A Texan's Guide To
WATER AND WATER RIGHTS MARKETING

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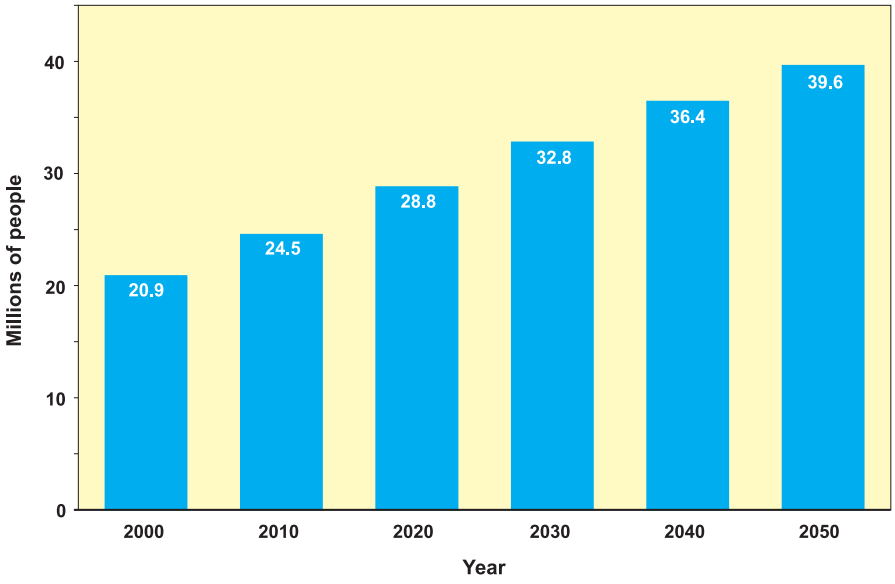
Introduction

Fresh water supply is said to be the next global crisis. With increasing populations, demand for water is beginning to exceed developed water supply. This is particularly true in the western United States, which at the beginning of the 21st Century contains seven of its fastest growing states, including Texas. If present trends continue, populations in the western United States will increase by more than 30 percent by 2020, and in Texas the population will almost double by 2050. Meanwhile, there has been no significant increase in available water supplies in Texas since the "dam building era" ended in the early 1980s. As a result, municipal water shortages are developing at a dramatic rate.

Water has been the basis for municipal, agricultural, and industrial development in Texas from the Spanish Colonial period to the present. This precious resource will continue to shape, contour, and define the Lone Star State. As we embark upon the 21st Century, the challenge for Texas is to provide water to a growing population and economy in the face of increasingly limited supplies and a need to protect our natural resources. The following key findings in the 2002 State Water Plan make clear the magnitude of this challenge:



- During the 50-year period between 2000 and 2050 the total statewide demand for water in Texas is expected to increase 18 percent, from nearly 17 million acre-feet in 2000 to 20 million acre-feet;
- In this same time period, water supplies from existing sources in Texas are expected to decrease 19 percent, from 17.8 million acre-feet to 14.5 million acre-feet; and
- By 2050, almost 900 cities (representing 38 percent of the state's projected population) and other water users will need either to reduce demand (through conservation and/or drought management) or develop additional sources of water supply.

The 2002 State Water Plan suggests that the projected shortfall between water supply demands and existing sources of supply can be met essentially in two ways: 1) by developing new sources of water supply, and/or 2) by utilizing existing supplies in more efficient or cost-effective ways.

Developing new sources of water by constructing reservoirs or by means of other similar water development projects is no longer considered as viable an option as in the past due to physical, economic, and environmental constraints, changing land use patterns, and the emerging viability of such alternatives as water conservation, brush control, desalination, precipitation enhancement, and water marketing.

Water marketing has been proposed as one of the key strategies to meet Texas' future water needs. Several forms of water and water right transfers – including the sale and lease of water

and water rights, water banking, dry-year option contracts, and redirection of conserved water – may be used to move water use from one party to another.

This document is intended to provide basic information regarding the marketing of surface water and groundwater in Texas. It is divided into the following sections:

- **Section I** relates through historical reference how the right to use water in Texas evolved from a royal entitlement to a marketable commodity;
- **Section II** contains a description of the different types of surface water rights.
- **Section III** contains information regarding the various forms of water and water right transfers;
- **Section IV** contains information regarding factors to consider in the sale or purchase of water and water rights;
- **Section V** contains an overview of the principal factors that influence the price or marketability of water and water rights. In addition, this section examines attributes of river authorities, the Texas Commission on Environmental Quality (TCEQ) Rio Grande watermaster program, the Edwards Aquifer Authority, and groundwater conservation districts that affect the marketability of water and water rights;
- **Section VI** contains information regarding the Texas Water Bank and Texas Water Trust (water programs administered by the Texas Water Development Board) and provides suggestions on where one may find additional information or assistance regarding water and water rights marketing in Texas; and
- **Section VII** contains a brief overview of the future of water and water rights marketing in Texas.

The Evolution of Water Rights in Texas

Surface Water Rights

Water has been Texas's lifeline since the days of man's earliest presence upon the land. Invariably, archeologists discover evidence of prehistoric human habitation near permanent sources of clean and abundant water such as rivers, streams, and springs. Access to a reliable source of clean water was a decisive factor in the selection of sites for settlement during the Spanish Colonial, Mexican, and Anglo-American periods in Texas.

Spanish Water Law

1840 English Common Law "Riparian Rights"

1967 Adjudication Act Merged Riparian & Appropriation Systems

2001 Senate Bill 2

Legal scholars suggest that the history of water regulation in Texas began in the 1600s with the establishment of Spanish missions and presidios in dry areas of the state where water was available for irrigation. Spanish water law at that time encouraged the formation of community irrigation ditches, or acequias. Under Mexican rule (1821-1836), law established under Spanish rule continued to govern the use of both land and water. In the Spanish system land was classified as irrigable, temporarily irrigable, or suitable for grazing, then apportioned by government grant with or without specific rights for water access.

The Republic of Texas adopted the English common law in 1840, including the doctrine of riparian rights. Thus, landowners with lands granted by the Republic and subsequently the state of Texas, which bordered streams, were allowed to use the ordinary flows (but not flood flows) of the streams for domestic, livestock, and ultimately irrigation purposes (a base stream-flow was required to be passed downstream for other potential users). The state continued to recognize the legality of any rights to use water on lands granted from Spain and Mexico.

Beginning in the mid 1880s, the Texas legislature began to adopt a system that authorized the appropriation of water from the state, and the procedure to acquire such rights. In 1895, the Texas Legislature declared that lands patented from the state after July 1, 1895, did not include riparian rights, thus making the appropriation system the only means to acquire water rights on later patented lands. The appropriations system (or prior appropriations system) requires those wishing to use the State's surface waters to file or seek state permission. Under this system, the right granted earlier in time has the greater priority to use the water.

The riparian and appropriation system continued to co-exist in Texas. However, the nature of riparian rights made it difficult to determine the extent of such rights, and to manage the streams of Texas. When claimed water rights exceeded water available in the Rio Grande Valley during the drought of the 1950s, an extensive lawsuit brought by the state resulted in an adjudication of the all rights to the Rio Grande. In 1967, the Texas Legislature passed the

Adjudication Act, which merged riparian and appropriation systems together on a statewide basis.

The 1967 Act required any person claiming a riparian right other than for domestic use and livestock watering to file a claim for the right by 1969 with the Texas Water Rights Commission, a predecessor agency to the Texas Commission on Environmental Quality (TCEQ). Prior to this Act, riparian water right claimants did not have to file any claim for water. All riparian and appropriative rights were then reviewed, and final rights issued in the form of certificates of adjudication.

With the passage of the 1967 Act, Texas consolidated the allocation of surface water into a unified water permit system. Anyone wishing to use surface water in Texas henceforth was required to hold such a certificate or receive new permission from the state in the form of a "water right." Exemptions to this requirement include diversion of water for domestic and/or livestock use, wildlife management purposes, and for emergency or some other specified use. (Note: 'wildlife management purposes' was added in 2001 under Senate Bill 2.)

In general, under the prior appropriation system, water rights are granted by state license. This license, or permit, grants to the holder the use of a specified amount of water, at a specific location, and for a specific purpose. The different types of appropriated water rights are discussed in more detail in Section II.

{For additional Information please see Handbook of Texas Water Law: Problems and Needs, by Ronald A. Kaiser, Texas Water Resources Institute, Texas A&M University}

Groundwater Rights:

The common law rule with regard to groundwater in Texas, called the "rule of capture" or "English Rule" allows landowners to withdraw water under their property with little regard to other groundwater users, as long as the water is beneficially used and isn't intentionally wasted or negligently result in the subsidence of neighboring lands.

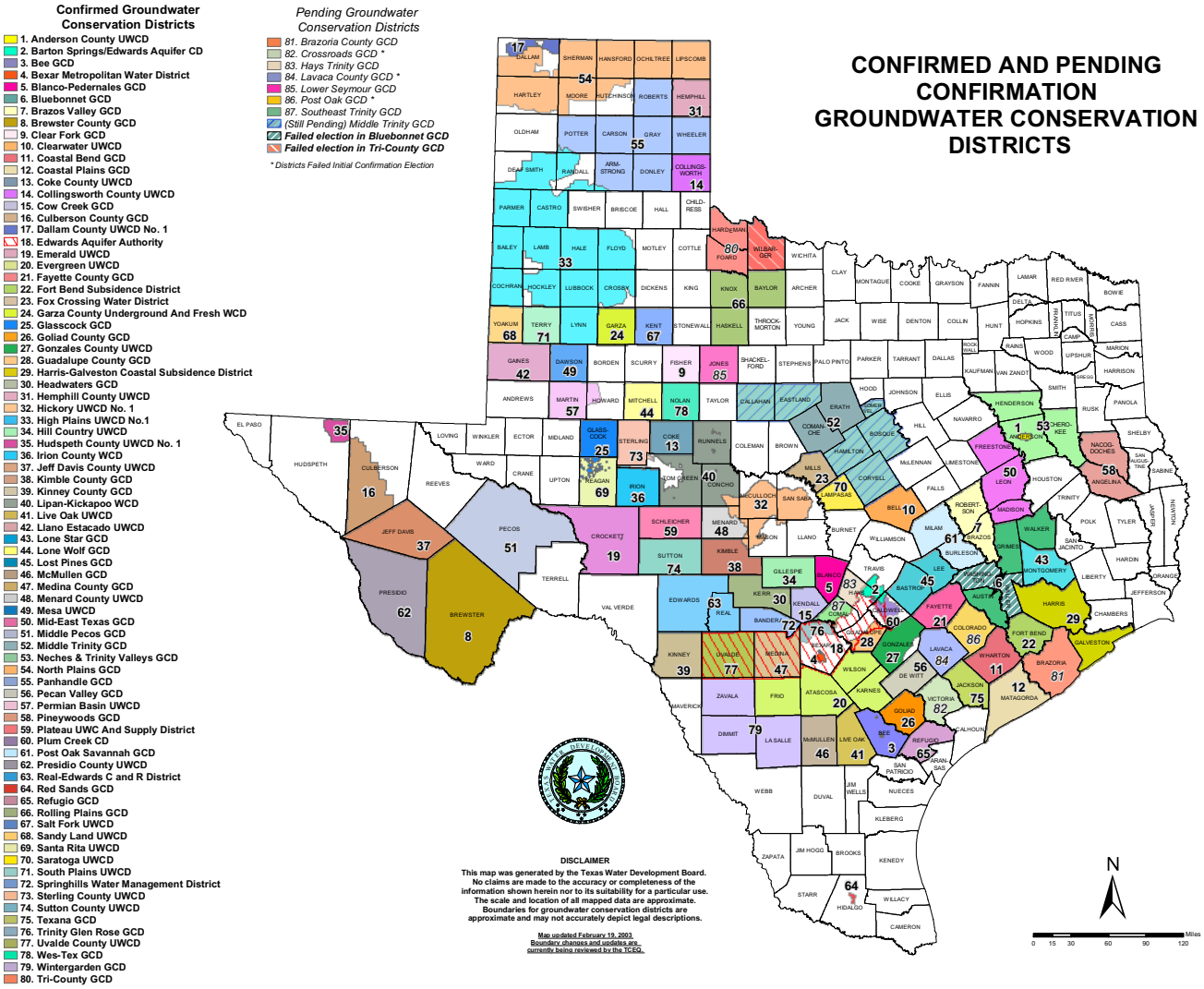
The Texas Supreme Court explicitly adopted the rule of capture in 1904 in Houston Texas & Central Railway Co. v. East. Subsequently, in 1955, the Texas Supreme Court affirmed the rule of capture and in its decision stated that, "percolating waters are regarded as the property of the owner of the surface who may, 'in the absence of malice,' intercept, impede, and appropriate such waters while they are on their premises, and make whatever use of them they please, regardless of the fact that use cuts off the flow of such waters to adjoining land, and deprives the adjoining owner of their use."

In its rulings relevant to the rule of capture, the Texas Supreme Court has stated that the legislature has the authority to regulate groundwater if it chooses to do so. In 1949 the Texas Legislature passed the Texas Groundwater Act, which authorized the formation of groundwater districts with limited power to regulate withdrawals. Since 1949, the Texas Legislature has significantly expanded the powers of groundwater districts, particularly in the late 1990s. Senate Bill 1, enacted in 1997, explicitly recognizes groundwater districts as the state's preferred method for managing groundwater resources in Texas.

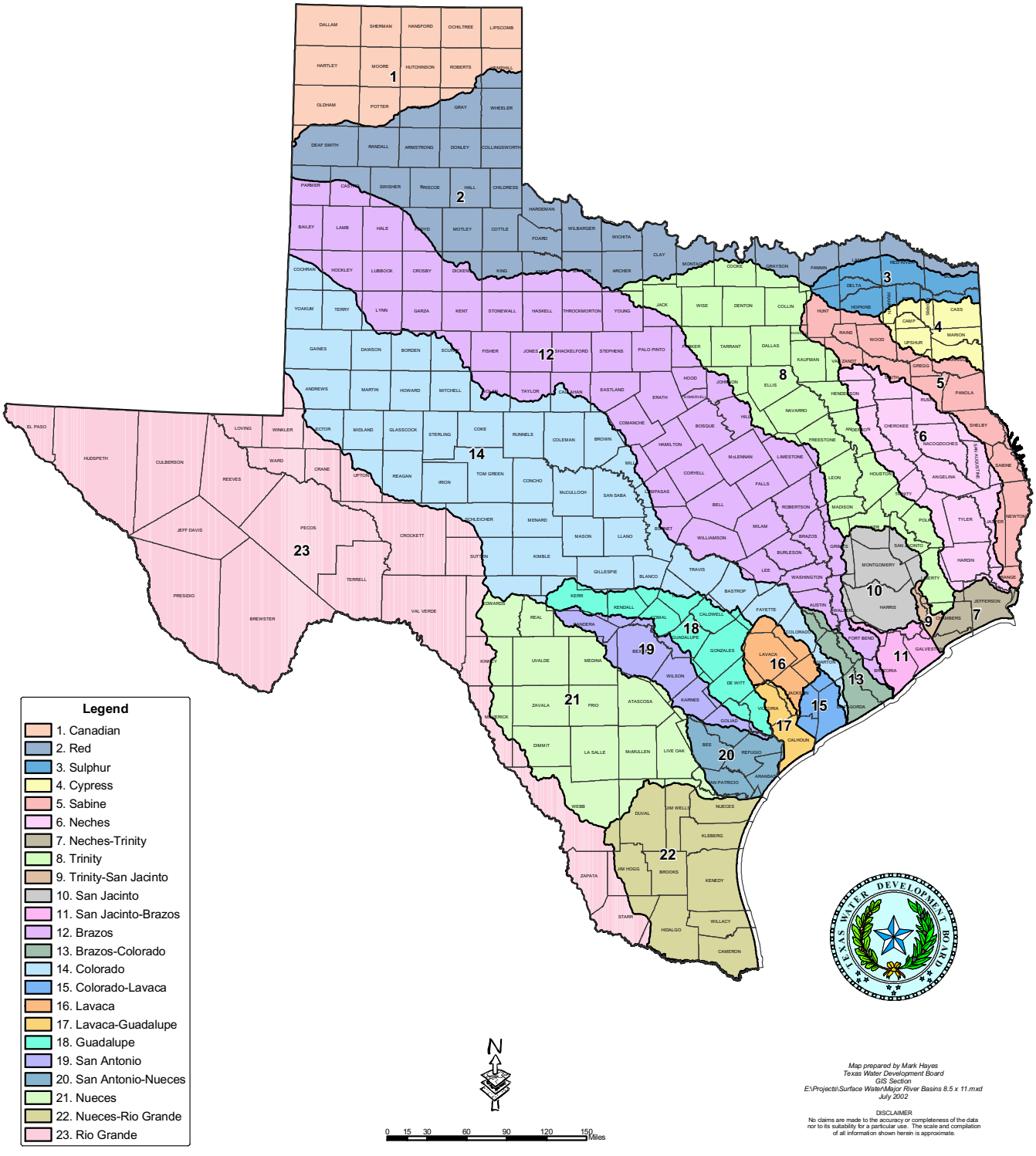
By 2001, 87 Texas groundwater districts covered roughly half the state's land area and regulated a great percentage of water withdrawn from Texas' nine major and 20 minor aquifers. The powers exercised by these districts vary, but in general, consist of regulations to prevent the depletion of water tables, the loss of artesian pressure, waste, and subsidence. These regulations often take the form of rules that may restrict pumping, require permits for

wells, delineate well spacing, establish maximum rates of water use, and define out-of-district export requirements.

{For additional information, please see A New Chapter for Texas; The Rule of Capture, Groundwater Conservation Districts, and Sipriano v. Great Spring Waters of Texas, Texas Senate Research Center; March 1999}



Major River Basins In Texas



Map prepared by Mark Hayes
Texas Water Development Board
GIS Section
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July 2002

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Types of Surface Water Rights

The right to use water often depends on whether the source of the water originates from above or below ground. In general terms, surface water found in defined watercourses is owned by the state and subject to state permitting requirements, whereas diffused-surface water and groundwater are generally attached to land and subject to ownership by the landowner.

Surface Water

For surface water rights permits, Section 11.134 of the Texas Water Code provides that the TCEQ may grant an application for a new or additional appropriation of water only if:

1. the application meets all necessary requirements;
2. unappropriated water is available at the source of supply;
3. the water will be beneficially used;
4. the use will not impair an existing water right or vested riparian right;
5. the use will not be detrimental to the public welfare; and
6. the applicant provides evidence that reasonable diligence will be used to avoid waste and achieve water conservation.

In its consideration of an application for a new or amended water right, the TCEQ shall also assess the effects, if any, of the issuance of the permit or amendment on:

1. freshwater inflows to bays and estuaries;
2. existing instream uses;
3. water quality; and
4. fish and wildlife habitats

Special conditions may be included in the new or amended water right to minimize or avoid impacts to existing uses and/or the environment.

In Texas, there are two primary types of appropriated surface water rights: perpetual rights, including certificates of adjudication and permits; and limited-term rights including term permits, temporary permits, seasonal permits, contractual permits, and emergency permits. Perpetual appropriated water rights generally have the following features in common:

- An assigned priority date. This date determines the holder's priority for available water. Regardless of the priority date, whenever there is less water than is needed to satisfy all water rights in a basin, each appropriated right is subordinate to domestic and livestock users for the available water.
- A specified volume of water that the holder may take or use within each year and a diversion rate if there is diversion of water; access to this volume of water is subject to varying degrees of reliability depending upon the availability of water and the holder's priority date.
- An ability to impound water (for example, to store it in a reservoir above a dam), to divert water (for example, to pump it from the stream), or both.

A right to impound water is called an impoundment right. An impoundment right will specify the location of the holder's dam, the capacity of the holder's reservoir, and any special conditions placed on the holder's right to impound water—for example, a permit may state the condition that the holder "may impound only the portion of the stream flow that exceeds 100 cubic feet per second."

A right to divert water is called a diversion right and is often referred to as a "run-of-the-river" right. A diversion right will specify where the holder may divert water (that is, the holder's diversion point), the rate at which the holder may divert water, and any special conditions placed on the holder's right to divert water—for example, a permit may state the condition that the holder "may divert water only between October 1 and November 30 of each year or when the stream flow is at a certain level."

Perpetual rights, and to an extent groundwater and limited-term rights, are regarded as property interests, and as such may be bought, sold, or leased.

Surface water rights, in whole or part, may be cancelled by TCEQ for non-use after ten years under the authority of Subchapter E, Chapter 11 of the Water Code.

{For additional information please see Rights to Surface Water in Texas; Texas Natural Resource Conservation Commission, Publication: GI-228; May, 2002}

Forms of Water Transfer

Sale of a Surface Water Right

The sale of a surface water right may be conducted between a willing seller and a willing buyer by arranging a contract for sale. In addition, sales may proceed via other mechanisms, such as condemnation through the right of eminent domain. To the best of our knowledge no municipality in Texas has exercised the condemnation and eminent domain authority provided in Section 11 of the Texas Water Code to arrange the sale of a surface water right.

If the sale of a surface right does not involve a change in purpose of use, amount of use, or place of use, then a simple change of ownership is required to be filed with the Texas Commission on Environmental Quality (TCEQ). However, most surface water right transactions have historically involved a change in use or location; such as the conversion of a water right from irrigation to a municipal use.

Transactions that require a change in purpose or place of use of surface water are subject to significant administrative oversight, because they alter the grant of authority from the State in a fundamental way. Surface water right permit amendments require approval of TCEQ and the approval process involves a substantive review of the proposed change.

Contract Sale of Surface Water

In Texas, vast quantities of water are sold by way of wholesale contract. These sales are made separately, and apart from the transfer of any interest in the water right itself. Typically, one or more entities that own underlying water rights develop a water supply and then sell the water to others. Obvious examples are the development of reservoirs and well fields by regional entities such as river authorities and large municipalities who subsequently lease the developed water, but not the underlying water right, to contracting parties.

General common-law principles of contracts, as well as certain public utility interest requirements, apply to these transactions. TCEQ has some oversight of surface water supply contracts. For instance, if a contract meets agency rules and is consistent with the terms of the underlying surface water right, TCEQ's Executive Director will simply file it with the agency's records.

In general terms, TCEQ's rules regarding contract sales of surface water require that the contract terms specify a per unit cost of water; effective date and termination date; allowable diversion rate; annual average quantity of water to be furnished; location of purchaser's diversion point; and a general statement of compliance with applicable rules and statutes.

Lease of a Surface Water Right

Lease of a surface water right is a transaction in which a willing lessor and willing lessee agree to a short or long term transfer of a surface water right for financial or other considerations. During the term of the lease the lessee would get the use of the water right. At the end of the lease term, use of the surface water right would revert to the lessor, normally the owner, who would regain full use of the water right unless he chooses to renew or renegotiate the lease contract with the lessee. If the lease involves a change in use, location, or amount of water diverted it would require a surface water right permit amendment to be authorized by TCEQ.

Interbasin Transfer of Surface Water

Senate Bill 1, enacted by the Texas Legislature in 1997, imposed stringent standards on new interbasin transfers of surface water. Any interbasin transfer application submitted to TCEQ must be accompanied with economic and environmental analyses, as well as a water-right analysis.

Provisions in Senate Bill 1 authorize TCEQ to grant an interbasin transfer, in whole or in part, but only to the extent that 1) detriments to the basin of origin are less than the benefits to the receiving basin, and 2) the applicant has prepared drought and water conservation plans that will result in the highest level of water conservation and efficiency.

In addition, a permit amendment for an interbasin transfer would result in the assignment of a junior priority date to the surface water right to be transferred from the basin of origin.

Dry-Year Option Contracts—Surface Water

Generally, dry-year option contracts are used by municipalities to secure reliable sources of additional water to augment their existing supplies during times of drought. A municipality does this by negotiating an agreement with a water right holder (generally an irrigator) to acquire the use of the water right holder's water, during and only during, a specified dry-year period. In this way, the municipality augments its ability to meet its water supply needs during a drought and the water right holder enjoys the financial benefits of the contract and the right to continue using the water during non-dry-year periods. These contracts normally entail compensation for the option to use water plus a payment for the quantity of water used, when the option is exercised. Again, if the contract contemplates a change in the use of water from what is authorized in the original permit, a water right amendment is required.

Transfers of Conserved Water — Surface Water or Groundwater

In several parts of the State, there are viable water conservation strategies that can be implemented, and the water saved may be marketed. The general practice, historically, has been for municipalities or industries to acquire water by financing the modernization of irrigation systems in exchange for the right to use all or part of the water that is conserved. In the Lower Rio Grande Valley, for example, irrigation districts have utilized this approach to finance improvements that both conserve water and improve canal distribution efficiencies.

Sale/Lease of Groundwater

In Texas, rights to groundwater may be severed from the land and made available for sale. Likewise, it is possible to purchase a lease for the right to withdraw groundwater. Historically, however, it has been much easier for prospective groundwater users to merely purchase a parcel of land and mine the groundwater available there, than to purchase groundwater via contract with an existing landowner. However, in the future, due to the expansion in use of local regulatory authority, groundwater transactions might primarily occur via a contract with an existing landowner. Contracts could specify an actual amount of groundwater to be withdrawn, a withdrawal rate, a term certain for proposed withdrawals, etc. - similar to surface water contracts.

{For additional information please refer to the subsection on Groundwater in Section IV.}

Some Important Sale and Purchase Considerations

This section examines the issues a buyer or seller should consider before deciding whether to buy or sell a surface water right. These issues and considerations include: ownership of both irrigation and non-irrigation water rights, the scope of the water right, contract negotiations, and title conveyance. This is followed by a brief discussion of issues that one should consider when contemplating the sale or purchase of groundwater in Texas.

Ownership

The most important question in buying or selling a surface water right is whether the seller has clear title to the right. As a result of the 1967 Water Rights Adjudication Act, all non-domestic and livestock watering surface water rights in Texas are now defined by a piece of paper (either a permit or a certificate of adjudication). Determining whether a seller owns a certificate or permit authorizing irrigation is somewhat different than determining whether a seller owns a certificate or permit authorizing the use of water for a purpose other than irrigation.

Irrigation water rights

The Texas Commission on Environmental Quality (TCEQ) maintains a separate file on every certificate and permit that has been issued. These files contain information regarding the history of the certificate or permit from the time it was issued, including whether or not it has been amended. These files also record the ownership of the certificate or permit. Please note that although all changes in ownership of a water right must be reported to TCEQ under its rules, it is likely that many such changes may not be reported.

Certificates of adjudication and permits that authorize irrigation describe the particular land that can be irrigated. Since these irrigation water rights are appurtenant (attached) to the land, they pass with the land in a sale, unless expressly reserved. Therefore, it is important to research any prior conveyance of the land to which a water right is attached. Previous sales of the land or portions of the land may have conveyed all or part of the water right. Irrigation rights owned by a water corporation, water district, river authority or other governmental entity authorized to supply water to others do not attach to the irrigated land, and are generally conveyed only by express written conveyance.

Many water right holders have conveyed all or part of the land to which an irrigation right was attached without realizing they were conveying part of their water right as well. These kinds of changes in ownership are often not reported to TCEQ. Therefore, to be sure that a seller still owns all of an irrigation water right, a buyer or seller should conduct a thorough title search. It may be advisable to conduct a water rights title search in the county deed records and/or to engage a title company to conduct the title search.

Non-irrigation water rights

Most surface water rights (not water) that are being sold in the Texas water market today are irrigation rights. Nonetheless, water rights with purposes other than irrigation are also being sold. Because these water rights are not attached to land, it is somewhat easier to determine whether the seller has title. TCEQ records may often be more accurate for non-irrigation rights. A title search of the county records can be done for these water rights as well.

Scope of the Water Right

Now that the vast majority of surface water rights in Texas have been settled judicially, it is easy to determine the scope of a water right. The face of the certificate of adjudication or permit should indicate the following:

- The number of acre-feet authorized to be diverted;
- The purpose of the water use;
- The diversion point;
- The diversion rate;
- A description of the land to be irrigated, in the case of an irrigation permit not held by a supplier; and
- The priority date.

Amount, purpose, place of use, and diversion

The amount of water that can be used, the purpose, location of the diversion point, and the diversion rate are all obviously important aspects of a surface water right. TCEQ files should be reviewed to make sure the certificate of adjudication or permit has not been subsequently amended in such a way as to change any of these aspects of the water right.

Special conditions/limitations

Some certificates and permits have important limitations on their face. Since the 1980s, TCEQ and its predecessor agencies, have also been issuing water rights that are not perpetual, but instead are limited-term rights with defined terms. Many such permits have a term of 10 years and at the end of the term, they must be renewed to continue to use water. However, as surface water use under permanent water rights increases, these term permits are becoming less and less likely to be renewed.

Other permits include special conditions meant to protect downstream water users or the environment. For example, some permits prohibit diversion unless the stream flow at a defined United States Geological Survey (U.S.G.S.) gauge is at a certain level.

Priority date

Every certificate of adjudication and surface water permit has a priority date. The basic rule of the appropriative system is: "As between appropriators, the first in time is the first in right." This means that when there is not enough water available in the river, newer rights will be cut off before older rights. Priority dates have a very significant impact on the value of a surface water right.

Title Conveyance

Every conveyance of a surface water right should be by an instrument that will be recorded in the county records. In addition, as soon as a copy of the recorded title conveyance is obtained, TCEQ should be informed of the transfer of ownership. TCEQ has a simple change-of-ownership form that must be completed and submitted along with a specified fee. When a permit or permit amendment is issued, TCEQ sends the permit to the permit holder to be filed in the county in which the diversion of water will take place.

Contract Negotiations

Contract negotiations may involve complicated issues related to due diligence, warranty, date-of-closure, as well as other considerations and therefore require the assistance of a legal professional.

{For additional information see Conveyance of Surface Water Rights by Robin A. Melvin; Texas Water Law Institute Seminar; September 28, 2001}

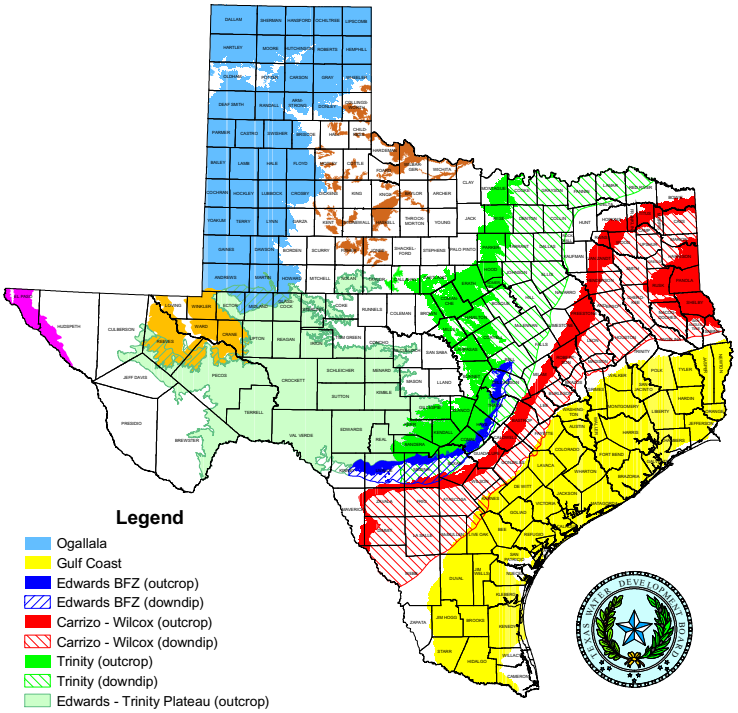
Groundwater:
A number of obstacles limit widespread groundwater marketing in Texas. These obstacles include both a lack of identifiable buyers and sellers and transaction costs that are often high. Another obstacle to groundwater marketing in Texas lies in the fact that there is often no economically reasonable means to physically move the water from areas of availability to areas of need, without the development of substantial conveyance systems. This condition is further complicated by the fact that many potential sellers of groundwater have no right of eminent domain necessary to condemn lands for conveyance right-of-way—a situation that may require legislative authorization to allow groundwater transport.

Also, in geographic areas not covered by a groundwater conservation district, there may be no mechanism for restricting how much groundwater may be used from the land where pumping is contemplated. The market in groundwater is, in that sense, almost totally unregulated (groundwater must not be wasted), a condition that may generate substantial uncertainty regarding the reliability of the groundwater source.

In general, the transfer of groundwater within and from groundwater districts is dependent on the particular rules of each district. In most, if not all districts, rules will have been adopted that address transfer requirements for wells that are located within a district's boundaries. (Note: a bill (78th: HB 423) is currently pending in the Texas Legislature that proposes that TCEQ approve certain types of groundwater transfers)

{For additional information please refer to other subsections on Groundwater Rights in Section I and Groundwater Conservation Districts in Section V}

Major Aquifers of Texas

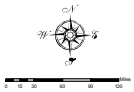


Legend

- Ogallala
- Gulf Coast
- Edwards BFZ (outcrop)
- Edwards BFZ (downdip)
- Carrizo - Wilcox (outcrop)
- Carrizo - Wilcox (downdip)
- Trinity (outcrop)
- Trinity (downdip)
- Edwards - Trinity Plateau (outcrop)
- Edwards - Trinity Plateau (downdip)
- Seymour
- Hueco - Mesilla Bolson
- Cenozoic Pecos Alluvium

NOTE: Chronology by Geologic age.

OUTCROP (That part of a water-bearing rock layer which appears at the land surface)
*DOWNDIP (That part of a water-bearing rock layer which dips below other rock layers)



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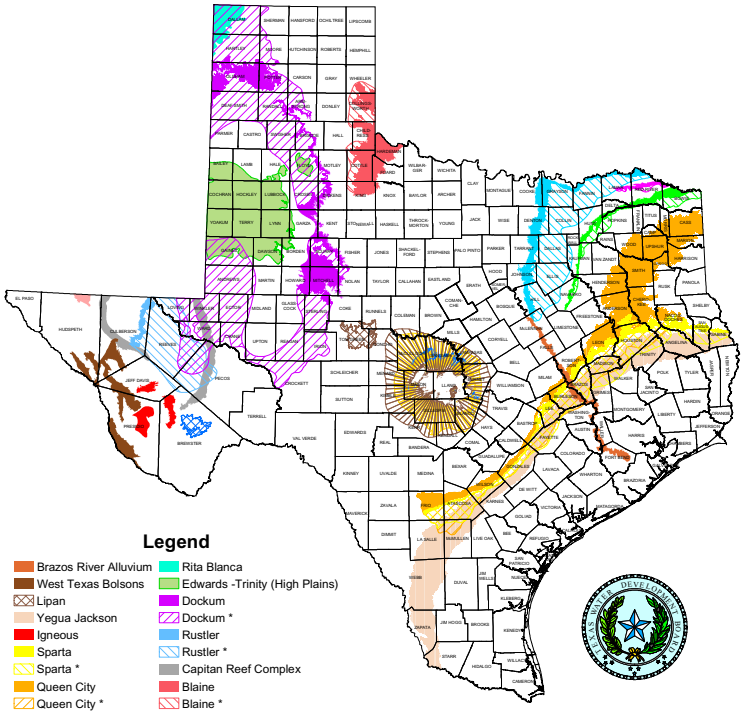
Minor Aquifers of Texas



Legend

- Brazos River Alluvium
- West Texas Bolsons
- Lipan
- Yegua Jackson
- Igneous
- Sparta
- Sparta *
- Queen City
- Queen City *
- Nacatoch
- Nacatoch *
- Blossom
- Blossom *
- Woodbine
- Woodbine *
- Rita Blanca
- Edwards -Trinity (High Plains)
- Dockum
- Dockum *
- Rustler
- Rustler *
- Capitan Reef Complex
- Blaine
- Blaine *
- Bone Spring - Victorio Peak
- Marble Falls
- Marathon
- Ellenburger - San Saba
- Ellenburger - San Saba *
- Hickory
- Hickory *

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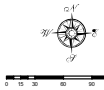

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Factors that Influence Price or Marketability River Authorities; Edwards Aquifer Authority; TCEQ Watermaster Program; Groundwater Districts

Certain fundamental conditions related to property rights in water must be in place for a market-based water transfer system to be successful. Property rights in water must be well defined, exclusive to the holder of the right, transferable, and enforceable against third parties (generally defined as parties not directly included in a transaction, that is, impacted parties other than the buyer or seller). If these conditions exist then the price or marketability of water and water rights becomes the predominant issue for potential buyers and sellers. There are a number of factors that influence the price and marketability of water and water rights in Texas. These factors include:

- The location of the water right;
- Whether the water is surface water or groundwater;
- The priority date of the surface water right;
- The anticipated use of the water;
- The quality and reliability of the water;
- Will the water right need to be amended, and can an amendment be obtained;
- Whether there are alternative sources of water; and
- Other administrative issues.

It has often been said by real estate professionals that the three things that contribute most to the value of real estate are location, location, and location. The same and more can be said for water rights where location not only refers to geographic location, but also, where the right is located on the priority date list.

For example, the holder of an upstream surface water right with a priority date of 1965 would legally have to stop using water under his/her certificate of adjudication or permit when a downstream user with a priority date of 1920 isn't getting enough water for their use. For this reason, the priority date of a water right, as well as its priority date in relation to the priority dates of the water rights around it, has a serious impact on the value of that water right. In general, the oldest water rights on a flowing stream segment are the most valuable.

The geographical location of the water right is also important, particularly if the water right is situated within the jurisdictional boundaries of a river authority, a watermaster program administered by TCEQ, the Edwards Aquifer Authority, or other groundwater conservation district. Considerations, related to these entities, which may affect the price and marketability of water and water rights are examined below.

River Authorities

River authorities are regional water management entities, each with its own enabling legislation, created to address the water development and planning needs of river basins. The boundaries of a river authority usually encompass the entire watershed of a particular river, although a river may be served by more than one authority. (e.g. Upper Colorado River Authority and Lower Colorado River Authority). The first river authority in Texas, the Brazos River Authority, was established in 1929 and comprises about one-sixth of the state's territory.

River authorities operate independently and control a large portion of the state's water rights. River authorities do not consume the water directly, but instead sell it to customers. It must be noted that only the right to use the water is sold and not the underlying water rights permit.

Surface water right figures compiled by TWDB indicate that there are 11,120 owners of active water rights in Texas. Of these 11,120 owners of water right permits, 170 holders control 95% of the authorized non-hydroelectric diversions of state water. About 1% of the water right holders control 95% of the state's surface water rights. Nine river authorities examined in this study (by Kaiser) hold water rights to more than six million acre-feet of water supplying about 20% of the consumptively used surface water in the state.

{For additional information please see Texas Water Marketing in the Next Millennium: A Conceptual and Legal Analysis, by Ronald A. Kaiser; Texas Tech Law Review, 1996}

TCEQ Rio Grande Watermaster Program

As mentioned earlier in Section I, the history of water rights in Texas included a dramatic lawsuit in the late 1950s over rights to waters of the Rio Grande. As a consequence of this lawsuit, a court-ordered water management plan for the border region was developed in 1970. The 1970 management plan envisioned that two reservoirs on the Rio Grande would operate as one system (the Falcon Reservoir already existed, and Lake Amistad had just been dedicated). The plan then prioritized allotments for municipal, industrial, and domestic uses over all other adjudicated water rights, including those for agriculture.

The Texas Water Rights Commission, a predecessor agency to TCEQ, was directed by the Texas Legislature in 1971 to implement and oversee the plan. Today, TCEQ's Rio Grande Watermaster Office in Harlingen is responsible for allocating, monitoring, and controlling the use of surface water in the Rio Grande basin from Fort Quitman in Hudspeth County to the Gulf Coast.

For water rights outside of the municipal, industrial, and domestic uses allocation, the water management plan apportions water in the Rio Grande below Amistad Reservoir according to a water right holder's total acreage and based on two classes of irrigation rights. As a result, in the year 2000, 27 irrigation districts, some of which were established during the 1910s, hold rights to a vast amount of Rio Grande water.

The watermaster office receives a steady flow of calls from surface water rights holders requesting permission to divert water from the river. These requests are verified against computer databases of contract and water rights accounts, certified, and then entered into a constantly evolving flow chart of scheduled diversions. In addition, the office serves as a clearinghouse for contract water sales and, as such, usually has information on the farmers or ranchers that have water for sale.

The Rio Grande Valley is unique in Texas in that it has a thriving water market based on correlative surface water rights. Correlative rights are based on the fact that all rights are from the same water storage areas and are reduced proportionally if there is a shortage, rather than allocated based on priority.

At least six factors have been identified that make the Rio Grande Valley a special case: there is no currently viable groundwater alternative; correlative rights are not based on seniority; the area has an active watermaster; there are many owners of water rights, as opposed to some areas of the State which are subject to virtual monopolies on supply; there has been strong urban growth in water demand; and there are few return flow complexities because most of

the return flows are discharged to the Arroyo Colorado and the Brownsville ship channel rather than back into the Rio Grande.

However, transportation capabilities are perhaps the most distinguishing feature of the Rio Grande water market as the river itself is the major conduit of water. Furthermore, the area is woven with canals owned by irrigation and other water districts. Most potential buyers, therefore, have easy access to the water.

Groundwater Conservation Districts

Outside of groundwater conservation districts, the sale of groundwater and groundwater rights remains largely unregulated in Texas. In fact, the largely unregulated nature of groundwater production compared to the highly regulated use of surface water has recently encouraged water suppliers to look at groundwater, and possibly the import of groundwater, as a viable water development option.

In those areas regulated by a groundwater conservation district, there may be certain obstacles to water marketing, particularly outside of the district's boundaries. Section 36.122 of the Texas Water Code specifically provides that a groundwater district may limit the transfer of water outside of a district, but may not impose more restrictive conditions on transporters than on existing in-district use.

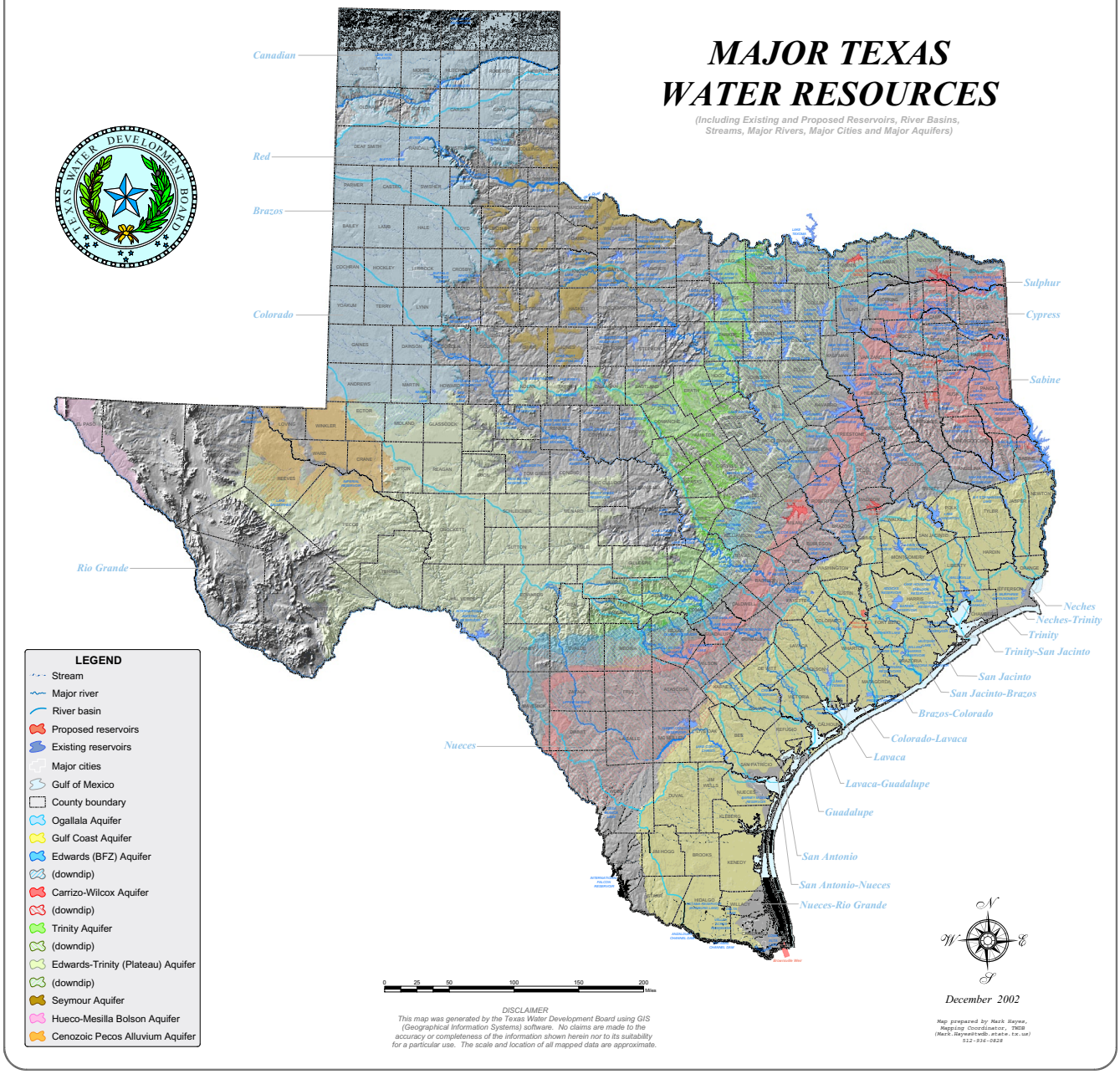
Groundwater conservation districts do not deprive or divest landowners of their marketable ownership rights in groundwater. Such rights do, however, become subject to rules promulgated by the district. For that reason, it can be said that the "rule of capture" does not fully apply within an active groundwater district. District rules may require well permitting, including permitting for moving groundwater out-of-district, limits on annual production, and allowable water table drawdown regulations. A well permit itself can become a part of the transferable commodity within a district's jurisdiction.

Edwards Aquifer Authority

An example of a functioning groundwater market can be found in the San Antonio area within the jurisdictional boundaries of the Edwards Aquifer Authority. The San Antonio Water System (SAWS) is leasing or purchasing Edwards aquifer water from irrigators and industrial permit holders to meet San Antonio's short-term needs and provide water for short-term growth. A combination of methods including leases, purchases, trades, and water conservation programs are utilized by SAWS to acquire additional Edwards water.

The Edwards Aquifer Authority has very particular powers that are unlike the other groundwater districts in Texas. The Act creating the Authority establishes trigger levels for limiting withdrawals from the aquifer. The Authority also is required to establish a permit system for regulating municipal, industrial and irrigation diversions from the aquifer based on historical use. There is an additional protection that existing irrigation users will receive a permit for not less than two acre-feet a year for each acre of land that the user actually irrigated in any one calendar year.

The Authority also is empowered to issue additional regular permits, term permits and emergency permits in certain cases. An Edwards groundwater right holder cannot sell or lease more than fifty percent of their irrigation rights. The remaining irrigation users' water rights must be used in accordance with the original permit and must pass with transfer of the irrigated land. This provision of the law is aimed specifically to address third-party impacts of groundwater transfers away from agricultural uses.


MAJOR TEXAS WATER RESOURCES
(Including Existing and Proposed Reservoirs, River Basins, Streams, Major Rivers, Major Cities and Major Aquifers)
TEXAS WATER DEVELOPMENT BOARD
Canadian
Red
Brazos
Colorado
Rio Grande
Nueces
Sulphur
Cypress
Sabine
Neches
Neches-Trinity
Trinity
Trinity-San Jacinto
San Jacinto
San Jacinto-Brazos
Brazos-Colorado
Colorado-Lavaca
Lavaca
Lavaca-Guadalupe
Guadalupe
San Antonio
San Antonio-Nueces
Nueces-Rio Grande
LEGEND
Stream
Major river
River basin
Proposed reservoirs
Existing reservoirs
Major cities
Gulf of Mexico
County boundary
Ogallala Aquifer
Gulf Coast Aquifer
Edwards (BFZ) Aquifer
(downdip)
Carrizo-Wilcox Aquifer
(downdip)
Trinity Aquifer
(downdip)
Edwards-Trinity (Plateau) Aquifer
(downdip)
Seymour Aquifer
Hueco-Mesilla Bolson Aquifer
Cenozoic Pecos Alluvium Aquifer
0 25 50 100 150 200 Miles
DISCLAIMER
This map was generated by the Texas Water Development Board using GIS (Geographical Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.
N W E S
December 2002
Map prepared by Mark Hayes, Mapping Coordinator, TWDB (Mark.Hayes@twdb.state.tx.us) 512-936-0828

Texas Water Bank; Texas Water Trust

Texas Water Bank

The Texas water bank was created in 1993 by the Texas Legislature in order to facilitate the voluntary transfer of water and/or water rights, either surface or groundwater, between willing buyers and sellers. The water bank, as administered by the Texas Water Development Board (TWDB), maintains registries of water and water rights for potential buyers and sellers, as well as a listing of deposits. It operates primarily as a bulletin board, similar to a real estate listing service, and also is an information clearing-house for water marketing information, although transaction details, such as pricing, are limited.

While posting availability information on the registries of buyers and sellers is currently free of charge, only the water rights that have actually been deposited in the water bank are entitled to protection from cancellation while on deposit in the bank. Transfers of water and/or water rights made through the water bank may be either temporary or permanent. Most surface water transactions also require a permit modification from the Texas Commission on Environmental Quality. Groundwater transactions are subject to all applicable rules of the groundwater conservation district in which the source groundwater may be located.

Additional information concerning the water bank, as well as the registries and deposit listing can be obtained at the TWDB Internet website at: http://www.twdb.state.tx.us.

Texas Water Trust

In 1997 the Texas Legislature created the Texas water trust within the Texas water bank for the protection of aquatic and riparian habitats. As described in an interim committee report of the 76th Texas Legislature, "A water trust is a repository where water rights can be transferred during periods of non-off-stream use in order to provide a measure of security that the water will remain instream."

According to Section 15.7031 of the Texas Water Code, the trust is to hold water rights dedicated to environmental needs, including instream flows, water quality, fish and wildlife habitat, or bay and estuary inflows. No water right may be placed into the trust without review and approval of TCEQ after appropriate consultation with TWDB and the Texas Parks and Wildlife Department. Water rights may be placed in the trust for a term of years or in perpetuity.

By statute, all deposits to the trust are protected from possible cancellation for as long as they remain in the trust.

Contact Information

For additional information regarding the trust please feel free to contact the Texas Water Development Board. Contact information can be obtained by calling TWDB's main telephone number or by accessing the agency's Internet website at: .

The Future of Water Marketing in Texas

Water marketing has taken and will continue to take many forms and the various types and uses of transferred water have the potential to meet various water supply needs. The bulk of these transfers are anticipated to involve leases of water and not the outright sale of water rights. However, water marketing is not a cure-all but one of several tools municipalities, irrigators, industry and others in Texas may utilize to meet their current and future demands for water. Other water supply strategies include water conservation, desalination of sea water, brush control, recycling wastewater, and voluntary land retirement—taking marginal agricultural lands out of production. The 2002 State Water Plan contemplates using a combination of these and other methods to insure that the state's most valuable resource, water, is available for future uses.

If the experience in other Western States holds true for Texas, much of the future of water marketing will come by way of contract sales of currently unused water stored in large water supply projects. To a large extent, these transfers can be accomplished with minimal state administrative oversight.

There is general consensus among water marketing experts in Texas that development of a more viable water marketing system will require additional conveyance and storage facilities, and that a combined effort by the State and private enterprise to develop these needed facilities would significantly increase the feasibility of water marketing transactions outside of the lower Rio Grande Valley.

In addition to structural challenges, the future of water marketing in Texas must contend with a number of other issues such as minimizing transaction costs and uncertainties related to water transfers, increasing the number of interested buyers and sellers and the information readily available to them, and defining a public interest review of transfers that considers potential third-party impacts and protects the environment. In addition, water-marketing efforts must realize the tremendous potential of moving water from water rich areas of the state to urban centers without endangering the future economies of rural Texas and other export basins of origin.

Legal Contact Information

For any sale or contract involving the conveyance of real property, it is recommended that both buyer and seller obtain separate legal counsel. The State Bar of Texas operates a Lawyer Referral Information Service. According to public information provided by the State Bar of Texas this service attempts to match persons who have legal needs with attorneys who are members of the referral service. For information regarding the Lawyer Referral Information Service feel free to contact the State Bar of Texas at the agency's main telephone number or via the Internet at .

Glossary

Acre-foot – The amount of water that would cover an acre of land one foot deep (325,851 gallons). It is estimated that on average an acre-foot of water can support the annual indoor and outdoor needs of between one and two urban households.

Aquifer – A geologic formation that stores water, aquifers may yield significant quantities of water to wells and springs and this water is often utilized as a primary source for municipal, industrial, irrigation and other uses.

Beneficial use – Use of the amount of water which is economically necessary for a purpose authorized by a permit, when reasonable intelligence and reasonable diligence are used in applying the water to that purpose and shall include conserved water.

Brush control – The selective control, removal, or reduction of noxious brush such as mesquite, prickly pear, salt cedar, or other phreatophytes that consume water to a degree that is detrimental to water conservation; and the revegetation of land on which this brush has been controlled.

Conserved water – That amount of water saved by a holder of an existing permit, certified filing, or certificate of adjudication through practices, techniques, and technologies that would otherwise be irretrievably lost to all consumptive beneficial uses arising from storage, transportation, distribution, or application.

Desalination – Specific treatment processes to demineralize seawater or brackish (saline) water.

Developed water –New waters added to a stream or other source of water supply through artificial means.

Diffused surface water – Water which, in its natural state, occurs on the surface of the ground prior to its entry into a watercourse, lake or pond.

Groundwater – Water occurring under the surface of the land other than underflow of a surface water river or stream.

Interbasin transfer – Transfers of water from one river basin to another.

Surface water –Also known as "public" or "state" water. Water of the ordinary flow, underflow, and tides of every flowing river, natural stream, and lake, and of every bay or arm of the Gulf of Mexico. Also includes water that is imported from any source outside the boundaries of the state for use in the state and that is transported through the bed and banks of any navigable stream within the state or by utilizing any facilities owned or operated by the state. Additionally, state water injected into the ground for an aquifer storage and recovery project remains state water. State water does not include percolating groundwater; nor does it include diffuse surface rainfall runoff, groundwater seepage, or spring water before it reaches a watercourse.

Third-party impacts – Direct and indirect economic, social or environmental effects of a water transfer to a party other than the seller or buyer including other water rights holders.

Watercourse –The definition of a watercourse comes from case law. In Hoefs v. Short (1925) the Texas Supreme Court approved the following principles as to the legal requirements for a watercourse: It must be a definite stream of water in a definite natural channel, with well defined bed and banks, from a definite source or sources of supply.

Water table – The upper surface of the saturated zone that determines the water level in a well in an unconfined aquifer.