

INTRODUCTION

In 1991, the Texas Legislature passed the Texas Clean Rivers Act requiring basin-wide water quality assessments to be conducted for each river basin in Texas. Under this act, CRP has developed an effective partnership involving the TCEQ, other state agencies, river authorities, local governments, industry, and citizens. Using a watershed management approach, NRA and TCEQ work together to identify and evaluate surface water quality issues and to establish priorities for corrective action. Under CRP, NRA is responsible for the San Antonio – Nueces Coastal Basin, the Nueces River Basin, the Nueces – Rio Grande Coastal Basin, and the adjacent bays and estuaries. For more information, visit NRA's website at www.nueces-ra.org.

WATERSHED PROJECT UPDATES SAN ANTONIO – NUECES COASTAL BASIN

Copano Bay

TMDL Project for Bacteria in Oyster-Harvesting Waters

In response to stakeholder requests for additional bacteria data in the upper Copano watershed and at WWTFs, TSSWCB contracted with NRA to conduct this monitoring to support the TMDL study. Since most of the monitoring sites for CRP or SWQM are located in the lower portions of the Aransas and Mission Rivers, this project targeted sites on the upper reaches / unclassified portions of the rivers, their tributaries, and WWTF discharges. The project attempted to sample during 7 dry weather events, targeting July and September, and 11 wet weather events from October 2007 through November 2010. Due to the low number of wet events, the sampling design was changed to a monthly sampling schedule. Samples were analyzed for fecal coliform, *E. coli*, and *Enterococcus* at all of the sites for comparison. All of the data collected was submitted to TCEQ through the TSSWCB for use in assessing the water bodies. Results concluded that the WWTFs sampled were not the primary source, although some did have occasional discharges with high bacteria concentrations. Bacteria results indicated that more analysis is needed to evaluate the correlation between flow and/or precipitation within the watershed.

NUECES RIVER BASIN

Lower Nueces River Watershed Protection Plan

The City of Corpus Christi has contracted with NRA to develop a WPP for the Lower Nueces River between Wesley Seale Dam at Lake Corpus Christi to the Saltwater Barrier Dam in Corpus Christi. The WPP will be created to protect the drinking water source for around a half a million people within the Coastal Bend area. A stakeholder meeting was held on January 13, 2011 where the steering committee selection process began and subcommittee workgroups were formed.

Lower Sabinal TMDL Implementation Plan

In March of 2003 the TCEQ initiated a TMDL project in the lower Sabinal River for elevated nitrate-nitrogen levels. The TMDL project identified the Sabinal WWTF as the primary source of nitrates. The city of Sabinal received an ARRA grant through the TWDB to fund the construction of a new WWTF. The new plant will be constructed outside of the 100 year floodplain and employ a variety of updated technologies including a mechanical screen, a looped aeration basin, two clarifiers, and an ultraviolet disinfection system. The plant should be completed by May of 2011.

Atascosa TMDL RUAA

In early 2009 the TCEQ TMDL team started a UAA to determine the appropriate recreational and aquatic life use categories for the Atascosa. The data for the RUAA was collected during 2009 and 2010 and the technical report has been submitted to the TCEQ Water Quality Standards group. The ALUAA sampling began in the summer of 2010 and should be completed this fall. The results of the UAAs will be used to assess the current standards and/or criteria.

ACRONYMS

AF– Acre Feet
ALUAA–Aquatic Life Use Attainability Analysis
ARRA– American Recovery and Reinvestment Act
BMP– Best Management Practice
CBBEP– Coastal Bend Bays and Estuary Program
CRP– Clean Rivers Program
DO– Dissolved Oxygen
EPA– Environmental Protection Agency
GLO–General Land Office
NRA– Nueces River Authority
NRSA– National Rivers and Streams Assessment
RUAA– Recreational Use Attainability Analysis
SWQM– Surface Water Quality Monitoring
TAMU– CC Texas A&M University-Corpus Christi
TCEQ– Texas Commission on Environmental Quality
TIAER– Texas Institute of Applied Environmental Research
TMDL– Total Maximum Daily Load
TPDES– Texas Pollutant Discharge Elimination System
TPWD–Texas Parks and Wildlife Department
TSSWCB– Texas State Soil and Water Conservation Board
TWDB– Texas Water Development Board
UAA – Use Attainability Assessment
USFWS–United States Fish and Wildlife Service
USGS–United States Geological Survey
WPP– Watershed Protection Plan
WWTF– Waste Water Treatment Facility

National Rivers and Streams Assessment (NRSA)

NRSA is a comprehensive survey of all the U.S. rivers and streams designed to assess the water quality condition and to establish a baseline to evaluate progress and changes in conditions on the nation's surface waters over time. TCEQ staff completed NRSA sampling and submitted data to the EPA for two sites on the Nueces River. Additional samples were scheduled on the Nueces and Frio rivers but were not collected due to low or no flow conditions during the study window. Sample collection included water chemistry, nutrients, chlorophyll-*a*, sediment enzymes, *Enterococcus*, fish tissue, physical habitat characteristics, and biological assessments. The sampling for NRSA throughout the state of Texas should be completed in 2014.

Leona River

Assessment of Water Quality and Watershed Planning

The Leona was listed in the 2006 Assessment as being impaired for bacteria for contact recreation. In addition, the Leona was listed in the 2002 Assessment as having a concern for nitrate-nitrogen. Together the TCEQ and the TSSWCB have recommended additional monitoring and stakeholder decision making to address the bacteria impairment and nitrates concern. The TSSWCB has contracted with the TIAER and NRA to assist with the assessment. Sampling will include collecting bacteria and nitrate data on the Leona to estimate loadings and possible sources.

Riparian Landowner Network

Arundo Donax in the Upper Basin

The Riparian Landowner's Network identified an explosive growth of *Arundo donax* on the upper Nueces and Sabinal rivers. The *Arundo* is an invasive plant that evapotranspires an enormous amount of water and inhibits riparian function while changing the native habitat. The Riparian Network estimated an approximate of 6.9 AF of water per day that is being consumed by the *Arundo*. In the fall of 2010 landowners and TPWD conducted a pilot project where 67 acres overtaken by *Arundo* along the Nueces River-Montell area were sprayed with a herbicide, licensed for aquatic environments, and proven effective on *Arundo donax*. USFWS is establishing the basis for measuring the success of the control effort through a vegetative survey. In addition, USGS is investigating diurnal flow in the area to determine if there are flow fluctuations during sustained hydrologic conditions. Simultaneously, NRA deployed 3 data sondes in the USGS study area to investigate water quality above and below the *Arundo* patch in order to investigate possible impacts the plant may have on pH, DO, conductivity, and temperature.

NUECES – RIO GRANDE COASTAL BASIN

Oso Bay/Creek Watershed

The TMDL Implementation Plan for Oso Bay will most likely be stalled while Oso Creek bacteria studies are being completed to ensure a more comprehensive implementation effort can be undertaken. Bacteria assessments in Oso Creek have demonstrated that in addition to runoff, loading occurs under normal flow, and dry weather conditions in the upper section. The TSSWCB, CBBEP, and TAMU-CC are conducting a study of bacteria sources in Oso creek. They are looking at groundwater influences, septic tanks, dry weather sources, agricultural sources in the upper watershed, and core samples.

Arroyo Colorado

Watershed Protection Plan

The Arroyo Colorado WPP continues to be successfully implemented and the Arroyo Colorado Watershed Partnership has grown to over 700 members. In collaboration with the lower Rio Grande Valley TPDES Storm water Task Force and local citizens, the Arroyo Partnership installed more than 1,000 storm drains that read “No Dumping, Drains to Laguna Madre”. Education and outreach activities occur on a daily basis and over 21,000 individuals have experienced the watershed model, a hands-on water quality education tool which demonstrates the impact of pollution within the watershed. In addition, two Public Service Announcements funded by a grant from GLO were broadcasted starting in December 2010, one designed to educate Farmers and Ag producers about the TSSWCB soil testing campaign and the other to educate citizens about storm-water runoff pollution. Numerous agriculture and wastewater infrastructure BMPs have been implemented. The cities of San Juan, San Benito, and La Feria were able to construct wetlands designed to treat effluent from municipal WWTFs and storm water runoff through financial assistance from the Arroyo Colorado Watershed: Construction of Wetland Treatment Systems project. For more detailed information, visit the Arroyo Colorado Partnership website at www.arroyocolorado.org.

Arroyo Colorado RUAA

The Arroyo Colorado has been listed as impaired for bacteria since 1996. NRA is conducting an RUAA to determine the types of recreational uses that are occurring. NRA will be documenting the physical stream characteristics that affect recreational use and the observed historical, and anecdotal recreational uses. The sampling for the project should be completed by the summer of 2011 followed by a final report.

BAYS AND ESTUARIES

Corpus Christi Bay Listing

The EPA has decided to maintain the bacteria listing of Corpus Christi Bay on the State's 303(d) list but has amended the scope of the listing to geographically define the impairment as restricted to only the Ropes Park and Cole Park Beach portions of Corpus Christi Bay as presently delineated by the Texas Beach Watch Program. Additional beaches within Corpus Christi Bay, including Emerald Beach, McGee Beach, and Poenisch Park, although not yet impaired, have been identified as having bacteria concerns. TCEQ has contracted with TAMU-CC to begin a comprehensive data collection on selected Corpus Christi beaches to assess bacteria conditions and their possible sources. The data collected will be used to develop a TMDL for Ropes and Cole Parks.

CBBEP Water and Sediment Quality Implementation Team

The Water and Sediment Quality Implementation Team is in the process of developing project proposals for 2012 to address Coastal Bend issues and concerns related to water and sediment quality. Project proposals will be selected by EPA and /or TCEQ by September of 2011.

Nueces Bay Zinc TMDL

The implementation strategy for the *Nueces Bay Zinc in Tissue TMDL* outlined the need to document the natural attenuation of zinc in tissues. Attempts were made by the TMDL team to collect sizeable oysters from 2007-2009 but because of extreme fluctuations in salinity due to flooding and drought marketable size oysters were not available. However, monitoring for oysters in Nueces Bay will continue in 2011.

National Coastal Condition Assessment

In October of 2010 the TCEQ and the University of Houston-Clear Lake completed the National Coastal Condition Assessment. The National Coastal Assessment is part of EPA's National Aquatic Resource Surveys that are used to assess water quality conditions across the country. A total of 53 sites were sampled from Sabine Lake to the Lower Laguna Madre, including 7 sites in Corpus Christi Bay and 2 in Nueces Bay. Sample collection included water, sediment, bacteria, benthic community, and fish tissue. The data collected goes to the EPA and is used to write a national level report on the condition of coastal waters.



2011 Basin Highlights Report

San Antonio – Nueces Coastal Basin

Nueces River Basin

Nueces – Rio Grande Coastal Basin

Prepared in Cooperation
with the



Texas Commission on Environmental Quality



Nueces River Authority