

2010 DRAFT 303(d) List Analysis for the Chattanooga Area

The 303(d) list is prepared every two years by the Tennessee Department of Environment and Conservation and every similar office in each state in the nation. The report is required by the EPA and it lists all of Tennessee’s waters that are too polluted or full of sediment for public uses. Each stream has designated uses for humans like fishing, swimming, boating and others for biodiversity and trout populations. Designated uses are assigned to waters, and the water is listed as impaired if it is unsafe or impossible to use the water as intended. Designated uses are generally a reflection of historical or “existing” uses. The people of the state own the water in trust and have a right to clean water and streams and lakes. This is codified in Tennessee law.

Some streams are considered to be “Outstanding Water Resources of the State” and TDEC can’t permit pollution discharges into those waters. Other streams get different levels of protection, and the resulting inputs from permitted or non-point sources degrade the water quality. When the water quality is too poor for people to use it as intended, it is placed on the 303(d) list for greater protection. On the list, the waters that are assessed are listed in a category that says how clean they are based on the designated use criteria.

Table 1. 303(d) List Attainment Categories

Category 1	Waterbody or waterbody segment meets all designated uses.
Category 2	Waterbody or waterbody segment meets some designated uses, but data are not available in order to determine whether all uses are being met.
Category 3	Insufficient data exists to determine whether any uses are being met.
Category 4A	One or more uses are not being met. However, TMDLs have been completed and approved for all listed pollutants.
Category 4B	One or more uses are not being met. However, a TMDL is not needed because compliance with water quality standards will be achieved in the short-term by a more traditional approach, such as permitting or enforcement.
Category 4C	One or more uses are not being met. However, the impairment is not being caused by a pollutant.
Category 5	One or more uses are not being met. A TMDL is needed for the listed pollutants.

Impairment

251.04 miles impaired and polluted waters in Lower Tennessee Basin

198.93 miles impaired and polluted waters in Hamilton County

At least 34 streams in Hamilton County are on the proposed 2010 303(d) list. Most of the designations are Category 5, which means too polluted or disturbed for at least one public to use as intended. None of the streams listed in 2008 were removed due to improvement.

Some pollution can make people sick and kill animals and plants. The Tennessee Department of Environment and Conservation posts advisories for bacteria and fish that can’t be eaten due to the pollution in the water. These are listed in the 303(d) list as well as on the web.

Bacteriological Advisories in Tennessee

Streams in Hamilton County with bacterial advisories:

- A Tributary to Citico Creek: Chattanooga urban runoff and collection system
- Chattanooga Creek: Combined Sewer Overflows, Chattanooga collection system
- Stringers Branch: Red Bank collection system failures.

Fish tissue advisories

- From mouth of Chattanooga Creek to Georgia border, PCBs and Chlordane. Fish can not be eaten, water shouldn't be touched.
- Nickajack Reservoir: Precautionary advisory for catfish. 10370 acres. PCBs, Dioxin from contaminated sediment.

A TMDL is the total maximum daily load, or the amount of a particular pollutant, that can be added to the stream before the water quality degrades. A TMDL is developed if the only way to improve the water quality it is fit for the designated uses is to set limit for a pollutant, and then limit each source to a percentage of the pollution. In some cases this is a decrease of 5% of the pollution from a source and sometimes a 95% reduction is necessary.

Hamilton County

As the chart below indicates, the greatest pollution in Hamilton County is caused by sewage collection failures, Municipal Storm Sewer System (MS4) area pollution, channelization and other hydrologic modifications, and various farming activities. There may be multiple sources of pollution in the stream. In these combined cause groups, the data given doesn't allow separation to identify which use is the predominant cause of the pollution and which have a smaller contribution. The TN Department of Environment and Conservation (TDEC) attributes sediment as the state's number one source of pollution to our rivers, streams, and lakes. Sediment carried in water increases flooding, impacts water supplies and navigation, degrades aquatic habitat and transports chemicals. Channelization, hydromodification, pasture grazing and grading for development all promote transport of sediment into streams.

Table 2. Contributing Causes of Pollution by River Miles Affected

	Listed as only cause	Listed as partial cause
Collection System Failure (Hamilton)	0	89.2
Channelization (Lower TN aggregate)	13.19	22.7
CAFO	0	1.5
Pasture Grazing	15	1.5
Abandoned Mining	10.19	17.27
MS4	27.3	108.75

Definitions:

MS4

Tennessee's Municipal Storm Sewer System (MS4) Phase II Permit is given by the state, to small municipalities, to control pollution going into our waters. In particular, it is designed to control pollution that flows into our streams from development, such as sediment or mud.

Channelization

The subset "channelization" is the actual alteration of the stream substrate.

CAFO

Confined Animal Feeding Operations are feed lots or buildings that hold a legislatively defined number of animals like pigs, chickens, or cows. CAFOs are often considered "non-discharging" because they apply their manure on the land or keep it in lagoons. However, rain does wash manure from the fields or lagoons that overflow which can cause significant pollution from nutrients and bacteria.

Examples of listings for Hamilton County

- Mackey Branch: 15.66 stream miles of Mackey Branch were added to the 2008 Draft 303(d) List for physical substrate habitat alterations, loss of biological integrity due to siltation, and Escherichia coli levels resulting from contributions as an MS4 and collection system failures. Mackey Branch is a Category 5 with high priorities to address the habitat alterations and siltation.
- South Chickmauga Creek: 17.6 stream miles are on the 2010 Draft List due to Escherichia coli levels, physical substrate habitat alterations, and total phosphorus levels from land development, MS4 discharges, collection system failures, and sources from out of state. South Chickamauga Creek is a Category 5 with high priorities to address the habitat alterations and the pathogens.

Table 3. Direct Pollution Problem by River Miles Affected

	Listed as only	Listed as

	problem	partial problem
E. coli	55.25	100.5
General Habitat Alterations	3.02	126.07
pH	8.02	27.07
PCBs	0	8.4
Siltation	0	56.5