HISTORICAL OVERVIEW
Aurora Prehn

The history of Milwaukee began 14,000 years ago with the retreat of the last glaciers. They changed the landscape as we see it today, inviting the first human groups to the area around 12,000 years ago when the landscape and lake were similar to how they are seen today, yet were quite different (Injerd 2013). The Milwaukee area was traditionally a seasonal home for native peoples who occupied the area when the sap started running through the summer till they would leave for the winter hunt (Gurda, 1999:7). These early people gave this location its name that has been previously known as “Mahnawauk, Melleoki, Milouakik, Meneawkee, Milowages, Meolaki, Minnawack and Milwacky” that is agreed upon to mean the “Good Land” (Gurda, 1999:7, Dobkin, 2010:27, The Making of MKE, 2013 and Gurda, 2013).

The landscape prior to European arrival consisted of prairies, oak savannahs, wetlands and dense forest where “a traveler could walk from Milwaukee to Waukesha on a bright summer day without seeing the sun” (Gurda 1999:8). The area was characterized for its wetland or swamp saturating the area originally supplying the native populations with food (wild rice, game and medicines), transportation and a place to worship (Gurda, 2013). “The original wetland covered large sections of downtown, the Third Ward, Jones Island, Walker’s Point and even Bay View. A broad finger of the central marsh reached into the interior, filling the Menomonee Valley as far west as Forty-third Street” (Gurda, 1999:8). The Menomonee Valley has been home to many human made canals since the area’s founding; however the area use to be a swamp a half-mile wide and three miles long (Gurda, 2013). Native people built their villages ranging from 200-1,200 persons on the high bluffs that surrounded the marshes and the central river junction (1999:7). The native peoples’ impact on the environment was minimal in comparison to the early Europeans settlers. Land was cleared for villages, and agriculture fields where plants native to Mexico or the topics were planted (corn, beans, squash, melons, and maybe tobacco), as well as effigy mounds (approximately 200) used for burials and potentially more unknown uses and a network of trails in all
directions (1999:9, Making of MKE). The indigenous landscape “served its residents as larder, and medicine chest, playground and place of worship” (1999:9).

Menominee and Ho-Chunk were the original groups in the area when the first impact of Europeans was felt as waves of Ottawas, Ojibwas, Foxes, Sauks, and the Potawatomi, who were the most culturally dominant, all originally from the east, arrived from and settled in the area in the early 1600s (Doubkin, 2010:27). These groups were different culturally, but they had one common enemy--Europeans. The French were the first to arrive and were not seen in Wisconsin until Jean Nicolet arrived in Green Bay in 1634 wearing a silk jacket and blazing a pistol (Gurda, 1999:3). Not long after came Louis Joliet and Father Pere Marquette who explored Wisconsin’s interior waterways to the Mississippi River before re-entering Lake Michigan at Chicago during 1673-1674 (Gurda 1999:5-6). Milwaukee’s rivers did not connect with any major thoroughfares, so the area was not initially on the large fur trading circuit. The earliest mention of the Milwaukee area by Europeans occurred in 1674 when Father Pere Marquette visited on a return trip and in 1679 when Father Zenobius Membre described the area as a “little more than a convenient campsite” (1999:6).

These early Christian priests and subsequent French fur traders marked the beginning of the area’s and the local population’s encounter with Europeans and their ways. Along with disease and alcohol, the new economy brought significant changes to the area. Beaver and other animals were seen as a different kind of commodity that eventually threatened them to extinction by the 1820s and broke a 12,000 year old partnership between the local peoples and the environment (1999:18-19). Milwaukee was a significant trading outpost through the 18th century when Jacques Vieau arrived in 1795. Vieau was the most influential trader having the longest career that lasted into the mid 1830s (1999:13). He was responsible for bringing his protégé, one of the City of Milwaukee’s founders, Laurent Solomon Juneau, to the area is 1818 (1999:15). Vieau and Juneau saw the landscape transform from a growing interior trading outpost to a bustling city saturated with Europeans who altered the physical landscape drastically and, like the beavers, witnessed the native populations nearly go extinct by the end of
the 1830s (1999). The first 150 years or so of Milwaukee’s early history brought changes to the people and the landscape. By 1830, the outpost was on the fast track to becoming a town and then a city within 16 years—the largest transformation the area’s history.

Native groups began ceding their land to the government as early as 1831 and by 1834 Morgan Martin, Byron Kilbourn and George Walker three of four of Milwaukee’s founders have arrived (1999:20,26). Development on the land meant clear cutting the remaining patches of wood, leveling streets, filling swamps with whatever material or waste was available, building housing that never quite filled demand and public buildings to support the boom that was spurred by the “westerning impulse of the American people” (1999:26 and Gurda, 2013). Public land was sold beginning in 1835, the first courthouse was built in 1836, first winter wheat was sown in 1837, 1838 was the last year the Potawatomi owned land on the Menomonee River and in 1839, the Town of Milwaukee (Kilbourntown and Juneautown) was established, and the last removal of Native populations occurred (1999:29,33,42,49). (Image 1)
Image 1 (Buck, 1890; courtesy of Gurda 1999:25). 1835-1836 map of Milwaukee harbor with overlaying modern street names.
Competition between settlers, businessmen and the city’s founders gave rise to services and resources before the 1840s at such a rate that Milwaukee grew exponentially in its early years (Gurda, 1999:43). Walker’s Point joined the Town of Milwaukee in 1845 and on January 1st, 1846 the Town of Milwaukee became a city with Solomon Juneau as its first mayor two years before Wisconsin became a state (Gurda 1999:49,56). Between 1836-1840, despite a depression at the time, Milwaukee’s population grew from 1,000 to around 1,700 individuals (1999:30,48). Three years later the population swelled to 6,000 where Chicago had around 7,500 inhabitants (1999:48). Between 1840-1846 the population grew from 3,345 to 15,599 with 9,500 inhabitants in city proper (1999:56). After the Milwaukee’s incorporation as a city in 1846 Image 2 depicts the exponential growth that followed. By the 1890s Milwaukee had around 200,000 inhabitants where Green Bay in comparison had around 10,000 at the same time (1999:31). Milwaukee’s exponential population growth is astounding, but for this examination one must keep in mind the impact this growth has on harbor and the river system.

Image 2  Exponential population growth from Milwaukee’s incorporation as a city in 1846 to the 1890s (MKE County Hist. Soc., 2011). In comparison, in 2011 Milwaukee’s population was estimated around 597,867 individuals (US Census Bureau, 2013).
In effect the development of Milwaukee’s waterways occurred simultaneously with European settlement and land development through the 19th century to accommodate the shipping industry that fed the city. Straightening and hardening shorelines and dredging the river bottoms occurred on all three rivers to accommodate large commercial ships immediately with the first commercial cargo vessel arriving in to port in 1835 (Dobkin, 2010:29). The total for 1835 was 82 ships coming into port and this number grew to around 1,000 by 1845 (Dobkin, 2010:29). The city grew as the harbor could accommodate larger ships and by the 1840s frequent news reports of wrecks in combination with the inability to penetrate further up stream and an unreliable harbor inlet prompted public support for a more manipulated or improved harbor that was vessel friendly (Gurda, 1999:46-47). After petitioning the federal government in 1843 a pier was built on the lake shoreline about where Discovery World is today that lasted until the “straight cut” was dredged in 1857 making Jones Island a true island for a short time before the sand dunes filled in the original harbor towards the south (Image 3) (1999:46-47). This alteration was the most significant change to the waterway hydrology that continued to be shaped in to the 1920s.

Image 3 (Martin 1916; courtesy of Gurda 1999:46,78). Inner and outer harbor before straight cut was made in 1857. The original harbor was unpredictable and prompted dredging and hardening for better shipping
commerce. The original inlet shown above eventually was filled in with naturally occurring sand dunes and wave action.

In addition to shoreline hardening and straightening, river dredging, swamp draining, the new inlet and shaping of Jones Island, the many canals dug on the Menomonee and Kinnickinnic Rivers further altered the hydrology of the waterway as they were dug and filled in over the next 170 years. Image 5 is an example from 1872 of the a few early human made canals on the Menomonee River. Another example of a canal that would of changed the river systems if it had been built was the Milwaukee and Rock Rivers Canal was spearheaded by Byron Kilbourn that was planned to serve as the “last connecting link between the Hudson and the Mississippi River” (Gurda,1999:44-46). The plan lasted no more than two years sparing the estuary further hydraulic changes, pollution and possible invasive species. By the early 1900s, in less than 100 years: all three rivers were straightened, hardened and bottoms dredged, swamps were filled being claimed as dry land, the peninsula on the Milwaukee River hardened then filled in, bluffs in some areas were logged and leveled for settlement, ravines were similarly altered, canals penetrated the river shorelines, the original harbor was neglected and new one created, the Kinnickinnic Basin was dug and fill used to expand Jones Island and the first breakwater was built.

Image 5 Early canals and shaping of Menomonee River (Wikipedia, 2013).
The shaping of the harbor was expansive and part of the degradation of the estuary. However, the industries that used the manipulated waterways were the cause of the heavy metal pollution that can be found in our river bottom sediments today. By the turn of the 20th century industries and business on the river edges were diverse many abusing the waterways by using them as a waste depository. Some of the industries and businesses found during the turn of the century include:

- city waterworks (flushing stations) and garbage crematory, malting, corrugating, nut and washer and steel companies (particularly Illinois Steel Company)
- tanneries, stock yards, iron and wire foundries, fuel companies and coal yards (and storage), Agriculture Implement Company, freight depots, hardware companies, Milwaukee Gas and Light works, Northwest furniture, stone warehouse, Milwaukee stamping works, Grain warehouses and elevators, Plankinton Packing Company, wood yards and mills, salt yards, cement companies, cold storage, transit lines for ferries, private boating clubs, light rail and commercial rail lines, ice companies, knitting companies, many dry docks and the Coke and Gas Company (MPL, 2013).

Both the manipulation and misuse of the harbor and waterways has resulted in a severely degraded environment in less than 100 years since the city’s founding.

The 20th century is characterized by the further development and shaping of the outside harbor. Starting around 1912 land was being claimed were Lakeshore Drive is today offering the lagoon by 1929 (MPL, 2013). In 1924 after flushing stations could no longer serve their purpose Jones Island Sewage Treatment Plant was built and the peninsula was further developed removing the Kaszubs fishing community over the next twenty years (MPL)\(^1\). By 1931 the claimed land north of the harbor inlet also offered the city an airstrip till around 1960 when the area was reclaimed again to offer the Summer Fest grounds, Lakeshore State Park and Discovery World. There was little growth through the depression and wartime years, but development began again in the late 1950s and through the 1960s with the construction of more canals on the east side of Jones Island, the repurposing of the airport, the construction of Pier Wisconsin and McKinley harbor on the inside of the break water and Kneeland Canal being filled in on

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\(^1\) For more on the Kaszubs fishing community that lived on Jones Island please refer to *The Fisherfolk of Jones Island* by Ruth Kriehn, *Maritime Milwaukee* by Wisconsin Marine Historical Society and John Gurda’s Masters dissertation that can be found at UW-Milwaukee’s library.
the Menomonee River and the construction of the interstate interchange (MPL).

During the 1970s and 1980s little changed in the harbor. The largest changes and activity was the expansion of the Bay View Marina south of the breakwater and a “spoil area” built on the southeast side of Jones Island (MPL). During this time Milwaukee’s waterways were unapproachable and a negative attribute of the city due to this historical environmental degradation in combination with the inadequate sewage treatment facilities that resulted in around 40 to 60 sewage overflows a year throughout the watershed before the deep tunnel became operational in 1994 (K. Morgan, personal communication, April 9, 2013 and MMSD n.d.). The public opinion of the harbor during this time was negative and caused the attorney general of the State of Illinois to file a complaint on behalf of the “people of the state of Illinois” stating that the City of Milwaukee’s inadequate sewage treatment was polluting Lake Michigan to the extent that it reached Illinois territory and was risking residents’ health in May 1972 (Mortimer, 1981).

Historical events and public attitudes presumably caught the attention of the U.S. EPA and by 1987 the Milwaukee harbor was declared an Area of Concern and was marked the unofficial beginning of restoration of the harbor. The original boundaries of the AOC encompass:

the lower 5 kilometers (km) of the Milwaukee River downstream of North Avenue Dam (which has since been removed); the lower 4.8 km of the Menomonee River downstream of 35th Street; the lower 4 km of the Kinnickinnic (KK) River downstream of Chase Avenue; the inner and outer harbors; and the near shore waters of Lake Michigan, bounded by a line extending north from Sheridan Park to the City of Milwaukee’s Linnwood water intake (WDNR, 2012).

In 1987, 11 of the EPA’s 14 “beneficial use impairments” (BUIs) were identified in the Milwaukee harbor, which include:

(1) restrictions on fish and wildlife consumption, (2) degradation of fish and wildlife populations, (3) fish tumors or other deformities, (4) bird or animal deformities or reproductive problems, (5) degradation of Benthos, (6) restrictions on dredging activities (for safe removal), (7) eutrophication
or undesirable algae, (8) beach closings, (9) degradation of aesthetics, (10) degradation of phytoplankton and zooplankton populations, (11) loss of fish and wildlife habitat (EPA, 2013).

None of the 11 BUls have been delisted in the 26 years since the Milwaukee Estuary was declared an AOC (EPA, 2013). To address the AOC status, the Wisconsin Department of Natural Resources (WDNR) developed with community stakeholders in 1991 the first Remedial Action Plan (RAP). Revisions and updates have been issued to reflect the work that has been completed (WDNR, 2012 and EPA, 2013). The most recent RAP was published in December 2012.

In 2008 the AOC boundary that originally encompassed the inner and outer harbor and the harden shoreline areas of the Milwaukee, Menomonee and Kinnickinnic Rivers was expanded to reach further up stream after contaminated sediments were discovered (Image 6) (WDNR, 2012). There is now more area that needs to be addressed, but identification of upstream areas from which contaminants have migrated to the Milwaukee Estuary signifies that progress has been made in identifying the geographical extent of the problem. The Lincoln Park/Milwaukee River Channels project area contributes the most PCBs to the Milwaukee River and Harbor and without the AOC boundary extension this area would not of been addressed (WDNR, 2012:2). The project is currently underway and once completed will result in a long-term reduction of PCBs by 70% (WDNR, 2012:2).
The work that has been done thus far for the harbor and waterways has helped. Support is coming from all levels to work towards remediation of the AOC and make the harbor and waterway a positive attribute of the city of Milwaukee. Other projects underway or in the planning stage include the Reed Street Yards in the Menomonee Valley that in ten years time will ideally be an business park, the reclamation of the two remaining Menomonee River canals, a wetland corridor linking the last remaining segments of wetland off the Kinnickinnic River, and a harbor walk that would follow the west bank of the inner harbor (Neudorfer, 2013 and Wasley, 2013).
The Milwaukee Harbor and rivers need many remedial actions. However, with the present community organization, the collaboration of various groups, and their dedication and with increasing public awareness of the harbor’s value to all stakeholders, the future health of the Milwaukee Estuary looks promising.