

THE GREAT LAKES: CATALYSTS OF INDUSTRIAL EVOLUTION



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INTRODUCTION

Having been born and raised in Northern Michigan for my entire life, I consider the Great Lakes as being a central part of my childhood, my understanding of the world, and an anchor in my identity. Deeply and intimately immersed in the area, I lived just a few miles from the shores of Lake Michigan. Because I have lived in such close proximity to the lakes throughout my childhood, it was not until I was no longer living near the shores of Lake Michigan that I began to recognize the phenomenon of the Great Lakes outside of my memories. The Great Lakes are the largest group of freshwater lakes in the world, formed from water filling the voids created by the movement of monumental glaciers millions of years ago. They influence the daily lives of upwards of forty million American and Canadian citizens, and even more tourists visiting the region for recreational activities each year.

Even to someone who lived on the shores of Lake Michigan for twenty years, the depth and significance of the lakes' presence was not immediately apparent until I began researching the area further. I quickly realized the interconnected system of lakes have enabled the building of industrial empires, sustained agricultural prosperity, established transportation and shipping empires, fueled constant tourism, and provided millions one of the most culturally, environmentally, and geographically diverse places to call home on the planet. I wanted to share my newfound realization and appreciation for the Great Lakes with a greater audience by curating an abundance of historical information into *The Great Lakes: Catalysts of Industrial Evolution*.

The Great Lakes: Catalysts of Industrial Evolution demonstrates the growth of modern industries and processes in the Midwest during the industrial revolution of the nineteenth century. The development of these industries would not have been possible within the region without a vast array of resources provided by the Great Lakes. Each comprehensive illustration defines the lake wherein the most development of each industry took place. First, Superior outlines the region's vast mining production of raw and precious materials, and Michigan illustrates the development of the fur trade and interaction with indigenous peoples. Huron demonstrates the timber logging empire of old growth forests, while Erie describes the region's heavy industrialization and consequential pollution. Finally, Ontario explores the expanse of the maritime shipping industry after the construction of the St. Lawrence Seaway.

CONTEXTUAL DISCUSSION

INDUSTRIALIZATION OF THE GREAT LAKES REGION

Since the first development of human life on Earth, the establishment of civilizations have been centered around bodies of water. Water is imperative to bolstering and sustaining life in all forms. Large bodies of water provide drinking water for livestock and humans, as well as resources for irrigation and distribution of nutrients in fertile soil. The Great Lakes are the largest natural reservoir of fresh water in the world, allowing the inhabitants of the region to use the lakes' resources for countless life-supporting processes. As civilization has swiftly become more advanced, the Great Lakes have sanctioned the establishment of several massive industries revolving around the use of their resources, including mining, fur trading, timber logging, commercial manufacturing, and maritime shipping and transportation.

IMPERATIVE FUNCTIONS OF WATER IN MINING

The Upper Peninsula of Michigan is geologically vibrant, with native copper being one of its most abundant raw products. Mining in the Upper Peninsula began thousands of years ago with primitive tools, but has since advanced immensely. As noted in Readings in the Geography of Michigan, "profitable mining began in 1845 when...the first mass of native copper in place was discovered" (Davis, 1964). Stated in a first-hand account in Old Mackinaw, "All the hills and mountains surrounding Lake Superior, abound in valuable minerals of which copper is the most abundant...This region contains the most extensive copper mines in the known world" (Strickland, 117). Without the presence and proximity of Lake Superior to these mines, the raw materials would be nearly impossible to extract. Water is integral to mining operations – particularly for the extraction and processing of solid copper and other raw minerals, which involves quarrying and milling (the crushing, screening, washing, and flotation of mined materials). This point is reinforced by the International Council of Mining & Minerals, who state, "Access to a secure and stable water supply is critical to mining operations. Without water, a mine cannot operate. Water is required in hydrometallurgical processes (for example, to recover gold and copper from a solution of chemicals). Water is also required in pyrometallurgical processes (for example, in platinum and copper production) for cooling and other parts of the process" (2012).

REVOLUTIONIZING TRAVEL THROUGH THE FUR TRADE

The first European explorers began to settle in North America during the 1600s. Upon the arrival of French and British travelers, the discovery of thriving and expansive populations of animals with thick fur was made and quickly reported to their home countries. Countless fur trading companies were established in North America – most notably, The Hudson’s Bay Company, which remains one of the oldest commercial companies in the world, and the American Fur Company. According to Legends of America, “In 1817, Congress passed an act which excluded foreign traders from U.S. territory, making the American Fur Company the biggest in the Great Lakes region” (Weiser-Alexander, 2017). The market for fur pelts, predominantly that of the North American Beaver, subsequently boomed for the next two hundred years. Several forts were built on the shores of the Great Lakes as depot centers and trading posts, including Fort Michilimackinac, as a means to establish living spaces for Europeans to continuously trade with indigenous people and export furs through the St. Lawrence Seaway and back to Europe. Water travel proved to be much more efficient than traveling by foot on land, and European explorers learned to use birch bark canoes and flotillas from interacting with Native American populations.

TIMBER LOGGING IN THE MIDWEST

Millions of years ago, glacial movement in the Midwest displaced the land in their paths and tore great valleys through the earth, which then rapidly filled with water, creating the Great Lakes. The consequent mineral movement contributed to the development of rich soil, which directly fed into the expansion of old growth forests. According to the Center for Michigan History Studies, “The earliest lumbering was done by the French in order to build forts, fur-trading posts, and missions. The British, and later the Americans, used Michigan’s hardwoods to build merchant and war ships”(2018). The role of water in transporting timber cannot be overstated, and the distribution of sawmills along the banks of Lake Huron was strategic. Six rivers (the Chippewa, Tittabawassee, Cass, Bad, Shiawassee and Flint) converge to form the Saginaw River, which empties into Saginaw Bay and then Lake Huron. The logging process, as explained by the Center for Michigan History Studies: “Logs were pushed into rivers and floated to the mills. At the mills, the logs were sorted in the boom area, each identified by a log mark on the end of the logs. The end point of all this effort was the sawmill, typically located at the mouth of the river, on the Great Lakes” (2018).

MODERN MANUFACTURING AND COMMERCIAL GROWTH

The introduction of automotive mass production, as well as the use of large water supplies for manufacturing, sparked the second industrial revolution in the Midwest. Water is used industrially for fabricating, processing, washing, diluting, cooling, and transporting products; incorporating water into products; or for sanitation needs within the manufacturing facility. Without the Great Lakes’ proximity to the most heavily manufacturing-centric region in the Midwest, specifically Lake Erie, the growth of manufacturing would not have been or be possible. Additionally, cities with large populations along the banks of Lake Erie, like Detroit, Cleveland, Toledo and Sandusky, require massive amounts of water to supply populous areas with clean, safe water. As noted by Davis in Geography of Michigan, “Population concentrations require amazing amounts of water for domestic use for waste and sewage disposal, for air cooling, and for industrial operations. Some scholars think that the ultimate limit on the size of “megalopolises”, as great urban-suburban concentrations are called, will ultimately be set by water supplies” (1964).

MARITIME SHIPPING AND TRANSPORTATION INDUSTRY

In and of themselves, the Great Lakes are a single interconnected waterway. After the St. Lawrence seaway was built and opened in 1959, maritime shipping for commercial enterprises in eastern Canada and the American midwest were directly connected to the Atlantic. According to the St. Lawrence Seaway Management Corporation, “The seaway [from Lake Superior to the Atlantic] is 2,342 miles long, and the entire seaway system comprises 9,500 square miles of navigable waters, linked by three series of locks” (2018). Along these waters, the Canadian territories Ontario, Quebec, and New Brunswick, as well as the states of Michigan, Wisconsin, Minnesota, Illinois, Indiana, Ohio, Pennsylvania and New York, are all connected by the St. Lawrence Seaway. As noted by the St. Lawrence Seaway Management Corporation, “Three distinct vessel-operator groups serve the waterway. These include American and Canadian domestic carriers transporting cargo between ports within the system, and international ocean-going vessel operators that operate between ports within the system and ports located overseas” (2018). The sheer size of the seaway allows immense volumes of commoditized goods to be quickly transported great distances while cutting costs by delivering in bulk. As stated in The Geography of Michigan, “low shipping costs are available for coal, oil, limestone, iron ore, grains, wood products and other bulk materials, and for manufactured goods” (Davis, 1964).

RELEVANT ARTISTS, ARTISTIC STYLES, AND DISCIPLINES



Fig. 1: "Canyon Country", Charley Harper, 1986



Fig. 2: "Glacier Bay, Alaska", Charley Harper

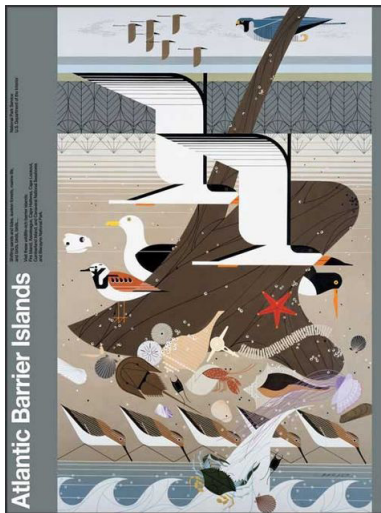


Fig. 3: "Atlantic Barrier Islands", Charley Harper



Fig. 4: "Michigan Audubon Society", Charley Harper

Fig. 1-4: Examples of Charley Harper's most beloved and best-selling designs, three of which were designed for the National Parks Service in the mid-to-late 1980s.

The late Charley Harper (1922-2007) was an accomplished and award-winning American illustrator whose work is both easily recognizable and well known. Harper's most renowned works include illustrations for the National Parks Service; several books, including *The Golden Book of Biology*; large zoos; and several nature and sanctuary centers across North America. His work for the National Parks Service, specifically, features landscapes filled with animals native to the parks and surrounding areas, and largely emphasizes the variety and complexity we find in these ecosystems. His modern cubism-inspired style incorporates bright, bold color and a systematic overlapping of geometric shapes, which he referred to as 'minimal realism', and was considered so unconventional and charming that his work has become considered extremely collectible. When asked as to why he worked in this unusual style, he responded, "When I look at a wildlife or nature subject...I regard the picture as an ecosystem in which all the elements are interrelated, interdependent, perfectly balanced, without trimming or unutilized parts..." (Lewis, 2007). This statement defines the organization of both his work and my own – the Great Lakes are incredibly strong entities whose environments, ecology, and history is so tightly woven into the development of modern midwestern American civilization that I find it impossible to separate them. In his work for the National Parks Service, Harper's illustrations demonstrate landscapes saturated with life. I intend to illustrate the developing industries in the Great Lakes region with the individuals who fueled their development by creating a landscape saturated with imagery which best represent the industries developing on the lakes. Though my illustrations do not reflect the same minimal style of Harper's work, my illustrations strongly resemble the complex content and organization observable in each of his pieces.



Fig. 5: "Das Boot (Variant) Poster" by Ken Taylor, demonstrating the style I imitated – based on intricate detail work and a strong color palette.



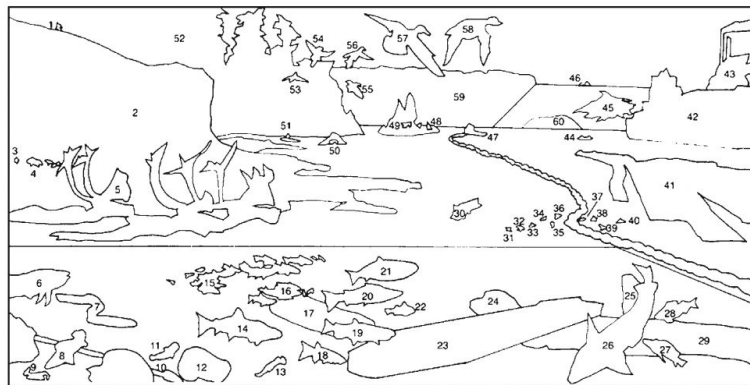
Fig. 6: "Primrose and Feather", Alfons Maria Mucha, 1899. One of my favorite pieces by Mucha, as it exhibits delicacy and complexity with gentle linework.

Ken Taylor (b. 1968) is a contemporary Australian digital illustrator whose work consists of highly complex gig posters for world-famous vocal groups – including Queens of the Stone Age, Metallica, Pearl Jam, Nine Inch Nails, Kings of Leon, Bob Dylan, and The Rolling Stones – as well as silkscreen movie posters illustrating characters from popular movies. His illustrations typically incorporate surrealist content and muted color schemes and largely employ black as a significantly striking tool to distinguish depth and consolidate most shadows into small, intricate color blocks. The content arranged in each of the illustrations is noticeably very detailed, and the figures, though often woven into abstract backgrounds, seamlessly connect and relate to every other object in the piece. My illustrations have such varied content surrounding the history of each Great Lake that in order to develop a cohesive series, it is crucial that I follow Taylor's footsteps in creating fluid and holistic compositions when incorporating various collaged historical photographs in each panel. I also find the detail in his digital illustrations inspiring, and I typically draw in the same method as Taylor does. He first renders each drawing in micron pen, loads them into Adobe Suite to color them, then prints them when finished.

The late Alphonse Maria Mucha (1860-1939) was the artist whose decorative art established and defined the art nouveau movement from the Czech Republic. He produced countless paintings, illustrations, advertisements, postcards, and designs in a distinctly recognizable style, which was "termed initially The Mucha Style but became known as Art Nouveau" (Dvořák, 1980). Though Mucha's work was seen as outdated toward the end of his life, interest in his style and legacy have seen revival periods – especially in the 1960s – in which his work was appreciated and imitated in a small frenzy. His work is among that of the most intricate and ornamental in the world. I do not expect to reach this level of intricacy in such a short working period, but in observing his work find inspiration in relation to my own project.



Fig. 7: "Cascade", Alexis Rockman, 2015



- | | | |
|---|--|---|
| 1 Paleo-Hunter | 21 Atlantic Salmon <i>Salmo salar</i> | 41 Log Raft |
| 2 Pleistocene Glacier | 22 Yellow Perch <i>Perca flavescens</i> | 42 Spears / Gerli Self Unloading Lake Bulk Carrier |
| 3 American Crow <i>Corvus brachyrhynchus</i> | 23 John Osborn (lost 1884) | 43 Coal Burning Power Plant |
| 4 Early Domestic Dog <i>Canis familiaris</i> | 24 SS Comet (lost 1875) | 44 Recreational Fishing |
| 5 Caribou <i>Rangifer tarandus</i> | 25 SS John B. Cowle (lost 1902) | 45 Mine Tailings |
| 6 Burbot <i>Lota lota</i> | 26 Lake Sturgeon <i>Acipenser fulvescens</i> | 46 Iron Ore Mining |
| 7 American Eel <i>Anguilla rostrata</i> | 27 Michigan Grayling <i>Thymallus tricolor</i> | 47 Commercial Seine Boat with Net Set |
| 8 Walleye <i>Sander vitreus</i> | 28 Blue Pike <i>Sander vitreus glaucus</i> | 48 Fur Pelts |
| 9 Archaic Bone Tools 12,000 BP | 29 Steamer Regina: Canadian Package Freighter, lost November, 1913 | 49 Fur Trappers Station Camp |
| 10 Early Paleo-Indian Clovis Point and Shaft (11,500-10,000 BP) | 30 Steelhead Trout <i>Oncorhynchus mykiss</i> | 50 American Beaver <i>Castor canadensis</i> |
| 11 Deepwater Sculpin <i>Myoxocephalus thompsonii</i> | 31 Sweat Bee <i>Agapostemon virescens</i> | 51 Iron Eyes Cody, Ad Council (Marstellar, Inc.) Keep America Beautiful, 1971 |
| 12 Lake Benton Ceramics | 32 Perplexing Bumble Bee <i>Bombus perplexus</i> | 52 Old-Growth Hemlock, White Pine, N. Hardwood Forest |
| 13 Mudpuppy <i>Necturus maculosus</i> | 33 Blue Sweat Bee <i>Osmia ribifloris</i> | 53 Snow Goose <i>Chen caerulescens</i> |
| 14 Lake Trout <i>Salvelinus namaycush</i> | 34 Black and Gold Bumblebee <i>Bombus auricomus</i> | 54 Passenger Pigeon <i>Ectopistes migratorius</i> |
| 15 Cisco (Lake Herring) <i>Coregonus artedii</i> | 35 Hoverfly <i>Syrphidae</i> sp. | 55 Canvasback Duck <i>Aythya valisineria</i> |
| 16 Lake White Fish <i>Coregonus clupeaformis</i> | 36 Valley Carpenter Bee <i>Xylocopa varipuncta</i> | 56 Long-tailed Duck <i>Clangula hyemalis</i> |
| 17 SS Norman (lost 1895) | 37 Blue Orchard Mason Bee <i>Osmia lignaria</i> | 57 Mallard Duck <i>Anas platyrhynchos</i> |
| 18 Muskallange <i>Esox masquinongy</i> | 38 Metallic Green Bee <i>Agapostemon</i> sp. | 58 Lesser Scaup <i>Aythya affinis</i> |
| 19 Chinook Salmon <i>Oncorhynchus tshawytscha</i> | 39 Leaf Cutter bee <i>Megachile rotundata</i> | 59 Eastern White Pine <i>Pinus strobus</i> |
| 20 Coho Salmon <i>Oncorhynchus kisutch</i> | 40 Italian Honey Bee <i>Apis mellifera ligustica</i> | 60 Iron Ore |

Fig. 8: Key for "Cascade", Alexis Rockman, 2015

Most significantly, Alexis Rockman (b. 1962) is a contemporary American artist whose series *The Great Lakes Cycle* most closely mirrors what I originally envisioned the intent and stylistic choices of my own project to resemble. Rockman creates "future landscapes depicting the impact of climate change, species extinction and evolution influenced by genetic engineering" (Evans, 2017). His work, focused on the Great Lakes, consists of five large-scale paintings of fabricated landscapes which encompass hundreds of native flora and fauna species, historic events, and other attributable facts, figures, and artifacts entwined in the region's history. Rockman flawlessly managed to exhibit precise historical accuracy while taking creative license and incorporating science fiction into each work in the series. The intent in my work is to do virtually the same, but to create a flowing fantastical image of multiple real photographs sewn into one 'landscape' for each panel. Rockman also intentionally depicted separate themes that emerged during his research tour of the region, which "celebrate the natural majesty and global importance of the Great Lakes while exploring how they are threatened by factors such as climate change, globalization, invasive species, mass agriculture and urban sprawl" (Evans, 2017). Rockman's message, though slightly different than my own, points to the same goal of encouraging the recognition and appreciation of the Great Lakes as a natural phenomenon, and ultimately inspires a sense of urgency to conserve their resources.



Fig. 9: "Pioneers", Alexis Rockman, 2017

METHODOLOGY

When asked to reconsider the entirety of my IP project after the conclusion of the first semester, I was encouraged to pursue something I am passionate about that would allow me to utilize the research resources at the university and incorporate my findings into the work. I couldn't get away from the thought of a tribute to the area in which I grew up – specifically how important the Great Lakes have been to me as I grew up on them, and even more so after I'd moved away from their shores.

First and foremost, my greatest struggle throughout the project was with selective visual representation. After beginning my research, I realized how vast and rich the history of settlement on the Great Lakes is. Countless denominations of indigenous peoples have inhabited the region for hundreds of years, while European settlement brought territorial changes, wars, and developed the New World. Industrial movements in agriculture, shipping, mining, logging, fur trade, and maritime travel saturate the history of the region, and each time I tried to narrow my research to specific time periods and locations, I continued to find infinitely large databases of captivating information that I want to share. I constantly wondered, how do I tell such expansive stories in such a limited amount of space? How do I sort through the information I find to create organized narratives? I also felt it important to find balance between creative narratives and historical accuracy. At first, I collaged native flora and fauna, specific rocks associated with each lake, indigenous peoples, notable places, historic events, iconic figures and structures, and shipwrecks in order to communicate the rich history of the region. Quickly, I realized there would be too much information to sift through as both a viewer and researcher.



Fig. 10: The layout of the guide for my illustrations in progress in early February.

Then I wondered: should I try to showcase movements, which have broader applicability, or incorporate more nuanced information in the form of specific narratives? After discussing my thoughts on these issues with professors, mentors, writing consultants, close friends, classmates, and specialists in archival libraries, I decided to create each panel as a tribute to the growth of specific industries within the Great Lakes region, as described previously.

On several occasions, I was advised that the scope of the project was still too large, despite narrowing my focus to five industries. Moving forward, considering what time period I wanted to exhibit seemed the most straightforward way to quickly narrow my research further. How was I to determine which time period in the development of the state was most significant? Further consideration of the order of the panels was required. It was suggested that the panels could be chronologically ordered by time, as if they were progressing from the distant past to near past. It was also suggested that the pieces create one holistic image or story using intertwining elements. I felt each panel should be its own narrative, as my original idea stemmed from creating five pieces respective to each of the five Great Lakes. I found that the images I was most drawn to were specifically from the 19th century. I then considered how the individual panels could be designed or curated to create a cohesive unit. How would I create a cohesive piece when there are no perfect parallels in history? What does it mean to be visually and thematically cohesive? A simple solution to these questions was to draw all images in black and white.



Fig. 11: The final compilation and composition of the historical photographs I drew from, as well as the outline of the Great Lakes (translucent color), finalized in early May.

Further, how would I make these clearly about the Great Lakes while describing some of the lesser-known aspects of the region's development? How would I simultaneously reach both audiences who don't know anything about Michigan, as well as locals who don't realize the depth of the region's rich history? In an effort to compromise between the two, I created a light-blue overlay of the Great Lakes' shape and spread them across the five panels. This solution also solved the issue of finding a way to cohesively tie the pieces together, because the map is an overarching element. The color against each individual black and white panel created a focal point, as well. In order to demonstrate the historical accuracy of the images depicted, I incorporated descriptive labels to be hung between each panel in order to provide sufficient descriptive information about the depth and complexity of the events featured.

In hindsight, after struggling with an unrelated and unfulfilling idea for the entire first semester, I feel as though the work I've done would have been completed much more in-depth if I had realized my interest in researching the Great Lakes in September, rather than in January. While restarting my project halfway through the year is part of the process that made the production of my final pieces so fulfilling, the research, thought processes and methodologies, challenges, and creation of the final works were expedited into a time span of a little over three months. Though I am proud of having completed these works in such a short time span, I would have loved to have been able to continue researching the subject matter and to spend much more time perfecting each illustration.

CREATIVE WORK

The Great Lakes: Catalysts of Industrial Evolution consists of five large-scale illustrations, each demonstrating the growth of modern industries and processes in the Midwest during the industrial revolution of the nineteenth century. The development of these industries would not have been possible within the region without a vast array of resources provided by the Great Lakes. The illustrations are ordered as follows: Lake Superior, Lake Michigan, Lake Huron, Lake Erie, and Lake Ontario. The series is described in an small label, which provides a descriptive statement regarding the general purpose and explanation for the project. Additional labels (to be hung below each print) contain brief overviews of the development of each industry, and the historical images incorporated into the illustration are listed.

Each illustration is an inkjet print on artistic matte canvas and was created digitally using a Wacom digital tablet and stylus. A majority of the project was completed digitally using Adobe Illustrator. In their final form, each panel was trimmed using heavy-duty X-Acto knives and was hung using Joergen Muller's original Poster Hanger.

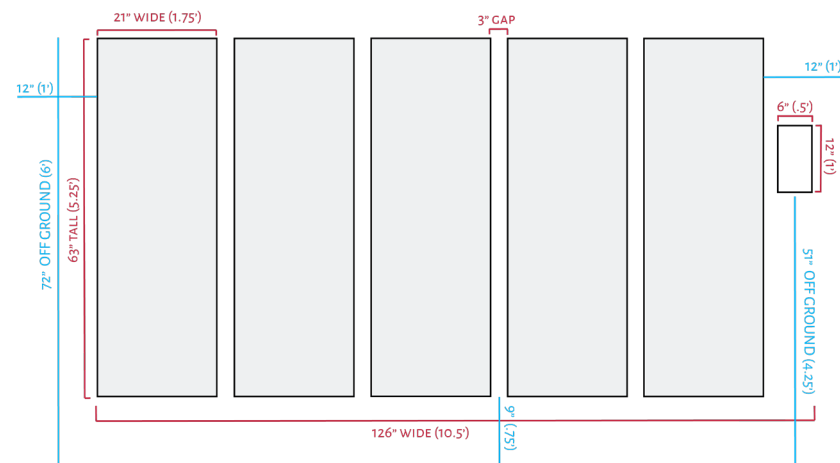


Fig. 12: An at-scale diagram of how the works were hung in the gallery.



Fig. 13: The final series: Lake Superior, Lake Michigan, Lake Huron, Lake Erie, Lake Ontario.
See descriptions on next page.

ILLUSTRATION INDEX

Lake Superior

Pictured: the Calumet & Hecla Shaft No. 9 & 10 in Calumet, Michigan ca. 1869; a group of miners ca. 1906; sluicing (rinsing mined materials with a stream of water) ca. 1884; an unnamed coal miner ca. 1940s.

Lake Michigan

Pictured: – Paper birch trees; Four Bull of the Assiniboine people and a French voyageur ca. 1899, wearing the Hudson's Bay Company coat; Fort Michilimackinac ca. 1920s; European fur traders in a birch bark canoe ca. 1922; the North American beaver.

Lake Huron

Pictured: a high rigger cuts off the top of a tree while felling timber ca. 1920; a team of loggers returning from unloading their timber into the river in 1853; felling the top of a stripped tree ca. 1859; a logging crew sitting atop a precariously stacked pile of logs ca. 1932; Canadian lumberjacks ca. 1936.

Lake Erie

Pictured: a manufacturing plant on the banks of Lake Erie ca. 1962; tugboat S.J. Christian and steamer Charles B. Hill of Ecorse in the historic shipbuilding yard Great Lakes Engineering Works ca. 1906; a steamerboat caught in the Cuyahoga River fire caused by pollution ca. 1952; the Grand Trunk car ferry crossing the Detroit River in winter ca. 1905.

Lake Ontario

Pictured: the Mill District of Niagara Falls in New York ca. 1887; a segment of the St. Lawrence Seaway dividing Canada and the United States, ca. 2001; a cargo ship passes through locks in the St. Lawrence Seaway system ca. 2007; a passenger boat passes under a bridge along the St. Lawrence Seaway ca. 1975.



Fig. 14-16: Visitors observing my work in the gallery during the 2018 Stamps Senior Exhibition on opening night.

MOVING FORWARD

To my surprise, a large majority of the information I found while researching the Great Lakes provides visceral evidence of the astonishing damage inflicted on these bodies of freshwater within the past eighty years – by both aware and unaware parties. Though the Great Lakes outwardly appear to be thriving, the health and stability of these massive awe-inspiring freshwater systems are rapidly declining in response to countless casualties they have endured within the last hundred years. They have faced unparalleled pollution, consistent erosion of habitat, endangerment and loss of native species due to economically-driven overfishing, destruction from invasive species introduced through human activity, and attempts to relocate their resources to environments outside the Great Lakes watershed. In the near future, these issues will be exacerbated by the exponential growth of human populations and the consequential scarcity and abuse of resources the lakes provide.

After heavily researching history surrounding the Great Lakes – far more than any other topic or project before – I have developed much greater depth in understanding and appreciation for the Great Lakes. There is so much more history surrounding the Great Lakes that I want to share – so much that I feel as though I’ve barely rippled the surface of a well of information. It cannot be understated how invaluable the Great Lakes are as a natural resource and habitat for all living creatures in the Midwest, or how imperative they were to countless generations of our ancestors. The significance of the Great Lakes reaches far beyond those who live or have lived on their shores, or in the region surrounding them. Ultimately, my hope for the project is to bring awareness to how important conservation efforts are through the demonstration of all the Great Lakes have allowed us to do within the last two hundred years. After having seen conservation efforts promoted through artwork at Artprize 9, I am entering The Great Lakes: Catalysts of Industrial Evolution in ArtPrize 10 in an effort to reach a vastly greater and more varied audience with the messages presented previously.

My integrative project has also led me to realize how much I enjoy undertaking long-term projects, as well as projects in which I can express complete creative autonomy and freedom. The length of the project’s development, though daunting at times, allowed the project to morph into something completely unrecognizable from – and better than – the original idea. Additionally, using digital illustration as a form of creative expression was a medium I had never used before beginning this project; it also allowed me to explore using Adobe Illustrator differently than I have in the past. I expect to use digital illustration as an expressive medium in the future.

BIBLIOGRAPHY

- Alphonsmucha.org. "Alphonse Maria Mucha: The Complete Works." <https://www.alfonsmucha.org/biography.html>. 2017.
- Anna Dvořák. "Alphonse Mucha: The Complete Graphic Works." Ed. Anne Bridges. NY: Harmony, 1980: 134.
- Center for Michigan History Studies. "A Brief History of Lumbering in Michigan." <http://www.michigan-history.org/lumbering/LumberingBriefHistory.html>. Michigan-history.org, 2018.
- Davis, Charles M. "Readings In the Geography of Michigan." Ann Arbor, Mich.: Ann Arbor Publishers, 1964: 72, 204.
- Evans, Kristi. "NMU Hosts Artist Alexis Rockman for 'Great Lakes Cycle'". https://events.nmu.edu/event/nmu_hosts_artist_alexis_rockman_for_great_lakes_cycle. NMU Board of Trustees, 2017.
- Great Lakes St. Lawrence Seaway System. "Seaway Facts and Figures." <http://www.greatlakes-seaway.com/en/seaway/facts/index.html>. The St. Lawrence Seaway Management Corporation, 2018.
- International Council of Mining & Minerals. "Water management in mining: a selection of case studies." (2012) https://www.icmm.com/website/publications/pdfs/water/water-management-in-mining_case-studies. ICMM, 2012: 7.
- Lewis, Rick. "Wildlife Artist Charley Harper Dead at 84." https://web.archive.org/web/20090324132719/http://www.peoplelandandwater.gov/people/nps_06-12-07_wildlife-artist-dead.cfm. U.S. Department of the Interior, 2007.
- Strickland, W.P. "Old Mackinaw, or, The fortress of the lakes and its surroundings." J Challen & Son, 1860: 116-119.
- Weiser-Alexander, Kathy. "American Fur Company." <https://www.legendsofamerica.com/american-fur-company/>. Legends of America, 2018.