

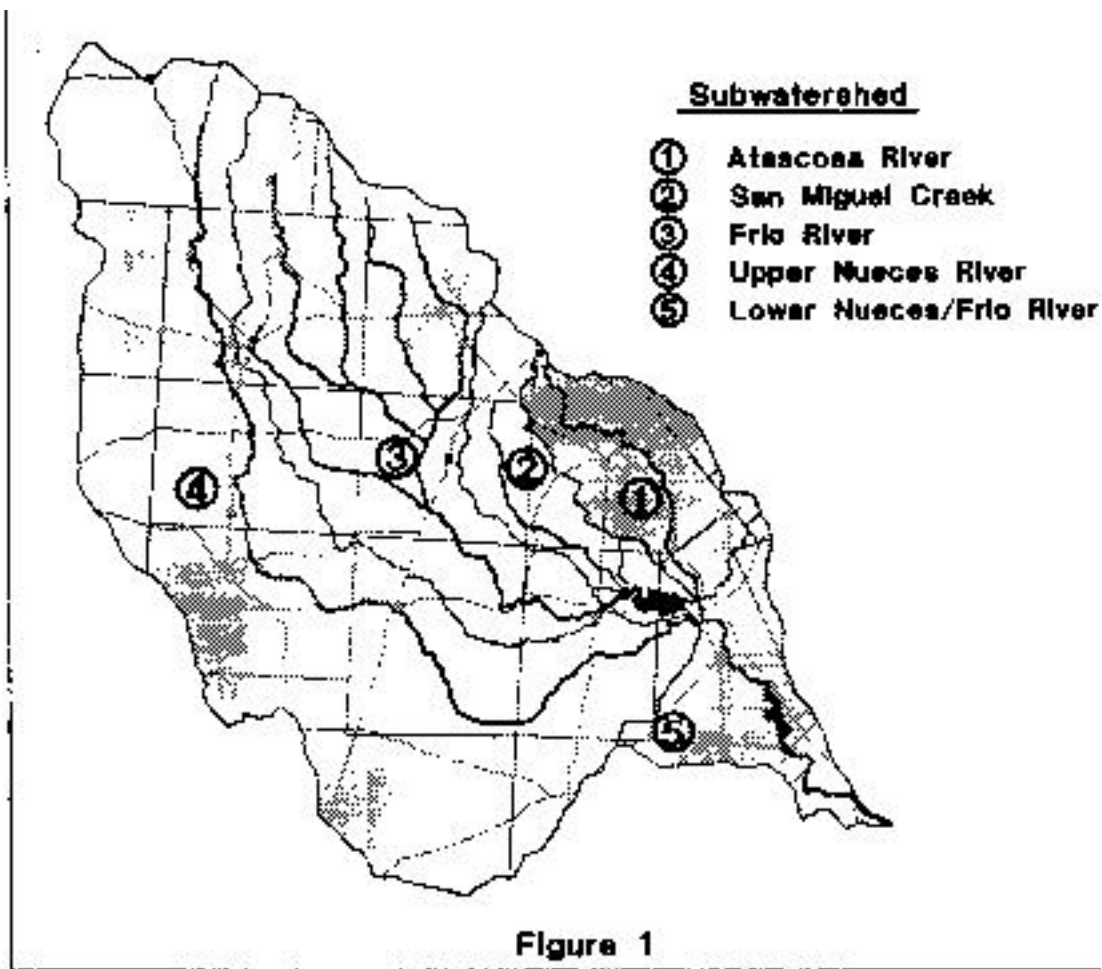
# Basin Highlights Report Nueces River Authority

The Highlights Report is intended to provide an update of activities in the Nueces River Basin. It provides a basin overview, a summary of assessment activities and results, and a preview of upcoming events.



## Basin Overview

The Nueces River Basin is located in



southern Texas. The Nueces River originates in Edwards County, west of the City of San Antonio, and flows approximately 315 miles to the Nueces Bay in the Gulf of Mexico near the City of Corpus Christi.

The Nueces River has several major tributaries, including the Atascosa River, the Frio River and its tributaries, San Miguel Creek, Seco Creek, Hondo Creek, Sabinal River, and the Leona River. The combined drainage area for the Nueces River and its tributaries is approximately 16,950 square miles. The drainage area includes all or parts of 23 counties. Figure 1 presents a map of the basin delineating the major subwatersheds.

The basin has 17 classified stream segments. These segments have been defined based on the geologic and hydrologic differences.

The principal cities located within the Nueces River Basin include a small portion of the City of Corpus Christi and all of the cities of Uvalde, Hondo, Crystal City, Carrizo Springs, Tilden, Three Rivers,

George West, Cotulla, Jourdanton, Pleasanton, and Pearsall.

The total population in the basin is estimated to be slightly less than 200,000 persons. This equates to an average density of one person for every 56 acres.

The basin has three regions with distinct geographic and economic features. The three regions are Hill Country, Brush Country and Coastal Prairie.

## **Summary of Assessment and Monitoring Activities**

The **1996 Regional Assessment of Water Quality** in the Nueces River Basin determined that the water quality is generally very good.

Most of the concerns and possible concerns were associated with nutrients and bacteria.

The assessment also determined that additional and better water quality data are necessary to adequately evaluate the water quality in the Nueces River Basin.

Monitoring activities currently in progress or planned by the Nueces River Authority (NRA), the Texas Natural Resource Conservation Commission (TNRCC), the United States Geological Service (USGS), the Edwards Aquifer Authority (EAA), and volunteer monitoring groups such as the Friends of the Frio will assist in obtaining a better understanding of the water quality in the basin.

## **EAA and NRA Cooperate in Water Quality Monitoring Effort**

The Edwards Aquifer Authority (EAA) and the Nueces River Authority (NRA) have agreed to coordinate their respective monitoring efforts in the Nueces River basin. The EAA was created by the Texas Legislature to replace the Edwards Underground Water District.

The EAA maintains networks of monitor wells, observation wells, precipitation gauges, and stream gauges throughout the Edwards aquifer region including the artesian zone, and associated upstream catchment basins. Figure 2 presents a map showing the recharge area and artesian reservoir area of the Edwards aquifer as they overlap with the Nueces River basin.

The EAA surface water monitoring program includes six stations in the Nueces River basin: Dry Frio River near Reagan Wells, Seco Creek at Miller Ranch, Frio River at Concan, Nueces River at Laguna, Sabinal River near Sabinal, Hondo Creek near Tarpley.

The EAA collects 3 or 4 samples per year at all sites. Samples are analyzed for a wide range of parameters including standard parameters such as pH, hardness, as well as metals, and pesticides.

The NRA monitoring plan has incorporated the EAA monitoring activities in the Nueces River Basin. The incorporation of the EAA activities into the NRA quality assurance project plan is planned for the near future. This cooperation provides the NRA with important water quality data and provides the EAA

with an opportunity to share the data with the public. It is anticipated that this initial cooperation could lead to other cooperative efforts in the future.

## NRA Water Quality Sampling Started in December 1996

The NRA quality assurance project plan (QAPP) was approved by the Texas Natural Resource Conservation Commission (TNRCC) in 1996. All monitoring conducted by Nueces River Authority (NRA) or its subcontractors will adhere to the QAPP. It provides the necessary tool to allow various agencies to collect water quality data using comparable methods. Only data collected under an approved QAPP will be included in the State Water Quality Monitoring Database.

The NRA water quality monitoring program collected the first samples on December 17, 1996.

The initial sampling start date was moved, after it was determined that some of the sampling stations overlapped with active EAA sampling stations. An alternative sampling plan was developed to eliminate the overlap with the EAA.

The NRA has contracted with the San Antonio River Authority (SARA) to collect and analyze samples. The SARA collects samples on a monthly basis at a total of nine stations. This is in addition to samples collected by the TNRCC, USGS, and the EAA. Samples are analyzed for field parameters, such as pH and dissolved oxygen, and conventional pollutants such as biochemical oxygen demand and suspended solids. Samples are also analyzed for nutrients (nitrogen and phosphorus), bacteria, and at two stations for metals.

## The NRA Reaches Out To The World

A **World Wide Web** site for the Nueces River Basin and adjoining coastal basins is now available to the public. The site allows users to browse the Clean Rivers Program (CRP) database for the tri-basin area without having to know any database commands. The database contains primarily water-quality data collected as part of the surface water quality monitoring programs by TNRCC and USGS. It is planned to include EAA and NRA water quality monitoring data.

The web site (Figure 3), ["http://nueces-ra.tamucc.edu/nracrp.html"](http://nueces-ra.tamucc.edu/nracrp.html), has been developed and will be

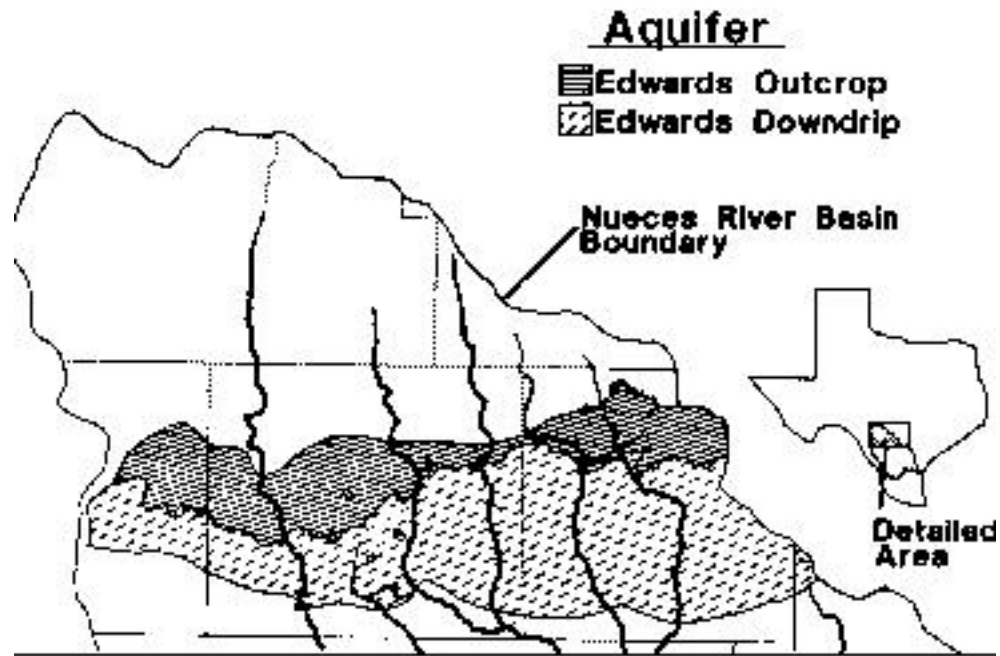
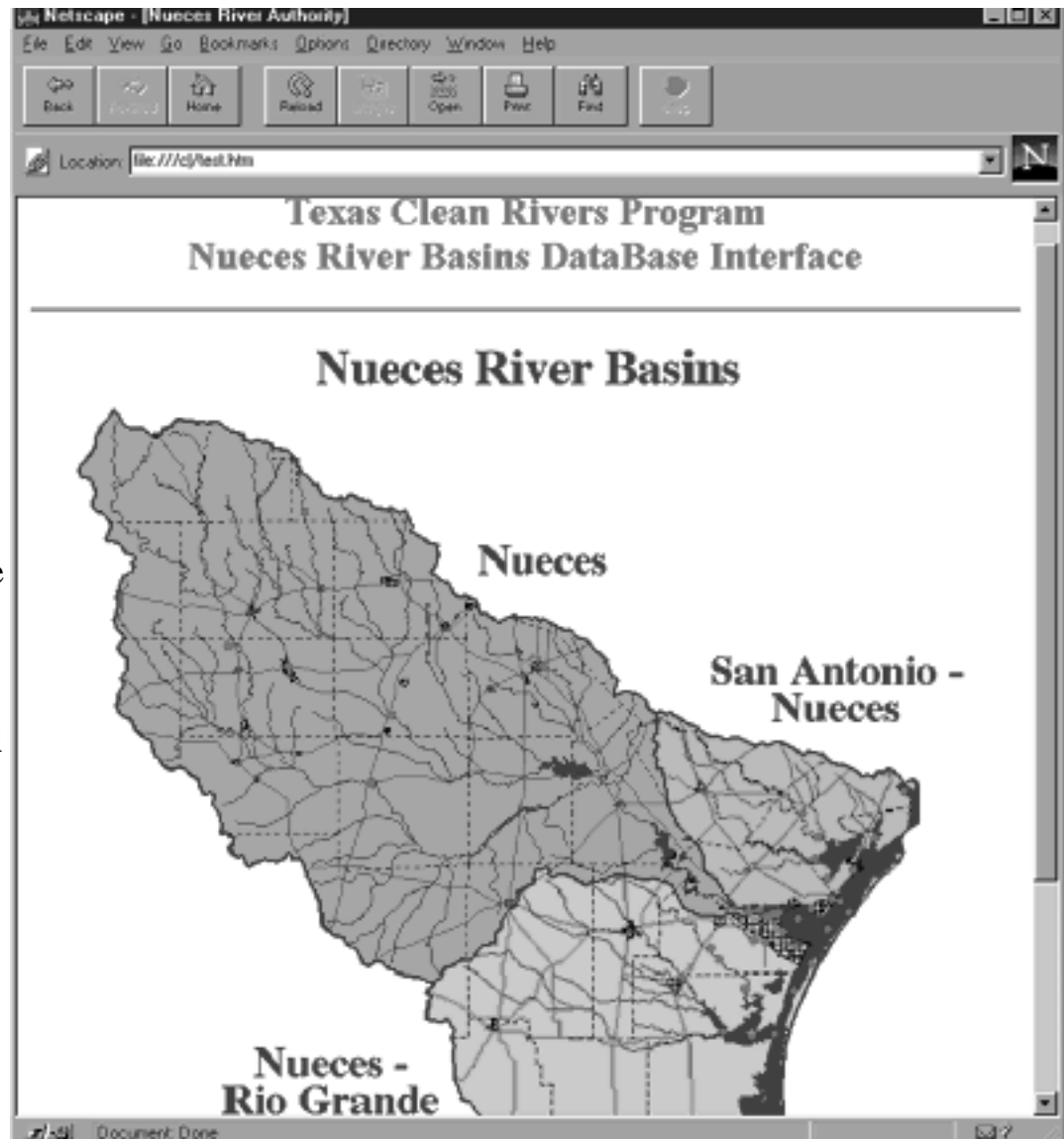


Figure 2

maintained by the Computing and Mathematical Sciences, College of Science and Technology at Texas A&M University-Corpus Christi under contract with the NRA and the TNRCC.

## Ecological Study of the Upper Frio River is Scheduled to Start in May

The NRA received funding in the 1996/1997 budget cycle to conduct an ecological survey of the Upper Frio River. Data collection was initially scheduled for summer and fall of 1996. However, the study was rescheduled because of the concern that the extreme conditions caused by the drought would prevent the study from obtaining representative data. Following is a summary of the Study Design.



The Upper Frio River has been used extensively for recreation for many years. The intensity of usage is expected to increase in the future. The objective of this study is to evaluate the impact of the current use of the Upper Frio River on the water quality and aquatic habitat. The study will evaluate the impacts by accumulating and interpreting information on land uses, historic utilization, biological assessments, toxicity testing, and water quality analyses. The data will aid in identifying whether there are water quality problems that could potentially be related to the current levels of use of the river.

It is anticipated that the study will identify water quality conditions that appear to be existing concerns or that indicate that there may be concerns in the future. If existing or potential future concerns are identified, recommendations will be made regarding future studies to confirm the sources of the pollutants of concern, and/or evaluate the cost and effectiveness of potential management programs to address the problem.

The local volunteer monitoring group **Friends of the Frio** has been actively collecting water quality data on the Upper Frio River for several years. The group is a member of Texas Watch. The members have been assisting in the study, providing local input in identifying sampling sites, and obtaining property

owners permission to enter the sites.

## **Uvalde Nonpoint Source Assessment Study near Completion**

The Uvalde Nonpoint Source Assessment study was conducted by the NRA, with the cooperation of the TNRCC and funding through the CRP. The primary objective of the study was to provide TNRCC with information concerning the nonpoint source discharges from the City of Uvalde to assist the TNRCC in developing appropriate rules to implement provisions contained in the Texas Water Code.

Extensive sediment, biological, and water quality monitoring programs were conducted as part of the Uvalde Nonpoint Source Assessment. Samples were analyzed for a wide range of parameters, including nutrients, bacteria, metals, organic compounds, and pesticides.

The data collected as a part of this study indicate that urban runoff from the City of Uvalde is not significantly impacting the quality of water in the receiving stream, the quality of the sediments in the receiving waters, or the aquatic communities in the receiving waters.

It is anticipated that the study will aid in future development of water pollution control and abatement programs.

## **Nueces River Tidal Expected to be Reclassified to High Aquatic Life Use**

The City of Corpus Christi in cooperation with the TNRCC completed a study to determine the appropriate aquatic life use designation of Segment 2101, the Nueces River Tidal. The current classification for the segment is Exceptional. The study compared the aquatic life use characteristics, physical habitats, and biological communities of the Nueces River Tidal to the characteristics of other tidal segments along the Texas coastline with an aquatic life use classification of High.

The Nueces River Tidal exhibited characteristics that were not distinguishable from those of other tidal river segments that are presently classified as supporting High aquatic life uses.

The City of Corpus Christi forwarded the findings to the TNRCC and the EPA. Both agencies have reviewed the findings and determined that the results indicate that the appropriate classification for the Nueces River Tidal is High.

# For further information or comments you may contact:

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