

INTRODUCTION

Texas is a rapidly growing state that in 1992 surpassed New York to become the second most populated state in the United States. Texas population has doubled in the past 35 years from 9.5 million in 1960 to over 19 million today. The State Water Plan (TWDB, 1997) predicts that Texas population will double again in the next 50 years, increasing to over 36 million residents by the year 2050. Many problems are associated with such rapid population growth, none of which are more important than water resource issues. Water is a dynamic resource that is crucial to the State's economic development. Competition over limited water resources is sure to increase as rapid population growth continues. Water supply is dependent upon several factors including the amount of precipitation, evaporation, stream flow, and absorption into the ground. Climatic variations coupled with rapid population growth and economic development has resulted in increasing water quality and quantity problems for the state of Texas.

Water quality problems arise from natural and manmade pollution that can render water unusable or too costly to use. As populations and economic development continue to increase, so will associated pollution problems and water supply shortages. Shortages in water supplies required to meet municipal, industrial, and agricultural needs have already occurred in many regions of the state as evidenced during the drought of 1995 – 1996, which resulted in an estimated economic impact of \$6 billion (TWDB, 1997). These water supply shortages and accompanying economic losses can partially be attributed to Texas being one of three Western states without a State Drought Contingency Plan at that time.

In response to the need for improved water management, the 75th Texas Legislature passed the water resource management legislation Senate Bill 1. This landmark legislation addresses many different aspects of water management and calls for grass roots water resource planning. Regional water plans from across the state will be merged to form the new State Water Plan by January 2002. Regional water planning areas were designated according to 31 TAC §357.3 (a) taking into consideration the following factors:

- (1) river basin and aquifer delineations
- (2) water utility development patterns
- (3) socioeconomic characteristics
- (4) existing regional water planning areas

- (5) political subdivision boundaries
- (6) public comment; and
- (7) other factors the Texas Water Development Board (TWDB) deemed relevant.

The Region D Regional Water Planning Area consists of 19 counties in Northeast Texas (Figure 1). The counties included in Region D are Lamar, Red River, Bowie, Cass, Marion, Harrison, Morris, Gregg, Wood, Upshur, Smith, Van Zandt, Hunt, Rains, Hopkins, Delta, Franklin, Titus, and Camp.

After the designation of regional water planning areas, the TWDB designated “regional water planning group representatives . . . to serve as the initial coordinating body to include at least one representative from each of the 11 interests listed in Texas Water Code §16.053 (c)” (31 TAC §357.4 (a)). The regional water planning groups (RWPG) consist of representatives from the public, counties, municipalities, industries, agricultural interests, environmental interests, small businesses, electric generating utilities, river authorities, water districts, and water utilities within the regional water planning area.

The goals of the regional water plans are consistent with that of the State Water Plan under Section 1.01 of Senate Bill 1. This section states that:

The state water plan shall provide for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions, in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the entire state.

Senate Bill 1 brings a new aspect to Texas water resource management by calling for the protection of the “natural resources of the entire state.” Environmental water needs of the state’s natural resources must be considered while planning for future water development. The guidelines for the development of regional water plans, 31 TAC §357.5, states that the RWPG should “recommend potentially feasible strategies that are cost effective and environmentally sensitive” and “consider environmental water needs” in their plans. Likewise, 31 TAC § 357.7,

states that “regional water plan development shall include a description of ... natural resources ... and identified threats due to water quality or quantity problems.”

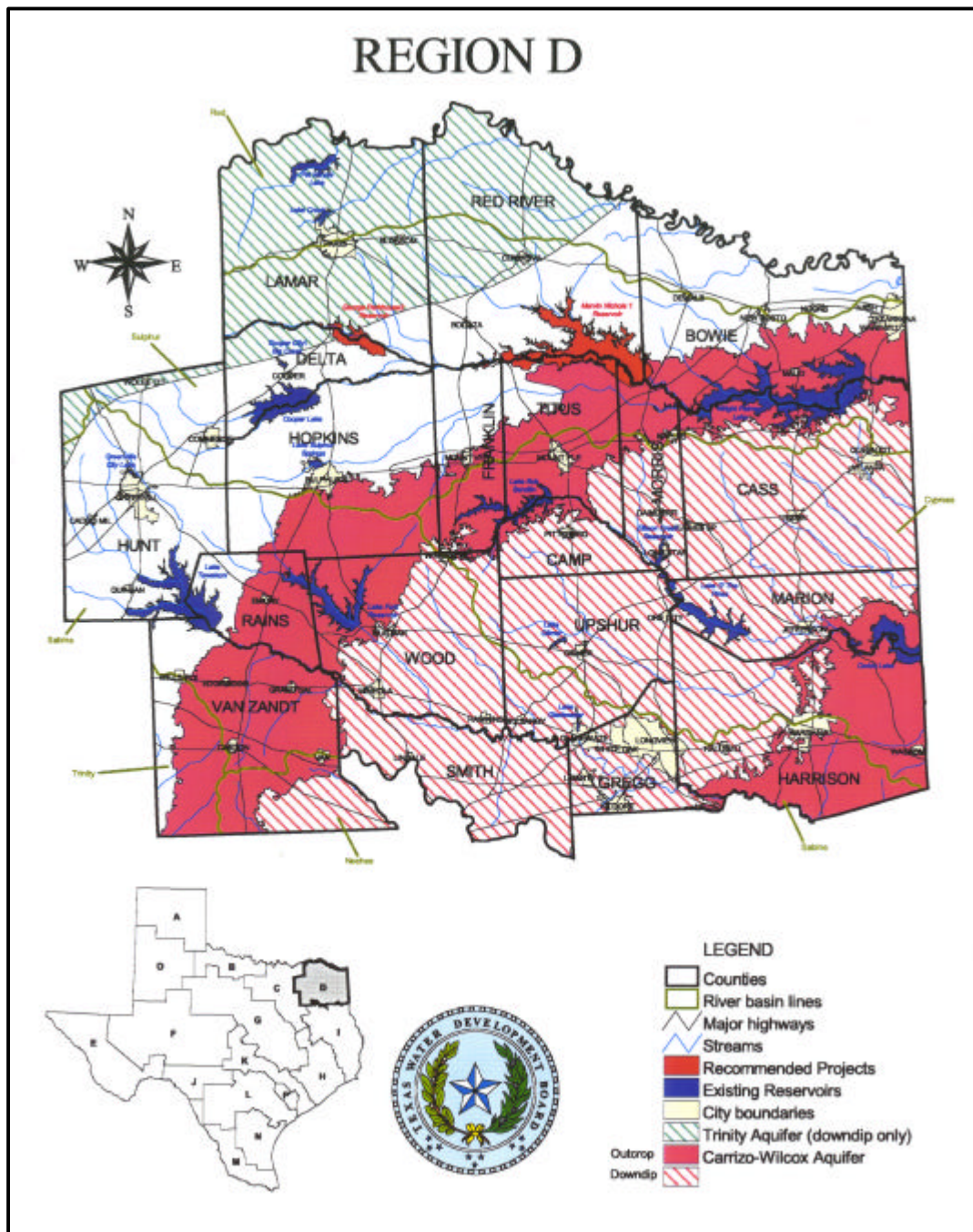


Figure 1. Boundaries of the Region D Water Planning Area

Furthermore, Senate Bill 1 offers the RWPG the opportunity to identify river and stream segments of unique ecological value. The details and criteria for this section are as follows:

31 TAC § 357.8 Ecologically Unique River and Stream Segments

(a) Regional water planning groups may include in adopted regional water plans recommendations for all or parts of river and stream segments of unique ecological value located within the regional water planning area by preparing a recommendation package consisting of a physical description giving the location of the stream segment, maps, and photographs of the stream segment and a site characterization of the stream segment documented by supporting literature and data. The recommendation package shall address each of the criteria for designation of river and stream segments of ecological value found in subsection (b) of this section. The regional water planning group shall forward the recommendation package to the Texas Parks and Wildlife Department and allow the Texas Parks and Wildlife Department 30 days for its written evaluation of the recommendation. The adopted regional water plan shall include, if available, Texas Parks and Wildlife Department's written evaluation of each river and stream segment recommended as a river or stream segment of unique ecological value.

(b) A regional water planning group may recommend a river or stream segment as being of unique ecological value based upon the following criteria:

*(1) **biological function**--stream segments which display significant overall habitat value including both quantity and quality considering the degree of biodiversity, age, and uniqueness observed and including terrestrial, wetland, aquatic, or estuarine habitats;*

*(2) **hydrologic function**--stream segments which are fringed by habitats that perform valuable hydrologic functions relating to water quality, flood attenuation, flow stabilization, or groundwater recharge and discharge;*

*(3) **riparian conservation areas**--stream segments which are fringed by significant areas in public ownership including state and federal refuges, wildlife management areas, preserves, parks, mitigation areas, or other areas held by governmental organizations for conservation purposes, or*

stream segments which are fringed by other areas managed for conservation purposes under a governmentally approved conservation plan;

*(4) **high water quality/exceptional aquatic life/high aesthetic value**--stream segments and spring resources that are significant due to unique or critical habitats and exceptional aquatic life uses dependent on or associated with high water quality; or*

*(5) **threatened or endangered species/unique communities**--sites along streams where water development projects would have significant detrimental effects on state or federally listed threatened and endangered species, and sites along streams significant due to the presence of unique, exemplary, or unusually extensive natural communities.*

OBJECTIVE

The purpose of this report is to identify those river and stream segments that meet the outlined criteria and to prepare a report documenting those streams that are deemed to be of significant ecological value.

METHODS

Aerial photographs, maps, and the Gazetteer of Streams and Rivers of Texas (Draft) were used to identify the boundaries of the Region D Regional Water Planning Area and the major watercourses contained within. State and federal agencies and universities were contacted to solicit river and stream segment information along with supporting data and documentation for inclusion in the final report. Those contacted included the Texas Natural Resource Conservation Commission (TNRCC), Texas Parks and Wildlife Department (TPWD), United States Fish and Wildlife Service (USFWS), Texas A&M University, and the University of Texas.

National Wetland Inventory Maps and USFWS documents and resources were used to identify river or stream segments that are bordered by wetlands displaying “significant overall habitat value” (31 TAC §357.8 (b) (1)). Significant wetland habitat within Region D was determined to include any freshwater wetlands that offer valuable habitat. Forested wetlands were determined

to be the most important of these habitat types. National Wetland Inventory Maps were also used to identify those river or stream segments that “perform valuable hydrologic functions relating to water quality and flood attenuation” (31 TAC §357.8 (b) (2)).

River and stream segments fringed by significant riparian conservation areas were identified with maps and through personal communication with government agencies and conservation groups. River and stream segments deemed significant due to “unique or critical habitats and exceptional aquatic life uses dependent on or associated with high water quality” (31 TAC §357.8 (b) (4)) were located through personal communication with government agencies and universities.

Likewise, unique communities and “sites along streams where water development projects would have significant detrimental effects on state or federally listed threatened and endangered species” (31 TAC §357.8 (b) (5)) were identified through personal communication with TPWD and USFWS staff. Habitats that support threatened and endangered species were identified using TPWD and USFWS documentation and reports.

After identifying all of the river and stream segments, a preliminary list consisting of those segments thought to be most “significant” and “valuable” was compiled. The list consists of those segments that are thought to best fit the criteria and does not include all segments that meet the criteria. Among the segments included are those that the TPWD in cooperation with the TNRCC identified as ecoregion streams. Ecoregions, as delineated by Omernik (1987), are based upon land surface form, land use, soils, and potential natural vegetation. The joint project identified streams within each of the respective ecoregions that were minimally or only slightly disturbed in order to develop a potential list of reference stations that could be used to evaluate the conditions of other streams within the ecoregion. The criteria for becoming an ecoregion stream included the lack of urban development in their watershed, no point sources of pollution, no channelization, and no atypical non-point sources of pollution. These ecoregion streams serve as examples of what the physical habitat, physiochemical character, and biological attributes for other streams within their respective ecoregions could likely attain under the right set of circumstances.

The list of river and stream segments has been compiled to provide the Region D RWPG with the technical information necessary to prepare a recommendation package of ecologically significant river and stream segments under 31 TAC 357.8(a), which may be included in the regional water plan. The state water plan, which will be based on the regional water plans, will identify river and stream segments of unique ecological value that the Texas Water Development Board recommends for protection. The TWDB has agreed to coordinate with the TPWD and the TNRCC in identifying any river, stream segment or site that warrants protection because of its unique ecological value in the state water plan. Streams designated “ecologically unique” by the legislature would be protected from a state agency or political subdivision obtaining a fee title or an easement that would destroy the ecological value of a river or stream segment. Obtaining a fee title means the property has been purchased outright, while an easement means that certain uses of the property have been limited.

RESULTS

Three hundred and sixty-one streams were identified within the boundaries of the Region D Regional Water Planning Area. Ten streams were found to meet the biological function criteria. These streams “displayed significant overall habitat value...considering the degree of biodiversity, age, and uniqueness.” Eight streams were found to support listing for performing a “valuable hydrologic function relating to water quality, flood attenuation, flow stabilization or groundwater recharge/discharge.” Six streams met the riparian conservation area criteria, while six streams also met the high water quality/exceptional aquatic life/high aesthetic value criteria. The threatened or endangered species/unique communities criteria was found to be met by eleven streams. Of the 361 streams identified within Region D, only 15 have been chosen for inclusion in this report (Table 1).

Table 1. Ecologically significant river and stream segments.

River or Stream Segment	Biological Function	Hydrologic Function	Riparian Conservation Area	High Water Quality/ Aesthetic Value	Endangered Species/ Unique Communities
Big Cypress Creek/Bayou	x	x	x	x	x
Big Cypress Creek					x
Black Cypress Creek	x	x		x	
Black Cypress Bayou	x	x			x
Frazier Creek				x	
Glade Creek	x				x
Little Cypress Creek/Bayou	x	x		x	x
Little Sandy Creek	x	x	x		x
Pine Creek					x
Purtis Creek			x		
Quail Creek	x		x		
Sabine River (Rusk/Harrison)	x	x		x	x
Sabine River (Wood/Smith)	x	x	x	x	x
Sanders Creek			x		x
Sulphur River	x	x			x