



Watershed Protection Development Review

Findings of the DRAFT 2004 Texas Water Quality Inventory and 303(d) List for the Austin Area

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Abstract

The Texas Water Quality Inventory (305(b) report) is prepared by the Texas Commission on Environmental Quality (TCEQ) and submitted to the U.S. Environmental Protection Agency (USEPA) biennially in accordance with Section 305(b) of the Clean Water Act (CWA). For the 2004 report, a "target assessment" was conducted that included evaluation of a limited number of waterbodies, resulting in little overall change in assessment results. The table below summarizes Austin area impairments and concerns as compared to that of 2002.

<i>Problem identified</i>	<i>Number of water bodies affected</i>		<i>Concern or Impairment Status</i>
	<i>2004</i>	<i>2002</i>	
<i>Impaired benthic macroinvertebrate community</i>	<i>3</i>	<i>3</i>	<i>Impairment</i>
		<i>6</i>	<i>Concern</i>
<i>Frequently elevated bacteria levels</i>	<i>5</i>	<i>4</i>	<i>Impairment</i>
		<i>5</i>	<i>Concern</i>
<i>Depressed dissolved oxygen</i>	<i>1</i>	<i>1</i>	<i>Impairment</i>
		<i>2</i>	<i>Concern</i>
<i>Elevated nutrients</i>		<i>8</i>	<i>Concern</i>
<i>Elevated toxins in sediment.</i>		<i>4</i>	<i>Concern</i>

Water bodies noted on the 303(d) list as "impaired" are those that do not support their designated uses in the Texas Surface Water Quality Standards (30 TAC 307), and for which existing water quality controls are not adequate. "Concerns" are also identified where the uses are met but elevated pollutants with indirect impacts are identified or limited data are available. Assessments are based on the prior five years of water quality data collected by the TCEQ and cooperating agencies under approved quality assurance guidelines. City of Austin Watershed Protection and Development Review Department (WPDRD) staff have been working for several years to ensure City water quality monitoring data is incorporated into the TCEQ assessments through the Clean Rivers Program administered by the Lower Colorado River Authority (LCRA). The 2002 and 2004 assessments included creeks based on City data that otherwise would not have been assessed. Both impairments and concerns were identified for water bodies in the Austin area. For water bodies where a priority impairment is identified, a Total Maximum Daily Load (TMDL) study may be required by TCEQ to determine the maximum pollutant load that can be borne by the water body without violating water quality standards. The pollutant load is allocated among the sources in the watershed, and any actions necessary to restore and maintain designated uses of the water body are determined. An ongoing bacteria TMDL study of Onion Creek is anticipated to result in delisting due to LCRA monitoring results. An upcoming bacteria TMDL study of Gilleland Creek may also result in delisting or modifications to permit limits of several wastewater treatment plants in the area. A primary focus at this time in the Austin area is the appropriate biological monitoring and establishing a baseline for aquatic life use supported. In addition, elevated toxins in sediments and nutrients in water are focus areas for WPDRD monitoring. These pollutants are currently addressed only as "secondary concerns" by TCEQ because no regulatory criteria have been adopted. In addition, statewide screening levels for these constituents have not been exceeded sufficiently to make them priorities for TCEQ to pursue in the Austin area. However, monitoring results for these parameters have been used in masterplanning and program targeting by the City.

Impaired Water Bodies

Several Austin area creeks were listed in 2004 as not supporting their designated uses (impaired), many of these for elevated bacteria levels. Recreational uses are impaired when bacteria levels are elevated. Depressed dissolved oxygen levels or impaired benthic macroinvertebrate communities indicate that the aquatic life support use for the creek may not be met. Table 1 lists water bodies in the Austin area designated as impaired. None of these water bodies are a priority for TMDL development, but are scheduled for collection of additional data.

**Table 1
Austin Area Creeks on 2004 Draft 303(d) List (November 23, 2004)**

Segment	Water body	Impairment area	Impairment	Category*
1403A Bull Creek	Lake Austin to upstream perennial portion	From most downstream xing to most upstream xing of Spicewood Springs Rd	Impaired macrobenthos community	5c [rank D]
1403J Spicewood Tributary to Shoal Creek	From MoPac to a point west of Hart Lane	Entire water body	Bacteria	5c [rank D]
1403K Taylor Slough South	From Lake Austin to west of Pecos Street	Entire water body	Bacteria	5c [rank D]
1427 Onion Creek	From Colorado River to most upstream xing of FM165	From end of segment upstream to US183	Depressed dissolved oxygen	5c [rank D]
1427A Slaughter Creek	Intermittent stream with perennial pools from Onion to above US290	Entire water body	Impaired macrobenthos community	5c [rank D]
1428C Gilleland Creek	Perennial stream and intermittent stream w/perennial pools from Colorado River to spring source	From Taylor Lane upstream to Old Highway 20	Bacteria	5c [rank L] <i>**should be rank U – TMDL underway</i>
1429B Eanes Creek	From Town Lake to upstream perennial portion	Entire water body	Bacteria	5c [rank D]
1429C Waller Creek	From Town Lake to upstream portion	From Town Lake to East MLK Blvd.	Bacteria and Impaired macrobenthos community	5c [rank D] <i>**Bacteria added since 2002</i>

Category 5	The water body does not meet applicable water quality standards or is threatened for one or more designated uses by one or more pollutants.	
Category 5a	A TMDL is underway, scheduled, or will be scheduled.	
Category 5b	A review of the water quality standards for this water body will be conducted before a TMDL is scheduled.	
Category 5c	Additional data and information will be collected before a TMDL is scheduled.	
Rank	H, M, L	High, Medium, Low
	D	Additional data and information will be collected before a TMDL is scheduled
	U	Once a TMDL project is initiated, the rank changes to "U" for Underway
	S	Indicates that a standards review will be conducted before a TMDL is scheduled

Water Bodies with Concerns for Use Attainment

For the first time in 2002, concerns for attainment of designated uses (Primary Concerns) were identified by TCEQ and categorized as follows:

- Use Concerns-Limited Data (Tier 1 Primary Concerns) Some exceedances of water quality standards but less than 10 samples were available for assessment.
- Use Concerns (Tier 2 Primary Concerns) Some exceedances of water quality standards but designated uses are supported and an adequate number of samples were available.

Water bodies with Tier 1 or Tier 2 concerns are given a high priority for additional monitoring. Those water bodies in the Austin-area that remain in the 2004 assessment as concerns for attainment of water quality standards are listed in Table 2. The water bodies listed as concerns in 2002 that were removed from the 2004 concerns list are shown in Table 3.

Table 2
Austin Area Water Bodies with Concerns for Use Attainment in 2002 and 2004 TCEQ Assessments*

Segment	Concern Location	Use	Level of Concern [Tier 1 or Tier 2]	Parameter of Concern
1403 Lake Austin	Quinlan Park to upper end of segment	Aquatic Life Use	Use Concern [T2]	Depressed dissolved oxygen
1403G Tanglewood Tributary to Bull Creek	Entire water body	Contact Recreation	Use Concern [T2]	Bacteria
1403R Unnamed tributary to Lake Austin	Entire water body	Contact Recreation	Use Concern [T2]	Bacteria
1428B Walnut	From FM 969 upstream to Loyola	Contact Recreation	Use Concern-Limited Data [T1]	Bacteria
1428B Walnut – additional segments	From Manor Rd upstream to Sprinkle AND From the Colorado R. upstream to FM 969	Contact Recreation	Use Concern-Limited Data [T1]	Bacteria
1428C Gilleland Creek – different segment	From Colorado River upstream to Taylor Lane	Contact Recreation	Use Concern [T2]	Bacteria
1429C Waller Creek – additional portion of creek	From Town Lake to East MLK Blvd; from E. MLK to E. 41 st St. And upper portion of creek	Contact Recreation Use	Use Concern-Limited Data [T1]	Bacteria
1430 Barton Creek different parameter	SH 71 to Hays County Line	Aquatic Life Use	Use Concern [T2]	Depressed dissolved oxygen

* *shaded cells indicate 2004 changes as noted in bold print*

Table 3
Austin Area Water Bodies with Concerns for Use Attainment in 2002 TCEQ Assessment
Removed in 2004

Segment	Concern Location	Use	Level of Concern [Tier 1 or Tier 2]	Parameter of Concern
1403E Stillhouse Hollow [Bull Creek unclassified water body]	Entire water body	Aquatic Life Use	Use Concern-Limited Data [T1]	Impaired macrobenthos community
1428B Walnut	From Sprinkle Road upstream to IH35	Aquatic Life	Use Concern-Limited Data [T1]	Impaired macrobenthos community
1428D Little Walnut	From Walnut Creek upstream to US183	Aquatic Life	Use Concern-Limited Data [T1]	Impaired macrobenthos community
1430 Barton Creek	From confluence with Town Lake to Barton Springs Pool most downstream dam	Aquatic Life Use	Use Concern-Limited Data [T1]	Impaired macrobenthos community
1430A Barton Springs	Barton Springs Pool	Aquatic Life Use	Use Concern [T2]	Depressed dissolved oxygen

Water Quality Concerns

TCEQ also identified water bodies with water quality concerns not related to use attainment (Secondary Concerns). The water bodies in the Austin-area that were categorized as secondary concerns in 2004 are essentially the same as those listed in 2002. These water bodies are designated by exceedances of screening levels for nutrients, chlorophyll a, toxic substances in sediment, and toxic substances in fish tissue that do not cause direct impairment of designated uses. In Austin, the majority of secondary concerns were for elevated nutrients in both creeks and portions of the Colorado River as listed below:

- ◆ Barrow Preserve,
- ◆ Stillhouse Hollow,
- ◆ Spicewood Tributary,
- ◆ Taylor Slough South,
- ◆ Colorado River Below Town Lake,
- ◆ Walnut Creek,
- ◆ Gilleland Creek, and the
- ◆ Lower half of Town Lake.

Secondary concerns also included degradation of biological communities in the Colorado River below Town Lake. This reach of the river was designated for exceptional aquatic life use in the mid-1990s. Additional concerns due to elevated toxins in sediment were identified. The sediment sampling conducted by WPDRD has focused on problem areas such urban creeks or below localized inputs. The levels of toxins in sediments are screened by TCEQ against both a level indicating possible biological impacts and the 85th percentile of measurements in the state. Ambient toxicity testing by the City, required by the state for designating impairment, only identified toxicity at two dry tributary sites with high Polycyclic Aromatic Hydrocarbon (PAH) levels when also tested with UV-exposure (phototoxicity). However, determination of toxicity with UV-exposure is not recognized by TCEQ in their assessment methodology. Subsequent sampling at the same locations conducted by TCEQ did not incorporate tests with UV-exposure essential for evaluating toxicity of PAHs, and have not indicated toxicity without the UV-

exposure. Ongoing ambient toxicity testing of sediments spiked with PAHs by the City may provide further insight to these toxicity issues. Additional sampling by the City and by the TCEQ of sediments in Barton Creek and Barton Springs Pool have added some concerns for toxins in sediment below the pool and changed parameters in and above the pool. The following segments were identified by TCEQ as having Secondary Concerns due to toxins in sediment or impairment of aquatic ecology in the Austin area:

- ◆ Colorado River Below Town Lake – impaired fish and macrobenthos community
- ◆ Waller Creek – lead and organics in sediment [monitoring data by UT is not requested for review by TCEQ]
- ◆ East Bouldin Creek – metals and organics in sediment
- ◆ Barton Creek (Pool to 2 miles upstream of Loop 1) – PAHs, lead, silver, and arsenic in sediment
- ◆ Barton Creek (From confluence with Town Lake to downstream dam of Barton Springs Pool) – copper and priority organics in sediment
- ◆ Barton Springs Pool – arsenic and copper in sediment; additionally in 2004 fluoranthene and nickel in sediment

The City is continuing to participate in the statewide coordinated monitoring program and the Clean Rivers Program to provide data to TCEQ. The City has funded projects to correct the sediment problems in Barton Creek. Capital funding for corrective actions from TCEQ and the USEPA is limited because none of the Austin area problems have been categorized as having a high enough priority under the TMDL program. The few TMDL studies conducted in the Austin area have led to regulatory rather than capital intensive solutions.