

# Trinity River Authority Clean Rivers Program 2011 Basin Update Report

## This Year's Highlights

The past year had some of the warmest summer months on record as measured in the DFW area. Out of 112 years starting in 1899, the months from May to September each ranked within the 30th percentile. At the same time, it was a fairly wet summer with 16 of the almost 33 inches of rain for the year falling in these months. September itself was the fourth wettest on record with 9.11 inches. The year in total was one of the warmer years on record, ranking 17th out of 112 years but ranked in the middle for total rainfall.

## Water Quality Monitoring

There are 182 sites being monitored for the Clean Rivers Program in FY 2011 by the cities of Arlington, Dallas, Fort Worth, Grand Prairie, and Irving, the TRA Lake Livingston Project, Tarrant Regional Water District, and TRA's Planning and Environmental Management Department. The participation of these agencies greatly extends the scope of the program in the Trinity Basin beyond what would be possible using only in-house resources. For more information on the sites being monitored, visit <http://cms.lcra.org/>.

All data collected by these entities through the end of the November 2010 has been submitted to TCEQ for use in the FY 2012 TCEQ Water Quality Inventory. Data can be viewed on the TCEQ website at <http://www8.tceq.state.tx.us/SwqmisWeb/public/index.faces>.

## Public Involvement

The TRA CRP continues to support several public involvement activities such as trash clean-ups, Texas Stream Team, Waterborne Education Center, River Legacy Park and Living Science Center, and several educational events throughout the year.

Our website (<http://www.trinityra.org/clean-rivers-program.htm>) provides more information on getting involved as well as links to reports and other helpful resources.

## Water Quality Conditions

Water quality data collected between December 1, 1998 and November 30, 2008 were extensively analyzed in the 2010 Basin Summary Report. This report is available on the TRA website at



Sunset on the Trinity River south of Romayor, August 2010.

<http://www.trinityra.org/clean-rivers-program.htm>.

The Draft TCEQ 2010 Water Quality Inventory identified numerous concerns for Chlorophyll-a and nutrients throughout the basin. Many issues for bacteria were noted, especially in small urban streams. It appears that many of the issues for these parameters are related to nonpoint source runoff and will be difficult to control. There are other, more localized, issues and concerns for low dissolved oxygen, pH, and other conventional parameters in several waterbodies. In addition, ongoing advisories against consumption of fish from the portions of the Trinity River from Lake Benbrook and Lake Worth dams down to US 287 have been issued by the Texas Department of State Health Services due to hazardous chemicals in fish tissue.

## Special Projects

During the summer of 2010, TRA CRP staff conducted an existing conditions survey over more than 200 miles of the middle and lower Trinity River. A second phase of this project is planned for the summer of 2011 in order to map channel morphology for large stretches on the river and to identify locations for further work including habitat and biological monitoring.

The TRA CRP has entered into a joint funding agreement with the USGS to determine if there is a correlation between turbidity as measured by a real-time gage in Dallas and Total Suspended Solids collected upstream and downstream of the gage. Other ongoing projects are discussed in the 2010 Basin Summary Report.

## Existing Conditions Survey

Two on-the-ground surveys of the Trinity River were completed in 2010. The first reach was 105 river miles between SH 287 and SH 7 and the second was 117 river miles between the Lake Livingston dam and Trinity Bay. The purpose of this field work was not to answer a specific question, but to obtain a broad overview of the system and identify specific locations to focus additional research. Additionally, field crews tested data collection methods, located access points, and made contact with local land owners. The survey was designed to answer the question, "what is the Middle Trinity River like?"

TRA field staff captured over 2,000 GPS referenced photographs and logged over 600 GPS referenced field notes. Additionally, the following data were collected:

1. river bank angles and heights;
2. channel widths;
3. cross sections;
4. flow measurements;
5. depth measurements;
6. soil and bedrock samples; and
7. riffle locations.

The Middle Trinity River is generally homogenous throughout most of the 105 mile reach, excluding three distinct portions of the river: Yard, Pine Bluff, and Hurricane Shoals. Overall, the Middle Trinity is highly sinuous with steep, high banks that get more so moving downstream. Generally, the banks are sand, silt, and clay with sand becoming more common further downstream. The river follows the riffle, run, pool pattern, though there are sometimes long distances between riffles. Straight runs have depositional banks with a mixture of



Pine Bluff, July 2010.

bare soil and willow trees near the water's edge. Bends generally follow the common cut bank and point bar deposition pattern. Depths near base flows in runs are generally 5-8 ft, riffles 2-4 ft, and deep pools in bends 17-20 ft. A few pools near the lower end of the reach have depths > 25 ft. Evidence of recent and past mass failures/slumps is abundant. Large snags of timber are common and create a significant navigation hazard.

The Lower Trinity River is quite sinuous and the channel grows wider as it meanders towards Trinity Bay. The banks of the river are generally vegetated and not very tall; large sand bars are common. Sinuosity values are very high and evidence of oxbow lakes and floodplain connectivity is common. The river follows more of a run and pool pattern with only three marked riffles. In the lower reaches, some pools are over 30 feet deep. Depths in the runs are generally around 6-10 feet and large snags and shallow sandbars make navigation difficult in some locations.

Follow up work is being planned for the summer of 2011 for 300 plus miles between Fort Worth and Lake Livingston. Unlike the 2010 survey of existing conditions, this work will collect scientific data in a methodical and structured way with an emphasis on GPS referenced photographs, coarse channel mapping to identify locations of mesohabitats (tributary junctions, riffles, runs, pools, and etcetera), and fine scale site specific mapping of selected mesohabitats. The goal of this project is to identify locations for biological data collection, long-term channel stability monitoring, and habitat availability and structure.



Groundwater fed waterfall near Cayuga, July 2010.