8. Unique Stream Segments, Unique Reservoir Sites, and Legislative Recommendations

Regional Water Planning Guidelines, Title 31, Part 10, Chapter 357 of the Texas Administrative Code, call for regional water planning groups to make recommendations regarding ecologically unique river and stream segments; unique sites for reservoir construction; and regulatory, administrative, or legislative actions that will facilitate the orderly development, management, and conservation of water resources. The Region C Water Planning Group established a subgroup that reviewed each of these topics and made recommendations to the entire planning group.

Recommendations of the Region C Water Planning Group and the reasons for them are presented in this section in the following order:

- Summary of recommendations
- Recommendations for ecologically unique river and stream segments
- Recommendations for unique sites for reservoir construction
- Policy and legislative recommendations.

8.1 Summary of Recommendations

Recommendations for Ecologically Unique River and Stream Segments

- Convene a working group comprised of representatives of TWDB, TPWD, TCEQ, and the sixteen regions to bring clarity, purpose, and direction to the legislative mandate to "identify river and stream segments of unique ecological value [(1)]."

Recommendations for Unique Sites for Reservoir Construction

- Recommend that the Texas Legislature continue to designate the following sites as unique sites for reservoir construction~~Retain recommendations from the *2006 Region C Water Plan* for these reservoir sites~~:
  - Ralph Hall
  - Lower Bois d'Arc Creek
  - Marvin Nichols
  - Tehuacana
  - Fastrill (contingent on a similar recommendation by the East Texas Regional Water Planning Group)

- Columbia
- ~~(Muenster Lake, also recommended in the 2006 plan, has been completed and is in operation.)~~

- Recommend that the Texas Legislature designate George Parkhouse (North) as an additional unique site for reservoir construction.
- Encourage continued affirmative votes by sponsors of these ~~five~~ proposed reservoirs to make expenditures necessary to construct or apply for required permits and avoid termination of unique reservoir site designations on September 1, 2015. Section 8.3 describes actions that sponsors have taken to preserve the unique reservoir site designations for these reservoirs.

Policy and Legislative Recommendations

- Senate Bill One Planning Process
  - Encourage formation of a Working Group on Stream Segments of Unique Ecological Value
  - Support ~~Water Conservation Task Force Recommendations~~ ~~recent~~legislative and stage agency findings regarding ~~target for~~ water ~~conservation~~use evaluation
  - Allow waivers of plan amendments for entities with small strategies.
  - Coordination between TWDB and TCEQ to determine the appropriate data and tools for use in regional water planning.
- TCEQ Policy and Water Rights
  - Legislature should remove some of the unnecessary barriers to interbasin transfers.
  - Support recent changes to w~~W~~ater code ~~should be changed to~~that exempt certain water right permits from cancellation for non-use.
- State Funding and Water Supply Programs
  - Continue and expand State f~~F~~unding for TWDB SWIFT, WIF, and other loan~~s~~ programs and State Participation Program.
  - More State f~~F~~unding for water conservation efforts.
  - State f~~F~~unding for reservoir site acquisition.
  - Consider alternative financing arrangements for large projects.
  - Adequate funding of Groundwater Conservation Districts
  - Funding for NRCS s~~S~~tructures as a form of watershed protection
- Water Reuse and Desalination
  - Support research to advance reuse and desalination
  - Funding assistance for desalination and water reuse projects.
- State and Federal Program – Water Supply Issues

- Continued and increased State support for efforts to develop water supplies from Oklahoma.
- Oversight of Groundwater Conservation District rule making.
- Revise Federal Section ~~361~~316(b) regulations on power plant cooling water.
- Reallocation of storage in and maintenance of Federal reservoirs.
- Funding of long-range Federal water supply projects.

8.2 Recommendations for Ecologically Unique River and Stream Segments

Texas Parks and Wildlife Department (TPWD) recommendations for 10 ecologically unique river and stream segments in Region C were published in *Ecologically Significant River and Stream Segments of Region C, April 2002*. These 10 river and stream segments, along with the attributes that TPWD deemed qualifying for unique status, are listed in Table 8.1. The segments are also depicted in red in Figure 8.1. However, in ~~the 2001 *Region C Water Plan*, and again in the *2006*~~previous Region C Water Plans, the Region C Water Planning Group decided not to recommend any river or stream segments as ecologically unique because of unresolved concerns regarding the implications of such a designation by the Texas Legislature. According to Texas Water Code 16.051(f), "This designation solely means that a state agency or political subdivision of the state may not finance the actual construction of a reservoir in a specific river or stream segment designated by the legislature…." ~~Through passage of Senate Bill 675, the Texas Legislature has clarified that the only intended effect of the designation of a unique stream segment is to prevent the development of a reservoir on the designated segment by a political subdivision of the state.~~ However, the Texas Water Development Board regulations governing regional water planning require analysis of the impacts of water management strategies on unique stream segments, which implies a level of protection beyond the mere prevention of reservoir development.

In preparing for the *2011 Region C Water Plan*, the Region C Water Planning Group reviewed the 2006 recommendations of the other regional planning groups and directed its consultants to take the following actions with regard to ecologically unique river and stream segments:

- Develop scenarios of concern

- Meet with state agencies
- Review previously identified segments
- Consider additional segments
- Present possible candidate segments to the Region C Water Planning Group
- Receive comments
- Recommend action

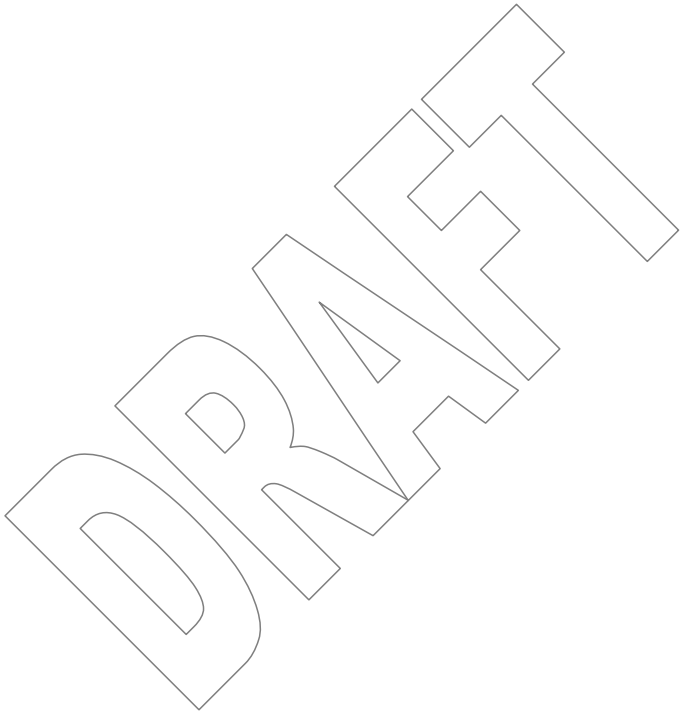

Table 8.1
Texas Parks and Wildlife Department Recommendations for Designation as Ecologically Unique River and Stream Segments

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~~from Ecologically Significant River and Stream Segments of Region C, April 2002~~ (2)

Region C River or Stream Segment	Description	Basin	County	TPWD Reasons for Designation [a]				
				Biological Function	Hydrologic Function	Riparian Conservation Area	High Water Quality/ Exceptional Aquatic Life/ Aesthetic Value	Endangered Species/ Unique Communities
Bois d'Arc Creek	Entire length	Red	Fannin/ Grayson	X	X	X		
Brazos River	F.M. 2580 to Parker/ Palo Pinto County line to F.M. 2580	Brazos	Parker	X			X	X
Buffalo Creek	Alligator Creek to S.H. 164	Trinity	Freestone	X	X			
Clear Creek	Elm Fork Trinity River to Denton/Cooke County line to Elm Fork Trinity R.	Trinity	Denton				X	
Coffee Mill Creek	Entire length	Red	Fannin			X		
Elm Fork of Trinity River	Headwaters of Lewisville Lake to Lake Ray Roberts Dam	Trinity	Denton			X		
Linn Creek	Buffalo Creek to C.R. 691	Trinity	Freestone	X	X			
Lost Creek	Entire length	Trinity	Jack			X	X	
Purtis Creek	S. Twin Creek to Henderson/ Van Zandt County line	Trinity	Henderson			X		
Trinity River	Freestone/Anderson/ Leon County line to Henderson/ Anderson County line	Trinity	Freestone/ Anderson	XX		X		XX

Note: a. The criteria listed are from Texas Administration Code, Title 31, Section 357.8358.2. The Texas Parks and Wildlife Department feels that their recommended stream reaches meet those criteria marked with an X.

Figure 8.1
Texas Parks and Wildlife Department Recommendations for Designation as Ecologically Unique River and Stream Segments ~~from Ecologically Significant River and Stream Segments of Region C, April 2002~~ (~~23~~)

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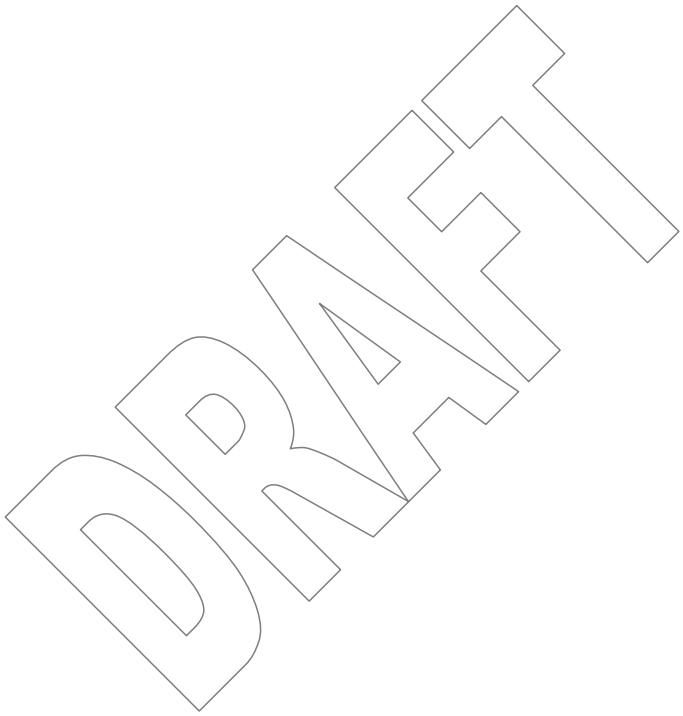

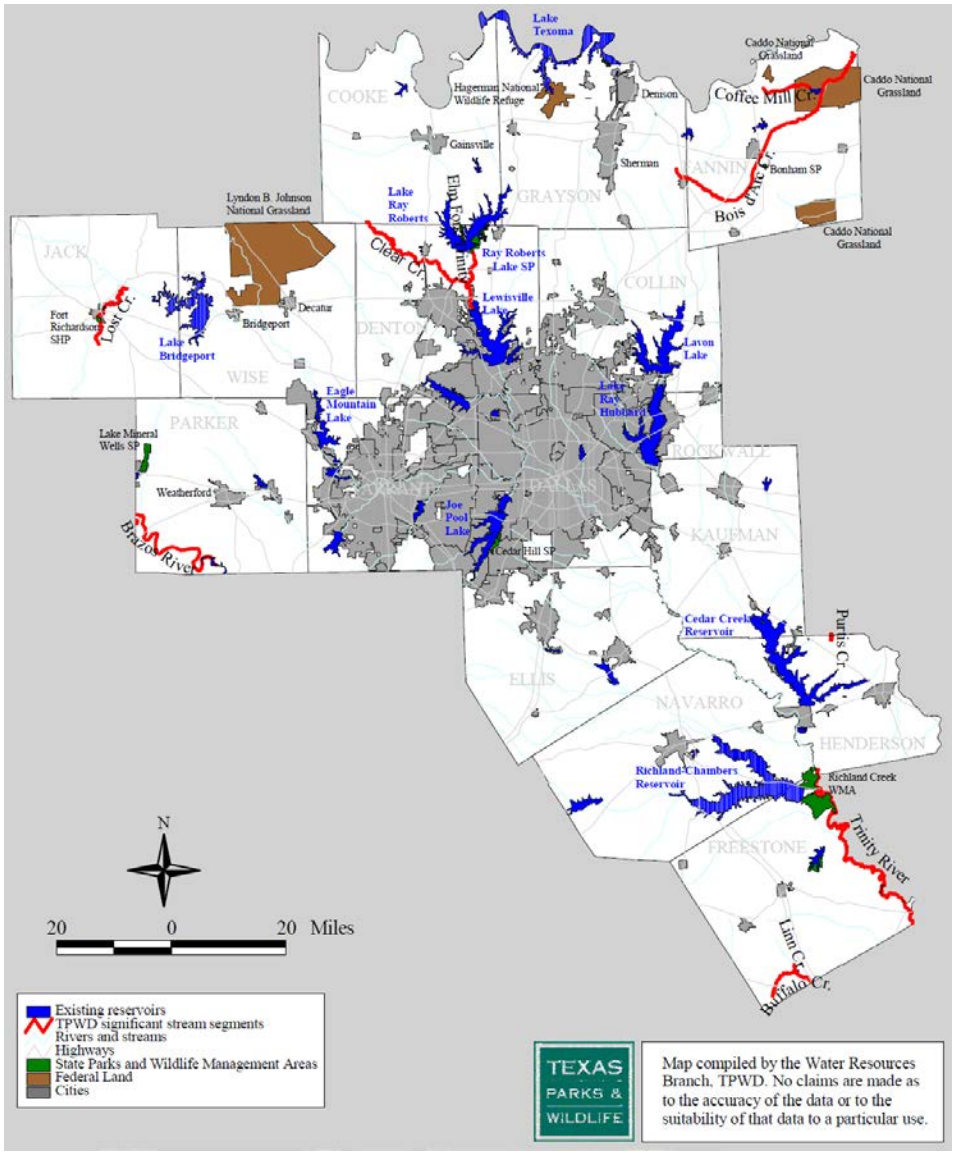

The potential scenarios of concern involve the following features which could be located within, upstream, or downstream of a designated segment:

- Dams
- Pipeline crossings
- Water intakes
- New water outfalls
- Treated effluent outfalls
- Constructed wetlands
- Bed and banks transport of reservoir releases

These potential scenarios of concern were addressed by Region C consultants in a meeting with staffs of the Texas Water Development Board, Texas Parks and Wildlife Department, and Texas Commission on Environmental Quality (TCEQ) in August 2009. Ecologically unique river and stream segment legislation (Title 2, Chapter 16 of the Texas Water Code) and agency rules (Title 31, Part 10, Chapter 357 of the Texas Administrative Code) were also reviewed at the meeting. Conclusions from this meeting were as follows:

- TPWD plans no updates to its *Ecologically Significant River and Stream Segments of Region C, April 2002*. This report was summarized in Appendix W of the *2006 Region C Water Plan*.
- TPWD and TWDB staffs believe that ecologically unique river and stream segment legislation only impacts public financing of reservoirs.
- TCEQ staff position is to use all available information to regulate attributes of river and stream segments without regard to ecologically unique designation.
- Ecologically unique river and stream segment designation may influence public opinion.
- Ecologically unique river and stream segment legislation has not been tested in the courts.
- A statewide TWDB/TPWD/TCEQ/RWPG working group could help address concerns.

The Region C Water Planning Group recommends the formation of a working group comprised of representatives of TWDB, TPWD, TCEQ, and the sixteen water planning regions to bring clarity, purpose, and direction to the legislative mandate to "identify river and stream segments of unique ecological value." Specifically, it is expected that the working group would:

- Research, verify, and publicize the intent of ecologically unique river and stream segment legislation.
- Research agency rules and recommend changes or clarifications where needed.

- Ensure common understanding of "reservoir" as used in ecologically unique river and stream segment legislation and agency rules.
- Identify the lateral extent of ecologically unique river and stream segment designation.
- Seek clarification of quantitative assessment of impacts on ecologically unique river and stream segments.
- Illustrate the value of ecologically unique river and stream segment designations.

8.3 Recommendations for Unique Sites for Reservoir Construction

In 2007, the 80th Texas Legislature passed Senate Bill 3, which designated unique sites for reservoir construction as recommended in the *2007 State Water Plan*, including the following sites previously recommended by the Region C Water Planning Group:

- Muenster site on Brushy Elm Creek in Cooke County
- Ralph Hall site on the North Sulphur River in Fannin County
- Lower Bois d'Arc Creek (formerly called New Bonham) site on Bois d'Arc Creek in Fannin County
- Marvin Nichols site on the Sulphur River in Red River, Titus, and Franklin counties
- Fastrill site on the Neches River in Anderson and Cherokee counties
- Tehuacana site on Tehuacana Creek in Freestone County.

SB3 also designated the Columbia site on Mud Creek in Cherokee County as a unique site for reservoir construction. This site was previously recommended by the East Texas Regional Water Planning Group.

These designations terminate on September 1, 2015, unless there is "an affirmative vote by a proposed project sponsor to make expenditures necessary in order to construct or file applications for permits required in connection with the construction of the reservoir under federal or state law."

Finally, a new reservoir located at the George Parkhouse (North) site is a recommended water management strategy in the *2016 Region C Water Plan* for the Upper Trinity Regional Water District (UTRWD).

With the exception of Muenster Lake, which has been constructed and is currently in operation, brief descriptions of each site follow, along with a summary of actions that the project sponsor has taken to bring the project to fruition.

~~In the *2006 Region C Water Plan*, the Region C Water Planning Group recommended designation of the following six unique sites for reservoir development:~~

~~These six sites were subsequently recommended in the *2007 State Water Plan* and designated by the Legislature in Senate Bill 3 as unique reservoir sites necessary to meet water supply needs.~~

~~**Muenster Lake** was constructed on Brushy Elm Creek in Cooke County by the Muenster Water District and the USDA Natural Resources Conservation Service in 2005 and 2006, was filled in June 2007, and is now in operation. The reservoir impounds 4,700 acre-feet and is permitted for diversion of 500 acre-feet per year for municipal use. It floods 418 acres at the top of conservation storage. Water is supplied to the City of Muenster and other customers of the Muenster Water District in Cooke County.~~

Lake Ralph Hall would be located on the North Sulphur River in southeast Fannin County, north of Ladonia. The site is located in the Sulphur River Basin in Region C. The reservoir would yield 34,050 acre-feet per year and would flood ~~7,236~~7,605 acres. Lake Ralph Hall is a recommended water management strategy for the ~~Upper Trinity Regional Water District~~UTRWD. The proposed lake would provide water to southeast Fannin County residents, as well as to customers of the Upper Trinity Regional Water District in the Denton County area.

To develop Lake Ralph Hall, UTRWD has:

- Secured a water right. Permit 5821, issued in December 2013, allows UTRWD to impound up to 180,000 ac-ft in Lake Ralph Hall and to divert up to 45,000 ac-ft/yr for municipal, industrial, irrigation, and recreation purposes. As part of the water right permitting process, UTRWD completed special engineering and cultural resources studies, including:
  - Hydrologic and hydraulic studies,
  - Biological and in-stream flow assessment,
  - Geologic characteristics study,
  - Economic impact study, and
  - Water conservation implementation plan.

- Applied for a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (USACE). As part of the 404 permitting process, UTRWD has completed special engineering and cultural resources studies, including:
  - Hydrologic and hydraulic studies,
  - Preliminary jurisdictional determination of waters of the U.S.,
  - Preliminary habitat assessment,
  - Archaeology & quaternary geology,
  - Biological and in-stream flow assessment,
  - Geologic characteristics,
  - Economic impact study,
  - Geomorphic and sedimentation evaluation, and
  - Draft mitigation plan for impacts to aquatic resources and terrestrial habitats.

Currently, UTRWD is working to complete a draft Environmental Impact Statement (EIS) for the proposed Lake Ralph Hall.

Lower Bois d'Arc Creek Reservoir would be located on Bois d'Arc Creek in Fannin County, immediately upstream from the Caddo National Grassland. The site is located in the Red River Basin in Region C. The proposed reservoir would yield 123,000 acre-feet per year and would flood 16,400 acres. The North Texas Municipal Water District (NTMWD) would be the primary developer of Lower Bois d'Arc Creek Reservoir. The proposed reservoir is a recommended water management strategy to ~~would~~ provide water to potential customers in Fannin County in addition to existing customers of the ~~North Texas Municipal Water District~~NTMWD.

To develop Lower Bois D'Arc Creek Reservoir, NTMWD has:

- Applied for a water right from the TCEQ. The next step in the permitting process is a contested case hearing in April 2015. As part of the water right permitting process, NTMWD has:
  - Contracted with conservation experts and enhanced its water conservation plan.

Commented [bkm1]: Update this section after April.

- Reached settlement agreements with the National Wildlife Federation, the Sierra Club, Texas Parks and Wildlife Department, Bois D'Arc Municipal Utility District, and landowners.

- Applied for a Clean Water Act Section 404 permit from USACE. As part of the 404 permitting process, NTMWD has:
  - Completed final pipeline alignment, intake pump station location, and terminal storage analysis study.
  - Completed archaeological study of reservoir site, pipeline route, and Leonard water treatment plant site and completed Phase 1 archaeological study of mitigation site.
  - Submitted final proposed mitigation plan to USACE.
  - Completed 30 percent dam design and met with TCEQ to discuss the design.
  - Reviewed draft ~~Environmental Impact Statement (~~EIS~~)~~ and provided information as requested by USACE to assist in preparation of final EIS.
- Purchased about 83 percent of the 22,590-acre area to be impacted by the reservoir ~~site~~.

Marvin Nichols Reservoir would be located on the Sulphur River upstream from its confluence with White Oak Creek. The dam would be in Titus and Red River counties and would also impound water in Franklin County. The site is located in the Sulphur River Basin in Region D. The proposed reservoir would yield 612,300 acre-feet per year (assuming Lake Ralph Hall is senior and Marvin Nichols Reservoir, site 1A, is operated as a system with Wright Patman Lake) and would flood 67,400 acres. The reservoir is a recommended water management strategy for ~~the North Texas Municipal Water District~~NTMWD~~,~~ and the Tarrant Regional Water District (TRWD)~~, and Upper Trinity Regional Water District~~. It is also considered an alternative strategy for Dallas Water Utilities, UTRWD, and the City of Irving. Approximately 80 percent of water supplied from Marvin Nichols Reservoir is expected to serve customers of wholesale water providers in Region C and approximately 20 percent would serve water needs in Region D.

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The Region C entities that are interested in development of Marvin Nichols Reservoir (NTMWD, TRWD, Dallas Water Utilities, UTRWD, and Irving) have formed a Joint

Committee on Program Development (JCPD). Since 2001, the JCPD has provided more than $5 million to the Sulphur River Basin Authority (SRBA) to further investigate the development of Marvin Nichols Reservoir and other reservoirs in the Sulphur River Basin. These investigations have included:

- Land use/land cover classification
- Identification of reservoir sites and conservation pool elevations
- Reconnaisance geology review of potential dam sites
- Mapping
- A site selection study for Marvin Nichols Reservoir
- System operation assessment of Wright Patman Lake and Lake Jim Chapman
- Analysis of Sulphur River instream flows (hydrology, hydraulics, and fish habitat utilization)
- Aerial LIDAR survey
- Hydrologic and hydraulic modeling
- Modification of the TCEQ's Sulphur River Water Availability Model,
- Development of a Sulphur River Basin Soil and Water Assessment Tool (SWAT) model,
- Wright Patman Lake additional yield modeling,
- Socioeconomic Assessment,
- Comparative Environmental Assessment, and
- Studies of:
  - Operation issues,
  - Institutional issues, and
  - Water demand/availability

Some of the investigations listed above are part of the recent Sulphur River Basin Feasibility Study, conducted by the JCPD in partnership with USACE and the SRBA [4]. The combination of reallocation of water in Wright Patman Lake and development of Marvin Nichols Reservoir was the strategy recommended by the Feasibility Study.

Tehuacana Reservoir would be located on Tehuacana Creek in Freestone County, south of the Richland-Chambers Reservoir. The site is located in the Trinity River Basin in

Region C. The proposed reservoir would yield ~~56,800~~41,600 acre-feet per year and would flood 14,900 acres. Tarrant Regional Water District would be the developer of Tehuacana Reservoir. Tehuacana Reservoir is a recommended water management strategy in the *2016 Region C Water Plan* to~~Water from the proposed reservoir would~~ serve needs in Freestone County in addition to customers of ~~Tarrant Regional Water District~~TRWD. Tehuacana Reservoir is also a recommended strategy in TRWD's Integrated Water Supply Plan [5]. In addition, TRWD has completed an evaluation of four alternate dam locations and impact scenarios, reservoir site geology, natural resources, and land and mineral ownership [6].

Lake Columbia would be located on Mud Creek in Cherokee County, southeast of Jacksonville. The site is located in the Neches River Basin in Region I. The proposed reservoir would yield 85,507 acre-feet per year and would flood 10,133 acres. The Angelina & Neches River Authority (ANRA) would be the developer of Lake Columbia, and purchasing water from Lake Columbia is a recommended water management strategy for Dallas Water Utilities. To develop Lake Columbia, ANRA has:

- Secured a water right. Permit 4228, issued in June 1985, allows ANRA to impound up to 195,500 ac-ft in Lake Columbia and to divert up to 85,507 ac-ft/yr for municipal, industrial, and recreation purposes.
- Applied for a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (USACE). As part of the 404 permitting process, ANRA has:
  - Completed a downstream impact analysis.
  - Completed an archaeological field survey.
  - Completed a proposed mitigation plan.
  - Worked toward completion of a draft EIS.

[Placeholder for input on Columbia from Denis Qualls-Dallas]

Lake Fastrill would be located on the Neches River in Anderson and Cherokee counties downstream of Lake Palestine and upstream of the Weches dam site. The site is located in the Neches River Basin in Region I. The proposed reservoir would yield 148,780 acre-feet per year and flood 24,950 acres. In 2006, t~~T~~he U.S. Fish and Wildlife Service ~~has recommended development of~~established the Neches River Wildlife Refuge along the

Commented [bkm3]: This figure obtained from ANRA web site. Section 4D.24 of the 2011 Region C Water Plan says "about 11,500 acres." Reconcile this.

Upper Neches River near the same area as the proposed Lake Fastrill. Lake Fastrill was formerly a recommended water management strategy for Dallas Water Utilities. On February 22, 2010, the U.S. Supreme Court declined to hear an appeal of a decision by the 5th Circuit Court of Appeals that ruled against construction of Fastrill Lake and in favor of the wildlife refuge. Since that decision, Dallas Water Utilities has replaced Lake Fastrill with other projects in its long-range water supply planning. However, entities in the East Texas Regional Water Planning Area have continued to express interest in developing a reservoir at the site~~Recent court rulings have caused Lake Fastrill to no longer be considered a feasible strategy~~.

George Parkhouse Reservoir (North) would be located on the North Sulphur River in Lamar and Delta Counties, upstream of Marvin Nichols Reservoir and downstream of Lake Ralph Hall. The site is located in the Sulphur River Basin in Region D. The proposed reservoir would yield 148,700 acre-feet per year (with 118,960 acre-feet per year available for Region C), but the yield would be reduced substantially by development of Lake Ralph Hall and/or Marvin Nichols Reservoir. The proposed reservoir would flood 12,250 acres. UTRWD would be the developer of George Parkhouse Reservoir (North). The proposed reservoir is a recommended water management strategy to serve UTRWD customers.

In partnership with the USACE and the Sulphur River Basin Authority (SRBA), the JCPD (including UTRWD) has studied the proposed George Parkhouse Reservoir (North) as part of the Sulphur River Basin Feasibility Study. The reservoir yield and environmental impacts of the reservoir are documented in the Feasibility Study. These entities are continuing to study water supply options in the Sulphur River Basin, including George Parkhouse Reservoir (North).

~~**Tehuacana Reservoir** would be located on Tehuacana Creek in Freestone County, south of the Richland-Chambers Reservoir. The proposed reservoir would yield 56,800 acre-feet per year and would flood 14,900 acres. Tarrant Regional Water District would be the developer of Tehuacana Reservoir. Water from the proposed reservoir would serve needs in Freestone County in addition to customers of Tarrant Regional Water District.~~

Recommendations. The Region C Water Planning Group recommends that: ~~Region C~~

- ~~Region C recommends that t~~The Texas Legislature continue to designate the following sites as unique sites for reservoir construction: Ralph Hall, Lower Bois d'Arc Creek,

Marvin Nichols, Tehuacana, Columbia, and Fastrill (Fastrill is contingent on a similar recommendation by the East Texas Regional Water Planning Group).

- ~~Region C recommends that t~~The Texas Legislature designate the George Parkhouse (North) site as a unique site for reservoir construction.
- ~~Region C encourages continued affirmative votes by s~~Sponsors of these proposed ~~Lake Ralph Hall, Lower Bois d'Arc Creek Reservoir, Marvin Nichols Reservoir, Lake Fastrill, and Tehuacana Reservoir~~reservoirs continue to affirmatively vote to make expenditures necessary to construct or apply for required permits for these reservoirs and avoid termination of unique reservoir site designation on September 1, 2015 (Section 16.051, Texas Water Code).

8.4 Policy and Legislative Recommendations

The Region C Water Planning Group discussed legislative and policy issues that impact the planning and development of water resources. The group offers the following policy and legislative recommendations, which are divided by topic.

Senate Bill One Planning Process

Encourage Formation of a Working Group on Stream Segments of Unique Ecological Value. The Region C Water Planning Group recommends the formation of a working group comprised of representatives of TWDB, TPWD, TCEQ, and the sixteen water planning regions to bring clarity, purpose, and direction to the legislative mandate to "identify river and stream segments of unique ecological value." Specifically, it is expected that the working group would:

- Research, verify, and publicize the intent of ecologically unique river and stream segment legislation.
- Research agency rules and recommend changes or clarifications where needed.
- Ensure common understanding of "reservoir" as used in ecologically unique river and stream segment legislation and agency rules.
- Identify the lateral extent of ecologically unique river and stream segment designations.
- Seek clarification of quantitative assessment of impacts on ecologically unique river and stream segments.
- Illustrate the value of ecologically unique river and stream segment designations.

Support Legislative and ~~Water Conservation Task Force Recommendation~~~~Recent~~State Agency Findings Regarding ~~Target for Water Conservation~~Water Use Evaluation. ~~The Water Conservation Task Force [7] recommended targets for water conservation be considered as water suppliers as they set voluntary per capita water goals. The Task Force indicated that these voluntary targets should not be mandatory.~~ Per capita water use is unique to each water supplier and each region of the State. A statewide per capita water use value is not appropriate for the State, considering its wide variation in rainfall, economic development, and other factors.

Since the *2011 Region C Water Plan*, the Texas Legislature found that:

- "…using a single gallons per capita per day metric to compare the water use of municipalities and water utilities does not produce a reliable comparison because water use is dependent on several variables, including differences in the amount of water used for commercial and industrial sector activities, power production, permanent versus temporary service populations, and agricultural sector production…" and
- "a sector-based water use metric, adjusted for variables in water use by municipalities and water utilities, is necessary in order to provide an accurate comparison of water use and water conservation among municipalities and water utilities [7]."

Similarly, in its *Guidance and Methodology for Reporting on Water Conservation and Water Use*, the TCEQ/TWDB/WCAC recognized that "a simple comparison of total gallons per capita per day among Texas municipal water providers may lead to inaccurate conclusions about comparative water use efficiencies among those municipal water providers. When examining the profiles of municipal water providers individually, significant differences may be found in climate, geography, source water characteristics, and service population profiles. As a metric, total gallons per capita per day has its limitations [8]." The Guidance further recommends use of sector-specific metrics in tracking and comparing water conservation and water.

The Region C Water Planning Group supports the ~~decision of the Water Conservation Task Force that the targets included in their report should be voluntary targets rather than~~

~~mandatory goals~~se findings and encourages continued development and refinement of sector-specific metrics for tracking water use.

Allow Waivers of Plan Amendments for Entities with Small Strategies. Region C recommends that the Texas Water Development Board allow waivers for consistency issues for plan amendments that involve projects resulting in small amounts of additional supply.

Coordination between TWDB and TCEQ Regarding Use of the WAMs for Planning. The TWDB requires that the Water Availability Models (WAMs) developed under the direction of TCEQ be used in determining available surface water supplies. The models were developed for the purpose of evaluating new water rights permit applications and are not appropriate for water supply planning. The assumptions built into the WAM (full use of all existing water rights, full operation of priority calls at all times, full permitted area and capacity) do not ~~always~~ match the actual operations of supplies. The TWDB and TCEQ should coordinate their efforts to determine the appropriate data and tools available through the WAM program for use in regional water planning. The TWDB should allow the regional water planning groups ~~some~~ flexibility in applying the models made available for planning purposes.

TCEQ Policy and Water Rights

Requirements for Interbasin Transfers Introduced in Senate Bill One. In 1997, Senate Bill One introduced a number of new requirements for applications for water rights permits to allow interbasin transfers. The requirements are found in Section 11.085 of the Texas Water Code [9]. The code includes many provisions that are not required of any other water rights, including:

- ~~Analysis of the impact of the transfers on user rates by class of ratepayer.~~
- Public meetings in the basin of origin and the receiving basin.
- Simultaneous (and dual) notices of an interbasin transfer application in newspapers published in every county located either wholly or partially in both the basin or origin and the receiving basin, without regard to the distance or physical relationship between the proposed interbasin transfer and any such county's boundaries.
- Additional notice to county judges, mayors, and groundwater districts in the basin of origin.

- Additional notice to legislators in the basin of origin and the receiving basin.
- TCEQ request for comments from each county judge in the basin of origin.
- Proposed mitigation to the basin of origin.
- Demonstration that the applicant has prepared plans that will result in the "highest practicable water conservation and efficiency achievable…".

Exceptions to these extra requirements placed on interbasin transfers were are made for emergenciesemergency transfers, small transfers (less than 3,000 acre-feet under one water right), transfers to an adjoining coastal basin, and transfers from those portions of a county, city, or city's municipal retail service area located partially in the basin of origin, to those portions of the county, city or city's municipal retail service area located in the receiving basinwithin a retail service area., and certain imports of water from outside the state.

The effect of these changes is to make obtaining a permit for interbasin transfer significantly more difficult than it was under prior law and thus to discourage the use of interbasin transfers for water supply. This is undesirable for several reasons:

- Interbasin transfers have been used extensively in Texas and are an important part of the state's current water supply. For example, current permits allow interbasin transfers of over 750,000 acre-feet per year from the Red, Sulphur, Sabine, and Neches Basins to meet needs in the Trinity Basin in Region C. This represents more than one-third of the region's reliable water supply.
- Current supplies greatly exceed projected demands in some basins of origin, and the supplies already developed in those basins can only be beneficially used as a result of interbasin transfers.
- Senate Bill One water supply plans for major metropolitan areas in Texas (Dallas-Fort Worth, Houston, and San Antonio) rely on interbasin transfers as a key component of their plans.
- Texas water law has always regardedregards surface water as "state water" belonging to the people of the state, to be used for the benefit of the state as a whole and not merely that area or region of the state where abundant surface water supplies may exist (10).
- The current requirements for permitting interbasin transfers provide unnecessary barriers to the development of the best, most economical, and most environmentally acceptable source of water supplies.
- Since no contested interbasin transfer permits have been granted under these new requirements since the passage of Senate Bill One, the meaning of some of the provisions and the way in which they will be applied by TCEQ are undefined.

Commented [bkm4]: Update. Need to add Ralph Hall. Others?

Commented [bkm5]: Update as necessary.

The legislature should revisit the current law on interbasin transfers and remove some of the unnecessary, unduly burdensome, and counterproductive barriers to such transfers that now exist.

Cancellation of Water Rights for Non-Use. ~~The~~ Texas Water Code (~~§~~11) ~~currently~~ allows the Texas Commission on Environmental Quality to cancel ~~any~~ certain water rights, in whole or in part, for ten consecutive years of non-use. Since the *2011 Region C Water Plan*, the Texas Legislature provided the following additional exceptions to cancellation for non-use:

- If a significant portion of the water authorized has been used in accordance with a specific recommendation for meeting a water need included in an approved regional water plan;
- If the water right was obtained to meet demonstrated long-term public water supply or electric generation needs as evidenced by a water management plan developed by the holder and is consistent with projections of future water needs contained in the state water plan; or
- If the water right was obtained as the result of the construction of a reservoir funded, in whole or in part, by the holder of the water right as part of the holder's long-term water planning.

These changes assist with long-term water supply planning and allow construction of reservoirs to meet future needs, even if ~~This rule inhibits long-term water supply planning. Reservoirs are often constructed to fully utilize the yield available at a given site and are often constructed to meet needs far into the future. Many times,~~ only part of the supply is used in the first ten years of the reservoir's operation~~, with the remainder allocated for future needs~~.

Region C supports these exceptions to cancellation of water rights for non-use.~~The water code should be changed to exempt certain projects from the cancellation for ten years of non-use rule. The exemption might include municipal water rights, water rights for steam electric power, water rights associated with major reservoirs, and water rights included as long-term supplies in an approved regional water plan.~~

State Funding for Water Supply Programs

Continued and Expanded State Funding for Texas Water Development Board Loans and the State Participation Program. The total capital cost of strategies

recommended in the ~~Senate Bill One regional water planning studies~~2012 State Water Plan is $53 billion, including $21.5 billion for Region C recommended strategies. Municipal water providers anticipate needing $26.9 billion from state financial assistance programs, including $11.7 billion in Region C [12] ~~show significant needs for future water supply projects~~. The Texas Water Development Board's loan and State Participation Programs have been important tools in the development of existing supplies, but funding for many of these programs has been insufficient to serve all applicants. The new SWIFT/SWIRFT funding program, described in Chapter 5, is expected to leverage its initial $2 billion funding to finance close to $27 billion of recommended water management strategies over the next 50 years [13]. Twenty percent of the SWIFT funding is reserved for water conservation and reuse projects.

These programs should be continued and expanded with additional funding as needed to assist in the development of the water management strategies recommended in the regional water plans to meet the future water needs in Texas. Region C supports the continued expeditious implementation of the SWIFT/SWIRFT funding program and does not support diversion of existing funding for other purposes.

State Funding for Water Conservation Efforts. In 2007, the Texas Legislature formed the Water Conservation Advisory Council to serve as an expert resource to the state government and the public on water conservation in Texas. The Council publishes biennial reports to the Legislature on progress of water conservation in Texas. In its December 2014 report, the Council identified "an immediate need for water conservation awareness and heightened messaging on a statewide level. An expansion of the capabilities and reach of the state's existing water conservation public awareness program, Water IQ, would increase the state-wide messaging of water conservation and public awareness of the importance of water conservation [14]." ~~In December 2008, the Council published a report on water conservation in Texas [15]. The report included 11 recommendations, two of which dealt with state funding for water conservation efforts:~~

~~Provide the Council with the necessary resources to sufficiently develop and implement tools to monitor implementation of water conservation strategies recommended in the regional water plans.~~

~~Expand public awareness of water conservation statewide and coordinate campaigns at the state, regional, and local levels (by adequately funding a statewide water conservation campaign).~~

We encourage adequate funding for the Water Conservation Advisory Council and for a statewide water conservation awareness campaign.

State Funding for Reservoir Site Acquisition. As described in Section 8.3, t~~T~~he State of Texas has designated unique sites for reservoir development. ~~As the recent creation of a Federal wildlife refuge in the Fastrill Site demonstrates~~However, the designation of these sites does not fully protect them for development as reservoirs. For example, in 2006 the U.S. Fish and Wildlife Service established the Neches River Wildlife Refuge along the Upper Neches River near the same area as the proposed Lake Fastrill, which may forestall development of the reservoir.

We recommend that TWDB and the Legislature consider assisting with the acquisition of ~~these~~ sites to achieve a greater degree of protection for development of the sites as reservoirs. Actions that could be taken include:

- The use of state funds to acquire reservoir sites.
- Changing TWDB regulations so that Water Infrastructure Fund resources can be used for the acquisition of reservoir sites before completion of the permitting process.
- Encouraging voluntary sales of land in these reservoir sites to entities planning to develop the reservoirs.

Consider Alternative Financing Arrangements for Large Projects. The Texas Water Development Board offers low-interest financing for development of projects from the State Water Plan through the Water Infrastructure Fund. TWDB also offers deferred financing with delayed requirements for repayment, but the terms for deferred financing are not as flexible as they might be.

To address this issue, the TWDB has created two flexible financing options in the new SWIFT/SWIRFT funding program:

- Deferred loans have maturities of 20 to 30 years and may be used to fund developmental costs, such as planning and design. Principal and interest are deferred up to eight years or until end of construction, whichever is sooner.

- Board participation loans allow entities to reasonably finance the total debt for an optimally sized regional facility through temporary TWDB ownership interest in the facility. The local sponsor repurchases TWDB's interest on a repayment schedule that defers principal and interest. The typical maturity of a Board participation loan is 34 years.

We support the flexible financing options offered under the SWIFT/SWIRFT funding program and encourage the Texas Water Development Board and the Legislature to continue to consider more flexible deferred financing~~, modeled on the old Federal program in which debt repayment could be made as portions of the project were needed and brought on line~~.

Adequate Funding of Groundwater Conservation Districts. In recent years, the Texas Legislature has created a great number of new groundwater conservation across the state. Especially in the early years of their existence, many of these districts struggle to find adequate resources to develop and implement their rules. We recommend that the state fund a grant program to provide financial resources for the development of the initial rules of these districts.

[Placeholder for input from Groundwater Conservation Districts in Region C]

Funding for NRCS Structures as a Form of Watershed Protection. One key element of water supply planning is the protection of the quality and usability of supplies already developed. Over the past 50 to 60 years, the U.S. Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service) has built numerous small dams for sediment control and flood control in Texas. The NRCS reservoirs improve water quality, ~~and~~ prevent erosion in the watershed~~., and they also~~ provide water for livestock, and provide increased streamflows during low flow periods.

The design life for the majority of the NRCS ~~watershed~~ dams is 50 years. Most of the existing projects were built in the 1950s and 1960s and are nearing the end of their design life. Many NRCS structures are in need of maintenance or repair in order to extend their useful life. Under the PL-566 program, the NRCS provides technical assistance and funding for repair and

~~The Dam Rehabilitation Act [11] funds the~~ rehabilitation ~~and upgrade~~ of existing NRCS structures.[1] ~~Every year, the NRCS accepts applications for funding such projects and prioritizes them.~~ The rehab program is a 65/35 split of federal funds to the sponsor's funds. In U.S. Congressional Districts located completely or partially within Region C, there are 1,086 existing NRCS dams, of which about 66 percent are located in Region C [15]. In these Congressional Districts, there are 120 dams in need of repairs and 129 dams in need of rehabilitation. The estimated repair and rehabilitation costs for these dams are approximately $36.2 million and $191.5 million, respectively. Currently, in the Region C area, rehabilitation of ~~ten~~ five NRCS structures ~~are~~ is being planned, designed or constructed with funding through the ~~dam rehabilitation act~~NRCS [16].

In addition, the NRCS and local sponsors plan to construct new dams in Region C. Under the PL-566 program and the similar PL-534[2] program, the NRCS will ~~The Small Watershed Act [12] allocates federal funds for the development of new NRCS structures. The federal government~~ provide~~s~~ 100~~%~~ percent of the construction costs of new dams, and the sponsor provides the land acquisition costs. There are active work plans in seven watersheds located completely or partially in Region C. In these seven watersheds, 117 new dams are planned, with an unfunded Federal commitment of more $159 million as of fiscal year 2012 [17, 18]~~Eight projects in Region C are being planned, designed, or constructed~~. ~~Several~~ Some of these projects are ready to construct, but the funding is not currently available.

The State should develop a program to provide funding for the development and rehabilitation of new and existing NRCS structures, as a form of watershed protection. Elements of such a program could include:

- State grants or matching funding for studies of NRCS structures
- Seminars on watershed protection.

[1] PL-566, the Watershed Protection and Flood Prevention Act of 1954, provides for cooperation between the Federal government and the States and their political subdivisions in a program to prevent erosion, floodwater, and sediment damage; to further the conservation, development, utilization, and disposal of water; and to further the conservation and proper utilization of land in authorized watersheds.

[2] PL-534, the Flood Control Act of 1944, authorizes the Secretary of Agriculture to install watershed improvement measures in 11 watersheds, also known as pilot watersheds, to reduce flood, sedimentation, and erosion damage; improve the conservation, development, utilization, and disposal of water; and advance the conservation and proper utilization of land.

The Region C Water Planning Group recommends that the State seek additional federal funding to improve and maintain NRCS structures. Region C also recommends that the State provide funding to local sponsors to aid them in paying for their required 35% percent of the cost for the dam rehabilitation projects.

Water Reuse and Desalination

Support for Research to Advance Reuse and Desalination. Water reuse and desalination are becoming increasingly important sources of water supply for Texas. We recommend that the Legislature and the TWDB continue to support research to advance these emerging water supply strategies in the coming years.

Funding Assistance for Desalination Projects. In December 2002, the TWDB completed a report [13] for Governor Perry recommending a large-scale demonstration seawater desalination project. This project will result in greater information available to Texas on the challenges involved in developing large-scale desalination projects. However, many smaller communities could make use of brackish groundwater or surface water if the treatment process was more affordable.

The Red River and Lake Texoma in Region C have high concentrations of salts. The water from these sources must either be blended with a less saline supply or desalinated for direct use. The smaller communities neighboring these water supplies could potentially use this water with help in funding the necessary desalination process. These sources would be more economical for the smaller communities than building small pipeline of great lengths to purchase water from a larger supplier. Region C recommends that the TWDB provide funding assistance for desalination projects for smaller communities. Region C also recommends that federal funds be sought for desalination projects.

Funding Assistance for Water Reuse Projects. The Region C Water Plan includes reuse as a key water management strategy to meet the water needs of the Region between now and 20602070. Water reuse projects are rapidly developing in Region C. In the *2006 2011 Region C Water Plan*, the 2060 supply from existing reuse projects was slightly over 103,000336,000 acre-feet per year [19]. In the current plan, newly developed projects have increased the supply available from existing reuse projects to more than 391,000 acre-feet per year by 2070. In the current plan, newly developed projects have more than tripled the

~~2060 supply from reuse, to almost 331,000 acre-feet per year.~~ The plan also calls for development of an additional ~~292,000~~233,000 acre-feet per year in reuse projects by 2070. Statewide, ~~In addition to Region C, the *Water for Texas 2007* Plan~~ 14 of the 16 regions included reuse as a water management strategy in their most recent water plans [9]. In order to achieve implementation of the significant quantities of reuse there is a critical need to develop implementation approaches, funding support, and the technology and science associated with reuse. The Texas Water Development Board ~~is in the process of developing~~developed a research agenda ~~to identify~~that identified 7 ~~specific~~ research ~~needs~~ priorities ~~and potential projects to address these issues and develop information that will advance reuse~~ in Texas [20]~~.~~:

- Understanding the role of environmental buffers in surface water indirect potable reuse projects
- Effectiveness of treatment wetlands in improving reclaimed water quality
- Use of managed aquifer recharge systems to facilitate water reclamation in Texas
- Understanding the effectiveness of nutrient removal processes in reduction of constituents of concern relative to indirect potable reuse
- Understanding the potential for utilizing nanofiltration as a beneficial treatment process relative to reclaimed water in Texas
- Organizational, institutional, and public awareness framework to advance water reuse in Texas
- Development of integrated water quality models for the Trinity River System

Region C recommends that the State Legislature to provide funding support to perform ~~critical~~ research in the priority categories ~~needs to be~~ identified by the Texas Water Development Board.

State and Federal Programs – Water Supply Issues

Continued and Increased State Support of Efforts to Develop Water Supplies for Oklahoma. In recent years, water suppliers in Region C have been seeking to develop unused water resources in Oklahoma. ~~The Tarrant Regional Water District has filed a suit in Federal Court challenging an Oklahoma moratorium on the export of water from the~~

~~state. The Texas Attorney General recently filed an *amicus curiae* brief supporting TRWD's suit.~~ We encourage the State of Texas to continue and increase its support of efforts to develop unused water resources in Oklahoma.

Oversight of Groundwater Conservation District Rule Making. The Legislature has established groundwater conservation districts across Texas, often without regard for aquifer boundaries. These groundwater conservation districts develop rules and regulations regarding groundwater pumping within their boundaries. Often, the rules that have been developed by these districts are inconsistent from one district to the next, resulting in inconsistent regulation of the same aquifer. Although one-size-fits all regulations are inappropriate, the groundwater conservation districts need state oversight, particularly with regard to their rule-making policies. Region C recommends that the TWDB or TCEQ provide oversight for the current and future groundwater conservation districts.

[Placeholder for input from Groundwater Conservation Districts in Region C]

Revise Federal Section ~~361~~316(b) Regulations on Power Plant Cooling Water. Recent USEPA regulations implementing Section 316(b) of the Clean Water Act place requirements on cooling water intake structures that are intended to reduce fish/shellfish mortality due to impingement on screens/barriers or entrainment into flow entering an industrial facility. Although the regulations do not mandate closed-cycle recirculating cooling water systems (such as ~~designate~~ cooling towers) for new or existing power plants, they do generally require equivalent performance in terms of intake flowrates and velocities. ~~The USEPA is also currently developing new regulations that could result in a requirement for adding cooling towers at existing power plants.~~ Compared to once-through cooling (which was the usual approach in Texas prior to the new regulations), cooling towers reduce the amount of water diverted for a power plant but significantly increase the amount of water consumed. There is also a secondary impact; operation of cooling towers creates a high TDS (total dissolved solids) wastestream known as blowdown, that must managed and/or treated, often resulting in additional increased water consumption. This higher water consumption is not good for Texas, where water supplies are scarce. We encourage TWDB and TCEQ to work with the Federal government on Section 316(b)

regulations to allow the efficient use and conservation of water supplies for power plants and the state.

[Placeholder for input from Gary Spicer, Luminant]

Reallocation of Storage in and Maintenance of Federal Reservoirs.

[Placeholder for input from Denis Qualls]

Funding of Long-Range Federal Water Supply Projects.

[Placeholder for input from Denis Qualls]

CHAPTER 8
LIST OF REFERENCES

(1) Texas Water Code, Chapter 16 Provisions Generally Applicable to Water Development, Subchapter C, Section 16.053 Amended by Acts 2011, 82nd Leg., ch. 1233, sec. 11, eff. Sept. 1, 2011, Austin, [Online], Available URL: http://www.statutes.legis.state.tx.us/Docs/WA/htm/WA.16.htm#16.053, accessed April 2014.

(2) Texas Parks and Wildlife Department: Water Planning Data for Region C, Austin, [Online] Available URL: http://www.tpwd.texas.gov/landwater/water/environconcerns/water_quality/sigsegs/regionc.phtml, accessed April 2014.

(3) Texas Parks and Wildlife Department: Ecologically Significant River and Stream Segments for Region C, April 2002, Austin, [Online] Available URL: http://www.tpwd.texas.gov/landwater/water/environconcerns/water_quality/sigsegs/media/region_c_map.pdf, accessed April 2014.

(4) Sulphur River Basin Authority: Sulphur River Basin Feasibility Study, [Online], Available URL: http://srbatx.org/sulphur-basin-feasibility-study/, accessed January 2015.

(5) Buhman Associates, LLC, in cooperation with CDM Smith, Inc. and Freese and Nichols, Inc.: Tarrant Regional Water District Integrated Water Supply Plan, prepared for Tarrant Regional Water District, 2013.

(6) Fugro Consultants, Inc.: Evaluation of Alternate Dam Locations Based Upon Impact to Natural Resources Proposed Tehuacana Reservoir Site Freestone County, Texas, prepared for Tarrant Regional Water District, August 2012.

(7) Texas Water Code, Chapter 16 Provisions Generally Applicable to Water Development, Subchapter C, Section 16.403(a) Added by Acts 2011, 82nd Leg., ch. 595, sec. 2, eff. June 17, 2011, Austin, [Online], Available URL: http://www.statutes.legis.state.tx.us/Docs/WA/htm/WA.16.htm#16.403, accessed January 2015.

(8) Texas Commission on Environmental Quality, Texas Water Development Board, and Water Conservation Advisory Council: Guidance and Methodology for Reporting on Water Conservation and Water Use, December 2012.

(9) Texas Water Code, Chapter 11 Water Rights, Subchapter C, Section 11.085 Amended by Acts 2013, 83rd Leg., ch. 1065, sec. 1, eff. Sept. 1, 2013, Austin, [Online], Available URL: http://www.statutes.legis.state.tx.us/Docs/WA/htm/WA.11.htm#11.085, accessed April 2014.

(10) Texas Water Code, Chapter 11 Water Rights, Subchapter B, Section 11.021 Amended by Acts 1977, 65th Leg., ch. 870, sec. 1, eff. Sept. 1, 1977, Austin, [Online], Available

URL: http://www.statutes.legis.state.tx.us/Docs/WA/htm/WA.11.htm#11.021, accessed April 2014.

(11) Texas Water Code, Chapter 11 Water Rights, Subchapter E, Section 11.173, Amended by Acts 2001, 77th Leg., ch. 966, § 2.12, eff. Sept. 1, 2001, Austin, [Online], Available URL: http://www.capitol.state.tx.us/statutes/wa.toc.htm, May 2005.

(12) Texas Water Development Board: 2012 Water for Texas, Austin, [Online], Available URL: http://www.twdb.texas.gov/waterplanning/swp/2012/index.asp, January 2012.

(13) Texas Water Development Board: State Water Implementation Fund for Texas (SWIFT), [Online], Available URL: http://www.twdb.texas.gov/swift/index.asp, accessed January 2015.

(14) Water Conservation Advisory Council: A Report on Progress of Water Conservation in Texas Report to 84th Legislature, December 2014, [Online], Available URL: http://www.savetexaswater.org/about/doc/2014%20WCAC%20Report_final.pdf, accessed January 2015.

(15) U. S. Department of Agriculture Natural Resources Conservation Service: Fact Sheets by US Congressional Districts, [Online], Available URL: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/tx/programs/planning/wpfp/?cid=nrcs144p2_002892, accessed April 2014.

(16) U. S. Department of Agriculture Natural Resources Conservation Service: Watershed Rehabilitation Status Summary Report, [Online], Available URL: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1082547.pdf, January 2013.

(17) U. S. Department of Agriculture Natural Resources Conservation Service: Dams With Congressional Districts and Counties, [Online], Available URL: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1081887.xlsx, accessed April 2014.

(18) U. S. Department of Agriculture Natural Resources Conservation Service: Watershed Operations Unfunded Federal Commitment FY2012, [Online], Available URL: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_002302.pdf, accessed April 2014.

(19) Freese and Nichols, Inc., Alan Plummer Associates, Inc., CP&Y, Inc., and Cooksey Communications, Inc.: *2011 Region C Water Plan*, prepared for the Region C Water Planning Group, Fort Worth, October 2010.

(20) Alan Plummer Associates, Inc.: Water Reuse Research Agenda, prepared for the Texas Water Development Board, February 2011, [Online], Available URL: http://www.twdb.texas.gov/innovativewater/reuse/projects/reuseadvance/doc/component_c_final.pdf, accessed January 2015.

TABLES

FIGURES