A Brief History of the Stoughton Dam

By Stoughton Resident Tom Nelson

When many people think of Stoughton their thoughts are drawn to the Syttende Mai celebration, the creation of the Coffee Break tradition, high school wrestling achievements and Stoughton Trailers, just to name a few of the possibilities. However, two things that do not often come to mind are the Yahara River and the Stoughton Dam. It is ironic because they are two of the most important subjects that led directly to the creation of the Village of Stoughton and the city today.

It was in 1847 when Luke Stoughton spied the bend in the Catfish – now the Yahara River – and decided that placing a dam there could power a sawmill and gristmill. The surrounding area was already being settled and he figured that his investments in waterpower would gladly be put to use by those same settlers. He believed that these improvements would eventually lead to further growth and possibly even a village. So, he decided to take a chance and purchase nearly 800 acres of land and began working hard on his dream. Had he not done so, today we would probably be living in the City of Dunkirk if we were even here at all. At that time, Dunkirk was a small settlement that had better waterpower and big plans for their future. And so, by the Fall of that same year an earthen and log dam had been built as well as the sawmill.

In addition to being referred to as the Catfish River, the Yahara was known in the past by such names as the Gahara, the Cos-ca-hoe-e-nah, the Goosh-ke-hawn, and the Myan-mek. According to UW-Madison, the Indigenous Ho-Chunk people of this area called it the Maa' il Yahara, which means Catfish River. The earliest appearance on a map of Catfish Creek was from a surveyor's notebook in 1833. Some maps continued to use that name as late as 1926. In 1855, a special act of the state legislature changed the name of the Catfish to the Yahara. This was the same act that changed the name of the four lakes of Kegonsa, Waubesa, Monona, and Mendota from First Lake, Second Lake, Third Lake, and Fourth Lake in that same order. The numbering of the lakes was taken from the government surveys of the 1830's of which the surveyors started in the southern part of our future state and worked their way north.

The US Government started surveying the Territory of Wisconsin in 1831. It was these surveyors' descriptions of the land that gave us our first non-native, authoritative information on the area we now live in. For example, they described how in Pleasant Springs the Catfish flowed through narrow marshes and "in some places contracted into brooks, but mostly expanding over the marshes." It sounds a lot like it is today. In 1839, another surveyor working for the government noted that the water levels of the Catfish from Fourth Lake (Mendota) to the Rock River varied from 9 feet at the outlet channel of the Third Lake (Monona) to as little as a depth that "cannot exceed 12 inches" in the shallowest spots. Even then the surveyor spoke of improving the river by dredging, removing timber and brush, and building several locks along its way. In that part of the river from the outlet of the First Lake (Kegonsa) to the head of Dunkirk Falls, he recorded that the average depth was usually 5 feet but could also be as little as 2-1/2 feet. A map created to accompany the 1839 report showed a large marsh area along the river between First Lake and present-day Stoughton.

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According to C.F. Downey, an early settler whose family moved here from Massachusetts in 1858, the land was a “jungle of marsh and tall timber.” “Con” described Main Street in Stoughton as a “muddy Indian trail with a few timbers over the creek for a bridge.” He also described the river as “nothing but a creek then.” Another early description of the river was documented in 1906 by a Monona couple who decided to take a 20-day honeymoon excursion down the river. They mentioned the marshy character of the Yahara between First Lake (Kegonsa) and Stoughton. Upon entering First Lake they spoke of “a wide expanse of reedy bog” and that it was a beautiful lake, but looked like it was full of “pea soup.”

Our current dam was constructed as the result of a terrific storm that hit Stoughton and the surrounding area on Sunday, September 12, 1915. There was a 6-hour downpour of rain that caused the existing Stoughton dam to go out. Other area dams that also washed out were in Dunkirk, Fulton, and the Leedle dam near Cooksville. Several highway culverts, bridges, and a couple of spots along the railroad line between Stoughton and Edgerton also washed out. Several areas of Stoughton were under water. One section bordering West Jefferson Street just west from South Madison Street, was a big lake with 1-1/2 feet of water covering the sidewalk on Jefferson. On Dunkirk Avenue, the water was high enough to enter the first floor of some homes. A part of Milwaukee Street by Riverside Park was flooded by a good-sized lake with miniature whitecaps.

The city acted immediately the next day by resolving to repair the dam as soon as possible. The storm also caused a problem on Lake Kegonsa when its water level initially rose 20-22 inches. Before the storm some people had blamed the Stoughton dam for high lake water levels, including those of the Madison lakes. However, after the storm there was no dam, yet those lake levels continued to rise. Dredging the river channel through the marshy areas and at the outlet of Kegonsa was then proposed as a solution. It was also noted that the water level below the city was higher than it had been before the Dunkirk dam washed out at the same time as the Stoughton dam. Additional meetings were then held to discuss improvements to the river channel and the construction of a dam and locks at the outlet of Lake Kegonsa. Construction of locks at the Stoughton and Dunkirk dams was also discussed. Eventually, the consensus was that the real cause of the high-water problem in the lakes were the mass of bogs in the river and the sand bars that were present.

By September 30 of that year, plans were underway for rebuilding the dam and spillways out of concrete with steel gates. The floor of the new spillway would be 2 feet thick and several feet lower than that of the old one. It would now have three large openings for the passage of water instead of the narrow and shallow openings of the previous dam. The top of the spillway would be practically the same height as the old one. It was said at the time that the new dam ought to withstand any flood that was likely to occur and solve the blog problem. The dam was soon finished except for the tainter gates that were being built and projected to be installed in February of the coming year. It is interesting that the DNR’s 2001 Yahara Kegonsa Focus

Watershed Report stated that the Stoughton dam could handle a flood of 2-1/2 times the magnitude of the 100-year flood. **The whitewater park engineers stated in their 2021 presentation that the dam served no flood control purpose.**

More recently we have seen problems that were due to extremely low water conditions. In 1990, there was a dispute between the DNR and the owner of the Dunkirk dam over the operation and maintenance of that dam. He was ordered by the DNR to drawdown the river from Stoughton to Dunkirk and that led to the low water levels that exposed the riverbanks and angered many property owners living along the river. And then in 2007, the dam needed to be inspected and so the mill pond, now called an impoundment area, was drawn down by about 5 feet. Once again, a narrow channel in the river was created which exposed wide banks along both sides of the river throughout the city. Two years earlier the DNR had notified Stoughton that the dam could be in need of repairs due to its age. They also said the city should consider removing the dam as an alternative. The DNR was going to issue a formal report on the dam, but still had not gotten back to the city by the time of the 2007 inspection. After the inspection it was determined that repairs were needed and an estimate of $560,000 was provided. Removal of the dam was estimated at a cost of $250,000. However, that last figure did not include removal of any sediment upstream from the dam. The DNR required testing on heavy sedimentation for contaminants, such as heavy metals, pesticides, and PCB's if the dam was removed. Removal of any contaminant would be very expensive. An additional estimate was given to repair concrete walls leading up to the powerhouse in case someone wanted to start generating electricity again.

In 2009 after much discussion, repair work was scheduled to begin on the dam in mid-June. It would involve replacement of the two tainter gates, a large steel bulkhead, and patching a large amount of concrete on and around the dam. It also consisted of extending a storm drain culvert, filling, and reshaping the structure's embankments, and replacing the old manual controls of the dam with motorized controls. The drawdown for the repair work also caused a noticeably lower water level upstream of the dam. That year the Stoughton Conservations Club's Kids Fisheree was cancelled due to the lower water levels. Repair work went very well and was finished quickly.

Four years later, in 2013, the City of Stoughton decided to restore the deteriorating riverbanks along several spots of the river at a cost of $90,000 to the city with a matching grant of $90,000 from the DNR. At that time, the public still supported the current water levels and restoration of the riverbanks and that was reflected in the 11-1 council vote to take on repairs.

Turning to the river we now call the Yahara - we know that the river is approximately 62 miles long and is a tributary of the Rock River. It rises in the extreme southern border of Columbia County and flows through Dane County and Rock County in primarily a southeastern direction. Along the way the river passes through the four lakes of Mendota, Monona, Waubesa, and Kegonsa. Over one-third of Dane County drains into the

Yahara River. The part of the watershed that starts from the dam at Lake Waubesa and ends where the Yahara flows into the Rock River is known as the Yahara River/Lake Kegonsa Watershed. According to the DNR's 2001 Yahara Kegonsa Focus Watershed Report, agriculture accounts for a whopping 81% of this watershed's land use. On the other hand, urban areas make up 6.9% of its land use while wetlands comprise of just 5.4%. These figures result in a significant amount of sediment runoff and pollution. As recently as 2021, Dane County estimated that more than 8.5 million pounds of sediment enters the Yahara chain of lakes every year because of urban runoff alone. **Exactly how would construction of a whitewater rafting park in our part of the river solve the on-going problem of the upstream pollutants emanating from those agricultural and urban sources?**

The US Geological Survey (USGS) has classified the Yahara as a stream. While streams and rivers are both names for flowing water, it is the size and flow of that water which determines its label. Streams are shallower and have narrower banks than a river does. Streams are classified in range from first to twelfth order with twelfth being the largest. Incidentally, any stream larger than a sixth order up to a twelfth order is considered to be a river. There are small, medium, and large streams; and there are also three types of streams that are defined by their physical, hydrological, and biological characteristics. The latter three types are beyond the scope of this presentation. **In general, a small stream is defined as a stream or creek whose average summertime flow is about 30 cubic feet per second (cfs).** Depending upon the grade, a stream of this flow is about 15-20 feet wide or as wide as 30-40 feet in slow pools of water or beaver ponds**. According to the USGS, the streamflow measured at the Yahara River at Forton Street Bridge in Stoughton was at 13 cfs on Monday, June 12, 2023.** The engineering firm working on the design of the Whitewater Park claims that the park could be used at all flow levels and that the primary variable determining its use was air temperature. They used an annual average flow of 380 cfs with 150 cfs being the low flow and 650 cfs as the high flow. They determined that the flow is between 150 and 650 cfs nearly 80% of the time and between 300 and 450 cfs over 30% of the time. However, at low flows the activity in the park would be limited to inner tubing and swimming only!