

# Water Report

Coastal Bend Regional Water Planning Group  
 Website: [www.nueces-ra.org](http://www.nueces-ra.org)

No. 10 • February 2009

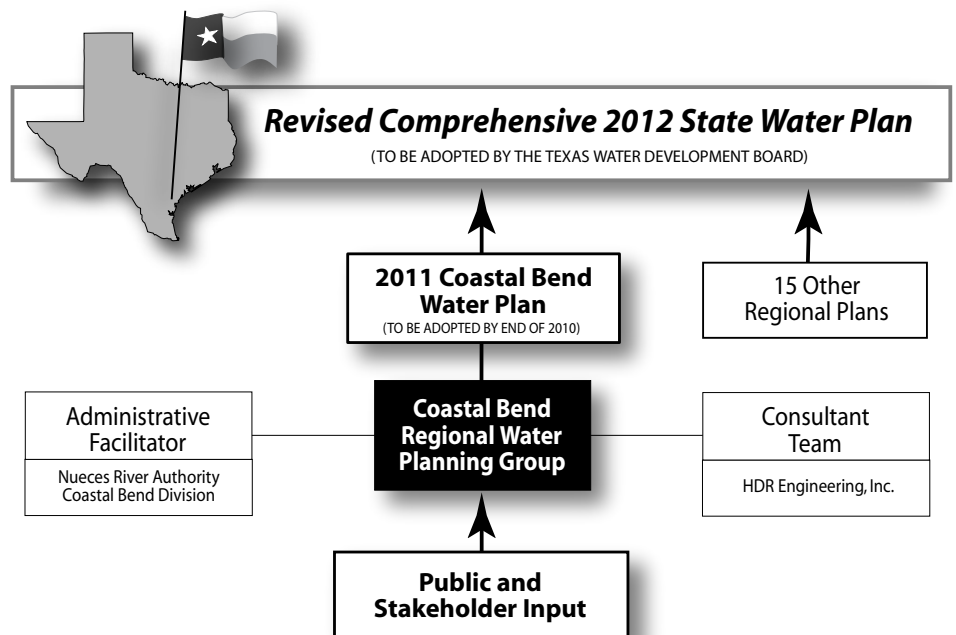
## Planners Now at Work Drafting Elements of 2011 Coastal Bend Regional Water Plan

Work is now underway on the second phase of the multi-year process of updating the comprehensive regional water plan covering the 11 counties in the Coastal Bend.

The Coastal Bend Regional Water Planning Group (RWPG) wrapped up Phase 1 of the process in December with publication of five studies dealing with possible water supply management strategies. Those draft study reports are available on line at the Nueces River Authority website:

[www.nueces-ra.org](http://www.nueces-ra.org)

In Phase 2 the Coastal Bend RWPG and its consultants will be developing a draft revised regional plan. The draft plan will be published in the spring of 2010, an event that triggers a period of public review and comment, a public meeting and then plan adoption. The regional plan will be submitted to the Texas Water Development Board (TWDB), along with the plans from 15 other regions across the state, and ultimately will become part of the compre-



### How the State Water Plan Is Developed Each Five-Year Cycle

hensive 2012 State Water Plan.

The Coastal Bend RWPG will meet at least quarterly during 2009 to receive updates from the consulting team working on the technical analyses of the plan. Anyone interested in water supply planning is encouraged to attend these meetings which include a period for public comments and questions.

The current Plan update effort is part of the third five-year planning cycle of a process established by the Texas Legislature in 1997. Known as the Senate Bill 1 or SB 1 process, it established a system where local community members, including representatives of various stakeholder groups, guide the development of regional plans to meet local needs. The law requires that statewide water plans

be brought up to date every five years.

The Coastal Bend plan was first adopted in 2001 and updated in 2006 to reflect the latest available information about projected population growth and potential future water demand.

State financial assistance may be provided only to water supply projects that meet needs in a manner that is consistent with the approved regional plan.

Administrative support for the RWPG is provided by the Nueces River Authority's office in Corpus Christi. A consultant team headed by HDR Engineering, Inc. of Austin assisted the RWPG in preparing the initial Coastal Bend regional plan, drafted the 2006 update and was selected to conduct additional studies and develop a newly revised 2011 Plan.

### 2009 Meeting Schedule Coastal Bend Regional Water Planning Group

Meetings are held at 1:30 p.m. at the Johnny Calderon County Building  
 710 E. Main in Robstown

- March 12
- June 11
- September 10
- November 12

\* These dates are subject to change. Agendas and notices of RWPG meeting dates and locations are posted on the Nueces River Authority website: [www.nueces-ra.org](http://www.nueces-ra.org)

## Phase I Study Reports Available For Review

During Phase I of the current planning cycle the Coastal Bend RWPG worked with consultants to perform five studies to better characterize issues that have been part of the planning process.

Drafts of the study reports were made available for public review and comment during the fall of 2008. They were the subject of a public meeting held on November 13th.

The five draft study reports were approved by the RWPG and were submitted to the Texas Water Development Board in December. They are available for review online at the Nueces River Authority's website.

Study 1 deals with the potential for supplying additional water to the area by way of the Mary Rhodes Pipeline. This study looks at the possible impacts of two water management strategies identified in the 2006 Regional Plan - groundwater from sources along the pipeline route and water from the Colorado River. The study evaluates blended water quality combinations and expected changes in treatment costs based on water quality.

Study 2 takes a closer look at a proposed new off-channel water storage reservoir in the Nueces River Basin at a location south of George West. Several sites were evaluated for water supply potential.

Study 3 looks at channel losses on the Frio River and Nueces River between Choke Canyon Reservoir and Lake Corpus Christi and the proposed strategy of building a pipeline to improve water delivery to Lake Corpus Christi.

Study 4 includes work on updating the complex computerized Corpus Christi Water Supply Model to include water quality data and to allow improved simulations.

Study 5 deals with water conservation best management practices in the region. Thirteen were selected by the Coastal Bend RWPG as best suited to promote on a voluntary basis in the region.

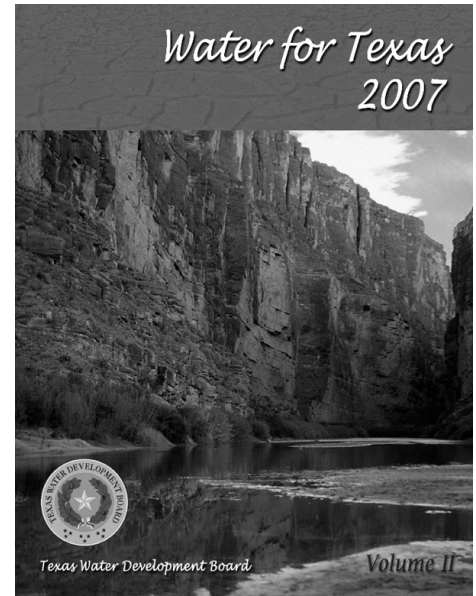
**Review Phase 1 draft study reports at:**  
[www.nueces-ra.org](http://www.nueces-ra.org)

## Elements of the 2011 Regional Plan

State rules mandate that each of the 16 regional water plans include 10 basic elements. The existing 2006 Plan for the Coastal Bend has each of these sections and is available for review online at the Nueces River Authority website (under **Contracts and Programs**, click on **Regional Water Planning**, then **2006 Coastal Bend Regional Water Plan (01/2006)**).

Elements in the updated initially prepared plan that will be published next year are:

1. Planning Area Description. This includes an overview of water providers, current water uses and socioeconomic conditions.
2. Population and Water Demand Projections. Because new Census Bureau data will not be available while the 2011 regional plan is being prepared, population and water demand projections from the 2007 State Water Plan will serve as estimates for the current round of planning. Alternate steam and electric water demands will be considered based on a recent study by the Bureau of Economic Geology and the TWDB.
3. Existing Water Supplies. Planning groups will reevaluate existing surface water and groundwater supplies in their region. This involves simulating firm yields under drought conditions for reservoir systems like the Choke Canyon-Lake Corpus Christi-Lake Texana systems that serve the Coastal Bend. If available, it will also include any updates to groundwater supplies based on Groundwater Management Area (GMA) desired future conditions.
4. Water Management Strategies. Planning groups will reevaluate water management strategies identified in 2006 regional plans for each water user group and wholesale water provider. This includes developing updated financial costs.
5. Impacts of Water Management Strategies on Key Water Quality Parameters. Each planning group must describe how implementing recommended and alternative water management strategies could affect water quality in Texas. This section must also discuss how strategies could affect agricultural resources.
6. Water Conservation and Drought Management Recommendations. Every region must consider "active" water conservation as one of its water management strategies. Drought management strategies are those that decrease



- short-term peak water requirements.
7. Description of How the Regional Plan is Consistent with the Long-Term Protection of the State's Water, Agricultural and Natural Resources. This section is specifically directed at making sure that recommendations honor all existing water rights and contracts.
8. Unique Stream Segments and Reservoir Sites. Planning groups may recommend all or parts of stream segments as having "unique ecological values" based on specific criteria. They could also identify recommended unique sites for future reservoirs in the region if any are available and are part of a specific water management strategy. None were identified for the Coastal Bend in the 2006 Plan.
9. Reporting of Financing Mechanisms. Each planning group is to assess how local governments, regional authorities and other political subdivisions would finance the implementation of water management strategies based on input from those local entities.
10. Adoption of Plan and Public Participation. In adopting their regional plan, each group must allow for public participation in the planning effort and the adoption process. This is documented as part of the final plan.

The 2007 Texas Water Plan, all 16 current 2006 regional plans and additional information about the third water planning cycle are available at the Texas Water Development Board website:

<http://www.twdb.state.tx.us>

# Phase 2 Means More Fine Tuning for Water Plan

Work on Phase 2 of the Coastal Bend's 2011 Plan will include updates to all the minimum plan requirements and will revisit some recommended Coastal Bend water management strategies in substantial detail.

The 2006 Plan for the region identified 18 water management strategies, and recommended about a dozen key strategies that could be used to meet future water supply shortfalls.

The 2006 Plan options that could generate the greatest anticipated amount of water include building a pipeline to deliver Garwood Water from the Colorado River, developing groundwater resources in Bee and Refugio counties, developing an off-channel storage reservoir south of George West, building Stage II of Lake Texana to capture Lavaca River flows and, when economically feasible, brackish groundwater or seawater desalination.

The Scope of Work approved by the RWPG and the TWDB for Phase 2 focuses on these and other strategies that may have the potential to increase industrial water use efficiency even further. It will also update the estimated amount of water that could potentially be produced in the future from each of the identified strategies. This work will include taking into account the reduction in inflows to the Choke Canyon Reservoir/Lake Corpus Christi System that have been observed in recent decades.

Additional studies will look at the possibility of providing water from the Mary Rhodes Pipeline to more users and will evaluate strategies for managing Lake Corpus Christi based on water quality, both with the goal of making the regional water supply more reliable through a reduction in water consumption. Brackish groundwater desalination opportunities will also be studied in greater detail.

## ACCESS TO PIPELINE WATER

Previous studies have indicated a significant increase in the concentration of dissolved minerals in the Calallen Pool, that part of the Nueces River behind the Calallen Saltwater Barrier Dam. This is the spot where most of the water used by municipal and industrial customers in Nueces, San Patricio, Kleberg and Aransas counties is pumped from the river.

Chloride concentrations in this part of the river are 2.5 times higher than in the same water as it is released from Lake Corpus Christi, 35 river miles upstream. This increase has been attributed to natural groundwater seepage, enhanced mineralization of Lake Corpus Christi and periodic



Five municipal and industrial pump stations withdraw water from the Nueces River pool behind the Calallen Saltwater Barrier Dam alongside Interstate 37.

discharges of salty water likely from sand and gravel operations.

Water coming from Lake Texana and potentially from the Colorado River near Bay City (Garwood water) have chloride levels that are 60% to 90% lower than the averages recorded at the Calallen Pool.

Currently the City of Corpus Christi and the San Patricio Municipal Water District are able to improve water quality by blending Nueces River water with supplies from Lake Texana delivered through the Mary Rhodes Pipeline.

In Phase 2 of 2011 Plan development, the project team will evaluate the potential for other water users with intakes in the Calallen Pool to be connected to the Mary

Rhodes Pipeline. This would apply to Flint Hills Resources, Celanese and others with intakes, and potential future industrial users.

Work will include reviewing historical quality data including seasonal fluctuations and identifying the water quality constituents that are of particular interest to potential users.

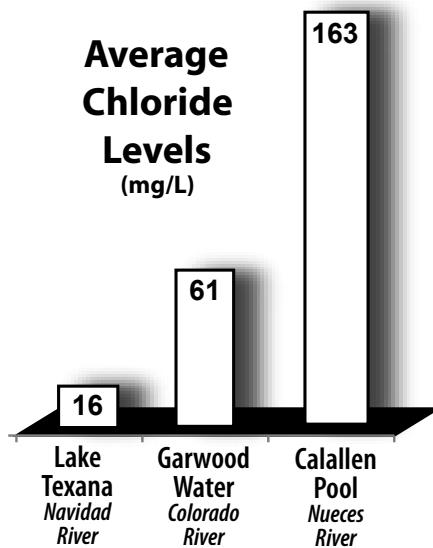
Several scenarios will be evaluated including adding new water sources and using the full capacity of the Mary Rhodes Pipeline. Results will include estimated water quality improvements, water treatment efficiency, and project costs such as new pipeline connections to the Mary Rhodes Pipeline which runs about one-half mile west of the Calallen Pool.

## WATER QUALITY MANAGEMENT

The project team will evaluate strategies for management of water supply and operation of Lake Corpus Christi to improve water quality.

This will include comparing river water quality at Calallen to levels recorded upstream from Lake Corpus Christi and conducting groundwater inflow analyses. Target levels for water quality will be established and all these components will be integrated into the existing computer model of the Corpus Christi area water supply system.

Model runs will seek to determine what level of water releases from Lake Corpus Christi would be required to hit quality targets at Calallen and what the resulting impacts would be on lake storage capacity.



## Phase 2 (cont.)

This work will help in evaluating potential changes to the current operation of the Choke Canyon Reservoir/Lake Corpus Christi System with potential future water management strategies to improve water quality and increase water supply. It will also factor in possible changes in the operation of the Mary Rhodes Pipeline.

It is possible that improvements in river water quality at Calallen could result in greater overall system yield because water with lower total dissolved solids/chlorides can be treated more efficiently and can be recycled more times when used in industrial applications such as cooling systems.

### SYSTEM YIELD

The Choke Canyon Reservoir/Lake Corpus Christi System is operated under an agreed order that provides for the freshwater inflow needs of the Nueces Estuary. An additional study will look at increases in biological productivity associated with return flows and water supplied to the Nueces delta through a new Rincon Bayou pump station and pipeline. It will look at the relationship of biological productivity multipliers and increases in reservoir system yield.



*Palmetto Bend Dam creates the 11,000-acre Lake Texana in Jackson County. Lake water is delivered to Coastal Bend customers through the 101-mile long, 64-inch diameter Mary Rhodes Pipeline.*

### BRACKISH GROUNDWATER

Brackish groundwater desalination opportunities in the Coastal Bend will be the subject of additional studies. This will include analysis of two groundwater wellfield sites identified in the 2006 Plan or other locations proposed by the RWPG. Estimates for the amount of brackish groundwater

available and water quality will be updated using the TWDB water quality database and Central Gulf Coast Groundwater Availability Model. Sites for a proposed brackish desalination water treatment plant will be evaluated and capital and annual costs of brackish groundwater desalination will be updated as necessary.

COASTAL BEND

# Water Report



The *Coastal Bend Water Report* is published by the Coastal Bend Regional Water Planning Group which is reviewing and revising the current regional plan that will be included in the next comprehensive state water plan. A revised statewide plan will be issued by the Texas Water Development Board in 2012.

Prepared by The Rademacher Company

## COASTAL BEND REGIONAL WATER PLANNING GROUP

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