

2010 DRAFT 303(d) List Analysis for Knox County

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 with chemicals or bacteria or too 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

Approximately 332 miles impaired and polluted waters in Knox County and/or flowing into or from adjacent counties

At least 38 streams in Knox 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 use as intended. 3.77 miles of Stock Creek were removed from the list for an improvement in habitat score. It was originally listed for siltation and physical substrate habitat alterations. The stream is still listed for E. coli due to pasture grazing.

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 site.

Fish Tissue Advisories

All 14,600 acres of Fort Loudon Reservoir listed on the Fish Tissue Advisory due to PCBs and Mercury with Commercial fishing for catfish prohibited by TWRA. No catfish or largemouth bass over two pounds should be eaten. Nor should largemouth bass from the Little River embayment be consumed. A PCB TMDL has been approved by the EPA for some of the known pollutants.

All 5,690 acres of Melton Hill Reservoir are listed due to PCBs. Catfish should not be eaten. It has been recommended that the EPA produce a TMDL for pollutants from DOE facilities.

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.

Bacteriological Advisories in Knox County

Goose Creek, First Creek, Second Creek, and Third Creek have bacteriological advisories, specifically E. coli, due to Knoxville urban runoff.

Knox County

As the chart below indicates, the greatest pollution in Knox County is caused by Municipal Storm Sewer System (MS4) area pollution, pasture grazing, collection system failure and channelization. There may be multiple sources of pollution in the stream. In these combined cause groups, the data given does not 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 | 0 | 83.4 |
| Channelization | 0 | 37.6 |
| MS4 | 114.99 | 141.4 |
| Pasture Grazing | 0 | 95.7 |

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.

Examples of listings for Knox County

- 12.7 miles of Ten Mile Creek are listed for siltation, habitat loss due to alteration, and Escherichia coli as a result of discharges from the MS4 area.
- 16.1 miles of First Creek are listed for nitrates, loss of biological integrity due to siltation, other anthropogenic habitat alterations, and Escherichia coli as a result of discharges from the MS4 area and collection system failure. There is a water contact advisory on this stream.