**The Road Best Traveled**
by
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The state of Michigan is covered in beautiful geographical features. While Michigan is well-known for its Great Lakes, it also contains an assortment of waterfalls, inland lakes, forests, rivers, dunes, islands, and so much more. Although a single trip will not allow anyone to see all that Michigan has to offer, a self-paced road trip around the two Peninsulas would be beneficial to see a majority of the state’s greatest geographic sites. This planned road trip starts in Lansing, Michigan’s capital city, and loops around the Lower and Upper Peninsulas, stopping at some must-see sights and hidden gems.

**Detroit**

 To start off, we leave from our home in Lansing and head down I-96 to Detroit. Here in Detroit, we will explore Lake St. Clair, and the Detroit River.

*Detroit River*

 The Detroit River is a great site to see not for its beauty, but for its history and significance to the city of Detroit. The Detroit River is an international river, shared by the United States and Canada, serving as a border between the two countries. This position was incredibly important during the years of Prohibition, because just like Lake St. Clair to its north, the river was used for smuggling alcohol from Canada to Michigan (Eller, 2015). Actually, the Detroit River accounted for a majority of the alcohol smuggled into the United States. Because of this, the Lake St. Clair and Detroit River area have been known as the “Windsor-Detroit Funnel,” (Eller, 2015).

 Today, because we have the 21st Amendment, alcohol sales are legal. Thus, the Detroit River is now used mostly for recreational and economic shipping purposes (Eller, 2015). On your trip to Detroit, you can kayak along the river and explore the canals and small islands that reside there, or take a bigger boat to explore some larger islands within the river.

*Bois Blanc*

One island in the Detroit River that you may be particularly interested in is Bois Blanc Island, a Canadian island also known as Bob-Lo Island. To those of you who speak French, Bois Blanc translates to “white wood.” This name comes from the French colonists and Wyandot Indians, who alluded to the “white wood” appearance given off by the poplar and birch trees that lined the edges (Encyclopedia of Detroit, n.d.).

The island had been variously under the occupation of Native Americans, French, British, Americans, and Canadians, and its use changed with each occupation (Livingston, 2008). When Native Americans inhabited the island, they lived peacefully, farming the fertile soils (Encyclopedia of Detroit, n.d.). When the French settled there, they built a Jesuit mission that lasted several years until it was wiped out by a rival band. The British bought the land from the Native Americans and made it a military fort after being removed from Detroit at the end of the Revolutionary War. They had built several blockhouses, one of which is still standing and can be visited today, to protect themselves from any American invasions (Livingston, 2008). After the United States made the claim that Bois Blanc stood in U.S. waters, the British moved to a new fort across the river. After a period of time where there were border disputes and the island was being sold to various individuals, the island eventually became Canadian land, as well as a beloved amusement park for Canadians and Americans alike (Livingston, 2008).

In the late 1800s until the late 1900s, the island became the site for Bob-Lo Park, a unique amusement park with a dance pavilion, Swan Boats, a train that circled the island, and much more (Encyclopedia of Detroit, n.d.). Today, the island is completely residential with very few remnants remaining. If you dock a boat on the island, you may be able to see some of the few remnants left, such as the once-popular Space Needle, the passageway into the park, the theatre, the old Dance Hall, and a few lamp posts scattered here and there (Pevos, 2019). Even though the island is not as popular as it once was, it is still a cool hidden gem.

*Lake St. Clair*

 Lake St. Clair, located between the Detroit River and the St. Clair River, is often thought about as the forgotten sixth Great Lake. The lake is shared between Michigan and Ontario, Canada, which makes it an important part of trade and transportation between the two areas. This lake has also been incredibly important for shipping, as it contains the only shipping channel between the upper lakes and the lower ones.

 Lake St. Clair is an incredibly shallow lake, with the greatest natural depth only reaching 21 feet (Great Lakes Sailing, n.d.). This is because it is a “Sag Lake,” a lake that has formed on a former outwash or lake plain (Schaetzl, 2021). Lake St. Clair lies on the old lake plain of Glacial Lake Maumee (Schaetzl, 2021). Because the lake is so shallow, but also important for shipping, it often needs to be dredged to keep ship traffic moving from the St. Clair River to the Detroit River (Schaetzl, 2021).

 The Lake St. Clair Delta is also the largest freshwater delta in the world, and mostly public land (Schaetzl, 2021). When visiting here, you can go fishing, swim or kayak, view wildlife in the marshy areas of the delta, and watch as the ships go passing through.

Detroit is a bustling city with so many interesting things to do and see, so plan to stay in the city for as long as you need to explore everything the city has to offer.

**Port Austin**

 After spending time taking in Detroit, we begin to move North. Up at the tip of Michigan’s thumb lies Port Austin, which has a surprising amount of history. Here, we will be able to see Turnip Rock, the old Grindstone City, and learn about the area's history at the Port Austin History Center.

*Turnip Rock*

Turnip Rock was once a part of the mainland of Michigan, but today, it is a small island off the coast of Port Austin. Over the course of a thousand years, the crashing of waves of Lake Huron transformed this piece of land into a giant lone rock with a few trees scattered across it (Huron County Park, n.d.). You can take a kayak to view this strange rock, and on your route, you can even check out the “sea” caves within this area known as Thumbnail Point.

*Grindstone City*

 In the 1800s, Aaron Peer and his crew came across giant, flat rocks across the shores and forests (Hardy, 2019). They collected the stones and determined that they were hard enough to use as sharpening stones and to grind grain (Schaetzl, 2021). These stones, grindstones, are unique to this area. They are formed in a very hard sandstone called the Marshall Sandstone Formation. This rock allowed for a small town to grow on the natural harbor, a town named Grindstone City (Hardy, 2019). This area became known as the Grindstone Capital of the World, as there was a growing demand for the town’s grindstones. While the town grew with the booming industry, new technology brought the grindstone industry to a permanent stop. Carborundum replaced grindstones, and suddenly Grindstone City became a ghost town (Hardy, 2019). Today, you can explore the ghost town as well as visit the last existing business from the original city, the Grindstone General Store.

**Alpena**

 Moving towards the top of the Lower Peninsula, we reach the city of Alpena. Alpena, and several other cities and towns in this area of Michigan share a strange geographic phenomenon. Karst is a type of topography that forms mainly in limestone and after a long interval of weathering (Schaetzl, 2021). Karst forms when there is limestone near the surface, and over time that limestone weathers and dissolves from percolating water to form underground caverns (Schaetzl, 2021). When these caverns collapse, everything above the cave falls in, creating a sinkhole (Schaetzl, 2021). Alpena may be known for being near Thunder Bay, but it is also known for having these sinkholes. While we will view hydrology such as Thunder Bay and the Thunder Bay River here, it is the Stevens Twin Sinks and Bruski Sinks where there may be more interest, as we will be able to see some preserved sinkholes in the area.

*Stevens Twin Sinks and Bruski Sinks*

The Stevens Twin Sinks and Bruski Sinks are two preserved sinkholes within the Northern Lower Peninsula. There are hundreds of sinkholes in this area, due to karst, but a majority of them are on privately owned property. The karst here has formed in Devonian limestones and shales that are on top of evaporites such as anhydrite and gypsum (The Michigan Karst Conservancy, n.d.). The evaporites eroded and created deep caverns, then the heavier rocks, limestone and shale, collapsed to create these sinkholes (The Michigan Karst Conservancy, n.d.). In visiting the Stevens Twin Sinks and Bruski Sinks, you are able to walk along the trails and see the Earth cracks where the sinkholes continue to sink.

**Mackinaw City**

 At the stop of the Lower Peninsula, we reach Mackinaw City. While the city itself is full of amazing things to do, for this trip we are using the city simply for its ferry boat ride to the beautiful Mackinac Island. While on Mackinac Island, we will explore the island and its culture, and maybe stop for a taste of some of their famous fudge.

*Mackinac Island*

 Native American legend says that Mackinac Island was created from the body of a great turtle. The legend states that long ago, the Earth was just water with no land in sight, yet there were animals that lived and played in the water all day long. There were ducks, otters and beavers, and there was a large and wise painted turtle named Makinauk (Wargin, 1999). Makinauk would let his friends climb on his shell to dry and rest, and he would tell them stories about the world of water. One day, Makinauk told the other animals that the Great Spirit spoke to him and said it was time to build a piece of land for all the animals to rest upon. All of the animals dove to the bottom of the water to try to pick up some soil, but none could reach the bottom (Wargin, 1999). Finally, a muskrat volunteered to swim to the bottom and grab some soil, and after hours of waiting, the muskrat returned to the surface and tossed the soil onto Makinauk’s back. The soil magically formed rocks, trees, and flowers upon the great turtle’s back until an island blossomed (Wargin, 1999). This is the legend of how Mackinac Island formed, and how Mackinac Island got its name. While the island does have a shape that somewhat resembles a turtle, the slopes of the island come from the two beach ridges that were created by postglacial Lake Algonquin and the Nipissing stage of the modern Great Lakes (Schaetzl, 2021).

 While the island is known for its horse-drawn carriages, fudge, and a lack of cars, it also has an interesting history. Mackinac Island was originally a summer fishing location for the Native Americans. Tribes used to paddle to the island and fish for whitefish, herring, trout, pike, and sturgeon, which were so plentiful that the Natives deemed these waters “home of the fish,” (Mackinaw City Chamber of Tourism, n.d.). These people were also the first to name the island, whose original name was Mitchimakinak, meaning “big turtle,” (Pure Michigan, n.d.). In the 1600s, the French found their way to the island, and Father Jacque Marquette established a mission for the Natives that lived there, though it was later moved to today’s Mackinaw City (Mackinaw City Chamber of Tourism, n.d.). French soldiers then built Fort Michilimackinac as a depot for the fur trade in Mackinaw City as well. The French remained there for some time before the British took control of the fort after the Seven Years War and moved the fort to Mackinac Island (Mackinaw City Chamber of Tourism, n.d.). After the Revolutionary War, however, the island and fort became part of the United States. When the War of 1812 broke out, the British snuck onto Mackinac Island in the darkness, surprising the Americans and causing them to surrender without a fight (Mackinaw City Chamber of Tourism, n.d.). Of course the Americans attempted to reclaim the island in the only battle ever fought on Mackinac Island, but they were badly defeated. In 1814, after the signing of the Treaty of Ghent, Mackinac Island and the renamed Fort Mackinac were returned to the Americans (Mackinaw City Chamber of Tourism, n.d.).

 Fort Mackinac is still standing on the island for you to tour, as well as many other old structures from the past inhabitants of the island. Even those who are not interested in history are sure to enjoy the tour. Then, there are multiple hikes and structures to see on the island as well. There is Arch Rock, an arch on the island that views the lake, formed through thousands of years of wind and water erosion. There is also the Sugar Loaf, which is a 75-feet-tall limestone stack created by erosion from postglacial Lake Algonquin.

 When you feel more like walking along the main street, stop at one of the multiple sweet shops to watch the famous Mackinac Island Fudge being made, grab some sweet treats, and take in the beautiful view.

Once we are back on the mainland, we can explore the tourist attractions of Mackinaw City and then hop back into our vehicles and begin our trek to the Upper Peninsula. Before crossing the Mackinac Bridge, you may want to stop at Wawatam Park for a good view of the bridge and take some frame-worthy pictures.

**Sault Ste. Marie**

 When visiting the Upper Peninsula, you must stop in Sault Ste. Marie to see the Soo Locks. You don’t need to be an engineer, or even be interested in engineering at all, to be amazed by the Soo Locks. These locks work by opening and closing gates to allow for a ship to transport from one water level to another without using pumps. Not only is this contraption a marvel of physics and engineering, but it is also a huge economic contributor.

 In the mid-1840s, iron and copper mines were starting up, and the only way to transport these ores was by water (Schaetzl, 2021). These mines were situated near Lake Superior, and in order to transport the ores South, ships needed to go through the St. Marys River, the only water connection between Lake Superior and the lower Great Lakes, to enter Lake Huron (Schaetzl, 2021). Transport here, however, proved to be an issue. The St. Marys River has a section known as the St. Marys Rapids, where the water falls 21 feet from Lake Superior to Lake Huron (Schaetzl, 2021). This drop made the water too shallow for ships to travel through, which was a problem for transporting ores. Initially, the mines would put the ores on a ship, and when the ship reached the rapids, the crew members would remove the ore from the ship in wagons, transport them past the rapids, and then reload the ore onto a new ship in Lake Huron (Schaetzl, 2021). This was obviously not an ideal or efficient method to get past this section of the river, and so, the construction for the Soo Locks began.

 In 1855, the Soo Locks opened, and they have been open ever since (Schaetzl, 2021). While there was only one lock at its opening, today there are four locks: the Poe, Davis, Sabin, and MacArthur locks (U.S. Army Corps of Engineers Detroit District, n.d.). One of the locks can allow for a 1000 foot freighter to move through, but this is currently changing. However, in a few years, there will be two locks that will allow these large boats to pass through, and there will be three locks total instead of the four (U.S. Army Corps of Engineers Detroit District, n.d.).

 These locks have allowed for billions of dollars worth of ore to pass through each year, they have created hundreds of thousands of jobs. Water that bypasses the locks flows through a canal and then a hydroelectric structure, generating electricity for the Eastern Upper Peninsula (Schaetzl, 2021). This Hydroelectric Power Plant, just north of the locks, generates over 150 kilowatt hours of electricity to operate both the Soo Locks and the surrounding areas (U.S. Army Corps of Engineers Detroit District, n.d.).

 When visiting the Soo Locks, you can take a tour boat that transports you through the Soo Lock system, and a tour guide gives you information about the history and workings of the contraption. It is also great if you have any other lingering questions, as there is so much information to take in when visiting.

**Tahquamenon Falls**

 After seeing the Soo Locks in Sault Ste. Marie, and before reaching Munising for the fantastic sites there, we must stop at Upper and Lower Tahquamenon Falls. The biggest waterfall in Michigan, this is another popular attraction you must see when visiting the Upper Peninsula.

 These falls, like several others in the Upper Peninsula, have formed along what is known as the Trempealeau Escarpment, an ideal area for waterfalls to form (Schaetzl, 2021). For a waterfall to form, there are several requirements. There needs to be hard bedrock for the waterfall to form on, a caprock, that is, a hard rock layer resistant to erosion, a soft rock layer underneath the caprock called the underbelly, and an escarpment, or cliff (Schaetzl, 2021). The Trempealeau Escarpment is formed from the Trempealeau Formation, which is made up of a perfect caprock stone called dolomite, and the Munising Formation, which is made up of a sandstone that serves as a nice underbelly (Schaetzl, 2021).

The Upper Tahquamenon Falls is the more popular of the two, with its 50 foot drop and voluminous flow. Many have deemed this place “Root Beer Falls,” which will become clear as soon as you see it (Schaetzl, 2021). The water of the falls is a deep brown color, caused by the swampy area upstream in the Tahquamenon Watershed (Schaetzl, 2021). The brown color of the water, paired with the foamy water at the bottom of the drop, does resemble a big mug of Root Beer, which is where the falls got its nickname.

Visit here on the way to Munising, rent a boat to row around the Lower Tahquamenon Falls, and take some pictures from the viewing deck. It should be a very nice day trip.

**Munising**

 The next stop is a popular one. Munising is a city that is surrounded by absolute beauty. Many tourists visit this location for the natural beauty that appears here, such as the Pictured Rocks, Sable Falls, Miner’s Castle, Munising Falls, and Chapel Rock. There is so much to see here that it would probably be best to spend several days here to really take everything in.

*Pictured Rocks*

 One of the most popular destinations to visit in Michigan is the Pictured Rocks National Lakeshore. Located off the coast of Munising, the Pictured Rocks is an extremely beautiful attraction. This is because of the steep vertical sandstone bluffs, formations, and of course, the colors of the rock.

The color of the rocks comes from the types of sandstone the coast is made up of, as well as the bright-colored stains near the bottom of the bluffs (Schaetzl, 2021). Pictured Rocks is made up of Jacobsville Sandstone and the Munising Formation (Schaetzl, 2021). Jacobsville Sandstone is a gorgeous red stone with white splotches in it, and can be seen in the bricks of several older buildings in the Munising and Marquette area (Schaetzl, 2021). This stone only makes up the Western side of the Pictured Rocks, and can be found in the lower areas. It can be quite obvious to spot, as you can see the red and white layering (Schaetzl, 2021). The majority of Pictured Rocks is made from the Munising Formation, a combination of Chapel Rock and Miners Castle sandstones. Chapel Rock lies above the Jacobsville sandstone and below Miners Castle sandstone. This sandstone is a reddish-brown color, so it creates a slightly darker layer above the Jacobsville (Schaetzl, 2021). The Minders Castle sandstone is at the top of the Pictured Rocks, and it creates great beauty along the coast due to its brighter white color, as compared to the reds of the other sandstones (Schaetzl, 2021).

While the color is a great part of the beauty seen along the coast of Lake Superior, it is the formations of the Pictured Rocks that add to the location's appeal. The Pictured Rocks has an assortment of arches and cave-like structures that were created by the waves of Lake Superior. The tall bluffs were created by waves, which eroded the stone to create the steep stone walls that allow us to view the sandstone layers (Schaetzl, 2021). Arches and caves were also created from waves eroding the stone, but many wonder how the formations are still standing. Chapel Rock, the layer nearest the water for most of the area, is a softer rock than Miners Castle (Schaetzl, 2021). Because of this, waves were able to undercut the weaker rock, while the harder rock kept the formation standing (Schaetzl, 2021). This process allowed for the formation of the arches and cave-like structures that add to the beauty of the Pictured Rocks.

To view the Pictured Rocks, you can either hike along the trails of the lakeshore, where you can hike to viewpoints such as the Chapel Rock and the Miners Castle, or you can take a boat tour. Both offer different experiences. Hiking provides a chance to have a closer look at the formations at your own pace, as well as the opportunity to climb along rock structures like the Miners Castle. The boat tour goes along the entire coast where you can view the entirety of Pictured Rocks, as well as look through the clear bottom of the boat to see shipwrecks in the lake. Whichever choice you make, it will be a good one.

**Marquette**

Like Munising, Marquette is a city surrounded by some of the best sites Michigan has to offer. Marquette has features such as Sugarloaf Mountain, Presque Isle Park, Dead River Falls, Wetmore Landing, and at certain times of the year, there are opportunities to see the Northern Lights!

*Dead River Falls*

 Like Tahquamenon Falls and all other falls, Dead River Falls needs certain circumstances in order to form. Unlike Tahquamenon Falls, however, the Dead River Falls did not form on the Trempealeau Escarpment. Instead, they formed along the Portage Lake Volcanics (Schaetzl, 2021). The Portage Lake Volcanics were formed by a series of subaerial lava flows that hardened into a rock called basalt (Schaetzl, 2021). Since lava flow has a unique characteristic that makes the lava harden into softer and harder rocks than the rocks above and below it, this formation was perfect for the making of waterfalls (Schaetzl, 2021). Due to the Portage Lake Volcanics, the Dead River Falls is more of a rapids because of the odd shapes of the rocks, but that makes this location more unique to see (Schaetzl, 2021).

**Copper Harbor**

 At the tip of the Keweenaw Peninsula, we reach Copper Harbor. If you decide to take a trip here in autumn, this is the perfect place to view the changing leaves, especially from the locations we will be focusing on here. Near this city, we can hike to the top of Brockway Mountain, view the Manganese Falls, search for Yooperlites along the shore at nightfall, and take a ferry to the island of Isle Royale.

*Isle Royale*

 An island in Lake Superior, Isle Royale has a lot of history to uncover. While we call the island Isle Royale, Native Americans would call the island “Minong,” meaning “a good place to get copper (*Isle Royale National Park,* n.d.). Before European settlers began mining copper in the Upper Peninsula, Native Americans would mine the metal and trade it with locations from across the country (*Isle Royale National Park,* n.d.). But this island is not just interesting for its copper history, it also is used for scientific research on predators and prey. This is because the island is filled with diverse wildlife, like moose and wolves that are constantly increasing and decreasing in population (*Isle Royale National Park,* n.d.). Not only is it an island of history, but one of science as well.

**Ontonagon**

 Right by the Wisconsin border, we reach the city of Ontonagon. Here, we will spend most of our time hiking the Porcupine Mountains, also known as the “Porkies,” and within the mountains we can view the spectacular Lake of the Clouds.

*Porcupine Mountains*

 Not many people realize that Michigan has its own set of mountains. They are not tall or pointed, but we have them. Surprisingly, not many people visit the Porcupine Mountains Wilderness State Park, making this location a quiet and remote one. It also makes this location perfect for backpacking, hiking, or camping in solitude.

 These mountains were formed from an anomaly within the Lake Superior Syncline. As the Lake Superior Syncline was forming, there was a ripple where the rocks folded up instead of folding down (Schaetzl, 2021). This folding up is called an anticline. This anticline is what formed the Porcupine Mountains. While other mountains across the country are pointed, the Porcupine Mountains look more like large hills, as they have been rounded off by glaciers (Schaetzl, 2021).

 This area includes more highlights than just solitude. There are several lakes hidden within the mountains, the best one being Lake of the Clouds (Schaetzl, 2021). The lake is nestled amid the thick forest, and is one of the most beautiful lakes anywhere. The forests are another highlight of the State Park, as it is a mostly virgin forest. The forest in the Porcupine Mountains is the biggest patch of virgin forest West of New York, and it truly is a beautiful sight to behold (Schaetzl, 2021). While visiting the Porkies is great in the summer, it is highly recommended to visit in the fall as the leaves change color. That way, you can see thousands of colorful trees over a rolling landscape.

**Traverse City**

 One of our last stops before ending our loop in Lansing is the one and only Traverse City. Traverse City is known for many things: cherries, Grand Traverse Pie Company, and of course, beaches. While you may want to enjoy the summer festivals, such as the annual National Cherry Festival, you should also spend some time at the gorgeous water attractions. Traverse City has Torch Lake, which is such a clear and perfect lake that it will ruin all other lakes for you. Then, when we are finally done with swimming, we can hike up Sleeping Bear Dunes and learn about the legend of how the dunes formed.

*Torch Lake*

 Upon visiting Torch Lake, it is guaranteed that all other lakes will be ruined for you. Torch Lake is one of the largest inland lakes in Michigan, but it is better known for its crystal-clear, Caribbean turquoise waters.

 Around 35,000 years ago, ice sheets readvanced into the area (Schaetzl, 2021). The ice sheet that advanced over this area of Michigan put tremendous pressure on the waters beneath it, causing the water to find an escape from under the ice (Schaetzl, 2021). The water had eroded the bed of the glacier to form tunnels. These tunnels stretched towards the Inner Port Huron margin, creating a tunnel channel lake (Schaetzl, 2021). This is the reason for the elongated shape of Torch Lake.

 The incredible color of the lake is caused by the sediments at the bottom of the lake. The sediments at the bottom of the lake are mostly pulverized limestones, which are lighter in color (Nace, 2018). There is also very low organic content, which means there is nothing to discolor or darken the water (Nace, 2018). This combination allows for the water to resemble the waters in the Caribbean Sea, which coincidentally, has the same combination of limestone and low organic content (Nace, 2018).

*Sleeping Bear Dunes*

 Sleeping Bear Dunes is a must-see location for every Michiganian, and anyone who visits Michigan. These perched dunes attract around one million people every year, and it is no wonder, as the tall dunes provide a beautiful view of Lake Michigan and the two islands off the coast (Schaetzl, 2021). While they can be exhausting to climb, the view is definitely worth the hike.

 The Ojibwa Native Americans have a legend for the formation of Sleeping Bear Dunes and the Manitou Islands directly off the coast (Schaetzl, 2021). The legend states that a mother bear and her two cubs were driven into Lake Michigan by a forest fire along the Wisconsin side of the lake (Schaetzl, 2021). The three bears swam across the lake to reach the opposite shore, but after miles of swimming the two cubs began to lag behind the mother. When the mother bear reached the shore, she climbed on top of a high bluff to wait for her cubs. The cubs had drowned in the lake, but still the mother bear sat on the bluff and waited (Schaetzl, 2021). The Great Spirit was impressed by the mother bear’s faith and determination, and created the North and South Manitou Islands in commemoration of the cubs (Schaetzl, 2021). Over time, the winds buried the mother bear under the sands of the dunes where she still sleeps, waiting for her cubs (Schaetzl, 2021).

 While the legend is both beautiful and melancholy, the dunes formed in a very different way. The dunes start as a massive, steep bluff made up of glacial outwash. When winds from the lakeside hit the bluff, they blow sand from the sandy bluff and dump it on top to form dunes (Schaetzl, 2021). As more winds come in, the dunes grow higher and higher. The lake levels also contribute to the formation and height of the dunes. When lake levels are high, the waves undercut the bluff, and the bluff slumps into the lake (Schaetzl, 2021). The slumping creates open sand along the bluff, allowing the wind to blow the sand up and the dunes grow (Schaetzl, 2021). When lake levels are low, the bluff stabilizes and becomes vegetated, and so, no sand is being added to the dunes (Schaetzl, 2021). Without more sand being added to the dunes, a layer of soil develops on top of the dunes, and vegetation grows on the dunes (Schaetzl, 2021). Once lake levels rise again, the bluff slumps, sand builds on top of the new vegetation, and the process continues.

 As the dunes are constantly being changed by wind and lake levels, it is almost fully guaranteed that if you visit the dunes more than once, it will not look entirely the same. This means that you can visit the dunes several times throughout your lifetime and it will never be a boring visit.

**Grand Rapids**

 The very last stop of our trip before ending our loop in Lansing is the one and only, Grand Rapids. Grand Rapids is filled with arts and culture, and it would probably be best to stay here for several days in order to see and do as much as possible. While you can decide what adventure is best for you, it is highly recommended that we view the Grand River, from which the city gained its name.

*Grand River*

 The Grand River is more than just an ordinary river, it is quite literally, a grand river. Over 15,000 years ago, Michigan had several glacial lakes: Maumee, Saginaw, and Chicago (Schaetzl, 2021). Glacial Lake Maumee drained north into Lake Saginaw, which then drained towards Lake Chicago through the Maple-Grand Channel (Schaetzl, 2021). For thousands of years, the Maple-Grand Channel carried meltwater from Lake Saginaw and Lake Maumee, allowing the flowing water to cut a very deep and wide channel that the Grand River still flows in today (Schaetzl, 2021). This is the reason for the immense size of the river.

In Grand Rapids, you can interact with the river in a variety of ways. You can view the river while taking a stroll over the city bridges, you can tour the river via kayak or canoe, you can fish for salmon and walleye, or you can even take a scenic cruise in a 19th century style steamboat (Experience Grand Rapids, n.d.).

**Lansing**

 After a long loop around the two Peninsulas of Michigan, we reach Lansing, the state capital of Michigan. Spend some time touring the capitol buildings, explore the murals around the city, view the smaller channel of the Grand River, or hammock near the Red Cedar River. Before you know it, you’ll be planning your next excursion to hit any Michigan sites you may have missed the first time around.

References

Eller, T. (2015, December). *Subject Focus: The Windsor-Detroit Funnel: Prohibition in Detroit*. Walter P.

Reuther Library. <http://reuther.wayne.edu/node/8334>

Encyclopedia of Detroit. (n.d.). *Bob-Lo Island.* Detroit Historical Society.

<https://detroithistorical.org/learn/encyclopedia-of-detroit/bob-lo-island>

Experience Grand Rapids. (n.d). *Grand Rapids Area Lakes & Rivers*. Experience Grand Rapids.

<https://www.experiencegr.com/things-to-do/outdoors/lakes-rivers/>

Great Lakes Sailing. (n.d.) *Welcome to Lake St. Clair*. Great Lakes Sailing.

<https://www.great-lakes-sailing.com/lake_st_clair.html>

Hardy, M. (2019, March). *History of the Thumb’s First Industry*. Thumbwind.

<https://thumbwind.com/2019/03/06/history-grindstone-city/>

Huron County Park. (n.d.). *About Turnip Rock in Port Austin*. Huron County Park.

<https://huroncountyparks.com/blog/about-turnip-rock-in-port-austin>

*Isle Royale National Park: The History & Beauty of a Treasured Wilderness.* (n.d.). National Park

Reservations. Retrieved April 3, 2021, from

<https://www.nationalparkreservations.com/article/isleroyale-history-beauty/>

Livingston, P. (2008). *Summer Dreams: the story of Bob-Lo Island*. Wayne State University Press.

Mackinaw City Chamber of Tourism. (n.d.). *History of the Straits of Mackinac Region*. Mackinaw City

Chamber of Tourism. <http://www.mackinawcity.net/mackinawcity/history/>

Nace, T. (2018). *Michigan’s Torch Lake Looks Exactly Like The Caribbean Sea.* Forbes.

[https://www.forbes.com/sites/trevornace/2018/06/11/michigans-torch-lake-looks-exactly-like](https://www.forbes.com/sites/trevornace/2018/06/11/michigans-torch-lake-looks-exactly-like-the-caribbean-sea/?sh=2433cdaa7013)

[-the-caribbean-sea/?sh=2433cdaa7013](https://www.forbes.com/sites/trevornace/2018/06/11/michigans-torch-lake-looks-exactly-like-the-caribbean-sea/?sh=2433cdaa7013)

Pevos, E. (2019). *These are the eerie remnants of Boblo Island Amusement Park*. mLive.

<https://www.mlive.com/travel/2016/08/these_are_the_eerie_remnants_o.html>

Pure Michigan. (n.d.) *How Did Michigan Cities Get Their Names?*. Pure Michigan.

<https://www.michigan.org/article/trip-idea/how-did-michigan-cities-get-their-names>

Schaetzl, R. (2021, March). *Deglaciation II* [Lecture Recording]. D2L@Michigan State

University. <https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10499160/View>

Schaetzl, R. (2021, March). *Glacial landforms I* [Lecture Recording]. D2L@Michigan State University.

<https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10518040/View>

Schaetzl, R. (2021, March). *Glacial landforms II* [Lecture Recording]. D2L@Michigan State

University. <https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10518466/View>

Schaetzl, R. (2021, February). *Glaciation intro* [Lecture Recording]. D2L@Michigan State University.

<https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10481313/View>

Schaetzl, R. (2021, February). *Great Lakes, shipping, and ice cover* [Lecture Recording]. D2L@Michigan

State University. <https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10384088/View>

Schaetzl, R. (2021, March). *Great Lakes water I* [Lecture Recording]. D2L@Michigan State

University. <https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10527172/View>

Schaetzl, R. (2021, January). *History of iron mining* [Lecture Recording]. D2L@Michigan State

University.

https://d2l.msu.edu/d2l/le/content/1120397/Home?itemIdentifier=D2L.LE.Content.ContentO

bject.ModuleCO-10304522

Schaetzl, R. (2021, February). *Karst* [Lecture Recording]. D2L@Michigan State University.

<https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10477589/View>

Schaetzl, R. (2021, February). *Pictured Rocks NL* [Lecture Recording]. D2L@Michigan State University.

<https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10412617/View>

Schaetzl, R. (2021, March). *Sand dunes* [Lecture Recording]. D2L@Michigan State

University. <https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10524314/View>

Schaetzl, R. (2021, February). *Waterfalls* [Lecture Recording]. D2L@Michigan State University.

<https://d2l.msu.edu/d2l/le/content/1120397/viewContent/10419535/View>

The Michigan Karst Conservancy. (n.d.). *Stevens Twin Sinks and Bruski Sink.*

<https://caves.org/conservancy/mkc/preserve_tb.html>

U.S. Army Corps of Engineers Detroit District. (n.d.). *Soo Locks History*. U.S. Army Corps of Engineers.

[https://www.lre.usace.army.mil/Missions/Recreation/Soo-Locks-Visitor-Center/Soo-Locks-Hist](https://www.lre.usace.army.mil/Missions/Recreation/Soo-Locks-Visitor-Center/Soo-Locks-History/)

[ory/](https://www.lre.usace.army.mil/Missions/Recreation/Soo-Locks-Visitor-Center/Soo-Locks-History/)

Wargin, K. (1999). *The Legend of Mackinac Island* (Frankenhuyzen, G. v., Illus.). Sleeping Bear Press.