Reacquaint the Waters of History

The Kaministiquia River

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Master of Landscape Architecture

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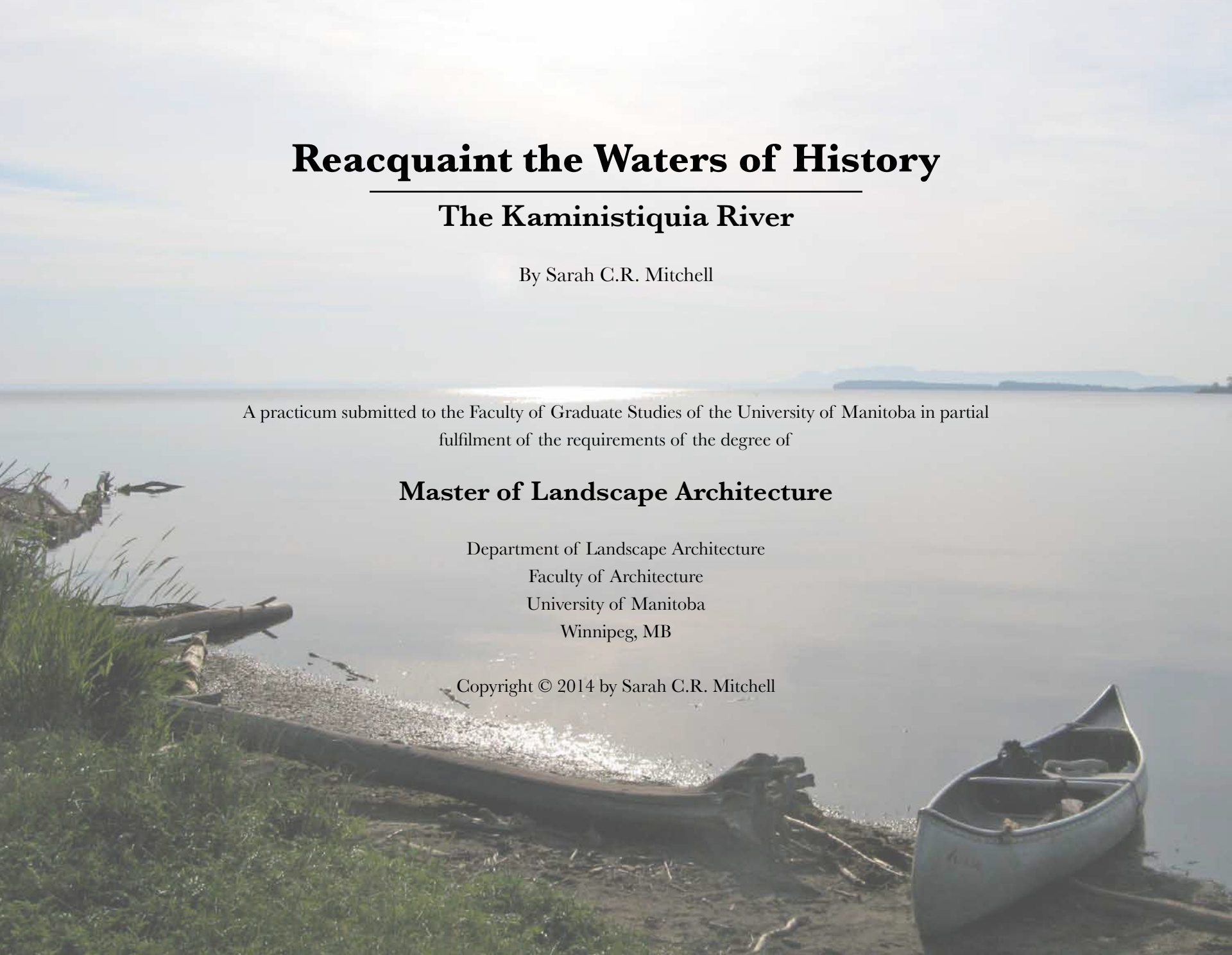

Dedicated to my parents, Dan & Linda,
without whom this would have been impossible

Above: *At Kakabeka Falls during spring flooding*, photograph by Heidi Mitchell, 2012

Cover Photo of this Document: *View across Lake Superior towards the Sleeping Giant from Mission Island at the Kaministiquia River Delta*

Cover Photo on Album Case: *View of the Kaministiquia Delta and the Nor'Westers from the air*, photograph by Ben Mitchell, 2013

Abstract

The modern interaction we have with the natural environment surrounding our cities is often limited to designated areas that usually contain manicured trails and other well-signed features. When information is very limited or absent we often avoid exploring such areas and instead opt for others both familiar and easily accessible. Mapping as a means to engage a community is a method that encourages exploration and discovery. Often there are hidden treasures of our communities' backyards that have nearly been lost to time and memory. The opportunities and experiences that such places can offer are too rich to be lost forever.

This practicum is an attempt to reconnect and engage residents and visitors of Thunder Bay, Ontario, with the historically significant Kaministiquia River. It focuses on the Kaministiquia from Kakabeka Falls to Lake Superior. By providing the public with information on the river's attractions and how to access the river, it is hoped that families and individuals will utilitize the information to get outside and explore their surrounding environment. The outcome of this practicum consists of four interventions that aim to engage the community with the Kaministiquia: (1) increased signage and public information; (2) a series of easily understood and accessible maps; (3) a recreational trail system; and (4) improved physical access to the water at three locations.

The Kaministiquia River and Mount McKay from the Swing Bridge

Acknowledgements

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Grandpa Mitchell, thank you for watching over Dad and I throughout our canoeing adventures. Lastly, thank you to my brother, Ben, for your miscellaneous help along the way.

Thank you everyone!

Shale rock collected in the Kaministiquia River

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All photographs, maps, and illustrations, unless otherwise noted, are by the author.

Figure 1.1: *View of Kaministiquia River delta looking west from the air,* photograph by Dan Mitchell, 2012

Introduction

Growing up in Northwestern Ontario, outdoor activities such as hunting, fishing, and camping were a part of daily life in many families including my own. However regular these activities were, they were seldom undertaken close to home, home being the city of Thunder Bay, but instead were undertaken much further away at places like Lake Nipigon. Often it seems that local sites get visited only when out-of-town guests visit and insist on seeing them. When local sites finally are discovered, the experiences of such new amazing places so close to home create long lasting cherished memories that can easily be re-experienced due to their close proximity.

One such amazing and memorable experience occurred many years ago to me during a hot summer afternoon on the Kaministiquia River, locally known as 'the Kam'. Although I was born and raised no less than 6 km away from this river, it might as well have been located deep in the Amazon forests of South America for there never seemed any reason to go anywhere near it nor to even know of its existence. It was not until a weekend fishing trip with a friend was suddenly canceled that the Kaministiquia was suggested by my friend's mother as an alternative as she had grown up close by and was vaguely familiar with it. Even though the fishing was terrible, it rained heavily half the day, and the friendship ended long ago, it was an unforgettable experience and is a cherished memory that has since sparked my imagination.

The experience of being on a fresh waterbody is impossible to describe other than to say that it has the ability to reignite a primordial sense of exploration. It is evident from recent projects in both Thunder Bay and Winnipeg that there is a desire to rediscover and reconnect with the fresh water of lakes and rivers. The University of Manitoba, for example, is currently in the process of developing an overall master plan for its Fort Garry campus through an international design competition. One of the mandates of the competition brief is that the master plan must reconnect the campus with the Red River that surrounds it (University of Manitoba and phase eins 2012). Recently the City of Thunder Bay redeveloped its marina on Lake Superior at Prince Arthur's Landing with the intention that it becomes a gathering point in the city. The City recognizes that the marina is only part of the equation and that the delta of the Kaministiquia, where it flows into Lake Superior, also needs to be addressed in the near future (City of Thunder Bay 2010, 1).

The Kaministiquia River is the largest of the rivers that flow through the city of Thunder Bay and as a result its size I was initially quite intimidated by it. However, after

looking into the other area rivers as possible candidates for further research, the Current, McIntyre, and Neebing, it became evident very quickly that they all to some degree have already been developed with trail systems and other facilities that provide opportunities for community interaction. The Kaministiquia has all but been forgotten and was therefore in the greatest need of further research. In 2012 publication of *101 Things to do in Thunder Bay*, there are no less than nine activities listed that involve the Kaministiquia to varying degrees and yet surprisingly the activity of discovering the river itself is absent (City of Thunder Bay and Ontario's North of Superior Tourism Region 2012). Efforts have been made by municipal and provincial governments to establish venues on the riverbanks at a handful of locations but there is nothing that weaves them together except the river itself.

"The Kaministiquia route [was] the main east-west link between eastern and western Canada" used by fur traders and explorers between the late seventeenth century and the mid nineteenth century and was integral to the early economic development of the area known today as Thunder Bay (Beaulieu and Southcott 2010, 27). Although the fur trade route began in Montreal to the east and extended west to Winnipeg and beyond, for the purposes of this practicum the area of concern is limited to a section of the Kaministiquia River between Lake Superior and Kakabeka Falls Provincial Park. The justification for this selection is that it is the most accessible and historically significant portion of the river and it offers incredibly beautiful scenery and memorable attractions. It was along this section of the river that Colonel Wolseley ordered his troops to travel to Fort Garry to quell the Louis Riel Rebellion. This section of the river also served as the confluence of rail lines and shipping vessels for grain and other goods heading to the Atlantic Ocean.

Goal, Assumptions & Limitations

This practicum explores how design can be used to encourage and facilitate the experience of the Canadian occupied wilderness and to reconnect with its past in modern times. The term *occupied wilderness* recognizes that all lands in this area have been occupied by First Nations peoples for millennia. The notion of an occupied wilderness for the purposes of this practicum is taken as an area that while showing few signs of modern development such as heavy industrial activities, habitation, or managed forests, it has and is occupied by many for a variety of reasons. The occupied wilderness offers visitors the opportunity to reconnect with nature that conveniently close by to an urban development but yet shows few signs of the trappings of urbanization.

The goal of this practicum is to develop a strategy for

Figure 1.2: *Kakabeka Falls and Portage (Colonel Wolseley's Expedition to the Red River Rebellion)*, painting by William Armstrong, 1871 (Courtesy of the Thunder Bay Historical Museum Society)

Figure 1.3: *View from the Brown Street pedestrian bridge of the Canadian Pacific Railway tracks that separate the Kaministiquia River* (to the right) *from the adjacent commercial and residential areas* (on the left)

visitors and residents in Thunder Bay to engage with the historically significant Kaministiquia River. The selected section of this river will be interpreted so as to tell a story about the development of the area and highlight its overall significance in Canadian history.

An assumption that is made throughout this practicum is the idea of the community as representing the public at large and does not consider the actions of individuals. It is quite plausible that many individuals currently actively engage with the Kaministiquia but for the purposes of this study it is assumed that the majority of the population of Thunder Bay, including its surrounding areas and any visitors, do not actively engage with the river at this present time. It is assumed that there is a collective interest in the community to re-engage with the river. Another assumption is that the first-hand observations made by myself about current access to the river, particularly the ease or difficulty of physical access to the water, are also shared by others in the community.

The main limitation that is encountered in this practicum is a lack of current academic research on access to the Kaministiquia. It is entirely possible that there is recent information about the river that remains unpublished. Another limitation is that nearly all of the documents directly related to the Kaministiquia must be sourced in person from specialty non-circulating collections in Thunder Bay. Some documents were only obtained through a private senior citizen's personal research collection since they have never been officially published. Additional limitations concerning the firsthand documentation of the river exist. A significant portion of the river was only accessible for documentation by canoe and therefore the observations of these areas must rely heavily on photographs that were taken at the time. The limitation of the camera's lens and the inability to revisit much of the site can affect some areas of the research in this document.

Objectives

The first objective was to explore the accessible reaches of the Kaministiquia River at both the regional and local scales.

The second objective was to assemble all existing, both current and historical, information on the Kaministiquia.

The third objective was to explore the presentation public information in a mapped format as a possible means of engaging the public and facilitating interaction with the river.

The fourth objective was to explore subtle designs that might increase public access to the river.

Methodology

The primary research method that was used, as defined by Groat and Wang (2002), was qualitative. This was done through a variety of means such as storytelling by local experts on the river, narratives from historical accounts of traveling on the river, and firsthand exploration of the river by foot, car, and canoe. The canoe was chosen as the primary means of exploration for it was by canoe that the fur traders traveled as well as generations of first nations before them. Historical narratives of the river were explored by consulting archives of the Northern Studies Resource Centre at Lakehead University, the Fort William Historical Park's Jean Morrison Library, the Thunder Bay Public Library, and the Thunder Bay Historical Museum Society. Upon receiving approval from the ethics board at the University of Manitoba, interviews were conducted with two local experts, a historian and an avid canoeist, in order to explore the river through storytelling.

The two analytical methods that were used to study this river are through photography and mapping. Photographs of the river were taken throughout various canoe trips and from numerous locations along the shore throughout the

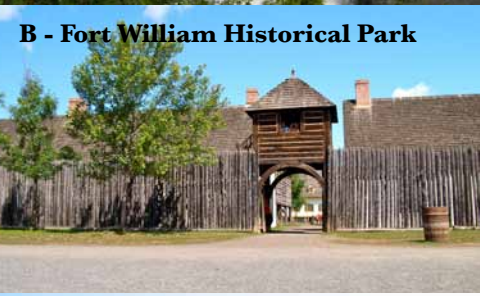
year. In addition, family members took aerial photographs of the river when flying into and out of Thunder Bay. Mapping using parametric data was combined in a layered approach to extensively document and analyze the river. A large map of the river was used to organize all of the collected information about the river.

The first part of this written document presents a detailed site analysis of the Kaministiquia River, which includes an examination of the river's history; its physical and biological context; its constructed, civil, and social context; and its current community engagement. Following the site analysis an exploration into the role that maps can play in providing the community with much needed information is to be conducted. The design outcome of this practicum is worked in tandem with the site analysis research. By following this framework it is hoped that the design outcome answers the research question of how design can be used to encourage and facilitate the experience of the Canadian occupied wilderness and to reconnect with its past in modern times.

Figure 1.4: *View from Mount McKay of the area surrounding the Kaministiquia River*

A - Kakabeka Falls Provincial Park

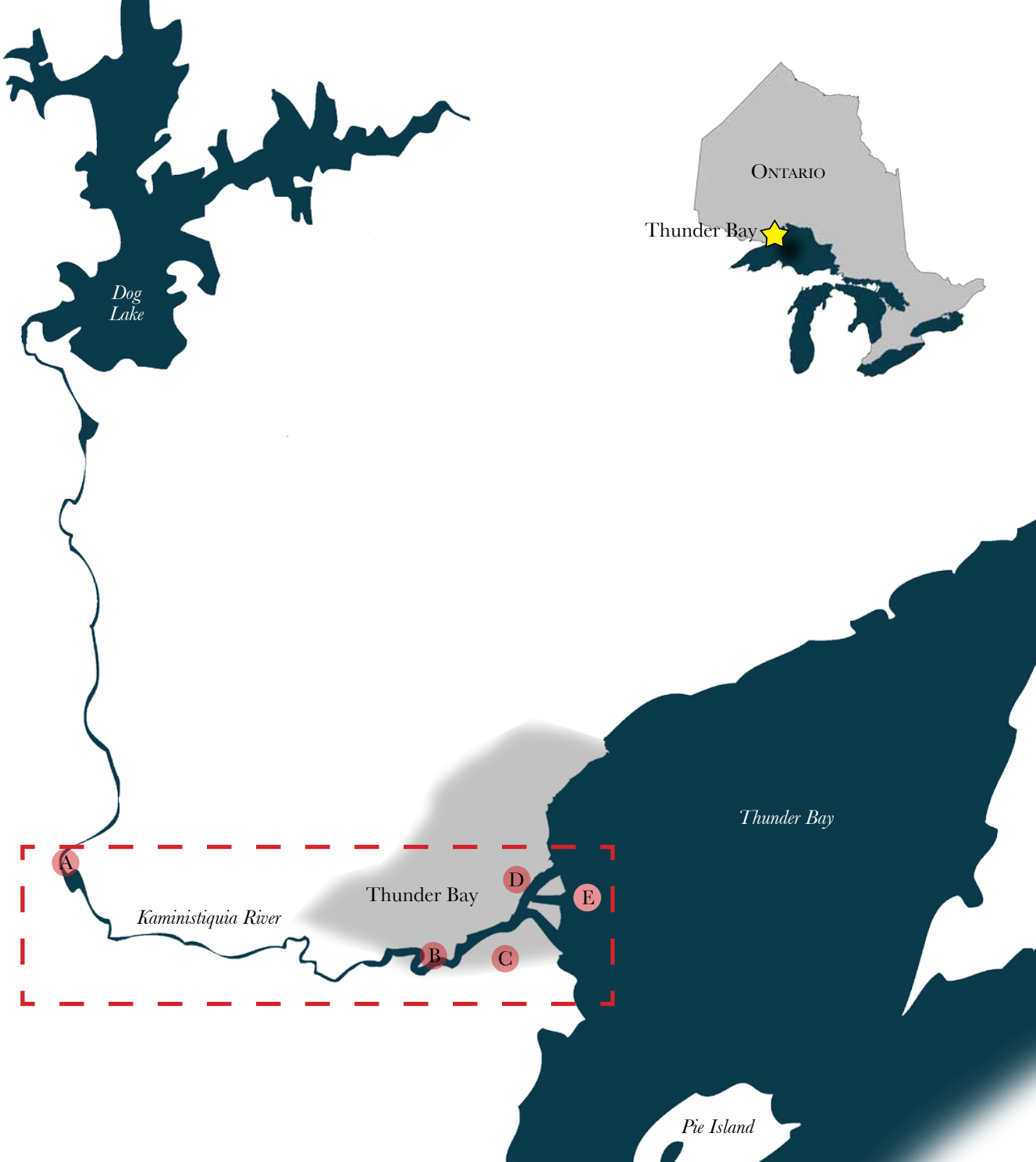
B - Fort William Historical Park



C - Mount McKay

D - Industrial Relics

E - Views of Lake Superior

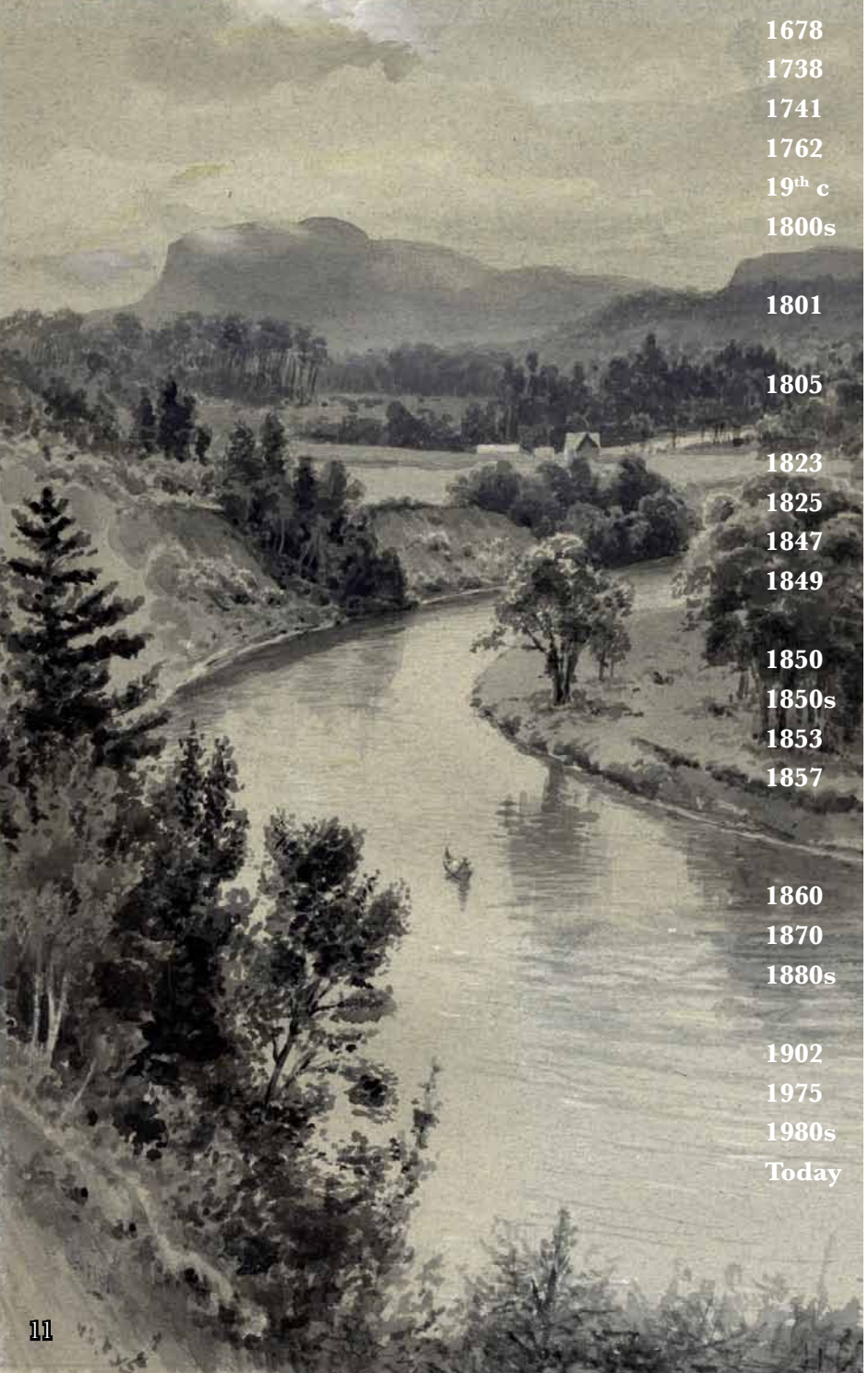


Location of the Kaministiquia

The Kaministiquia River is located in northwestern Ontario, Canada. The river flows south out of Dog Lake (Figure 2) in the north then flows east to Thunder Bay (highlighted in grey in Figure 2) and drains into Lake Superior). This practicum I examined and explored the Lower Kaministiquia. This begins where the river bends eastward at Kakabeka Falls and ends where it splits into three channels that all empty into Lake Superior. The total distance that the river travels in the study area is 47 km.

Throughout this stretch of the river many of the area's most well known highlights and tourist attractions can be found. These include: Kakabeka Falls Provincial Park, Fort William Historical Park, Mount McKay and the Nor'Westers Mountains, industrial relics, and Lake Superior with its spectacular views across the Thunder Bay of the Sleeping Giant on the Sibley Peninsula and Pie Island.

Figure 2: *Illustration showing the Kaministiquia River and its context within Ontario and the Thunder Bay area, as well as the highlights along the river*



1678	*Gaministigoran River* (Dulhut)
1738	*Canenistiquois / Gamenistigouya River* (La Vérendrye)
1741	*Comanestigouia River / Three Rivers* (Ballén)
1762	*Kaministiqouya River / Three Rivers* (De L'Isle)
19th c	*Kaministiquia River* (U.S. Charts; Ontario Maps)
1800s	*Dog River / Wandering River* (H. Thompson)
	Kamanoitiquoya River (F.V. Malhiot)
1801	*Kamanistiquia River* (H. Thompson)
	Caministiquia River (Sir A. MacKenzie)
1805	*Kamanistiquia River / Dog River* (D. Harmon)
	Kaministiguia River (Van cortland Painting)
1823	*Kamanatekwoya River* (W.H. Keating)
1825	*Kaministikwoya River* (Sir J. Richardson)
1847	*Kamanistiquia River (Colonel Crofton)*
1849	*Ka-manetti-kweyak River* (Ft. William Jesuit Mission)
	Kaw-man-na-ta-wa-young River (T.G. Anderson)
1850	*Kaministiquia River* (Robinson General Treaty)
1850s	*Ka-Manettikayeak (*Ft. William Jesuit Mission)
1853	*Kamanétikouéiak River* (M. Choné)
1857	*Kamanetikweiak River (*Du Ranquet & M. Choné)
	Kaministaquia River (S.J. Dawson)
	Kamistiquich River / Kaministiquioh River (J. Palliser)
1860	*Kaministiquia River* (H. Hind)
1870	*Keh-mah-naith-tick-quiack River* (R.J. Pither, a Native)
1880s	*Kaministi Kweya River / Wide River* (Fr. Petitot)
	Kaminstiquia River (Canadian Pacific Railway; Town of Kaministiquia)
1902	*Kaministikwia River* (Geographic Board; Official Signage)
1975	*Kaministiquia River* (Geographic Board; Official Signage)
1980s	*Kaministikwia River* (Old Fort William Publications)
Today	*Kaministiquia River* (All documents and official signage)

Figure 3.1: *Point de Meuron, the Kaministiquia River above Fort William*, watercolour by Lucius Richard O'Brien, 1881 (Courtesy of the Toronto Regional Library, Baldwin Room, JRR4011)

As one of only a few water systems that links east and west, the Kaministiquia River was integral to early transcontinental travel during both pre- and post-contact times. Even with the arrival of the railway the river continued to play an important role in the development of the area. Remnants of this river's rich history can still be found dotting its shores.

Naming the River

There has been much debate over the origins and correct spelling of the river's name, Kaministiquia. The long standing argument is that the name, *Kaministiquia*, comes from the Ojibwa meaning "meandering river with three mouths" (Kivi 1982, 20). However in recent years it has been proposed that the name is actually from the Algonquian-speaking Cree or Monsoni who were living in the area of the river when the first Europeans arrived and recorded the name, shortly before the arrival of the Ojibwa people (Morrison 2007, 14) and the Cree's meaning of the name was "where there are islands in the river" (Smart 1972). Other early interpretations for the name's meaning, proposed by the Geographic Board of Canada, include "the river with short bends and many islands" or "the place where there is always plenty of game" (Armstrong 1930, 148). The origin and meaning of the river's name is not the only part that has been subject to debate, the spelling of the name has also been at issue. In 1916 the Thunder Bay Historical Society, today the Thunder Bay Historical Museum Society, is said to have stated that "the Kaministiquia River seems to have more spellings than it had bends" (Figure 3.1) (Kivi 1977, 20). To the left is a compiled list of nearly all of the known spellings of the river (Mountain 1973, 7; Smart 1972).

The most important entries in this list are those from the past century and a half. The current spelling of the name, *Kaministiquia*, can be attributed to the Canadian Pacific Railway (CPR), which used the spelling in the 1850 Robinson Treaty that created the Fort William First Nation reserve, and they used it on their signs for their railway station 10 km upstream from Kakabeka Falls (Kivi 1987, 32). The CPR took no notice of the Geographic Board of Canada's declaration in 1902 that the river was to be spelt as *Kaministikwia* "for all time" (Kivi 1987, 32). All publications and official signage, except for the CPR station sign and the settlement of Kaministiquia where the station was located, followed the official government spelling of *Kaministikwia* (Kivi 1987, 32) until in 1975 when the Geographic Board of Canada conceded and officially changed the spelling to *Kaministiquia* (Natural Resources

Canada 2013). All official signage was quietly changed over although the *Kaministikwia* spelling continues to persist as evidenced by the City of Thunder Bay road signage for the Kam River Heritage Park, illustrated in Figure 6.4.

No such drama was associated with the naming of the Kaministiquia's branches: the Mission and McKellar Rivers. Prior to the arrival of the CPR line and the dredging of the two rivers, the Mission River was simply known as Big Fork and the McKellar River as the Little Fork (1874 map by Admiral Bayfield, Chief Engineer for the Canadian Pacific Railway). The Mission River was named for the Jesuit mission located on the south shore of this river. The McKellar River was named for a prominent family who once owned extensive tracts of land in this area (Arthur 1985, 20-5). The names of both rivers were made official in 1936 (Natural Resources Canada 2013).

Pre-contact Occupation

Prior to the arrival of the first Europeans, the Kaministiquia was a highway to the west that was traveled for thousands of years by First Nations (Huck 2000, 126). Archaeological evidence suggests that people first arrived in the area around 9000 years ago and can be divided into general four periods of occupation: Paleo-Indian 7500-4500 BCE, Archaic 5000-500 BCE, Initial Woodland 500 BCE - 1000 CE, and Terminal Woodland 750-1650 CE (Dawson 1983). A number of small sites containing evidence of former occupation have been found scattered along the riverbank (Hamilton 1996). In the seventeenth century the Ojibwa were pushed westwards into this area by the Iroquois thus forcing out the Algonquian who had previously occupied the area (Yuma 1985). The Ojibwa were hunter-gatherers who relied heavily on the Kaministiquia for food but it is unclear from the archaeological evidence if there was a permanent or simply temporary settlement in when the Europeans arrived (Figure 3.2) (Yuma 1985). Artifacts from this early habitation include copper tools, spears, and fishhooks (Dawson 1972).

First Nation & Local Legends

Unfortunately much of the oral tradition of this area has been lost over the centuries but a few tales concerning the river and its surrounding lands have survived. The Sleeping Giant lay in Lake Superior near the mouth of the Kaministiquia is said to be the giant Nahabosho who rescued the Anishinabeg people from their Dakota enemies (Huck 2000, 125). As the legend goes, one day the giant was sitting beside Lake Superior scratching at the rocks when he discovered silver (Huck 2000, 125). Fearing the white man would destroy his people to get it, he made the Ojibwa bury it and swore them to secrecy (Huck 2000, 125). One warrior decided instead to make his weapons for battle out of the silver (Huck 2000, 125).

Figure 3.2: *Indian Encampment, Fort William*, painting by William Armstrong, 1912 (Courtesy of Library and Archives Canada, William Armstrong fonds/c010512)

Figure 3.3: *Portage Below Kakkabikka Falls on the Kaministaquoiah River*, watercolour by Edward Roper, 1878 (Courtesy of Library and Archives Canada, Peter Winkworth collection of Canadiana/e000996335)

After he was killed by the Dakota they went in search for the silver's source (Huck 2000, 125). Seeing the Dakota approach accompanied by two white men, Nahabosho create a devastating storm that caused their canoe to sink (Huck 2000, 125). The deaths of the three men angered the Great Spirit who then punished Nahabosho by turning him into stone (Huck 2000, 125).

Another surviving myth is the tale of the seventeen-year-old Ojibwa princess, Greenmantle, daughter of Chief Ogama Eagle (Gloin 1995, H13). While out foraging with her fellow tribesmen, her party was attacked by an invading Sioux army who killed everyone but her and demanded she take them to her village (Villeneuve 1988). While captive she was visited by White Turtle who told her she must save her people (Villeneuve 1988). The Sioux leader, Ogama Dog, stole Greenmantle's amulet and forced her to guide the way as they paddled down the Kaministiquia (Villeneuve 1988). She insisted they tie their canoes together so as to not become separated. However, as they approached a bend in the river, she steered her canoe towards the shore just in time before all the other canoes containing the Sioux warriors were swept over the Kakabeka Falls, killing them all except Ogama Dog who managed to escape (Villeneuve 1988).

Unfortunately in the excitement, Greenmantle, while trying to swim to shore, hit her head on a jagged rock, which caused her to also be swept over the falls where she perished (Villeneuve 1988). Ogama Dog, still in possession of Greenmantle's amulet tracked down her lover. North Star, who killed Ogama Dog after he was taunted with her death (Villeneuve 1988). Distraught, North Star visited the base of the falls where he was comforted by "[Greenmantle's] spirit [for] it is said, [it] lingers in the mist as a rainbow while the voices of the angry Sioux cry continuously from the waters below" (plaque at Kakabeka Falls Provincial Park). Greenmantle's sacrifice saved her people from the invading Sioux and illustrates the dangers of *Kakabeka*, meaning "sheer cliff" or "thunder water" in Ojibwa (Ontario Ministry of Natural Resources 1978, 2).

Mount McKay was long used as a fire beacon by the First Nations people and was known as Anamikiewakchu or 'thunder mountain' (Figure 3.4) (Black 1921, 9). Although it is unclear if there were any First Nations myths surrounding the mountain, early non-scientific visitors to the area long believed that the mountain was a former volcano or even part of a former chain of volcanoes, the Nor'Westers Mountains, that extends to the south (Lonc 2010B). They also believed since there are a few lakes on the tops of these mountains that perhaps the shore of Lake Superior was covered in volcanic rock and that the lake itself may have been the result of a volcano (Lonc 2010B).

Another local legend of the Kaministiquia is the supposed lost pay box from the 1870 Wolseley expedition (Yuma 1985). The box, which was apparently lost on the banks of the river, is said to have contained gold and silver coins (Yuma 1985). Rumours periodically circulate about the fate of the box and its contents as no known trace of it has ever surfaced (Yuma 1985).

French Exploration & Trade

The earliest European exploration of the area is credited to Sieur Dulhut Daniel Greysolon in 1681 who established the first trading post at the mouth of the Kaministiquia (Bertrand 1959, 52-3). Legend has it that he landed on the bank of the Kaministiquia at the foot of McTavish Street and that is where his post is said to have been located (Black 1921, 9). In 1688, Jacque de Noyon was the first documented European to travel up the Kaministiquia and discover the route to Lake of the Woods via Rainy River (Burpee 1914, 186). During this period the Kaministiquia as well as the adjacent rivers, the Neebing and the McIntyre, were used by First Nations to bring furs to Greysolon's post for trading (Huck 2000, 126). The first post was closed in 1696 when it lost its strategic importance after the French captured and held the English posts on Hudson's Bay (Morrison 2007, 14). Unfortunately no first hand accounts of this period have survived and little archaeological evidence has ever been found (d'Eschambault 1951, 325).

Following the Treaty of Utrecht in 1713, the English were able to retake their Hudson's Bay posts (Morrison 2007, 14). As a result the French needed to establish a second post on the Kaministiquia in order to limit the number of First Nations traveling to Hudson's Bay to trade with the English (Morrison 2007, 14). The French used this second post, established by Zacharie de la Noue, as a station to continue their exploration in the west (Morrison 2007, 14). This second fort was manned by 40 men (Mountain 1973, 31) until Pierre Gaultier de Varennes, Sieur de la Vérendyre, discovered the southern Grand Portage route via Pigeon River in 1731-1732 (Burpee 1914, 186). Although this new route had more portages it was a significantly shorter route to Lake of the Woods and was therefore quickly favoured over the Kaministiquia route (Morrison 2007, 14). The French constructed a post at Grand Portage but maintained their post on the Kaministiquia until the 1760s (Beaulieu and Southcott 2010). The delta of the Kaministiquia was surveyed by Captain Ralph Henry Bruyere in 1802 for the Northwest Company (Bertrand 1959, 56-7). He was able to identify the locations of the two French forts although it is unclear what remained at the time (Bertrand 1959, 56-7).

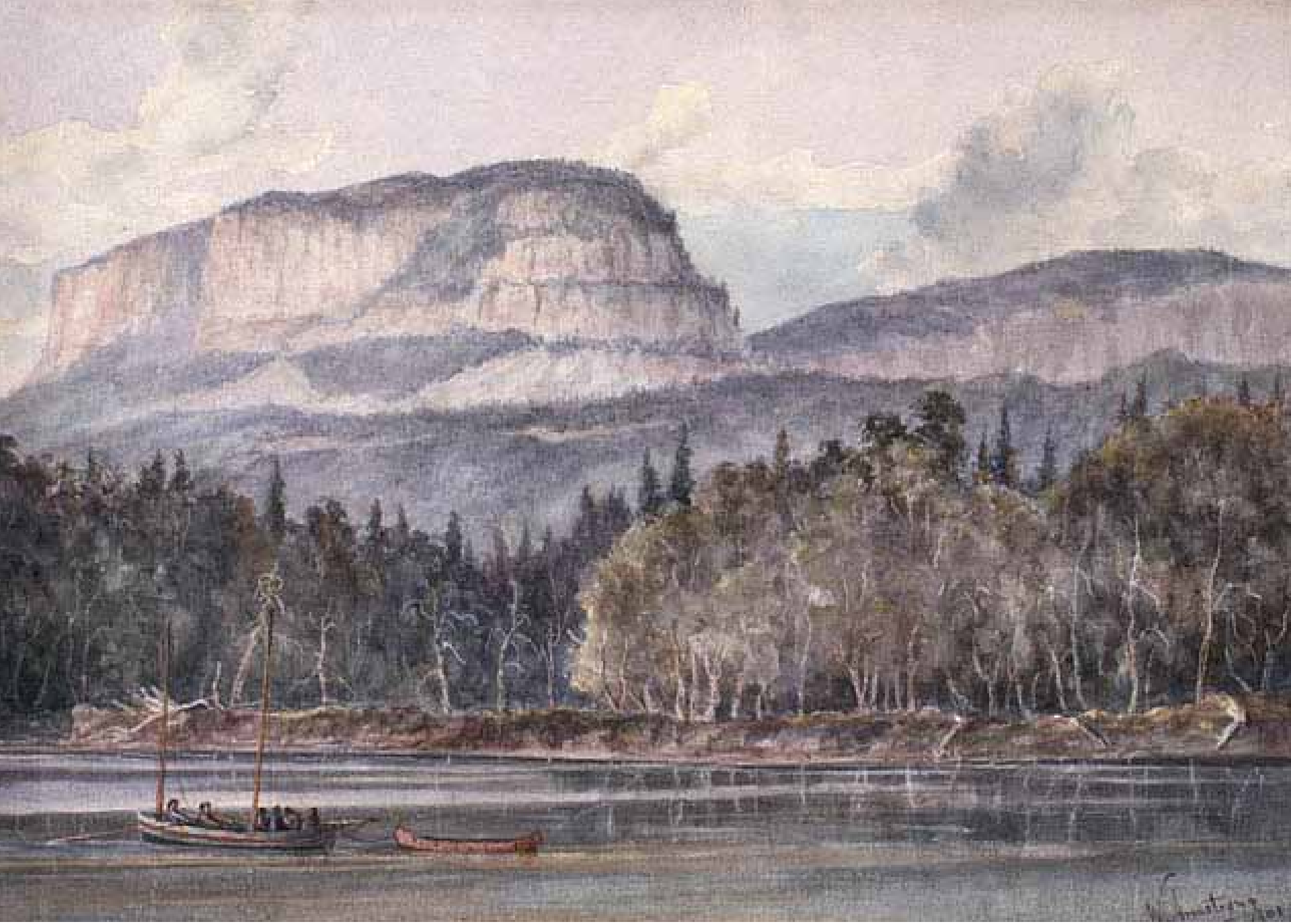


Figure 3.4: *Voyageur Boat and Chippewa Canoe, Thunder Bay, Lake Superior*, painting by William Armstrong, 1901 (Courtesy of Library and Archives Canada, William Armstrong fonds/c010645)

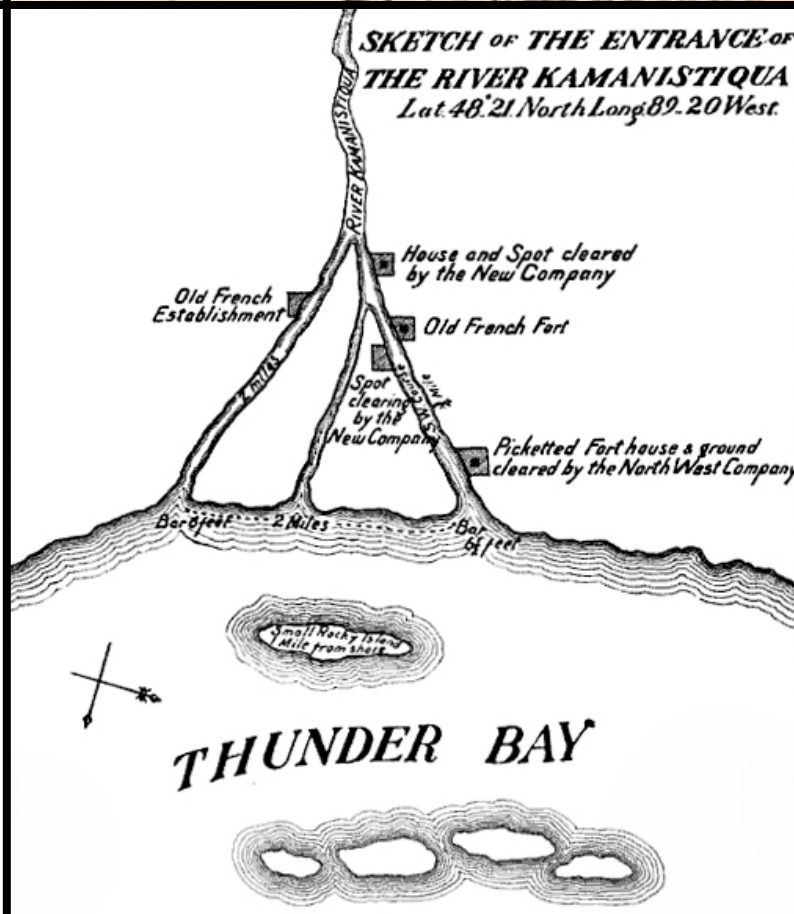


Figure 3.5: (Top Left) *Carte des nouvelles découvertes au nord de la mer du Sud tant a l'est de la Sibérie et du Kamichatka qu'à l'ouest de la Nouvelle France*, map by Philippe Buache, 1752 (Courtesy of Library and Archives Canada, Collection Canadiana Alexander E. MacDonald/e003901120)

Figure 3.6: (Top Right) *Carte de l'Amérique septentrionale, depuis le 28 degré de latitude jusqu'au 72*, by Jacques-Nicolas Bellin, 1755 (Courtesy of Library and Archives Canada, Collection Canadiana Alexander E. MacDonald/e008316609)

Figure 3.7: (Right) *Sketch of the entrance of the River Kaministiquia*, by R.H. Bruyeres, 1802 (Courtesy of Library and Archives Canada, Maps-Plans-Charts, MIKAN 4129486)

Establishment of Fort William

The trading post at Grand Portage, located about an hour's drive south of the Kaministiquia River, eventually fell into the hands of the English Northwest Company. The Company continued to use it as a post until it fell within the territory of the United States following the Treaty of Paris, signed in 1783 between British and American negotiators (Morrison 2003, 33). This upset the Northwest Company very much and forced them in 1784 to begin looking for other routes to the west (Morrison 2003, 33). They knew they would eventually be forced to move and pressure to do so mounted following the signing of the Jay Treaty a decade later (Morrison 2003, 33). The Nipigon River to the east had been surveyed as a possibility but the Company settled on the Kaministiquia instead, thus launching a new phase in the river's history (Morrison 2003, 33). The Northwest Company was never interested in moving from Grand Portage, located in the state of Minnesota, and they took their time. They were finally forced to move in 1800 by an American tax collector who threatened to levy heavy duties and taxes on their goods should they be brought into the United States even though they were going to be re-imported into the British territory further west (Mountain 1973, 47).

In 1798 the 'lost' route via the Kaministiquia was 're-discovered' by Roderick McKenzie, cousin of Alexander McKenzie, after hearing about it from local First Nations (Ontario Ministry of Natural Resources 1970, 1). The difficulty of the Kaministiquia route was not lost on the fur traders and initially many voyageurs were reluctant to renew their contracts (Morrison 2007, 11) but by 1803 it was once again the official fur trade route (Nute 1945). The route was roughly 530 km in length and involved at least 23 portages some of which were several kilometers long (Ontario Ministry of Natural Resources 1970). Voyageurs at the time could do it is far less time as they could canoe and portage 15-18 hours a day, carrying two or three 40 kg packs, and traveling 95-125 km a day (Huck 2000, 130). The voyageurs likely always used the same locations to camp overnight but there were unlikely any campsites between Lake Superior and Kakabeka Falls as they could travel that length in less than a day (Morrison 2012).

The location of the Northwest Company's 1803 fort on the Kaministiquia was located on swampy ground (Figure 3.7), that had to be drained before construction began (Morrison 2007, 25). Extensive planning went into the design and layout of this new post (Huck 2000, 127). Operations were officially transferred from Grand Portage to the Kaministiquia in 1800 and by 1803 the Northwest Company held their first rendezvous (Beaulieu

and Southcott 2010). In 1805, the Northwest Company decided to merge with their competitors, the New Northwest Company (New Northwest Company), who had also planned to establish a fort on the Kaministiquia, in order to reduce costs, save resources, and present a united front to their mutually despised enemy, the Hudson's Bay Company (Morrison 2007, 30). It is for this reason that the Northwest Company's new fort was built like a fortress (Morrison 2007, 27). It not only presented a symbol of dominance to the First Nations but to also ensured protection from attacks by the New Northwest Company prior to their merger (Morrison 2007, 27). When the fort first opened it was called Fort Kaministiquia but was later renamed Fort William (Figure 3.8) in 1807 in honour of William McGillivray, the Northwest Company's leading partner and director (Huck 2000, 127-8; Ontario Ministry of Natural Resources 1970, 2). Construction on the fort was not complete until 1816 when the last of the canoe sheds was finished (Morrison 2007, 27).

The Kaministiquia, although it had appeared in two early French exploration maps (Figures 3.5 and 3.6), did not appear in English maps until 1812 when David Thompson's map was created (Figure 7.1). This map hung in the Great Hall at Fort William for many years and became the basis for all maps of the Canadian west that followed it (Dawson 1969, 16). Today the original resides in London, England, and a replica stands in its place in the Great Hall at Fort William Historical Park. This route was used by the Northwest Company for all sorts of heavy freight for eighteen years, until the merger with Hudson's Bay Company, and then afterwards only by travelers, settlers, and explorers until the railway came through (Morse 1969, 80). The establishment of the Fort William post also completely changed the lives of the First Nations peoples living on the river and in the surrounding region (Campbell 1980). Many were employed by the Northwest Company to make canoes, repair snowshoes, make garments, collect food, and to participate in the fur trade itself (Campbell 1980).

Historical records, like the Harmon journal, make reference to a storehouse that the Northwest Company kept above Kakabeka Falls in order to lighten the portage loads of the voyageurs but as no archaeological traces have ever been identified so it is unclear of exactly what the building consisted of (Harmon 1911, 113; Mountain 1973, 52). It has also been speculated that the portage routes used by the voyageurs and explorers were originally game trails that were improved upon (Morse 1969, 31). Unfortunately the hydro dam constructed above Kakabeka Falls and the above ground piping that channels the river's water around the falls have since destroyed a number of these historical portages that may have existed (Dawson 1972, 5). The main portage route that was used to skirt around the falls was known as the Mountain Portage

Figure 3.8: *Fort William from South Side of Kaministiquia River*, painting by J. Fleming, 1857 (Courtesy of Toronto Regional Library, Baldwin Room, JRR 2364)

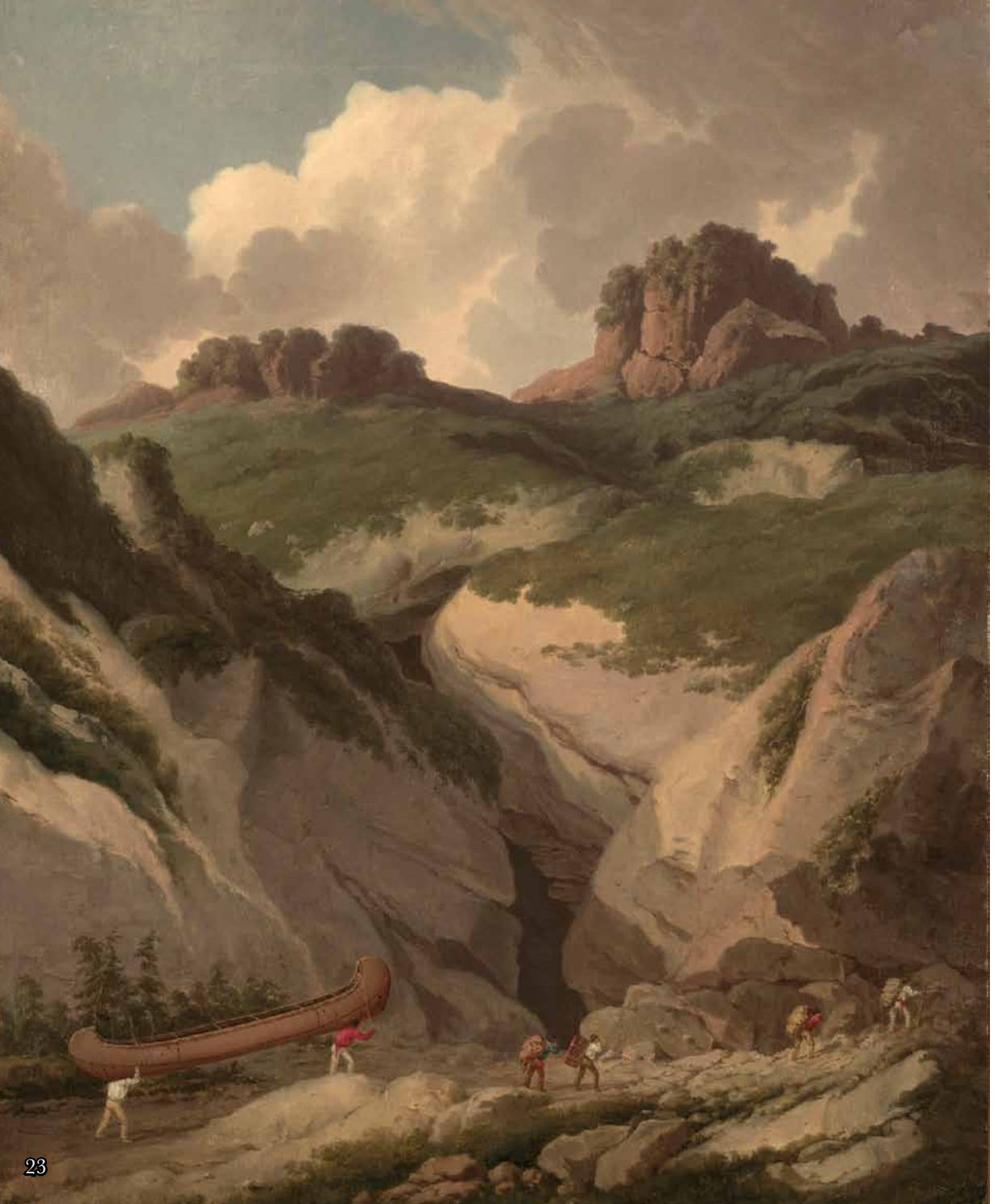


Figure 3.9: (Left) *The Mountain Portage*, oil on canvas by Paul Kane, 1849-1856 (Courtesy of the Royal Ontario Museum, no. 912.1.18)

Figure 3.10: (Right) *View from the cove of the start of the Mountain Portage, across from the Ontario Power Generation hydro station*

(Figure 3.9) which began roughly 1 km below the falls in a small cove (Figures 3.3 and 3.10) (Mountain 1973). The exact routing of this path can no longer be accessed due to how Kakabeka Falls Provincial Park has laid out one of its universally accessible trails.

As the Northwest Company's and Hudson's Bay Company's presence and influence spread to the west, hostilities between the two companies boiled over in the Massacre at Seven Oaks when Northwest Company employees killed a number of Thomas Douglas's, the Earl of Selkirk's, settlers in 1816 (Mountain 1973, 60-1). Lord Selkirk, who held shares in the Hudson's Bay Company, captured Fort William a short while later and arrested several of the company's officials including Simon Fraser and William McGillivray on behalf of the Hudson's Bay Company (Mountain 1973, 60-1). Lord Selkirk's army, which consisted of voyageurs and Swiss mercenaries of the De Meuron regiment, were kept busy throughout the rest of 1816 and in years following by constructing a fort on the site today known as Point de Meuron and on building three roads: south to Grand Portage, west to Whitefish lake, and northwest to Shebandowan Lake (Mountain 1973, 60-1). Parts of these roads can be found today underneath modern roads and rail lines; some sections have been reclaimed by nature. The buildings Lord Selkirk's army constructed in the years following his capture of Fort William by 1823 consisted of a small permanent establishment, which was recorded as still standing in 1882 (Bertrand 1959, 152). Lord Selkirk's actions significantly crippled the Northwest Company, eventually leading to its takeover by the Hudson's Bay Company in 1821 (Mountain 1973, 61). Survey work of Lord Selkirk's fort was undertaken in 1971 by Lakehead University to confirm its location when the same site was chosen to host the recreation of the Northwest Company's fort (Kleinfelder 1972, 40-41), where today now sits Fort William Historical Park.

In 1849 the Jesuit Mission of the Immaculate Conception was established at the division of the Mission and Kaministiquia Rivers (Figure 3.12) (Lonc 2010B, 19). Surviving mission journals record that many 'non-believing natives' had lodges located near the fort which they used in the summer (Lonc 2010B, 20). The site of the mission was selected for its farming potential, its proximity to the fort, and because of its central location (Lonc 2010B, 46). Missionaries could venture easily from there to the outlying areas. By 1921 the mission and its buildings were abandoned (Dawson 1972, 42).

Gateway to the West

Fort William's "location... at the gateway to the Canadian west, along the bank of the Kaministiquia River, continued to give it prominence" even after Hudson's Bay Company moved its fur trading operations to Hudson's Bay (Bertrand 1959, 155). From roughly 1821 until 1870 with the opening of the Dawson Road through Port Arthur, Fort William had a reputation for being very hospitable to those heading into the west including scientists, engineers, artists, missionaries, and settlers (Bertrand 1959, 155). The Kaministiquia therefore continued to play a vital role as a transportation route during this period.

Many artists visited and recorded the highlights of the Kaministiquia during this transition period between the decline of the fur trade and the arrival of the train. The artist, Paul Kane, wrote of Mount McKay, "seeing it, as I then did, for the first time, by the glare of the almost incessant flashes of lightning, it presented one of the grandest and most terrific spectacles I had ever witnessed" (1925, 32). He was also awestruck by Kakabeka Falls of which he wrote, "…we arrived about 8 o'clock at the Mountain Portage, whose falls surpass even those of Niagara in picturesque beauty; for, although far inferior in volume of water, their height is nearly equal, and the scenery surrounding them infinitely more wild and romantic" (Figure 4.4) (Kane 1859, 50). Another artist, James Warre, wrote in 1845 of the falls, "Nothing can exceed the wild beauty of this Mountain Fall; surrounded [and] imbedded in the primeval Forests which alone reecho the deep roar of the Cataract" (Figure 3.11) (Warre 1969, 132).

After the completion of the Dawson Road, tourists to Kakabeka Falls were instructed to arrange for a carriage to take them to the falls and then hire a canoe accompanied by First Nations to return them to Fort William (Picturesque Canada 1875, 40). However by the late 1870s guidebooks were telling tourists to take the train but return by canoe (Lavoie 1993, 9). The first train to this area dropped tourists off 10 km above the falls where they would disembark with their guides and their canoes and then paddled downstream to view the falls (Mountain 1973, 85). Tourists would use the old voyageur Mountain Portage to descend the falls and then run the rapids (Mountain 1973, 85). Their guides would have them returned to Fort William in less than four hours! (Mountain 1973, 85).

The other route tourists used before and after the train came through the area was from Fort William upriver by a tugboat to Point de Meuron (Mountain 1973, 85). From there they would be led upstream in canoes manned by First Nations guides (Mountain 1973, 85). A first hand account

Figure 3.11: *Falls of the Kamanis Taquoih River Kaministikwia River)*, watercolour by Henry James Warre, 1846 (Courtesy of Library and Archives Canada, Thomas Miles Richardson and Henry James Warre collection/c001616)

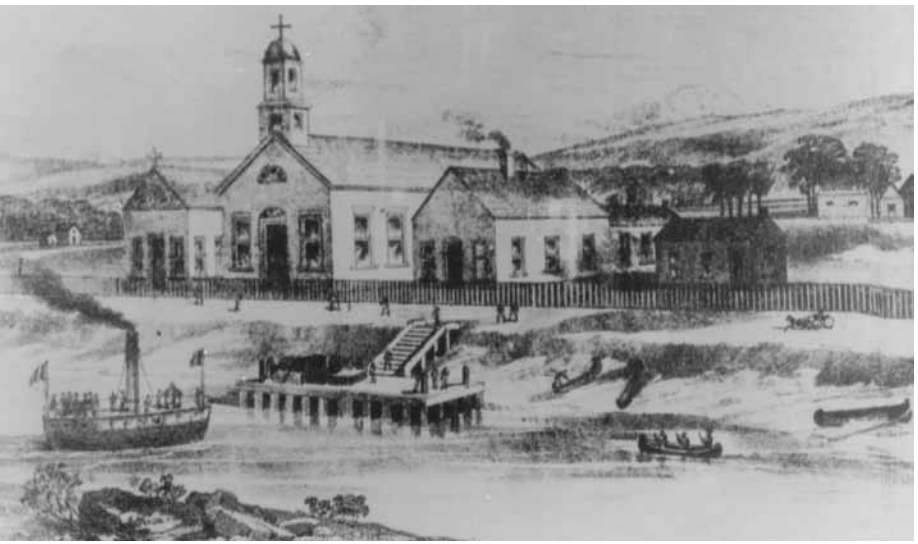


Figure 3.12: *Roman Catholic Mission, Kaministiquia River, Fort William*, 1872 (Courtesy of the Thunder Bay Public Library)

of this journey has survived the ages in the form of a letter from a daughter to her mother in 1873 (Moodie-Vickers 1926). This group did not go by steamboat to Point de Meuron but instead was brought in canoes carrying four First Nations guides and four European tourists (Moodie-Vickers 1926, 54). The group left early in the morning, paddling nonstop, poling through rapids, lining the canoe, carrying women and elderly, through the more challenging Paresseux Rapids while also carrying the luggage, and arriving about 11 km south of the falls where they would camp for the evening (Moodie-Vickers 1926, 54-5). Early the next morning they paddled upstream the rest of the way but had to use the Mountain Portage to travel the last kilometer to the top of the falls (Moodie-Vickers 1926, 56-7). There they were permitted to stay for about an hour to wander around and scratch their names in the rocks above the falls (Moodie-Vickers 1926, 56-7). By early afternoon they returned to their camp and departed to return to Fort William where they arrived just as the sun was setting (Moodie-Vickers 1926, 57-8).

By the mid-nineteenth century it was recognized that the Kaministiquia would not remain the most practical method for rapid transportation forever. In 1857, Simon Dawson proposed that a wagon route be constructed from Fort William to Dog Lake to the northwest, using the Kaministiquia by employing a series of dams and short stretches of road through the most difficult portages (Stanley 1989, 105). However nothing was done until 1869, following Confederation, when Dawson was permitted to construct a wagon road (Dawson 1966, 1). Various delays due to forest fires caused the road to not be ready in time for the arrival of the Wolseley Expedition the following year, which headed westward to end the Louis Riel uprising (Stanley 1989, 109). Colonel Wolseley, rather than wait for the road to be completed, ordered his troops to transport a hundred and one boats, intended for lake travel, up the Kaministiquia (Stanley 1989, 118-21).

He described the Kaministiquia: "the scenery was very grand and striking, but the river was certainly no first class highway" (Wolseley 1870, 188).

To save time on the portage route over Kakabeka Falls, instead of using the long established Mountain Portage, Colonel Wolseley instructed his men to make a new shorter portage, half the length (Mountain 1973, 84; Stanley 1989, 121). However, this unfortunately meant the steepness of the cliffs was greater, at times a 45-degree angle (Figure 1.2) (Mountain 1973, 84; Stanley 1989, 121). The boats were moved using skids: short logs were laid across the path at close intervals, and towlines were attached to the boat and pulled by voyageurs (Stanley 1989, 121). Although Wolseley continued to use the river to move his boats, he admitted that many were badly damaged in the rapids and required repairs (1870, 191). Once Dawson Road was completed in 1870 the upper course of the river was completely abandoned for commercial purposes (Morrison 2012) but Dawson Road was completely abandoned only thirteen years later with the arrival of the Canadian Pacific Railway (Dawson 1966, 2). The Wolseley expedition was the last of any size to use the Kaministiquia Route over Kakabeka Falls (Mountain 1973, 85).

The Industrial Age

Following the Northwest Company and Hudson's Bay Company merger, Fort William was to be completely abandoned by 1860 but in some aspects continued to operate as noted in Colonel Wolseley's 1870 journal and in photographs from 1875 (Dawson 1969, 20). The fort's last postmaster, Governor McIntyre, retired in 1878 and the Hudson's Bay Company caretaker was told to close the fort up for the last time in 1881 (Dawson 1969, 20). By 1883 all of the fort building except for the stone powder magazine were leveled to accommodate the Canadian Pacific Railway (CPR) tracks (Huck 2000, 127). The powder magazine was used by the CPR until 1902 when it too was leveled (Huck 2000, 127). However the fort's presence lives on as many of the streets in the East End, where the fort once stood, are named after the Northwest Company partners (Huck 2000, 127).

As transportation networks became more organized small canoes were replaced by large vessels for transportation on Lake Superior, thus enabling more people to move into the area (Morse 1969, 67-8). Prior to the arrival of the first steamer to Fort William in 1858, which brought two letters and three papers, mail only arrived from England via York Factory once or twice a year (Thunder Bay Historical Society 1928, 136-7). With the arrival of the

first train in 1882, the CPR began buying up land in Fort William on the banks of the Kaministiquia (Arthur 1985, 20-5). Since they were unable to get land in Port Arthur in time they decided to have their station in Fort William (Arthur 1985, 20-5). For 75 years afterwards residents in Port Arthur were convinced of a conspiracy. This theory was not overturned until the original letters regarding the procurement of land were made public, revealing how William Van Horne, general manager of CPR, was playing the prominent residents of the two towns off one another (Arthur 1985, 20-5). These letters also reveal that the CPR wanted things to move quickly so it could start storing grain, coal, and other essential goods.

The earliest grain storage places were built of wood, which meant they were susceptible to fire (Young 1965, 2). There have been twenty-nine elevators and grain storage warehouses on the Kaministiquia alone (Figures 3.13 and 3.14) and this number does not include the temporary sheds that were built during the grain surplus of 1939-1940, of which only concrete pads remain (Young 1965, 2-12). The harbour contained a large sandbar, which was removed by dredging, and the Kaministiquia, McKellar, and Mission Rivers were all dredged by 1906 to widen and deepen them so large boats could reach the man-made Westfort Turning Basin (Morrison 2012). All bridges along the river, built between 1906 and 1913, up to the turning basin either swung or lifted to accommodate large boats passing underneath as well as road and rail traffic going over them (Morrison 2012). The CPR opened up access to Mission and McKellar Islands, which beforehand were used only for agricultural purposes, by adding tracks to the mainland in 1913 (City of Thunder Bay 2010, 14).

The overall significance of the Thunder Bay area cannot be emphasized enough for it was here that both the CPR and the Grand Trunk Pacific Railway (later Canadian National Railway) joined. This had a tremendous impact on Canada's development both nationally and internationally (Thunder Bay Historical Society 1928, 134). Today the two highways through northern Ontario, 11 and 17, also join in Thunder Bay. The arrival of the Grand Trunk Pacific Railway did however force the relocation of the native settlement from the bank of the river further inland to the base of Mount McKay (Morrison 2012). This settlement had long been established: the reserve itself created in 1850 (Lytwyn 1995, iii), and the Jesuit Mission of the Immaculate Conception in 1848 (Lonc 2011). Fort William flourished as a town and eventually amalgamated with its bitter rival, Port Arthur, in 1970 to form today's city of Thunder Bay (Huck 2000, 126).

No shipwrecks have been documented on the river (Morrison 2012) but a new nine-storey grain elevator, an

Figure 3.13: (Left) *View from the Swing bridge downstream to Lake Superior*, ca. 1937 (Courtesy of the Thunder Bay Public Library)

Figure 3.14: (Right) *View from the Swing bridge downstream to Lake Superior*, 2012

Figure 3.15: (Top) *James Whalen tugboat breaking through ice*, 1922 (Courtesy of the Thunder Bay Public Library)

Figure 3.16: (Bottom) *James Whalen tugboat permanently moored at the Kam River Heritage Park*, 2012

engineering marvel of its time and owned by Ogilvie's Flour Mills, slipped into the river in 1906 when the riverbank foundations failed (Morrison 1979, 10-1). Once the river froze up in the winter, it would be used for social activities and sports by the comfortable classes (Morrison 1979, 14). By 1914, almost 1,500,000 tons of products were entering the Fort William port every year and to ensure boats would not be affected by ice in the spring and fall, the government employed the James Whalen tugboat (Figures 3.15 and 3.16) to keep the waters open (Canada Department of Marine & Fisheries and William Stumbles 1914, 164-5). This port was very successful prior to WWI because all ships arriving with goods were assured of returning to the East with grain rather than empty (Canada Department of Marine & Fisheries and William Stumbles 1914, 164). The 1919 general labour strike that broke out in the CPR rail yards on the bank of the Kaministiquia is another testament to this river's historical importance (Morrison 2012).

Mining activity in the Thunder Bay area around the Kaministiquia began in the mid-nineteenth century and included Rabbit Mount mine in 1882, followed by Beaver Mount, Porcupine Mount, Silver Creek, Little Pig Mount, and Big Bear Mount, all silver mines (Mountain 1973, 88). In 1905 construction began on the hydro dam above Kakabeka Falls to supply the town of Fort William (Mountain 1973, 100). This generating station was the first substantial source of power in northwestern Ontario and enabled the town of Kakabeka Falls to develop to serve both the dam and the growing tourist industry (Mountain 1973, 102-3). The station continues to operate today, diverting water above the falls through a series of above ground pipes that skirts around the falls and drain into the river downstream (Friday 1981). In recent decades repairs were required on the 3 m diameter pipe for the surplus water as large chunks of concrete were falling into the river (Friday 1981).

As early as 1848, the area along the Kaministiquia was advertised for farming but agriculture did not materialize until the railway came through several decades later (Mountain 1973, 91-2). Produce in the late nineteenth century included livestock, eggs, dairy, roots, grain, and vegetables (Mountain 1973, 92), all still grown in the area today. By 1911, farming along the river had developed to the point where it was supplying almost all of the region's food (Mountain 1973, 95). Prior to WWI, farmers along the river relied heavily on the sale of timber from their property to the sawmills, railways, and contractors (Mountain 1973, 96). The timber was used to make products such as dock pilings, railroad ties, and telephone poles (Mountain 1973, 96). Starting in 1919, pulp and paper mills were established on the Kaministiquia and used the river to move logs that were harvested upstream (Mountain 1973, 97).

Post WWII Activities

Much has changed along the Kaministiquia since the industrial boom. The river shoreline has changed very little. It is still saturated with industrial relics, cleared lands of old farmsteads, but the river has essentially lost all commercial traffic (Figures 3.17, 3.18, and 3.19). Back in 1909, 2002 vessels were recorded coming into and leaving the ports of Fort William and Port Arthur (Department of Marine and Fisheries 1912, 196). Even in 1965 a report recorded Thunder Bay as handling twice the amount of grain as the Vancouver port and twenty times the amount as the Churchill port (Young 1965, 1). A decade ago Thunder Bay was still the largest grain-handling centre in Canada (Huck 2000, 126). It involved a very large grain elevator on Mission River, medium-sized elevator on the Kaministiquia, and using several of enormous elevators on Lake Superior in Port Arthur but the river boat traffic is nothing like it once was.

For a time there was a boat called the Welcome Ship that offered tours of the Kaministiquia up to the location of Fort William Historical Park. It would even offered dinner cruises, but it was not an economic success and stopped running roughly a decade ago (Morrison 2012). With most of the industrial activity on Mission and McKellar Islands now closed, interest has been expressed in returning the island to their former agricultural activities but such a venture would require extensive bioremediation (City of Thunder Bay 2010, 14). The importance of the railways has also decreased drastically since the 1980s when all passenger service to the area stopped (Beaulieu and Southcott 2010, 114-5). The grain trade has also declined as the markets have shifted to the Pacific Rim countries (Beaulieu and Southcott 2010, 114-5). The city of Thunder Bay has been transformed from an industrial city into a service centre for the region (Beaulieu and Southcott 2010, 114-5). As a result, interest in the Kaministiquia has also shifted from that of an industrial centre to a place that offers all sorts of recreational potential (Beaulieu and Southcott 2010, 114-5).

In summary, the historical importance of the Kaministiquia River is simply too great to permit it to slip into obscurity. Traces of its history tucked away on the riverbanks and are waiting to be rediscovered.

Figure 3.17: (Top) *Boat "the City of Owen Sound Line" at dock at the foot of Brown Street, Fort William, Ontario,* photograph by S. Stevens, November 1886 (Courtesy of the City of Thunder Bay Archives)

Figure 3.18: (Bottom) *Photograph from the shore of the Kaministiquia River, today accessed either by the Brown Street pedestrian bridge over the Canadian Pacific Railway tracks or by a dead-end side street from South James Street*, 2013

Figure 3.19: (Left) *River-worn fragment of a brick found in the Kaministiquia adjacent to an abandoned brick and tile factory in Rosslyn Village*

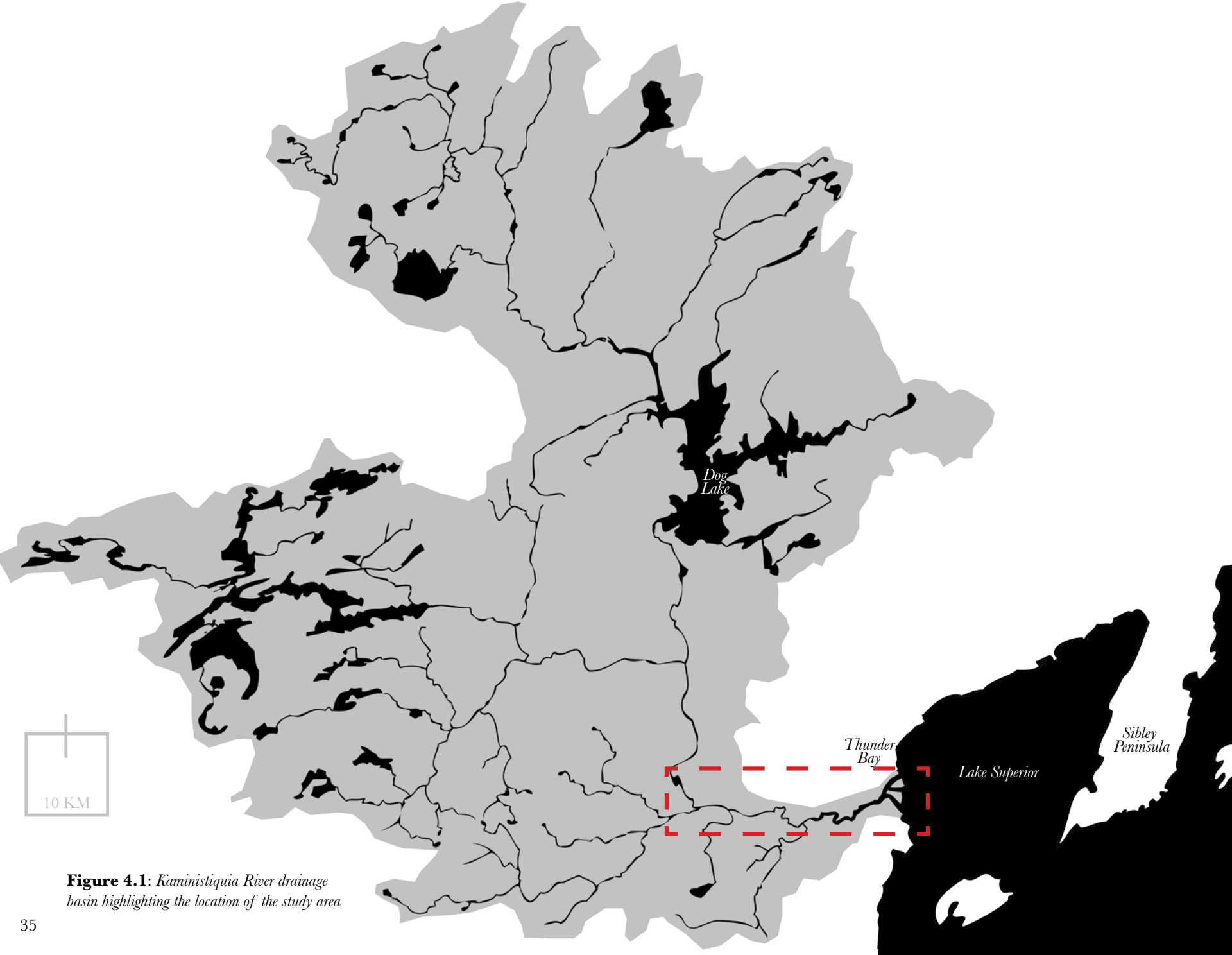


Figure 4.1: *Kaministiquia River drainage basin highlighting the location of the study area*

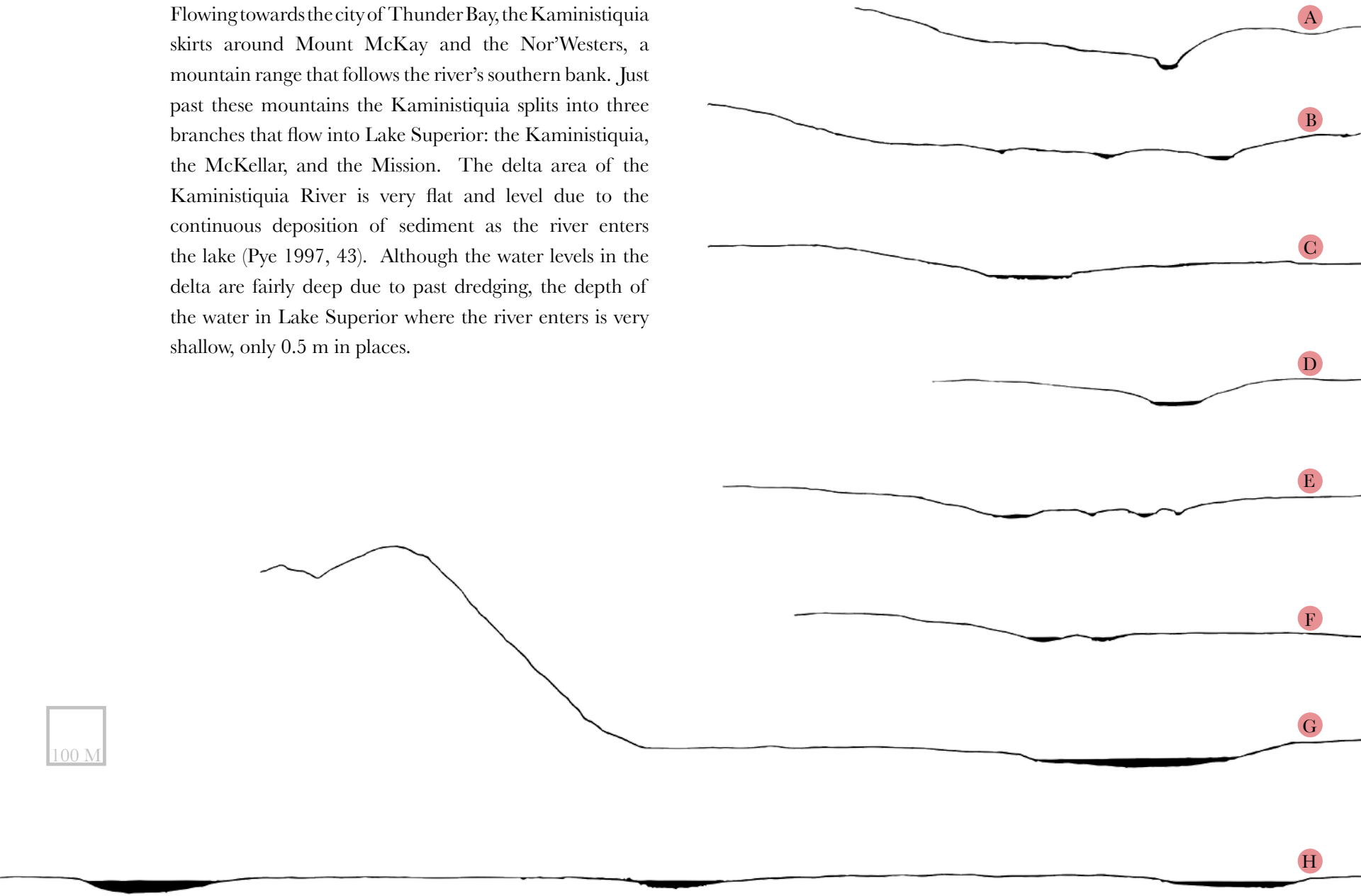
The Kaministiquia River offers some of the area's spectacular natural features such as Kakabeka Falls, Lake Superior, Mount McKay and the Nor'Westers. As with most northern rivers, the Kaministiquia is subject to flooding, drought, and freezing. Although much of the river flows through a heavily industrialized area of a large urban city, it still presents splendid variety of flora and fauna.

Topography

The Kaministiquia was formed from melting ice waters that started flowing when the Wisconsin glacial ice sheet receded for the last time around 8300 BCE (Ontario Ministry of Natural Resources 1978, 18). The topography of the meandering Kaministiquia is quite diverse and its banks fluctuate in height from 2 m to 18 m (Figure 4.2) (Wigle 1979, 1.3). The area around Kakabeka Falls is quite rugged with steep rocky cliffs and exposed outcrops. In this section the water levels can be quite low during the late summer, sometimes less than 0.5 m deep. As the river flows downstream the landscape becomes relatively flat with a few gentle hills. The water levels of the river through these areas fluctuate from very shallow to deep enough for motorized boats. Continuing downstream there are floodplain areas that contain relatively flat terrain. There are occasionally interrupted by steep cliffs such as at Rosslyn Village where the water becomes so shallow the river must be poled or lined if in a canoe (Figure 4.11).

Due to the river's meandering, there are a number of islands as well as two oxbow lakes, all of which are elements of a mature river (Figure 4.3) (Wigle 1979, 1.1). There is a series of rapids between Kakabeka Falls and Fort William Historical Park the most treacherous of which is known as the Paresseux Rapids, where the river drops 1.5 m in 275 m (Ontario Ministry of Natural Resources 1970, 9). These rapids are very rocky and were well documented as a demi-portage in the diaries of explorers such as Nicolas Garry in 1821 (McCann 1980) and Henry Hind in 1857 (Hind 1971, 34). As the river approaches Fort William Historical Park its water level is finally deep enough for motorized boats. The current from Kakabeka Falls to 1.5 km above the Fort is quite fast as there is an average bed slope of 0.2% and the depths range from 1 m to 2 m deep; the area below this point and all the way to Lake Superior is from 7 m to 9 m deep and the gradient is only 0.06%, resulting in a very slow current (Wigle 1979, 1.3).

Flowing towards the city of Thunder Bay, the Kaministiquia skirts around Mount McKay and the Nor'Westers, a mountain range that follows the river's southern bank. Just past these mountains the Kaministiquia splits into three branches that flow into Lake Superior: the Kaministiquia, the McKellar, and the Mission. The delta area of the Kaministiquia River is very flat and level due to the continuous deposition of sediment as the river enters the lake (Pye 1997, 43). Although the water levels in the delta are fairly deep due to past dredging, the depth of the water in Lake Superior where the river enters is very shallow, only 0.5 m in places.



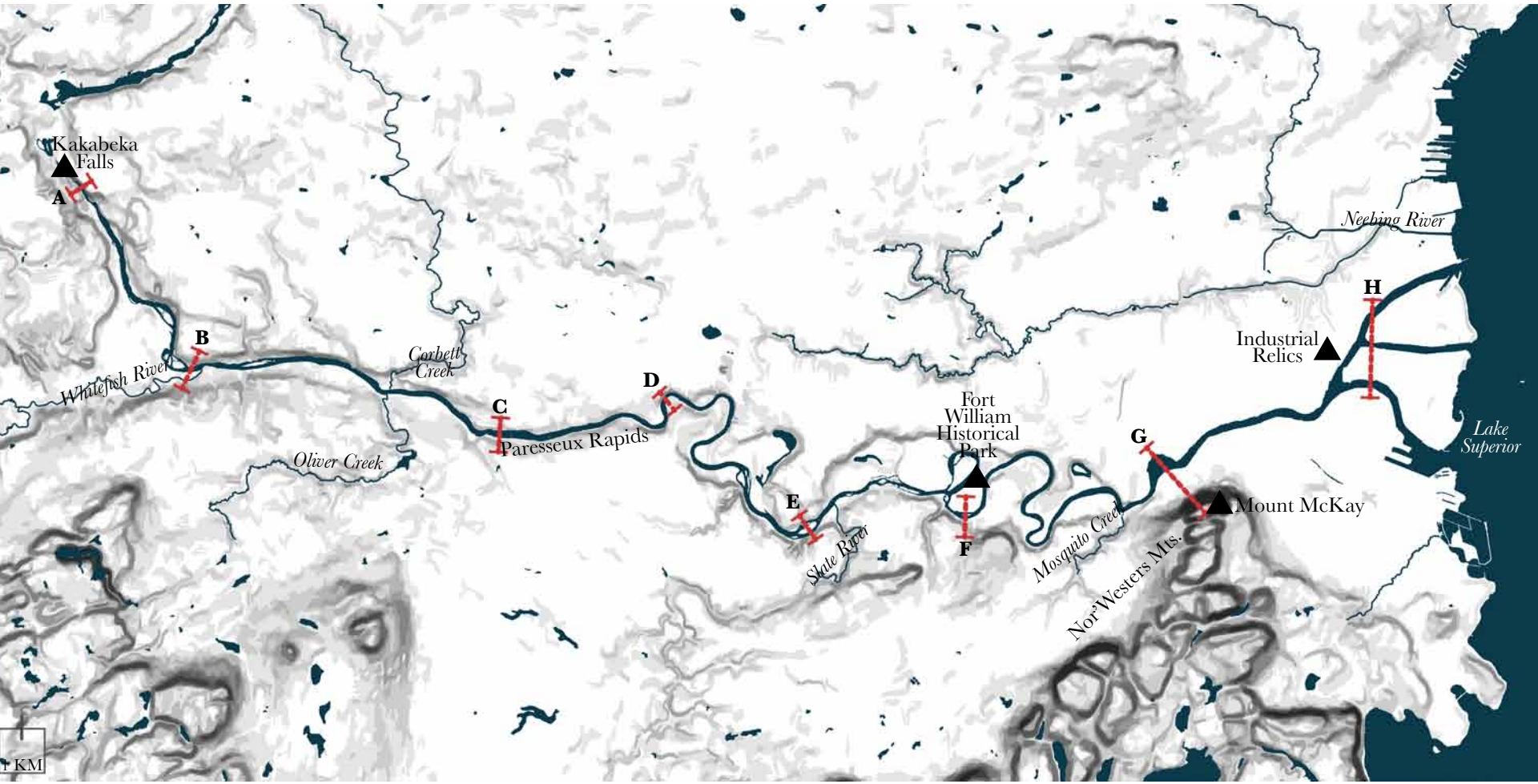


Figure 4.2: (Left) *Sections showing the varying topography of the Kaministiquia River*

Figure 4.3: (Above) *Map revealing the topography of the area, the river's highlights, and where the sections in Figure 4.2 are derived from*

Figure 4.4: *The Cackabakah (Kakabeka) Falls*, oil on canvas by Paul Kane, 1849-1856 (Courtesy of the Royal Ontario Museum, no. 912.1.17)

Geology & Soils

The glacial rivers that once flowed through the land were today the Kaministiquia runs were responsible for creating the large fairly flat terrain that is composed of Pleistocene lacustrine deposits (Mollard and Mollard 1983, 3). These types of glacial deposits provide excellent farming opportunities but also erode very easily. The alluvial plain over which the Kaministiquia flows is dotted with boulders that were deposited by receding glaciers (Mollard and Mollard 1983, 18). Sand dunes along the south bank of the river and run parallel to the Paresseux Rapids formed by wind action (Mollard and Mollard 1983, 21). The river near Kakabeka Falls contains more shale gravel and rubble substrates; then shifts to a sand and gravel mix near Stanley; and then changes to a gravel substrate near Rosslyn Village (Cullis et al. 1987, 7-8).

Mount McKay, tallest of the Nor'Westers, stands about 300 m above Lake Superior and 482 m above sea level (Mollard and Mollard 1983, 2). This large mesa is comprised of shale and greywacke of the Rover Formation, which has a 60 m thick protective capping (Pye 1997, 49). Evidence of beaches from a glacial lake can be found at the top of Mount McKay (Coleman 1898, 133). The area over which the Kaministiquia flows lies within the vast Precambrian Shield, a complex of ancient sedimentary, igneous, and metamorphic rocks (Ontario Ministry of Natural Resources 1978, 5). There are also a few marshes along the river, most notably at the oxbow lakes formed by the river and around Mission and McKellar Islands (Kirkwood and Murphy 1878, 183).

At Kakabeka Falls, often referred to as 'Niagara of the North', the Kaministiquia plummets 33 m and then falls another 3 m in a series of rapids (Mountain 1973, 4). This escarpment is comprised of Animikie slate (Coleman 1898, 133) with a layer of volcanic ashrock, topped with a hard caprock of Gunflint chert-carbonate over which the river flows (Pye 1969, 86). Geologists have found 2 billion year old stromatolites, great colonies of blue-green algae, at the base of the Falls (Huck 2000, 131). The iconic image of Kakabeka Falls is continually changing due to the erosive powers of the Kaministiquia River. At some point in the early 1850s a large chimney-shaped rock formation, as illustrated in a painting by the artist Paul Kane based on a sketch done in 1846 (Figure 4.4), collapsed and fell into the gorge below (Lister 2010, 212).

The following is a poem describing the sounds of Kakabeka Falls that are otherwise inaudible on paper.

Puny I felt as I stood on the dizzy heights,
Watching the "Kam" in his manic glee,
Growling and hissing, roaring, and dashing,
Like the Storm sprite of an angry sea.

Swift as the thunderbolt cleaving the heavens,
On rush the mad water downward to hell,
In that deep cauldron, foaming and boiling,
Surely the spirits of demons must dwell.

The roar of the waters, like Jove's mightly thunders,
Echoes afar among the green forest glades;
The mist that enshrouds the face of the tempest,
Oft glistens and shines with the rainbow's bright shades.

Here is the heart taught to reverence Dame Nature,
Here is the mind awed by that which appalls,
Here must the soul rise up to the Creator,
When standing beside Kakabeka's wild falls.

Kakabeka Falls, by John Wilson Robertson (the "Bard o'Glan Earie"), August 7, 1903

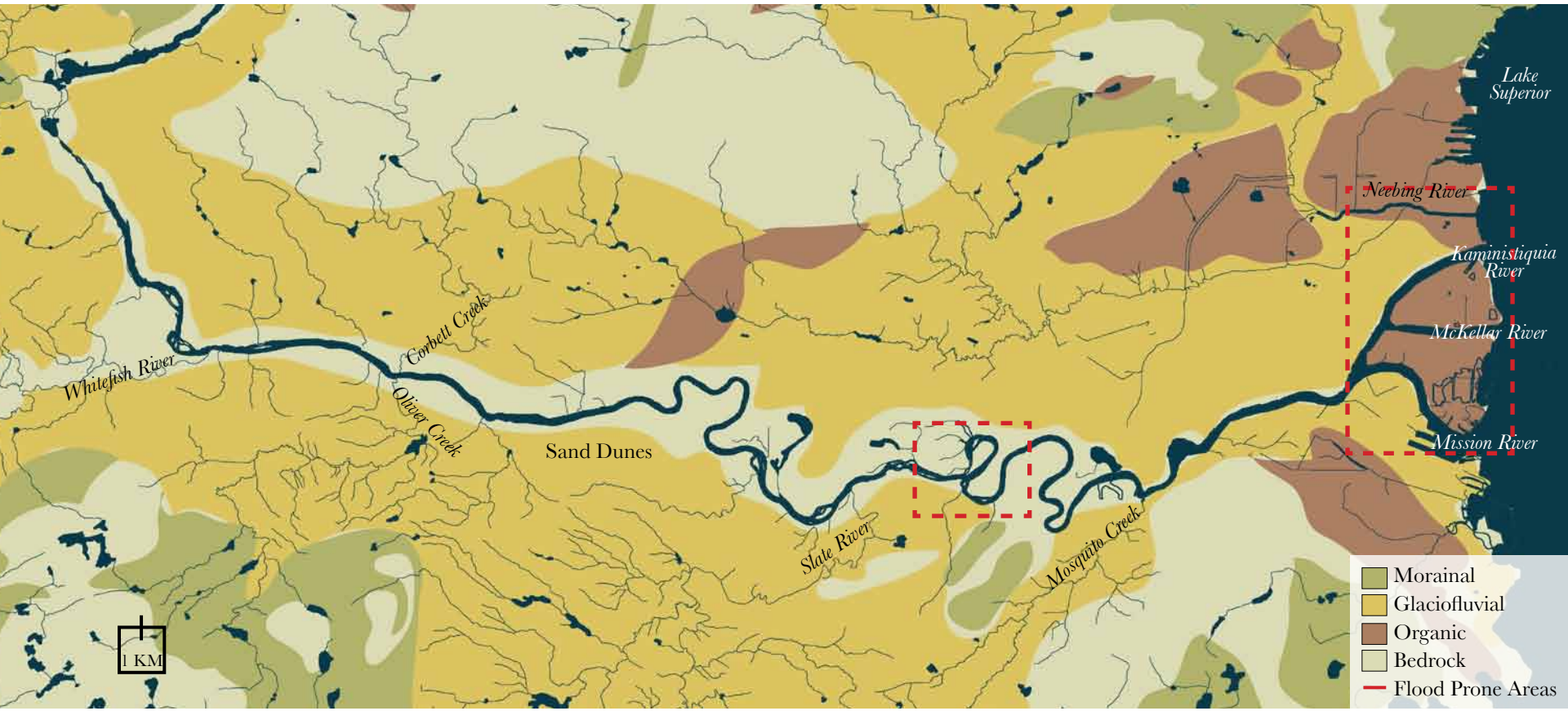


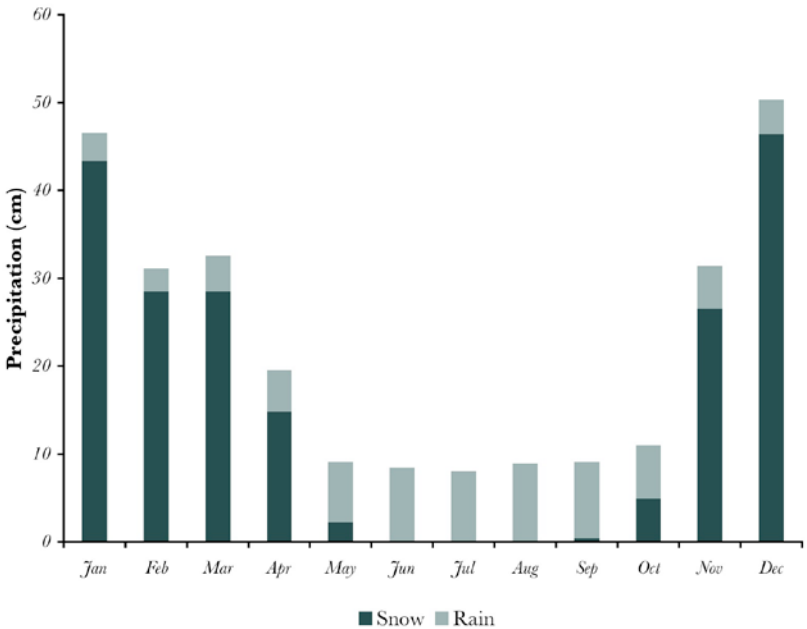
Figure 4.5: (Left) *A piece of what is believed to be obsidian rock that was found in the river*

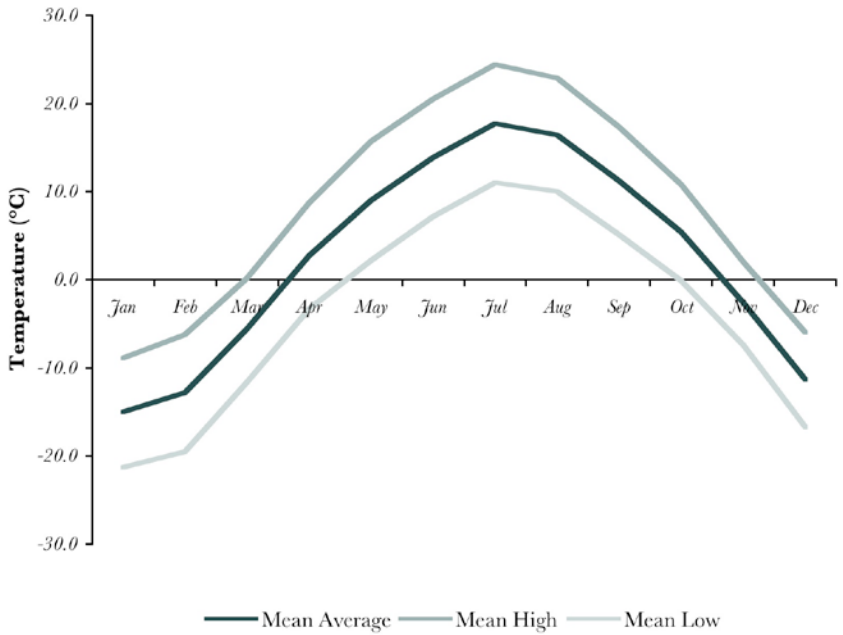
Figure 4.6: (Above) *Map of soil types and the tributaries of the Kaministiquia River*

Climate

Since the Kaministiquia flows past the Thunder Bay International Airport, the climatic data collected there is quite accurate for the river, especially the section closest to the city (Figure 4.8). The Thunder Bay area in general is greatly influenced by Lake Superior, resulting in cooler summers and slightly warmer winters than other Canadian cities at the same latitude (City of Thunder Bay 2009). In winter there is plenty of sunshine, which relieves the cold temperatures, as well as promoting outdoor recreational activities such as skiing, skating, ice fishing, and snowmobiling. Summers are characterized by evenings of cool breezes coming off the lake and plenty of sunshine, during the day both of which encourage outdoor activities such as canoeing, hiking, and cycling. Summer begins in early June when the final frost occurs and gives way to fall in early September when frost returns. Winter begins in early November with freezing temperatures and snowfall and lasts until late May. Spring spans only a very short period of one to two weeks in late May to early June when the snow disappears and the temperatures begin to rise.

Numerous substantial downpours and thunderstorms occur in July and August, although the major floods have occurred in the fall and spring because of snowmelt and the ground being saturated from continuous summer rainfall. Blizzards in the winter are not uncommon however in recent memory there has been the odd brown Christmas or two. During the summer, temperatures increase and humidity decreases in areas further away from the lake. The gorge area of Kakabeka Falls tends to experience a cooling effect from the shading of the steep cliffs as well as the cool wind that comes off Lake Superior and is funneled up through the Kam River Valley (Ontario Ministry of Natural Resources 1978, 4). Wind speeds in Thunder Bay are very consistent year round varying from 12 to 16 km/hr (Windfinder.com 2013). The predominant wind direction is from the West for most of the year except March to June, when it shifts and blows from the East, sometimes shifting slightly to the North or South.





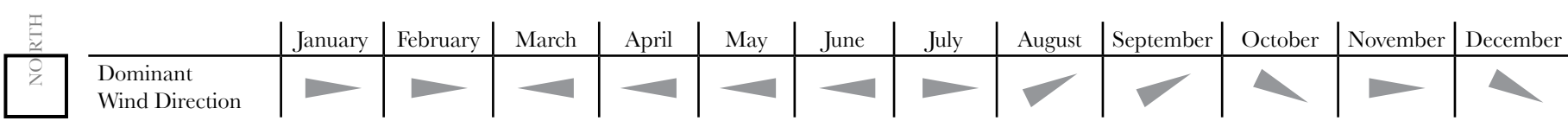


Figure 4.7: (Left) *View to Sleeping Giant from Mission Island Marsh Conservation Area in the winter*

Figure 4.8: (Above) *Climatic data for Thunder Bay* (City of Thunder Bay 2013), *Dominant Wind Direction for the Thunder Bay International Airport* (windfinder.com 2013)

Hydrology

The river starts as a vast swamp at the height of the land and eventually empties into the Atlantic Ocean via the Great Lakes (Dawson 1972, 3). The swamp runoff is responsible for the brown colouring of the water in the Kaministiquia (Yuma 1985). These swamps first drain into Dog River and Dog Lake, which then drains into the Kaministiquia. This watershed is approximately 7800 km² in size (Wigle 1979, 1.1). The Kaministiquia's major tributaries below Kakabeka Falls are Whitefish River, Slate River, and Corbett Creek (Beltaos et al. 2007, 5). It is one of the largest rivers that flows into Lake Superior (Kirkwood and Murphy 1878, 184-5). The upper reaches above Rosslyn Village average 128 m in width and 0.5 m in depth while its lower reaches average 123 m in width and 5.7 m in depth (Cullis et al. 1987, 6-7). In the shallow reaches scattered throughout the river are several deep pools ranging from 2 m to 3 m in depth (Cullis et al. 1987, 6-7). The surface temperature of the water in the summer ranges from 19°C to 25°C (Cullis et al. 1987, 6-7). As the Kaministiquia flows into Lake Superior it experiences a backflow of much colder and denser lake water that can be found upstream as far as the Westfort Turning Basin (Klose 1988, 17). The water table along the river is quite high and remains at or near the surface year-round. Therefore the land is generally unsuitable for both transportation routes and general construction (Mollard and Mollard 1983, 19). The only area along the Kaministiquia suited for construction is the developed industrial lands between Lake Superior and the turning basin (Mollard and Mollard 1983, Map 5048).

The Kaministiquia generally freezes over between early November and early December and is ice-free by the third week of April although some years the ice can disappear as early as February or stay into May (Hind 1971, 30-1; Beltaos et al. 2007, 9-10). Local knowledge maintains that the stretch of river around Stanley never completely freezes over nor, due to the heated water discharged from the mill, does the river freeze in the area around Resolute Forest Products (Beltaos et al. 2007, 9-10). There can be up to 15 days difference in the formation and thawing of ice between the area around Stanley and the area around Fort William Historical Park (Beltaos et al. 2007, 9-10). Snowmelt and heavy rainfall cause high water levels during May and early June (Wigle 1979, 1.1) but the water level drops by mid-June (Huck 200, 131). Two hydro dams on the Kaministiquia control the water flow; one is above Kakabeka Falls and the other is at the base of Dog Lake at the start of the Kaministiquia (Wigle 1979, 1.1). When the water level in the river is very high it is possible to see a plume of sediment being deposited as the river hits the cold waters Lake Superior (Smits 2012).

The contours of the river have changed quite a bit in the last two centuries (Morrison 2012). Evidence of its erosive nature can be found in the oxbow lake that formed near Point de Meuron sometime in the early 1960s when the river cut through its weakened banks to shorten its path (Beltaos et al. 2007, 2). Since that time there has been significant erosion to the riverbank downstream from this oxbow lake as the river adjusts to its new path (Beltaos et al. 2007, 2). Further evidence of erosion is seen in the formation of a large island opposite Fort William Historical Park. This island formed around three abutments that were left behind by an old bridge that was swept away between 1917 and the 1920s (Morrison 2012). This island did not exist when Fort William Historical Park first opened in the 1970s (Morrison 2012) but today is well established with vegetation.

Human intervention was manifested in dredging of the delta area that began shortly after the arrival of the railway (Figure 4.9). Prior to the 1980s dredging was very extensive as the pulp and paper industry, a major contributor of river sediment build up, had few if any pollution controls in place to help reduce its output (Acres International Limited et al. 1990, 4-20). After the 1980s, dredging in the McKellar River stopped completely but the Kaministiquia up to the turning basin and the Mission River were both periodically dredged to a depth of 7.6 m by the Canada Department of Public Works (City of Thunder Bay 2004, 3). As of 2010 dredging in the Kaministiquia, Mission, and McKellar Rivers has ceased (City of Thunder Bay 2010, 13). Only the Mission River, whose natural depth is 6 m, is still used for shipping (City of Thunder Bay 2010, 13).

Most rivers are prone to flooding and the Kaministiquia can flood year-round. The first recorded ice jam on the river was in 1860 when the delta area became jammed with ice (McKellar 1909, 18-23). Water backed up behind it and flooded all the low-lying areas (McKellar 1909, 18-23). Similar ice jams occurred in 1881 and 1893 (Figure 4.10) but dredging the river's delta and widening and deepening its channels helped prevent further similar ice jams in this area (McKellar 1909, 18-23). Additional major ice jams occurred further upstream in 1983, April 2003, and 2005-2006, all causing flooding at Fort William Historical Park (Beltaos et al. 2007, 5). Point de Meuron, where the Fort sits today, is a well-known flood-prone area as is the oxbow Horseshoe Lake (Wigle 1979, 1.3). There has been extensive flooding at Point de Meuron and other surrounding areas within the last forty years in other seasons. The first major flood occurred in September 1977 after the area received 150 mm of rain in 24 hours and the river rose nearly 1.6 m above its normal level, exceeding the predicted one-hundred year flood plan by

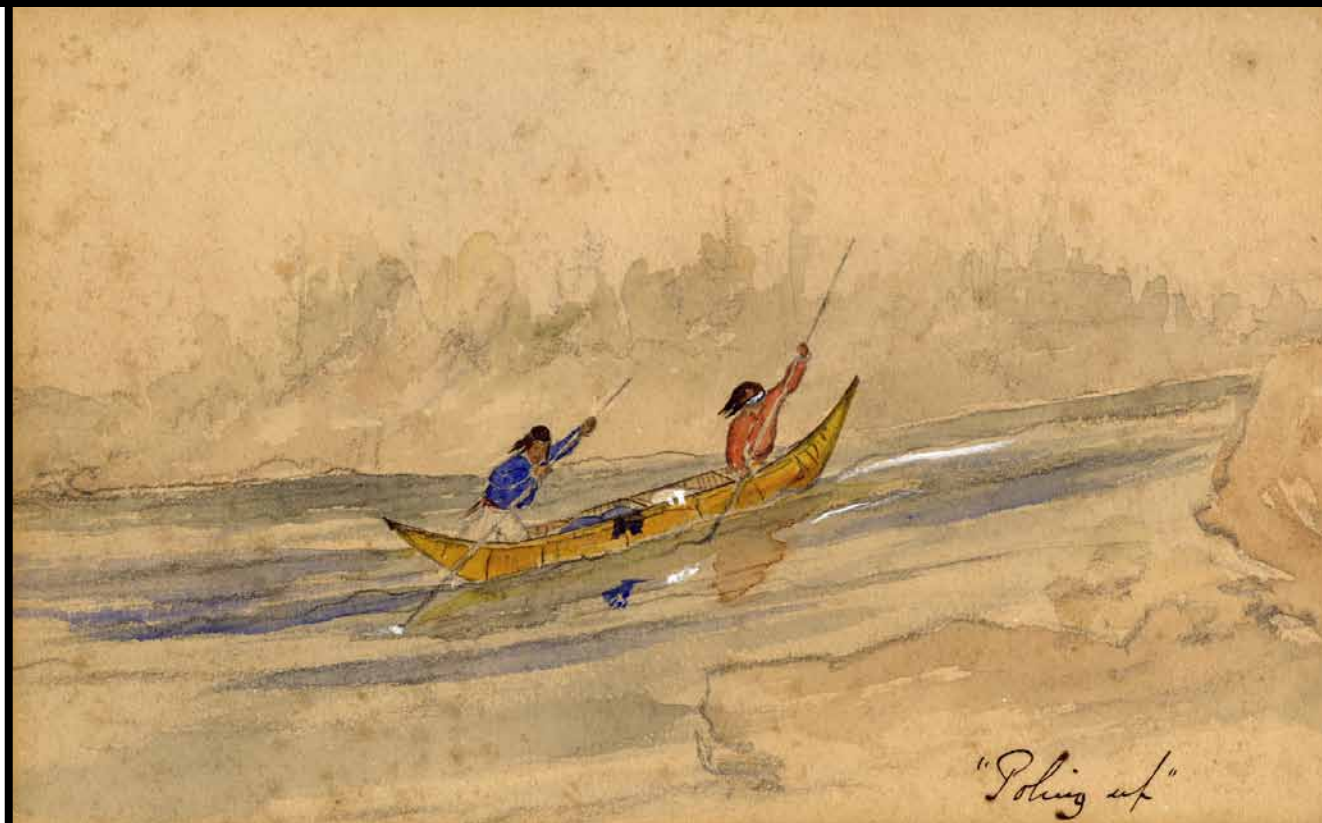


Figure 4.9: (Top Left) *Dredging the Mission River*, 1905 (Courtesy of the Thunder Bay Public Library)

Figure 4.10: (Top Right) *Ice jam on the Kaministiquia River*, May 10, 1893 (Courtesy of the Thunder Bay Public Library)

Figure 4.11: (Right) *'Poling up'* (the Kaministiquia River), watercolour by William Napier, 1857, (Courtesy of Toronto Regional Library, Baldwin room, JRR 2290)

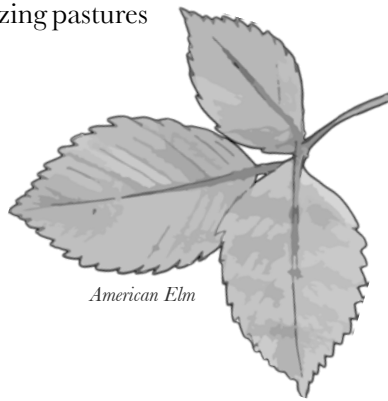
42% (Lakehead Region Conservation Authority 1977, 9). Significant damage occurred to the road system, three individuals perished, and a house in Vicker Heights came very close to falling into the river (Wigle 1979, 1-1; Lakehead Region Conservation Authority 1977, 3). Following this flood a minimum of 15 m setbacks from the river were established (Wigle 1979, 4-1) and the river bank surrounding the Vicker Heights area was reinforced with meshing that has since become completely overgrown with vegetation (Morrison 2012). The 1977 flood caused significant damage to Fort William Historical Park and its documents, artifacts, and assets (Lakehead Region Conservation Authority 1977, 2-3). After this flood it was recommended that a berm be constructed around the site to protect it from future floods (Wigle 1979, 3-5). Only after no less than five additional significant floods has the Fort decided to take action by constructing a berm (Dunick 2012). It will encircle the site but it will not distract the tourists or passers-by on the river by blending in with the natural surrounding topography (Dunick 2012).

Damaged caused by the 1977 flood paled in comparison to the damage caused by flooding in late May 2012 when the area received more than 100 mm of rain in less than 24 hours (Canadian Broadcasting Corporation 2012A). The excess water flooded low-lying areas near the river. The Kaministiquia was deemed off-limits as it was too dangerous to navigate, and the Trans-Canada Highway (11/17) was completely washed out, as were many other roads (Canadian Broadcasting Corporation 2012A). The major source of the damage was the failure of the Atlantic Avenue Secondary Sewage Treatment Plant, which discharges into the Kaministiquia. Sewage backed up into approximately 450 homes resulting in an estimated 4.2 million in damages (Canadian Broadcasting Corporation 2013); 43.9 million in damages to the city's infrastructure was also reported (Westover 2013). Damages to the provincial highways and in the private sector have not been reported publicly as of September 2013.

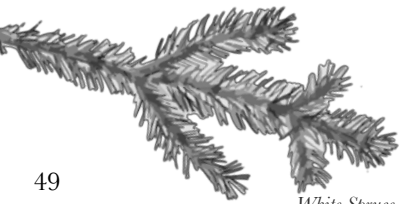
Flora

The flora along the banks of the Kaministiquia is typical of the plant communities found in the Great Lakes-St. Lawrence Forest. However as this is a transition zone species of the Boreal Forest are also represented (Ontario Ministry of Natural Resources 1978, 13). No recent study of the flora on the banks of the Kaministiquia, between Lake Superior and Kakabeka Falls, could be found. Therefore a variety of sources were consulted in order to generate lists of the species that are present or should be present in this area. For the complete list of flora for this area consult *Appendix A*. The tree species observed during visits include but are not limited to: paper birch, trembling aspen, tamarack, jack pine, balsam fir, eastern white cedar, white spruce, red and black ash, mountain ash, chokecherry, tag alder, alternate-leaf dogwood, shining willow, and nannyberry. The area surrounding the confluence of the Whitefish and Kaministiquia Rivers is botanically unique for the region and contains American elms, Manitoba maple, Bur Oak, Wood Nettle, Turtlehead, and Carrion Flower (Ontario Ministry of Natural Resources 1970, 9; Thunder Bay Field Naturalists 2013). The Thunder Bay Field Naturalists established a 12 ha nature reserve in this area in 2001 to help protect this regional anomaly.

Forest fires and human habitation have both transformed the landscape of the banks of the Kaministiquia during the past three centuries. In the second half of the nineteenth century it was documented that the north shore of the river to the west of Point de Meuron had been completely deforested as a result of a large forest fire (Kirkwood and Murphy 1878, 184). McKellar Island, once covered in tamaracks, was recorded as being deforested by the Northwest Company for fuel and to create grazing pastures for their cattle (Hind 1971, 26).



American Elm



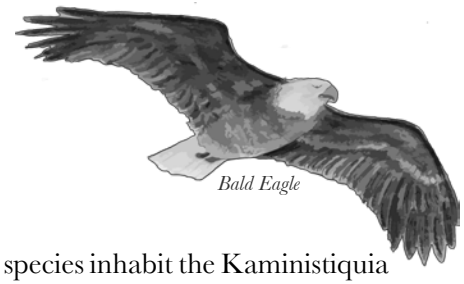
White Spruce

Blue Cohosh

Figure 4.12: *Pond lily in the oxbow lake of the Kaministiquia River*

Figure 4.13: *Northern leopard frog in the Kaministiquia at the Ridler Drive access point*

White-Tailed Deer



Bald Eagle

Fauna

A great number of fauna species inhabit the Kaministiquia and the surrounding territory. For a complete list of all the documented species refer to *Appendix B*. Suckers are by far the most abundant fish inhabiting the river, consisting of about one-fourth of all fish (Cullis et al. 1987, 9). Other fish species include but are not limited to: walleye, smallmouth bass, northern pike, yellow perch, black crappie, and rock bass (Cullis et al. 1987, 10). In recent years the Ontario Ministry of Natural Resources (MNR) has begun implanting tracking devices in large walleye to obtain information on spawning locations and is requesting information from fishermen in order to assess the state of the lake sturgeon in the river and surrounding bay area (Canadian Broadcasting Corporation May 2012; MNR 2012). Introduced salmon species, such as Chinook and Coho, and have also been found in the Kaministiquia (City of Thunder Bay 2004, 6).

Several bird species, both local residents and migratory, have been documented in and around the Kaministiquia River, particularly in the marshlands where the river meets Lake Superior. Species personally observed by the author while canoeing the river include: Canada geese, mallards, a belted kingfisher, a great blue heron, a bald eagle, and cormorants. At least 37 species of birds have been recorded nesting in the marshes of the Kaministiquia delta (City of Thunder Bay 2004, 3). These marshes provide valuable food, shelter, and rearing habitat for both local inhabitants and about 90% of the migratory bird and fish species (City of Thunder Bay 1997, 12).

Several species of mammals are known to inhabit this area. Although only white-tailed deer and river otters were observed during the series of canoe trips, on previous and subsequent visits to the river and its surrounding area many other species were observed including: the eastern chipmunk, red and eastern grey squirrels, beaver, marmot, striped skunk, raccoon, black bear, and moose. Leopard frogs and painted turtles have also been observed along the riverbank. Woodland caribou and passenger pigeon once inhabited this area but have become locally extinct with the arrival of Europeans (Yuma 1985).

In summary, the Kaministiquia hosts a unique blend of physical features such as a waterfall, rapids, mountains, steep rock cliffs, alluvial plains, rolling hills, and so forth that are available for discovery. It is prone to frequent flooding but is available for human recreation in every season. It also presents a mix of biological features typical of both Boreal and Great Lakes ecosystems.

Lake Sturgeon

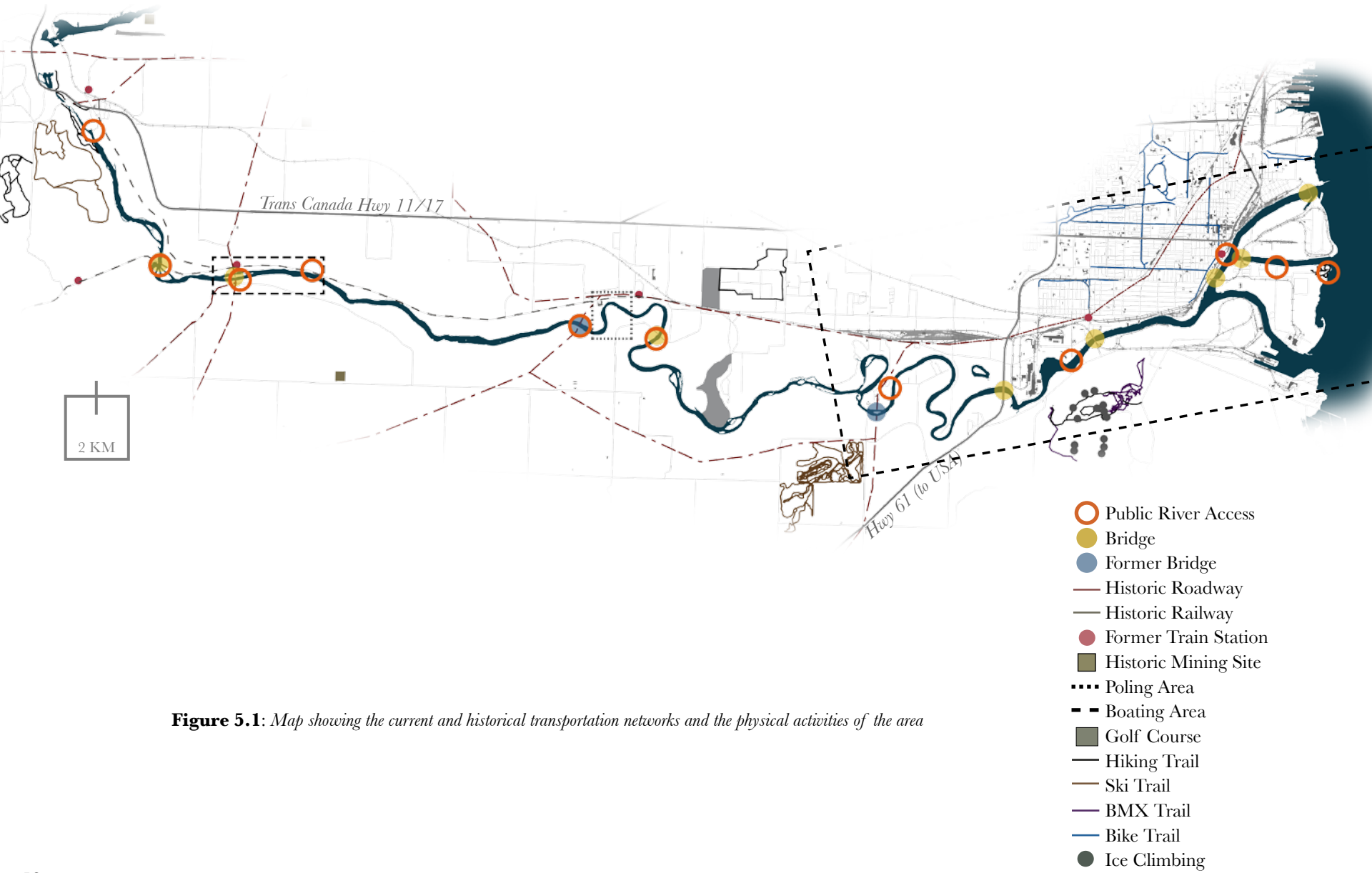


Figure 5.1: *Map showing the current and historical transportation networks and the physical activities of the area*

Since the Kaministiquia River flows through Thunder Bay, it is important to review the constructed, civil, and social elements of this large urban centre that affect the river. The constructed context primarily concerns the transportation networks surrounding the river: boat access, bridges and roadways, rail, trails, and current river access (Figure 5.1). The civil context includes governance, demographics, and land ownership. The social context includes contaminants, parks, and recreation.

Transportation Networks

Boat Accessibility

The depth of the Kaministiquia varies quite significantly throughout its journey from Kakabeka Falls to Lake Superior and as a result not all reaches can be accessed by all sizes of marine vessels. Thanks to dredging large freighters were once able to navigate up the river to the Westfort Turning Basin. Today only the Mission River has a depth sufficient for large boats to access the two operational grain elevators. Small motorboats, such as pontoon boats and recreational fishing boats, can access a small area around Stanley, as evidenced by the number of boats moored along the shore adjacent to private houses there. Small motorboats can also access the river to roughly 1 km upstream from Fort William Historical Park and then downstream to and including Lake Superior.

Small watercraft, such as canoes, kayaks, and rafts, can access the river from the Ontario Power Generation hydro station near Kakabeka Falls and the rest of the river to the lake. The Paresseux Rapids can be easily run by experienced canoeists and kayakers without incident but beginners need to line their boats from shore as it is not difficult to become beached on rocks or to be overturned. At a small area around Rosslyn Village the river becomes so shallow that even small watercraft must be either poled or lined from shore. Based on challenges experienced firsthand by the author the suggested skill level of the canoeist has been mapped for the river.

Bridges & Roadways

Bridges are an essential component to any river system. They enable expedited transportation of both goods and people across the river. A total of eight bridges currently span the Kaministiquia below Kakabeka Falls though there were once bridges at two additional locations. The Harstone Road bridge was originally a wooden railway trestle but was rebuilt in 1922 into the solid concrete

and steel bridge that stands today (Battistel 2011). The Stanley bridge was once a primitive crossing that in the late nineteenth century provided access to the silver mines in the West (Arthur 1973).

Over a century ago there was on the maps a basic wooden bridge crossing the Kaministiquia by Rosslyn Village. Figure 5.3 is the only known visual record of this bridge; no trace of it remains today. Immediately downstream a bridge over Highway 130 leads south towards the border with the United States. Prior to this bridge's construction there was a ferry crossing service here (Arthur 1973). Further downstream there was once a small wagon crossing bridge at Point de Meuron. Although the bridge swept away nearly a century ago, its abutments are still in place and have enabled an island to form around them in recent decades (Morrison 2012). The main highway that vehicular traffic takes to reach the United States is Highway 61 and its bridge is a modern concrete structure built to support full-loaded logging trucks and other commercial traffic traveling in excess of 90 km/hr.

The Swing or James Street bridge, built by the Grand Trunk Pacific Railway, was designed to accommodate vehicular traffic and rail traffic. It pivots to one side in order to enable large freighters to travel through the river below to reach the turning basin and industrial warehouses. Both the tracks and the road are still actively used but the bridge does not need to pivot as the river is no longer dredged for large boats. The Jackknife Bridge, built by the Canadian Pacific Railway (CPR) in 1913, was also designed to service rail, road, and large boats passing below by lifting up (Figure 5.2) (City of Thunder Bay, no date). The upper level was used for vehicular traffic while rail occupied the lower level (City of Thunder Bay, no date). Today the bridge is still actively used by rail but it no longer lifts up and its road portion was dismantled in 2004 due to hazardous conditions (City of Thunder Bay, no date). Today it is under consideration to be incorporated into a recreational trail (City of Thunder Bay, no date).

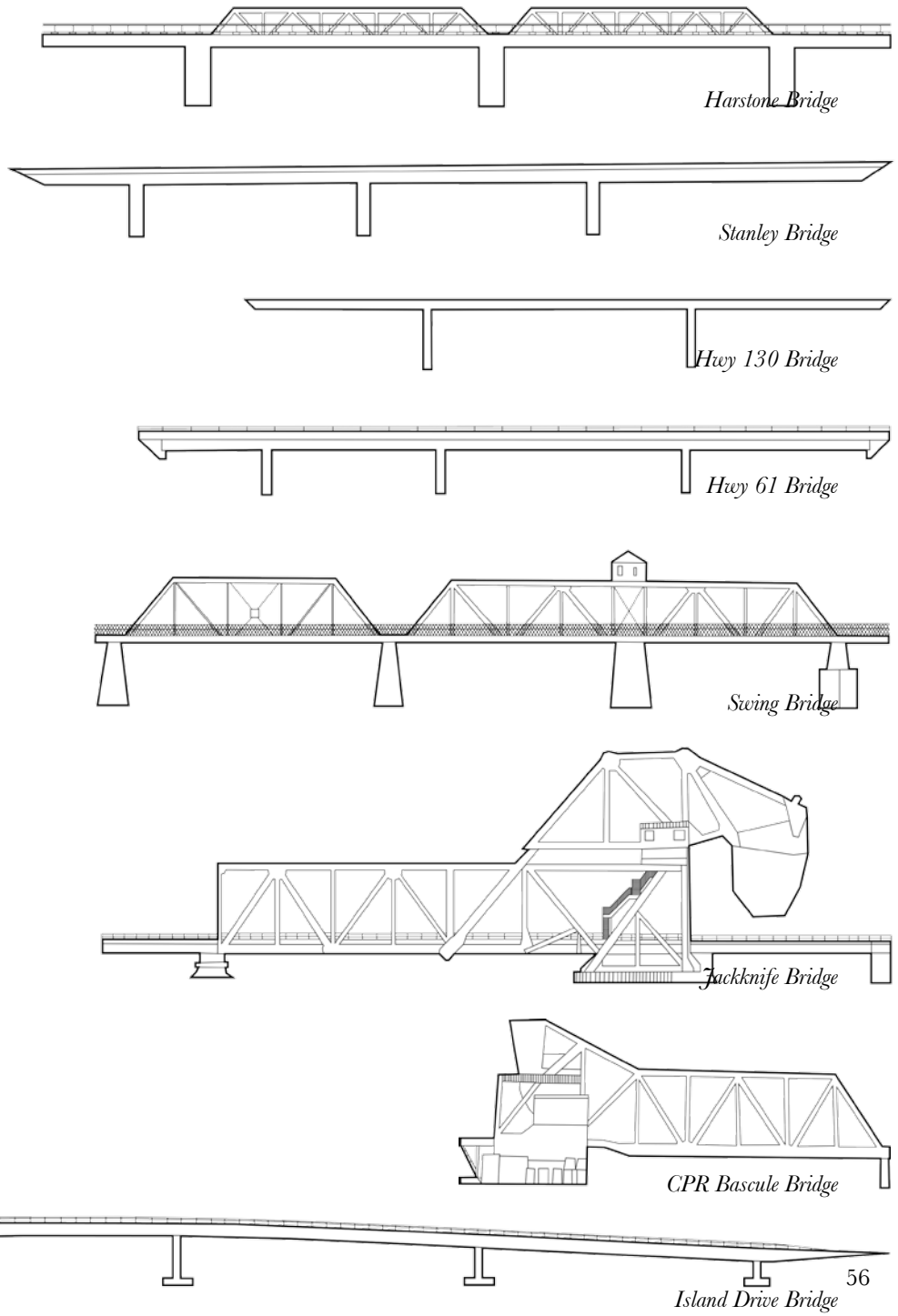
The CPR Bascule bridge operated in a similar manner as the Jackknife bridge by lifting up to permit river traffic below. Today it continues to provide road and rail access but it no longer lifts for river traffic. The Island Drive bridge is the newest addition. At the time it opened in 2002, it was the longest integral abutment bridge in Canada and was intended to replace the Jackknife bridge for vehicular traffic and to remove industrial traffic from the Fort William downtown core (City of Thunder Bay plaque from 2002, located at the Island Drive wetlands adjacent to the Island Drive bridge).

No road completely follows the Kaministiquia River from

Figure 5.2: (Above) *Jackknife bridge raised for the boats*, 1924 (Courtesy of the Thunder Bay Public Library)

Figure 5.3: (Below) *Only known photograph of the Rosslyn bridge crossing at Ridler Drive (formerly Hill Street) with youths playing hockey*, no date (Courtesy of the Duke-Hunt Museum)

Figure 5.4: (Right) *The bridges of the Kaministiquia River below Kakabeka Falls*



Kakabeka Falls to Lake Superior. The Trans-Canada Highway (11/17) is the fastest method to reach the falls from the lake but it follows the river at a fair distance away. Harstone Road, which later becomes Rosslyn Road as it approaches Rosslyn Village, is the only road that closely follows the river although most views of the river are hindered by the densely vegetated riverbank. Other roads terminate at the river, or cross the river, or follow the river for brief intervals. All offer short glimpses of the river. In downtown Fort William it is not even possible to see the river from the road as there is simply too much private development, including rail lines, that block the river from view.

Rail Lines

Trains are a constant presence in Thunder Bay and both Canadian National Railway (CN) and CPR have tracks for non-passenger service coming in and out of the city. CPR's rail yards are located overtop of the Northwest Company Fort William site on the Kaministiquia. CN's rail yards run parallel to the harbour on the north side of the city but CN also owns the former Grand Trunk Pacific Railway lines that cross the Kaministiquia using the Swing bridge to access industry on the river's south shore. Both rail lines leave the city heading west at a considerable distance from the Kaministiquia and both cross it above Kakabeka Falls at different locations. Nearly 125 years ago the Port Arthur, Duluth and Western Railway established a line from the marina area of Thunder Bay, following the Kaministiquia, crossing it at Harstone bridge, and eventually arriving at Gunflint Lake near the United States border (Battistel 2011). The rail line was intended to service the silver mines located to the southwest of the river but when the silver industry collapsed in 1892 the company struggled to stay afloat by offering passenger rail service with stations along the river at Rosslyn Village, Stanley, and Harstone (Battistel 2011). Eventually the company went bankrupt and was purchased by the Canadian Northern Railway, later then CN, around the turn of the century (Battistel 2011). Although the tracks were all taken up many decades ago, the route of this former rail line is still traceable as it became Rosslyn and Harstone Roads.

Trails

Pedestrian-only trails along the Kaministiquia are only found in a few locations. Hiking trails exist beside the river at Kakabeka Falls, tracing part of the historic Mountain Portage route, but sections of some of these trails are very steep and in serious need of maintenance. Fort William Historical Park claims to provide trails on the oxbow island lake close by to its site, however they are so overgrown they are difficult to discern from the dense forest. The city-operated Kam River Heritage Park has a wonderful public 500 m concrete boardwalk that follows the river.

Mission Island Marsh Conservation Area also has a few trails requiring maintenance and a boardwalk along Lake Superior. Mount McKay offers a lookout area that has wonderful views of the Kaministiquia and has a trail to its summit (also in need of maintenance).

In addition to the few scattered pedestrian trails found in isolated locations along the river, there are a handful of bicycle motocross (BMX) trails that use the riverside of the Nor'Westers and a few cross-country ski trails near the river. It is surprising that the river itself is not advertised as a ski route. The City of Thunder Bay is currently in the process of trying to create a continuous recreational trail through the city, part of which will, where possible, follow the Kaministiquia around the delta area (City of Thunder Bay 2010, 13).

River Access

Accessing the Kaministiquia is not very difficult if one knows where to go. Such information is not found on maps or other easily accessible published sources. For this practicum information on river access was principally discovered by driving on roads along the entire stretch of the river Ontario Ministry of Natural Resources maps, at times not accurate, were employed to find areas that where one would encounter the river. A total of twelve locations between Kakabeka Falls and Lake Superior were discovered and are considered potential river access points. The proximity of the road system, physical accessibility, and nature of the riverbank were all considered when formulating this list. All twelve locations are public or privately sponsored and only one is commercially operated. Those launches very overgrown or accessed by stairs were deemed to only be accessible to rafts, canoes, kayaks, and other portable watercraft. Detailed summaries of each of these river access points follow. Further discussion of how each of these access points may or may not currently engage the community is found in the subsequent chapter.

Figure 5.5: *Fragment of glazed tile found in the Kaministiquia River*

River Access Points

Hydro Station

Location	Beside the hydro outflow station via Hydro Station Road
Ownership	Ontario Power Generation
Access Type	Portable craft only
Description	Large concrete barrier between the parking area and the bank Riverbank is a steep slope covered in loose rocks Current in river at the base of the slope is very fast and turbulent
Signage	Sign posted only at the location designating where public access is permitted
Found By	Access road is on maps but river access was only confirmed by visiting site
Cost	Free but no long-term parking

Harstone Road

Location	Adjacent to Harstone Road bridge
Ownership	Oliver-Paipoonge Township
Access Type	Portable craft only
Description	Grassed makeshift parking area with wooden steps (steep rise) down the bank Current at this location is slow and the water level is quite shallow
Signage	No signage anywhere
Found By	Contacted River Rat Rentals (local business that drops patrons off at this location to go tubing down the Kaministiquia to Stanley)
Cost	Free with no known restrictions

Stanley

Location	Adjacent to the bridge at Stanley, location of the Oliver Daunais plaque
Ownership	Oliver-Paipoonge Township
Access Type	Small motorboats and portable craft
Description	Gravel and grassed parking area off River Road at Highway 588 Launch is a shallow incline but is overgrown and contains muddy wheel ruts Current at this location is slow enough to safely launch boats
Signage	No signage anywhere
Found By	Seen in aerial photos and confirmed by visiting site
Cost	Free with no known restrictions

Oliver-Paipoonge

Location	Along Rosslyn Road, near Highway 588
Ownership	Oliver-Paipoonge Township
Access Type	Portable craft only
Description	Small grassed parking area off to the side of the road Wooden steps lead to river, ending only a foot from the water, muddy bank Current is slow, large logs and dense brush make the shore difficult to access
Signage	No signage anywhere
Found By	Discovered while driving along Rosslyn Road
Cost	Free with no known restrictions

Ridler Drive

Location	End of Ridler Drive, adjacent to a farm, off of Rosslyn Road
Ownership	Oliver-Paipoonge Township
Access Type	Portable craft only (due to shallow water), shallow grade permits boat trailers
Description	Heavily overgrown launch, deliberately blocked by 3 large logs Water is very shallow and current is very slow
Signage	No signage anywhere
Found By	Was listed in a document from 1970s under its former name, Hill Street, its location was verified by speaking with the local museum curator
Cost	Free with no known restrictions

Highway 130

Location	Adjacent to Highway 130 bridge
Ownership	Crown land, Government of Ontario
Access Type	Portable craft only (trail leading to water would be very difficult with a 4x4)
Description	Very steep overgrown slope with deep wheel ruts between highway and river Riverbank is grassed over but the slope is manageable Current is manageable and water level is very shallow and rocky
Signage	No signage anywhere
Found By	Was listed in a document from 1970s, confirmed by visiting site
Cost	Free with no known restrictions, although nowhere to park

Fort William

Location	At the Fort William Historical Park
Ownership	Government of Ontario
Access Type	All motorboats and small portable craft
Description	Area is grassed, launch is unpaved and rather steep for trailers A wooden dock permits easy access into watercraft Current is slow and the water level is quite deep
Signage	Only at launch location
Found By	Listed on the park's website, no information about fees is listed
Cost	$10 per visit to launch or dock, only accessible when Fort is open for business

Riverdale Road

Location	End of Riverdale Road
Ownership	Assumed to be the City of Thunder Bay
Access Type	All small motorboats and portable craft
Description	Paved road ends just above launch, somewhat hidden by vegetation on sides Not maintained but ground appears stable to support launching boats Water is deep and the current is slow
Signage	No signage anywhere
Found By	Noted that road ended near river on maps, drove to confirm possible launch
Cost	Free with no known restrictions

Mountdale Avenue

Location	At the end of Mountdale Avenue
Ownership	City of Thunder Bay but sponsored by Neste Chemicals
Access Type	All motorboats and portable craft
Description	Gravel parking lot, often overcrowded in the summer with trucks and trailers Paved boat launch, manageable slope, adjacent dock for embarkment Water level is deep and the current is slow, wooden dock for shore fishing
Signage	Only signage is located a few blocks away from the launch site
Found By	Listed online but not easily found, known about its existence for years
Cost	Free with no known restrictions

Kam River Park

Location	Kam River Heritage Park and adjacent abandoned industrial property
Ownership	City of Thunder Bay
Access Type	Park is portable craft only, area adjacent may permit small motorboats
Description	Two launches for canoe/kayak, each has a ramp to a plastic floating dock Motorboat launch is steep, covered in gravel, rocky, and partly washed out Water level is very deep but the current is slow
Signage	Only one sign for the two canoe/kayak launches in the park
Found By	Visiting the park and the adjacent by wondering around
Cost	Free but park has posted hours of operation, 6am-11pm

Mission Island

Location	On Mission Island off 106th Street
Ownership	City of Thunder Bay
Access Type	All motorboats and portable craft
Description	Large paved parking area, no vehicles or trailers were noted Offers two paved boat launches, each as a wooden dock for embarkment Gentle slope into deep water, current is gentle
Signage	Only signage is posted at the entrance road to the launch site
Found By	Noticed sign during visit to Mission Island Marsh Conservation Area
Cost	Free with no known limitations

Mission Marsh

Location	Mission Island Marsh Conservation Area
Ownership	City of Thunder Bay, leased to Lakehead Regional Conservation Authority
Access Type	Portable watercraft only
Description	Paved parking area descends inconsistent steep then shallow slope to water Area is grassed, drop from grassed area to water level is 0.5-1m Water is very shallow and dirty, medium to heavy waves from Lake Superior
Signage	No signage related to water access
Found By	Visiting the site
Cost	Free but park has posted hours of operation, 6am-11pm

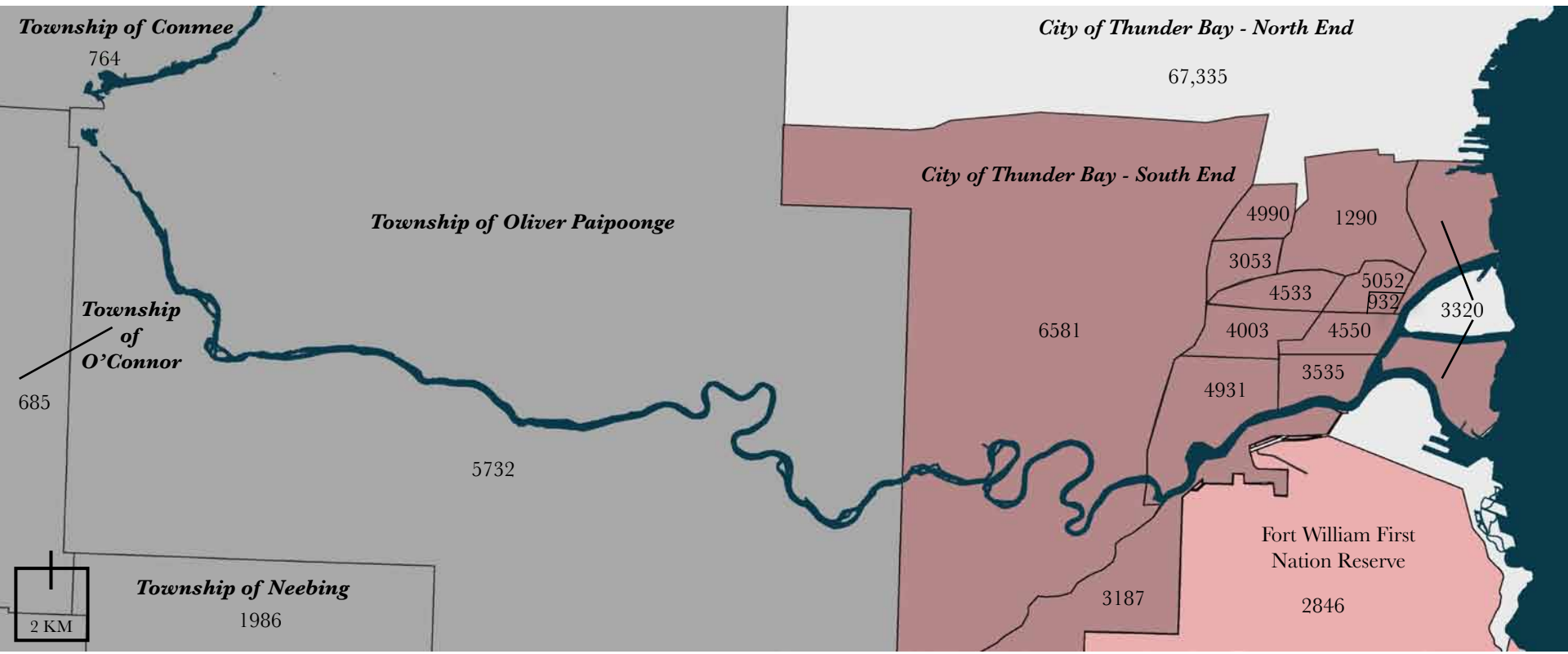


Figure 5.6: *Population distribution around the Kaministiquia River* (Statistics Canada 2011)

Governance, Demographics, & Current Land Ownership

The 27 km stretch between Kakabeka Falls and Rosslyn Village is generally unaffected by major development (Cullis et al. 1987, 7). There is a hydro generating station located at the base of the falls, but it only releases water back into the river system that it had dammed further upstream and funneled around the east side of the falls. The lower 20 km course of the river between Rosslyn Village and Lake Superior progressively shifts from rural to heavy industrial development (Cullis et al. 1987, 7). Residential houses occupy the Kaministiquia's riverbank in four roughly defined areas: Stanley, Rosslyn Village, Riverdale Road area, and Vickers Heights. The exact populations of the hamlets of Stanley and Rosslyn Village are unknown as both are a part of the overall population for the Oliver-Paipoonge Township which covers a very large area (Figure 5.6). There is only one residential house on McKellar Island and nine remaining houses on Mission Island as the City of Thunder Bay has a mandate to eliminate housing from the island by buying properties when they are up for sale (City of Thunder Bay 2010, 9). Between the railways and the tracks on the Kaministiquia's north shore there are only two houses, while the areas of Westfort, Fort William, and the East End are fully developed residential areas (City of Thunder Bay, 2010, 9). On the Fort William First Nation reserve nearly all of the inhabitants live inland separated from the river by the train tracks that line it.

City of Thunder Bay

The City of Thunder Bay owns a handful of parcels of land along the delta of Kaministiquia. Its holdings include the Kam River Heritage Park, the Island Drive Conservation Area, and several parcels on Mission Island including a boat launch, a former wood factory, and the Mission Island Marsh Conservation Area (City of Thunder Bay 2010, 5). In addition to its land holdings the City owns a large water lot that extends from Mission Island up to and including Humble Island, a small water lot in front of Keefer Terminal to the north of the Kaministiquia, and a small water lot off the north shore of McKellar Island (Lakehead Marine Infrastructure Survey 1978, 61-93). The City also discharges its secondary waster water after treatment near the mouth of the Kaministiquia (Smits 2012).

Oliver-Paipoonge Township

The Township of Oliver-Paipoonge covers a very large area that includes much of the Kaministiquia and the small villages and hamlets called Kakabeka Falls, Stanley, and Rosslyn Village. The township only owns and maintains the land where there are river access locations including

Harstone bridge, Stanley bridge, Harstone Road, and Ridler Drive.

Fort William First Nation

The Ojibwa who were living near the Fort William trading post signed the Lake Superior Treaty in 1850 (Lytwyn 1995). This established a reserve along the Kaministiquia that originally covered a much larger area than today. Much of the land was overtaken by private industry in the late nineteenth century (Beaulieu and Southcott 2010). Not all the reserve land developed by industry was legally acquired and as a result the Fort William First Nation has been seeking to reacquire their land and to receive proper compensation from the government (Indian Claims Commission 1999). They were successful in regaining all of their land including 1.8 ha waterfront property that had been taken by Grand Trunk Pacific Railway of which their ancestors had been forced out of their homes in 1905 (Indian Claims Commission 2000). The reserve also owns a recreation centre located beside the Swing bridge that hosts 45 m of frontage (City of Thunder Bay 2010, 5).

Province of Ontario & Crown Lands

Nearly all of the land along the Kaministiquia between Kakabeka Falls and Lake Superior is privately owned. The Province of Ontario owns and operates Kakabeka Falls Provincial Park as well as Fort William Historical Park. There are a couple of parcels of land located to the south of the provincial park that are Crown Land. The other piece of Crown Land is a parcel adjacent to the Highway 130 bridge that was once an oxbow lake and has since transformed into a marshland.

Industrial & Commercial

A significant portion of the lands on either side of the Kaministiquia are owned by private industry (Figure 5.7). Although much of the land to the south of Kakabeka Falls is heavily forested and undeveloped, it is all owned by large logging corporations and has not been logged for a very long time (Ontario Ministry of Natural Resources 1978, 26). An abandoned brick factory sits atop the steep cliffs at Rosslyn Village and many hundreds of broken bricks have fallen into the river below. Rail companies (CPR and CN) own a significant percentage of the lands surrounding the river's delta. Other heavy industries that own property in this area include: Ontario Power Generation (coal powered plant), Petro Canada (oil storage), a scrap metal wrecking yard, LaFarge Cement, Dow Chemical, Resolute Forest Products (formerly Bowater), Cargill and Western Grain elevators, Bombardier's subway car factory, and the City of Thunder Bay's secondary sewage plant outflow and snow dump site (City of Thunder Bay 2010, 7-14). In addition to buildings most of these sites have docking and loading facilities, tanks, mills, and outside storage areas.

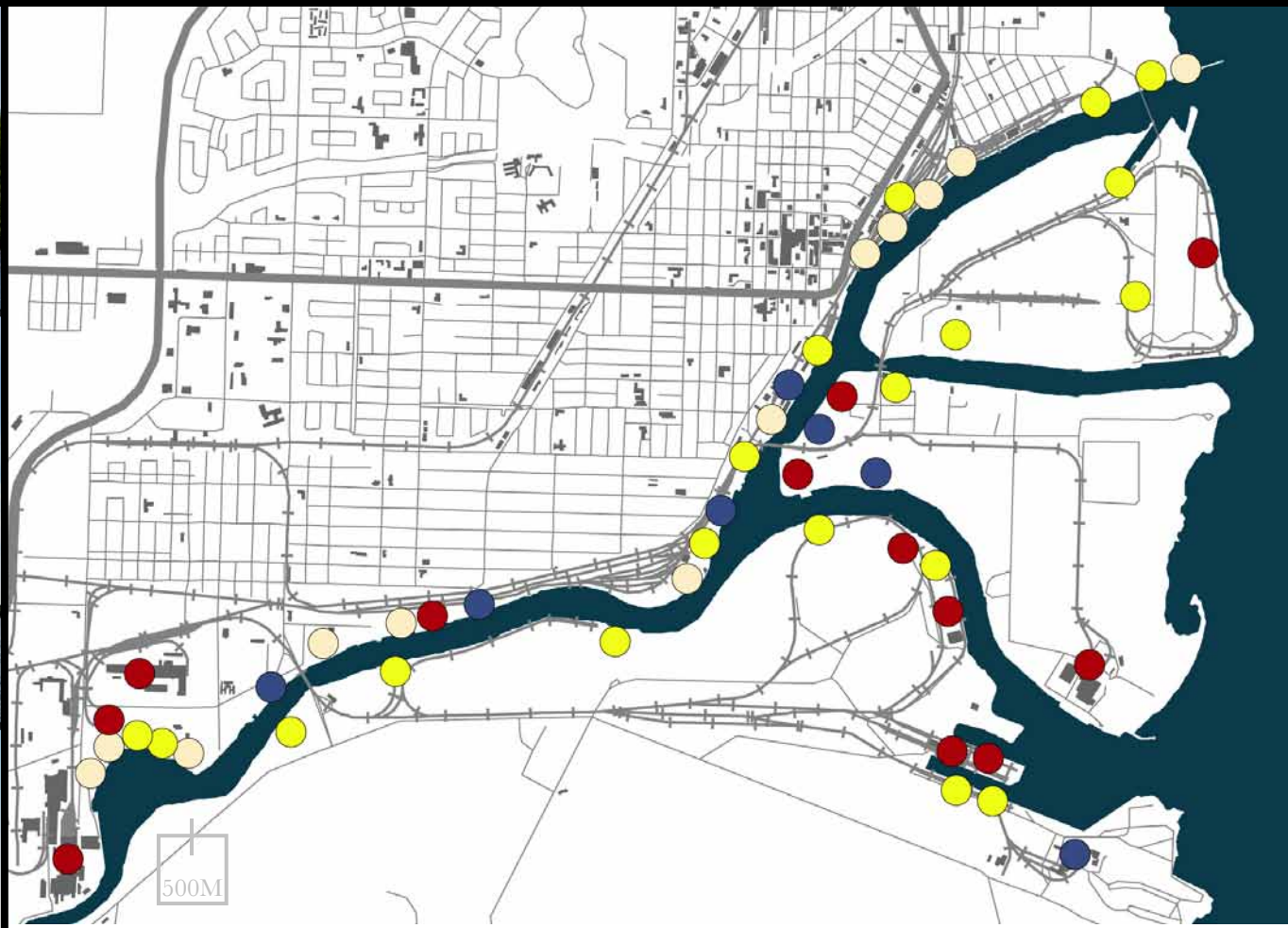


Figure 5.7: *Photographs of active and inactive industrial activities along the Kaministiquia River and a map showing the industrial locations in the delta area*

- Active Industrial Site
- Inactive Industrial Site
- Former Grain Depot
- Former Industrial Site

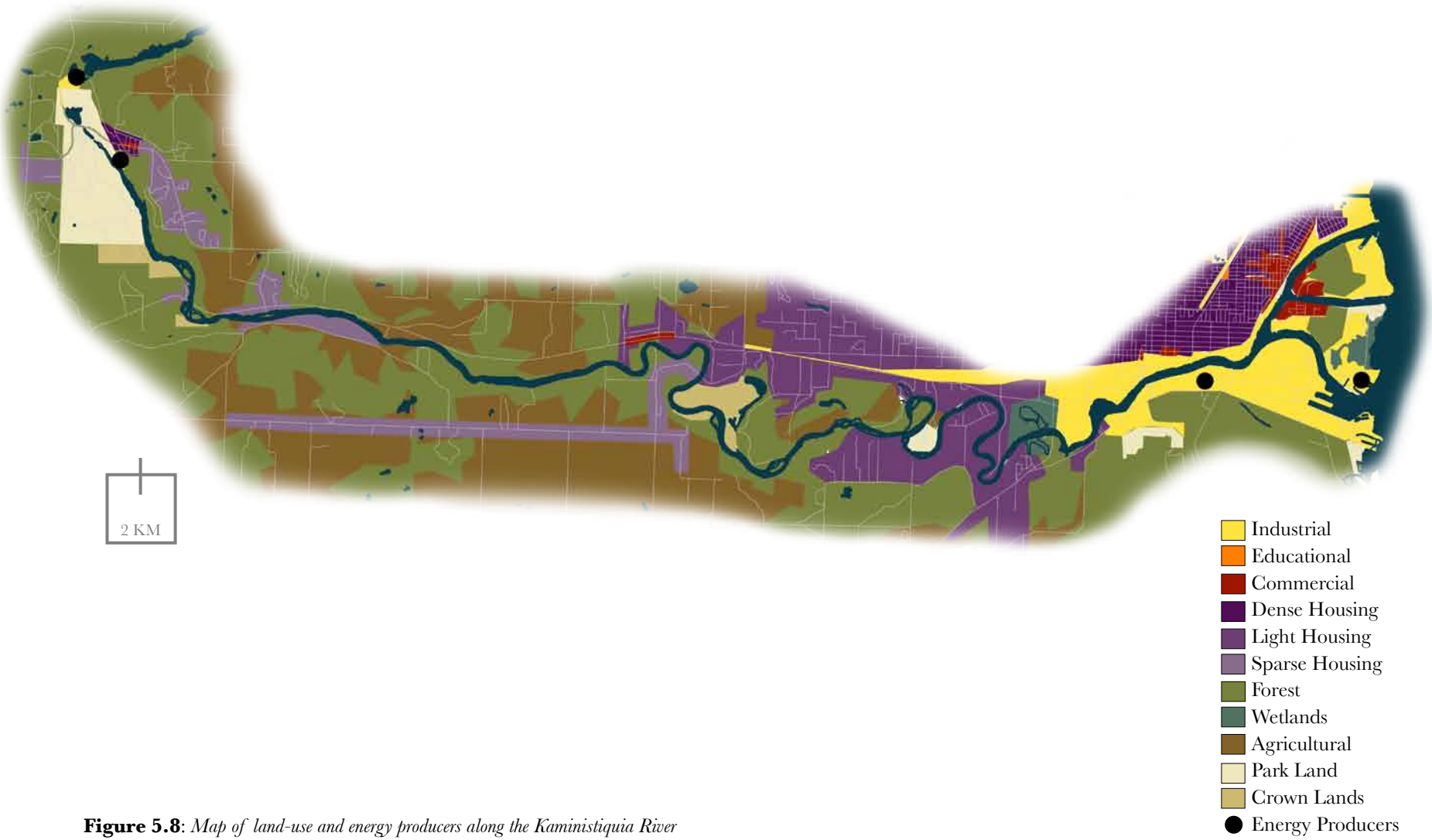


Figure 5.8: *Map of land-use and energy producers along the Kaministiquia River*

Farming

Early documentation of farming activities on the banks of the Kaministiquia recorded that potatoes were very successful and that lands were suitable for grazing farm animals (Kirkwood and Murphy 1878, 183-5). This is still true today as evidenced by the cattle, dairy, sod, barley, evergreen trees, and potato farms (Hamilton 1996; City of Thunder Bay 2004, 5; Smits 2012). Although farming first started near the Northwest Company's Fort William in 1807, extensive land clearings did not occur until the 1880s (Ontario Ministry of Natural Resources 1978, 21).

Hydro & Other Energy Activities

Ontario Power Generation (OPG) owns and operates a small hydro generating station at the base of Kakabeka Falls that started in 1906 and today can meet the needs of about 14,000 homes (OPG 2006, 7). It operates by damming the Kaministiquia upstream and channeling the water through aqueducts to the base of the falls, a drop of 58 m, where it is released back into the river system after passing through the hydro generating station (OPG 2006, 2-3). OPG adjusts the water levels of the river to ensure a scenic water flow over the falls at peak times for visiting tourists (OPG 2006, 7). Numerous signs are posted throughout Kakabeka Falls Provincial Park warning of the dangers of venturing in the river above the hydro outflow station as the dam could release excess water at any time. A second dam is operated by OPG at the base of Dog Lake where it flows into the Kaministiquia River. In the mid 1980s talks of setting up a third hydro dam between the two existing dams were abandoned after public outcry regarding its location (Smits 2012). It would have completely destroyed a section of the river called the Hume Rapids, a favourite amongst local kayakers and canoeists (Smits 2012).

OPG also operates a coal-fired plant that is discretely tucked away on a corner of Mission Island (Figure 5.8). The plant draws significant quantities of water to run the plant but does not add any additional pollutants to the water when it is released back into the river nor does it increase the water temperature (Thunder Bay Public Advisory Committee 2004, iv). The plant was scheduled to be converted to a natural gas powered plant by November 2012 but that plan has since been suspended pending further review to determine if sufficient demand warrants the upgrade (OPG 2013). In 2011, SkyPower Limited opened the first large scale solar farm on First Nation land in Canada on the Fort William First Nation Reserve adjacent to the Kaministiquia (Globe-Net 2011). This solar farm will generate enough power for about 17,000 homes for the next two decades (Globe-Net 2011).

Contaminants

As a result of prolonged use for intensive industrial activity it is not surprising that the Kaministiquia River has had problems with industrial contamination. Historical pilings from former docks line most of the Kaministiquia between the turning basin and Lake Superior and have by now likely leached out all of their creosote into the water (Smits 2012). Today the sources of contamination are far fewer than in the past and companies have undertaken steps to reduce the contaminants before they enter the river (Thunder Bay Public Advisory Committee (PAC) 2004).

The primary sources of contaminants that still exist include: the pulp and paper mill, the secondary sewage plant, the snow dump site, and historical contamination from the CPR rail yards (Mackay 1989, 34-6; Smits 2012; PAC 2004, 32). The pulp and paper mill and the secondary sewage plant are the only sources of heat released into the water which increase the water temperature (Smits 2012). Surface runoff from the paved surface areas of the city also contributes significantly to the contaminants in the river and therefore the river's overall ecosystem (Gilbert 1989, 264-5). Prior to modern environmental regulations the Kaministiquia would experience periodic fish kills even into the early 1990s (PAC 2004, i-ii). Before the 1960s several commercial fishermen operated in and around the Kaministiquia but as early as the 1940s the fish began acquiring unnatural tastes which resulted in market rejection (German 1967, 1). Today the fish are healthy and edible thanks primarily to new government environmental regulations imposed on industry to reduce toxin levels of the discharged material being released into the Kaministiquia (Smits 2012).

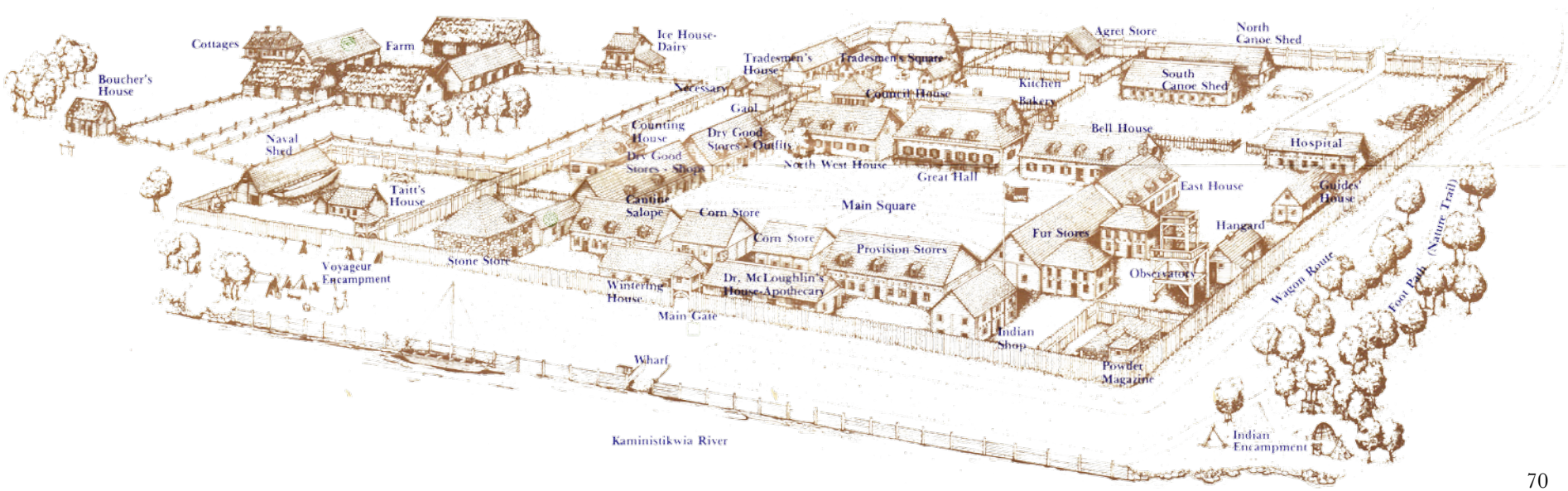
Figure 5.9: (Top) *River worn broken glass found in the Kaministiquia River*

Figure 5.10: (Right) *Site plan of Fort William Historical Park from a visitor pamphlet,* 1980s (Courtesy of Fort William Historical Park)

Parks & Recreation

Fort William Historical Park

The original site of Fort William is located 14.5 km downstream from the Fort William Historical Park. The current site of the historical park is situated on an area known as Point de Meuron, which was occupied by Lord Selkirk in 1816 during his takeover of the Northwest Company's Fort William site (Old Fort William 1980, 1). Old Fort William, as it was originally called, is known today as Fort William Historical Park and is operated by the Province of Ontario. The goal of the site is to educate visitors as to the prominent role that Fort William and the Northwest Company played in the Canadian fur trade industry (Old Fort William 1980, 1). The site has been open since 1976. It was constructed as the fort stood in 1816, based on research and archaeological excavations of the original site (Old Fort William 1980, 2). The site is presented by interpretive staff actively playing the roles of individuals who would have been living and working at the fort when it was in operation. The fort's grounds include a great hall, kitchens, hospital, warehouses, canoe sheds, a blacksmith, barns and so forth (Figure 5.10). A native encampment exists just outside of the fort as it would have been two centuries ago (Old Fort William 1980, 17). In addition to the historical fort, the park has its own library collection which includes original documents relating to the fur trade and the fort, a small open campground for both tents and recreational vehicles, as well as canoe rentals.



Kakabeka Falls Provincial Park

This site around and including Kakabeka Falls was a tourist attraction long before the provincial park was established in 1957 (Kakabeka Falls 2011 Info Guide, 2). Since 1967 the park has been classified as a natural environment park and covers 420 ha (Ontario Ministry of Natural Resources 1978, 2). Today it offers both electrical and non-electrical campsites, a swimming area, a visitor centre, and is adjacent to the town of Kakabeka Falls which offers other services such as restaurants and motels. Several trails (Figure 5.11) crisscross the park and range in difficulty from barrier-free boardwalks to incredibly steep hiking trails covered in loose shale that offer no vegetation within arm's reach to grab onto for support. The former Mountain Portage taken by the voyageurs through the area is partly included in one of its trails but the steep portion of it has been permitted to be reclaimed by nature due to its treacherous nature.

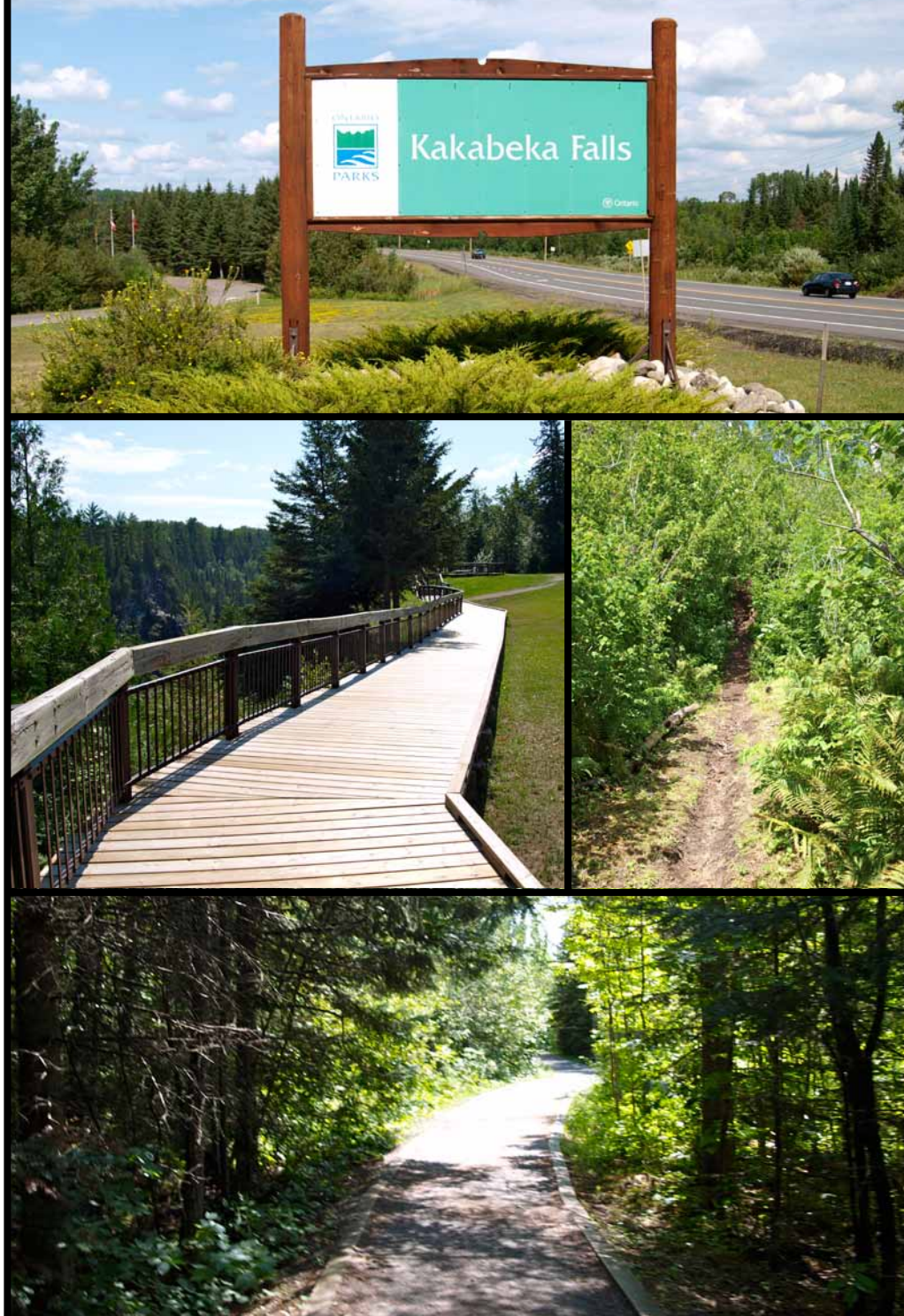


Figure 5.11: *Photographs illustrating the range of trail difficulties offered by Kakabeka Falls Provincial Park*

Figure 5.12: (Top) *Kam River Heritage Park*

Figure 5.13: (Below) *Mission Island Marsh Conservation Area*

City Parks & Conservation Areas

The City of Thunder Bay opened a park, 2.5 ha in size including approximately 500 m of river frontage, in 1994 and named it the Kam River Heritage Park (City of Thunder Bay 2010, 5). The park hosts a 500 m long concrete promenade (Figure 5.12) designed to preserve the marsh area and natural bank, a large stainless steel winged sculpture entitled *Animikii-Flies-the-Thunder*, a VIA Rail passenger train exhibit, a WWII Merchants Marine monument, and the James Whalen tugboat (Thunder Bay Experience Magazine 2011, 25). The iconic century old James Whalen tugboat was once employed by the government to keep the harbour open in the spring and fall (Canada Department of Marine & Fisheries and William Stumbles 1914, 165). It is common to see gang members and drug and alcohol abusers in the park, especially in the evening.

In 2001, Thunder Bay Field Naturalists established the Kam Valley Reserve at the confluence of Whitefish River and the Kaministiquia (Thunder Bay Field Naturalists 2013). The 12 ha reserve hosts regionally rare plant species such as Bur Oak and Turtlehead and attracts diverse bird species such as Indigo Bunting and the White Breasted Nuthatch (Thunder Bay Field Naturalists 2013). It is unclear how the site would be accessed except by canoe for it is surrounded by private property and has no known road access.

Figure 5.14: *Island Drive Conservation Area*

Mission Island Marsh Conservation Area (Figure 5.13), 30 ha, is leased from the City of Thunder Bay by the Lakehead Region Conservation Authority and occupies the northeast corner of Mission Island (City of Thunder Bay 2010, 5). This marshland is part of a much larger wetland system, roughly 292 ha in size, that extends along the entire eastern shore of Mission Island (Lakehead Region Conservation Authority information board at the marsh). The conservation offers hard to find trails and a magnificent boardwalk along Lake Superior. Due to its isolation it is not uncommon to find litter from drug use and sexual encounters on the ground.

The Island Drive Conservation Area (Figure 5.14), owned and operated by the City of Thunder Bay, is a narrow strip of former heavy industry land that follows the north bank of Kaministiquia beside Lake Superior. The area has been permitted to return to nature and contains a variety of shrubs, grass, and wildflowers. Traces of its industrial past scattered about include pilings, concrete slabs with rebar, and boat tie-downs. As this is where the City's secondary sewage outflow is, official signage states that swimming and river access are not permitted however fishing off the shore is. Two other marshes located immediately outside of this study area, are the Neebing River Marsh to the north and the Chippewa Park Marsh to the south.

Commercialized Recreational Activities

The only commercial recreation that truly utilizes the Kaministiquia is located in Stanley and is called River Rat Rentals. Patrons are dropped at the Harstone bridge river access point with large rented inner tubes which they then lay in and float down the Kaministiquia until they reach Stanley. The water on this stretch of the river is very shallow and the current is slow enough that it is a safe activity enjoyed by the whole family. From experience, the author knows that the circuit generally takes about an hour to do.

In recent years a private golf course, called Whitewater Golf Course, was built on the bank of the Kaministiquia near the highway 130 bridge reportedly to take advantage of the spectacular view and the sounds of the rushing rapids in the river. During a visit to the golf course it was observed that only two holes of the 18-hole circuit offer views of the river. The riverbank beside these holes has mostly been cleared of trees and large shrubbery but tall grasses and wildflowers have been permitted to cover the area. The golf course releases all of its wastewater into the Kaministiquia after being treated it in its own sewage treatment plant (Smits 2012). The golf course also takes in a significant amount of water from the river in order to water its grounds (Smits 2012). Prior to its construction, there was an unsuccessful community movement by

the Friends of the Kaministiquia River against the golf course's construction, which feared the course would add extra contaminants into the river (Smits 2012).

For many years a boat known as the Welcome Ship departed daily from the marina offering narrated tours ,with an optional dinner cruise, of the harbour and the Kaministiquia River up to Fort William Historical Park (Acres International Limited et al. 1990, 4-20). Unfortunately the venture was not an economic success and it stopped running within the last decade (Morrison 2012). Additional boating facilities on the river include the Fort William Rowing Club located beside the Kam River Heritage Park, the McKellar Marine Centre a privately owned marina on Mission Island, and the Thunder Bay Yacht Club, also on Mission Island (City of Thunder Bay 2010, 5-6).

Private Recreational Use of the River

For decades the upper reaches of the Kaministiquia River above Kakabeka Falls was used extensively for whitewater sports but the lower section never received as much attention (Dillon Ltd. 1990, 21). The Kaministiquia River between Kakabeka Falls and Lake Superior was fairly heavily used in the 1970s until the late 1980s for kayaking and canoeing but within the last quarter century the shift in water sports locally has been towards sea kayaking on Lake Superior (Smits 2012). Speculation is that the river is not used as much due to a lack of information regarding its access (Smits 2012). The difficulty of the river for canoeing and kayaking is considered to be between Class 0 and Class 1 (Smits 2012). It is easy to navigate, in close proximity to roads and services, and although it a series of shallow rapids, there are few obstructions (Smits 2012).

By comparison the deeper reaches of the river from Fort William Historical Park to Lake Superior are very busy with boat traffic. During a two-year period the author visited the Mountdale Avenue public boat launch periodically in the spring, summer, and fall. On each occasion, regardless of the time of day, weekend or weekday, there were always no less than two vehicles with boat trailers attached parked beside the boat launch. At times it was difficult to find parking as there could be more than a dozen vehicles, each with boat trailers, many waiting in line to launch or pull out their boats. The final destination of all of these boats is not necessarily the Kaministiquia River as many use this free launch as a means of reaching Lake Superior and avoiding paying fees to use the City's marina. Nonetheless, boaters seeking Lake Superior must still travel a fair distance along the Kaministiquia River to reach the lake from the Mountdale Avenue launch.

It was evident from traveling along the river that residents

with river frontage have made considerable efforts to ensure they have access to the river by constructing docks and pathways to the water. Even residences built on steep cliffs have access to the river via ladders. There was ample evidence that local residents used the river during the summer months but its use in the winter and snow is unknown. However it is clear from historical photographs that at one time this ready-made source of flat ice was used for winter sports such as for curling and hockey. It seems only fitting that year-round use of the Kaministiquia River be restored.

Reviewing the constructed, civil, and social context of the Kaministiquia permits a broader understanding of the current site conditions that can affect the community's interaction with the river. The physical access to the river as well as the activities offered along the river indicate where the community may currently engage with the Kaministiquia. Further discussion on the community's engagement with the river follows in the next chapter.

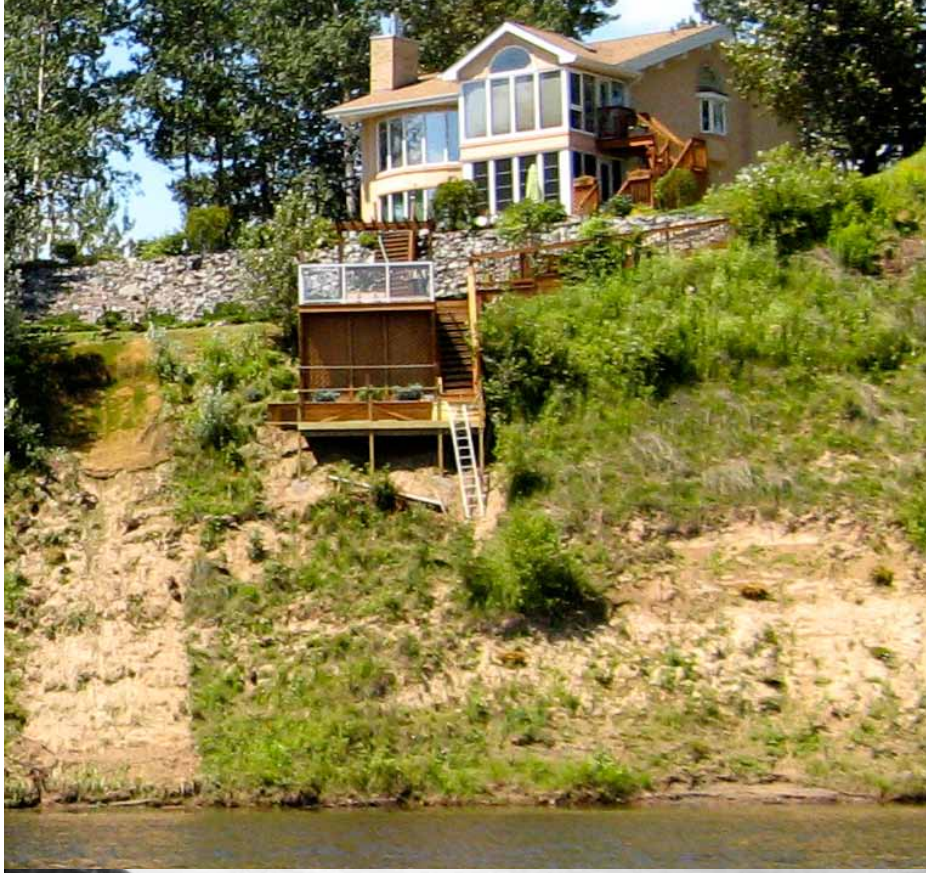


Figure 5.15: (Top) *House on the steep banks of Vicker Heights using a ladder to access the Kaministiquia River below*

Figure 5.16: (Bottom) *Curling on the Kam,* 1893 (Courtesy of the Thunder Bay Historical Museum Society)

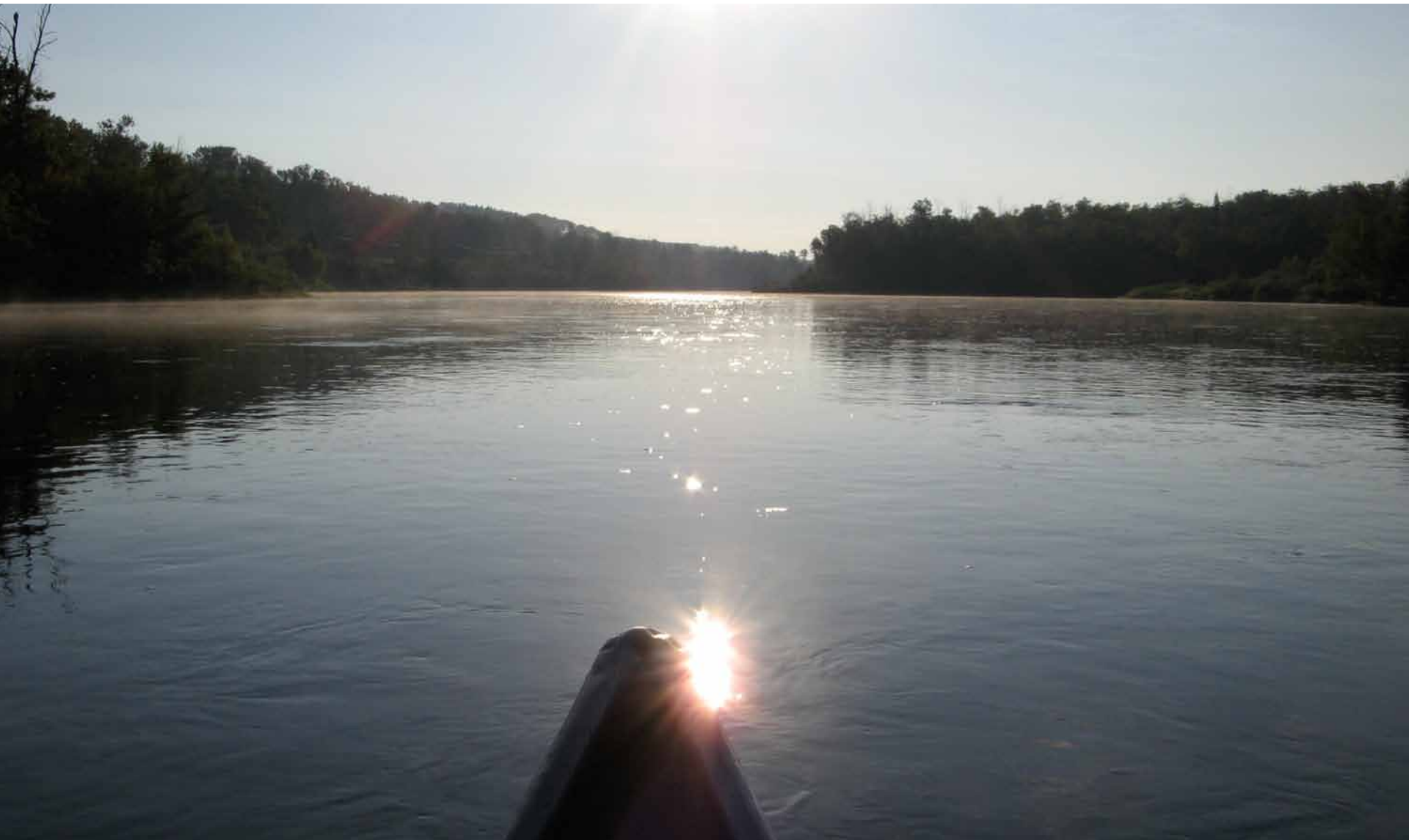


Figure 6.1: *On the Kaministiquia River upstream from Stanley*

Investigating the current connections between the community and the Kaministiquia River is essential for understanding how to engage with the river. The Kaministiquia's proximity to the Thunder Bay community, that is the public at large, can become part of the everyday experience. Identifying the user groups and both the perceived and existing barriers of the Kaministiquia can reveal solutions to promoting community engagement with the river.

Exploring the Everyday

"No two rivers are alike" therefore the Kaministiquia can offer a unique experience (Franks 1977, 162). As revealed in the previous three chapters, the Kaministiquia is a unique body of water surrounded by and containing an array of not only wildlife but also stories that is at the doorstep of the Thunder Bay community. Exploring the Kaministiquia has the potential to be apart of the everyday experience. The *everyday* is experienced by everyone, everywhere, every day. It is not something one need to venture far to experience instead it is what we encounter regularly. "We are constantly harking back to simpler and more direct associations with nature" and the Kaministiquia, with its immediate proximity to our everyday experience, could become part of the everyday and promote these associations with nature (Appleton 1975, 172). The *community* is an essential component in the engagement with the river and for the purposes of this study is be regarded as the general public of Thunder Bay.

Exploring the Kaministiquia by canoe permits the explorer "the fascination of the unknown, of discovering hidden places, and of seeing life at a very basic level by getting from place to place self-contained and self propelled" (McGuffin and McGuffin 1988, 3). In recent years, narratives of intrepid and arduous journeys by canoe throughout North America have been published (Finkelstein 2002; Henderson 2001; Reid and Grand 1986; McGuffin and McGuffin 1988), and some of these works may have inspired only a handful of the readers also undertake the same journeys. Such expeditions require months and possibly years of planning and are not light undertakings and as such not likely to be a part of everyday experience. The Kaministiquia River however, with its close proximity to Thunder Bay, has the potential for becoming part of exploring the everyday.

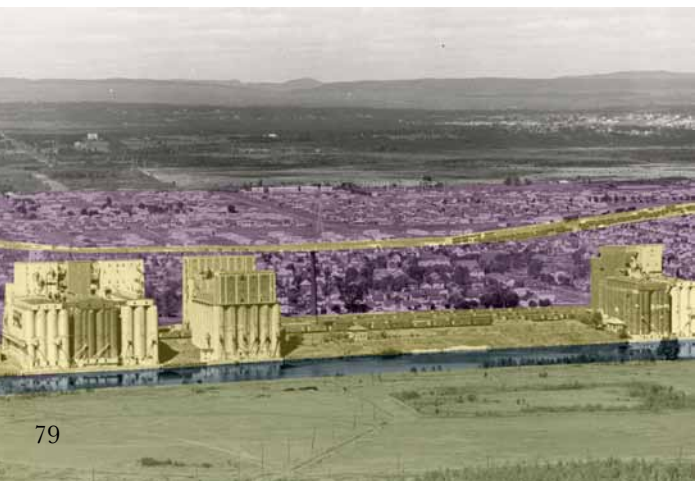


Figure 6.2: (Above) *Community connections along the Kaministiquia River*

Figure 6.3: (Left) *Industrial activity as a barrier between the residential community and the river*

Current Connections

Although the Kaministiquia flows past residential areas (Figure 6.2), very few connections between the river and the community currently exist. Current connections include direct physical connections and access, visual connections, conceptual connections, and recreational activities. These connections are demonstrated in Figure 6.2 by arrows, the length of each arrow represents the strength and extent of the connection. One of the dominant reasons why connections between the public and the river are so weak in the delta area is illustrated by Figure 6.3. The river and the residential area are separated by active rail lines and a wall of privately owned industrial land, much of which is currently inactive as discussed in the previous chapter.

Conceptual Connections

Aside from this setback, there are some connections between the river and the community that have potential. These connections can be loosely grouped into the categories of information and opportunity. Currently there is very little information highlighting the presence of the river and how it can be accessed. The information that does exist and creates small connections primarily involves the little amount of signage in the community

Figure 6.4: (Above) *Road signage*

Figure 6.5: (Below) *River access signage*

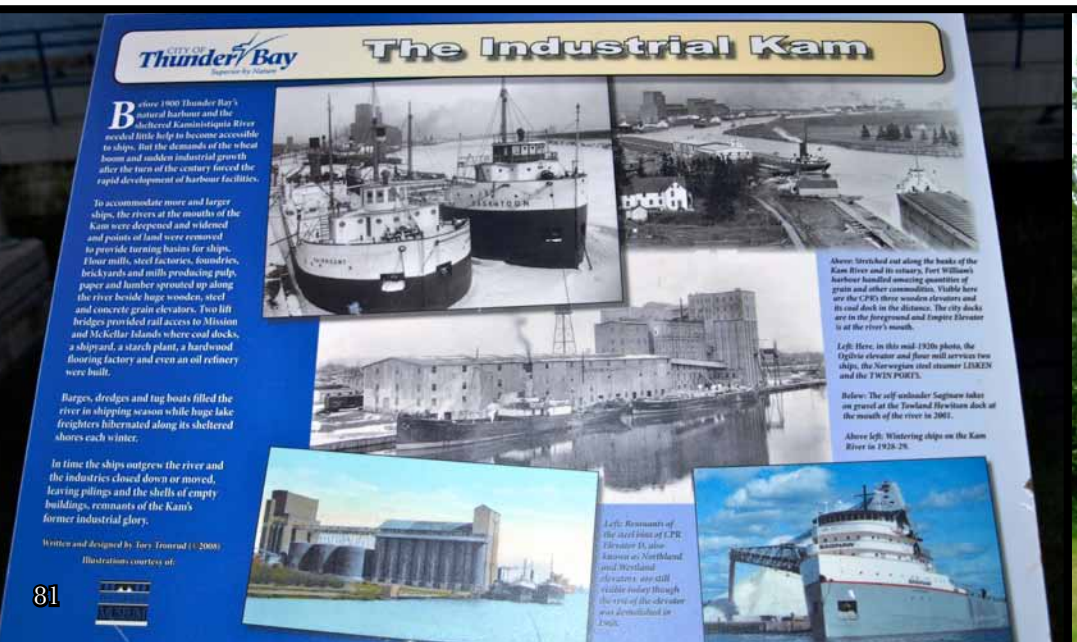
advertising the river. Four types of signage currently exist: (1) road signage, (2) river access signage, (3) public art, and (4) interpretive information signage.

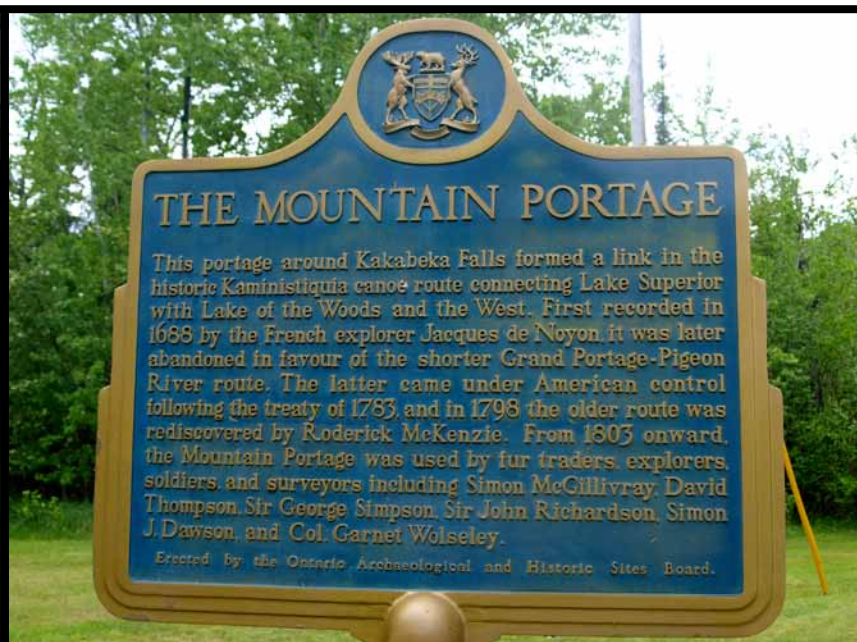
With the exception of the Kam River Heritage Park signage (Figure 6.4) the road signage at bridge crossings is only present on the provincial highways. The river access signage is very limited and only present at a handful of access points (Figure 6.5). There are two public art installations beside the river, one on the Island Drive bridge crossing (Figure 6.7) and the other at the Kam River Heritage Park (Figure 8.1), as well as three murals (Figure 6.7) in the Thunder Bay area that all help to create connections with the community. The last type of information currently connecting the community with the river can be found in a handful of interpretive information panels at Kakabeka Falls Provincial Park and the Kam River Heritage Park (Figure 6.6).

Visual Connections

There are currently six types of opportunities for the public to engage with the river: (1) at bridge crossings, (2)

Figure 6.6: (Below) *Interpretive information signage at the Kam River Heritage Park (left) and Kakabeka Falls Provincial Park (right)*





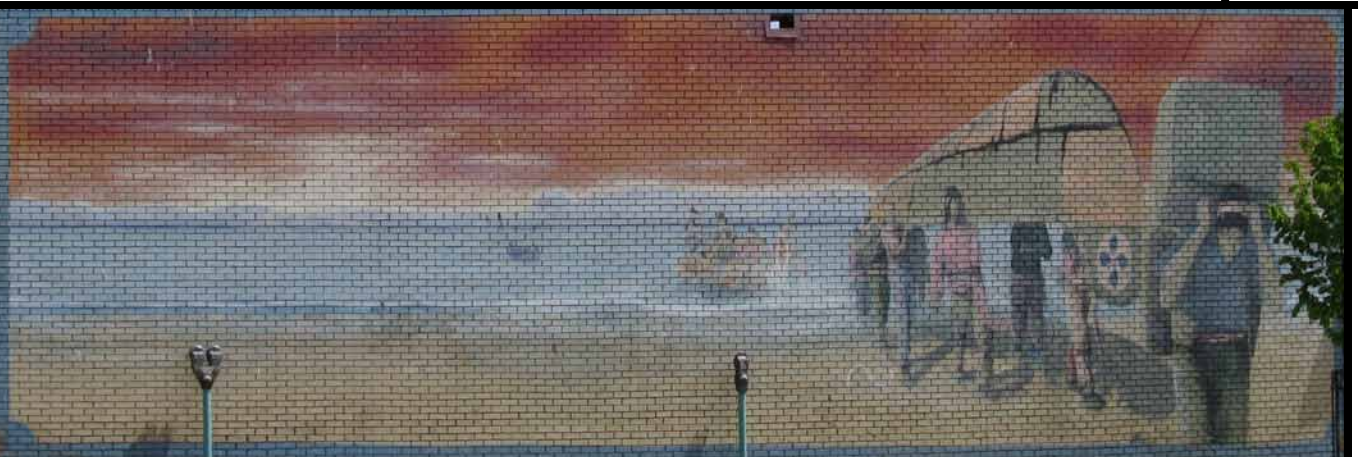


Figure 6.7: *Public art installations related to the Kaministiquia River (fish sculpture located on the Island Drive Bridge, blue murals located on May Street, red mural located on Court Street)*

Figure 6.8: (Above Left) *View of Kaministiquia from Harstone Road bridge*

Figure 6.9: (Above Right) *View of Kaministiquia from Harstone Road*

Figure 6.10: (Below Left) *Local children fishing off dock at Mountdale Avenue boat launch*

Figure 6.11: (Below Right) *Subway entrance to Kam River Heritage Park*

along roadways, (3) at river access points, (4) in park spaces, (5) at fee-based activities, or (6) along cycling routes. It is possible to witness the river from all but the highway 61 and Jackknife bridges, the former because of the speed, angle, and curvature of the highway, and the latter because it is currently closed to all but rail traffic. A handful of locations along some of the road systems that follow the river also permit occasional river viewing opportunities (Figure 6.2) however these connections are quite weak as the brush along the riverbank is quite thick (Figure 6.9). There are a dozen river access points but many of them are unknown to the public. Those access points that have some form of signage appeared to be well used by the community during site visits. The popularity of one river access point, the Mountdale Avenue site, was noted during a site visit. There was a lineup of boats waiting to launch or dock, as well as a few local children fishing from a public dock (Figure 6.10).

Direct Physical Connections

Other current opportunities for community connections with the river, explored in greater detail in the previous chapter, can be grouped into either park space or fee-based activities. The only park space that offers opportunity to engage with the river is located at the mouth of the river

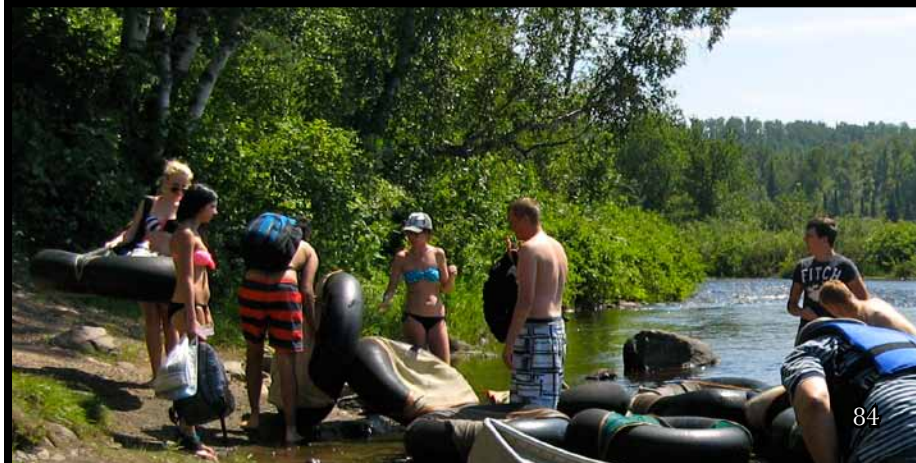


Figure 6.8: (Right) *Fee-based activities on the Kaministiquia River (Top to bottom: Fort William Historical Park, Whitewater Golf Course, River Rats Rentals)*

and includes the Mission Island Marsh Conservation Area, the Island Drive Conservation Area, and the Kam River Heritage Park (Figure 6.11). Significant investment has been made by the City of Thunder Bay to promote the connection between the community and the Kam River Heritage Park through extensive signage for the park along adjacent roadways, signage in the park promoting river access, a public art installation, and interpretive information signage throughout the park (Figures 6.4, 6.5, 6.7, 8.1). The fee-based activities that currently provide opportunity for the community to connect with the river include River Rats Rentals, Whitewater Golf Course, Fort William Historical Park, and Kakabeka Falls Provincial Park (Figure 6.12). The falls does not charge admission fees but it is considered a fee-based activity since it can only be accessed by car and there is a fee for parking.

Recreational Connections

The City of Thunder Bay is currently in the process of developing a cycling route that follows the city's waterfront and includes part of the Kaministiquia River (City of Thunder Bay 2010, 13). Although much of the trail will follow existing roadways (Figure 6.13), "several waterfront based industries and commercial enterprises... have indicated their willingness to allow public access to their

Figure 6.13: *Proposed City of Thunder Bay waterfront cycling trail*

shoreline in the way of recreational trails and water access points", which may permit the proposed cycling route to more closely following the Kaministiquia's shoreline in the future (City of Thunder Bay 2010, 13).

Of all existing connections between the Kaministiquia River and the community, the four offering the most interaction are: Kakabeka Falls Provincial Park, Fort William Historical Park, Kam River Heritage Park, and Mission Island Conservation Area.

At Kakabeka Falls Provincial Park, the central focus is on the falls. The river seems an afterthought in park signage and brochure publications. The park does offer a small public swimming area above the falls but that is the extent of any physical engagement with the river. The falls can be seen from the top of the surrounding gorge and the hydro plant strictly prohibits access to the base of the falls. As a safety precaution, during heavy spring runoff and sometimes in winter with ice buildup, the park does not permit access to some of the viewing ledges closest to the falls.

At Fort William Historical Park, the interpretive emphasis seems to be on the daily life during the fur trade. Little attention appears to be given to the importance of the river in the establishment of the fort. On special celebration days, such as the July weekend festivities that commemorated the bicentennial of the war of 1812, visitors were permitted to experience the river in short circuits in a birchbark canoe. In the past few years, the park has started to expand its recreational facilities outside the grounds of the historical park by setting up a small tent and recreational vehicle camping area and a proper boat launch. There are a half-dozen or so canoes that are available for rent adjacent to the boat launch. Information regarding the cost of using the boat launch and renting the canoes is not available online or even easily found on site. Junior staff, who were initially consulted at the fort, were also not aware and one had to seek the information from senior staff. This indicates that the canoes are rarely rented and that the launch is not actively used.

The Kam River Heritage Park is the only current site in which engagement with the river is actively promoted. As the park is somewhat hidden by a wall of commercial and industrial buildings as well as actively used rail lines, the City of Thunder Bay has posted signs indicating the park location along a couple of the major roads (Figure 6.4). The park itself offers two canoe/kayak launches, a concrete boardwalk, a memorial to fallen sailors, a public art installation that incorporates the river in its design (Figure 8.1), a permanently moored tugboat exhibit (Figure 3.16), signage relating historical tales of the river

Figure 6.14: *Kaministiquia River Excursion,* no date (Courtesy of Thunder Bay Historical Museum Society, no. 977.113.316)

(Figure 6.6), and spectacular views out onto the river itself. Unfortunately due to the park being physically separated from the adjacent commercial area by active rail lines one typically encounters substance abusers and gang members inhabiting the space.

Mission Island Marsh Conservation Area offers a handful of trails (most are difficult to find and discern from the surrounding vegetation due to a lack of signage) and a small boardwalk on the shore of Lake Superior. The focus of the information signs in the park is on the marsh area as part of a major flyway area on Lake Superior for visiting species. There is little discussion of this area's importance as the juncture of the Kaministiquia and Lake Superior. This conservation area is physical isolated from the closest residential area and is not serviced by public

transportation routes. As a result it presents similar social issues as the Kam River Heritage Park.

User Groups

As there is a rich variety of potential users of the Kaministiquia in the community of Thunder Bay, a decision was made to identify a few broad categories of users. These groups are average families whose children are not yet adults, and individuals of all-ages especially young adults, middle-aged adults, baby-boomers, and active seniors. Characteristics not considered in the design process include education, income level, ethnic and cultural background, and the amount of time in the Thunder Bay area. The individuals in the user groups have to be at least a bit interested in breaking out of the ordinary and to experience something new.

Existing Barriers

There are currently two types of barriers that prevent community members from currently engaging with the Kaministiquia River: perceptual and physical limitations. The main perceptual limitation is that there is little to no easily accessible information regarding how to access the river. It is often unclear in published maps, even on new smart phones with GPS maps, to discern which roads lead to or come close to the river, which roads are on private property, and which roads even exist. My discovery of nearly all of the river access points I identify were only found by searching through historical documents, driving along the river and exploring the potential roadways, or conversing with locals who live beside the river.

The length of time it would take to travel the river, by canoe for instance, may be a perceptual limitation for this type of information is generally not publicly known. It is also generally believed, even by avid local canoeists, that the river becomes too shallow to navigate in the summer (Smits 2012). Although it is true that there are a few small sections, including a few rapids, where canoes and kayaks may have to be lined through, the river is generally navigable by small watercraft. Motorboats are able to access approximately half of the river. The last perceptual limitation is that there are no or few places to launch. This was found through extensive investigations to be untrue. The difficulty is that the community is not aware of where most of the launches are and as mentioned above information is required to enable them to be found.

Physical limitations form barriers to the community engagement with the Kaministiquia. Some of the access

points, which are summarized in the previous chapter, are currently somewhat hazardous and less than ideal for beginners to launch a small watercraft such as a canoe. Steep slopes, fast currents, and slippery, muddy conditions are all physically limiting factors. Overcrowding at the Mountdale Avenue launch site may also be considered a physical barrier.

Sections of the river too shallow to traverse in a canoe, or containing rapids, also provide a physical limitation for those with mobility issues. As the upper half of the river is, in general, only accessible to small watercraft, those wishing to travel by motorboat are restricted to the areas around Stanley and below Point de Meuron where the water is deep enough. The winter river freeze-over may be seen as a physical limitation to some individuals since watercraft can no longer traverse the waters. The winter river does provide a surplus of other activities that the community can enjoy on the river such as ice fishing, skating, and hockey. In general, the physical limitations can be overcome if considered from a different perspective and if a few compromises are made.

Solutions

In order for the community to engage with the Kaministiquia it requires more information, more connections, and more physical accessibility. The community needs to know how and where to access the river. This information should be easy to find, easy to use, and easy to understand. Mapping this information seems to be a logical solution. In addition, increasing signage promoting the river and its access points can spread awareness. A few small interventions along the river could greatly improve physical access to the current river access points. These interventions would make the access safer for the average person, which would likely increase the amount of usage. Having access to the river could promote a greater affection for the Kaministiquia and could also promote a sense of pride for the Thunder Bay area in the community.

In order to strengthen the connections between the Kaministiquia and the community I propose to increase information about the river through mapping, increased signage acknowledging the river, new trail linkages, and better river access.

Figure 6.15: *Picnic Party on the Mission River,* 1890 (Courtesy of the City of Thunder Bay Archives)

Figure 7.1: *Map of the North West Territory of the Province of Canada* (Earliest English map to record the Kaministiquia River), David Thompson, 1813 (Courtesy of the National Archives UK)

Following the analysis of current community connections to the Kaministiquia River, one barrier that was identified as requiring further investigation was to map the river. In order to accomplish this it is important to review why mapping is the solution, how they can be used as a tool for engagement, who will use them, and how to map for all seasons.

Mapping as a Solution

Mapping is a basic human instinct for it is through maps that humanity is able to understand the world (Brotton 2011A). Maps have always been an art form that assures routes into and out of unfamiliar territory (Harmon 2009, 9). They were used long before people could read or write even though the oldest surviving map is the Bedolina map located on a rock-face in Valcamonica, northern Italy, which dates to 2500 BCE (Harmon 2004, 10; Brotton 2011A). A map may not be geographically accurate, using symbols to represent an ideal landscape, but rather is intended to be a celebration of the ownership of the land (Brotton 2011A). Maps are the manner by which humanity is able to impose order on the world; and to help control it (Brotton 2011B). As a result, they are always influenced by the religious beliefs, cultures, experiences, and biases, of those making them (Brotton 2011B). Maps have always been thoroughly integrated with politics and became a powerful tool of exploration and trade by the early seventeenth century (Brotton 2011C).

Many maps today are based on geographic information systems-based data and other forms of measurable data such as climactic or census data (Harrington et al. 1995, 4). Beyond where the parks and roads are located many maps may not contain information that is deemed important to the community for exploring the everyday. Maps that contain stories of past activities, soon to be lost to memory, and record current elements that are important to the locals not only tell a narrative of a place but also are a way of recording for posterity the true spirit of the place (Harrington et al. 1995). Such elements are not easily found and can only be created through first-hand observation, discussions with locals, and sorting through scattered pieces of surviving historical records (Harrington et al. 1995, 28). It is therefore proposed that mapping be used as a method to record for posterity as much information as can be found on the Kaministiquia River. Once mapped, this information can be easily accessed by the community wishing to engage with the river.

Mapping for Engagement

Once all the information about a location to be mapped has been collected, the challenge a map-maker faces is to try and discern what information the community actually needs and will be find helpful, interesting and usable. If a map presents the user with all of the answers then there is no encouragement for self-discovery. If however enough information is presented to intrigue the user, then there is an incentive to encourage the user to go out and explore further. No matter how hard the mapmaker may try, their maps are always subjective due to the mapmaker's specific objectives and their own experiences (Brotton 2011A). "Maps are selective about what they represent, and call out differences between collective knowledge and individual experience" (Harmon 2009, 10). The inherent bias of the mapmaker is the main limitation of any map but since it is impossible to overcome this the maps must simply be made regardless. It is to be hoped that those using the maps realize this limitation and adjust how they view the maps based on their own biases.

With the information at hand, the challenge next becomes to find a user-friendly map format to present the information in such a way that it is accessible to the entire community. King Louis XIV of France commissioned the first set of modern maps to chart his territory (Brotton 2011A). The Carte de Cassini developed in such a way as to employ standardized symbols for elements such as forests, rivers, and towns, and made use of standardized lettering, language, and scales (Brotton 2011A). Standardization of such elements is a useful tool that further enhances the accessibility to maps by making the maps easier for the user to understand regardless of their background (Harmon 2009, 10).

The very essence of maps is naturally intriguing especially those which in some form try to ignore the conventions of how a map *should* be (Harmon 2004, 10). Maps are a vehicle for imagination (Harmon 2004, 10), limited only by the imagination of their makers. Within the last century mapmaking has been and continues to be re-imagined and re-invented by looking at the world from different perspectives such as exploring current social issues (Mogel and Bhagat 2010). Successful maps do not attempt to mask or bury their messages but rather display them as loudly as possible in order to engage people and stimulate conversation (Mogel and Bhagat 2010). Maps attempting to engage the community should therefore be very clear and direct in their presentation and overall message.

Mapping for Specific Users

Today maps exist for many types of specific users such as bar hopping tourists, adventurous foodies, sightseers, young families, wandering snowbirds, and so forth. It is no surprise then that maps and companion pieces have been developed for river and long-distance trail systems throughout the world. As the river at the centre of this practicum, the Kaministiquia River, was originally explored by canoe, canoeing maps and guidebooks that have been published for lakes and rivers in Manitoba and Ontario were examined: Greenstone CFDC 1998; Buchanan (no date); Wilson and Aykroyd 2003; Molinski 2012; Lake of the Woods Museum 2000; Ontario Ministry of Natural Resources 1975; Callan 2002; Berard 1975, as well as one guidebook on a long-distance trail system: Lebrecht 2003.

In general nearly every guidebook suffered from the same drawbacks. Their book formats, one as large as letter-sized, are simply impractical for those paddling a canoe or kayak unless they constantly pull off to the shoreline and have no fear of losing them or getting them horribly wet. The only canoe map, Berard 1975, that was not a book but an enormous poster-sized map was again not practical for quickly unfolding and refolding in a canoe, especially if it is windy. The guidebook for the long-distance trail system, although portable, was found to be impractical for carrying around because it became too bulky and heavy.

Although each book offers very useful information to those using the trails and water systems, they all required additional detailed maps to be purchased as they were simply narratives, some with only a few line drawn maps or even no maps at all. None of the books successfully integrated the valuable information each offered into a practical portable mapped form, a form that did not take up much space and was easy to fold and unfold. The format and presentation in each of these books was a valuable lesson in what not to do if designing for a community that would actively use the maps while out exploring, rather than leaving them in the car, a backpack, a sealed watertight bag, or simply at home.

Since the river is not open to canoeing and kayaking year-round and not everyone enjoys getting wet it is important to recognize that there are a number of other potential user groups of the Kaministiquia River. Some individuals may prefer hiking, running, cycling, driving, fishing, and so forth. Such activities do not take place on or in the river but rather on the riverbanks and from bridges. Regardless of the manner in which members of the community wish to engage the river, the important element is that they know how they can access it. The types of users are not only identified by the activities but also by their interests.

As these interests could be endless it is important to keep maps as broad as possible. At the same time each should have a general theme such as eco-tourism, cultural heritage, and history that appeals to a fairly large percentage of the community.

Mapping for All Seasons

Environments that experience extreme weather changes from summer to winter are generally used differently in different seasons. The maps should therefore reflect the changing seasons as well as elements that remain consistent so as to be useful throughout the year. The types of activities that can be done on, in, and around the Kaministiquia River continually change season to season. The likely activities are listed in Figure 7.2.

Mapping is regarded as a solution for recording and sharing information about the Kaministiquia River with the community. Maps can be created for specific audiences and should be presented in a manner so as to be useful throughout the year.

Figure 7.2: (Right) *Views of the Kaministiquia River from cliff at Kakabeka Falls Provincial Park in spring, summer, fall, and winter*

Figure 7.3: (Below) *Freshwater clamshells collected in the Kaministiquia River*

Spring

Fishing *(after mid-May)*
Canoe/Kayak
Rowing
Camping
Walking/Running
Hiking
Cycling
Mountain Biking
Bird Watching
Fiddlehead Foraging

Summer

Fishing
Canoe/Kayak
Rowing
Sailing
Camping
Tubing
Walking/Running
Hiking
Cycling
Swimming
Water Skiing
Mountain Biking
Bird Watching
Berry and Nut Foraging

Autumn

Fishing
Canoe/Kayak
Rowing
Camping
Walking/Running
Hiking
Cycling
Mountain Biking
Bird Watching
Hunting *(permitted in parts of Thunder Bay and outside the city)*
Berry and Nut Foraging

Winter

Ice Fishing
Snowshoeing
Winter Camping
Snowmobiling
Cross-Country Skiing
Walking/Running
Skating
Hockey
Ringette
Curling
Tobogganing
Ice Climbing
Bird Watching
Maple Syrup Harvesting

Figure 8.1: *Photo collage of "Flies the Thunder - Animiki"*, sculpture by Anne Allardyce, Kam River Heritage Park, 1992, with overlay of *Kaministiquia River*, map by the Canadian Pacific Railway, 1874 (Courtesy of the Thunder Bay Public Library)

Through site analysis it was revealed that the current connections between the community and the Kaministiquia River require strengthening in order for the community to engage with the river. Investigations of the existing connections revealed four areas that must be addressed to re-engage the community: (1) increase information about the river through mapping, (2) increase signage advertising the river, (3) expand the proposed trail linkages, and (4) make physical access to the river more accessible.

Mapping the Information

Mapping the Kaministiquia and making the information public was determined to be the first tool. Initially it was thought that the information would be presented as a guidebook but such a format was deemed too encumbering and therefore a simpler form, the map, was chosen. Once this was decided, a variety of examples of visitor maps from around the world were assembled and studied to establish the essential elements of what constituted an easily understood, accessible, and portable interpretive map. A complete listing of the various maps that were explored can be found in *Appendix C*. Maps that fulfilled these criteria were portable and compact; concise in their content; employed universal language; clean and legible in their presentation; artistically interesting and fun; and most importantly, very informative.

Some specialty tourist maps that claimed to be tourist friendly were actually found to contain far too much information which became very distracting and overwhelming. The best maps were not overwhelmed with content and had a playfulness to them: their content worked with the manner in which they were folded and unfolded. Some maps designed for specific target groups such as youthful-natured travelers had separate maps for day and night activities in an area. Those maps that easily fit into a jacket, shirt, or pants pocket were much easier to carry than the larger ones which had to be stored a purse or backpack, and took less time to be retrieved. The wallet-sized maps were very portable but due to the number of folds required to open and close them, they could not be easily be put away. Pop-up style maps did not suffer from this drawback.

The next step in the design process was to develop the format of the map: how it would fold and unfold. A variety of books on book making were consulted for broad ideas while playing with the way paper folds and unfolds. Simultaneously a very large map of the Kaministiquia, covering the area of interest from Kakabeka Falls to Lake Superior, was placed on a wall and the information that was collected on the ground and while canoeing the river was mapped on it (Figure 8.2). The first large map was found to be lacking in size and detail so it was replaced with another even larger map that allowed more room to

work (Figure 8.3).

Features of the river were loosely classified into colour-coded groups: history, biology, hydrology and geology, social and political elements, and access to the river. On the working maps, all information that could be found on the Kaministiquia was included and there was no intentional editing of the content. A number of photographs taken along the river were also used in order to visually understand what was occurring and where throughout the study area. This large map was used to gain a clear but comprehensive picture of the entire river. It therefore aided in the next phase, which was to reduce the information to the essence of the information the community actually needs. This large map was continuously used throughout the rest of the design process as a reference tool.

Once the map information was established, it was evident that to only have one map with all the information would be overwhelming and ineffective. During the analysis of the river it was also noted that the type of environment surrounding the Kaministiquia shifts as it flows from the falls to the lake. It therefore seemed logical to use these natural changes as the boundaries for several detailed maps. Three landscapes types noted during the analysis of the physical, biological, social, and constructed contexts were: the occupied wilderness, the cultural and residential quarter, and the heavy industrial lands. Broad user groups were also identified during the analysis: families with children, and adults of all ages. Based on the landscape types, the three detailed maps were developed with specific user groups in mind. The occupied wilderness with its rough, mostly undeveloped, terrain including rapids was determined to be attractive to young to middle-aged singles and pairs of users. The cultural and residential quarter, with its tourist attractions, very slow current, and easy navigability was geared to young families. The heavy industrial lands with its rich history, wide channels, and backwash from the lake, was to interest both young and old users whether exploring individually or in small and large groups.

It was therefore determined that there should be one overview map to pique community interest and draw viewers in to have a closer look at the more detailed maps. The overview map would contain a summary of the highlights and features of the Kaministiquia and the detailed maps would contain more thorough information about each area. Since the first draft, the map has undergone no less than four separate printed iterations and it is this fourth and most recent version that is presented here with this document.

The map set consists of four maps held together in a

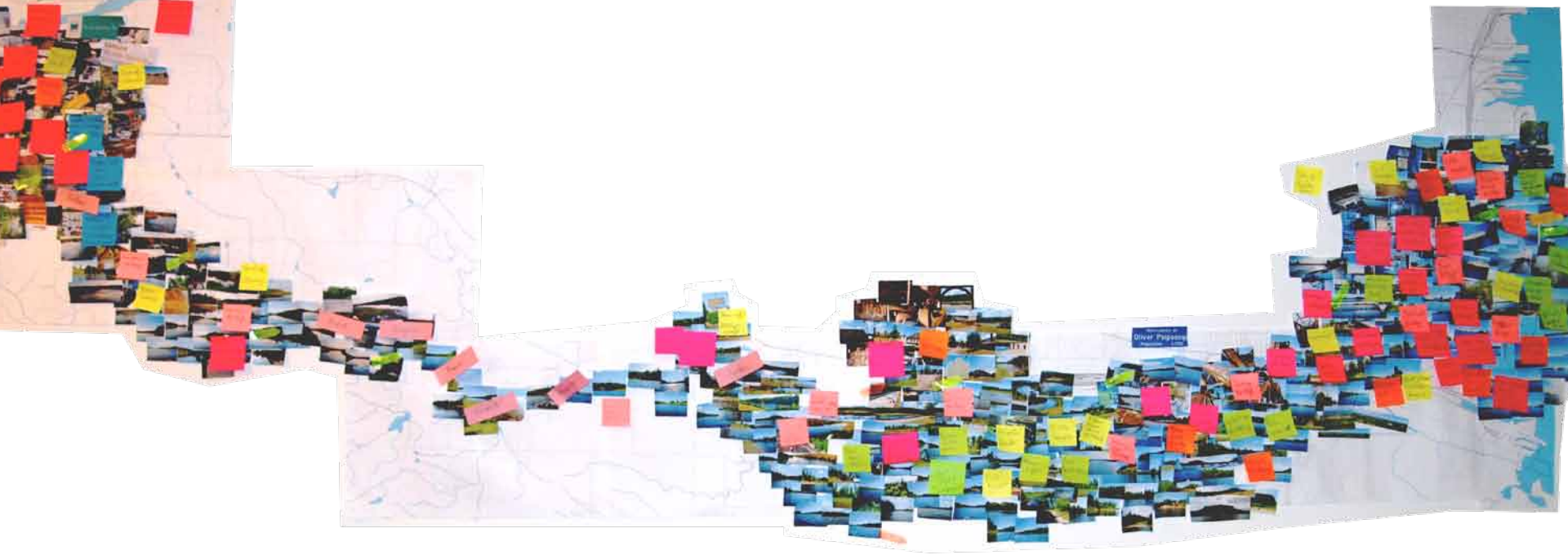


Figure 8.2: (Above) *First working map*

Figure 8.3: (Below) *Second working map*

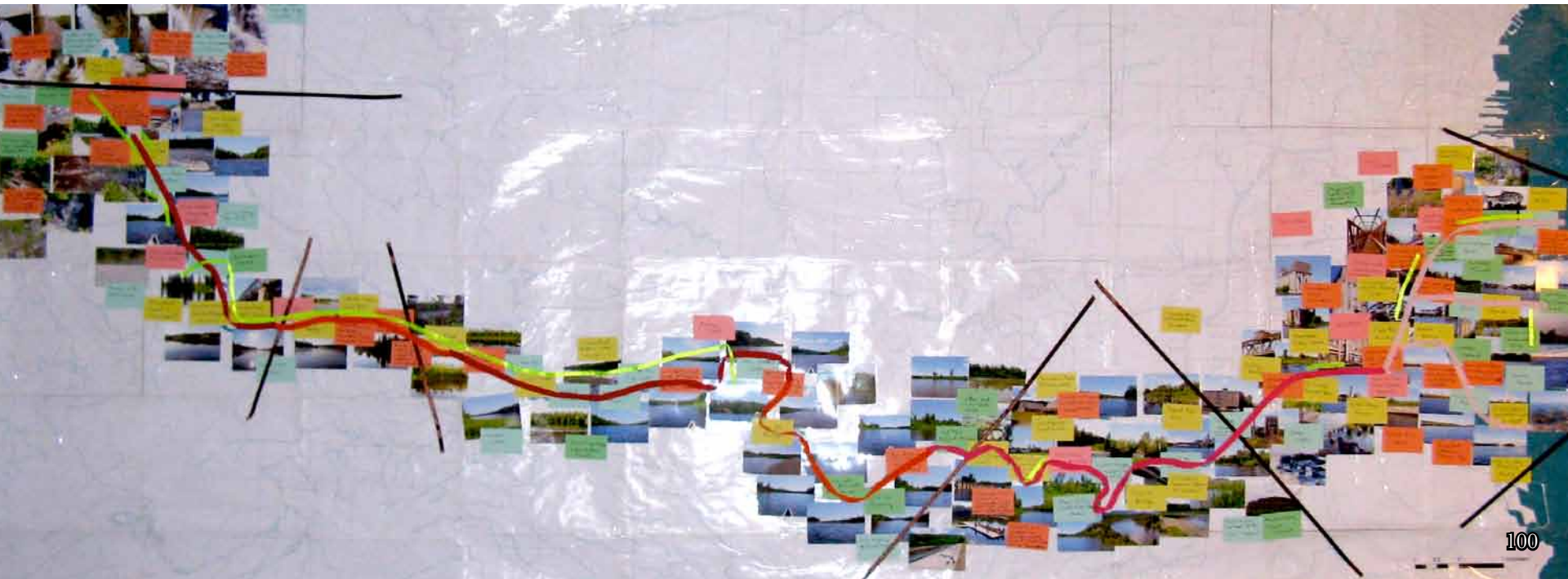


Figure 8.4: *The complete map set*

fitted sleeve (Figure 8.4). The maps consist of (1) one overview map covering the entire Kaministiquia River from Kakabeka Falls to Lake Superior; (2) the first detailed map covers the reach from Kakabeka Falls to Fort William Historical Park; (3) the second detailed map covers the area from Fort William Historical Park to the base of Mount McKay; and (4) the third detailed map covers the delta part of the river from the base of Mount McKay to Lake Superior.

The maps are colour coded throughout the series to make it easier for the user to recognize which part of the river each map covers. Each map was given a name that reflects the type of experience that the landscapes covered by the respective maps offers the user. The paper the maps are printed on is a waterproof inkjet printer paper with cardstock in between the layers of some the thicker portions of the map to reinforce the map folds. Due to the constraints presented by configuring computers with printers it was decided that these maps would be configured to a home inkjet printer rather than rely on the, at times, unreliable university laser printers. The pieces of cardstock that are used to reinforce the folds are themselves not waterproof but if these maps were printed commercially this cardstock would be replaced by a form of thick plastic or some other waterproof material.

Each of the maps follows the same layout scheme. Each map has a front and back cover, and when opened shows the area the Kaministiquia River flows through, all river access points, and the area of the river the map covers. Next the map opens again to reveal a map of a specific section of the river and detailed information about that part of the river. Along with river access, points of interest are highlighted and other interesting historical, social, physical activity, biological, and physical information is provided. Turning the maps over one finds a historical timeline of the activities in the area the map covers; an interesting account about the area in question; as well as a map of the entire area which shows which areas on the river are covered by each map. A further detailed explanation and illustration of each map will now follow. The presentation of the maps in the subsequent pages is intended to be read with the complete set of maps included with this document.

(1) Explore a Forgotten Treasure

(Kakabeka Falls to Lake Superior)

The first map in the series and by far the most important is *Explore a Forgotten Treasure*, which covers the area from Kakabeka Falls to Lake Superior. This map was designed to engage the community with information on the whole area and with references to the more detailed maps. This map is to illustrate the Kaministiquia's close proximity to Thunder Bay and highlights its most important features and the access points to the river (Figures 8.5 and 8.6). The eight bridges, each uniquely different, that span the river between the base of Kakabeka Falls and Lake Superior are illustrated. Eight cross sections of the river help illustrate the drastically changing topography between the falls and the lake.

Photographs illustrate the main highlights of the river: Kakabeka Falls, Fort William Historical Park, Mount McKay, Industrial Relics, and views out to Lake Superior which include the iconic Sleeping Giant. Of the many different flora and fauna species that inhabit the Kaministiquia and its riverbanks a small selection were chosen to provide a broad overview of the variety that can be found: great blue heron, river otter, northern pike, belted kingfisher, white sucker, white spruce, and black ash. On the reverse side of the map a timeline summarizes the main historical events in the life of the river (Figure 8.7). The account reviews the naming of the river, what it means, and how it has undergone many changes in spelling over nearly three and a half centuries.

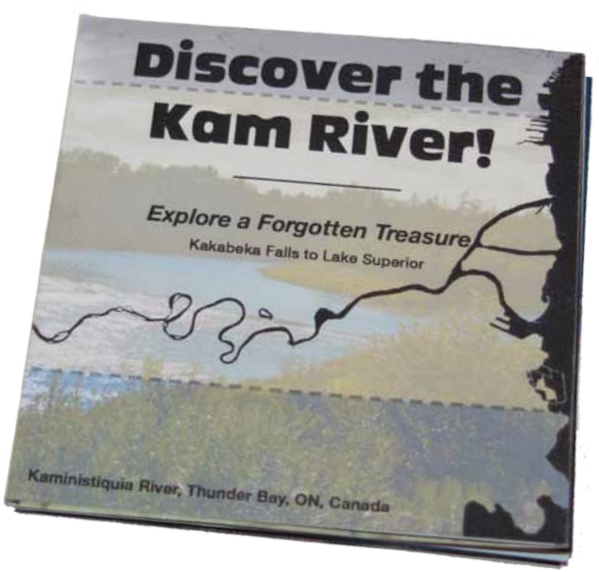
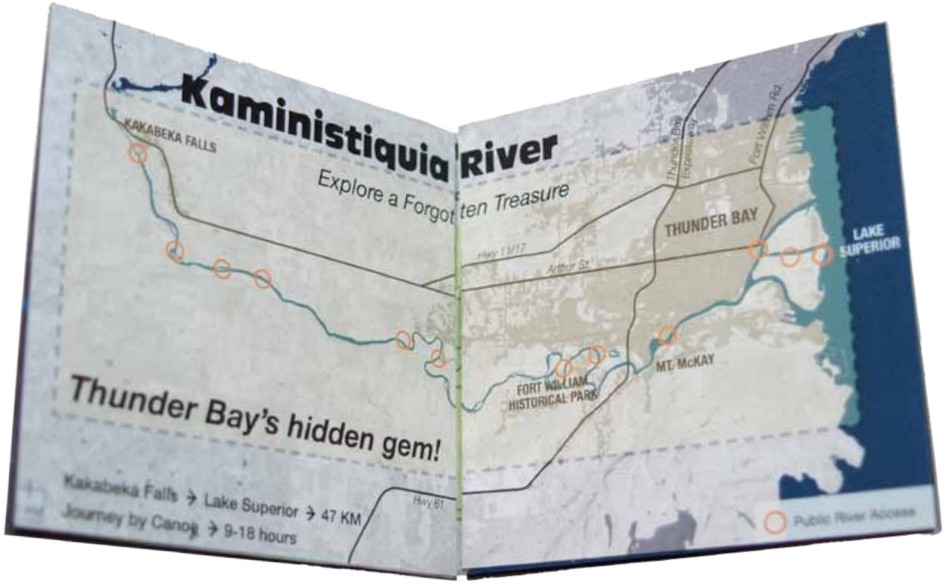


Figure 8.5: *Explore a Forgotten Treasure map (cover and how it unfolds)*


Kaministiquia River
Explore a Forgotten Treasure
KAKABEKA FALLS
THUNDER BAY
LAKE SUPERIOR
FORT WILLIAM HISTORICAL PARK
MT. McKAY
Thunder Bay's hidden gem!
Kakabeka Falls → Lake Superior → 47 KM
Journey by Canoe → 9-18 hours
Public River Access


Public River Access
Bridge
Major Attraction
Developed Area
Marshland
Provincial Park
Fort William Historical Park
Sleeping Giant
Thunder Bay
Paresseux Rapids
Fort William Historical Park
Industrial Relics
Mt. McKay

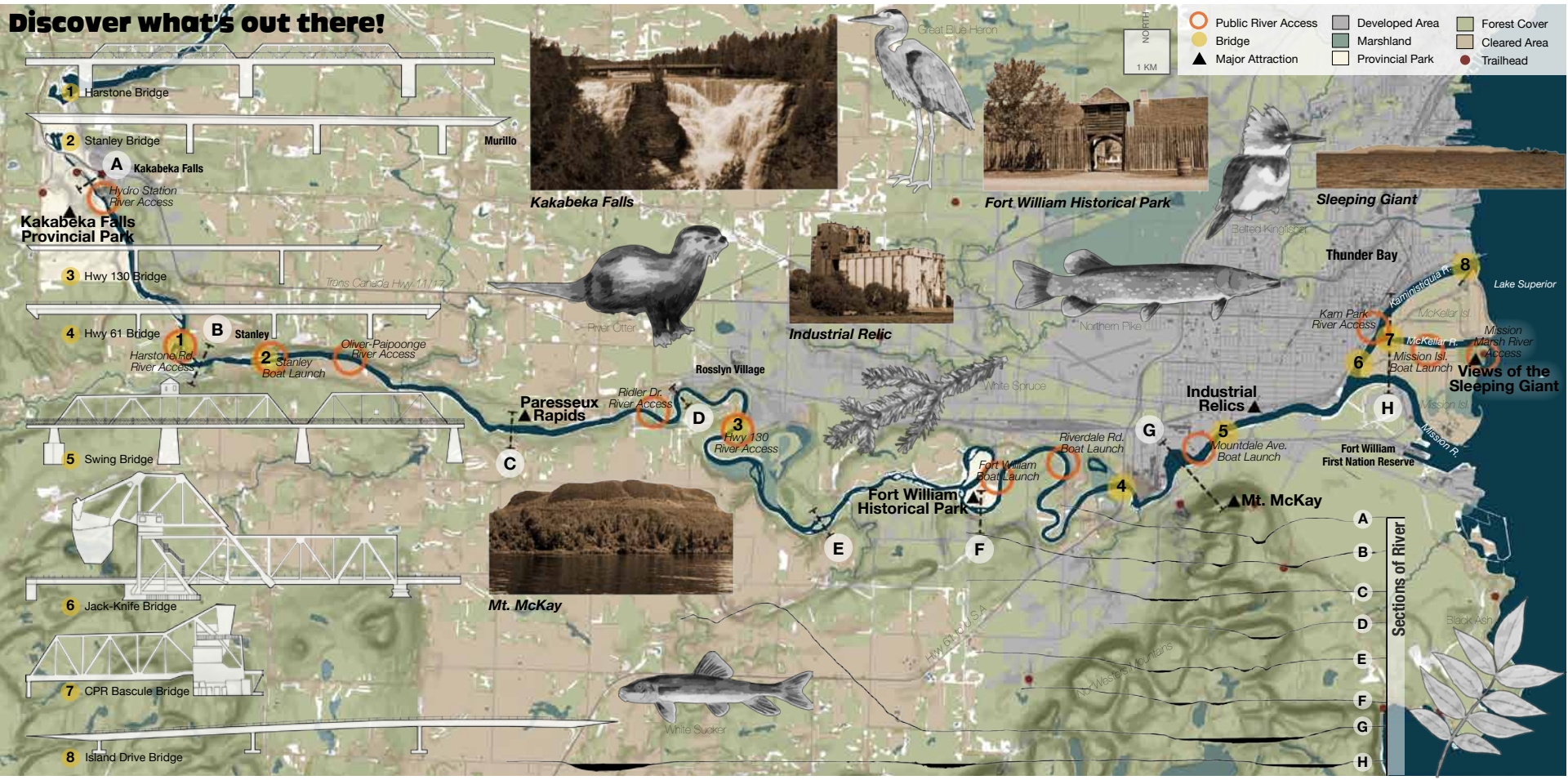


Figure 8.6: *Explore a Forgotten Treasure map (main map unfolded)*

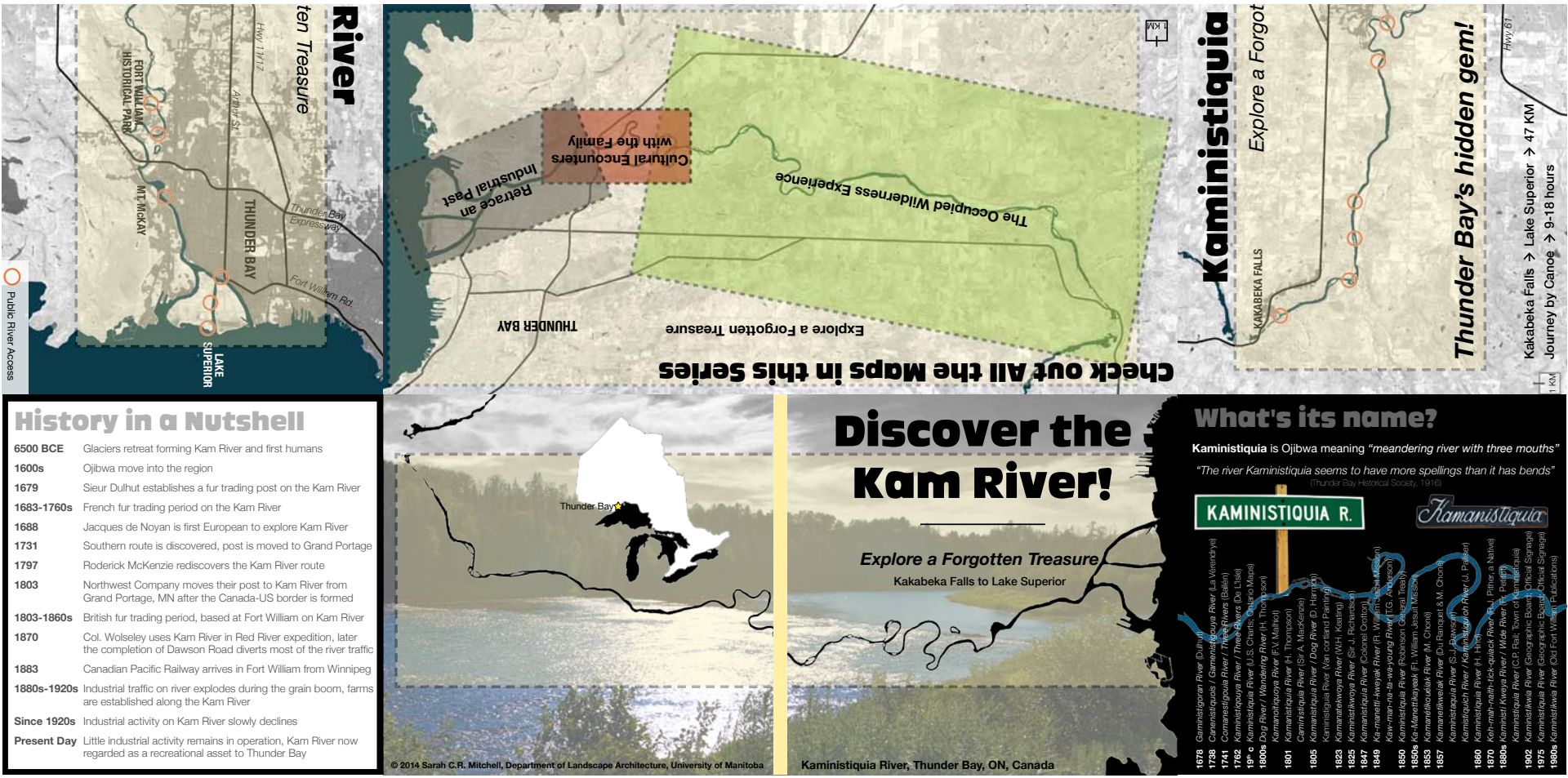


Figure 8.7: *Explore a Forgotten Treasure map (reverse side unfolded)*

(2) **The Occupied Wilderness Experience**

(Kakabeka Falls to Fort William Historical Park)

While the first map, *Explore a Forgotten Treasure*, summarizes the features of the Kaministiquia, this second map, entitled *The Occupied Wilderness Experience*, presents the area from Kakabeka Falls to Fort William Historical Park in detail. This map highlights the natural beauty and roughed terrain offered by an area that has experienced little development. Due to the difficulty in accessing this section of the river and the challenges, such as the Paresseux rapids, the targeted user group for this map is to engage members of the community who are youthful-natured and adventurous individuals. Most of the reaches of the river covered in this map are only accessible to portable watercraft and therefore the targeted users must be able-bodied to engage with it.

Photographs reveal the highlights in this area. Sketches of wildlife that are known to inhabit this part of the river are also presented (Figure 8.9). The reverse side of the map has a brief overview of this area's history and recounts the legend of the Ojibwa princess Greenmantle who saved her people from an invading Sioux army by sacrificing herself to Kakabeka Falls (Figure 8.10).

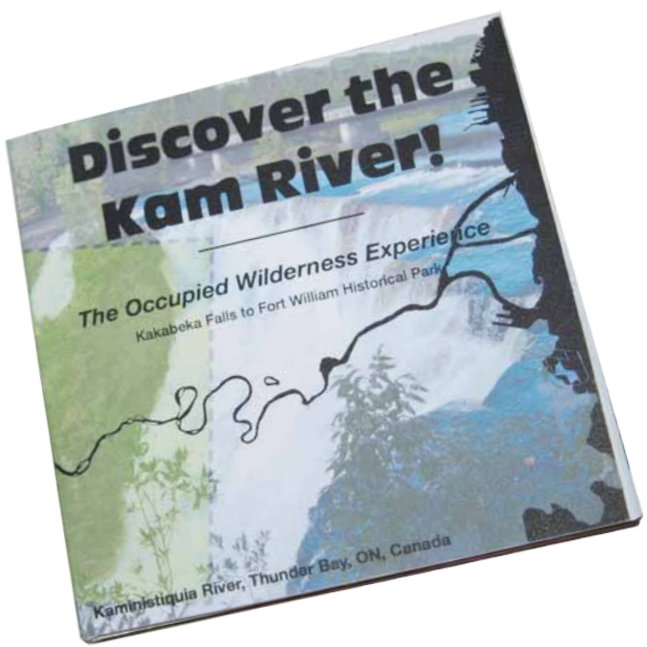


Figure 8.8: *The Occupied Wilderness Experience map (cover and how it unfolds)*


Kaministiquia River
The Occupied Wilderness Experience
KAKABEKA FALLS
THUNDER BAY
LAKE SUPERIOR
MT. McKAY
FORT WILLIAM HISTORICAL PARK
It's a hop, skip & a jump away!
Kakabeka Falls → Fort William Historical Park → 30 KM
Journey by Canoe → 6-12 hours
Public River Access


Kaministiquia
It's a hop, skip & a jump away!
Kakabeka Falls → Fort William Historical Park → 30 KM
Journey by Canoe → 6-12 hours
First Sighting of Mt. McKay

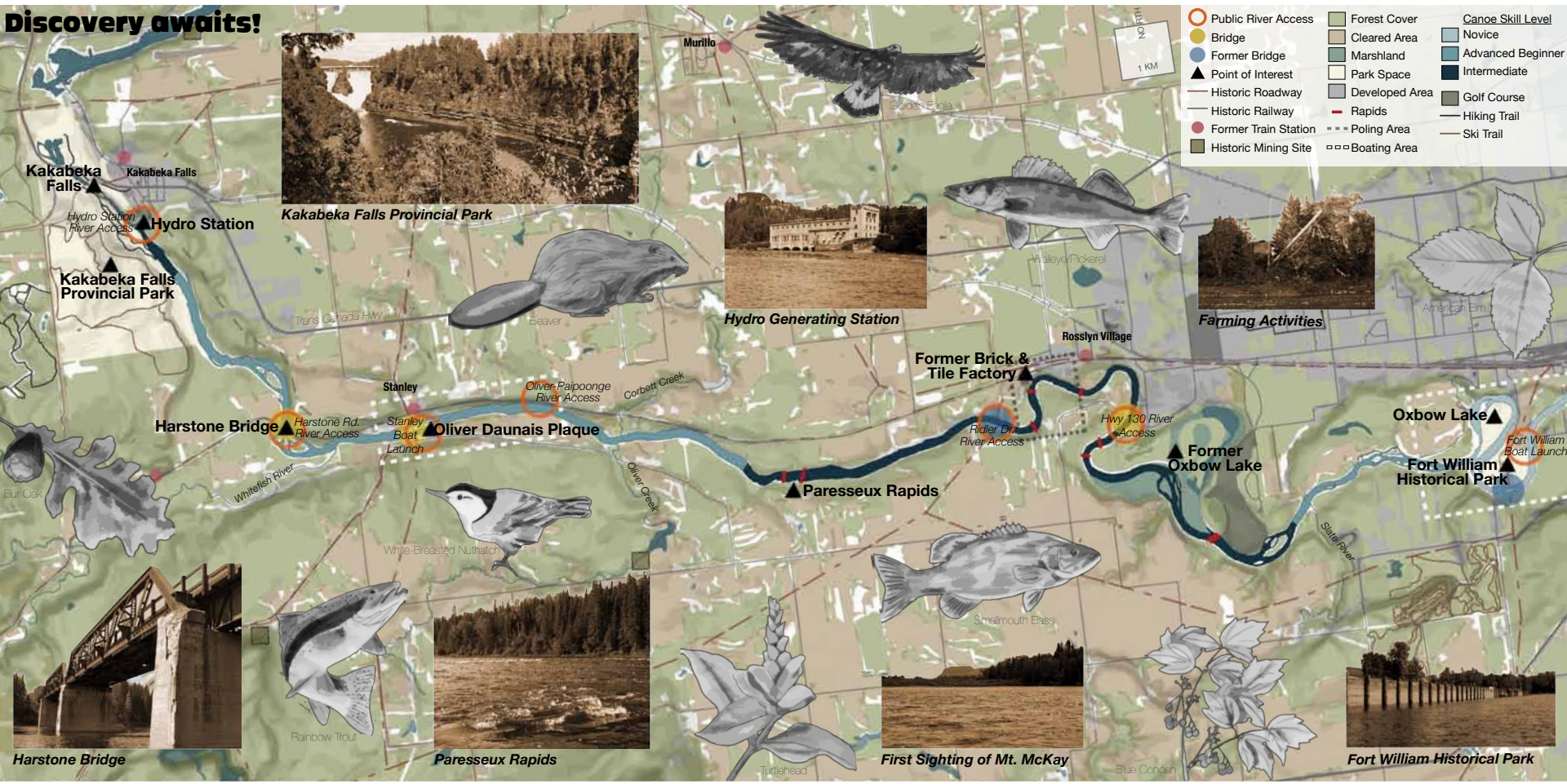


Figure 8.9: *The Occupied Wilderness Experience map (main map unfolded)*

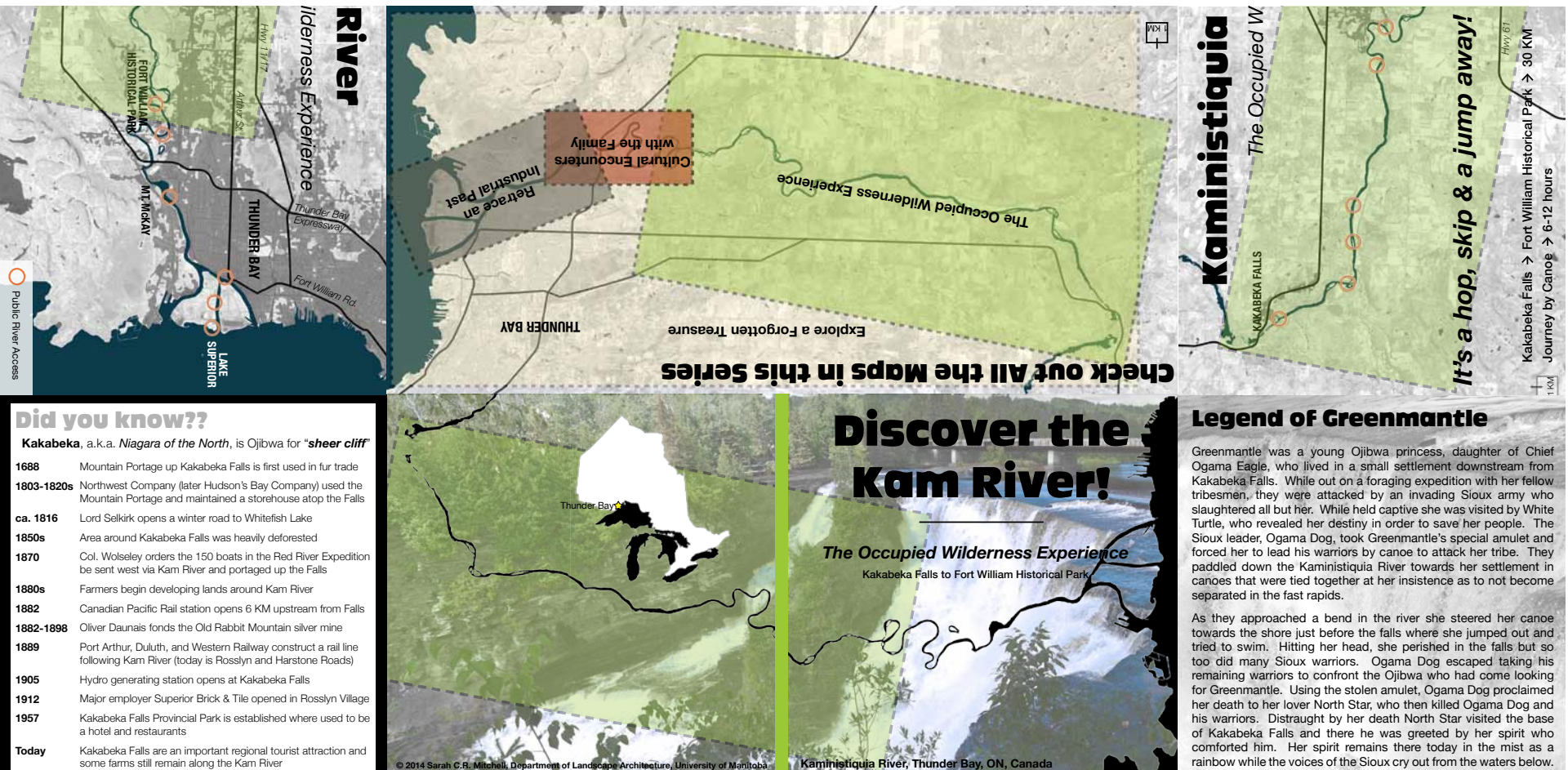


Figure 8.10: *The Occupied Wilderness Experience map (reverse side unfolded)*

(3) Cultural Encounters with the Family

(Fort William Historical Park to Mount McKay)

The third map is entitled *Cultural Encounters with the Family* and covers the area from Fort William Historical Park to the base of Mount McKay. The landscape presented in this map consists of sites that include an oxbow lake, cultural encounters at Fort William Historical Park, a residential neighbourhood with a river acting as the street, and both active and abandoned heavy industry. This reach of the river, with its user-friendly launches and no obstructions in the water, is very accessible to both motorboats and portable craft. It is short in length and diverse in its features, making it appropriate for families with young children looking for an easy, relaxing, and enjoyable activity to do together close to home.

Photographs illustrate some of the featured attractions in this area. Sketches of the flora and fauna that frequent this part of the river are so presented (Figure 8.12). The reverse side of the map has a brief overview of this area's history as well as the story of Lord Selkirk at Point de Meuron and how his actions in this location eventually led to the Hudson's Bay Company overtaking the Northwest Company (Figure 8.13).

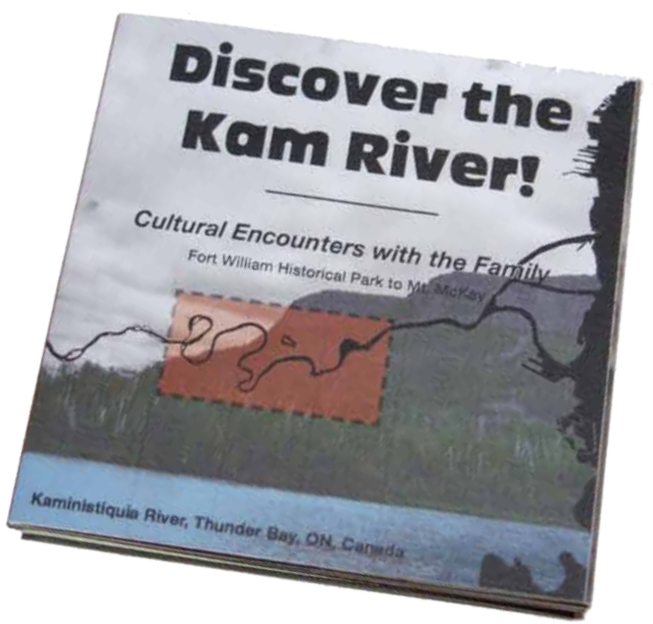
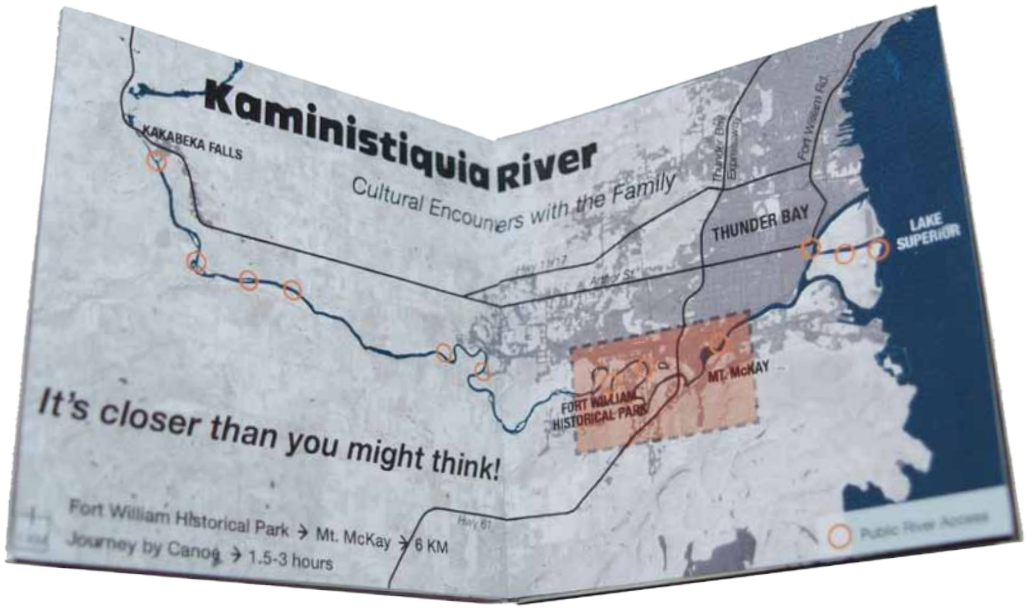


Figure 8.11: *Cultural Encounters with the Family map (cover and how it unfolds)*


Kaministiquia River
Cultural Encounters with the Family
KAKABEKA FALLS
THUNDER BAY
LAKE SUPERIOR
MT. McKAY
FORT WILLIAM HISTORICAL PARK
It's closer than you might think!
Fort William Historical Park → Mt. McKay → 6 KM
Journey by Canoe → 1.5-3 hours
Public River Access


Vickers Heights
Fort William Historical Park
Bald Eagle
Lord Selkirk's capture of Fort
Northwest Company eventually leading to
Hudson's Bay Company in 1821.

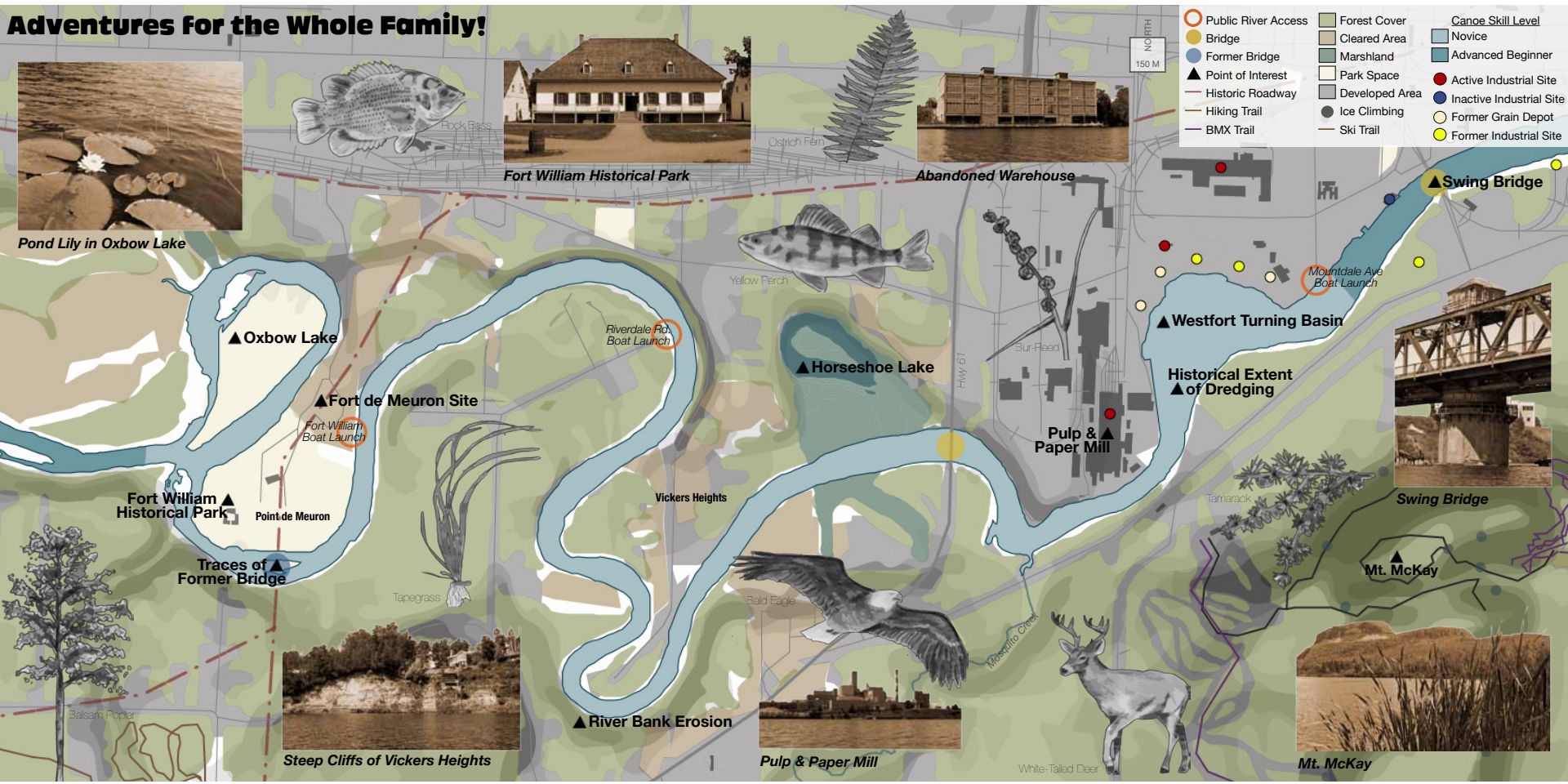


Figure 8.12: *Cultural Encounters with the Family map (main map unfolded)*

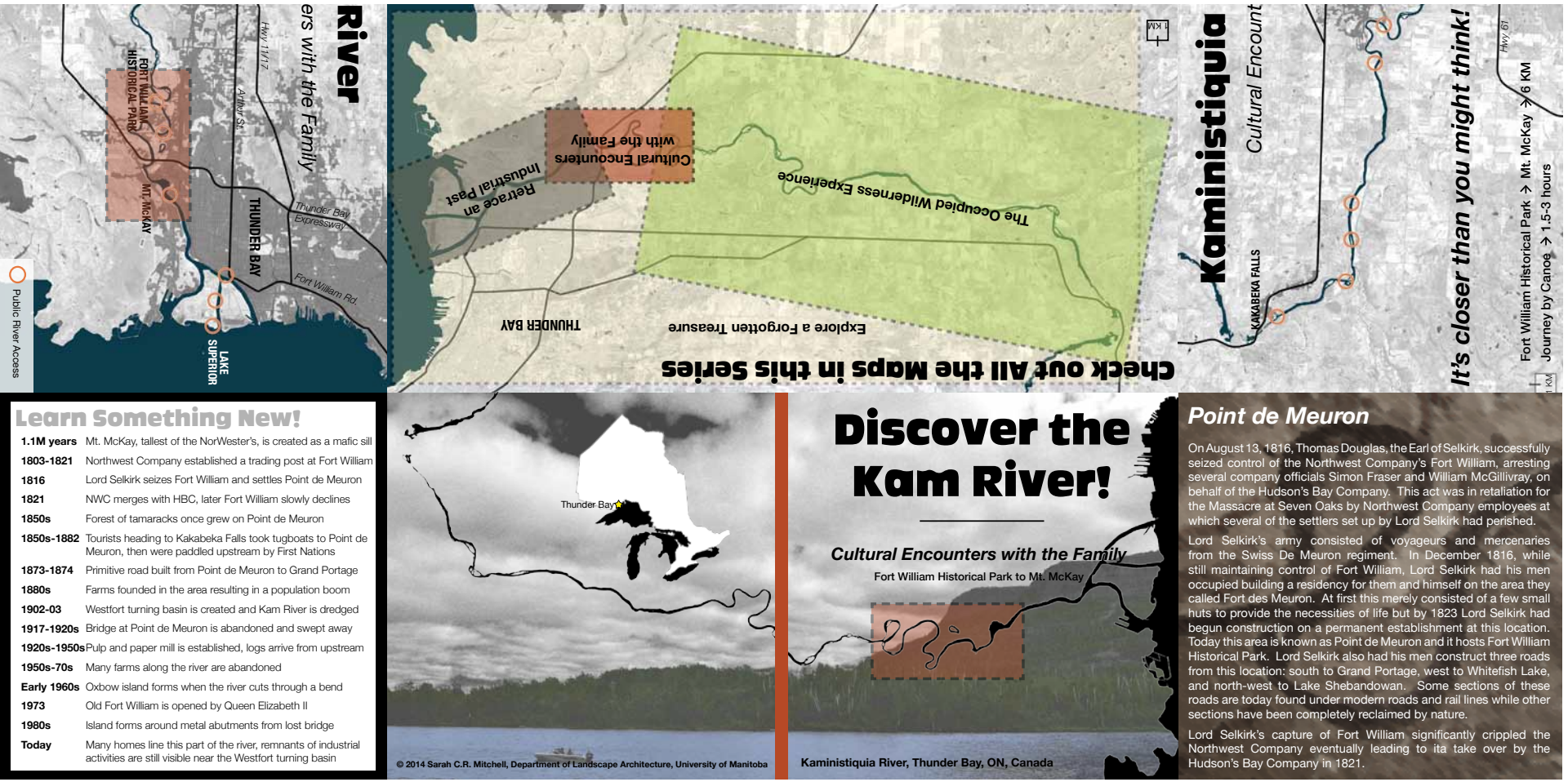


Figure 8.13: *Cultural Encounters with the Family map (reverse side unfolded)*

(4) Retrace an Industrial Past

(Mount McKay to Lake Superior)

The fourth map and final map is entitled *Retrace an Industrial Past* and spans the area from the base of Mount McKay to where the Kaministiquia flows into Lake Superior. The landscape of this area contains a rich history of heavy industrial activity crucial to the area's early development as well as industrial activities still operational. This section of the river is accessible but like its many industrial relics, some of the access points to the river remain unknown. The only challenge presented by the river in this reach is a strong backflow current from Lake Superior, making its targeted audience quite diverse. Users with motorboats can easily navigate the entire area and therefore these users may be young and old individuals, families, or other groups who are fascinated by history and what it has to offer the present. Those users who are interested in exploring the area by portable watercraft must be able to negotiate the strong current. However since access to the river is not a limiting factor these targeted users can consist of both young and old individuals with an interest in history.

Photographs illustrate some of the main attractions in this area and sketches illustrate plants and animals that occupy this portion of the river (Figure 8.15). The various industrial activities that have taken place in this reach of the river are also mapped. The reverse side of the map includes a brief summary of this area's history and a story about a Ogilvie's Flour Mills grain elevator that slipped into the river when the riverbank gave way, a reminder of the erosive powers of the Kaministiquia River (Figure 8.16).

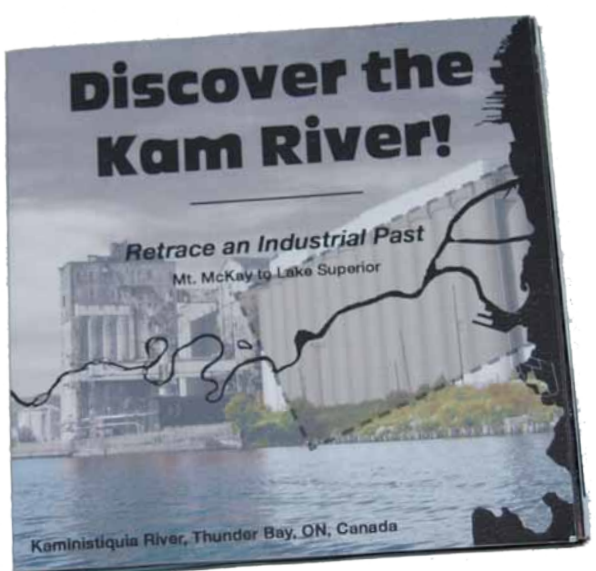
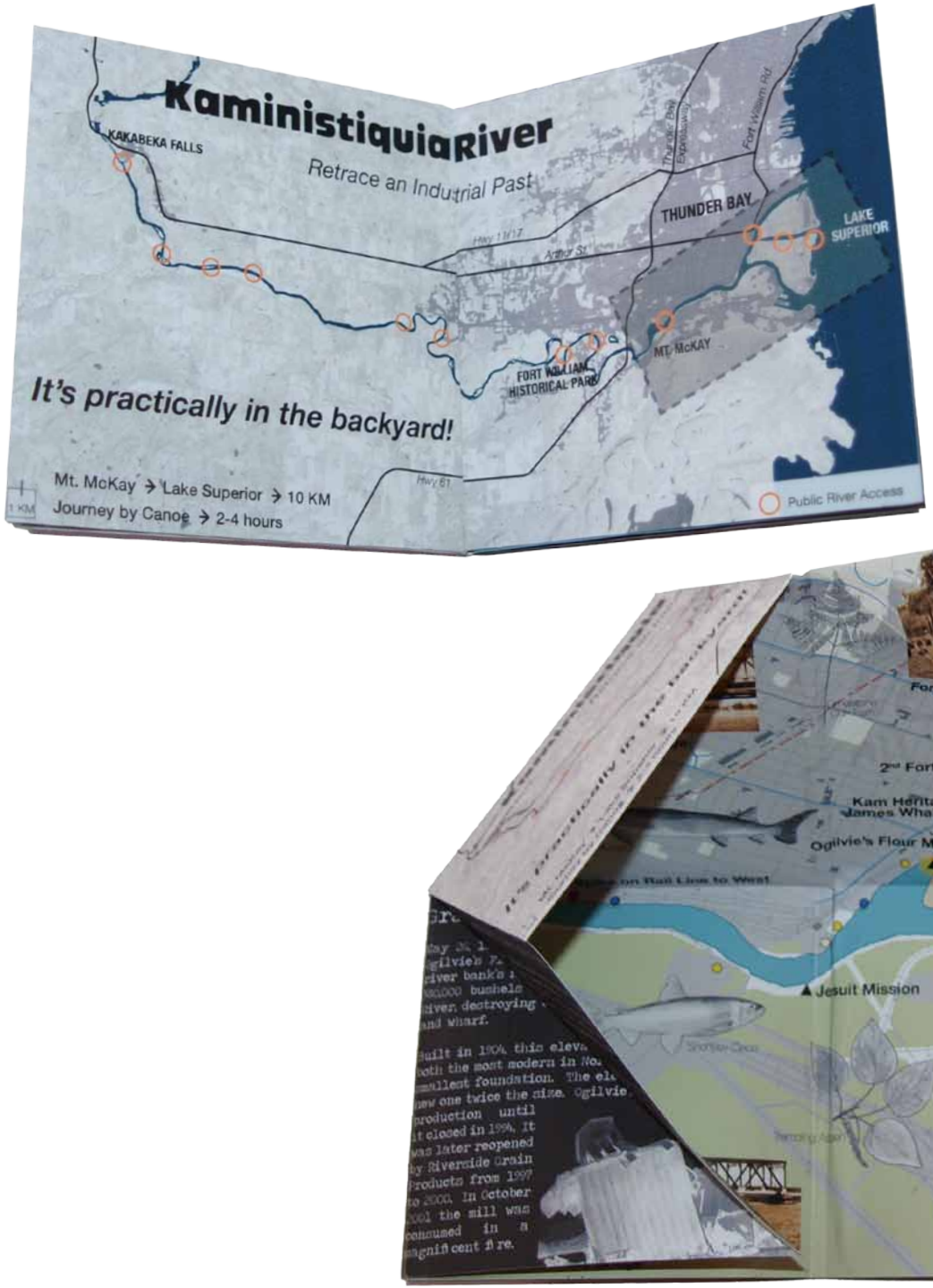


Figure 8.14: *Retrace an Industrial Past map (cover and how it unfolds)*


Kaministiquia River
Retrace an Industrial Past
KAKABEKA FALLS
THUNDER BAY
LAKE SUPERIOR
MT. McKAY
FORT WILLIAM HISTORICAL PARK
It's practically in the backyard!
Mt. McKay → Lake Superior → 10 KM
Journey by Canoe → 2-4 hours
Public River Access
Former Dock & Marsh Area
C.P. Rail Yards
NWC's Fort William
Island Drive Marsh
2nd Fort Kaministiquia
Kam Heritage Park & James Whalen Tugboat
Ogilvie's Flour Mill
C.P.R. Bascule Bridge
Jack Knife Bridge
James Whalen Tugboat
Views of Lake Superior
1st Fort Kaministiquia
Jesuit Mission
Mission Island Marsh
Coal Power Plant
Lake Superior
Canoe Skill Level
Novice
Advanced Beginner
Active Industrial Site
Inactive Industrial Site
Former Grain Depot
Former Industrial Site
Forest Cover
Cleared Area
Marshland
Park Space
Developed Area
Ice Climbing
Bike Trail
Bridge
Point of Interest
Historic Roadway
Hiking Trail
Bike Trail

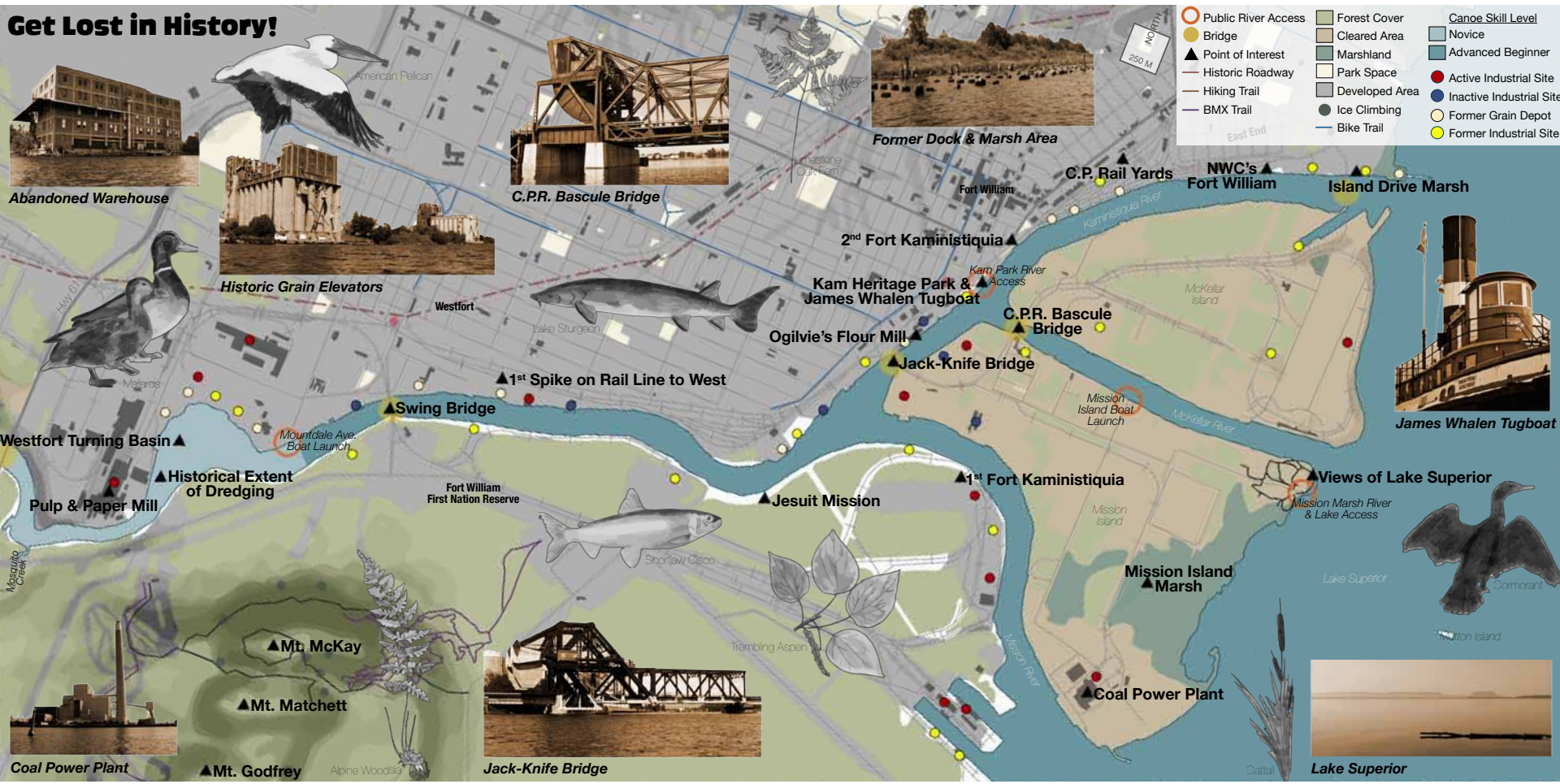


Figure 8.15: *Retrace an Industrial Past map (main map unfolded)*

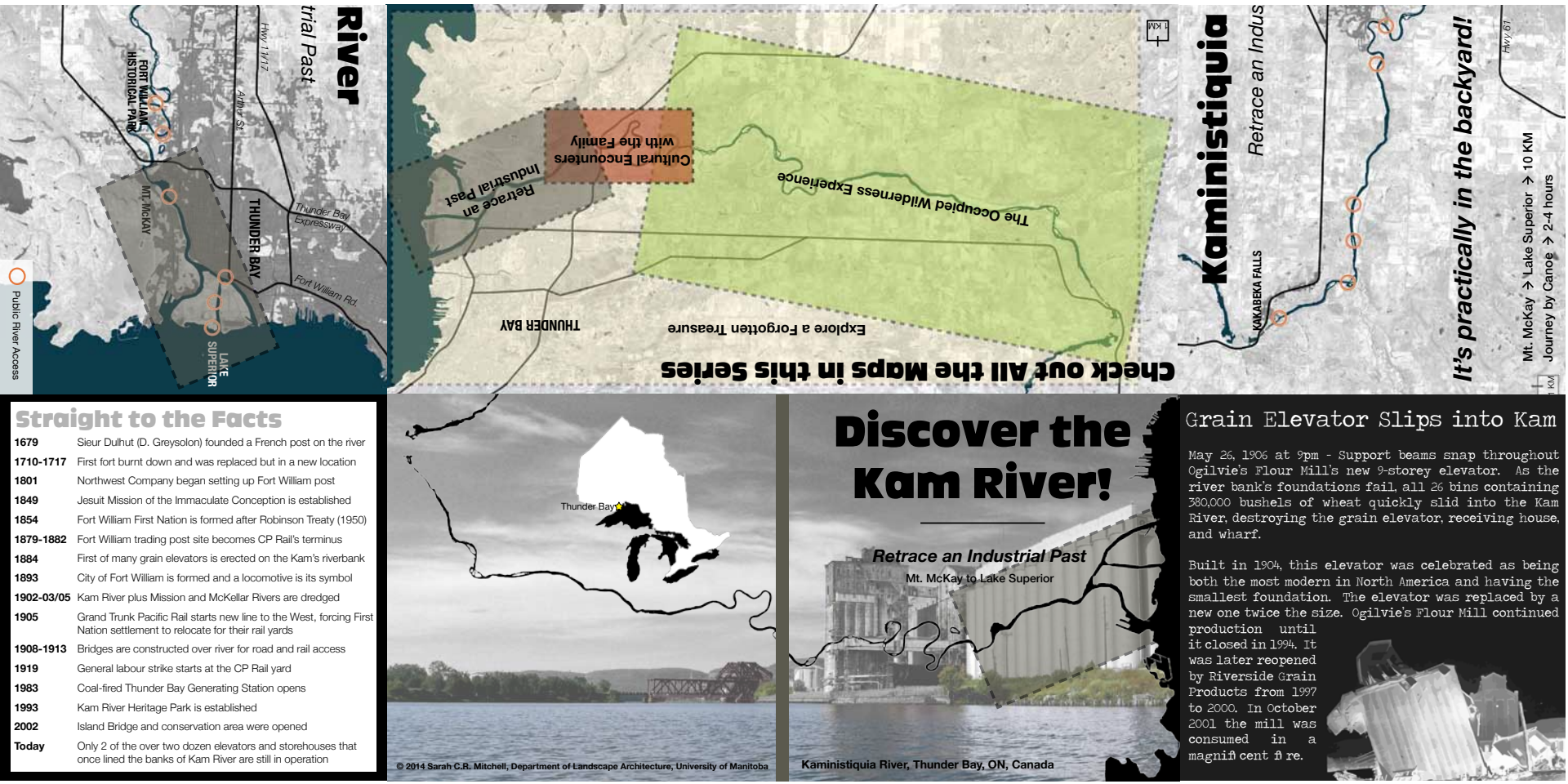


Figure 8.16: *Retrace an Industrial Past map (reverse side unfolded)*

Figure 8.17: (Above) *Existing cellphone coverage along the Kaministiquia permits users constant contact to digital media*

Figure 8.18: (Below) *Screenshot of the proposed digital app KamFinder*

As part of engaging the community the box set of maps should be made widely available throughout the Thunder Bay area. In continuing with the idea of accessibility to information the box set should be free. Its production might be subsidized through public and private sponsorship. The box set could be part of a marketing campaign to promote community engagement with the Kaministiquia.

Digital App - *KamFinder*

In addition to engaging the community with printed maps a free smart phone app could be offered called *KamFinder* (Figure 8.18). Using the GPS system built into the smart phone, this app would pinpoint the user's location and direct them to the closest Kaministiquia access point and indicate its type of boat or pedestrian access. The app would also offer information for other access points and could link into virtual reality mapping.

Improved Signage

Increasing signage acknowledging the existence of the Kaministiquia was the second tool to engage the community identified during the analysis. Signage should be installed along major thoroughfares through Thunder Bay and Oliver Paipoonge Township that either leads to the Kaministiquia or is a major road that is in relative close proximity to the river. These roads include the Trans-Canada Highway 11/17, Highway 61, Highway 130, Highway 588, Riverdale Road, Broadway Avenue, Oliver Road, Rosslyn/Harstone Road, Arthur Street, Memorial/May Street, Fort William Road/Simpson Street, Syndicate Avenue, Frederica Street, James Street, Edward Street, Mountdale Avenue, Island Drive, Pacific Avenue, and the Harbour Expressway. Additional signs might be placed at select key places further away from the river in the northern part of Thunder Bay along roads like Red River Road, Cumberland Street, Algoma Street, Dawson Road, Hodder Avenue, John Street, and Golf Links Road.

This new signage acknowledging the Kaministiquia, as illustrated by Figure 8.19, would have the name of the river, the distance to the closest access point as well as an arrow indicating the direction. In addition to the road signage there should also be signs posted at each of the river access sites that indicate the locations of all the other river access points and the main roadways that lead to them (Figure 8.20).

Cycling Route

As discussed in the site analysis, the City of Thunder Bay is currently developing a waterfront cycling route. Expanding this trail system is a third way in which to engage the community with the Kaministiquia River. The proposed additions to the City's route follow most of the Kaministiquia from Kakabeka Falls to Lake Superior and makes use of the existing roadways where possible. The idea of a cycling route following the river was originally suggested by Wim Smits during an interview (2012). The route would begin at the Kakabeka Falls Provincial Park parking lots located on either side of the falls, and then exit the park passing through the town of Kakabeka Falls. Since the tracks of the Port Arthur, Duluth and Western Railway rail once ran between Kakabeka Falls and the Harstone bridge on the southeastern bank of the river, it is possible that this path may be still somewhat usable. Depending on how overgrown it has become it may only require brushing out and possibly resurfaced. The cycling route would then continue south along Harstone Road following the river. Removal of some shrubs within a few meters of the road to create windows out to the river, would greatly improve the visibility of the river without seriously compromising the bank's stability.

Once the path reaches Rosslyn Village it would cross the Highway 130 bridge and follow the river from the south. The existing roads on either side of the river at this point are located quite far away most likely due to the area being a known flood plain. As the road snakes around the river it would join up with Highway 61 as it heads northwest towards Thunder Bay. Before reaching the Highway 61 bridge the path would spin off on Highway 61B heading towards the Fort William First Nation reserve as the Highway 61 bridge that crosses the Kaministiquia is quite narrow and many large logging and transport trucks cross it regularly therefore making it very dangerous for cyclists to use. Following Highway 61B, the path would cross the historic Swing bridge on James Street and then immediately head east following the train tracks where it eventually links into the proposed City of Thunder Bay waterfront cycling route that was described in the analysis.

The creation of such a route that provides the community with cycling and pedestrian access to the river would only be achieved with the cooperation of multiple interested parties including the City of Thunder Bay, the Fort William First Nation reserve, the Government of Ontario (Ministry of Transportation and Ontario Parks), the Oliver-Paipoonge Township, Canadian Pacific Railway, as well as other private stakeholders. This route would serve as a link connecting the existing access points to the river and the increased signage advertising the river's existence.

Figure 8.19: (Above) *Proposed improved road signage (along the Trans-Canada Hwy 11/17)*

Figure 8.20: (Below) *Proposed signage at river access point (at the Kam River Heritage Park)*

Figure 8.21: *Proposed additions to the proposed City of Thunder Bay waterfront cycling route*

Improving Water Access

The fourth tool for increasing community engagement with the Kaministiquia River was improved access to the water. Although most of the river's access sites could be re-imagined to improve their physical accessibility to the river, design concepts are proposed for the three location likely to be used most frequently. These include (1) the Ontario Power Generation Hydro Station access site that is close to Kakabeka Falls, (2) the Mountdale Avenue boat launch site opposite Mount McKay which is frequently used by motorboats to travel upstream towards Fort William Historical Park and downstream to Lake Superior, and (3) the Mission Island Marsh Conservation Area river access site used by sea-kayakers to access Lake Superior.

Ontario Power Generation Hydro River Access Proposal

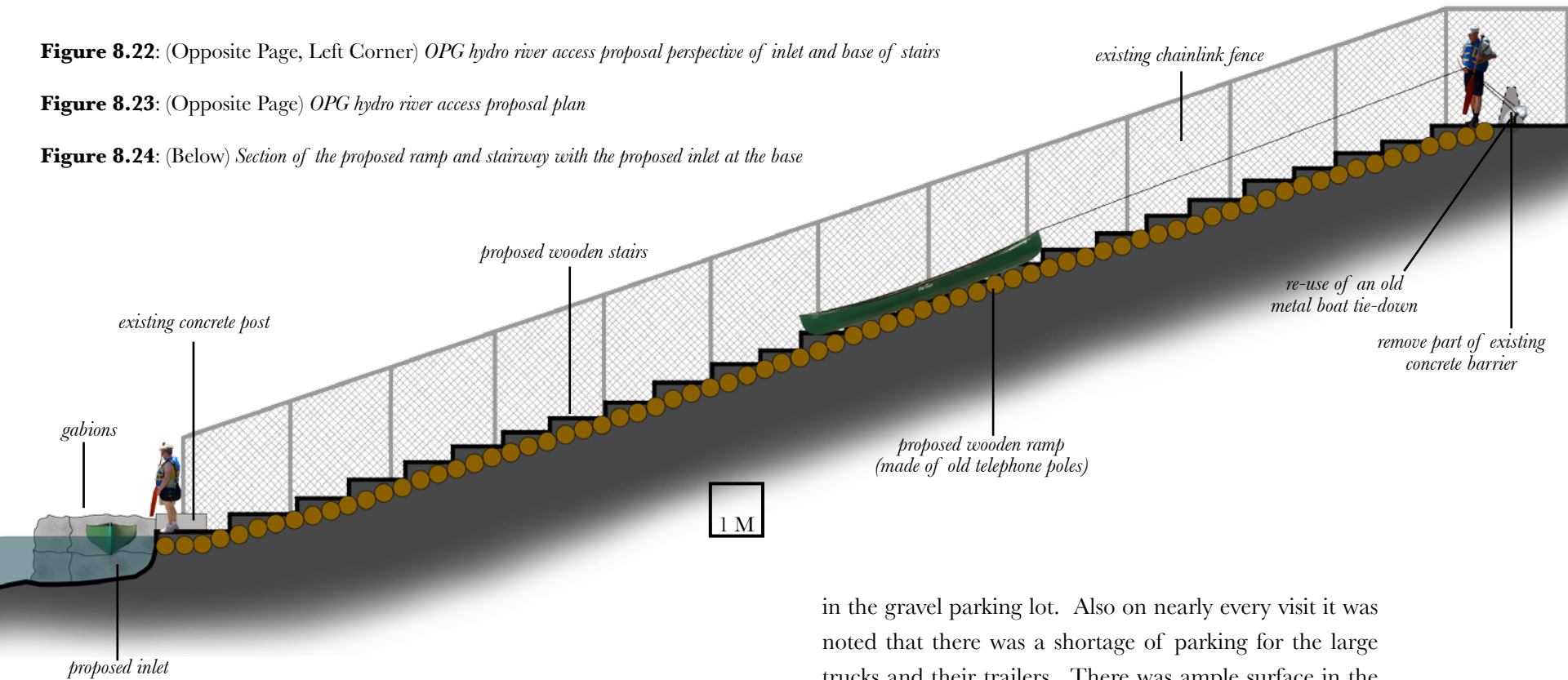
The Ontario Power Generation (OPG) hydro river access site is the furthest point upstream on the Kaministiquia River below Kakabeka Falls where the river can be reached. The OPG permits public access to the river through a small area but it is steep and is covered in lose smooth round rocks that easily give way under the weight of visitors and the weight of their small watercraft and slide into the river. The river is quite fast at this location due to the steep gradient under the falls and the velocity built up by the action of water flowing over the falls. There is also a tall concrete barrier that separates the parking area from the riverbank.

To create better access it is proposed that a wooden ramp is constructed to go from the small parking area above the riverbank to roughly the lowest water level of the river (Figure 8.24). This ramp would be made of old telephone and hydro poles cut into 1 m long logs lined up next to each other width-wise and secured into the ground. This ramp design is intended to reflect the similar ramp used by Colonel Wolseley's army when they portaged large boats up the Mountain Portage on the opposite bank (Figure 1.2). A simple wooden staircase beside this ramp would allow users to walk safely up and down the slope alongside their watercraft. A section of the concrete barrier at the top of slope would be removed (Figure 8.23). In place of the barrier a metal boat tie-down from further downstream would be placed to provide additional support for lowering watercraft into the river. A small inlet at the base of the ramp would be created using gabions to form walls that would force the water to flow around and permit watercraft to be slid into the river from the adjacent slope.

Figure 8.22: (Opposite Page, Left Corner) *OPG hydro river access proposal perspective of inlet and base of stairs*

Figure 8.23: (Opposite Page) *OPG hydro river access proposal plan*

Figure 8.24: (Below) *Section of the proposed ramp and stairway with the proposed inlet at the base*

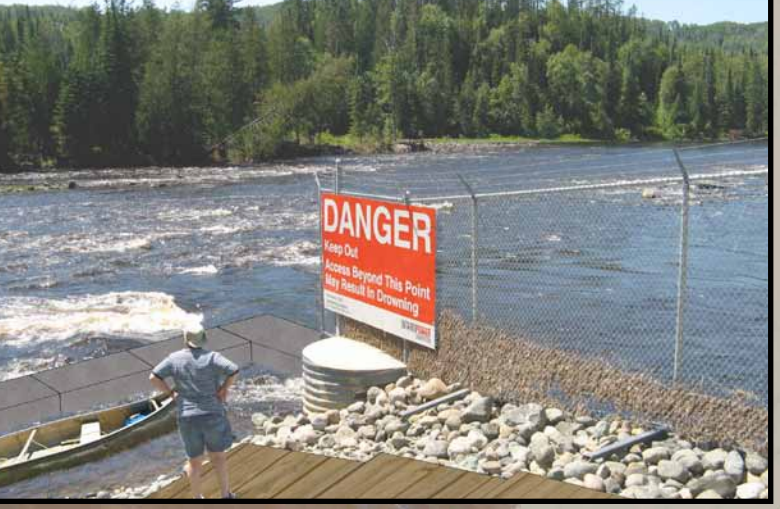


The wall would be built high enough as to also be effective during the high water levels of the spring melt water and flooding.

Mountdale Ave Launch Proposal

The Mountdale Avenue boat launch is by far the most popular and frequently used of all the access points on the Kaministiquia River. It has fallen into neglect as evidenced by a large drainage ditch that has been permitted to form in the gravel parking lot. Also on nearly every visit it was noted that there was a shortage of parking for the large trucks and their trailers. There was ample surface in the parking lot to accommodate the number of trucks and trailers, but few owners made room for others. They would park in angles and ways that took up far more space than required. Launching portable watercraft was considered rather hazardous with all the boat trailers queuing up to launch.

The design for this site attempts to address these problems (Figure 8.26). Firstly, the parking lot should be paved using permeable paving stones to prevent large ditches from forming. Second, long parking stall lines should be



existing chainlink fence

existing parking area

re-use of old metal boat tie-down

existing concrete barrier

hydro outflow area (off-limits)

proposed wooden stairs

existing bank covered in smooth loose rocks

proposed wooden ramp (made of old telephone poles)

existing concrete post

Kakabeka Falls, approx. 800m

existing forested area

existing building

gabions

Kaministiquia River

proposed inlet

direction of current

2 M

painted on the permeable paved surface to indicate where boaters and canoeists should park and to encourage the highest number of users possible. Public washrooms should be built off to the side for public use as the only public washrooms currently available in the area are a 5-minute drive or a 30-minute walk away. As suggested earlier, better signage advertising all of the access points to the Kaministiquia is essential to engaging the community. A noticeable sign here promoting the other nearby free boat launch (Figure 8.25) would greatly reduce much of the congestion that this access point currently experiences.

To accommodate users with smaller portable watercraft, a wooden floating dock would be constructed to one side of the existing boat ramp. The current is very slow here so barriers in the water such as at the OPG hydro river access point are not necessary. A fixed dock would be attached to the shoreline and be anchored in the water without disturbing the existing decaying historical dock piles in the water below. A floating dock would be attached at the end of the fixed dock and would be permitted to rise and fall with the fluctuating water levels.

Mission Island Marsh Conservation Area River Access Proposal

The Mission Island Conservation Area has a parking lot that fronts onto a grassed hill that leads down to the shore of Lake Superior. The site offers spectacular views of Lake Superior, the Sleeping Giant, and the Welcome Islands in the distance. In the winter it is possible to walk along the ice of the frozen lake out to a small rock island that has a few trees on it called Mutton Island. This site is only meters away from the mouth of McKellar River that is part of the delta of the Kaministiquia.

The recommendations for this site are intended to accommodate users in the summer and winter. To increase visitation and usage in the winter, it is recommended that the City of Thunder Bay dump snow on the grassed hill area to encourage tobogganing (Figure 8.28). This seasonally constructed hill should extend all the way down to the lake. Temporary benches could be placed on the lake for lacing up skates, attaching snowshoes, and resting during half-time of a hockey match.

To accommodate users who would like to gain access to the lake for sea-kayaking or who want to get to McKellar River in the summer it is recommended that a boardwalk be constructed from the parking area to the water (Figure

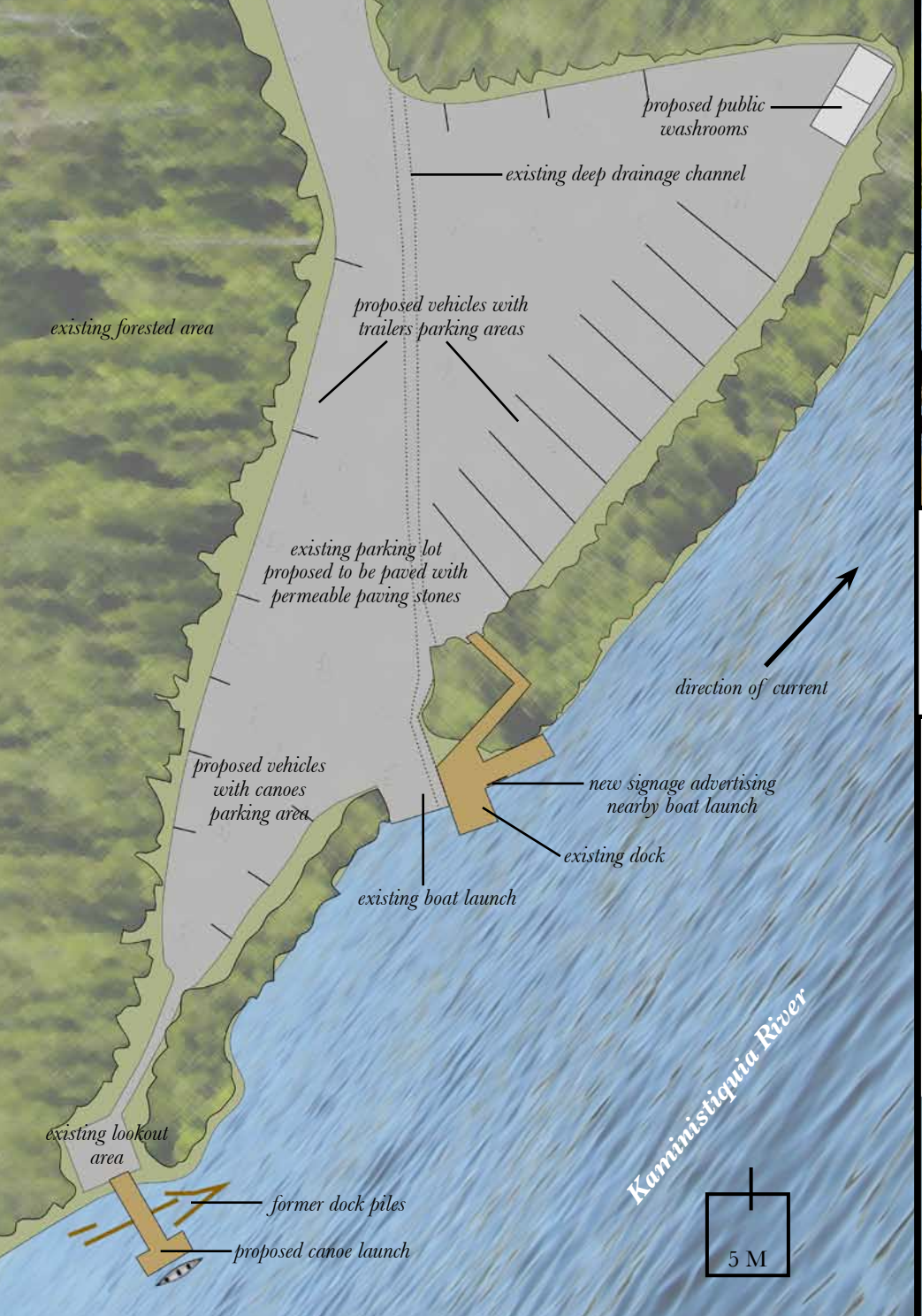
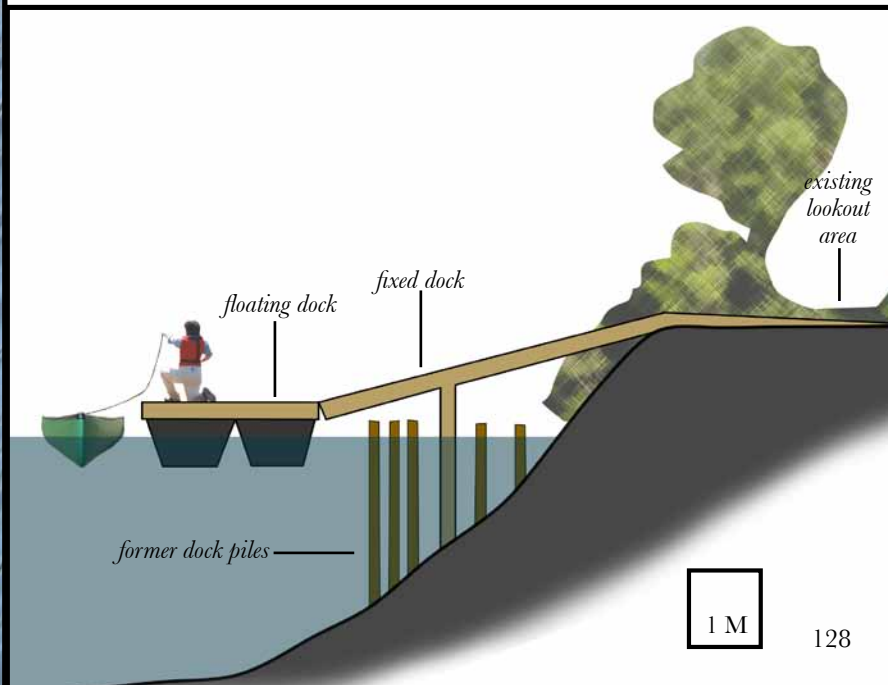
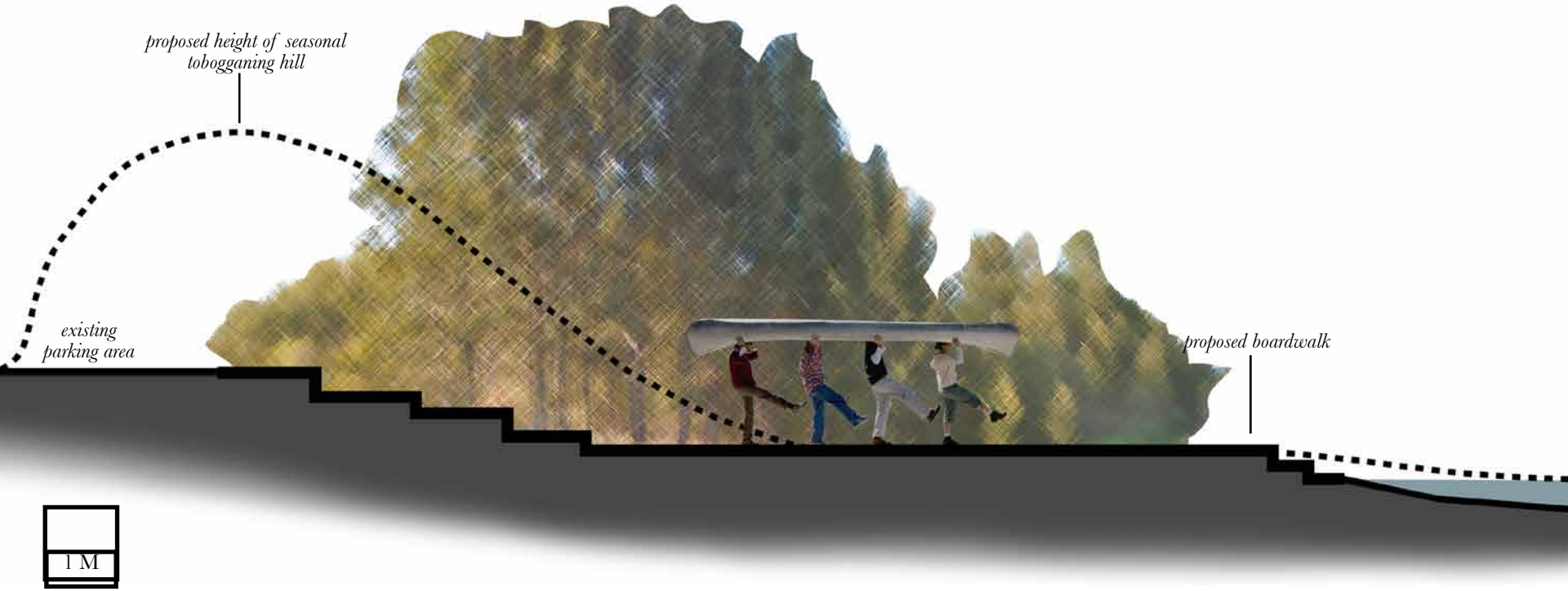


Figure 8.25: (Above) *Perspective from the existing dock looking towards the canoe launch*

Figure 8.26: (Left) *Moundale Avenue boat launch proposal plan*

Figure 8.27: (Below) *Section of the proposed canoe launch*





8.29). Currently part of this hill is steep and the addition of stairs built into the boardwalk would make descending and ascending the hill with a canoe much easier (Figure 8.30). It is felt that no additional floating dock or current barrier would be needed here due to the lack of a current and that the beach itself can be the launch pad.

As a result of the site analysis the tools that are necessary for engaging the community with the Kaministiquia River are: (1) increasing information about the river through mapping, (2) increasing signage advertising the river, (3) expanding the proposed trail linkages, and (4) making physical access to the river more accessible. The proposal for increasing the information about the river through mapping is the publication of a box set of easily understood, accessible, and portable maps as well as a smart phone application. Increasing signage promoting the river is proposed to be located throughout the community and at each access point. Expanding the proposed trail linkages is proposed to be accomplished by additions to the current City of Thunder Bay waterfront trail. Improving the physical access to the river by making it more accessible is accomplished with small site interventions at three key access points along the river.

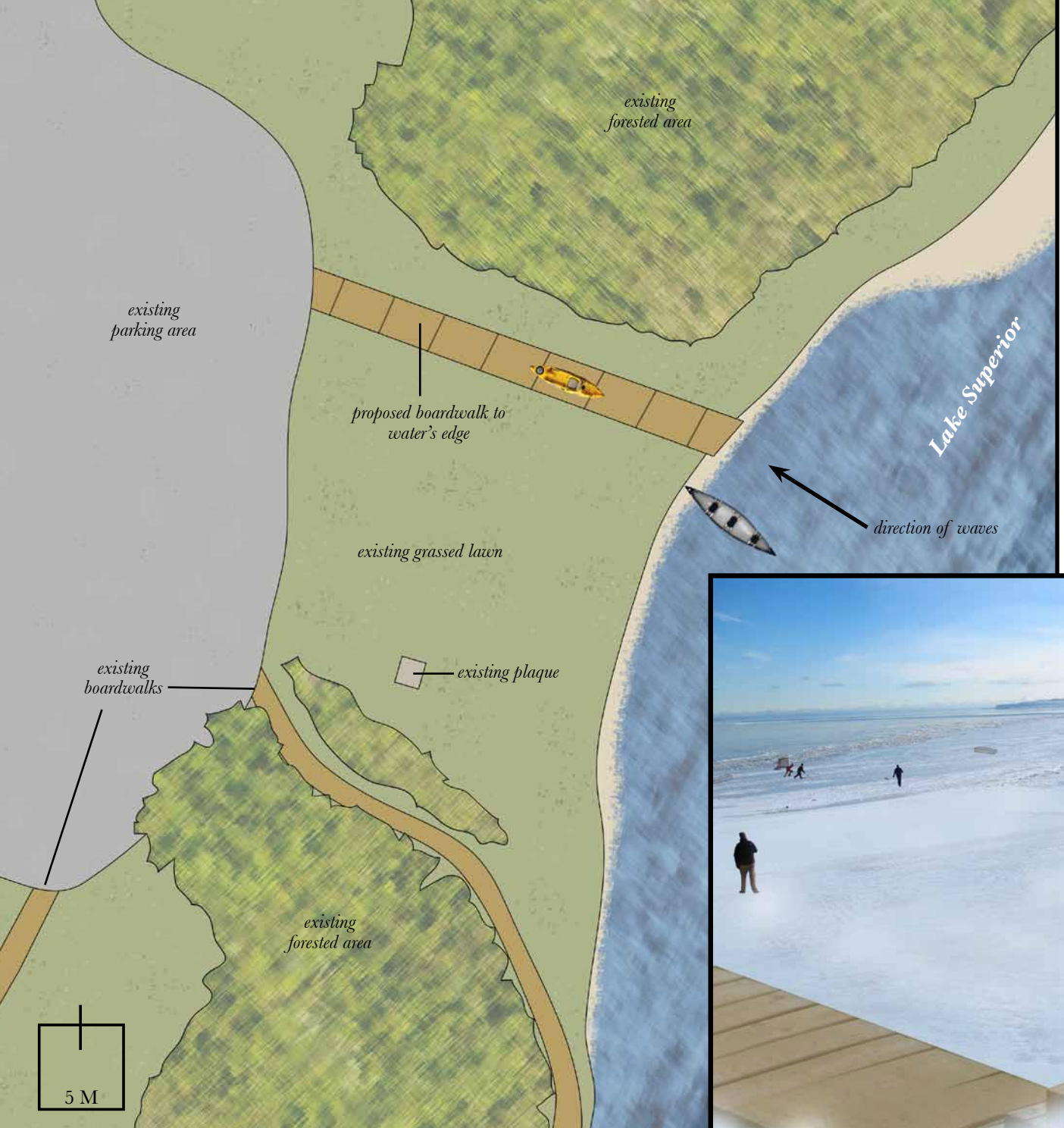


Figure 8.28: (Below) *Winter perspective looking out to Lake Superior*

Figure 8.29: (Left) *Mission Island Marsh Conservation Area proposal plan*

Figure 8.30: (Opposite Page) *Section of the proposed boardwalk area with suggested height of tobogganing hill*

Figure 9.1: *On the Kaministiquia River lining the canoe by Rosslyn Village*

Reflections & Conclusions

The journey of this practicum was very similar to canoeing down the Kaministiquia River for the first time.

When the canoe is first put into the fast rushing waters of the river just downstream from Kakabeka Falls, you are unsure if you should jump in or not. The water is fast and rough, even a little dangerous. You know little if anything about what lies in the waters up ahead, or how long it will take to get there, or even sore your arms and shoulders might be from paddling. After some hesitation the decision is made and you go for it.

Shortly after climbing in the canoe and letting go of the safe and secure feeling land your paddle gets away on you. Your father in the stern steers the canoe through the swift current and you quickly catch up and retrieve your paddle. Let's not do that again. After some time you reach a small island in the river and you are able to catch your breath for the first time since you started. Continuing downstream you see a bridge, finally a landmark you recognize! In seconds you have passed below it and suddenly you feel lost again, surrounding by an occupied wilderness. What do you do? Keep pushing on ahead.

In no time you start seeing a few houses on the riverbank and another bridge, oh joy! Yet for the second time as quickly as it came, the safety and security that come with the sense of being in control evaporates into thin air. Much like the mist that is rising off the river at first light. In the distance though you see the Nor'Westers and Mount McKay which you know to be the tallest, what a sight! But suddenly there it is up ahead, that distinctive rushing sound of rapids, but first a quick break beside a small tributary. Okay, that is long enough, time to summon up the courage to go through these rapids. Determined and focused, your concentration has never been so set on a single goal, that of making it to the end safe and sound.

As soon as it started, it was over, or so you thought. You let your guard down on the home stretch of the jagged rapids and here you sit, beached on a large flat rock surrounded by eddies and shelves. Must have been the river's way of getting you back for taking an extended break on one of its shale islands when you thought you were through the worst of the rapids. Before you know it though your father in the stern has jumped out of the canoe into waist-deep water and is trying to un-beach the canoe. Your mind starts to wonder and you start thinking to yourself, why are you doing this? Why did you think this was a good idea? Why could you not have picked something less challenging to study? No time to get lost in your thoughts as you must focus. Soon enough you are off the rock and your father is back in the canoe steering. Crisis averted.

With all the excitement you are completely taken off guard when suddenly your canoe runs a ground in the middle of the river and you

have to get out and line it for a bit. Take a bit of a breather, half way there. Once again you see signs of civilization, a bridge, houses, even golfers playing on an 18-hole golf course! Was not expecting that. The water is now noticeably slower and deeper especially now as your arms start to feel the pain of no longer having much of a current.

Not long later you come to a fork in the river, which way do you go? Now of course you realize that the map you printed on regular white computer paper you had neglected to put in a watertight bag and after going through all those rapids it has become a soggy clump. You have no idea which way to go and cannot tell which way the current is going as it is so incredibly slow at this point. Go straight ahead, it looks like the way to go. Paddling on some more you realize, you took a wrong turn. Crap. Which way is it? You return to the fork in the river, there are four directions to chose from. The river looks like a glassy surface that is not moving at all and you are not even sure which direction you came from. Wait, there is a man walking down his dock just up ahead, let's ask for directions. He laughs at your situation and kindly sets you back in the right channel.

Sure enough just up again you see the historical recreation of a place you used to regularly frequent as a child in school growing up in the area, good Old Fort William (Fort William Historical Park). Funny you have never once seen it from this perspective, neat! Let's stop for a quick break! Moving on downstream the number of houses on the riverbank quickly increases and for the first time in your journey you see other people on the river but they are fishing, That looks like fun! Not today though, you are on a mission. You hear the highway just up ahead and see yet another bridge, oh civilization at last! Time for a break again, besides there is a sand beach across the water from an active pulp and paper mill, why not. Standing on the beach you look up and see Mount McKay towering over you like you have never experienced it before. Did it get taller?!

Time is ticking, need to keep moving. Turning a bend in the river and it was as if you paddled into another world. Both shores are lined with former dock pilings and foundations from docks and buildings that appear as though the river is slowly reclaiming them. Up above is the iconic Swing bridge and the air is filled with the sound of cars driving over aging loose boards on metal supports, 'clunk, clunk, clunk'. Canoeing beside abandoned grain elevators with smashed windows and rusty metal components that tower over you certainly has the ability to make you feel very small.

The first major split in the river, which way to go? Follow the main channel besides just up ahead is the Jackknife bridge. Look at the size of that concrete counter-weight! It's enormous! Imagine all the trains and cars that have passed over this in the century it's been there! Next split in the river. Take the central channel of the three branches, no reason to veer off the most direct path from your end goal when it is so close in sight.

Final stretch, let's go for gold! Arms aching more and more as the backwash from Lake Superior tries to keep pushing you back up stream.

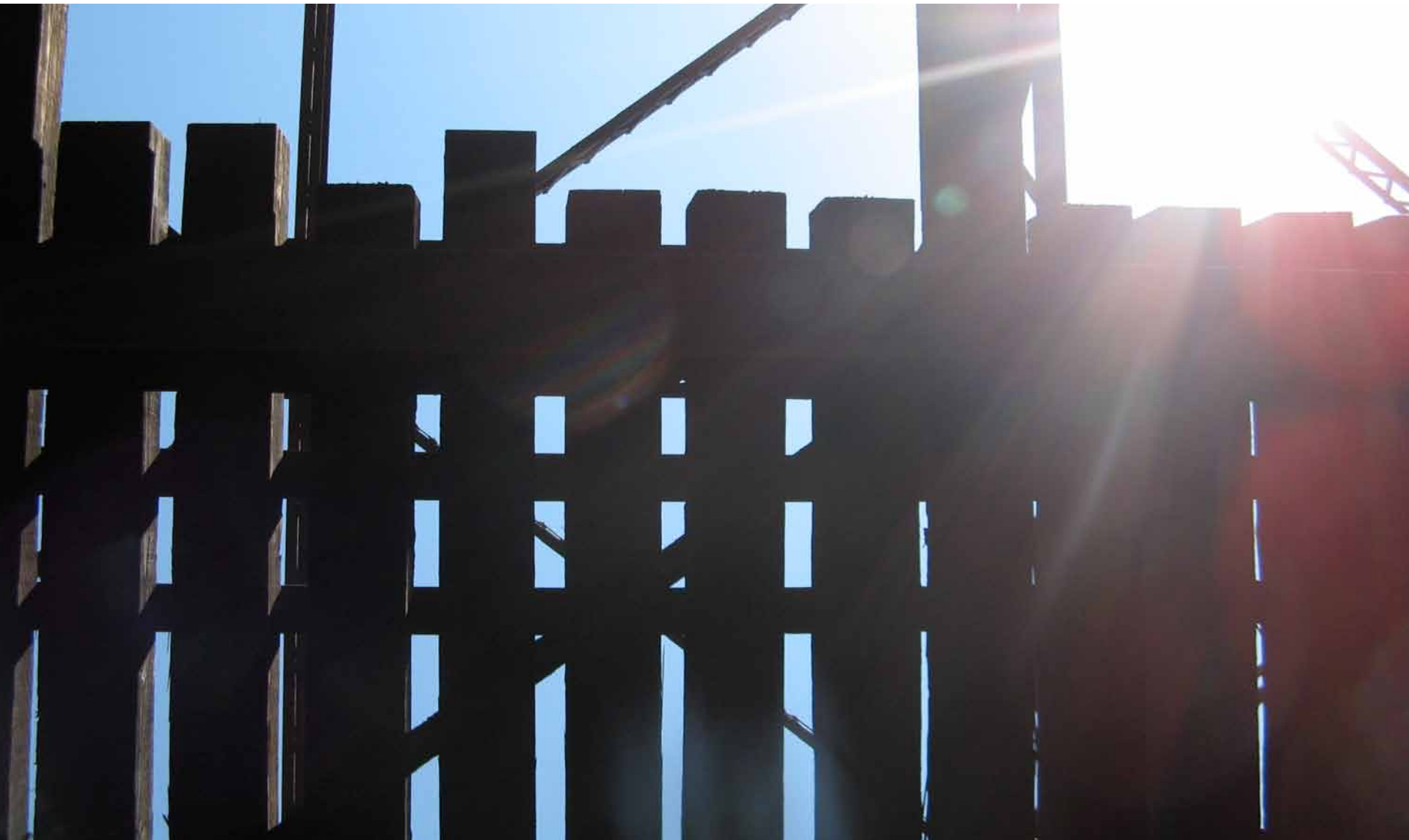


Figure 9.2: *On the Kaministiquia River underneath the Canadian Pacific Railway Bascule bridge*

You come to an opening where the land seems to have separated for your arrival and suddenly you find yourself in Lake Superior starring across at the majestic Sleeping Giant. It is as though the heavens have parted and all you can see up ahead appears to be a limitless ocean of possibilities. You made it. At long last, after all your hard work, you made it. Now the world is your oyster.

Upon starting this journey it was unclear which direction this practicum would take. The only element that remained consistent throughout was that somehow the Kaministiquia was to be central and that it was the river that was to lead the way from start to finish. Much has been learned about the Kaministiquia through this journey and this valuable information should never again be lost to the ages.

The goal of this practicum was to explore how design can be used to encourage and facilitate the experience of Canada's occupied wilderness and to reconnect with its past. This practicum presents a strategy for visitors and residents in Thunder Bay to engage with the historically significant Kaministiquia. Through the proposal of easily understood, accessible, and portable interpretive maps, following the Kaministiquia from Kakabeka Falls to Lake Superior, included here the public now has much needed information to enable them to get out and explore this river. With the aid of these maps the river tells a story about the development of the area and its overall significance in Canadian history. Additional tools to courage community engagement with the river include a smart phone application, increased and improved signage advertising the river, an expansion on the City of Thunder Bay's waterfront cycling route to create a pedestrian linkage along the river, and improving access to the water at three access points. These access points include the Ontario Power Generation hydro river access site, the Mountdale Avenue boat launch, and the Mission Island Marsh Conservation Area.

I hope that those who have been in the canoe with me, having gone through all the rapids and challenges along the way, have enjoyed the ride as much as I have. Thank you for sharing this experience with me.

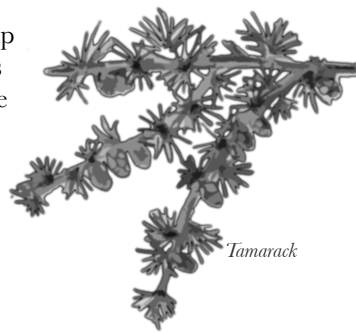
Figure 9.3: (Left) *On Lake Superior adjacent to McKellar Island*, photograph by Dan Mitchell, 2012

Figure 10.1: *A former heavy industrial site slowly being naturally reclaimed at the Island Drive Conservation Area along the Kaministiquia River*

Abies balsamea	Balsam fir
Acer negundo	Manitoba maple
Acer rubrum	Red maple
Acer saccharum	Sugar maple
Acer spicatum	Mountain maple
Actaea rubra	Red baneberry
Alnus crispa	Green alder
Alnus rugosa	Speckled or Tag alder
Alopecurus aequalis	Short-awned foxtail
Amaranthus albus	Tumbleweed
Amelanchier alnifolia	Saskatoonberry
Amelanchier bartramiana	Mountain juneberry
Amelanchier humilis	Shadbush
Amelanchier stolonifera	Serviceberry
Amphicarpaea bracteata	Hog peanut
Andromeda glaucophylla	Bog rosemary
Anemone canadensis	Canada anemone
Anemone quinquefolia	American or Wood anemone
Anthriscus sylvestris	Wild chervil
Apocynum androsaemifolium	Spreading dogbane
Aquilegia canadensis	Wild columbine
Aralia nudicaulis	Wild Sasparilla
Aralia racemosa	Spikenard
Arctostaphylos uva-ursi	Bearberry
Arisaema triphyllum	Jack-in-the-pulpit
Ascarum canadense	Wild ginger
Asplenium trichomanes	Maidenhair spleenwort
Aster ciliolatus	Ciliate wood aster
Aster lateriflorus	Calico aster
Aster macrophyllus	Large-leaved aster
Athyrium filix-femina	Lady fern
Aulacomnium palustre	Ribbed bog moss
Barbarea vulgaris	Common winter cress
Betula alleghaniensis	Yellow birch
Betula papyrifera	Paper birch
Bidens cernua	Nodding Beggartick

Turtlehead

Botrychium virginianum	Spinulose shield fern
Brachythecium salebrosum	Golden ragged moss
Calamagrostis canadensis	Blue-joint grass
Caltha polustris	Marsh marigold, Cowslip
Cardmine pensylvanica	Pennsylvania bitter cress
Carex aenea	Haylike or Copper sedge
Carex arctata	Compressed sedge
Carex bebbii	Bebb's sedge
Carex canescens	Short sedge
Carex disperma	Two-seeded sedge
Carex foenea	Dry-spiked sedge
Carex intumensces	Bladder sedge
Carex leptalea	Bristle-stalked sedge
Carex peckii	Peck's sedge
Carex pedunculata	Peduncled sedge
Carex rostrata	Beaked sedge
Carex stipata	Stipitate sedge
Carex trisperma	Three-seeded sedge
Carex tuckermanii	Tuckerman's sedge
Carex umbellata	Umbel-like sedge
Carex vaginata	Shethed sedge
Caulophyllum thalictroides	Blue cohosh
Cerastium fontanum	Common mouse-ear chickweed
Chamaesyca glyptosperma	Slender spurge
Chamaedaphne calyculata	Leatherleaf
Chelone glabra	White turtlehead
Chimaphila umbellate	Pipsissewa or Prince's pine
Chrysanthemum leucanthemum	Ox-eye daisy
Cichorium intybus	Chicory
Cinna latifolia	Drooping wood reed
Circaea alpina	Dwarf enchanter's nightshade
Cirsium flodmanii	Flodman's thistle
Cladina sp.	Reindeer lichens
Cladonia sp.	Club and Cup lichens
Claytonia caroliniana	Spring beauty
Clintonia borealis	Blue bead lily



Tamarack

Bur-Reed

Coleloglossum viride Frog orchis
Collomia linearis Glueseed
Coptis trifolia Goldthread
Corallorhiza maculata Spotted coral root
Corallorhiza trifida Early coralroot
Cornus alternifolia Alternate-leaved dogwood
Cornus canadensis Bunchberry
Cornus rugosa Round-leaved dogwood
Cornus stolonifera Red osier dogwood
Corylus cornuta Beaked hazel
Corydalis aurea Golden corydalis
Corydalis sempervirens Pale corydalis
Crategus spp. Hawthorn
Cuscuta gronovii Dodder
Cypripedium acaule Pink lady's slipper
Cystopteris fragilis Fragile fern
Danthonia spicata Poverty grass
Descurainia Sophia Flixweed
Dicranum Broom mosses
Diervilla lonicera Bush Honeysuckle
Drepanocladus uncinatus Sickle moss
Dryopteris carthusiana Spinulose wood fern
Dryopteris expansa Northern wood fern
Echinochloa microstachya Barnyard grass
Eleocharis acicularis Needle spikerush
Eleocharis smallii Marsh spikerush
Elymus repens Couch grass
Empetrum nigrum Crowberry
Epigaea repens Trailing arbutus
Epilobium angustifolium Fireweed
Equisetum arvense Common or field horsetail
Equisetum fluviatile Water horsetail
Equisetum sylvaticum Woodland horsetail
Euphoria cyparissias Cypress or cemetery spurge
Fragaria vesca Woodland strawberry
Fragaria virginiana Common strawberry


Ostrich Fern

Fraxinus nigra Black ash
Fraxinus pensylvanica Green or Red ash
Galium triflorum Fragrant bedstraw
Gaultheria hispidula Creeping snowberry
Gaultheria procumbens Checkerberry, teaberry, wintergreen
Gentianopsis crinita Fringed gentian
Geocaulon lividum Northern comandra
Geranium bicknellii Bicknell's cranesbill
Geum aleppicum Common avens
Glechoma hederacea Gill over the ground
Glyceria borealis Northern manna grass
Gnaphalium uliginosum Low cudweed
Goodyera repens Dwarf rattlesnake plantain
Gratiola neglecta Hedge hyssop
Gymnocarpium dryopteris Oak fern
Gymnocarpium robertianum Limestone oak fern
Halenia deflexa Spurred gentian
Heracleum lanatum Cow parsnip
Hieracium aurantiacum Orange hawkweed
Hieracium pilosella Mouse-ear hawkweed
Hudsonia tomentosa Sand heather
Hulumus lupulus Common hops
Hylocomium splendens Stair-step moss
Hystrix patula Bottle brush grass
Impatiens capensis Jewel weed
Impatiens pallida Pale touch-me-not
Juncus nodosus Knotted rush
Juncus tenuis Slender or Path rush
Juniperus communis Common juniper
Juniperus hoizontalist Creeping juniper
Kalmia polfolia Bog laurel
Knautia arvensis Field scabious, blue buttons
Koeferia macrantha June grass
Lappula squarrosa Blueburr, Stickseed
Larix laricina Tamarck or larch
Lathyrus ochroleucus Creamy peavine or Pale vetchling


Alpine Woodsia

Ledum groenlandicum	Labrador tea
Lemna minor	Lesser duckweed
Lepidium densiflorum	Peppergrass, Common pepperwort
Lilium philadelphicum	Wood lily
Linnea borealis	Twinflower
Listera cordata	Heart-leaved twayblade
Lonicera canadensis	Canada fly honeysuckle
Lonicera dioica	Twining honeysuckle
Lonicera involucrate	Bracted honeysuckle
Lonicera oblongifolia	Swamp fly honeysuckle
Lonicera villosa	Mountain fly honeysuckle
Luzula acuminata	Wood rush
Luzula multiflora	Many-flowered wood rush
Luzula parviflora	Small-flowered wood rush
Lycopodium annotinum	Stiff clubmoss
Lycopodium clavatum	Running clubmoss
Lycopodium complanatum	Ground cedar
Lycopodium lucidulum	Shining clubmoss
Lycopodium obscurum	Ground pine
Lycopus americanus	Water horehound
Lycopus uniflorus	Northern bugleweed
Lysimachia ciliata	Fringed loosestrife
Lysimachia terrestris	Swamp loosestrife
Lysimachia thyrsiflora	Tufted loosestrife
Maianhemum canadense	Wild lily of the valley
Maianhemum stellatum	Star-flowered Solomon's seal
Matteuccia struthiopteris	Ostrich fern
Melampyrum lineare	Cow wheat
Melilotus alba	White sweet clover
Mentha arvensis	Field or Common mint
Mertensia paniculata	Northern bluebell
Mimulus ringens	Money flower
Mitella nuda	Naked miterwort
Moneses uniflora	One-flowered wintergreen
Monotropa uniflora	Indian pipe
Muhlenbergia mexicana	Mexican muhly

Cattail

Myriophyllum verticillatum	Bracted water milfoil
Najas flexilis	Slender naias
Nuphar variegatum	Spatterdock, Yellow pond lily
Onoclea sensibilis	Sensitive fern
Oryzopsis asperifolia	Rough-leaved mountain rice
Osmunda claytoniana	Interrupted fern
Oxyzoccus microcarpus	Small cranberry
Panicum capillare	Witch grass
Parnassia palustris	Grass of Parnassus
Parthenocissus inserta	Virginia creeper
Peltigera aphthosa	Freckle pelt lichen
Petasites palmatus	Sweet coltsfoot
Physostegia virginiana	False dragonhead
Picea glauca	White spruce
Picea mariana	Black spruce
Pinus banksiana	Jack pine
Pinus resinosa	Red pine
Pinus strobes	Eastern white pine
Pinus sylvestris	Scots pine
Plantago media	Hoary plantain
Platanthera obtusata	Blunt-leaved orchid
Platanthera orbiculata	Round-leaved orchid
Pleurozium schreberi	Big red stem moss
Poa glauca	Glaucous blue grass
Poa saltuensis	Forest meadow grass
Polygala paucifolia	Flowering wintergreen
Polygonum achoreum	Wandering knotweed
Polygonum amphibium	Water smartweed
Polygonum aviculare	Common knotweed
Polygonum convolvulus	Black bindweed
Polygonum lapathifolum	Common or Pale smartweed
Polygonum punctatum	Water smartweed
Polygonum scabrum	Rough smartweed
Polypodium vulgare	Common polypody
Polystichum braunii	Braun's holly fern
Polytrichum commune	Common haircap moss

Black Ash

Polytrichum juniperinum	Juniper haircap moss
Populus balsamifera	Balsam poplar
Populus gradidentata	Large-toothed aspen
Populus tremuloides	Trembling aspen
Potamogeton alpinus	Alpine pond weed
Potamogeton foliosus	Leafy pond weed
Potamogeton gramineus	Variable-leaved pond weed
Potamogeton natans	Floating-leaved pond weed
Potamogeton perfoliatus	Redhead-grass
Potamogeton pectinatus	Sago pond weed
Potentilla norvegica	Rough cinquefoil
Prenanthes alba	White lettuce, Rattlesnake root
Prunella vulgaris	Heal-all, Carpenter weed
Prunus pensylvanica	Pin cherry
Prunus virginiana	Chokecherry
Pteridium aquilinum	Bracken fern
Ptilidium pulcherrimum	Naugehyde liverwort
Ptilium crista-castrensis	Plume moss
Pyrola asarifolia	Pink pyrola
Pyrola elliptica	Shinleaf
Pyrola secunda	One-sided pyrola
Pyrola virens	Green pyrola
Quercus macrophyla	Bur oak
Ranunculus abortivus	Kidney-leaved buttercup
Ranunculus acris	Common or Tall buttercup
Ranunculus hipidus	Northern swamp buttercup
Ranunculus sceleratus	Celery-leaved buttercup
Rhamnus alnifonia	Alder-leaved buckthorn
Rhytidiadelphus triquetrus	Shaggy moss
Rhus glabra	Smooth sumac
Ribes americanum	Wild black currant
Ribes gladuusolum	Skunk currant
Ribes hudsonianum	Northern black currant
Ribes triste	American, or Swamp red currant
Rorippa palustris	Marsh yellow cress
Rosa acicularis	Prickly wild rose

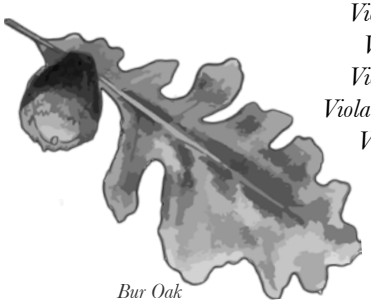
Tapegrass

Rosa blanda	Smooth wild rose
Rubus chamaemorus	Cloudberry
Rubus idaeus	Wild red raspberry
Rubus parviflorus	Thimbleberry
Rubus pubescens	Dwarf raspberry
Rumex acetosa	Garden sorrel
Salsola kali	Saltwort, Russian thistle
Sagittaria cuneata	Floating arrowhead
Sagittaria latifolia	Duck potato
Salix bebbiana	Bebb's or beaked willow
Salix discolor	Pussy willow
Salix humilis	Upland willow
Salix lucida	Shining willow
Schizachne purpurascens	False malic grass
Scirpus atrovirens	Black bulrush
Senecio aureus	Golden ragwort
Senecio vulgaris	Common groundsel
Sinapis arvensis	Wild mustard, Charlock
Sisyrinchium montanum	Common blue-eyed grass
Sium suave	Water parsnip
Smilacina trifolia	Three-leaved false Solomon's seal
Solidago hispida	Upland goldenrod
Solidago uliginosa	Marsh goldenrod
Sorbus americana	American mountain ash
Sorbus decora	Showy mountain ash
Sparganium sp.	Bur reed
Spergula arvensis	Corn spurrey, Stitchwort
Sphagnum fuscum	Rusty peat moss
Sphagnum capillfolium	Acute-leaved peat moss
Sphagnum girgensohnii	Girgensohn's peat moss
Sphagnum magellanicum	Midway peat moss
Sphagnum warnstorfii	Warstorf's peat moss
Sphenopholis intermedia	Slender wedgegrass
Spiraea alba	Narrow-leaved meadowsweet
Spiranthes lacera	Northern slender ladies' tresses
Stellaria graminea	Common or lesser stitchwort

Trembling Aspen

Limestone Oak Fern

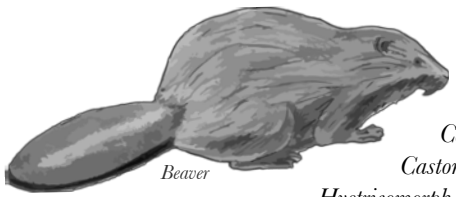
Stellaria longipes	Stitchwort
Streptapus roseus	Rose twisted stalk
Symphoricarpos albus	Common snowberry
Symphoricarpos occidentalis	Western snowberry or Buckbrush
Taxus canadensis	American yew
Thalictrum venulosum	Northern meadowrue
Thelypteris phegopteris	Northern beech fern
Thuju occidentalis	Eastern white cedar
Tilia americana	American linden or Basswood
Trientalis borealis	Northern starflower
Trifolium aureum	Yellow or hop clover
Trifolium repens	White clover
Triglochin palustre	Lesser arrow grass
Trillium cernuum	Nodding trillium
Typha angustifolia	Narrow-leaved cattail
Ulmus americana	American elm
Utricularia vulgaris	Common or Greater bladderwort
Uvularia grandiflora	Yellow bellwort
Uvularia sessifolia	Merry bells
Vaccinium caespitosum	Dwarf blueberry
Vaccinium myrtilloides	Velvet leaf or Common blueberry
Vaccinium vitis-idaea	Lingonberry or Bog cranberry
Vallisneria Americana	Tapegrass
Veronica persica	Persian speedwell
Veronica serpylliflora	Large white groundcherry
Viburnum edule	Squashberry or Low bush-cranberry
Viburnum lentago	Nannyberry
Viburnum opulus	High bush-cranberry
Viburnum rafinesquianum	Downy arrow-wood
Vicia Americana	American vetch
Viola canadensis	Canada violet
Viola cucullata	Marsh blue violet
Viola macloskeyi	Northern white violet
Viola novae-angliae	New England violet
Viola pubescens	Smooth yellow violet
Viola renifolia	Kidney-leaved violet
Viola selkirkii	Selkirk's violet
Viola soraria	Northern blue violet
Woodsia alpina	Alpine woodsia
Woodsia ilvensis	Rusty woodsia



Bur Oak

Balsam Poplar

Figure 10.2: *Canada Geese in Flight near the Westfort Turning Basin on the Kaministiquia River*


Beaver

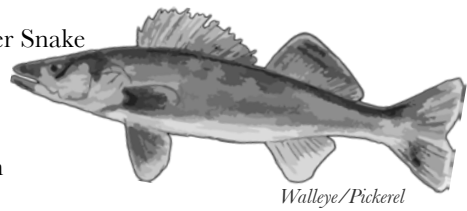
Mammals

Alces alces	Moose
Canis latrans	Coyote
Castor canadensis	Beaver
Hystricomorph Hystricidae	Porcupine
Lepus americanus	Snowshoe hare
Lutra canadensis	River otter
Marmota monax	Woodchuck
Mephitis mephitis	Striped skunk
Microtus pennsylvanicus	Meadow vole
Mustela frenata	Long-tailed weasel
Mustela erminea	Short-tailed weasel
Neovison vison	American mink
Napaeozapus insignis	Woodland jumping mouse
Odocoileus virginianus	White-tailed deer
Ondatra zibethicus	Muscrat
Procyon lotor	Raccoon
Sciurus carolinensis	Eastern gray squirrel
Sorex arcticus	Arctic shrew
Sorex cinereus	Masked shrew
Sorex fumeus	Smokey shrew
Tamias striatus	Eastern chipmunk
Tamiasciurus hudsonicus	Red squirrel
Ursus americanus	Black bear
Vulpes vulpes	Red fox
Zapus hudsonius	Meadow jumping mouse


River Otter

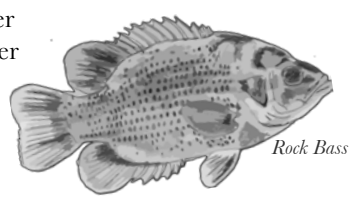
Reptile & Amphibians

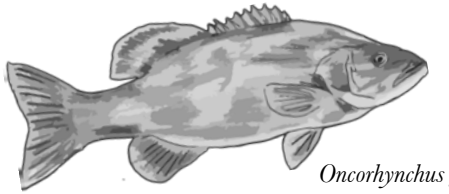
Ambystoma laterale	Blue-spotted Salamander
Ambystoma maculatum	Yellow-spotted Salamander
Bufo americanus	American Toad
Chelydra serpentina	Snapping Turtle
Chrysemys picta	Painted Turtle
Notophthalmus viridescens	Eastern Newt
Pseudacris cruifer	Spring Peeper
Pseudacris maculat	Boreal Chorus Frog
Rana clamitans	Green Frog
Rana pipiens	Northern Leopard Frog
Rana septentrionalis	Mink Frog
Rana sylvatica	Wood Frog
Thamnophis sirtalis	Eastern Garter Snake


Walleye/Pickerel

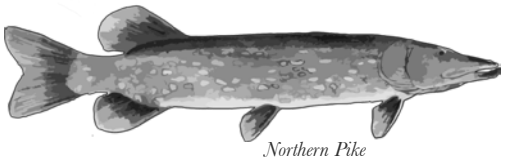
Fish

Acipenser fluvescens	Lake sturgeon
Alosa pseudoharengus	Alewife
Ambloplites rupestris	Rock bass
Anguilla rostrata	American eel
Apeltes quadracus	Fourspine stickleback
Catostomus catostomus	Longnose sucker
Catostomus commersoni	Common white sucker
Chrosomus eor	Northern redbelly dace
Chrosomus neogaeus	Finescale dace
Coregonus artedii	Lake herring
Coregonus clupeaformis	Lake whitefish
Cottus bairdi	Mottled sculpin
Cottus bairdi X Cottus cognatus	Sculpin hybrid
Cottus cognatus	Slimy sculpin
Couesius plumbeus	Lake chub
Cyprinus carpio	Common carp
Esox lucius	Northern pike
Etheostoma nigrum	Johnny darter
Eucalia inconstrans	Brook stickleback
Lampetra lamottei	American brook lamprey
Lota lota	Burbot
Micropterus dolomieui	Smallmouth bass
Moxostoma anisurum	Silver redhorse
Moxostoma macrolepidotum	Shorthead redhorse
Notropis atherinoides	Emerald shiner
Notropis cornutus	Common shiner
Notropis heterolepis	Blacknose shiner
Notropis hudsonius	Spottail shiner


Rock Bass

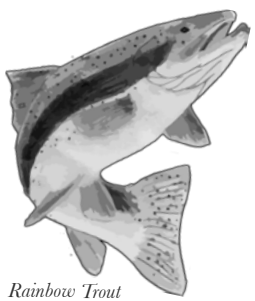


Smallmouth Bass



Northern Pike

Oncorhynchus gorbuscha	Pink salmon
Oncorhynchus kisutch	Coho salmon
Oncorhynchus mykiss	Rainbow trout
Oncorhynchus tshawytscha	Chinook salmon
Osmerus mordax	Rainbow smelt
Perca flavescens	Yellow perch
Percina caprodes	Logperch
Percopsis omiscomaycus	Trout perch
Petromyzon marinus	Sea lamprey
Pimephales promelas	Fathead minnow
Pomoxis nigromaculatus	Black crappie
Prosopium cylindraceum	Round whitefish
Pungitius pungitius	Ninespine stickleback
Rhinichthys atratulus	Blacknose dace
Rhinichthys cataractae	Longnose dace
Salmo trutta	Brown trout
Salvelinus fontinalis	Brook trout
Salvelinus namaycush	Lake trout
Semotilus atromaculatus	Creek chub
Semotilus margarita	Pearl dace
Stizostedion vitreum	Walleye
Umbra limi	Central mudminnow



Rainbow Trout

White Sucker

Birds

Accipiter striatus	Sharp-shinned hawk
Actitis masculaia	Spotted sandpiper
Agelaius phoenicus	Red-winged blackbird
Aix sponsa	Wood duck
Ammodramus leconteii	Le Conte's sparrow
Anas acuta	Common pintail
Anas clypeata	Northern shoveller
Anas crecca	Green-winged teal
Anas discors	Blue-winged teal
Anas platyrhynochos	Mallard duck
Archilochus colubris	Ruby-throated humming bird
Ardea herodias	Great blue heron
Aythya affinis	Lesser scaup
Aythya americana	Redhead duck
Aythya collaris	Ring-necked duck
Aythya valisineria	Canvasback
Bartramia longicauda	Upland sandpiper
Bombycilla cedrorum	Cedar waxwing
Bonasa umbellus	Ruffed grouse
Botaurus lentiginosus	American bittern
Branta canadensis	Canada goose
Bubo virginianus	Great horned owl
Bucephala albeola	Bufflehead
Bucephala clangula	Common goldeneye
Butco jamaicensis	Red-tailed hawk
Butco platypterus	Broad-winged hawk
Capella gallinago	Common snipe
Carduelis pinus	Pine siskin
Carduelis tristis	American goldfinch
Carpodacus purpureus	Purple finch
Catharus fuscenscens	Veery
Catharus guttatus	Hermit thrush
Ceryle alcyon	Belted kingfisher
Charadrius vociferus	Killdeer
Chordeiles minor	Common nighthawk
Circus cyancus	Northern harrier
Cistothorus platensis	Sedge wren
Coccothraustes vespertinus	Evening grosbeak
Coccyzus erythropthalmus	Black-billed cuckoo
Colaptes auratus	Northern flicker
Columba livia	Rock dove
Contopus virens	Eastern wood-pewee
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Cyanocitta cristata	Blue Jay
Dendroica coronta	Yellow-rumped warbler
Dendroica fusca	Blackbumian warbler
Dendroica magnolia	Magnolia warbler
Dendroica pensylvanica	Chestnut-sided warbler
Dendroica petechia	Yellow warbler
Dendroica tigrina	Cape may warbler

Great Blue Heron

Yellow Perch

Shortjaw Cisco

Golden Eagle

Dendroica vireus	Black-throated green warbler
Dolichonyx oryzivorus	Bobolink
Dryocopus pileatus	Pileated woodpecker
Dumatella carolinensis	Gray catbird
Empidonax alnorum	Alder flycatcher
Empidonax minimus	Least flycatcher
Euphagus cyanocephalus	Brewer's blackbird
Falco columbarius	Merlin
Falco sparverius	American kestrel
Gavia immer	Common loon
Geothlypis trichas	Common yellowthroat
Grus canadensis	Sandhill crane
Haliaeetus leucocephalus	Bald eagle
Hirunda pyrrhonoto	Cliff swallow
Hirunda rustica	Barn swallow
Icterus galbula	Northern oriole
Junco hyemalis	Dark-eyed junco
Larus argentatus	Herring gull
Larus delawarensis	Ring-billed gull
Lophodytes cucullatus	Hooded merganser
Melospiza georgiana	Swamp sparrow
Melospiza lincolnii	Lincoln's sparrow
Melospiza melodia	Song sparrow
Mergus merganser	Common merganser
Mergus serrator	Red-breasted merganser
Mniotita varia	Black and white warbler
Molothrusater	Brown-headed cowbird
Myiarchus crinitus	Great crested flycatcher
Numenius phaeopus	Whimbrel
Oporornis philadelphia	Mourning warbler
Parus atricapillus	Black-capped chickadee
Passer domesticus	House sparrow
Passerculus sandwichensis	Savannah sparrow
Passerina cyanea	Indigo bunting
Pelecanus erythrorhynchos	American pelican
Perisoreus canadensis	Gray jay
Phalacrocorax auritus	Double-crested cormorant
Pheucticus ludovicianus	Rose-breasted grosbeak

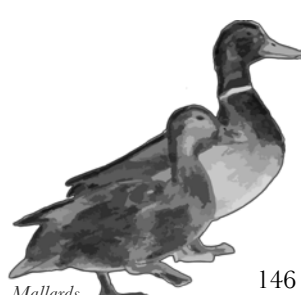
Belted Kingfisher

Cormorant

White-Breasted Nuthatch

American Pelican

Picoides pubescens	Downy woodpecker
Picoides villosus	Hairy woodpecker
Piranga olivacea	Scarlet tanager
Podilymbus podicips	Pied-billed grebe
Poeceies gramineus	Vesper sparrow
Porzana cardina	Sora
Quiscalus quiscula	Common grackle
Rallus limicola	Virginia rail
Regulus calendula	Ruby-crowned kinglet
Regulus satrapa	Golden-crowned kinglet
Riparia riparia	Bank swallow
Sayornis phoebe	Eastern phoebe
Scolopax minor	American woodcock
Seiurus noviboracensis	Northern waterthrush
Setophaga ruticilla	American redstart
Sialia sialis	Eastern bluebird
Siurrus aurocapillus	Ovenbird
Sitta canadensis	Red-breasted nuthatch
Sphyrapicus varius	Yellow-bellied sapsucker
Spizella arborea	American tree sparrow
Spizella pallida	Clay-colored sparrow
Spizella passerina	Chipping sparrow
Sturnella neglecta	Western meadowlark lark
Sturnus vulgaris	European starling
Tachycineta bicolor	Tree swallow
Toxostoma rufum	Brown thrasher
Trogladytes aedon	House wren
Trogladytes trogladytes	Winter wren
Turdus migratorius	American robin
Tyrannus tyrannus	Eastern kingbird
Vermivora pergrina	Tennessee warbler
Vermivora ruficapilla	Nashville warbler
Vireo philadelphicus	Philadelphia vireo
Vireo olivaceus	Red-eyed vireo
Wilsonia canadensis	Canada warbler
Wilsonia pusilla	Wilson's warbler
Zenaida macroura	Mourning dove
Zonotrichia albicollis	White-throated sparrow



Mallards

Figure 10.3: *Canadian Pacific Railway Survey, Falls of the Kaministikwia River, 30 miles above Fort William*, photograph by J.F. Cooke, June 1872 (Courtesy of Library and Archives Canada, Canadian Intellectual Property Office fonds/a028898)

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Figure 10.4: *View of the Kaministiquia River towards Lake Superior*, photograph by J. F. Cooke, 1884 (Courtesy of the Thunder Bay Public Library)

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City of Thunder Bay Archives on November 22, 2013 (Figures 3.17 and 6.15).

Fort William Historical Park on June 21, 2013 (Figure 5.10)

Library and Archives Canada on July 22, 2013 (Figures 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.11, 10.3).

Mitchell Family member photographs from Dan, Ben, and Heidi Mitchell. Permission was granted on various occasions from October 2011 to July 2013 (Album Case by Ben), page ii by Heidi, Figures 1.1 and 9.3 by Dan).

National Archives UK on July 25, 2013 (Figure 7.1).

Royal Ontario Museum on August 13, 2013 (Figures 3.9 and 4.4).

The Duke-Hunt Museum on June 19, 2013 (Figure 5.4).

Thunder Bay Historical Museum Society on June 17, 2013 (Figures 1.2, 5.16, 6.14).

Thunder Bay Public Library on June 18, 2013 (Figures 3.12, 3.13, 3.15, 4.9, 4.10, 5.2, 8.1, 10.4).

Toronto Regional Library on June 21, 2013 (Figures 3.1, 3.8, 4.11).

University of Manitoba Archive Services on May 23, 2013 (Figure 10.5).

Figure 10.5: *Ogilvie's Flour Mill on the Kaministiquia River, Fort William,* commissioned watercolour, unknown artist, 1941(Courtesy of Archive Services, University of Manitoba)

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