

THE TEXAS WATER SOURCE

UPDATING CAMP, MARION, AND UPSHUR
COUNTY LANDOWNERS ON LAND
MANAGEMENT AND WATER ISSUES

December 2019

Forestry Best Management Practices

Texas currently has about 14.4 million acres of forests that are suitable for timber production. That is almost enough acreage to fill the entire state of West Virginia, which is 15.4 million acres in size. These forested areas provide a wide array of benefits to Texans across our great state.

In 2019, the Texas forest sector provided \$18.9 billion in industry output and employed over 67,000 people with a payroll of \$3.8 billion. Additionally, our forests are integral for providing clean water, as nearly 50% of our freshwater resources originates from our forests.

To help ensure our forests provide sustainable wood and clean drinking water, we recommend that forestland owners, loggers, and other forestry professionals utilize Best Management Practices (BMPs) during forest operations. BMPs can include methods such as leaving a buffer zone of trees next to a stream, installing a culvert to cross a waterway, or establishing grass on bare forest roads to prevent erosion.

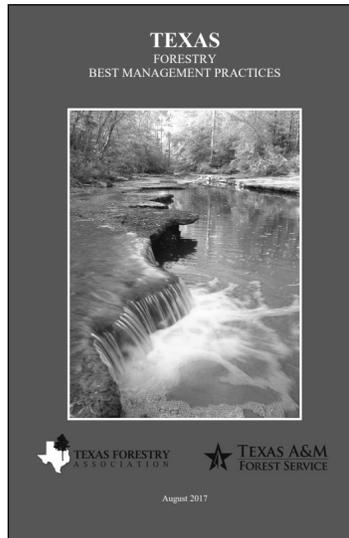
BMPs can also include methods that are non-structural such as planning your

operations on the contour, pausing operations during wet conditions, and using maps to determine site conditions.

BMPs are essential to sound operations and should be utilized during forestry operations even if there are no water features on the site. This is because BMPs, aside from maintaining water quality, also provide protection for your soil. By keeping your soil on site and reducing erosion, you ensure a reliable level productivity for your forests.

A guidebook discussing BMPs - *Texas Forestry Best Management Practices* (sometimes called the blue book) - is available and periodically updated to provide the best information possible

for landowners, loggers, and other forestry professionals. This guidebook helps the user effectively protect their water and soil before, during, and after forestry operations. *Texas Forestry Best Management Practices* covers all types of forestry practices, giving detailed specifications for the methods described. It also contains guidelines for working in forest wetlands, and includes a glossary of forestry terms and sources of more information and assistance.



For more information:

- <http://bit.ly/TXBMPHandbook>
- <http://texasforestinfor.tamu.edu/MobileApps/BMP/>

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Organization Spotlight

Northeast Texas Municipal Water District

The Northeast Texas Municipal Water District (NETMWD) was formed in 1953 to be the local sponsor of Lake O' the Pines. The initial view of NETMWD's mission was to develop and deliver an adequate water supply to cities and industries in Northeast Texas. Lake O' the Pines is the primary location of NETMWD's water.

Lake O' the Pines was constructed with federal participation. Congressional representatives Wright Patman and Lyndon B. Johnson were instrumental in arranging the federal participation in constructing the lake.

Lake O' the Pines was primarily constructed as a way to reduce the flooding damage to the city of Jefferson and was authorized under the Flood Control Act of 1946. The lake developed from construction of Ferrell's Bridge Dam on the Big Cypress Bayou.

NETMWD was able to secure a vast supply of water because of its participation in Lake O' the Pines. The lake covers 18,700 acres of water and the Big Cypress Bayou has a total drainage area of 850 square miles. Currently, NETMWD serves the cities of Jefferson, Lone Star, Ore City, Avinger, Daingerfield, Hughes Springs, and Longview.

NETMWD, in order to provide an adequate supply of water, is also responsible for monitoring the water quality and ecosystem health of the rivers and lakes of the Cypress River Basin. The information developed from monitoring helps in understanding how our watershed responds to human activity, and is the primary source of information for managing water quality for members of the community who are interested in the health and productivity of Lake O' The Pines.

Lake O' The Pines was listed on Texas's impaired waters in 2000 due to low levels of dissolved oxygen. In order to address this impairment, Lake O' The Pines approved a Total Maximum Daily Load (TMDL) Implementation Plan (I-Plan) aimed at reducing phosphorus loadings in order to improve the overall water quality. In order to restore the water quality conditions to how it was before impairment, an estimated 56% reduction of phosphorus loading will need to occur.

Water quality management plans were developed in order to address these phosphorus loadings by looking at different sources of point source and non-point source pollution that were affecting the water quality. Point source pollution is a pollutant that is discrete, or easily identifiable, such as wastewater facilities outflows. Non-point source pollution is diffuse, or harder to identify, such as pollutants carried from rainwater on an agricultural field or forest clearcut to a stream.



Figure 1. Image of the Lake O' the Pines Ferrel Bridge Dam construction circa 1950s. Photo Credit: U.S. Army Corp. of Engineers.

Every five years an evaluation is conducted to see the effectiveness of the Lake O' the Pines I-Plan. From there groups like NETMWD can adjust their water quality management plan. Assessments of effectiveness in 2016 indicated that conditions have improved in Lake O' The Pines; however, dissolved oxygen concentrations remain below the criteria for support of aquatic life in the upper 3,700 acres of the lake.

For more information:

- http://bit.ly/LakeOPines_iPlan
- http://bit.ly/LakeOPines_TMDL

How The Lake O' the Pines and It's Watershed Plays a Role in the Recovery of The Paddlefish.

Paddlefish are a unique species easily identified due to their large spoon flat blade-like snout that takes up almost one third of their entire body length. There are only six known species of paddlefish in the world. Unfortunately, four of these species are extinct, known only by their fossil remains. The two species of paddlefish still in existence are the American paddlefish (*Polyodon spathula*) and the Chinese paddlefish (*Psephurus glades*). Paddlefish are sometimes called a Spoonbill or Spoonbill Catfish; however, they are not a catfish.

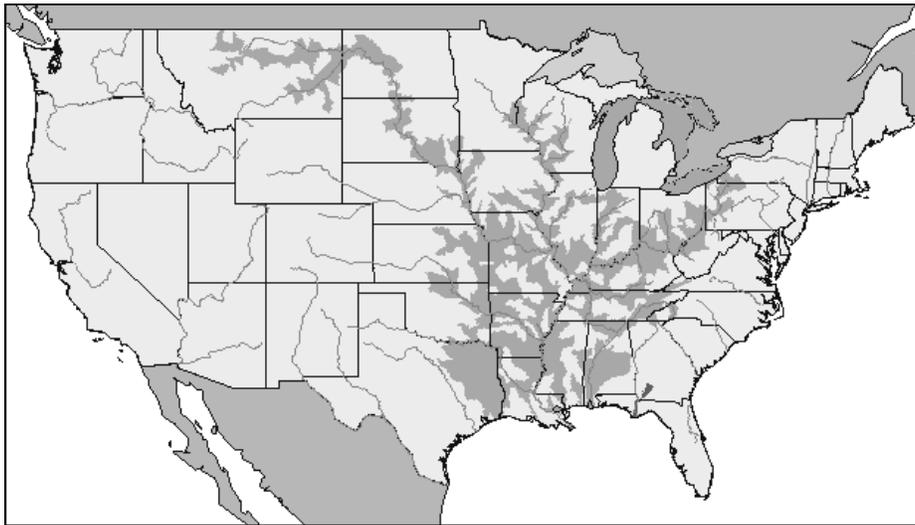


Figure 2. USGS range map for the American paddlefish (*Polyodon spathula*) Florida and Georgia have non-indigenous populations of paddlefish that were first recorded in 1997.

The American paddlefish have inhabited Caddo Lake and its tributaries, as well as other rivers and bayous of the Mississippi River Basin for over 350 million years, making them 50 million years older than the dinosaurs. This makes paddlefish the oldest living species on our continent. Paddlefish are now rarely found in any rivers in Texas and have been extirpated from many states such as New York, Pennsylvania, North Carolina, and Michigan. This decline prompted Texas to protect and list paddlefish as threatened species starting in 1977.

The American paddlefish can reach a length of up to 7 feet, weight up to 200 pounds, and live for 30 years. Despite its size and rather odd appearance, the paddlefish has no teeth and its diet consist of eating plankton by filter feeding, straining the plankton out of the water with its gill rakers.

The decline in paddlefish populations can be attributed to over harvesting for the species' desirable caviar and the habitat degradation from the construction of dams.

The caviar trade was impacted in 1979 with the Iranian Revolution limiting access to the caviar-rich sturgeon in the Caspian Sea. This limitation of access in the Caspian Sea put more harvesting pressure on caviar-rich and accessible species such as paddlefish.

The construction of the Lake O' The Pines Dam in 1959 provided significant benefits for flood control and clean drinking water for the communities within its watershed. However, this unfortunately had the unintended consequence of resulting in less natural flows for the

paddlefish making the species decline in Texas. These less natural flows make it difficult for paddlefish to reproduce, as they need pulses of fast water in order to lay their eggs.

Multiple groups came together to establish more natural flows regimes out of Lake O' The Pines to help this species succeed. Additionally, a new gravel bar was installed in Big Cypress Bayou for the paddlefish as a spawning area. Restoring adequate habitat for paddlefish could also have benefits for other aquatic species whose numbers have been reduced by construction of dams or other activities within the watershed.

For more information:

- <https://caddolakeinstitute.org/paddlefish/>
- https://tpwmagazine.com/archive/2014/jul/sco ut2_paddlefish/

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Texas BMP Pocket Guide

On August 2017, the Texas Forestry Best Management Practices Pocket Guide was released and available electronically through the Texas A&M Forest Service website. Just go to <https://tfsweb.tamu.edu/BMP>. Click on "Publications" and look under "Forestry BMP Pocket Guide."

The pocket guide acts is a condensed version of the *Texas Forestry Best Management Practices*, or bluebook, going over forestry operation "Do's" and "Don'ts" for reducing nonpoint source pollutants. Additionally, the pocket guide provides an array of BMP tools such as a stream classification section and a stream crossing flowchart.

Forestry BMP topics covered by the pocket guide include:

- Streams and SMZs
- Stream Crossings
- Stream Crossings Flow Chart
- Site Preparation
- Planning and Operation
- Roads and Skid Trails
- Stream Classification
- Wetlands



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