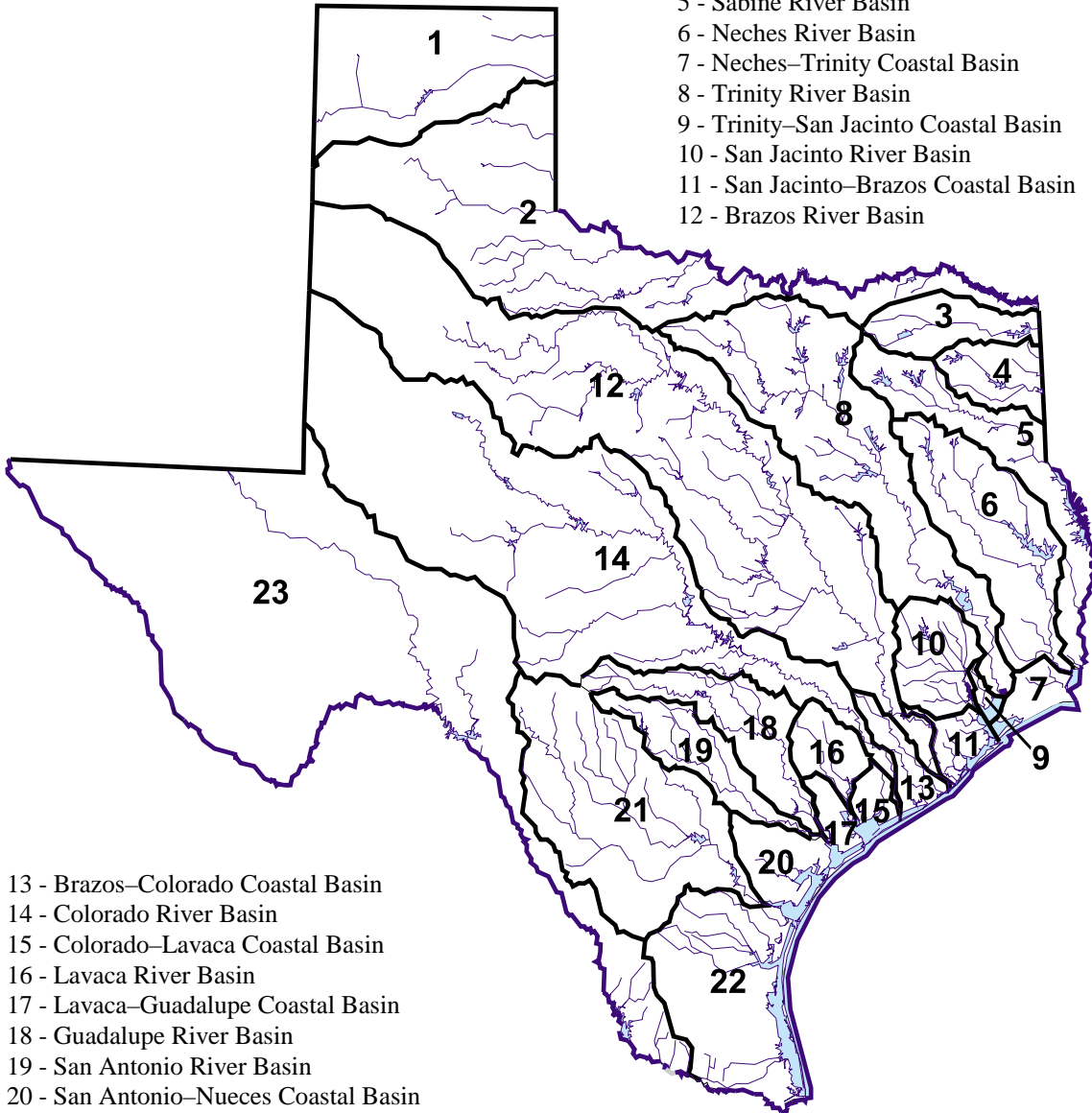


# Introduction

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# Texas River Basins

- 1 - Canadian River Basin
- 2 - Red River Basin
- 3 - Sulphur River Basin
- 4 - Cypress Creek Basin
- 5 - Sabine River Basin
- 6 - Neches River Basin
- 7 - Neches–Trinity Coastal Basin
- 8 - Trinity River Basin
- 9 - Trinity–San Jacinto Coastal Basin
- 10 - San Jacinto River Basin
- 11 - San Jacinto–Brazos Coastal Basin
- 12 - Brazos River Basin



- 13 - Brazos–Colorado Coastal Basin
- 14 - Colorado River Basin
- 15 - Colorado–Lavaca Coastal Basin
- 16 - Lavaca River Basin
- 17 - Lavaca–Guadalupe Coastal Basin
- 18 - Guadalupe River Basin
- 19 - San Antonio River Basin
- 20 - San Antonio–Nueces Coastal Basin
- 21 - Nueces River Basin
- 22 - Nueces–Rio Grande Coastal Basin
- 23 - Rio Grande River Basin

# Introduction

The State of Texas Water Quality Inventory is the primary mechanism for informing the public about general water quality conditions within the state. This document:

- ! identifies whether water bodies are attaining designated beneficial uses and meeting water quality criteria and screening levels;
- ! identifies widespread water quality problems of statewide significance; and
- ! describes various programs the Texas Commission on Environmental Quality (TCEQ) has implemented to restore and protect waters.

The 2002 State of Texas Water Quality Inventory, the sixteenth in a series since 1974, satisfies reporting requirements in Section 305(b) of the Clean Water Act (CWA), formally known as the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). Section 305(b) requires that states and other jurisdictions survey the health of their surface waters every two years and submit their water quality conditions to the U.S. Environmental Protection Agency (EPA). Section 305(b) requires the EPA to summarize the reports submitted by the states and other jurisdictions into a National Water Quality Inventory Report to the U.S. Congress on a biennial schedule. Most of the survey information in the 2002 Texas 305(b) report is based on water quality information collected and evaluated during a five-year period from 1996 to 2001.

General water quality described in the 2002 Texas 305(b) report represents status, or a “snapshot” of conditions at the time of the assessment. This is because of the short assessment duration (five years) and the fact that survey methods, criteria and screening levels, the number water bodies included, and portions of water bodies assessed are often modified or change from one reporting period to the next. Changes in survey methods and criteria are made to reflect EPA guidance for preparation of the report and are necessary to improve overall confidence in the assessment (EPA, 2002). Shifts in monitoring strategies, due to revised water quality standards or other management programs, may increase or decrease the number and portions of water bodies evaluated statewide for each reporting period. For these reasons, the 305(b) report should only be used to indicate water quality status in the year the assessment is made and is not recommended by the TCEQ for comparison of change or “trends” between reporting periods.

The last statewide assessment was conducted by the TCEQ in 2000. Substantial changes were made to the assessment guidance for the 2002

report that were not used in 2000. These changes were made to improve the accuracy of the assessment. The major changes that were made to the assessment guidance in 2002 include the following.

- ! A statistically based binomial method was created to specify the required number of exceedances of criteria and screening levels to determine partial and nonsupport of designated uses and occurrence of Tier 1, Tier 2, and secondary concerns. The binomial method replaces the procedure based on the percentage of samples that exceed criteria or screening levels (support = 0-10 %, partial support = 11-25 %, and nonsupport = >25 %).
- ! The minimum number of samples required for an assessment was increased in most cases. For field measurements (dissolved oxygen, temperature, and pH), nutrients and chlorophyll *a*, salts (chloride, sulfate, and total dissolved solids), and bacterial indicators, the number was increased from nine to ten; for 24-hour dissolved oxygen sets, metals and organic substances in water, ambient water and sediment toxicity tests, human health related parameters, and toxic substances in sediment and fish tissue, the minimum sample number was increased from five to ten.
- ! A decision matrix was added to allow determination of appropriate criteria, based on various flow conditions, for determination of aquatic life and contact recreation uses in unclassified streams.
- ! A primary concern category was added for indicators that are directly tied to support of designated and general uses and criteria adopted in the Texas Surface Water Quality Standards (TSWQS). *Tier 1 primary concerns* are identified for indicators where between four and nine samples are available for assessment and some exceedances are reported. *Tier 2 primary concerns* are identified for indicators that support designated uses as determined by an adequate number of samples (10-sample minimum), but a few exceedances (e.g., for dissolved oxygen two of ten samples) indicate potential water quality problems.
- ! Greater emphasis is now placed on monitoring and assessment of 24-hour dissolved oxygen events to determine support of the aquatic life use. The 24-hour average dissolved oxygen values are compared directly to 24-hour average criteria to determine support of the aquatic life use.

- ! Routinely collected instantaneous dissolved oxygen measurements made primarily during the day during routine monitoring events are now compared to the absolute minimum criteria and are also used to determine support of the aquatic life use.
- ! Support of the aquatic life use is no longer determined by comparison of instantaneous dissolved oxygen measurements to the 24-hour criteria. Instead, Tier 2 primary concerns are now identified from these comparisons, indicating potential water quality problems.
- ! A secondary concerns category was created to identify elevated concentrations that exceed screening levels, established especially for this assessment. The indicators include those[nutrients and chlorophyll *a*, toxic substances in sediment and fish tissue, and methyl tertiary-butyl ether (MTBE) and perchlorate in water] for which water quality standards have not been adopted. Exceedances of secondary drinking water standards for salts [chloride, sulfate, and total dissolved solids (TDS)] in finished and surface water and narrative criteria are also identified as secondary concerns.
- ! Evaluation of inorganic and organic maximum contaminant levels (MCLs), established for finished drinking water, in surface water was added as a mechanism to determine support of the public water supply use.
- ! Habitat assessment was added as a method of determining support of the aquatic life use.
- ! *Escherichia coli* (*E. coli*) was added as an indicator for determination of contact and noncontact recreation use support in freshwater streams and reservoirs. In tidally influenced streams, estuaries, and the Gulf of Mexico, enterococci were added as an indicator for determining contact and noncontact recreation use support.
- ! Support of the contact and noncontact recreation uses is now determined by calculation of a long term geometric mean in addition to exceedances of single sample criteria.
- ! An oyster water primary concern category was established for conditionally approved areas for the growing and harvesting of shellfish based on predictable high densities of fecal coliform, restricted areas based on high risk of contamination when recent Texas Department of Health (TDH) water quality surveys indicate

acceptable fecal coliform densities, and prohibited areas where there is not a current water quality survey.

Major changes to the assessment guidance result in significant differences between use support information (reported in miles, acres, square miles, or as a percentage of assessed miles or area) that is aggregated statewide in the Inventory for the 2000 and 2002 reporting periods. Apparent improvement or declines in the use support information may be due to changes made in the assessment methodology and not to actual changes in water quality.

The TCEQ recognizes that statewide initiatives alone cannot clean up our waters. Water quality protection and restoration must often happen at the local watershed level, in conjunction with state and federal activities. Similarly, this document can not provide the detailed information needed to manage water quality at all levels. This document will be used together with previous Texas 305(b) reports, the Texas 303(d) list of impaired waters, the TSWQS, Clean Rivers Program (CRP) basin reports, watershed management plans, total maximum daily loads (TMDLs) and other local documents to develop integrated water quality management options.

