

Glossary and Acronyms for Water, Land, Climate, Wildlife and Regulations

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100 Year Flood- A flood or storm that has a 1% probability of occurring in any given year. The 100-year flood zone is the extent of the area of a flood that has a 1% chance of occurring or being exceeded in a given year. Unfortunately, many areas in Texas have suffered through many of these floods in a short period of time recently. <https://www.globalchange.gov/climate-change/glossary>

303 Impaired Waterways- Under section 303(d) of the Clean Water Act states, territories and authorized tribes are required to develop lists of impaired waters. These are waters for which technology-based regulations and other required controls are not stringent enough to meet the water quality standards set by states. <https://www.epa.gov/tmdl/overview-identifying-and-restoring-impaired-waters-under-section-303d-cwa>

305 (b)- Section 303(d) of the Clean Water Act (CWA) mandates States to develop lists of all impaired waterbodies and prioritize these waters for establishment of plans to restore degraded areas (Total Maximum Daily Load reports). In addition, section 305(b) requires States to report on the overall condition of aquatic resources. https://cfpub.epa.gov/si/si_public_record_Report.cfm?Lab=NHEERL&dirEntryId=60210

5/5/2/1 - this refers to the discharge limits set in a TCEQ Discharge permit for Biochemical Oxygen Demand (5-day) of 5 mg/l, Total Dissolved Solids of 5 mg/L, Ammonia Nitrogen of 2 mg/L, and Total Phosphorus of 1 mg/L. This is not a formula set in statute, but is about the best that is used in regulating wastewater discharge.

Abandoned Well- A water well that is not in use. Unfortunately these can be an open conduit to contaminate the aquifers. Since many wells are not licensed, there is no easy way to locate and evaluate the status of abandoned wells. <https://abandonedwell.tamu.edu/>

ACEP- see Agricultural Conservation Easement Program

Acid rain—rain or other precipitation containing a high amount of acidity. <https://texasaquaticscience.org/glossary-aquatic-science/>

Acre-Foot of Water- A common measurement of water, especially in lakes, ponds and extraction from wells. It is the amount of water one foot deep in an acre. It equals 325,851 gallons, = 43,560 cubic feet = 75,271,680 cu in.

http://www.twdb.texas.gov/conservation/education/doc/Acre-Foot_flyer.pdf

Acre-foot per year- It is a measure of water use over a year. One acre-foot/year is approximately 893 gallons (3.38 m³) per day.

AF-see Acre-Foot of Water

AFY- see Acre-foot per year

Agricultural Conservation Easement Program- the Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, NRCS helps American Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect and enhance enrolled wetlands.

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/>

Algae bloom—a rapid increase in the population and biomass of algae (phytoplankton) in an aquatic system. <https://texasaquaticscience.org/glossary-aquatic-science/>

Alliance Regional Water Authority- Formed in January, 2007, Alliance Water (formerly the Hays Caldwell Public Utility Agency) is comprised of the cities of San Marcos, Kyle, and Buda, along with the Canyon Regional Water Authority, which represents County Line Special Utility District, Crystal Clear Water Supply Corporation, Green Valley Special Utility District, and Martindale Water Supply Corporation. <http://alliancewater.org/>

Ammonia (NH₃) - a common form of nitrogen that can be toxic and also contribute to the nutrient enrichment of waters.

Anthropocene- the current geological age, viewed as the period during which human activity has been the dominant influence on climate and the environment.

Aquifer- When a water-bearing rock readily transmits water to wells and springs, it is called an aquifer. Wells can be drilled into the aquifers and water can be pumped out. Precipitation eventually adds water (recharge) into the porous rock of the aquifer. The rate of recharge is not the same for all aquifers, though, and that must be considered when pumping water from a well. Pumping too much water too fast draws down the water in the aquifer and eventually causes a well to yield less and less water and even run dry. In fact, pumping your well too much can even cause your neighbor's well to run dry if you both are pumping from the same aquifer. <https://water.usgs.gov/edu/earthgwaquifer.html>

Aquifer Storage and Recovery- Injecting excess water back into the aquifer to use at another time. <https://www.epa.gov/uic/aquifer-recharge-and-aquifer-storage-and-recovery>

http://www.nbutexas.com/Portals/11/pdf/ASR%20advertorial%202017_FINAL.pdf

Aquitard- is a body that does not allow transmission of a significant amount of water.

The Aransas Project- an organization on the Texas coast interested in adequate river flow in the Guadalupe River basin to protect the endangered Whooping Cranes in San Antonio Bay. They sued the TCEQ because of low flow rates in 2008/2009 that allegedly led to the death of 8.5% of the Whooping Cranes that year. There is now an agreement between TAP and the GBRA to manage the flow in the Guadalupe River. <http://thearansasproject.org/about/>

Artesian Zone of the Edward's Aquifer- Once recharge water works its way by gravity down into the artesian zone, there are other rock formations lying over the Edwards, and water is trapped inside. The artesian zone of the Edwards is confined between two relatively impermeable formations - the Glen Rose formation below and the Del Rio clay on top. The sheer weight of new water entering the Aquifer in the recharge zone puts tremendous pressure on water that is already deeper down in the formation. Flowing [artesian wells](#) and springs exist where hydraulic pressure is sufficient to force water up through wells and faults to the surface. Major natural discharge occurs at [San Marcos Springs](#) and [Comal Springs](#) in the northeast. [San Antonio Springs](#) and [San Pedro Springs](#) in San Antonio are dry most of the time because large amounts of water are pumped from the ground by users in Bexar county, but they flow when Aquifer levels are very high. Water moves generally from southwest to northeast through the Aquifer ([see Flowpath Map](#)), and there are a number of barrier faults that make it difficult for waters in the various units of the Aquifer to mix together. These faults, along with varying porosities and permeability's of the limestone, control the movement of water in the Aquifer. The [J-17 index well](#) is used to monitor the amount of pressure that water in the artesian zone is under. Changing pressure is reflected in rising or falling well levels. <http://www.edwardsaquifer.net/intro.html>

ARWA- see **Alliance Regional Water Authority**

ASR- see **Aquifer Storage and Recovery**

Atlas 14 National Weather Service- contains the updated rainfall data for the US and will be used for updating storm runoff estimates, 100 year flood plains and building codes.

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html

Atmosphere- The gaseous envelope surrounding the Earth. The dry atmosphere consists almost entirely of nitrogen (78.1% volume mixing ratio) and oxygen (20.9% volume mixing ratio), together with a number of trace gases, such as argon (0.93% volume mixing ratio), helium, radiatively active greenhouse gases such as carbon dioxide (0.035% volume mixing ratio), and

ozone. In addition the atmosphere contains water vapor, whose amount is highly variable but typically 1% volume mixing ratio. The atmosphere also contains clouds and aerosols.

https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Average Monthly Discharge Limitations—The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during that month divided by the number of days on which monitoring was performed (except in the case of fecal coliform). <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Average Weekly Discharge Limitation—The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Barton Springs Edwards Aquifer Conservation District- the 70th Texas Legislature passed Senate Bill 988 in 1987 and created the Barton Springs/Edwards Aquifer Conservation District as a GCD under what is now Chapter 36, with a directive to conserve, protect, and enhance the groundwater resources in its jurisdictional area. This area encompasses approximately 247 square miles in Caldwell, Hays, and Travis Counties. June 19, 2015 marked the effective date of House Bill 3405, which brings the previously unregulated Trinity Aquifer portion of Hays County under management of BSEACD. <https://bseacd.org/>

Bat Conservation International- an international group that is dedicated to the enduring protection of the world's 1300+ species of bats and their habitats and creating a world in which bats and humans successfully coexist. They control the Bracken Bat Cave in southern Comal County which is the largest collection of bats and mammals in the world.

<http://www.batcon.org/our-work/regions/usa-canada/protect-mega-populations/bracken-cave>

BCI- see **Bat Conservation International**

Benthic community, benthos—the community of organisms that live on or in the floor of a body of water, including rivers, lakes, estuaries, and oceans.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Benthic macroinvertebrates—invertebrates visible without the aid of a microscope that live on or in the bottom substrate. <https://texasaquaticscience.org/glossary-aquatic-science/>

Biological (Biochemical) Oxygen Demand- A measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days) in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Biodiversity—the number and variety of living things in an environment.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Biofilter- The use of living organisms to filter out pollutants contained in water.

BOD- see **Biological (Biochemical) Oxygen Demand**

Brightstar Capitol Properties- a private investment firm that has put significant capital into the Texas Water Supply Company to supply more water from about 40 wells in the Central Trinity Aquifer. Many if not all of these wells are grandfathered. <https://www.prnewswire.com/news-releases/brightstar-capital-partners-closes-investment-in-texas-water-supply-company-300533867.html>

<http://www.brightstarcapital.com>

BSEACD-see **Barton Springs Edwards Aquifer Conservation District**

Bypass—the intentional diversion of waste streams from any portion of a treatment (or pretreatment) facility.

CAFO- Confined Animal Feeding Operation.

Canyon Lake Water Service Company- Canyon Lake Water Service Company is a state-regulated investor owned utility providing water service to approximately 36,000 people through more than 13,400 connections in Comal and southern Blanco Counties. On May 31, 2006 the utility became part of the **SJW Corp.** and a member of the **San Jose Water** family via the purchase of Canyon Lake Water Supply Corporation by SJWTX, Inc. The original Canyon Lake Water Supply Corporation became an operating entity in 1994 as a member-owned non-profit water utility, consolidating 46 separate ground water systems. The residents of the 46 independent systems were consuming groundwater from Trinity Aquifer wells which yielded an insufficient quantity of water to meet the summer peak demand. The Supply Corporation founders recognized that groundwater supplies alone were inadequate to support the water demands of a growing community and that centralized surface water treatment plants would make it possible to distribute surface water from Canyon Lake to the residents in Comal County. <https://www.clwsc.com/>

Canyon Regional Water Authority- A water provider representing many entities in and around San Marcos and Hays County. <http://www.crwa.com/about-crwa/>

Capped Well- this is a water well that has been closed or capped with a covering capable of preventing surface pollutants from entering the well. <http://twon.tamu.edu/media/385877/capping%20of%20water%20wells%20for%20future%20use.pdf>

Carbon Dioxide Equivalent- A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "million metric tons of carbon dioxide equivalents (MMT_{CO₂Eq}).". The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP.

MMTCO₂Eq = (million metric tons of a gas) * (GWP of the gas)

<https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms .html>

Carbon Footprint- The total amount of greenhouse gases that are emitted into the atmosphere each year by a person, family, building, organization, or company. A persons carbon footprint includes greenhouse gas emissions from fuel that an individual burns directly, such as by heating a home or riding in a car. It also includes greenhouse gases that come from producing the goods or services that the individual uses, including emissions from power plants that make electricity, factories that make products, and landfills where trash gets sent.

<https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms .html>

Carbon Sequestration- Terrestrial, or biologic, carbon sequestration is the process by which trees and plants absorb carbon dioxide, release the oxygen, and store the carbon. Geologic sequestration is one step in the process of carbon capture and sequestration (CCS), and involves injecting carbon dioxide deep underground where it stays permanently.

<https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms .html>

Cave - a hole in rock large enough to hold a person.

Cavern- A large cave formed in soluble rock that has the ability to form speleothems.

CCN- see Certificates of Convenience and Necessity

Central Texas Conservation Partnership- The Central Texas Conservation Partnership is a collaborative effort of several public and private natural resource organizations. Our goal is to provide a centralized, accessible resource for important information and guidelines for effectively conserving the property you already have or enhancing your property to meet your goals. <http://texasconservation.org/>

Certificates of Convenience and Necessity- a Certificate of Convenience and Necessity (CCN) gives a CCN holder the exclusive right to provide retail water and/or sewer utility services to an identified geographic area. CCNs are administered through the Public Utility Commission of Texas (PUC). Chapter 13 of the Texas Water Code requires a CCN holder to provide continuous and adequate service to the area within the boundary of its CCN. Municipalities and districts normally are not required to have a CCN; however some municipalities and districts do have a CCN. A district or municipality may not provide retail water or sewer services within an area for which another utility holds a CCN unless the district or municipality has a CCN for the area.

<https://www.puc.texas.gov/industry/water/utilities/gis.aspx>

CFS- see Cubic Feet per Second

CFU- see Colony Forming Units

Channel—the part of the stream where water collects to flow downstream, including the streambed, gravel bars and stream banks; also, a dredged passageway within a coastal bay that allows maritime navigation. <https://texasaquaticscience.org/glossary-aquatic-science/>

Chapter 210- TCEQ regulations on Beneficial Reuse of Graywater. Apparently some developers say they are going to apply for this permit and reuse treated sewage effluent on site, but once they are approved for a discharge permit, they do not apply for a Chapter 210 wastewater reuse permit and directly discharge effluent into streams.

http://txrules.elaws.us/rule/title30_chapter210

Chemical Oxygen Demand (COD)—a measure of the oxygen-consuming capacity of inorganic and organic matter present in wastewater. COD is expressed as the amount of oxygen consumed in mg/l. Results do not necessarily correlate to the biochemical oxygen demand (BOD) because the chemical oxidant may react with substances that bacteria do not stabilize.

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Chlorofluorocarbons- Gases covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere, CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are being replaced by other compounds: hydro chlorofluorocarbons, an interim replacement for CFCs that are also covered under the Montreal Protocol, and hydrofluorocarbons, which are covered under the Kyoto Protocol. All these substances are also greenhouse gases.

<https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms .html>

The Cibolo Conservancy- The Cibolo Conservancy was formed in 1998 as a sister organization of the Cibolo Nature Center, a community-based educational center which was founded ten years earlier. Our mission is the preservation and conservation of the cultural and natural resources of the Cibolo Creek Watershed and surrounding areas in the Texas Hill Country.

<http://www.ciboloconservancy.org/>

Clean Water Act- the Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1972. It was formerly referred to as the Federal Water Pollution Control Act of 1972 or Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), 33 U.S.C. 1251 et. seq., as amended by: Public Law 96-483; Public Law 97-117; Public Laws 95-217, 97-117, 97-440, and 100-04.

<https://www.epa.gov/laws-regulations/summary-clean-water-act>

Climate- Climate in a narrow sense is usually defined as the "average weather," or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands of years. The classical

period is 3 decades, as defined by the World Meteorological Organization (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. <https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms.html>

Clean Rivers Program- the Texas Clean Rivers Program is a partnership between the Texas Commission on Environmental Quality (TCEQ) and regional water authorities to coordinate and conduct water quality monitoring, assessment, and stakeholder participation to improve the quality of surface water within each river basin in Texas. GBRA (Guadalupe Blanco River Authority), along with the Upper Guadalupe River Authority (UGRA) manages our area. <https://www.tceq.texas.gov/waterquality/clean-rivers>

Clean Water State Revolving Fund- provides low-cost financial assistance for planning, acquisition, design, and construction of wastewater, reuse, and stormwater infrastructure through the clean Water Act. Eligible applicants for the CWSRF include cities, counties, districts, river authorities, designated management agencies, authorized Indian tribal organizations, and public and private entities proposing nonpoint source or estuary management projects. <http://www.twdb.texas.gov/financial/programs/CWSRF/>

Climate Change- Changes in average weather conditions that persist over multiple decades or longer. Climate change encompasses both increases and decreases in temperature, as well as shifts in precipitation, changing risk of certain types of severe weather events, and changes to other features of the climate system. Some people believe this should be called **Climate Crisis**. <https://www.globalchange.gov/climate-change/glossary>

CLWSC- see Canyon Lake Water Service Company

COD- see Chemical Oxygen Demand

Colony Forming Units- When reporting bacteria concentration (*E.coli* or *Enterococci*), the unit of measure required on the discharge monitoring report (DMR) are expressed in either colony forming units (CFU) or most probable number (MPN) of bacteria per 100 milliliters effluent.

<https://www.tceq.texas.gov/assistance/water/wastewater/ww-bac-t.html>

<http://twri.tamu.edu/docs/education/2012/em114.pdf>

Comal County Conservation Alliance- a 501 © (3) group formed in 2018 that is working to protect land, water, and wildlife in Comal County. <https://www.comalconservation.org/>

Comal County Regional Habitat Conservation Plan- A Habitat Conservation Plan (HCP) is a tool by which a non-Federal entity may obtain authorization under the ESA to conduct activities such as land development that might otherwise cause the unlawful “take”¹ of species listed as threatened or endangered under the ESA. An HCP (or in this case a countywide, or regional, HCP) specifies conservation measures that will be implemented in exchange for a section 10(a)(1)(B) permit from the U.S. Fish and Wildlife Service (Service) that allows a specified level

of incidental take of listed species. "Incidental take" is take of any federally listed wildlife species that is incidental to, but not the purpose of, otherwise lawful activities (ESA section 10(a)(1)(B)). In this RHCP, incidental take is expressed as the number of acres of potential Covered Species habitat that will be impacted by covered activities. August 1, 2013. Finalized by the Comal Commissioners Court in 2017.

https://www.comalconservation.org/uploads/1/2/0/2/120201064/final_comal_county_rhcp.pdf

Comal Trinity Groundwater Conservation District- the Comal Trinity Groundwater Conservation District (CTGCD) was created to help Comal County residents conserve, preserve, recharge, protect, and prevent waste of groundwater from the Trinity Aquifer which underlies all of Comal County.

The Comal Trinity GCD was created during the 2015 84th Texas Legislature with the enrollment of House Bill 2407 and became effective 17 June 2015. The bill provides the GCD the authority to issue bonds; and impose assessments, fees, or surcharges.

<https://www.comaltrinitygcd.com/>

Confined Animal Feeding Operation CAFO- It is an agricultural operation where animals are raised in confined conditions to maximize production.

Conservation; to conserve—the wise use of natural resources such that their use is sustainable long term; includes protection, preservation, management, restoration and harvest of natural resources; prevents exploitation, pollution, destruction, neglect and waste of natural resources.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Conservation Easement- A conservation easement is a **voluntary, written agreement** between a landowner and the "holder" of the conservation easement under which a landowner voluntarily restricts certain uses of the property to protect its natural, productive or cultural features in perpetuity. The holder of the conservation easement must be a governmental entity or a qualified conservation organization. With a conservation easement, the landowner retains legal title to the property and determines the types of land uses to continue and those to restrict. As part of the arrangement, the landowner grants the holder of the conservation easement the right to periodically assess the condition of the property to ensure that it is maintained according to the terms of the legal agreement.

<http://www.texaslandtrustcouncil.org/index.php/about/what-is-a-conservation-easement>

Contributing Zone of the Edward's Aquifer- it occurs on the Edwards Plateau, also called the Texas Hill Country. It is about 5,400 square miles, and elevations range between 1,000 and 2,300 feet above sea level. The contributing zone is also called the drainage area or the catchment area. Here the land surface "catches" water from rainfall that averages about 30" per year, and water runs off into streams or infiltrates into the [water table aquifer](#) of the plateau. Runoff from the land surface and water table springs then both feed streams that flow

over relatively **impermeable** limestones until they reach the recharge zone.

<http://www.edwardsaquifer.net/intro.html>

Contributing Zone Plan- A contributing zone plan is submitted to the TCEQ and it outlines best management practices that will be implemented in order to protect water quality when a regulated activity is conducted in the contributing zone of the Edwards Aquifer. The contributing zone is the area or watershed where runoff from precipitation flows to the recharge zone of the Edwards Aquifer.

<https://www.tceq.texas.gov/permitting/eapp/czplan.html>

CRP- see Clean Rivers Program

CRWA- see Canyon Regional Water Authority

CTGCD- see Comal Trinity Groundwater Conservation District

Cubic Feet per Second- (CFS, ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term “second-foot” sometimes is used synonymously with “cubic foot per second” but is now obsolete. https://water.usgs.gov/ADR_Defs_2005.pdf

CWA- see Clean Water Act

CZP- see Contributing Zone Plan

Daily Discharge—the discharge of a pollutant measured during any 24- hour period that reasonably represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged during the day. For pollutants with limitations expressed in other units of measurement (e.g., concentration) the daily discharge is calculated as the average measurement of the pollutant throughout the day (40 CFR §122.2).

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Daily Maximum Limit—the maximum allowable discharge of pollutant during a calendar day. Where daily maximum limitations are expressed in units of mass, the daily discharge is the total mass discharged over the course of the day. Where daily maximum limitations are expressed in terms of a concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day.

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Decomposition- The breakdown or decay of organic matter.

Designated use: Simple narrative description of water quality expectations or water quality goals. A designated use is a legally recognized description of a desired use of a water body, such as (1) support of communities of aquatic life, (2) body contact recreation, (3) fish consumption,

and (4) public drinking water supply. These are uses that the state or authorized tribe wants the water body to be healthy enough to fully support. The Clean Water Act requires that water bodies attain or maintain the water quality needed to support designated uses.

Desired Future Conditions- are defined in Title 31, Part 10, §356.10 (6) of the Texas Administrative Code as "the desired, quantified condition of groundwater resources (such as water levels, spring flows, or volumes) within a management area at one or more specified future times as defined by participating groundwater conservation districts within a groundwater management area as part of the joint planning process.

http://www.twdb.texas.gov/groundwater/management_areas/DFC.asp

DFC- see **Desired Future Conditions**

Dissolved Oxygen- the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

https://water.usgs.gov/ADR_Defs_2005.pdf

DO- see **Dissolved Oxygen**

Drought—an extended period of below normal rainfall or other deficiency in water supply.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Drinking Water State Revolving Fund- authorized by the Safe Drinking Water Act, provides low-cost financial assistance for planning, acquisition, design, and construction of water infrastructure. Eligible applicants for the DWSRF include publicly and privately owned community water systems, including nonprofit water supply corporations and nonprofit, non-community public water systems.

<http://www.twdb.texas.gov/financial/programs/DWSRF/index.asp>

EAA- see **Edwards Aquifer Authority**

EACZ- see **Edwards Aquifer Contributing Zone**

EAHCP- see **Edwards Aquifer Habitat Conservation Plan**

EAPP- see **Edwards Aquifer Protection Program**

EARIP- see **Edwards Aquifer Recovery Implementation Plan**

EARZ- see **Edwards Aquifer Recharge Zone**

Ecology—study of the relationships living organisms have with each other and with their environment. <https://texasaquaticscience.org/glossary-aquatic-science/>

Ecosystem—a community of organisms together with their physical environment and the relationships between them. <https://texasaquaticscience.org/glossary-aquatic-science/>

Edwards Aquifer- the San Antonio Segment of the Balcones Fault Zone Edwards Aquifer (Aquifer) in South-Central Texas is one of the most productive aquifers in the United States. The Edwards Aquifer is a karst aquifer and is characterized by the presence of sinkholes, sinking streams, caves, large springs and highly productive water wells. Karst aquifers are considered triple permeability aquifers. Water is contained in the rock matrix, in fractures and faults and in caves and conduits. Conduits or solution channels within the Aquifer range from the size of a finger to tens of feet in diameter. The interconnected fractures and conduits in the Edwards Aquifer accounts for its extremely high yielding wells and springs. As is characteristic of many karst aquifers, the Aquifer exhibits extremely high (cavernous) porosity and permeability, allowing for the transmission of large volumes of water and enabling groundwater levels within the Aquifer to respond quickly to rainfall events (known as recharge). The large interconnected openings in the rock also exhibit a diverse fauna of more than 40 species including eyeless salamanders, shrimp and two species of catfish. Geographically, the Aquifer extends through parts of Kinney, Uvalde, Zavala, Medina, Frio, Atascosa, Bexar, Comal, Guadalupe and Hays counties and covers an area approximately 180 miles long and five to 40 miles wide.

<https://www.edwardsaquifer.org/science-and-maps/about-the-edwards-aquifer>

Edwards Aquifer Authority- the EAA was created by the Texas Legislature in 1993, at the behest of United States District Judge Lucius Bunton. The judge's ruling earlier that year ordered the U.S. Fish & Wildlife Service to set minimum spring flow standards for Comal and San Marcos springs, the two largest springs in the southwestern United States. Endangered species that relied on those springs for their survival must be protected. The Texas Legislature reacted to Bunton's decision by creating the Edwards Aquifer Authority as the regulatory agency overseeing groundwater in the Edwards Aquifer. Pumping limits were written into the law designating the conservation and reclamation district, a first for Texas.

<https://www.edwardsaquifer.org/>

Edwards Aquifer Contributing Zone- The area or watershed where runoff from precipitation flows downgradient to the recharge zone of the Edwards Aquifer.

Edwards Aquifer Habitat Conservation Plan- is intended to provide assurance that suitable habitat for **covered species** will remain in both the San Marcos and Comal Springs, despite lawful water use activities within the Edwards Aquifer region.

Through a stakeholder driven process, the **Edwards Aquifer Recovery Implementation Program** recommended that the Edwards Aquifer Authority, the City of San Antonio-- represented by the San Antonio Water System, the City of San Marcos, the City of New Braunfels, and Texas State University apply for an **Incidental Take Permit (ITP)** under the Endangered Species Act. This Habitat Conservation Plan (HCP) is intended to support the issuance of an ITP which would allow the "incidental take" of threatened or endangered species

resulting from the otherwise lawful activities involving regulating and pumping of groundwater from the Edwards Aquifer (Aquifer) within the boundaries of the EAA for beneficial use for irrigation, industrial, municipal and domestic and livestock uses, and the use of the Comal and San Marcos spring and river systems for recreational and other activities.

All projects outlined in the HCP are designed to provide overall benefit to the spring systems and the species that inhabit those springs through the three major project categories:

- Habitat protection measures
- Flow protection measures
- Supporting measures

<http://eahcp.org/>

Edwards Aquifer Protection Program- a San Antonio led program that has uses sales tax monies to buy land or Conservation Easements to preserve land over the Edwards Aquifer.

<https://www.sanantonio.gov/EdwardsAquifer>

Edwards Aquifer Recharge Zone- Generally, that area where the stratigraphic units constituting the Edwards Aquifer crop out, including the outcrops of other geologic formations in proximity to the Edwards Aquifer, where caves, sinkholes, faults, fractures, or other permeable features would create a potential for recharge of surface waters into the Edwards Aquifer.

<http://www.edwardsaquifer.net/intro.html>

Edwards Aquifer Recovery Implementation Plan- the EARIP was the process through which stakeholders recommended the establishment of the Edwards Aquifer Habitat Conservation Plan (see EAHCP, above).

https://www.fws.gov/southwest/es/Documents/R2ES/EARIP_HCP_Final_Nov_2012.pdf

Effluent- Treated or partially treated wastewater that flows out of a treatment plant, septic system, pipe, etc.

ETJ- see Extra Territorial Jurisdiction

Endangered Species- a federally or state-listed protected species in danger of extinction throughout all or a significant portion of its range.

[https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf.pdf)

Environmental Impact Statement- (EIS) a detailed, written analysis of the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources [cf. 40 CFR 1508.11]

[https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf.pdf)

Environmental Protection Agency- an independent agency of the US Government established on July 9, 1970. The agency has jurisdiction over environmental research, regulation, assessment and education. Enforcement includes fines, sanctions and other measures. They also make voluntary agreements with industry.

EPA- Environmental Protection Agency

Erosion- The wearing away of the land surface by rain, running water, wind, ice, gravity, or other natural or man-made agents.

Exempt Well- “Exempt Well” as defined in HB 2407 Section 8875.106: a) Is used solely for domestic use or for providing water for livestock or poultry regardless of land lot size and is drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater a day; b) Is not capable of producing more than 10,000 gallons of water a day; or c) Is metered and does not produce more than 10 acre-feet of water in a calendar year. This definition may vary depending on which Groundwater Conservation District is defining exempt. https://docs.wixstatic.com/ugd/e62693_cbc4c042cf734da59dab89e448dd86b3.pdf

Ephemeral Streams- a stream that flows only briefly during and following a period of rainfall in the immediate locality. <https://www.merriam-webster.com/dictionary/ephemeral%20stream>

Eutrophication - Enrichment of an aquatic ecosystem with nutrients (nitrogen, phosphorus) that accelerates biological productivity (growth of algae and weeds) and the undesirable accumulation of algal biomass.

Extra Territorial Jurisdiction- The contiguous area around a municipality. The size varies by the population of the municipality. <https://statutes.capitol.texas.gov/Docs/LG/htm/LG.42.htm>

Extirpated- status of a species or population that has completely vanished from a given area but that continues to exist in some other location. [https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf.pdf)

Extinction- the termination of any lineage of organisms, from subspecies to species and higher taxonomic categories from genera to phyla; extinction can be local, in which one or more populations of a species or other unit vanish but others survive elsewhere, or total (global), in which all the populations vanish. [https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf.pdf)

Farm and Ranchland Conservation Program- A part of the NRCS that provides funds for agricultural easements. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/farmranch/>

Fecal Coliform Bacteria- Coliform organisms are bacteria commonly found in the feces of humans, animals, and the environment. Their presence in drinking water indicates that conditions in the water system can support the existence of disease-causing pathogens.

Coliform bacteria may not cause illness, but they indicate that conditions are suitable for the existence of other microbes that can cause illness. Pathogenic contamination is the greatest health risk to consumers who obtain their water from a PWS. In Texas, every PWS is required to disinfect the water to kill (inactivate) pathogens. The different kinds of coliform organisms that are tested for include total coliform, fecal coliform, and Escherichia coli. If a sample tests positive for total coliform, it is then tested for fecal coliform or E. coli (or both). Both can cause illness. https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-421.pdf

Federally Listed Species- a species listed either as endangered, threatened, or a species at risk (formerly, a “candidate species”) under the Endangered Species Act of 1973, as amended. [https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf.pdf)

Fee Simple Acquisition- Outright purchase of property. Property is usually then conveyed to a nonprofit organization or group for management. https://www.saws.org/environment/ResourceProtComp/aquifer_protection/acquisition.cfm

First-order stream—a small stream with no tributaries coming into it. <https://texasaquaticscience.org/glossary-aquatic-science/>

Floodplain—the flat land on both sides of a stream, into which the stream’s extra water spreads during a flood. <https://texasaquaticscience.org/glossary-aquatic-science/>

Fossil fuel: Oil, coal, and natural gas that originates from decayed plants and animals.

Fragmentation- the disruption of extensive habitats into isolated and small patches; fragmentation has two negative components for biota: the loss of total habitat area, and the creation of smaller, more isolated patches of remaining habitat. [https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf.pdf)

FRCP- see Farm and Ranchland Conservation Program

Freshwater—water with a salt content lower than about 0.05%; for comparison, sea water has a salt content of about 3.5%. <https://texasaquaticscience.org/glossary-aquatic-science/>

Fossil Fuel- A general term for organic materials formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the earth's crust over hundreds of millions of years. https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Gaining Streams- A stream that receives water emerging from a submerged spring or other groundwater seepage through its streambed. https://twj.media/wp-content/uploads/2019/01/Young-Mace-Rubinstein.opt_.pdf

Gallons per capita Daily- A measurement of the water usage by public utilities.

GIS- see **Geographical Information System**

GBC-see **Guadalupe Basin Coalition**

GBRA- see **Guadalupe Blanco River Authority**

GBRT- see **Guadalupe Blanco River Trust**

GCM- see **Global Climate Models**

GCM- see **General Circulation Model**

GEAA- see **Greater Edwards Aquifer Alliance**

General Circulation Model (GCM) - A global, three-dimensional computer model of the climate system which can be used to simulate human-induced climate change. GCMs are highly complex and they represent the effects of such factors as reflective and absorptive properties of atmospheric water vapor, greenhouse gas concentrations, clouds, annual and daily solar heating, ocean temperatures and ice boundaries. The most recent GCMs include global representations of the atmosphere, oceans, and land surface.

https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Geographical Information System- (GIS) a computerized system to compile, store, analyze, and display geographically referenced information; e.g., GIS can overlay multiple sets of information on the distribution of a variety of biological and physical features.

[https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf)

GHG- see **Greenhouse Gas**

Global Average Temperature- An estimate of Earth's mean surface air temperature averaged over the entire planet. https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Global Climate Models- Mathematical models that simulate the physics, chemistry, and biology that influence the climate system. <https://www.globalchange.gov/climate-change/glossary>

Greater Edwards Aquifer Alliance- The Greater Edwards Aquifer Alliance (GEAA) is a 501(c)(3) nonprofit organization that promotes effective broad-based advocacy for protection and preservation of the Edwards Aquifer, its springs, watersheds, and the Texas Hill Country that sustains it. The Edwards Aquifer is the source of the largest springs in Texas and the sole source of drinking water for more than 1.5 million Central Texas residents. <https://aquiferalliance.org/>

GMA- see **Groundwater Management Area**

GPCD-see **Gallons per capita Daily**

Grandfathered wells- Usually when Groundwater Conservation Districts are created the existing wells in the district are exempted from regulation. This allows a way for developers to bypass regulations on new subdivisions by using old grandfathered wells to be utilized to supply the new subdivisions. Other commercial entities can also use grandfathered wells.

Greenhouse Effect- Trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. Some of the heat flowing back toward space from the Earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the Earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase. https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Greenhouse Gas (GHG)

Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydro chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Green Spaces Alliance- a 501 ©(3) in San Antonio Originally founded as Bexar Land Trust in 1998, Green Spaces Alliance of South Texas started as a small, local, urban land trust focused on land conservation activities. The conservation emphasis has since spread to activities in the Southern Edwards Aquifer region and the San Antonio and Nueces River Basins. We are accredited by the Land Trust Accreditation Commission and have helped conserve over 50,000 acres in our region. Our trained and knowledgeable staff will walk you through every step of the process, and our local experience and personal touch will ensure peace of mind.

<https://greensatx.org/conservation/>

Groundwater—water that flows or collects beneath the Earth's surface in saturated soil or aquifers. <https://texasaquaticscience.org/glossary-aquatic-science/>

Groundwater Conservation District- Created by the Texas Legislature to implement groundwater management and conservation practices in the state. Districts are in charge of addressing various issues such as drought, waste, and conservation as they relate to groundwater.

Groundwater Management Area – Texas Groundwater Management Areas were created "in order to provide for the conservation, preservation, protection, recharging, and prevention of waste of the groundwater, and of groundwater reservoirs or their subdivisions, and to control subsidence caused by withdrawal of water from those groundwater reservoirs or their subdivisions, consistent with the objectives of Section 59, Article XVI, Texas Constitution, groundwater management areas may be created...". GMAs are comprised of Groundwater Conservation Districts (GCDs) within the same area; they report to the TWDB. Comal County lies in GMA 9 & GMA 10. https://www.twdb.texas.gov/groundwater/conservation_districts/

Groundwater recharge - The downward replenishing flow of rainfall through the soil profile to an underground aquifer.

Guadalupe Basin Coalition- GBC is a voluntary association of businesses, chambers of commerce, lake associations and governmental entities in counties along the Guadalupe River Basin (including all of its tributaries and springs) that are bonded by a common concern for the economic and environmental sustainability of the Guadalupe River Basin and San Antonio Bay. <http://guadalupebasincoalition.org/>

Guadalupe Blanco River Authority- GBRA provides stewardship for the water resources in its ten-county statutory district, which begins near the headwaters of the Guadalupe and Blanco Rivers, ends at San Antonio Bay in the Gulf of Mexico, and includes Kendall, Comal, Hays, Caldwell, Guadalupe, Gonzales, DeWitt, Victoria, Calhoun and Refugio counties. The GBRA controls the water level in Canyon Lake up to 909 feet mean sea level. The US Corp of Engineers controls the lake above 909 feet. <http://www.gbra.org/>

Guadalupe Blanco River Trust- The mission is to preserve the unique natural heritage of the Guadalupe watershed for future generations, by protecting open landscapes, working farms and ranches, and wildlife habitat through conservation easements, education, and outreach that connects people to the water and the land. <http://www.gbrtrust.org/>

GWCD- Groundwater Conservation District

Habitat—the natural environment in which an organism normally lives, including the surroundings and other physical conditions needed to sustain it.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Hays Trinity Groundwater Conservation District- Our mission is to conserve, preserve, recharge and prevent waste of groundwater within western Hays County. In support of the District's mission, we provide educational materials and information about our water resources.

<http://haysgroundwater.com/>

Hazardous Substance—Any substance, other than oil, which, when discharged in any quantities into waters of the U.S., presents an imminent and substantial danger to the public health or welfare, including but not limited to fish, shellfish, wildlife, shorelines and beaches (Section 311 of the CWA); identified by EPA as the pollutants listed under 40 CFR Part 116.

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

HCA- see Hill Country Alliance

Headwaters—the high ground where precipitation first collects and flows downhill in tiny trickles too small to create a permanent channel; where spring water flows from an aquifer and starts streams. <https://texasaquaticscience.org/glossary-aquatic-science/>

Hill Country Alliance- A private, non-profit organization, “The mission of the Hill Country Alliance is to bring together an ever-expanding alliance of groups throughout a multi- county region of Central Texas with the long-term objective of preserving open spaces, water supply, water quality and the unique character of the Texas Hill Country.”

<http://www.hillcountryalliance.org/>

Hill Country Conservancy- was formed in 1999 to preserve – forever – large strategic tracts of open space that conserve critical water features, preserve outdoor recreation opportunities, and help maintain the Hill Country's unique quality of life. HCC is the only professional conservation organization working every day to preserve open space in the Barton Springs Aquifer region. We understand the values of ranchers and landowners, we understand the ins and outs of complex property transactions, and we understand how to get a conservation project across the finish line. <https://hillcountryconservancy.org/about/>

Hill Country Land Trust- Hill Country Land Trust is a non-profit organization that focuses on the protection and stewardship of land through the holding of conservation easements in partnership with private landowners. A conservation easement is a voluntary legal agreement that ensures a property will forever be managed according to the landowner's wishes. When a landowner places his or her property in a conservation easement, the terms of the agreement are protected in perpetuity by the land trust. <https://www.hillcountrylandtrust.org/>

HTGCD –see Hays Trinity Groundwater Conservation District

HUC- see Hydrologic Unit Codes

Hydrologic cycle—the natural process of evaporation and condensation, driven by solar energy and gravity, that distributes the Earth’s water as it evaporates from bodies of water, condenses, precipitates and returns to those bodies of water. <https://texasaquaticscience.org/glossary-aquatic-science/>

Hydrologic Unit Codes- the United States is divided and sub-divided into successively smaller hydrologic units which are classified into four levels: regions, sub-regions, accounting units, and cataloging units. The hydrologic units are arranged or nested within each other, from the largest geographic area (regions) to the smallest geographic area (cataloging units). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to eight digits based on the four levels of classification in the hydrologic unit system.

<https://water.usgs.gov/GIS/huc.html>

ILA-see Interlocal Agreement

Inorganic- Substances such as sand, salt, iron, and other materials that have their origins from non-living minerals, not from living or once-living organisms. The opposite of organic.

Impermeable - Not easily penetrated. The property of a material or soil that does not allow, or allows only with great difficulty, the movement or passage of water.

Impervious—not permitting penetration or passage; impenetrable. Examples are Roads, parking areas, buildings, pools, patios, sheds, driveways, private sidewalks, and other impermeable construction covering the natural land

surface. <https://texasaquaticscience.org/glossary-aquatic-science/>
<https://www.sanantonio.gov/TCI/Projects/Storm-Water-Fee/What-is-Impervious-Cover>

Infiltration - The movement of surface water into soil or rock through cracks and pores.

Interlocal Agreement- A local government may contract or agree with another local government or a federally recognized Indian tribe, as listed by the United States secretary of the interior under 25 U.S.C. Section 479a-1, whose reservation is located within the boundaries of this state to perform governmental functions and services in accordance with this chapter.

<https://statutes.capitol.texas.gov/Docs/GV/htm/GV.791.htm>

Intermittent Stream- flow during certain times of the year when smaller upstream waters are flowing and when groundwater provides enough water for stream flow. Runoff from rainfall or other precipitation supplements the flow of seasonal stream. During dry periods, seasonal

streams may not have flowing surface water. Larger seasonal streams are more common in dry areas. <https://archive.epa.gov/water/archive/web/html/streams.html>

International Dark Sky Association- works to protect the night skies from light pollution for present and future generations. <https://www.darksky.org/>

Invasives Species- A non-native organism whose introduction within a particular ecosystem causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health. <https://www.globalchange.gov/climate-change/glossary>

ITP- see Incidental Take Permit

Incidental Take Permit- the Endangered Species Act (ESA) prohibits the "take" of listed species through direct harm or habitat destruction. In the 1982 ESA amendments, Congress authorized the U.S Fish and Wildlife Service (through the Secretary of the Interior) to issue permits for the "incidental take" of endangered and threatened wildlife species ([See Section 10a\(1\)\(B\) of the ESA](#)). Thus, permit holders can proceed with an activity that is legal in all other respects, but that results in the "incidental" taking of a listed species.

The 1982 amendment requires that permit applicants design, implement, and secure funding for a conservation plan that minimizes and mitigates harm to the impacted species during the proposed project. That plan is commonly called a Habitat Conservation Plan. Habitat Conservation Plans are legally binding agreements between the Secretary of the Interior and the permit holder. <https://www.fws.gov/midwest/endangered/permits/hcp/index.html>

Karst aquifer—an underground reservoir of water contained in limestone and marble rocks that are filled with numerous small channels and, in some cases, large underground caverns and streams. The Edwards and Trinity Aquifers are Karst aquifers. <https://texasaquaticscience.org/glossary-aquatic-science/>

Land Trust Alliance- the Land Trust Alliance is the voice of the land trust community. As the national leader in policy, standards, education and training, we work passionately to support land trusts so they can save and secure more lands now and for future generations. <http://www.landtrustalliance.org/>

Land Trusts- organizations dedicated to conserving land by purchase, donation, or conservation easement from landowners. Land trusts are charitable organizations whose mission is land and water conservation. These organizations assist Texas landowners with the long-term conservation goals they have for their own lands. Land trusts conserve natural areas by negotiating private, voluntary agreements with property owners to leave their land undeveloped, or through outright purchases. Land trusts offer a nonprofit, voluntary solution

for land conservation.

[https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB.pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB.pdf.pdf)

<http://www.texaslandtrustcouncil.org/index.php/about/what-is-a-land-trust>

Leaching- The movement of pollutants through the soil by percolating rain, melting snow, or irrigation water.

Lentic—water that is not flowing; a pond or lake. <https://texasaquaticscience.org/glossary-aquatic-science/>

LID- see Low Impact Development

Limnetic zone—the part of a lake that is too deep to support rooted aquatic plants.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Littoral zone—the part of a lake that is shallow enough to support rooted aquatic plants.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Lossing Stream- A stream that loses water to groundwater by outflow through the streambed.

https://twj.media/wp-content/uploads/2019/01/Young-Mace-Rubinstein.opt_.pdf

Low Impact Development- a comprehensive approach to site planning, design, and pollution prevention strategies. The approach aims to restore predevelopment drainage patterns and reduce surface runoff volume and pollution. LID might be able to address many of the water quality problems in urban streams and lakes.

<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/statewide-low-impact-development-workshops>

Macroinvertebrate—an invertebrate large enough to be seen without the use of a microscope.

<https://texasaquaticscience.org/glossary-aquatic-science/>

MAG- see Modeled Available Groundwater

Maximum contaminant level -The maximum amount of primary contaminants (pathogens, radioactive elements, toxic chemicals) that can be present in drinking water supplied by a public water system. Abbreviated as MCL.

MCL- Maximum Contaminant Level

Methane (CH₄) - A hydrocarbon that is a greenhouse gas with a global warming potential (GWP) most recently estimated at 25 times that of carbon dioxide (CO₂). Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion. The GWP is from the IPCC's Fourth

Assessment Report (AR4). Methane has also been shown to arise from melting permafrost and melting glaciers. https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html#M

mgd- see Million Gallons per Day

Migratory Bird Act- The federal law protecting migratory birds from unlawful taking. <https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php>

Million Gallons per Day- A unit of flow commonly used for wastewater discharges. One mgd is equivalent to 1.547 cubic feet per second. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Mitigation- Climate Change- Measures to reduce the amount and speed of future climate change by reducing emissions of heat-trapping gases or removing carbon dioxide from the atmosphere. A secondary meaning is compensation for taking of endangered species habitat. <https://nca2018.globalchange.gov/chapter/29/>

Mitigation- Habitat Conservation Plans- are actions that reduce or address potential adverse effects of a proposed activity on species included in an HCP. They should address specific conservation needs of the species and be manageable and enforceable. Mitigation measures may take many forms, including, but not limited to, payment into an established conservation fund or bank; preservation (via acquisition or conservation easement) of existing habitat; enhancement or restoration of degraded or a former habitat; establishment of buffer areas around existing habitats; modifications of land use practices, and restrictions on access. <https://www.fws.gov/endangered/esa-library/pdf/hcp.pdf>

Modeled Available Groundwater- is defined in TWC Section 36.001 as “the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108.” The Desired Future Condition (DFC) of an aquifer may only be determined through Joint Planning with other Groundwater Conservation Districts (GCDs) within the same Groundwater Management Area in accordance with TWC 36.108. <http://www.twdb.texas.gov/groundwater/faq/faqmag.asp>

MS4s- see Municipal Separate Storm Sewer Systems

MUD- see Municipal Utility District

Municipal Separate Storm Septic Systems- "separate storm sewer system" includes ditches, curbs, gutters, storm sewers, and similar means of collecting or conveying runoff that do not

connect with a wastewater collection system or treatment plant. Title 40 Code of Federal Regulations Part **122.2**

Municipal Utility District- A Municipal Utility District is one of several types of special districts that function as independent, limited governments. The purpose of a MUD is to provide a developer an alternate way to finance infrastructure, such as water, sewer, drainage, and road facilities. <http://www.austintexas.gov/edims/document.cfm?id=227010>

NAPD- see Notice of Application and Preliminary Decision

National Conservation Easement Database- the National Conservation Easement Database (NCED) is the first national database of conservation easement information, compiling records from land trusts and public agencies throughout the United States. This public-private partnership brings together national conservation groups, local and regional land trusts, and local, state and federal agencies around a common objective. This effort helps agencies, land trusts, and other organizations plan more strategically, identify opportunities for collaboration, advance public accountability, and raise the profile of what's happening on-the-ground in the name of conservation. <https://www.conservationaleasement.us/>

National Pollutant Discharge Elimination System (NPDES)—The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of CWA. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

National Resources Conservation Service- It is part of the USDA and works with farmers and ranchers with financial and technical assistance to help with conservation efforts. <https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/>

Native- a species that, other than as a result of an introduction, historically occurred or currently occurs in a particular ecosystem. [https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf.pdf)

Native Fish Conservation Area- A network of watersheds where management emphasizes conservation and restoration for long-term persistence of native fishes and other aquatic species and allows compatible uses. <http://www.fishconserve.org/freshwater-projects-native-fish-conservation-areas/>

Native Plant Society of Texas- The mission of the Native Plant Society of Texas is to promote research, conservation and utilization of native plants and plant habitats of Texas through education, outreach and example. <https://npsot.org/wp/>

Native Prairie Association of America- the Native Prairies Association of Texas (NPAT) is a non-profit membership organization and land trust dedicated to the conservation, restoration, and appreciation of native prairies, savannas, and other grasslands in Texas. http://texasprairie.org/index.php/about_us/

The Nature Conservancy- A non-profit that works in land acquisition to cutting-edge research that influences global policy, The Nature Conservancy is constantly adapting to take on our planet's biggest, most important challenges. Our vision is a world where the diversity of life thrives, and people act to conserve nature for its own sake and its ability to fulfill our needs and enrich our lives. <https://www.nature.org/en-us/about-us/where-we-work/united-states/texas/>

Natural Variability- Variations in the mean state and other statistics (such as standard deviations or statistics of extremes) of the climate on all time and space scales beyond that of individual weather events. Natural variations in climate over time are caused by internal processes of the climate system, such as El Niño as well as changes in external influences, such as volcanic activity and variations in the output of the sun.
https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Navigable River- In Texas the public is allowed to use a river or stream, even if it flows over private property, as long as it meets the definition of "navigable in fact" or "navigable by statute".
https://tpwd.texas.gov/publications/nonpwdpubs/water_issues/rivers/navigation/riddell/navigation_ability.phtml

NBU- see New Braunfels Utilities

New Braunfels Utilities- A public utility that supplies electricity, water and waste management services to the city of New Braunfels and the surrounding area. See the NBU report for the sources of water. <http://www.nbutexas.com/>

http://www.nbutexas.com/Portals/11/pdf/NBU%202018%20WRP%20ExSumm%20June%202018_Final.pdf

NFCA- see Native Fish Conservation Area

NH₃-N- Ammonia Nitrogen

Nitrates (NO₃)—a salt of nitric acid; produced for use as fertilizers in agriculture. The main nitrates are ammonium, sodium, potassium, and calcium salts.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Nitrogen- Chemical, gaseous element that makes up almost 80 percent of the Earth's atmosphere. It is found in the cells of all living things and is a major component of proteins.

Nonconventional Pollutants—All pollutants that are not included in the list of conventional or toxic pollutants in 40 CFR Part 401. Includes pollutants such as chemical oxygen demand (COD), total organic carbon (TOC), nitrogen, and phosphorus.

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Nonpoint Source Pollution- results when small amounts of contaminants from a large number of sources are carried by rainfall runoff into streams, lakes, or bays. For example, pollutants may be washed off lawns, construction areas, farms, or highways during a heavy rain and carried to a nearby creek. <https://www.tceq.texas.gov/waterquality/nonpoint-source/mgmt-plan>

Notice of Application and Preliminary Decision- When administrative review of an application for a new municipal solid waste permit or permit amendment is complete, the TCEQ will prepare and issue a notice indicating receipt of the application and intent to obtain a permit. https://www.tceq.texas.gov/permitting/waste_permits/msw_permits/msw_notice.html

NPDES- see **National Pollutant Discharge Elimination System**

NPSOT- see **Native Plant Society of Texas**

NRCS- see **National Resources Conservation Service**

On Site Septic Systems- these systems are used to treat and dispose of relatively small volumes of wastewater, usually from houses and businesses that are located relatively close together. <https://www.epa.gov/septic/septic-systems-overview>

<https://www.tceq.texas.gov/permitting/ossf/ossfformsandlinks.html>

Open Meetings and Public Information- This is the link to the rules about which meetings are supposed to be open to the general public and the rules that apply. <https://www.texasattorneygeneral.gov/open-government>

Organic- Substances that have their origins from living, or previously-living, organisms. The opposite of inorganic.

OSSF- see **On Site Septic Systems**

Ozone- Ozone, the triatomic form of oxygen (O₃), is a gaseous atmospheric constituent. In the troposphere, it is created by photochemical reactions involving gases resulting both from natural sources and from human activities (photochemical smog). In high concentrations, tropospheric ozone can be harmful to a wide range of living organisms. Tropospheric ozone acts as a greenhouse gas. In the stratosphere, ozone is created by the interaction between solar ultraviolet radiation and molecular oxygen (O₂). Stratospheric ozone plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric ozone, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet (UV-) B radiation. <https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms .html>

Ozone Layer- The layer of ozone that begins approximately 15 km above Earth and thins to an almost negligible amount at about 50 km, shields the Earth from harmful ultraviolet radiation from the sun. The highest natural concentration of ozone (approximately 10 parts per million by

volume) occurs in the stratosphere at approximately 25 km above Earth. The stratospheric ozone concentration changes throughout the year as stratospheric circulation changes with the seasons. Natural events such as volcanoes and solar flares can produce changes in ozone concentration, but man-made changes are of the greatest concern.

https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Paleoclimate- The climate that existed during the period before modern record-keeping. Paleoclimate can be measured with “natural thermometers” such as ice cores or tree rings.

Particulate matter (PM)-Very small pieces of solid or liquid matter such as particles of soot, dust, fumes, mists or aerosols. The physical characteristics of particles, and how they combine with other particles, are part of the feedback mechanisms of the atmosphere.

https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

<https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>

Pathogenic- Capable of causing disease. Pathogenic organisms include bacteria, viruses, and parasites that cause disease and illness.

PDR- see Purchase of Development Rights

Percolation- The downward movement of water through subsurface soil layers.

Perennial stream—a stream that flows for most or all of the year. Typically have water flowing in them year-round. Most of the water comes from smaller upstream waters or groundwater while runoff from rainfall or other precipitation is

supplemental. <https://texasaquaticscience.org/glossary-aquatic-science/>

<https://archive.epa.gov/water/archive/web/html/streams.html>

Permeable- The opposite of impermeable; refers to the ease with which water is allowed to move through the soil profile.

pH- A measure of the hydrogen ion concentration of water or wastewater; expressed as the negative log of the hydrogen ion concentration in mg/l. A pH of 7 is neutral. A pH less than 7 is acidic, and a pH greater than 7 is basic. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Phenology- The timing of natural events, such as flower blooms and animal migration, which is influenced by changes in climate. Phenology is the study of such important seasonal events. Phenological events are influenced by a combination of climate factors, including light, temperature, rainfall, and humidity.

https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Phosphorus- A natural element found in rocks, soils and organic material; a nutrient required by all organisms for the basic processes of life.

Photic zone—the upper part of a lake where enough light penetrates the water to allow photosynthesis to occur. <https://texasaquaticscience.org/glossary-aquatic-science/>

PID- see Public Improvement Districts

PGMA- see Priority Groundwater Management Area

Point Source Pollution- pollution that comes in large amounts from a single source, such as an industrial operation or a wastewater treatment plant. Pollution from most point sources is controlled through regulations that require treatment of a facility's wastewater before it is discharged into a nearby lake or stream. <https://www.tceq.texas.gov/waterquality/nonpoint-source/mgmt-plan>

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Pollutant—Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Pollutant, Conservative—Pollutants that do not readily degrade in the environment, and which are mitigated primarily by natural stream dilution after entering receiving bodies of waters. Included are pollutants such as metals. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Pollutant, Non-Conservative—Pollutants that are mitigated by natural biodegradation or other environmental decay or removal processes in the receiving stream after in-stream mixing and dilution have occurred. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

POTW see Publicly Owned Treatment Works

PQL see Practical Quantification Limit

Practical Quantification Limit (PQL)—The lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Priority Groundwater Management Area- PGMA's were identified as areas likely to experience groundwater shortages, and they were created to encourage the establishment of GCDs in those areas. Even though GCDs have now been established in the whole Hill Country PGMA, it is still a useful way to describe this area as being at risk of groundwater over-pumping. Western Comal County is in the Hill Country PGMA, which basically follows the outcrop of the Trinity Aquifer.

https://www.tceq.texas.gov/assets/public/permitting/watersupply/groundwater/maps/pgma_areas.pdf

Priority Pollutants—Those pollutants considered to be of principal importance for control under the CWA based on the NRDC consent decree settlement [(NRDC et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D.D.C. 1979)]; a list of these pollutants is provided as Appendix A to 40 CFR Part 423. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Public Improvement Districts- a way that a private development can fund the preservation of a natural area within the development.

Public Water System Wells- Public wells serve public water supply systems and are regulated by the [Public Drinking Water Section](#) of the TCEQ. These public water supply systems must have at least 15 service connections or serve at least 25 individuals at least 60 days out of the year. <https://tgpc.state.tx.us/water-wells/#5>

Publicly Owned Treatment Works (POTW)—A treatment works, as defined by Section 212 of the CWA, that is owned by the State or municipality. This definition includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW treatment plant [40 CFR §403.3]. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Purchase of Development Rights- In working with Conservation Easements sometimes the development rights of the land owner are purchased by another entity, like a land trust. <https://valuwetlands.tamu.edu/2015/07/22/purchase-of-conservation-easements/>

PWS- see **Public Water System Wells**

Recharge Zone of the Edwards Aquifer- is a 1,250 square mile area where highly faulted and fractured Edwards's limestones outcrop at the land surface, allowing large quantities of water to flow into the Aquifer. <http://www.edwardsaquifer.net/intro.html>

Regional Water Conservation Plan- one of the four flow protection measures that was drafted to provide additional water to the Edwards aquifer through conservation activities. <http://twri.tamu.edu/publications/txh2o/summer-2014/regional-plan-provides-regional-solutions/>

Regional Water Planning Group L- The purpose of the South Central Texas Regional Water Planning Group (SCTRWPG), Region L, is to provide comprehensive regional water planning and to carry out the related responsibilities placed on regional water planning groups by state law. Foremost among those responsibilities is the development of a regional water plan for the planning area. The plan identifies both short and long-term water supply needs and recommends water management strategies for addressing them. The plan is updated every five years. <http://www.regionltexas.org/>

Renewable Energy- Energy resources that are naturally replenishing such as biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.

https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

Reservoir—an artificial or natural lake built by placing a dam across a stream or river and used to store and often regulate discharge of water; underground storage area of water, such as in an aquifer. <https://texasaquaticscience.org/glossary-aquatic-science/>

Riffle—a relatively shallow part of a stream in which the water flows faster and the water surface is broken into waves by obstructions that are completely or partially underwater.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Riparian vegetation—the plant community next to the stream, starting at the water's edge and extending up the bank and beyond on either side of the stream.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Rule of Capture- Groundwater in Texas is governed by the legal doctrine known as the Rule of Capture. The Rule of Capture essentially provides that because a landowner also owns the water beneath his property, the landowner has the right to pump as much water as he wishes even at the expense of his neighbor. Under the Rule of Capture, a landowner needs no permit to drill a well and pump groundwater, and he may pump as much water as he may beneficially use even if that causes his neighbor's well to go dry. He may also sell the water withdrawn from the ground for use at any location. What is the remedy for a neighbor who worried about his well going dry? Drill a bigger/deeper well. In light of this, many refer to Texas groundwater law as the "law of the biggest pump." Groundwater Conservation Districts are able to enact rules and regulations, including requiring permits, metering, and limitations on the amount of water that may be withdrawn in their area. However, existing wells are often grandfathered allowing for a big loophole to the GCD rules.. <https://agriflife.org/texasaglaw/2013/10/22/texas-water-basics-of-groundwater-law/>

Runoff- the portion of rainfall, melted snow or irrigation water that flows across land surfaces and eventually enters a stream. <http://www.savebartoncreek.org/information/glossary/>

RWCP- see **Regional Water Conservation Plan**

Salinity- A measure of the amount of dissolved materials contained in water. It is the same as Total Dissolved Solids (TDS).

San Antonio River Authority- the river authority is established by the state government to preserve, protect, and manage the resources and environment of the San Antonio River and its basin. <https://www.sara-tx.org/>

San Antonio Water System- is a public water utility owned by the City of San Antonio. <http://www.saws.org/>

SARA- see **San Antonio River Authority**

SAWS –see **San Antonio Water System**

Secondary Treatment—Technology-based requirements for direct discharging municipal sewage treatment facilities. Standard is based on a combination of physical and biological processes typical for the treatment of pollutants in municipal sewage. Standards are expressed as a minimum level of effluent quality in terms of: BOD5, suspended solids (SS), and pH (except as provided for special considerations and treatment equivalent to secondary treatment).

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Section 210 Beneficial Reuse Plan- a TCEQ regulation for reusing wastewater for uses other than drinking, such as irrigation.

https://www.tceq.texas.gov/assistance/water/reclaimed_water.html

Sediment- Topsoil, sand, and minerals washed from the land into water, usually after rain or snow melt.

Seeps—places where water oozes from springs in the ground.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Self-Monitoring—Sampling and analyses performed by a facility to determine compliance with a permit or other regulatory requirements. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Sewage- Also known as wastewater.

Significant Industrial User (SIU)—An indirect discharger that is the focus of control efforts under the national pretreatment program; includes all indirect dischargers subject to national categorical pretreatment standards, and all other indirect dischargers that contribute 25,000 gpd or more of process wastewater, or which make up five percent or more of the hydraulic or organic loading to the municipal treatment plant, subject to certain exceptions [40 CFR §403.3(t)]. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

SGCN- see **Species of Greatest Conservation Need**

Soil and Water Conservation Districts- A subdivision of state government established to provide leadership, technical assistance, information, and education to the counties on proper soil stewardship, agricultural conservation methods, water quality protection, nonpoint source pollution, streambank stabilization, stream health, conservation planning, and various other topics related to watershed planning.

South Comal Water Supply Corporation- a water company that appears to be in the process of developing a pipeline right-a-way connecting Bexar and Comal counties.

<https://www.expressnews.com/news/local/article/Backed-by-private-capital-company-plans-heavy-12309946.php>

Species at Risk- a general term referring to species listed under the Endangered Species Act (ESA), as well as for unlisted species that are declining in population; sometimes the term is used interchangeably with “species of concern.” Such species, unless already listed under ESA, receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing.

[https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB.pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB.pdf.pdf)

Species of Concern- an informal term referring to a species that might be in need of conservation action; this may range from a need for periodic monitoring of populations and threats to the species and its habitat, to the necessity for listing as threatened or endangered under the Endangered Species Act. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing.

[https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB.pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB.pdf.pdf)

Species of Greatest Conservation Need- Native animals or plants designated as a SGCN are generally those that are declining or rare and in need of attention to recover or to prevent the need to list under state or federal regulation. These species are the focus of Texas Parks and Wildlife Department's Texas Conservation Action Plan and guide the department's nongame conservation efforts.

https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/tcap/sgcn.phtml

Springflow - the groundwater contribution to streamflow, often in the form of springs or seeps. It is sometimes referred to as base flow or groundwater discharge. During dry weather, springflow makes up the majority of the streamflow at Comal and San Marcos Springs and the associated rivers.

State Water- TWC §11.021 defines state water as “The 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, and the storm water, floodwater, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed in the state. Surface water and state water are synonymous in the Texas Water Code. https://twj.media/wp-content/uploads/2019/01/Young-Mace-Rubinstein.opt_.pdf

State Water Implementation Fund for Texas- Affordable financial assistance through the Texas Water Development Board for projects in the Texas Water Plan.

<http://www.twdb.texas.gov/financial/programs/swift/index.asp>

Streamflow- also referred to as discharge, is the amount of water in the river that passes by a location during a certain amount of time. It is commonly reported in units of cubic feet per second (ft³/s). Streamflow is the combination of surface-water runoff and springflow.

Subsurface flow- The flow of water beneath the ground surface; it can eventually return to the surface (e.g., as a spring or by being pumped) or can seep into the oceans.

Surface Water- Surface Water in Texas is owned by the state and held in trust for the citizens of the state. The state grants the right to use this water to different people, such as farmers or ranchers, cities, industries, business, and other public and private interests.

https://www.tceq.texas.gov/permitting/water_rights/wr-permitting/wr_amiregulated.html

Surface-water runoff- is the overland flow resulting from rainfall that is not absorbed into the ground. Rainfall in this area of Texas can be very intense (high volume of rain in a short period of time), resulting in a substantial amount of surface water runoff.

SWCD- Soil and Water Conservation Districts

SWIFT Loans- see **State Water Implementation Fund for Texas**

TALT- see **Texas Agricultural Land Trust**

TAP- see **The Aransas Project**

TCEQ- see **Texas Commission on Environmental Quality**

TCR- see **Total Coliform Rule**

TDS- see **Total Dissolved Solids**

TESPA- see **Trinity Edwards Springs Protection Association**

Texas Agricultural Land Trust- promotes the conservation of open space, wildlife habitats, and natural resources on Texas' private working lands. <http://www.txaglandtrust.org/>

Texas Commission on Environmental Quality- According to the TCEQ website, "The Texas Commission on Environmental Quality strives to protect our state's public health and natural resources consistent with sustainable economic development. Our goal is clean air, clean water, and the safe management of waste." <https://www.tceq.texas.gov/>

Texas Environmental Grantmakers Group- Formed in 1996, Texas Environmental Grantmakers Group (TEGG) is a loose federation of community, family, and corporate foundations, as well as a few individual donors, who explore the challenges and opportunities for environmental support in the state of Texas. <https://www.philanthropysouthwest.org/TEGG-home>

Texas Farm and Ranch Lands Conservation Program- The Texas Farm and Ranch Lands Conservation Program (TFRLCP) complements Texas Parks and Wildlife Department's (TPWD's) mission to conserve natural resources by protecting working lands from fragmentation and development. TFRLCP maintains and enhances the ecological and agricultural productivity of these lands through Agricultural Conservation Easements.

<https://tpwd.texas.gov/landwater/land/private/farm-and-ranch/>

Texas Grant Resource Center- a UT Austin center that provides a database of possible grants on many different subjects. <http://diversity.utexas.edu/tgrc/>

Texas Groundwater Protection Committee- Groundwater is vital to the health and economy of Texas. In 1999, groundwater provided 58% of the water used in Texas. Texas groundwater is used as drinking water, irrigation for crops, and has numerous industrial functions. Managing such an essential resource requires a lot of coordination. Nine state agencies and an association of groundwater districts manage aspects of groundwater. Together, these entities comprise the Texas Groundwater Protection Committee (TGPC).

Created by the Texas Legislature's House Bill 1458 in 1989, the TGPC bridges the gap between state groundwater programs, improves coordination between member agencies, and works to protect groundwater as a vital resource. A brochure (TCEQ publication [GI-088](#)) and a [flyer](#) describing the TGPC are available. <https://tgpc.state.tx.us/water-wells/>

Texas Hill Country Conservation Network- Formed in 2017, the network aims to promote and encourage conservation and sustainable growth in the Texas Hill Country, especially important as climate change promises increasing droughts and floods in the region. Its 19 partner organizations cover a 17-county area of Central Texas and include conservation groups, nonprofit land trusts, such as the Hill Country Conservancy, and county governments.

Texas Land Application Permit- Domestic facilities that dispose of treated effluent by land application (surface irrigation, evaporation, drain fields or subsurface land application) are required to obtain this permit.

https://www.tceq.texas.gov/permitting/wastewater/municipal/WQ_Domestic_Wastewater_Permits.html

Texas Land Conservancy- Texas Land Conservancy (TLC) is a non-governmental, 501(c)3 non-profit organization dedicated to protecting land all over the state of Texas. We are in the business of protecting natural areas from the negative effects of land fragmentation and poorly-planned development. Land conserved by TLC will be protected forever from becoming a subdivision, strip mall, or parking lot. <https://texaslandconservancy.org/>

Texas Land Trust Council- the Texas Land Trust Council is a nonpartisan, nonprofit organization that builds and supports a strong, active coalition to serve as a powerful voice for conservation in Texas to protect drinking water, Texas' iconic wildlife, and our rich natural and cultural heritage. Together, we ensure that the Texas landscape – rich in history, natural resources, breathtaking views and recreational opportunities – can be left intact for all of us today and for the future. <http://www.texaslandtrustcouncil.org/>

Texas Master Naturalists- Since 1997, the Texas Master Naturalist™ program has grown to include 48 chapters and more than 10,800 volunteers serving Texas communities throughout 84 percent of the state's counties. The mission of the program is to develop a corps of well-informed volunteers to provide education, outreach, and service dedicated to the beneficial

management of natural resources and natural areas within their communities for the state of Texas. <https://txmn.org/>

Texas Natural Resources Information System- The executive administrator shall establish the Texas Natural Resources Information System (TNRIS) to serve Texas agencies and citizens as a centralized clearinghouse and referral center for: natural resource data; census data; data related to emergency management; and other socioeconomic data. <https://tnris.org/>

Texas Parks and Wildlife Department- To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations. <https://tpwd.texas.gov/>

Texas Pollutant Discharge Elimination System- Domestic facilities that dispose of treated effluent by discharge into waters in the state are required to obtain this permit. https://www.tceq.texas.gov/permitting/wastewater/municipal/WQ_Domestic_Wastewater_Permits.html

Texas Regional Water Planning Group L- Reaching from the Gulf Coast to the Hill Country, the South Central Texas Regional Water Planning Area includes all or parts of 21 counties, portions of nine river and coastal basins, the Guadalupe Estuary, and San Antonio Bay. There are six water use categories which are planned for in accordance with TWDB rules (31 TAC §357.31). These categories are municipal, manufacturing, irrigation, steam electric power generation, mining, and livestock. For planning purposes, rural water use, including domestic use, is aggregated and categorized under a sub-set of municipal water user groups referred to as “county-other”. <https://www.twdb.texas.gov/waterplanning/rwp/>

Texas State Soil and Water Conservation Board- is the lead state agency for the planning, management, and abatement of agricultural and silvicultural (forestry) nonpoint source water pollution, and administers the Water Supply Enhancement Program.

Texas Water Code- <https://statutes.capitol.texas.gov/Docs/SDocs/WATERCODE.pdf>

Texas Water Conservation Association- Texas Water Conservation Association is a 501(c)(6) association of water professionals and organizations in the state of Texas. Our members represent river authorities, municipalities, navigation and flood control districts, drainage and irrigation districts, utility districts, municipalities, groundwater conservation districts, all kinds of water users, and general/environmental water interests. The membership includes engineers, hydrogeologists, attorneys, government administrators, and numerous other individuals committed to Texas water resource management. https://www.twca.org/Public/About_Us/Public/About.aspx?hkey=b7a20262-037e-427e-9636-600fcd0db08

Texas Water Development Board- A state agency, the mission of TWDB is “to provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas”. To accomplish our goals

of planning for the state's water resources and providing affordable water and wastewater services, the TWDB provides water planning, data collection and dissemination, financial assistance, and technical assistance services to the citizens of Texas. The tremendous population growth that the state continues to experience and the recurrent threat of severe drought only intensify the need for the TWDB to accomplish its goals in an effective and efficient manner.” It was created in 1957. <http://www.twdb.texas.gov/>

Texas Water Supply Company- founded in 1999, supplies the San Antonio Water System from well fields that draw water from the Middle Trinity Aquifer. The Company's current well fields have an annual production capacity of over 32,000 acre-feet of potable water. They will also supply the New Honey Creek Ranch development and the Ventana Development.. Many if not all of their wells have been grandfathered from regulation by the GCD. <https://www.texaswatersupply.com/>

Texas Water Quality Inventory. It is a report developed by the Texas Commission on Environmental Quality (TCEQ) every 2 years that lists all of the surface water bodies in the state that do not meet one or more of their standards as outlined in the Texas surface water quality standards. The TWQI is now known as the Texas Integrated Report for CWA Sections 305(b) and 303(d).

Texas Wildlife Association-the Texas Wildlife Association is a statewide membership organization that serves Texas wildlife and its habitat, while protecting property rights, hunting heritage, and the conservation efforts of those who value and steward wildlife resources. <http://www.texas-wildlife.org/>

TGRGCD-see Trinity Glen Rose Groundwater Conservation District

Tipping Point- The point at which a change in the climate triggers a significant environmental event, which may be permanent, such as widespread bleaching of corals or the melting of very large ice sheets. <http://blogs.edf.org/climate411/2017/11/01/everything-you-need-to-know-about-climate-tipping-points/>

TLAP- see Texas Land Application Permit

TMDL- see Total Maximum Daily Load

TMN- see Texas Master Naturalists

TNRIS- see Texas Natural Resources Information System

Total Coliform Rule- requires monitoring for the presence of microbes, specifically for coliform bacteria, to determine whether the water in the distribution system of a PWS is contaminated with bacteria from fecal matter.

https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-421.pdf

Total Dissolved Solids- are inorganic compounds that are found in water such as salts, heavy metals and some traces of organic compounds that are dissolved in water.

Total Maximum Daily Load- According to the EPA, a TMDL or total maximum daily load is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutants source. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. <https://texaswater.tamu.edu/surface-water/surface-water-quality.html>

Total Suspended Solids —A measure of the filterable solids present in a sample, as determined by the method specified in 40 CFR Part 136. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Toxic Pollutant—Pollutants or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring. Toxic pollutants also include those pollutants listed by the Administrator under CWA Section 307(a)(1) or any pollutant listed under Section 405(d) which relates to sludge management. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

TPDES- see Texas Pollutant Discharge Elimination System

TPGC- see Texas Groundwater Protection Committee

Transition Zone of the Edward's Aquifer- There is a thin strip of land south and southeast of the recharge zone from San Antonio to Austin where limestones that overlie the Edwards are faulted and fractured and have caves and sinkholes, so it is possible that surface water can still go into the Edwards limestone below. This area is called the transition zone. There are plenty of good wells and numerous springs in the transition zone, so it is actually also part of the artesian zone ([see below](#)), which is the area where we can pump good water out through wells or it comes to the surface on its own through springs.

<http://www.edwardsaquifer.net/intro.html>

Trinity Aquifer- a major aquifer, extends across much of the central and northeastern part of the state. It is composed of several smaller aquifers contained within the Trinity Group. Although referred to differently in different parts of the state, they include the Antlers, Glen Rose, Paluxy, Twin Mountains, Travis Peak, Hensell, and Hosston aquifers. These aquifers consist of limestones, sands, clays, gravels, and conglomerates. Their combined freshwater saturated thickness averages about 600 feet in North Texas and about 1,900 feet in Central Texas. Approximately 80-90% of the water pumped from the Trinity Aquifer is grandfathered and not regulated by the GCDs. <https://www.expressnews.com/news/local/article/Backed-by-private-capital-company-plans-heavy-12309946.php>
<http://www.twdb.texas.gov/groundwater/aquifer/majors/trinity.asp>

Trinity Edwards Springs Protection Association- The mission of The Trinity Edwards Springs Protection Association (TESPA) is to protect the Trinity and Edwards aquifers from over pumping, the springs that flow from this interconnected system, and the property rights of landowners who depend on and wish to conserve this precious natural resource.

<https://tespatexas.org/>

Trinity Glen Rose Groundwater Conservation District- This GCD was set up in 2004. It is located in Bexar County north of Loop 1604. <https://www.trinityglenrose.com/>

<https://www.trinityglenrose.com/district-business>

Troglobite—a species that lives in caves and can't live anywhere else.

<https://texasaquaticscience.org/glossary-aquatic-science/>

Troglophile—a cave-dwelling species that may complete its life cycle in a cave, but can also survive in above ground habitats. <https://texasaquaticscience.org/glossary-aquatic-science/>

Trust for Public Lands-creates parks and protects lands for people, ensuring healthy, livable communities for generations to come. <https://www.tpl.org/>

TPL- see Trust for Public Lands

TPWD- see Texas Parks and Wildlife Department

TRWPG L- see Texas Regional Water Planning Group L

TSS- see Total Suspended Solids

TSSWCB- see Texas State Soil and Water Conservation Board

TWCA- see Texas Water Conservation Association

Texas Water Code- Texas Water Code

TWDB- see Texas Water Development Board

TWQI- Texas Water Quality Inventory

TWS- see Texas Water Supply Company

Underflow- is generally associated with the presence of subsurface water within the bed and banks of a watercourse. Texas Commission on Environmental Quality (TCEQ) rule §297.1 defines a stream's underflow as "[w]ater in sand, soil, and gravel below the bed of the watercourse, together with the water in the lateral extensions of the water-bearing material on each side of the surface channel, such that the surface flows are in contact with the subsurface flows, the latter flows being confined within a space reasonably defined and having a direction

corresponding to that of the surface flow” (30 Tex. Admin. Code §297.1(55)).

https://twj.media/wp-content/uploads/2019/01/Young-Mace-Rubinstein.opt_.pdf

United States Fish and Wildlife Service- the Federal agency charged with administering the National Wildlife Refuge System, the Endangered Species Act, Migratory Birds, Ecological Services, Fish and Aquatic Conservation, and others. <https://www.fws.gov/>

United States Geologic Service- Created by an act of Congress in 1879. The USGS serves the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

<https://www.usgs.gov/about/about-us/who-we-are>

USFWS-see United States Fish and Wildlife Service

USGS- see United States Geologic Service

Variance—any mechanism or provision under Sections 301 or 316 of the CWA or under 40 CFR Part 125, or in the applicable “effluent limitations guidelines” which allows modification to or waiver of the generally applicable effluent limitations requirements or time deadlines of the CWA. This includes provisions which allow the establishment of alternative limitations based on fundamentally different factors. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

VOC: Volatile Organic Compound

Volatile Organic Compound -These compounds are used to make many products, especially plastics and solvents. Eating fish containing VOCs may cause cancer in animals and humans.

VUG- a small to medium size cavity in rock.

Wastesload Allocation (WLA)—the proportion of a receiving water’s total maximum daily load that is allocated to one of its existing or future point sources of pollution.

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Wastewater- Also known as sewage. It is the water that has been used by homes, businesses, and industries that eventually makes its way to a small to medium size wastewater treatment plant. Examples of wastewater include the water you flush down the toilet and the water that drains from your bathtub, sink, washing machine, and other sources.

Wastewater Treatment Facility- any facility installed for the purpose of treating, neutralizing, or stabilizing wastewater, the operation of which requires a wastewater disposal permit from the commission.

[http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=30&rl=337](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=30&rl=337)

Watercourse- The courts have described a watercourse as having (1) a defined bed and banks, (2) a current of water, and (3) a permanent source of supply (Domel v. City of Georgetown, Austin 1999). These criteria are crucial in determining if water is classifiable as state water. Generally, until water reaches a watercourse (where it becomes state water), it is classified as diffuse water. Diffuse water includes rainwater, snowmelt, and overland flow and is the property of the landowner until it joins a watercourse. https://twj.media/wp-content/uploads/2019/01/Young-Mace-Rubinstein.opt_.pdf

Water Measurements- 1 GPM = 1440 GPD = 525,600 GPY
1 AC/FT = 325,851 US Gallons
1 acre foot covers 1 acre of land 1 foot deep
1 CFS = 1.98 AC/FT/Day = 448.83 GPM = 646,272 GPD
1 CU/FT = 7.48 Gallons = 62.31 LBS
1 Inch of rain on 1,000SQ/FT = 623 Gallons

Water Control and Improvement Districts- WCIDs are another type of special governmental district which allow a developer to issue tax-exempt bonds to finance infrastructure such as drainage, water distribution, and wastewater collection and treatment systems. WCIDs are often established in unincorporated areas where infrastructure is not in place. TCEQ provides a General Guide to Texas water districts:

https://www.tceq.texas.gov/assets/public/comm_exec/pubs/gi/gi-043.pdf

Water Pollution Abatement Plan- According to Texas Administrative Code (TAC) Chapter 285.41, an Edwards Aquifer protection plan, as defined by TAC Chapter 213, shall be approved by the appropriate regional office before an authorization to construct may be issued for an OSSF by a permitting authority. Due to this rule, Comal County asked the TCEQ for all WPAP approval letters for developments within Comal County. The Comal County Engineer's Office has made available electronic versions of these approval letters on the CCEO website. In addition, copies of the applications are available at the Comal County Engineer's Office.

<https://cceo.org/environmental/wpap>

Water quality- A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose or designated use.

Water Quality-Based Effluent Limit (WQBEL)—A value determined by selecting the most stringent of the effluent limits calculated using all applicable water quality criteria (e.g., aquatic

life, human health, and wildlife) for a specific point source to a specific receiving water for a given pollutant. <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Water Quality Standard (WQS)—A law or regulation that consists of the beneficial use or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an antidegradation statement.

<https://www3.epa.gov/npdes/pubs/glossary.pdf>

Water User Groups- the list of categories of different water end users used in water planning by Texas Statute. . i.e., Municipal/PWS, Industrial, Irrigation, Small Business, Federal Exempt, and Exempt. Other groups have used- municipal, industrial, steam-electric, mining, irrigation, and livestock.

https://docs.wixstatic.com/ugd/e62693_1350a246b863437796c2772eba91d3ff.pdf

Watershed- the land area that contributes surface water runoff to a given point in a drainage system. It describes an area of land that drains downslope to the lowest point. The water moves through a network of drainage pathways, both underground and on the surface. Generally, these pathways converge into streams and rivers, which become progressively larger as the water moves on downstream, eventually reaching an estuary and the ocean. Other terms used interchangeably with watershed include drainage basin or catchment basin.

<http://www.savebartoncreek.org/information/glossary/>

http://www.saws.org/Environment/ResourceProtComp/Aquifer_Protection/documents/Aquifer_Protection_Plan.pdf

Watershed Protection Plan- Abbreviated as WPP. A community-driven management framework that uses the watershed approach to address complex water quality problems and to provide solutions for improving and maintaining water quality within the watershed. Ultimately, WPPs aim to protect unimpaired water bodies and to restore impaired water bodies by taking a holistic look at the watershed to address all potential sources of impairments. WPPs are developed and integrated through diverse partnerships within the watershed and rely heavily on stakeholder involvement at the local level.

WCID- see **Water Control and Improvement Districts**

Wetland- An area inundated by surface or groundwater at a frequency sufficient to support, and under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soils

WLA- see **Wastesload Allocation**

WPAP- see **Water Pollution Abatement Plans**

WPP- Watershed Protection Plan

WQS- see Water Quality Standard

WUG- see Water User Groups

WWTP- see Wastewater Treatment Facility

Other acronym and glossary lists:

EPA Glossary List- <https://www3.epa.gov/npdes/pubs/glossary.pdf>

Very extensive TCEQ Acronym Page- Probably more than you need.
<https://www.tceq.texas.gov/agency/acron.html>

Save Barton Creek Aquifer Glossary- <http://www.savebartoncreek.org/information/glossary/>

Climate Change Glossary- https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html

TCEQ Acronym List- <https://www.tceq.texas.gov/agency/acron.html>

TCEQ terms used in Superfund-
<https://www.tceq.texas.gov/remediation/superfund/glossary.html>

Hill Country Alliance Acronyms- <http://www.hillcountryalliance.org/Acronyms>

Texas Aquatic Science- <https://texasaquaticscience.org/glossary-aquatic-science/>

USFWS Glossary and acronyms-
[https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary\(389KB\).pdf.pdf](https://www.fws.gov/uploadedFiles/08w_CCP_Acronyms_Glossary(389KB).pdf.pdf)