

Those Delightful Rivulets

A young Englishman by the name of John Lawson was the earliest explorer to venture into the interior of North Carolina. His travels carried him across the lower edge of Mecklenburg County in 1700. In his journal, Mr. Lawson noted concerning Mecklenburg County that it was "abounding in many and delightful rivulets." As a matter of fact, Mecklenburg County has over 2000 miles of "delightful rivulets" or streams which lace across its rolling landscape. Mecklenburg County sits on the drainage divide between the Catawba and Yadkin River Basins with two-thirds of its streams draining west toward the Catawba and the remaining one-third draining east to the Yadkin. The western edge of the County is formed by 190 miles of shoreline along portions of three of the eleven lakes which comprise the Catawba River system including Lake Norman, Mountain Island Lake and Lake Wylie. It is a foregone fact that Mecklenburg County is a "water rich" community and that these abundant surface waters played a major role in its early settlement. Pioneers, many of them of Scotch-Irish descent, flocked to the banks of Mecklenburg County's streams beginning in the mid 1700's. Many of these early settlers were accomplished millwrights and it wasn't long until water mills sprang up along nearly every stream having year round flow, grinding grain into flour and powering sawmills for producing lumber. Communities developed around these mills and streams quickly became the life's blood of this area playing a vital role in the development of Mecklenburg.

The Catawba River has also contributed tremendously to the early development of Mecklenburg County. It served as a highway for early settlers moving into the region and was also used as a major shipping route for goods bound to Charleston for export. Beginning in the 1700's, fisheries sprang up along the banks of the river providing a food source for early settlers. Ferries were constructed along major transportation routes crossing the river followed by bridges. Another little known fact concerning the Catawba River is that it served as a barrier preventing federal forces from invading and laying waste to Charlotte during the Civil War. During the spring of 1865, federal cavalry moved east toward Charlotte from the direction of Lincolnton. Confederate forces under the command of General R. D. Johnston of Lincoln County established a defensive position on the east bank of the Catawba River in Mecklenburg County adjacent to the bridge at the Rozzelle's Ferry in the area where Brookshire Freeway crosses Mountain Island Lake today. Federal forces reached the west bank of the river and fired upon the Confederate position but were unable to effect a river crossing and were thereby prevented from advancing east to Charlotte.

The streams and rivers of Mecklenburg County have been vitally important as a major source of raw drinking water since the 1800's. Charlotte's first municipal drinking water intake was located on Sugar Creek in 1881. In 1904, the water intake was moved to Irwin Creek primarily due to declining water quality conditions in Sugar Creek brought about by sewage discharges from inadequate and often nonexistent collection and disposal systems. In 1911, the Irwin Creek intake failed to provide Charlotte with the water it desperately needed during a water shortage brought on by an extreme drought and water had to be brought into town by train from the Catawba River. This near catastrophe woke Charlotte up to the growing needs of the community for abundant, clean drinking water and in 1912 the City began withdrawing its drinking water from the Catawba River close to the current intake along Mountain Island Lake at the end of Pump Station Road in western Mecklenburg County.

By 1900, the population of Mecklenburg County had grown to 55,268. The Catawba River and the many streams in the County continued to be vitally important to area residents. At that time, Mecklenburg County was very rural in nature and the quality and usability of these waters had continued to be very good with only small, isolated pockets of pollution centered primarily in downtown Charlotte. Little Sugar and Sugar Creeks were the most polluted waters in the County due primarily to inadequate sewage disposal facilities. In the early 1900s, some areas of Charlotte were served by septic tanks but most of the town completely lacked any type of sewage treatment system and thousands of gallons of raw sewage were dumped straight to creeks until the City constructed its first modern sewage treatment plant along the banks of Sugar Creek in 1923. In the rural areas of the County, creeks remained free of pollutants and were widely used for recreation. Most residents had a favorite fishing or swimming hole near their home and in a time with limited recreational activities, these waters provided much needed relief for area residents. In 1910, a public recreational area called Camp Latta was developed along the banks of Long Creek in western Mecklenburg County and included a swimming hole formed by damming the creek.

Beginning in 1948 during the post-World War II boom, suburbs began to spring up in a ring around Charlotte. A brief lull in growth was experienced in the early fifties followed by increasingly steady growth

into the 1960's. The quality and usability of Mecklenburg County's streams suffered as a result of this growth primarily due to dumping by businesses and inadequate collection and disposal systems for the community's increasing volume of sewage. These water quality problems came to head in the late 1960's. A series of articles in the Charlotte News in September 1969 brought these problems to the attention of Mecklenburg County residents which lead to a call to action resulting in the established of one of the country's first local water quality programs in 1970. Subtitles in this series of articles included "A Tip: Don't Go Near The Water" and "Catch Any Fish In Sugar? You Can Forget About It" as well as "The Creek Is Simply A Sewer." The articles featured a six week long investigation by a News reporter documenting severe pollution problems in Little Sugar Creek. The News enlisted the help of Dr. Edward F. Menhinick, an assistant professor of biology at the University of North Carolina at Charlotte, to document the impacts of this severe pollution on aquatic life in the stream. Dr. Menhinick selected three intercity locations in Little Sugar Creek for his research including Cordelia Park, Piedmont Courts and Freedom Park. After hours of seining the creek for life, Dr. Menhinick found one dead frog, one live earthworm, two beer cans and several hundred cigarette butts, but not one fish. Bacteria counts measured in the stream were 260 times the State standard. The creek was void of life and the extremely high bacteria counts made them completely unsuitable for human contact. Public outcry in response to these appalling conditions lead to the funding by the Mecklenburg County Board of Commissioners of the County's Water Quality Program at a cost of \$90,604 annually effective January 1, 1970.

A lot has changed with regards to water quality conditions in Mecklenburg County over the past thirty years, for both the better and worse. Improvements in water quality have been documented in the inner city streams draining areas of "Old Charlotte" such as Little Sugar Creek in the area that Dr. Menhinick surveyed 30 years ago. The illegal dumping by businesses and the discharges from inadequate sewer collection and treatment systems have been significantly reduced. This is largely due to improved regulations such as the enactment of the Federal Clean Water Act in 1977 as well as enhancements to the municipal sewer system by Charlotte-Mecklenburg Utilities. Mecklenburg County's Water Quality Program has also contributed significantly toward this improvement in water quality conditions. From January through September 1970, the newly formed Water Quality Program, operating under the Division of Environmental Health of the Health Department, had identified and eliminated over 300 pollution sources through their successfully completion of a preliminary survey of the County's streams. This effort continued for years until most of the chronic dumping into Mecklenburg County streams had been brought under control. On June 16, 1998, the County's Water Quality Program which is now part of the Mecklenburg County Department of Environmental Protection performed a fish survey in the same section of Little Sugar Creek studied by Dr. Menhinick 30 years earlier. This time fish were detected in healthy numbers, a total of 796 to be exact. Unfortunately bacteria counts measured in these streams continued to be high and the waters remained unsuitable for prolonged human body contact. Today, the average bacteria count in the County's urban streams is one-third what it was 30 years ago but continues to exceed the State standard. Compared to 1969, the score has improved in favor of cleaner waters but County residents are still the losers as the streams remain unsuitable for wading or swimming.

The story for the outlying areas of the County is somewhat different. As this community has urbanized, the waters of the streams in these once rural outlying areas have become increasingly polluted. Streams that were once suitable for swimming only a few years ago are experiencing significant water quality degradation to the point where they are no longer safe for human contact. McDowell Creek in northern Mecklenburg County is a good example. This once rural area of the County has increased in population by over 300% since 1980 putting it among the fastest growing areas in North Carolina. During the 10 year period from 1988 through 1998, there were 138 exceedances of the State's water quality standards in McDowell Creek which has been degraded to the point that it is no longer suitable for prolonged human contact. Of particular concern is that McDowell Creek lies upstream of Mecklenburg's drinking water intake in Mountain Island Lake. The water quality in McDowell Creek Cove where the creek flows to the lake is among the poorest in the County. This problem must be checked before negative water quality impacts are experienced at Mecklenburg's water intake. A special initiative launched in 1999 by the Mecklenburg County Department of Environmental Protection referred to as Water Improvements Now (WIN) seeks to involve the community in efforts to reverse the negative water quality trends in McDowell Creek and restore its quality and usability.

Based on 1999 water quality data, the poorest water quality conditions in Mecklenburg County continue to be found in Little Sugar and Sugar Creeks draining the most urbanized areas of the County. Water quality conditions in streams improve slightly toward the outlying areas of the County but overall only

15% of Mecklenburg's streams are considered suitable for human contact. All the waters in the County are supportive of aquatic life to varying degrees. The lakes on the County's western border typically exhibit good water quality conditions and are suitable for swimming and supportive of aquatic life. Overall Lake Norman has the best water quality conditions followed closely by Mountain Island Lake. Of the three lakes, Lake Wylie has seen the most significant water quality degradation in the past 20 years but overall its water quality is considered good. Currently, the most prevalent pollutants in Mecklenburg County's surface waters are bacteria, sediment and a variety of pollutants carried in storm water runoff. Elevated bacteria levels originate primarily from failing sewer systems. Construction site runoff is the most common source of sediment in the County's surface waters.

The source of pollutants in storm water runoff is much more difficult to pin-point and is therefore the most difficult to control. As the number of parking lots, roads, roof tops and other impervious surfaces increases due to urbanization, less precipitation is allowed to filter naturally through the soil and the volume of runoff increases. This storm water runoff flows directly to the County's surface waters carrying with it pollutants deposited on the impervious surfaces such as oil dripped from automobiles as well as iron, zinc, copper, chromium, lead and a variety of other toxic metals from automobile wear and a variety of other sources. These are called nonpoint source pollutants and are estimated to account for half of the pollution problems found in streams nationwide. Control of these nonpoint source pollutants was nonexistent until 1987 amendments to the Clean Water Act required that measures be taken to control the most severely contaminated storm water discharges. These control measures were required for all cities in the country with populations greater than 100,000, which included Charlotte. In November 1993, Charlotte launched its Storm Water Pollution Prevention Plan, a comprehensive and proactive approach toward reducing the discharge of pollutants in storm water runoff. After seven years of implementation tremendous strides have been made toward identifying the sources of these pollutants and initiating actions necessary to restore water quality conditions. Since 1995, storm water data reveals a 50% average reduction in total suspended solid (TSS) concentrations in Mallard Creek. The most significant improvement has been observed in McAlpine Creek which has experienced a 90% average reduction in TSS levels. Positive trends have also been recorded in Sugar, Little Sugar and Long Creeks which have experienced 37, 61 and 50 percent reductions respectively in TSS levels measured in storm water data since 1995.

Another significant step toward improving the quality and usability of Mecklenburg's surface water resources was taken by the Mecklenburg County Board of Commissioners (Board) on October 15, 1996 with the adoption of the County's first "Creek Use Policy." The Board recognized the continuing degradation of the quality and usability of the County's surface waters in the face of increased growth and the spread of urbanization. They unanimously agreed that having only 15% of the County's surface waters suitable for prolonged human contact was unacceptable and decreed in a bold and progressive policy statement that "...all Mecklenburg waters shall be suitable for prolonged human contact, and recreational opportunities and shall be suitable to support varied species of aquatic vegetation and aquatic life." In effect, the Board acted to turn back the hands of time and restore the quality and usability of Mecklenburg's most precious and abundant natural resource, its surface waters. Staff was directed to develop for the Board a "list of alternatives and potential costs" for fulfilling this policy statement. Recognizing the daunting nature of this task, staff requested that the Board appoint a citizen's stakeholder group to assist them in this endeavor. The group comprised of thirteen (13) Mecklenburg County citizens and seven (7) City and County staff met for the first time in February 1997. The initiative soon became known as Surface Water Improvement and Management or S.W.I.M. and the group of stakeholders and staff as the S.W.I.M. Panel. The S.W.I.M. Panel was a very diverse group including an even split between "environmentalists" and "developers." The Panel met on seventeen occasions from February 1997 through April 1998 and successfully formulated a plan they called S.W.I.M. Phase I which was a nine part strategy aimed at controlling the worst pollution problems in the County, sediment and bacteria, and initiating the steps necessary to protect the communities drinking water supply and move forward toward fulfilling the Board's Creek Use Policy. The Board unanimously approved S.W.I.M. Phase I and provided the necessary funding for implementation effective July 1, 1998.

A key component of S.W.I.M. Phase I was the establishment of stream buffers county wide. The S.W.I.M. Panel had emphasized that these buffers were perhaps the best tool in protecting the County's surface waters. The Board assigned the development of a buffer plan to the S.W.I.M. Panel and meetings continued. In April 1998 after 23 meetings, 3 workshops and 4 public hearings, the Panel came to consensus on a S.W.I.M. Stream Buffer Plan which was unanimously approved by the Board. The Buffer Plan was developed into an ordinance and subsequently unanimously adopted by Charlotte and

Mecklenburg County effective November 1999.

The development and implementation of S.W.I.M. Phase I continues with significant and measurable success. Both sediment and bacteria levels in Mecklenburg County streams are on the decline, some by as much as 90%, but a tremendous amount of work remains before Mecklenburg County can herald the fulfillment of the Board's Creek Use Policy. Future phases of S.W.I.M. will be required aimed at addressing increased pollution from new developments and implementing measures to address pollutants from existing development. Recent amendments to the Clean Water Act require the County and all six of Mecklenburg's towns to implement a storm water pollution prevention program similar to Charlotte's by March 2003. Despite the tremendous amount of change in water quality requirements to date, even more significant changes lie in Mecklenburg's future.

Everyday those "delightful rivulets" of Mecklenburg are crossed by thousands of citizens hurrying to fulfill their appointed tasks with little or no thought being given to the tremendous role these flowing streams have played in the development of the place they call home. Even less thought is given to the steps necessary to protect these waters from destruction and total loss of usability. But maybe, after having read this article, you will find cause to reflect on the past and contemplate the future of our precious water resources and take the actions necessary to prevent their demise.

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