan has nearly 600 public beaches that attract visitors and spending, offer extensive recreational opportunities and provide habitat for numerous species of plants and animals. Ensuring adequate water quality of Michigan beaches is crucial to realizing the recreational value of these beaches.

A Michigan State University (MSU) Great Lakes Beaches Valuation study used data about beach visits, surveys and a model to estimate the value of keeping Great Lakes beaches open. Based on results from a 2004 Michigan Tourism Industry that found that 14 percent of the nearly 95 million person-trips taken in Michigan in 2002 were associated with beach or waterfront and a second study reporting 36 million person-trips to Michigan Great Lakes beaches, researchers concluded that:

- Reducing beach closures by one day a year increases seasonal aggregate welfare by \$12-34 million.
- Closing an individual site would result in a seasonal aggregate loss ranging from \$130,000 to \$24 million.
- Closing all sites on Lake Michigan would result in a seasonal aggregate loss of up to \$2.7 billion (43).



Sleeping Bear Dunes, Glen Arbor, Mich. trekearth.com

65% of State Parks and Recreational Areas are in coastal counties

50% of State Parks and Recreational Areas are in coastal communities

292,000 acres of state park land in Michigan

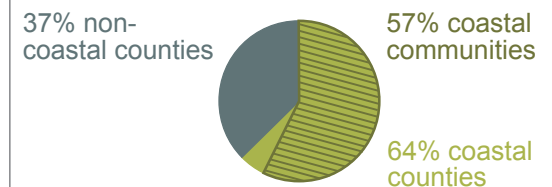


FIGURE 8. PERCENT OF STATE PARKS AND RECREATIONAL AREAS IN COASTAL COUNTIES AND COMMUNITIES BY TOTAL NUMBER OF PARKS (TOP) AND BY AREA (BOTTOM) (42).

INFRASTRUCTURE AND HARBOR MAINTENANCE

INFRASTRUCTURE

Aging harbor infrastructure is an increasing threat to the viability of harbors and working waterfronts. According to the U.S. Army Corps of Engineers (USACE), over half of the structures (piers, breakwaters, etc.) in Great Lakes communities were built before World War I. More than 80 percent of harbor structures are older than the typical 50 year design life span and many are over 100 years old. Lower lake levels and greater exposure to air accelerates deterioration of older, timber frames (52). USACE's infrastructure assessment shows a high risk of failure for Great Lakes Harbor structures (53).

DREDGING

Sedimentation, or deposition of clay, silt and sand and littoral or longshore drift, are natural processes that move sediment and sand down rivers and along the shoreline, often filling in harbors. Agricultural practices, impervious land cover and harbor infrastructure can increase sedimentation in harbors. As a result, many Great Lakes harbors require regular dredging to maintain adequate draft for vessels moving in and out of the harbor.

Low harbor depth has significant implications for transportation, the economic efficiency of shipping, recreation and tourism. The Lake Carriers' Association indicates that slight decreases in available depth significantly reduce a vessel's carrying capacity. A 1000-foot vessel of the Great Lakes fleet, for example, loses 270 tons of cargo for each inch reduction in draft (54). Without dredging, over 70 shallow draft harbors in the Great Lakes would eventually be cut off. Implications of this include reduced access and safety for recreational boating, decline in the viability of water-dependent businesses such as charter fishing and decline in property value, for example. Further, property values may fall as much as 30-50 percent if lakes with access to the Great Lakes become inland lakes (lose that access) (55).

About half of the 5 million cubic yards of material removed annually is considered polluted or otherwise not suitable for open water disposal and placed in one of 43 Confined Disposal Facilities (CDFs). Constructed by the Army Corps after the River and Harbor Act of 1970 authorized diked disposal facilities for the Great Lakes, the CDFs were expected to be used for 10 years but are still in use due to extensive accumulation of contaminated bottom sediments. Many CDFs are filled to capacity and additional capacity or alternatives to disposing dredged material is needed (54).



Damaged timber crib. Gene Clark



Leland Harbor. UpNorthLive



Low water level and exposed dock frame. Lisa Borre

FUNDING FOR DREDGING

The lack of funding for dredging is a major threat to water-dependent uses and the communities that rely on revenue associated with activity in their harbors.

In 1986 the Harbor Maintenance Trust Fund (HMTF) and Harbor Maintenance Tax (HTM) were authorized with the passing of the Water Resources Development Act. The HTM is a 0.125 percent ad valorem tax on cargo moved through federally maintained harbors and waterways to be used for USACE operations and maintenance of federally maintained ports and harbors. In 1990, the shipping industry's responsibility for the tax increased from 40 percent to 100 percent (55). While recent tax collections have been \$1.2 - 1.4 billion, spending on harbors has been just over \$700 million. A significant portion of the tax revenue is not being spent on harbor maintenance (57).

The total annual cost of dredging shallow draft (\$10 million), commercial draft (\$10 million) and maintaining infrastructure (\$20 million) in the Great Lakes is \$50 million (57). One study estimates that the annual economic impact of Great Lakes Harbors is \$5.5 billion, indicating a significant return on investment in harbor maintenance (57). In 2012, 28 ports, waterways and harbors that shipped greater than 1 million tons annually were eligible for federal dredging funding. Thirty-five commercial harbors that shipped less than 1 million tons and 74 shallow draft harbors were not eligible for funding. A total of 6 ports, 3 waterways and 2 harbors were funded in 2012 (57).

In March 2013, legislation that created \$21 million for emergency dredging was enacted. Legislators appropriated \$11.5 million from the general fund and redirected \$9.5 from a fund overseen by the Michigan State Waterways Commission for the dredging. Forty-nine facilities have been identified to receive emergency dredging funds and an additional nine locations have been approved for funds.

Sustainable solutions to managing harbor levels and access are needed. U.S. Department of Transportation Great Lakes survey respondents agreed that insufficient dredging of ports was the most important infrastructure issue in determining future investment decisions (59). Under falling water level scenarios, dredging along the Great Lakes-St. Lawrence shipping route would cost between \$92 and \$154 million annually by 2030 (59).



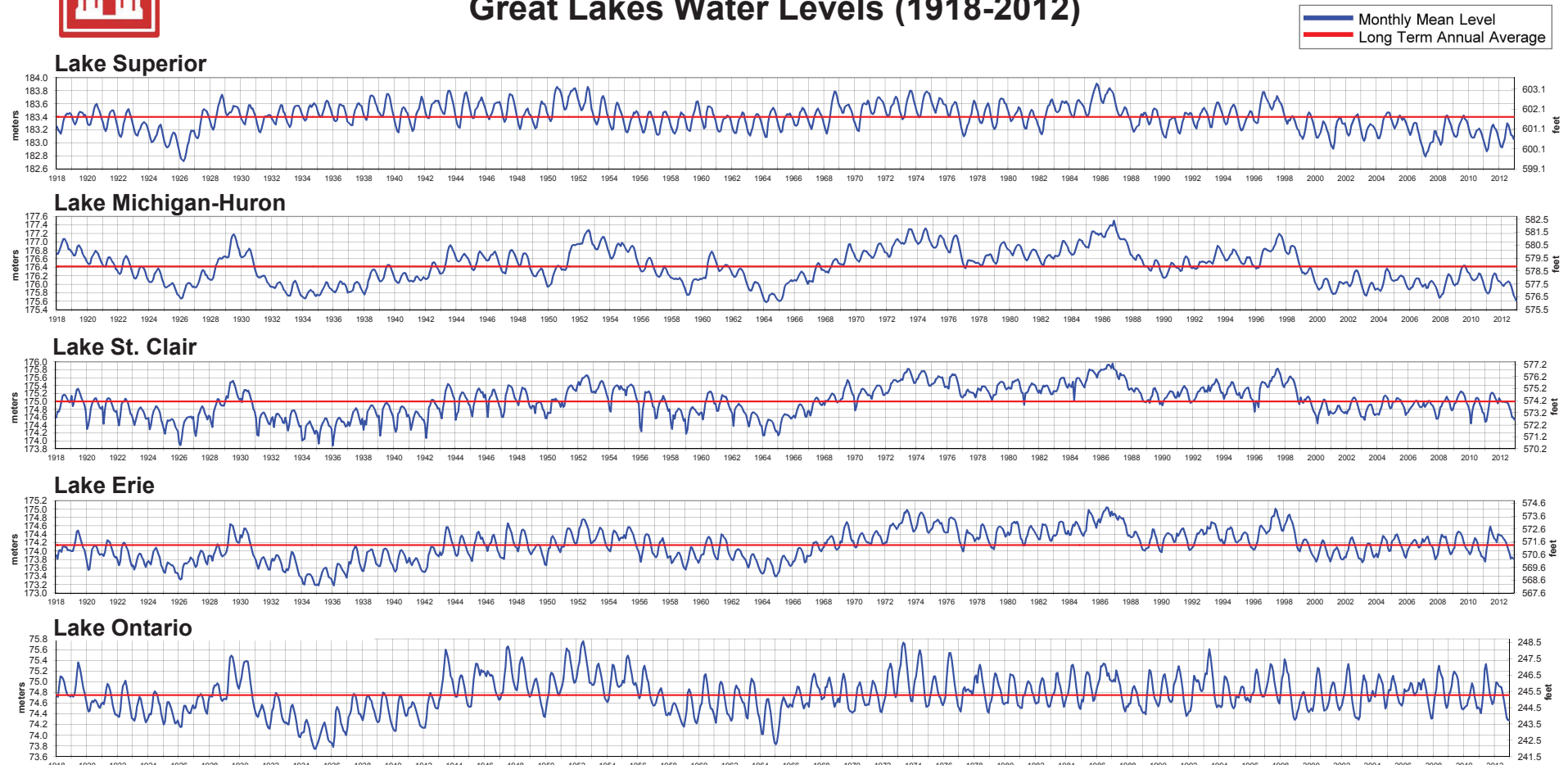
Dredge excavating a harbor. *St.JamesMarina.com*

LAKE LEVELS

Recent low lake levels have compounded the need to manage sediment in harbors. In January 2013, Lake Michigan and Lake Huron reached record low water levels of 576.02 feet (56) (Figure 9). This was more than 33 inches below the long term average (578.50 feet) for the period of record from 1918 to the present. Since the late 1990s, average monthly seasonal highs only surpassed this long term average in the summer of 2009 (56). Future changes in precipitation, temperature, storm events and water levels may result in greater dredging needs and adaptation of coastal infrastructure.



Great Lakes Water Levels (1918-2012)



The monthly average levels are based on a network of water level gages located around the lakes.

Elevations are referenced to the International Great Lakes Datum (1985).

FIGURE 9. MONTHLY MEAN AND LONG TERM AVERAGE GREAT LAKES WATER LEVELS FROM 1918-2012 (56).

RELEVANT AUTHORITIES AND PROPOSED LEGISLATION

Authorities that preserve land for water-dependent uses, foster collaborative and organized harbor management, and enable the generation of funds for maintenance, for example, are one tool to protect water-dependent uses and economic benefits working waterfronts provide to the local and regional economy.

PORT DISTRICTS ACT 234 OF 1925

The 1925 Port District Act allowed for the creation and establishment of port districts and prescribed their rights, powers duties and privileges. The Port of Monroe in Monroe, Mich. was established in 1932 pursuant to the Port District Act of 1925. The act was repealed in 1966 (29).

HERTEL-LAW-T. STOPCZYNSKI PORT AUTHORITY ACT 639 OF 1978

The 1978 Hertel-Law-T. Stopczynski Port Authority Act authorizes the establishment of port authorities in cities and counties, and prescribes the powers and duties of port authorities, cities and counties. The Detroit/Wayne County Port Authority in Detroit, Mich. was established pursuant to this act.

WATER RESOURCE IMPROVEMENT TAX INCREMENT FINANCE AUTHORITY ACT 94 OF 2008

The 2008 Water Resource Improvement Tax Increment Finance Authority provides for the establishment of a water improvement tax increment finance authority and prescribes the powers and duties of the authority such as acquisition and disposal of interests in real and personal property, creation and implementation of development plants and issuance of bonds. The Kalamazoo Lake Harbor Authority was established pursuant to the Water Resource Improvement Tax Increment Finance Authority Act 94 of 2008. In 2013, SB 218 amended the Water Resource Improvement Tax Increment Finance Authority Act to allow for the creation of new authorities, allow for dredging and other improvement projects to be financed under the act and allow harbors and their tributaries to be included within resource improvement districts.

REALIZE AMERICA'S PROMISE ACT H.R. 355 (RAMP ACT)

The proposed RAMP (Realize America's Promise) Act (H.R. 335) would mandate that 100 percent of Harbor Maintenance Trust Fund is spent annually for its intended purpose to maintain the Nation's federal harbors. The bill was assigned to a congressional committee in January 2013 (58).



Port of Monroe, Mich. Elizabeth Durfee



Detroit/Wayne County Port Authority. Crains Detroit



Kalamazoo Lake. Saugatuck/Douglas CVB

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